CLAY WORKING MACHINERY

Manufactured by

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO. U.S.A.

BUILT RIGHT RUN RIGHT

BUILT RIGHT RUN RIGHT

The American Clay Machinery Company

Much the Largest Manufacturers of
Clay-Working Machinery in the World

Catalog *No. 100*

Equippers of Complete Clay-Working Plants

DRY-PRESS, STIFF-MUD AND SOFT-MUD
BRICK MACHINERY

BRICK-SETTING MACHINERY

POTTERY AND CEMENT MACHINERY
SAND-LIME BRICK MACHINERY

WASTE-HEAT, STEAM, HOT-AIR, PIPE-RACK
AND OTHER DRYERS

KILNS AND CLAY-WORKING APPLIANCES

1918

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Much the Largest Manufacturers of Clay-Working Machinery in the World

Complete Line of Clay-Working Machinery Designed and Built for the Permanent Betterment of the Clay Trade and Its Products

Plants at Bucyrus, Ohio, and Willoughby, Ohio
Main Office, Bucyrus, Ohio

Sixty Years of Successful Experience

Quality in Equipment — A Large Factor in the Success of Your Plant

INTRODUCTORY

THIS new catalogue is the best of evidence that this company is the largest manufacturers of Clay-Working Machinery in the world. It is an equally forceful demonstrative bit of proof that we build every class of Clay-Working Machinery for the manufacture of all kinds of clay products by all processes.

Over half a century devoted to the manufacture and use of this class of machinery has given us a fund of knowledge and a world of experience which is of vital importance in the proper designing and building of Clay-Working Machinery. The extent of our business has made it possible for us to gather together an organization of the most able men of the country, in whose care is placed the problems pertaining to their various branches of the clay trade, so that every question arising is sure to have the best attention possible.

The descriptions and illustrations of machines in this catalogue are in accordance with our practice in building these machines at the time this catalogue was issued. We reserve the right to make such changes and alterations in building our machinery as may seem advisable.

To the clay worker this catalogue will be interesting and valuable. It has grown from year to year until it is at present a veritable encyclopedia of the clay trade. You are invited to examine it carefully and to pass judgment upon its contents. If we can be of service to you either in the matter of advice, engineering, machinery, or appliances you are invited to write us freely.

The American Clay Machinery Company

Bucyrus, Ohio, U. S. A.

Electrical Driven Clay-Working Machinery

WE are building a complete line of Electrical Driven Clay-Working Machinery. Whether you desire the entire plant so driven, or a single machine, we can supply your wants. The American Company took the initiative in the adaptation of electricity to Clay-Working Machinery, and some of the best and most successful plants of today use electricity for power purposes. Where the current is obtainable from power companies or traction lines it has been found most efficient, successful and economical.

Where electrical power is used, the machines can be set without any regard to line shafting or pulleys, which is a great convenience and advantage. The dispensing with line shafting saves the cost of shafting, hangers and belting, which are expensive to maintain. The buildings need not be so high, and it is possible to cut off instantly any machine and the power it requires, thus saving the cost of unused power. We have equipped large clay-working plants with machinery independently motor driven, and the plants are models, from both a machinery and a power standpoint. The attention of the trade is invited to our electrical-driven machines, a number of which are shown in the various departments of this catalogue. Correspondence on the subject is solicited.

Shipping Facilities

From a shipping standpoint our factories are advantageously located, being situated on the two greatest traffic arteries of the country, the Pennsylvania and New York Central systems. In addition to these main lines we have the Nickelplate, the Ohio Central, and the Columbus & Sandusky Short Line. There are also electric traction lines which make hourly connection with other steam lines. In express companies we have the Adams, American, National and Wells Fargo, besides the Electric Package Company operating over trolley lines. The Western Union and Postal Telegraph Companies, together with the Bell and Independent Telephone Companies, put us in instant touch with the remote corners of the world. Long distance call No. 399 at Bucyrus, Ohio, on either the Bell or Independent lines, will reach our own private switchboard in our general offices. When it is desired that shipments be given a special routing, we should be so advised, otherwise our Traffic Department will use its best judgment, keeping in mind the interests of the customer.

Our Traffic Department

The importance of giving especial attention to the handling, routing and rating of shipments, proper presentation and prosecution of claims, etc., is recognized by The American Clay Machinery Company, and the advantages to the customer are obvious in dealing with a firm where such matters are systematically handled by a special department.

Shipments in transit are carefully watched and if delayed are immediately traced and every effort made to locate and hasten delivery.

Claims for loss or damage should be made by the customer, as our responsibility ends when the shipment is delivered to the railway company. However, our organization is at the disposal of our customers, and upon request we will file claims for loss or damage and collect damage where possible. When damage is collected we will credit the account of the customer with the amount collected.

Information furnished as to most direct routing, proper rating, etc., and the resources of the department are instantly and constantly at the customer's service. This service is free to our customers.

Engineering Department

Working hand in hand with our Clay-Testing Department is our engineering force. Having determined the fitness of your clay for the manufacture of clay products, it is only necessary that your plant be properly located, built and equipped. It is by no means a trifling problem to "build a brick yard." Years ago, when a small yard with a few thousand capacity was the rule, it was a simple matter to set up the old horse-power machine and proceed to turn out brick. It's different nowadays, because neither the quantity nor the quality of brick produced by the old method would be considered satisfactory, especially when it was found that the cost of production per thousand closed the markets against the output.

Talking over the proposed plant

Today the clay-manufacturing business has advanced to such a stage that some of the most able men in the country are found in its ranks. Careful thought and management have entered into this business to such an extent that methods have been revolutionized. No industry has made such rapid strides in so short a time and no industry has a greater future.

Our Engineering Department includes the most advanced and able men in the trade. They are able to look over your conditions and plan an equipment which will make it possible for you to manufacture at the least possible cost. Methods of handling the raw material, the ware in process of manufacturing and the finished product are matters of greatest importance which make the permanent earning power of your plant.

Working out the details of proposed plants

Your plant must embody up-to-date principles and methods in order that you may not only be able to compete with the present plants but in order that you may be assured that the future will not, with its constant development, put you at a disadvantage in competition with other plants.

Our Engineering Department, taken in connection with our Clay-Testing Department, is virtually an insurance of your success in the business. We invite you to consult us whether you contemplate a new plant or the remodeling and enlarging of an old one. We solicit a consultation. If such a consultation fails to develop the fact that we can be of assistance to you the matter need go no farther.

Surveying the grounds and laying out buildings.

We have a greater number of successful plants in operation throughout the country than all other manufacturers and engineers combined. The reason is apparent when you consider that we are not exclusively engineers nor exclusively machine men. We combine the two in order to work out the plans with the sole object of developing successful plants. We build every class of clay-working machinery and have mastered various processes of manufacture from the clay-plant standpoint as well as from the machinery end of it. We are, in consequence, able to plan your plant without bias as we need advocate no special machinery because we have only that kind to sell.

We build all classes of machinery and install that which is best for the permanent success of the plant.

Our engineers will be pleased to take up all these points with you. Together we can work out a plan that will be a success and a money maker for you and a satisfactory advertisement for us. We want successful plants to our credit. It is to our interest to have them successful, and they cannot be successful unless the planning of the plant and the selection of the machinery is right. We are therefore always pleased to find a man or men who are desirous of manufacturing clay products on a business basis, because we know that the saving features we have to offer will appeal to such men. We shall be pleased to hear from you on the subject.

Erecting The Buildings.

Completing The model plant.

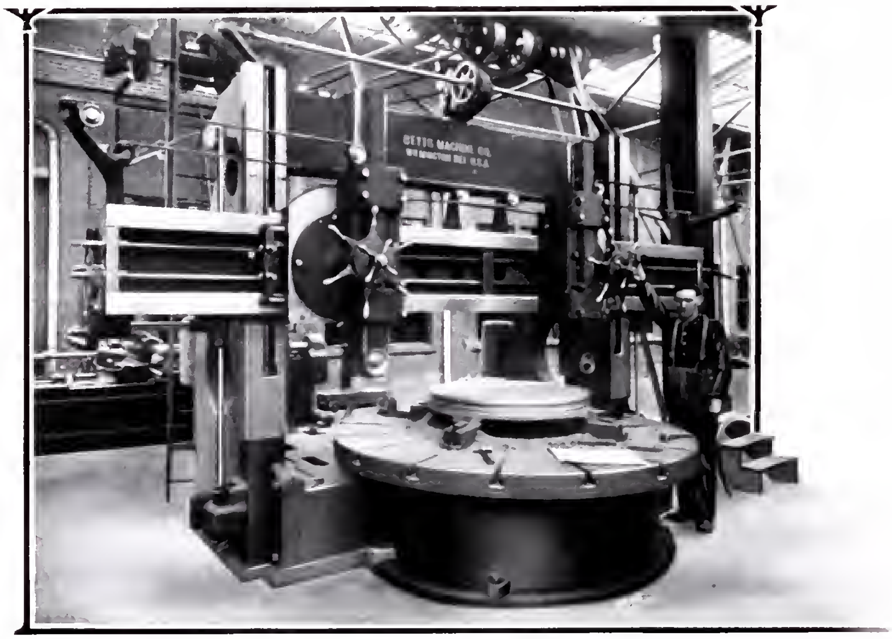
Every machine and appliance entering into the construction of your plant will be manufactured in our own factory. We build every machine and appliance required for the construction of any plant devoted to the manufacture of clay products, regardless of the size or capacity of plant desired. We are therefore able to guarantee the entire equipment to be of our superior "Built Right, Run Right" quality and can ship the entire outfit at one time, making a decided saving in freight.

The entire equipment in one shipment.

The "Just as Good" Quality in Machinery

It isn't fair to assume without thorough investigation that other machinery is "just as good" as the line built by The American Clay Machinery Company. It is unfair to us because we know that it is not true and it places us in a false light. It will be unfair to yourself for years to come, because the "just as good" quality will be more expensive in the long run than the standard of excellence which we have been developing more than half a century.

Nowhere in the world is there built a line of Clay-Working Machinery that will total up in value to the American line. We are not making this assertion just for the sake of putting forward a claim, but are positive that it is true. You owe it to yourself to look into the matter. It is justly due us that you investigate. It is manifestly unfair to compare weights of

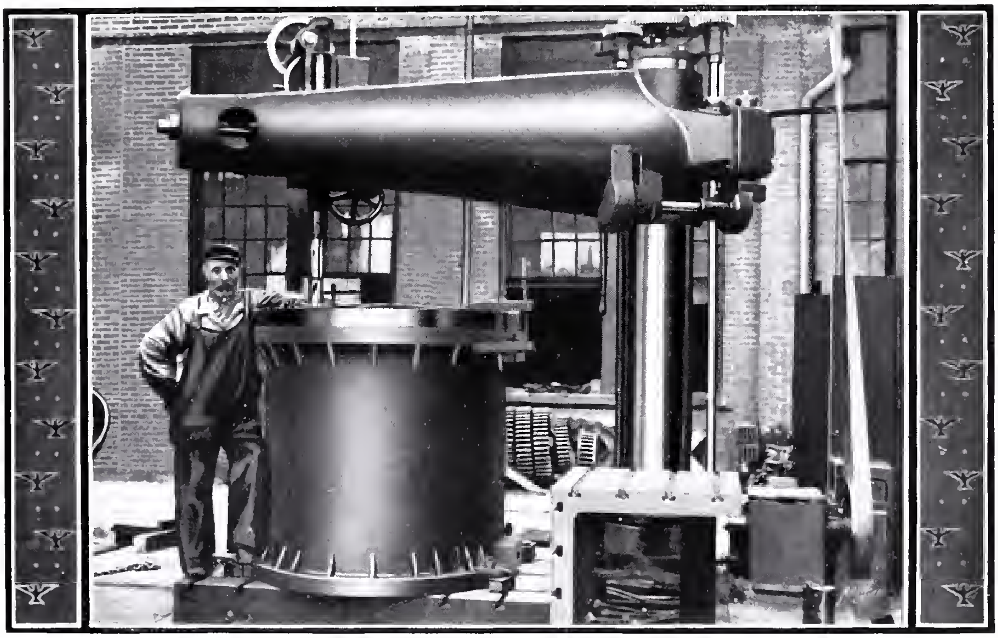


Machining Parts of the "Built Right, Run Right" Machinery

machines on a per pound basis. We put every pound of metal where it is needed, and as much of it as will contribute to the strength of the machine. Never a single pound is withheld through an effort to economize, and in every step of machine construction quality is a governing feature. Having thus built an honest machine, we feel that we are entitled to just consideration of the features in that machine which are most vital to its life and usefulness. To no one is an honestly constructed machine of such great importance as to the clay worker. It is his insurance against accidents and expensive delays. It is the foundation upon which his success must be built. It is the nest egg of his bank account. Being thus important to the clay worker, is it not our just due that clay workers should show their appreciation at least to the extent of a fair, unbiased and careful investigation of values and qualities of the American line? There is none as good — we know it — are positive of it, and ask the opportunity to show you.

There are many features in the American line of machinery which, though each in itself may seem small, combine to make an unapproachable excellence, striven for and claimed by others but never attained. The care with which we plane and fit joints is a small detail but it means much. Every piece must be blocked upon the planer and tooled at a cost of time and money, but the result is worth the cost. It may mean an increased cost of production but it also means a perfect joint, one that can be depended upon in time of need when the strain comes. The drilling of that one hole which has cost us a few dollars may be worth hundreds to you, and yet it is a small detail which might be overlooked.

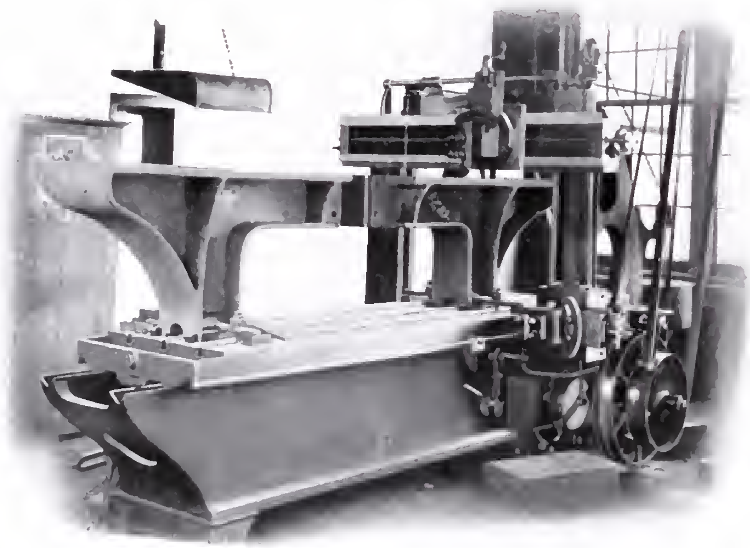
There is the gearing, which is in itself a study. The material must be gauged for the service. Often a cast gear will perform a better service than cut steel, and in other cases only a



Drilling Bolt Holes on American Machinery in Our Modern Shops

steel gear will do the work. Here the mechanical engineer must decide, and the question is settled always for the good of the clay worker, who may never know what an amount of thought has been put into an ordinary bit of gearing, but when the test comes the "just as good" fellows would have their machines in the scrap heap. The care given to the gearing of the American line and the record made show the wisdom of honest construction, and the machine safely emerges from the test.

All bearings may look alike from the outside, but in the day's run the difference will assert itself. American bearings are not made to pass muster from an outside glance only. They are made to take apart and examine. They bear inspection before you buy and need none afterward. All they ask is oil and that the nuts are kept snug. Each bearing is planed to an accurate fit. The best grade of babbitt is used and is scraped to a perfect bearing. All the little details are given to make a bearing that will be free from trouble. It costs more than the "just

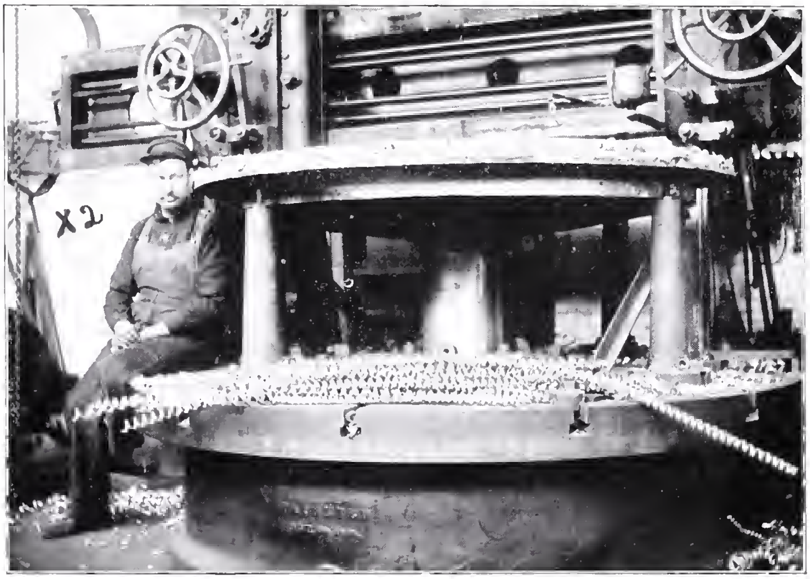


Planing Joints on a Dry Pan Cross-Frame

Machining Dry Pan Bottoms — Bringing Through 18 Pans at a Time as good" kind and worth more. Why not grant us the justice of considering it? Then there are the thrust bearings, chilled discs with bronze wearing plate running in oil. There are the caps to the bearings, secured by large bolts, each fitted with lock nuts. There are the oil chambers with anti-rattle, dust-proof covers which are proof against being shaken off or dropped into the gearing. Not vital points in themselves, but vital as a whole, to the successful machine.

There are the steel "I" beams, the self-contained gear frames, the steel tie-rods. All the features of a rigid and dependable machine.

Then there are the shafts. A most vital point, though often overlooked. Many a clay is of such a nature that an ordinary shaft would be twisted and ruined within a short time. We provide for this emergency. We furnish shafts in every case to meet the needs and more. We



Tooling Parts for American Machinery

figure on a safety factor. We have introduced hammered steel shafts. Not only that, but we have gone farther. To be absolutely sure of the quality, these shafts are forged in our own Blacksmithing Department with heavy and powerful steam hammers. We are not satisfied to depend upon what some other forging shop may do. We prefer to be sure of the quality of our forgings and we make doubly sure by having the forgings done under our own roof, under the eye of our own foreman, so that when we put a shaft into a machine we know that it is right and we are able to tell you so forcefully.

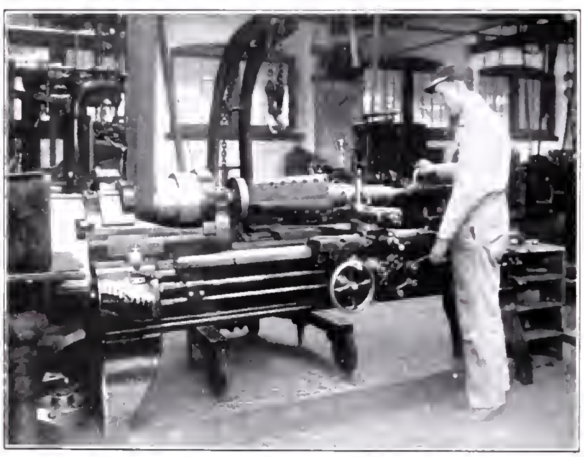
And there are the wearing parts; those parts which come in constant contact with the clay being worked. Ordinarily it might be thought that any good iron would answer for this purpose, but that is far from the truth. In a majority of clays the constant wear of the moving clay would soon put the ordinary machine to the bad. We provide for this by making all wearing parts of a special mixture of iron, making them hard and durable but not brittle. In our auger machines this special mixture goes into the augers and also into the renewable liners of the machine, which is a special feature of our machines.

Grinding Parts for Repress Mold Box

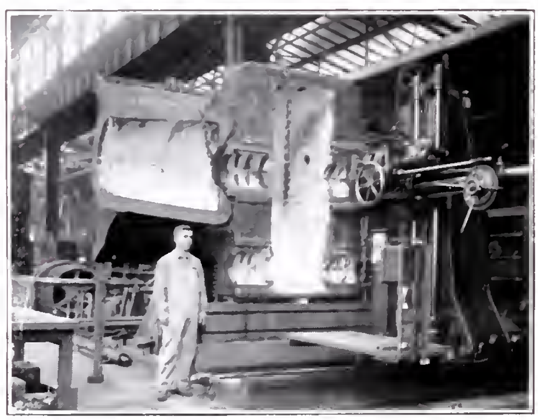
In our pans this mixture is used in the muller plates, muller tires, screen plates and scraper plates. In our dry presses and represses the mold boxes must be wear-resisting, and there we use a special metal for lining. And so it goes throughout our line. Don't you think these details should be considered by the buyer who wants quality, who buys for production and not for trouble?

Next there is the friction-clutch pulley with which each machine is equipped. It places the machine under the immediate and instant control of the operator, and the operating lever is conveniently arranged according to the designs of the plant.

The range in size, capacity and style of the American line is another safety factor possessed by no other builders of Clay-Working Machinery. By building a complete line we are able to place in your plant that class and kind of machinery which will most profitably meet your



Making Special Tools



Tooling Auger Machine—Base Casting

needs. We need not try to make a stiff-mud machine do the work when you really need a soft-mud outfit or a dry-press plant. There is no clay for which we do not have the proper machinery for its successful handling. This may require a special front or other attachment on a certain machine or it may require an entirely different machine. In either case we are able to supply what is necessary without danger of future disappointments to the buyer. We have been in the business for over fifty years and have handled clays from all over the world. This study has made us masters of the clay conditions and we have the special machines and appliances to successfully handle any clay.

For years we have been the largest manufacturers of Clay-Working Machinery in the world. That means detailed excellence. It means an organization of the best people obtainable

Forged Steel Shaft Being Machined

in their respective lines. It means a correctly designed machine, a combination of brains, material and workmanship. It means a total of a perfect machine so far as perfection is attainable.

In a word, from the ground up our machines are all that flawless material, superior design and faultless workmanship in a modern factory can produce. They are not a "little better" but "a great deal better" than other machines which may, at a first glance, look "just as good," but when the smoke of battle has cleared away, when the days, weeks and years of usefulness have passed you will find the American machinery still in the race and doing more than its duty, because the quality back of it is a sustaining factor. Close comparison of the American machinery will show superiority. Careful use of the American machinery will give daily proof of the superiority. If our efforts toward better machinery meet with your approval we should like to have you show your appreciation at least to the extent of an investigation. We rely upon what that investigation will develop. We extend to you a cordial invitation to visit our factories at Bucyrus and Willoughby, Ohio. A close, personal inspection of our machinery under construction and a thorough investigation of our methods of building Clay-Working Machinery will, we are confident, convince you as to the quality of our machinery and our facilities for filling your orders.

Come any time, and we'll be glad to show you our entire plant and explain our methods.

Gearing and Its Importance

The subject of gearing is so broad that it would require too much space to cover all the different styles that are in use or can be made. Three styles are commonly used on brick machinery, viz: Spur gears, miter gears and bevel gears. The difference is as follows: A spur gear is one where the teeth are set parallel with the shaft on which the gears are mounted. A pair of miter gears is a pair of gears of equal diameter mounted on shafts at right angles. With bevel gears the shafts are at right angle, but the gears are of different diameter. With all gears the smaller of the two is called the "Pinion," while the larger is the "Gear." Consequently we say

Gearing of American Quality

"Spur Pinion" and "Spur Gear," or "Bevel Gear" and "Bevel Pinion," while "Miter Gear" covers either driving or driven miter gears. The gearing on brick machinery is the most vital part of its construction, and in consequence the gearing on the "Built Right, Run Right" line of Clay-Working Machinery is most carefully designed. There are many rules for the "laying off" of the teeth of gears. The strength, life and quiet running depends largely upon which rule is applied. Over fifty years of experience in building Clay-Working Machinery has made it possible for us to select the very best design of gearing for the purpose. The distance from center to center of the different shafts is regulated by the number and size of the teeth in the pair of gears to give the proper strength and speed. From this the pitch diameters are determined. For illustration, suppose the proportion of speed is four to one. The distance from center to center of shafts, spur gears, is fifteen inches, the pitch diameter of the gear would be twenty-four inches and the pinion six inches. For the bevel gears the center line of shaft should be a right angle, using the same size gears as foregoing. On either side of the center of the pinion shaft draw a line parallel with this shaft and one-half the diameter of the pinion (three inches) until it intersects the center of the bevel-gear shaft. On this line point off one-half the diameter of the bevel gear (twelve inches). This would be the pitch diameter of the bevel gear. At right angle with this pitch line draw a line equal to the diameter of the pinion, this will be the pitch diameter of the bevel pinion, from the intersection of these pitch lines and the intersection of the center lines of the shafts, draw a line intersecting these two points and you have the pitch diameter of every point of contact of the width of the teeth of a bevel gear. This same rule will apply to miter gears. Circles in diameter equal to the diameter of the pitch diameter should be divided by the number of teeth in the gear or pinion.

Each one of these divisions is the pitch of the teeth of the gear, which equals the thickness of the teeth and the space for the teeth of the companion gear. These teeth pitches are called diametrical or circular pitches. The thickness of tooth should be as great as possible, and the shape of tooth and space and amount of clearance in the space to permit the teeth to clear properly and every point of contact of the teeth should roll at every point of contact on entering and clearing these respective spaces while moving together. These are very important points in the proper construction of smooth-running gears, but the description of how this should be done is not within the province of this article. Suffice it to say that on the American line of machinery the curved out-lines of the teeth are all drawn so that every radial diameter of each point of the teeth of one wheel must register with similar points of the companion wheel, to make the teeth roll instead of slide upon each other. The latter would cause the teeth to cut or wear. From this it will be seen that it is all-important to keep the shafts parallel with each other and the proper distance apart and free from looseness in the bearings; to keep the pitch diameters and points of contact in register at all times. When the shafts get out of parallel the teeth of spur gears do not bear the full width of the teeth, and when the bearings wear or bolts become loose, the shafts spread, changing the wearing pitch diameter and points of contact of the teeth, which permits the teeth to slide on one another under heavy pressure, causing them to wear rapidly, to "rattle" and "pound."

With bevel and miter gears it is all-important to keep the two shafts at right angle and in line with each other, and the distance from the centers of both shafts to the pitch line at the proper distance. Otherwise you throw every point of contact of the teeth out of register with one another, resulting in rapid and excessive wear of the teeth, undue strain on the bearing, and causing excessive friction and loss of power, and high repair bills. From this it will be seen that our gearing is designed with the greatest of care. The more than half century of experience we have had in the building of Clay-Working Machinery makes it possible for us to increase the efficiency of our gearing. We have done everything possible to insure a high quality, and ask the co-operation of the trade in doing its share toward satisfactory service by giving the gearing that attention to which it is entitled. Bearings and bolts thoughtlessly overlooked and neglected cause much gear trouble, which should not justly be laid upon the manufacturer of machinery. A little neglect, for which your own employes are responsible, may cause a great deal of trouble later. By watching the little things about your machinery and giving it the attention to which any machinery is entitled, you will get more efficiency from your machinery and do justice to the manufacturer.

The cast gears used on all our machines are made from a mixture of iron and steel. The iron is purchased on analysis to our specifications and the steel is crop ends from our Forge Shop. The proportion is such as to insure a close-grained metal of high tensile strength and long-wearing qualities without the tendencies to warp after pouring in sand were all steel used.

What Is Your Clay Good For?

Your profits in the clay business depend largely upon the deposits in your clay bank. Our practice has been to examine into the quality and character of your clay and then determine its fitness for the profitable manufacture of those articles for which your clay is adapted.

If your clay is valueless for one class of clay products it will be a loss of money to try and produce that class of ware. On the other hand, your clay may be unsurpassed for the production of some other class of clay products or may be perfectly satisfactory for making excellent ware by some other process.

It is well to know in advance what you can do, and it is to determine this that we have erected and equipped a special Clay-Testing Department. Here we will put samples of your clay

Clay-Testing Department

through the various steps necessary to thoroughly diagnose the case, and will be pleased to have you or your representative present to superintendent the testing, or we will make a full report with samples of finished articles if you are unable to be present.

The samples we submit will show you just what you can produce with the same material. If you contemplate going into the clay business this information will be invaluable to you, as your success or failure will depend upon it. If you are already in the business it will assist you in determining whether your present output is up to the highest possible standard, or whether you cannot, with greater profit, produce some other class of clay products, or change the process by which your present product is manufactured.

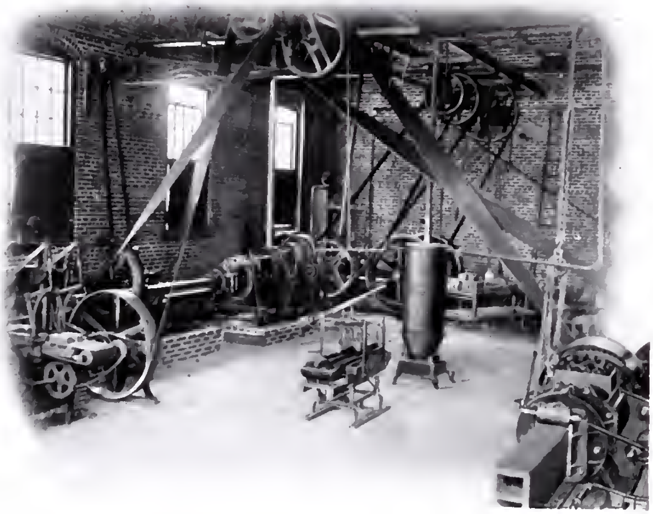
Our clay-testing building is constructed of burned clay products with steel and fire-proof roof construction. It has its own power plant, is high and airy, with plenty of light and ventilation. Along one side are installed, as a part of the building, five burning kilns and a dry kiln. These are constructed in the same careful manner as though they were a part of the largest brick-making plant in the country. There is abundant room for the storing of clay to be tested, and every provision for the accurate testing, recording and reporting of the results attained from every sample of clay received.

While, speaking in a technical way, this department might be called a laboratory, it is much more. Here you find in operation a complete and modern clay plant, not dealing exclusively with small samples, but handling tons, and sometimes carloads, of clay, and working it through each step or process, rather than analyzing and deducting, as is usually the case in laboratory tests. Every lot of clay received is unloaded directly into the clay-testing building. It is carefully inspected, tagged and recorded, so that there may be no danger of confusing it with other samples. Each lot is handled separately, so that every customer can be assured of receiving back the finished samples made from his own clay.

While it is our aim to make what the customer desires from his clay, and while we are generally able to do so by reason of the various types of machinery installed in our testing

The Dry Kiln in Clay-Testing Department

room, we do not recommend the clay for the use intended unless the tests made in our Clay-Testing Department show that the clay is suited for that particular class of clay products. Our aim is to give each customer as near an unbiased report on the possibilities of his clay as though our testing department were operated by a separate company in an adjoining state. We have found that, while a customer may be disappointed if his clay is reported unfit for his purpose, his sense of justice will show him that we have labored for his best permanent interest in advising him against the expenditure of large sums of money to launch into a business, the very foundation of which is insecure by reason of poor material. It is this policy of insurance in advance on the possibilities of the clay tested, with the proper machinery installed, which has given The American Clay Machinery Company such a large number of successful plants to its credit. Our Clay-Testing Department is in the hands of men who have made the manufacture of clay products a life's business, not theoretically but practically. It is therefore safe to say that the clay intrusted to the American Company for testing will receive the very best and most careful attention that could possibly be given it; the men and machinery are the best obtainable, the methods are the most modern, and when you receive the finished samples you will know, without question, that you have a proposition which will produce exactly what the



General Interior View of Clay-Testing Department

Burning Kilns and Dry Kiln

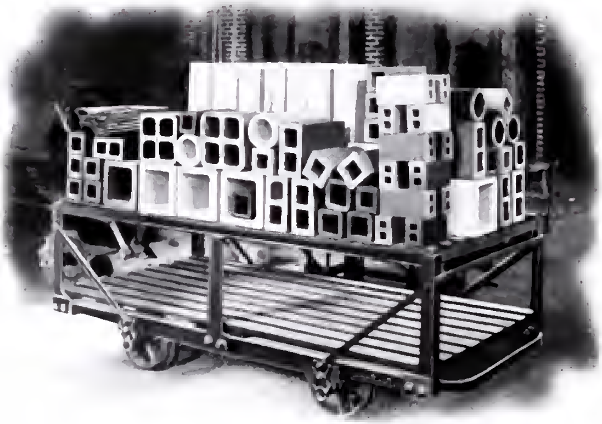
samples indicate, and that in considering whether to go into the business you will be safe in letting those samples decide for you. Clay sent us for testing should be **carefully addressed and labeled with your own name and address as well as ours.** We will furnish specially recorded tags for this purpose upon request.

When we are making every effort to keep clays separate and prevent confusion you should do your share toward delivering the clay to us in such condition that we can readily determine from whom it has been received. Once the clay has reached us, properly tagged, we insure its going through without the least possibility of losing its identity. While we can test the smallest samples sent, it is much better to send eight or ten barrels of each kind of clay in order that we can make tests by the various processes and have plenty of material upon which to work. In securing a most reliable and satisfactory test, it is important that plenty of clay be sent. When several samples of different kinds of clay are sent there should be at least two thousand pounds of each kind and the packages so marked and registered that we can readily separate

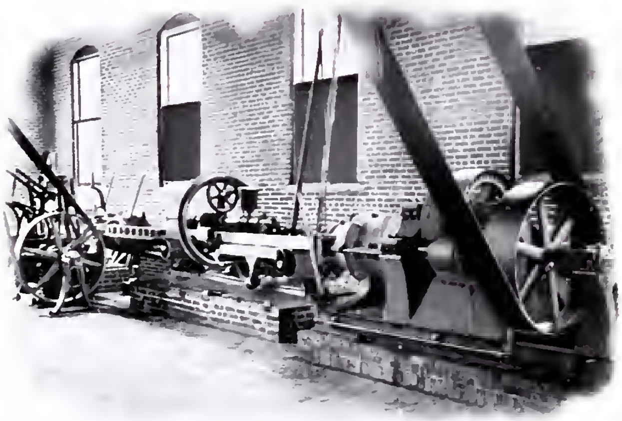
Clay Received to Be Tested in Clay-Testing Department

the various kinds. The shipper should also keep a record for reference. Samples of clay can be shipped in boxes, barrels, or sacks, though boxes and barrels are best because sacks containing wet clay are likely to rot if delayed in transit, or may become torn open and lost. The railway companies are not careful in handling shipments of clay because they look upon clay as of little value; it is, therefore, advisable to follow each shipment with a tracer.

It frequently happens that clay which is unfit for use on one class of machinery makes an excellent product on another class. A stiff-mud machine may make a complete failure of a certain clay where a soft-mud machine will make a product of unsurpassed quality. As our testing department is equipped with the necessary machinery and appliances to make tests of clays by every process, we would recommend that plenty of clay be sent. Full instructions should be given as to the extent of the tests. If, having a plant already installed, you want the clay tested by any certain process, you should so advise in order that we can confine ourselves to that test only, or if you want the clay tested for the manufacture of any class of clay product by any process, we should also be advised, in order that we may make the test exhaustive. There are few clays, indeed, which, under the handling of our testing department, will not be found suitable by some process. Once the test has been made, and satisfactory samples sent, you may feel secure in installing a plant of the machinery recommended, provided you use clay like that from which your samples have been made.

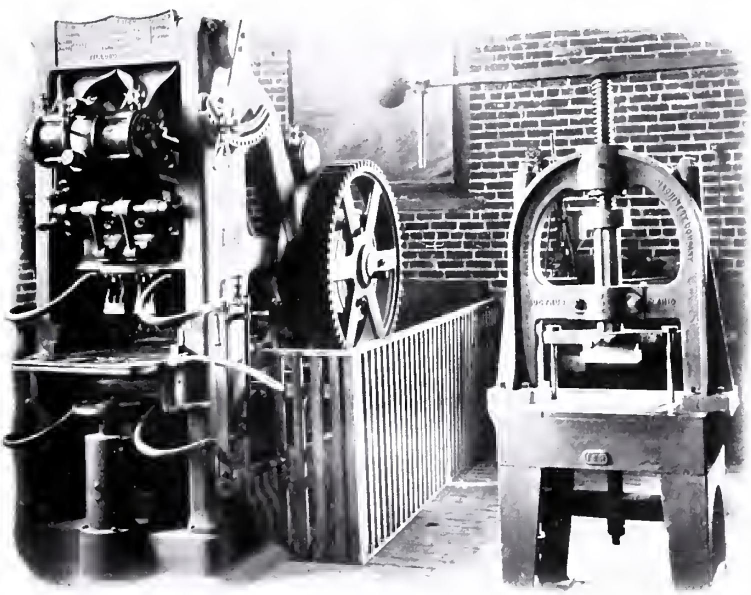


Car Loaded with the Result of a Test



Auger Machine, Automatic Cutter and Repress

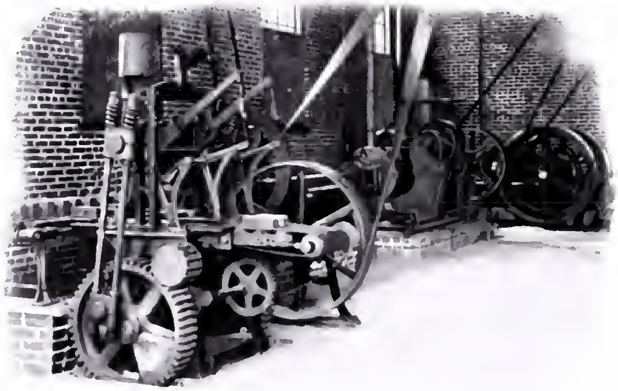
About our big plant there is no department which is of such interest to the practical clay worker as our testing department. Many persons have followed their clay to Bucyrus in order to be present when the tests were made. Such a visit is strongly urged by this company. The clay worker who visits our Clay-Testing Department and watches the handling of his clay is better satisfied with the result. He will be able to note the care and attention given to his material and incidentally he will catch the spirit of exactness, care and enthusiasm with which the "Built Right, Run Right" line of Clay-Working Machinery is built. He will go home satisfied that not only has his sample been properly handled, but that he is safe in placing his faith in machinery built in our modern shops. Next to the importance of having good clay



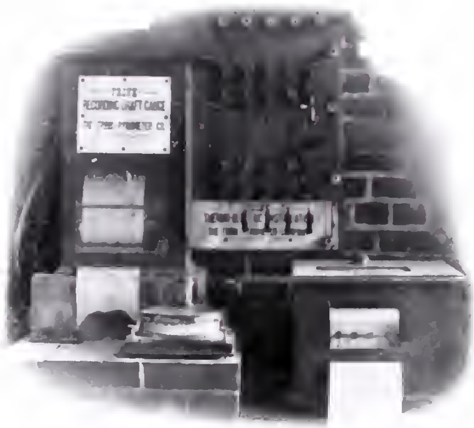
Power and Hand Presses in Clay-Testing Department

with which to work is the importance of having good machinery with which to work it. These two are the keystone of success in the clay industry and they are what we are willing to supply. Clay workers are always welcome in our factories.

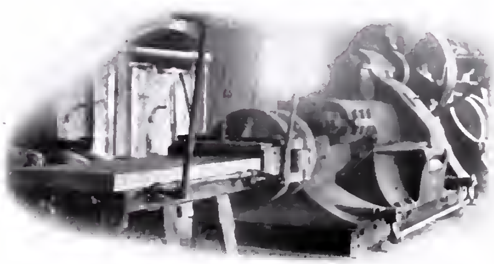
In the equipment of our Clay-Testing Department we have installed all the necessary machinery for the thorough testing of any clay by any process. The dry-press machinery, stiff-mud machinery and soft-mud machinery are all at hand ready for use. We present herewith a number of views taken in our testing department. They will give a partial idea of its completeness.



Repress, Clay-Testing Department



Pyrometers Recording Kiln Heat



Making Large Clay Slab, in Clay-Testing Department

Care Required

The accompanying photograph will assist in emphasizing the necessity of care in shipping us clay to be tested. The tag shown was the best of several which were placed on a shipment of a number of packages received. Had it not been for the bill of lading these packages would never have reached our testing department. In shipping clay to be tested it is well to remember these points:

Address plainly to The American Clay Machinery Company, Bucyrus, Ohio.

Be sure to put your own name and address on the packages, as well as ours, so that we may be sure to know to whom the clay belongs.

Put plenty of tags on each package.

Prepay freight to Bucyrus.

Mark each package plainly as to the different kinds of clay, if more than one kind.

Use linen tags where possible.

Have the railroad agent at point of shipment insert on the bill of lading issued for the shipment, a complete routing to Bucyrus, Ohio. Mail us this bill of lading made out in this way and it will enable us to assist you in hastening delivery.

If care is exercised in these details there will be no delay or trouble with clay shipments. Don't forget the points.

If you will notify us in advance we will be pleased to send you recorded tags to be used in shipping clay.

The Importance of Repairs

An important point in the successful operation of a plant without delays is the matter of possible repairs. There is no machinery built which does not require renewal of parts at times. We provide for emergencies of this kind by careful construction of machinery with interchangeable parts, careful recording of all data about each machine and its parts, and the careful storage of patterns for every machine of our make. It is of the utmost importance to the purchaser of machinery to be able to replace parts when wanted. It is also important that such repair parts are suitable for the machine for which they have been ordered.

The expense of repairs does not rest in the cost of the repair part alone. The time usually required to receive and fit the part is by far more expensive than the part itself. The shutting down of the plant and the loss of its output is a matter of far greater importance than a dollar or two saved on repairs. The American Clay Machinery Company has a shop system and practice which eliminates much of the delay. All parts of machines are made to templates. The workmen are not allowed to go by measurements, but must be governed entirely by templates which are made to standards. In consequence of this care all repair parts must fit accurately without the necessity of filing and fitting. No long trips to the machine shop are necessary and no long delays are required for fitting. This means a big saving in the time your plant is out of commission and is an important factor in its earning capacity.

It will be seen that to avoid frequent mistakes and disappointments to customers it becomes imperative that a most comprehensive system for handling repair parts be maintained. We have labored zealously toward this end and are able to give the very best possible attention to renewals and repairs. In order that all patterns of our machinery may be safe from fire, and thereby insure the customer in obtaining renewals, we have erected a mammoth pattern storage building of most modern fire-proof construction throughout. It is four floors high, built of brick, without a window opening in the whole structure. It is heated by steam and lighted by electricity. The building is isolated from our main factory, and, in addition to other fire-proof precautions, is equipped with steel fire-proof doors, so that there is practically no danger from fire.

A Few Suggestions About Ordering Repairs

1. Order by **number** when possible.

2. State whether you want orders shipped by **express or freight.**

3. Don't wire a long message trying to give a description when the piece wanted is numbered. Five minutes spent in looking up numbers of the parts wanted will save hours and perhaps days of time. You are not likely to use the same terms for parts wanted that we use; therefore familiarize yourself with the repair list and use numbers where there are any. **Don't** fail to state **what machine** you want repairs for when you **cannot order by number.**

4. When you order **Die Liners** give the **size wanted** in every case. We do not know what die you are using, when you have several dies of different sizes. State whether cast-iron or sheet-steel liners are wanted.

5. Don't blame us for delays when we cannot make out your order.

6. **Don't censure us for delays on shipments by freight. We cannot control a shipment after it is delivered to the railroad company; we can only urge them to trace and show delivery, which we are at all times willing to do.**

7. When in a hurry remember that small packages or pieces will go **nearly** as cheap by express as by freight, as the railroads charge for one hundred pounds by freight, no matter if the package weighs only one pound. We have endless trouble with the loss of small packages by freight.

Superiority of Clay Products

There are few manufactured articles in this world where the quality can so safely be relied upon, and for which so much can be promised as well-made clay products.

Clay Products Are Fire-Proof

The fire-resisting qualities of brick and hollow tile are not equaled in any other material, either made or natural. The excellence, long life and faithfulness of sewer pipe and drain tile are unequaled. In the improvement of streets and roads there is no rival to excellence to No. 1 paving block. Under the intense heat of blast furnaces fire-clay products stand out without a rival, while in pottery the world has never found anything to take its place or equal it in faithfulness.

Wonderful Clay Products

Clay products are little less than wonderful in their simplicity of manufacture, their humbleness of origin and their stability, faithfulness and unrivaled standing in their various fields of usefulness.

So excellent are the qualities of well-made clay products that the manufacturer too often relies upon their superiority to sell them, thus leaving material of much less merit, but better advertised and harder pushed to make a sale.

To Help Sell Your Output

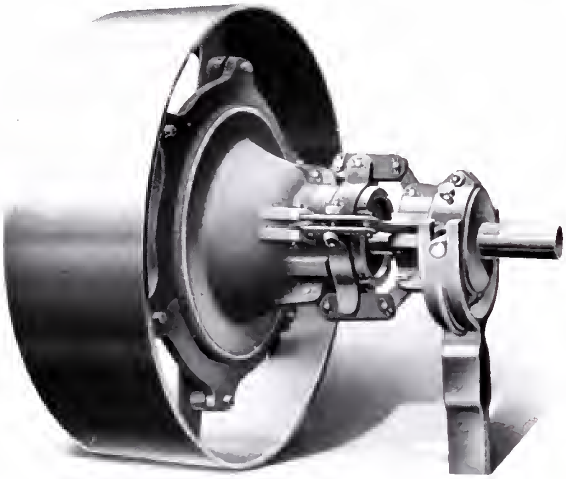
Appreciating this fact The American Clay Machinery Company devotes more than half the space in its house organ, The American Clay Magazine, to articles which, if used by the clay worker, will materially assist in selling clay products. Clay workers everywhere are invited to use any material published in The American Clay Magazine. This magazine is highly spoken of by all clay workers who are using it and it is sent free to those who ask for it.

Make Them Good

Good clay products are never a discredit to the trade, while poorly made or inferior clay products are a decided detriment. In order to eliminate poor quality as much as possible we have embodied in our machinery and equipment those features which will produce the highest per cent of No. 1 product, feeling sure that the clay trade will appreciate that it is better to sell a meritorious product, especially when the cost of manufacture is no higher, than an inferior quality.

Looking for Trouble

If you have trouble in producing a product which is all that you desire, there may be a cause which our Engineering Department can discover and remedy. Such remedies are not necessarily expensive, and to ascertain where the trouble lies is quite frequently of no expense whatever. Our engineers are at your service, as are also the other departments of our organization.



Bucyrus Disc Type Friction-Clutch

After years of experience in building friction-clutches for use in connection with clay-working machinery, we have developed the Bucyrus Disc Type Friction-Clutch, which is now used on our standard line of machinery.

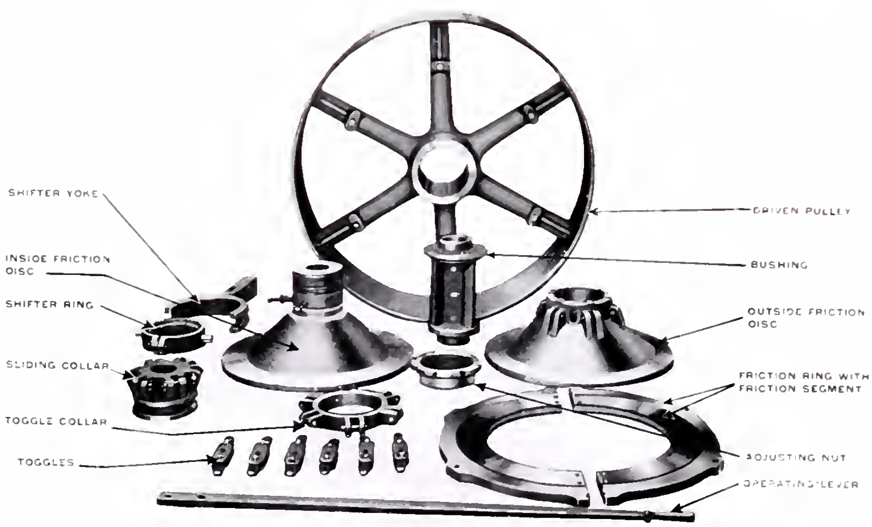
This clutch is simple in construction, and any ordinary mechanic will understand the mechanism of the clutch at a glance. The general design of the clutch permits of high speed with safety, as no part is affected by centrifugal action.

The adjustment for wear is made entirely by means of one adjusting nut, which gives uniform pressure on all parts of the friction surfaces.

The positive action of the double-toggle movement in both directions engages and disengages the clutch without the use of springs and makes it possible to operate the clutch by means of an ordinary hand lever.

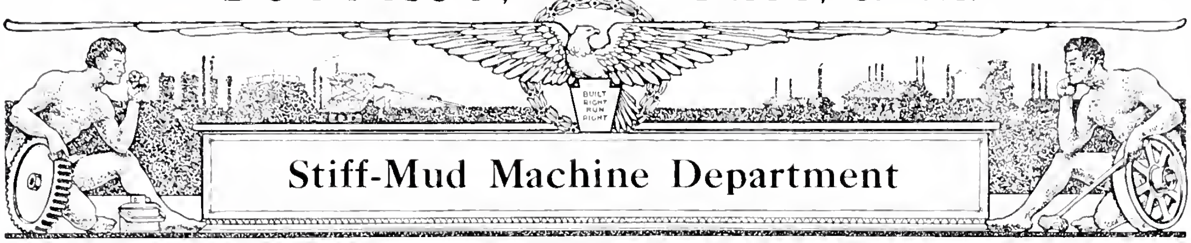
The friction surfaces are absolutely dust-proof, the friction plate is lined on both sides with fiber segments, and may be removed for relining without disturbing other parts of the clutch. The various parts of the clutch are machined and finished to templates and are interchangeable.

Each clutch is thoroughly inspected in our factory before being shipped.



THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.



American Auger Machines

In presenting our superior line of Auger Machines, it is with confidence and pleasure that we invite the most careful investigation both of the building and the operation of the machines. Our factories are always open to prospective customers and a visit to our plants would convince any clay worker that we have endeavored in every way to assure the highest quality in the building of the machine in order to assure the highest degree of satisfaction in its operation.

Built along advanced lines and of the best of material, we are able to deliver a quality beyond question and to furnish the clay worker immunity from many of the ordinary troubles which have heretofore caused annoyance, delays and expense.

Our line of auger machinery and appliances is complete. There is nothing required for this class of manufacture which we are not prepared to furnish, and we especially invite correspondence, whether we can serve you through our sales department or merely by advice. If we are able to help you in an advisory capacity we will be pleased to do so.

No order is too small to merit our best attention and we solicit your patronage as well as your co-operation.

We have developed a standard line of Auger Machines to a point where they are showing decidedly higher efficiency than has ever been attained on Auger Machines. In your interest we desire to call your attention to numerous improvements which increase the life and capacity of the American Line of Auger Machines for the manufacture of brick, tile and paving block.

Among other details of excellence are the following:

Improvements in the expressing auger.
Stronger machines with provision for confining the wear to inexpensive, interchangeable parts.
One-piece gear frame, which includes oil reservoir in lower concave. Gear running in oil.
Heavier shafting and gearing. A substantial end-thrust bearing and ring-oiling shaft bearings.
A new method of making the augers more durable. A feeder in the hopper of machine.
An improved friction-clutch pulley.

These improvements result in:

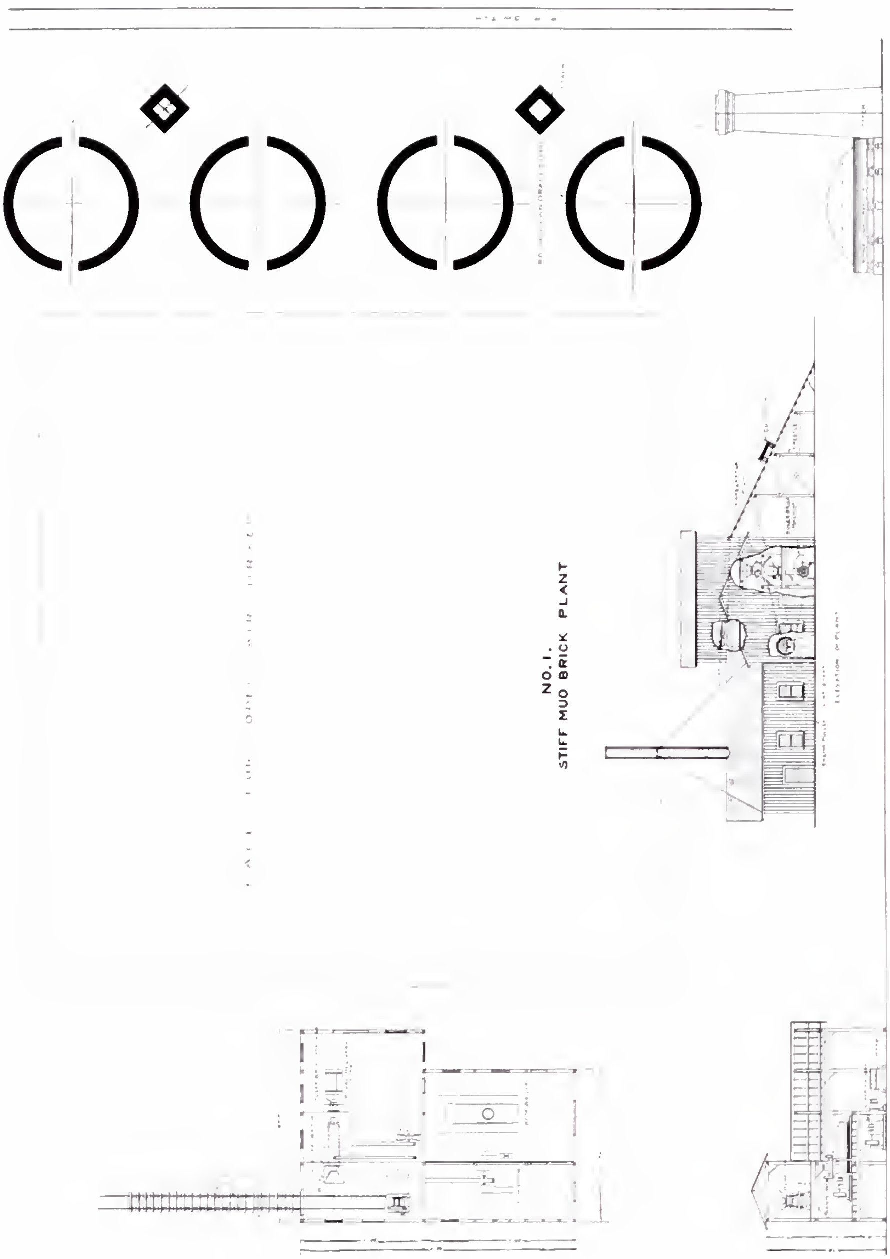
Reducing the power consumed. Reducing expense.
Reducing wear and tear. Increasing capacity.

Provision for supplying an expressing auger of the proper size for the ware to be made and lining the barrel of the machine are involved in our new patterns.

Much depends on having the proper diameter of expressing auger for the ware to be made and the material to be used, therefore provision has been made for using three sizes of augers for each machine.

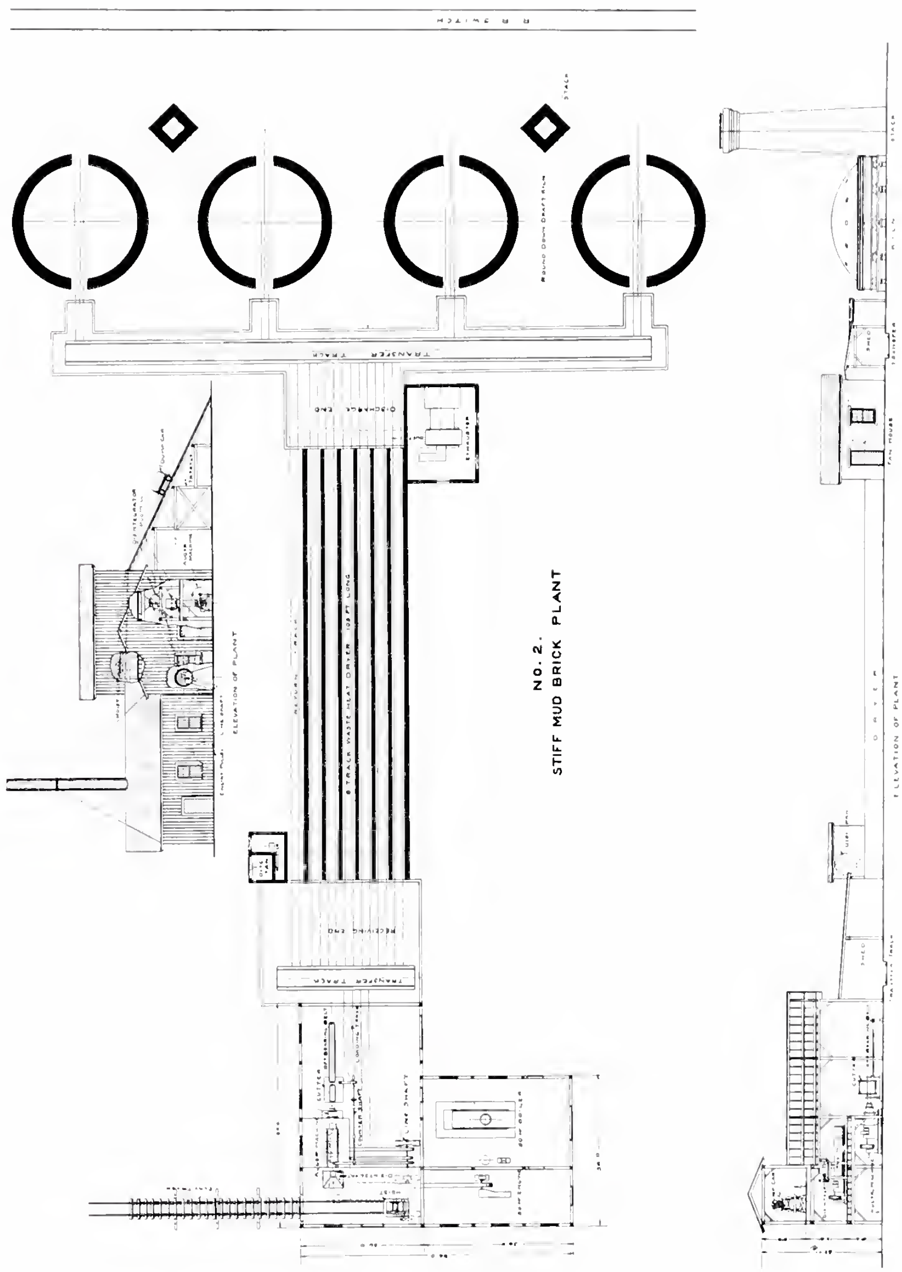
In selecting the proper size machine the area of the cross-section of the ware, the desired capacity and the kind of material is taken into consideration.

We are always pleased to advise on this subject. Our Engineering Department is at your service and a specification sheet on any of our Auger Machines will be sent on request.



Model Stiff-Mud Brick Plant

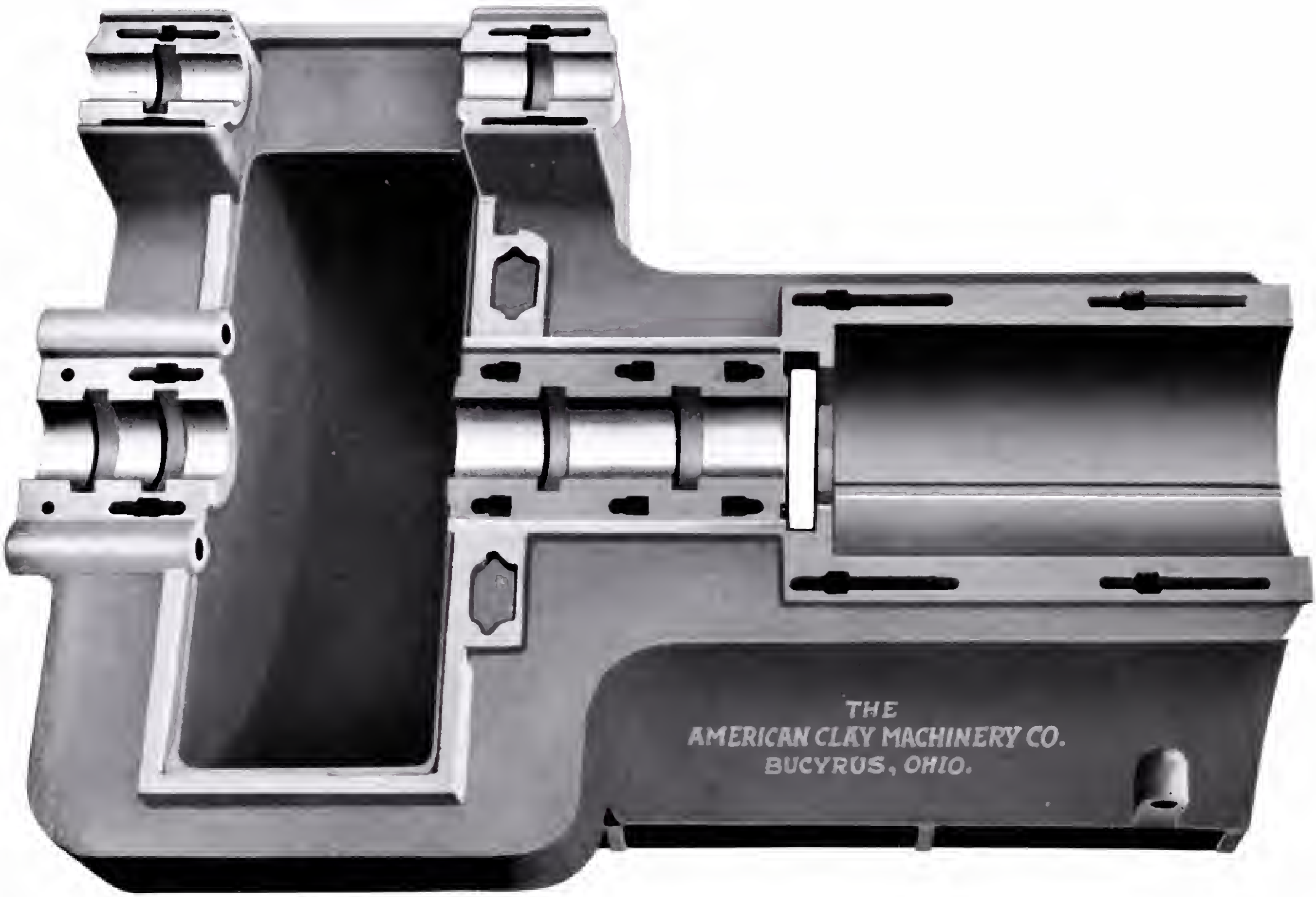
Plans of Model Stiff-Mud Brick Plant No. 1, Which Will Be Sent on Application



Model Stiff-Mud Brick Plant

Plans of Model Stiff-Mud Brick Plant No. 2, Which Will Be Sent on Application

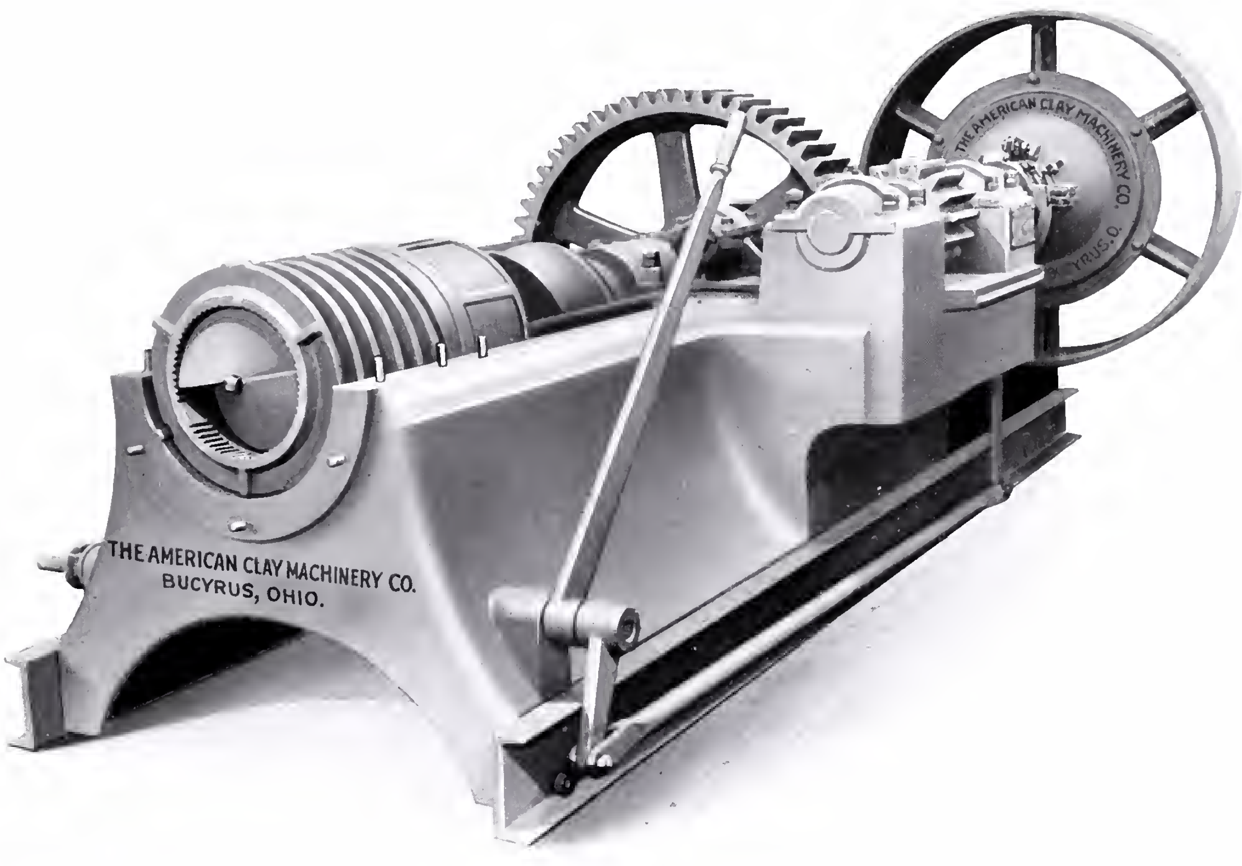
Massive One-Piece Gear Frame and Oil Reservoir



One of the big features of our American Auger Machines is the massive one-piece gear frame. This massive frame includes the whole base casting, and the shaft bearings are a part of this base, insuring perfect alignment. This base casting is made hollow, and in this base cavity we have arranged an oil reservoir, so that the gearing runs in oil, insuring perfect lubrication and saving both in constant attention to oiling and the danger of neglect.

These features mean much in the life of your machine and in the simplicity of its operation. They are like many other features of the American line — of greatest economic value.

Internal Mechanism No. 233 Auger Machine



The accompanying cut shows the internal construction of the No. 233 Auger Machine. The knives and liners and their relation to the barrel of the machine are plainly shown. In the whole of the detail of construction there is not an auger machine on the market that will compare with this latest improved American line.

Detailed Excellence

The accompanying views made from the No. 233 Machine illustrate some of the good features of the American Line of Auger Machines.

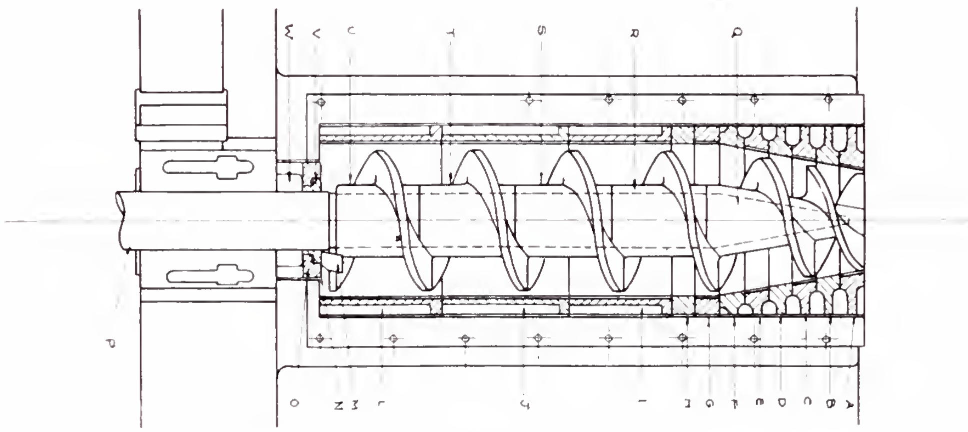


Figure 1

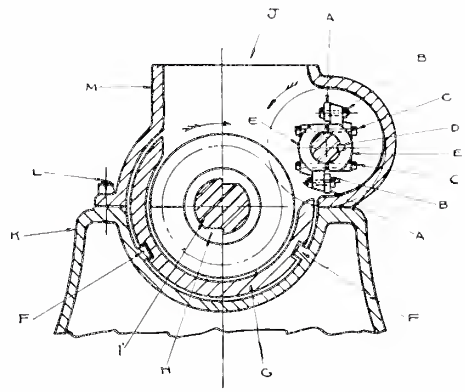
Parts Detailed in Figure 1

Augers and Liners

Figure 1 shows continuous augers and system of lining the cylinder. Q, R, S, T, U are the augers. A, B, C, D, E, F, G, H, I, J, L are the liners. When auger Q becomes worn to the extent that clay will escape between it and the liners, liners E and F may be removed, A, B, C, D moved back and smaller liners inserted in front, closing up the space between the augers and liners and prolonging the use of the auger. Liners are made of very hard iron and augers are chilled on the wearing face, which has proven to be more durable than white iron or manganese steel.

Forced Feed in Hopper

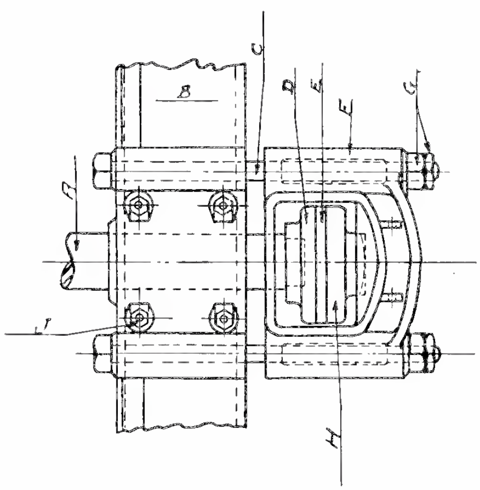
Figure 2 shows the feeder in the hopper which effectually prevents the clay from bridging and closing the hopper. The hubs E, E, are split and may be removed and replaced through the hopper, and blades A, A are reversible. They also may be removed and replaced through the hopper.



CROSS SECTION OF NO 233 AND NO 290 AUGER MACHINES SHOWING HOPPER AND FORCE FEED

Figure 2

Thrust Bearing



Plan View of Floating End Thrust Bearing on Nos. 233 and 290 Auger Machines with Cover Removed.

Figure 3

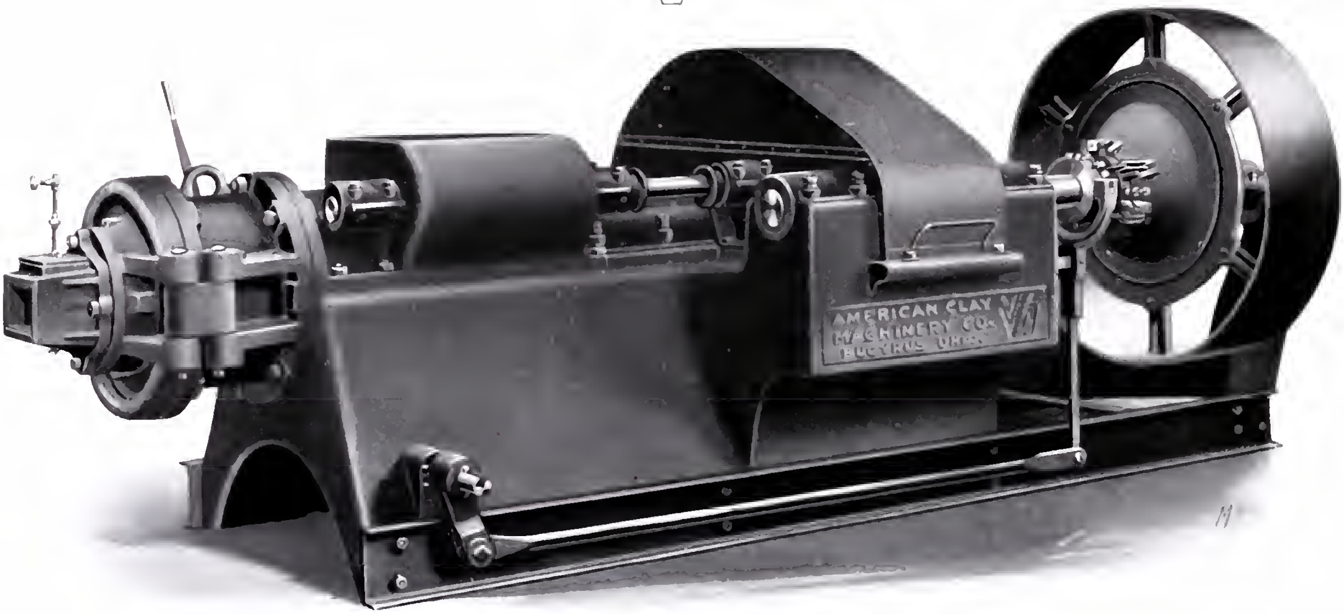
Figure 3 illustrates the end thrust bearing. D, the revolving member, is attached loosely to the end of auger shaft A and revolves with it. It has a chilled and ground wearing surface and circular oil grooves for carrying oil to the center and distributing it from that point.

E is a phosphor bronze disc, ground true, and is free to revolve or remain stationary, depending on which surface receives the best lubrication.

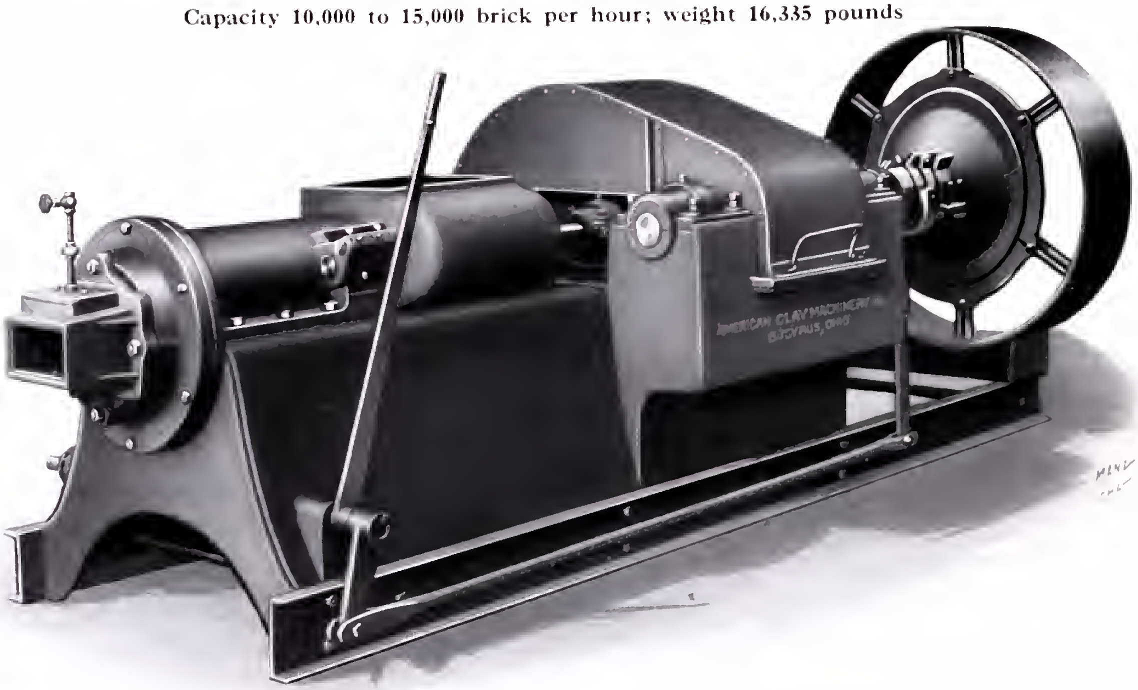
H is the stationary member, having a chilled and ground wearing surface and a curved surface opposite, making it self-aligning with the shaft of the machine.

The case F, containing these parts, also holds the oil for lubrication and is attached to gear frame B by means of bolts C, C.

A suitable cover excludes dirt and the bottom is tapped for drainage.



American No. 290 Auger Machine
Capacity 10,000 to 15,000 brick per hour; weight 16,335 pounds



American No. 233 Auger Machine
Capacity 4,000 to 7,500 brick per hour; weight 10,275 pounds

American Standard Auger Machines

We build these standard Auger Machines in four different sizes. They are all of the same general design, but vary in size and capacity.

American No. 290 Auger Machine

Rated Capacity Per Hour —

Building Brick, 10,000 to 15,000 per hour.
Street Paving Blocks, 7,500 to 10,000 per hour.
Fire-Proofing or Hollow Blocks, 10 to 15 tons per hour

American No. 233 Auger Machine

Rated Capacity Per Hour —

Building Brick, 4,000 to 7,500 per hour.
Street Paving Blocks, 3,500 to 5,000 per hour.
Drain Tile, 4-inch diameter, 2,000 to 4,000 per hour.
Drain Tile, 6-inch diameter, 1,500 to 2,000 per hour.
Drain Tile, 8-inch diameter, 1,200 to 1,500 per hour.
Drain Tile, 12-inch diameter, 600 to 1,000 per hour.
Fire-Proofing or Hollow Blocks, 7 to 10 tons per hour.

Not recommended for Drain Tile larger than 12 inches diameter, or Hollow Blocks larger than 8 inches by 12 inches.

American No. 281 Auger Machine

Capacity 2,000 to 4,000 brick per hour; weight 7,225 pounds

American No. 328 Auger Machine

Capacity 1,000 to 2,000 brick per hour; weight 4,270 pounds

American No. 281 Auger Machine

Rated Capacity Per Hour —

Building Brick, 2,000 to 4,000 per hour.
Drain Tile, 4-inch diameter, 1,000 to 1,500 per hour.
Drain Tile, 6-inch diameter, 700 to 1,000 per hour.
Drain Tile, 8-inch diameter, 500 to 700 per hour.

This machine is designed for the manufacture of Building Brick and Drain Tile, also Hollow Building Blocks 4 inches by 5 inches, and 5 inches by 8 inches.

American No. 328 Auger Machine

Rated Capacity Per Hour —

Building Brick, 1,000 to 2,000 per hour.
Drain Tile, 4-inch diameter, 1,000 to 1,500 per hour.
Drain Tile, 6-inch diameter, 700 to 1,000 per hour.
Drain Tile, 8-inch diameter, 500 to 700 per hour.

This machine is designed for the manufacture of Building Brick and Drain Tile, also Hollow Building Blocks 4 inches by 5 inches, and 5 inches by 8 inches.

Capacity —

The capacity is governed by speed at which the pulley is driven, nature and character of clay, size and kind of ware manufactured, and by management.

General Description

Base —

The base of the machine is a heavy one-piece casting carrying the shaft bearings and forming an oil reservoir for the gears, also forming the lower half of the clay cylinder.

Shafts —

The auger shaft is forged steel turned to proper diameter; the driving shaft and the shaft of the hopper feeder are steel.

Bearings —

These machines are fitted with ring oiling babbitted bearings on the auger shaft and on the driving shaft. The independent end thrust bearing is self-aligning and self-oiling.

Gears —

The gears are cast iron American gear metal. They are encased and run in a bath of oil.

Augers —

These machines are fitted with a continuous auger having a chilled wearing surface. The standard expressing auger is furnished with machine. Machine may be fitted with a special auger when specified for large work. The augers are inserted or removed from the front of the machine.

Liners —

The clay cylinder of these machines are fitted with sectional removable liners throughout its entire length. Tapering sectional liners are used around the expressing auger, making it possible to insert new sections to compensate for the wear on the auger and keep it tightly encased to secure the greatest efficiency. All liners are inserted or removed from the front of the machine. No. 328 Machine is equipped with tapering sectional liners around the expressing auger only.

Hopper Feeder —

The hopper feeder is fitted with reversible spring steel blades. The hub is split so that the feeder can be removed through the hopper of the machine.

Driving Pulley —

Machine is furnished with a Bucyrus friction-clutch driving pulley.

Speed —

Speed of driving pulley, 100 R. P. M. to 200 R. P. M., according to capacity desired and character of work.

Power —

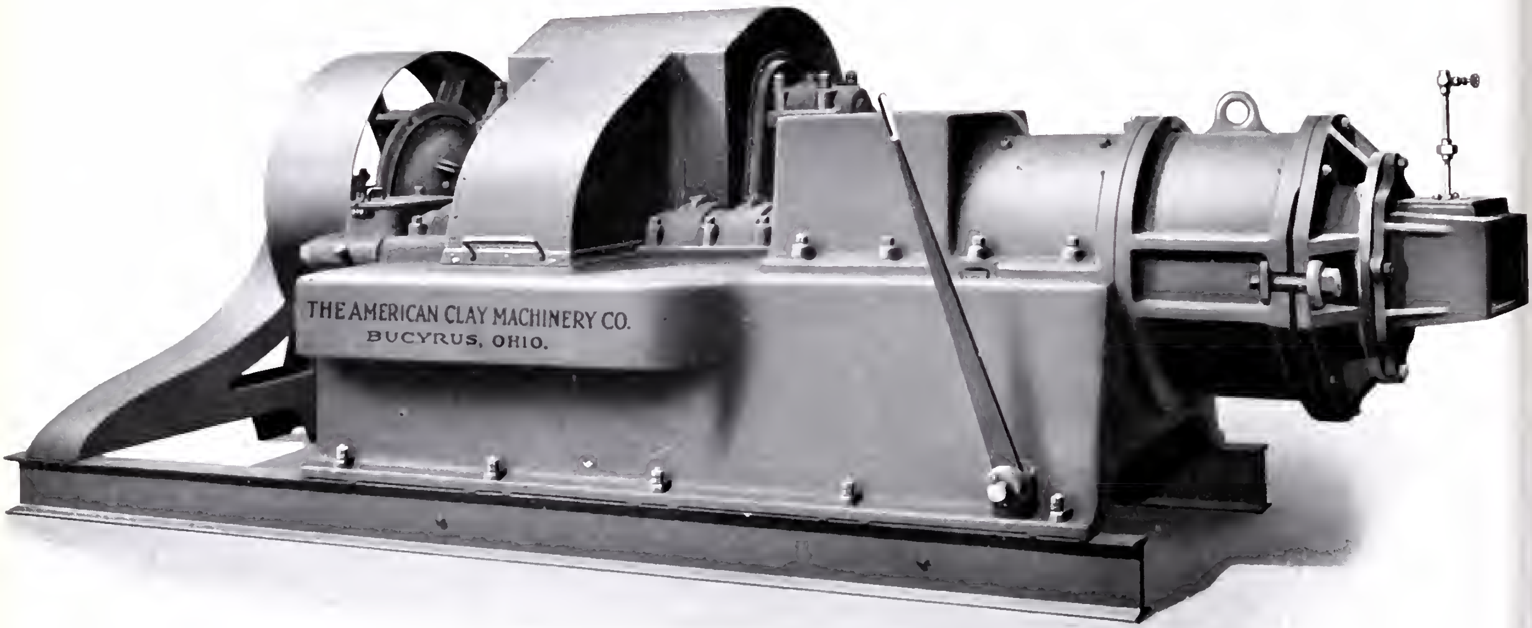
Power required to operate these machines will vary according to capacity, kind of ware manufactured and character of material used.

Specifications Standard Auger Machines

	No. 290 Auger Machine	No. 233 Auger Machine	No. 281 Auger Machine	No. 328 Auger Machine
Rated capacity per hour Building Brick ($8\frac{3}{4}$ x $4\frac{1}{2}$ x $2\frac{1}{2}$)	10,000 to 15,000	4,000 to 7,500	2,000 to 4,000	1,000 to 2,000
Rated capacity per hour Street Paving Blocks (10 pound)	7,500 to 10,000	3,500 to 5,000	1,000 to 2,500	
Rated capacity per hour Fire-Proofing, Hollow Blocks or Drain Tile	10 to 15 tons	7 to 10 tons	5 to 7 tons	3 to 5 tons
Diameter of Forged Steel Auger Shaft	$6\frac{1}{2}$ in.	$4\frac{3}{4}$ in.	$3\frac{1}{2}$ in.	$3\frac{1}{2}$ in.
Diameter of Steel Driving Shaft	$4\frac{1}{2}$ in.	$3\frac{1}{2}$ in.	$2\frac{3}{4}$ in.	$2\frac{1}{2}$ in.
Diameter of Steel Hopper Feeder Shaft	$2\frac{1}{2}$ in.	$2\frac{1}{4}$ in.	2 in.	2 in.
Length of Bearings on Auger Shaft	$14\frac{1}{2}$ in. and 26 in.	$11\frac{1}{2}$ in. and 12 in.	$10\frac{1}{2}$ in.	$6\frac{3}{4}$ in. and $9\frac{1}{2}$ in.
Length of Bearings on Driving Shaft	12 in.	12 in.	$10\frac{1}{2}$ in.	$7\frac{1}{2}$ in.
Length of Bearings on Hopper Feeder Shaft	$7\frac{1}{2}$ in.	8 in.	$7\frac{1}{2}$ in.	$7\frac{1}{2}$ in.
Diameter of Chilled Discs in End Thrust Bearing	12 in.	10 in.	8 in.	$5\frac{3}{4}$ in.
Master Gear	$47\frac{1}{4}$ in. dia. 9 in. face $2\frac{1}{4}$ in. pitch	$37\frac{1}{2}$ in. dia. 8 in. face 2 in. pitch	$32\frac{1}{2}$ in. dia. $5\frac{1}{2}$ in. face $1\frac{3}{4}$ in. pitch	$30\frac{3}{8}$ in. dia. $4\frac{1}{2}$ in. face $1\frac{3}{4}$ in. pitch
Driving Pinion	$9\frac{1}{4}$ in. dia. 9 in. face $2\frac{1}{4}$ in. pitch	$9\frac{5}{8}$ in. dia. 8 in. face 2 in. pitch	$8\frac{1}{2}$ in. dia. $5\frac{1}{2}$ in. face $1\frac{3}{4}$ in. pitch	$6\frac{5}{8}$ in. dia. $4\frac{1}{2}$ in. face $1\frac{3}{4}$ in. pitch
Ratio of Gears	5 to 1	4 to 1	4 to 1	$4\frac{1}{2}$ to 1
Hopper Feeder Gears	14 in. dia. 4 in. face 1 in. pitch	10 in. dia. 3 in. face $1\frac{1}{4}$ in. pitch	$8\frac{1}{4}$ in. dia. 2 in. face 1 in. pitch	$8\frac{1}{4}$ in. dia. 2 in. face 1 in. pitch
Standard Auger furnished with Machine	12 in. dia.	10 in. dia.	8 in. dia.	8 in. dia.
Special Augers furnished instead of Standard Auger only when specified	14 or 16 in. dia.	8 or 12 in. dia.	6 or 10 in. dia.	6 or 10 in. dia.
Diameter of Hopper Feeder	$11\frac{5}{8}$ in.	8 in.	$6\frac{1}{2}$ in.	$6\frac{1}{2}$ in.
Friction-Clutch Driving Pulley	48 in. dia. 14 in. face	42 in. dia. 12 in. face	36 in. dia. 12 in. face	36 in. dia. 10 in. face
Speed of Driving Pulley	100 to 200 R.P.M.	100 to 200 R.P.M.	100 to 200 R.P.M.	100 to 200 R.P.M.
Power Required	40 to 75 H. P.	35 to 50 H. P.	20 to 40 H. P.	15 to 30 H. P.
Weight	16,335 pounds	10,275 pounds	7,225 pounds	4,270 pounds

Dimensions

Length over all	15 ft. 0 in.	12 ft. 4 in.	11 ft. $\frac{1}{4}$ in.	10 ft. $\frac{1}{4}$ in.
Length of Sills	12 ft. 6 in.	11 ft. 9 in.	9 ft. 7 in.	6 ft. 0 in.
Length from center of Hopper to Die	3 ft. 6 in.	3 ft. $7\frac{1}{4}$ in.	3 ft. $1\frac{1}{4}$ in	3 ft. 4 in.
Length from center of Hopper to center of Driving Pulley	8 ft. 7 in.	6 ft. $11\frac{1}{4}$ in.	5 ft. $10\frac{1}{2}$ in.	6 ft. $8\frac{1}{2}$ in.
Width over all	6 ft. 5 in.	5 ft. $9\frac{3}{4}$ in.	5 ft. 0 in.	4 ft. $7\frac{5}{8}$ in.
Width of Sills	4 ft. 3 in.	3 ft. 8 in.	4 ft. 1 in.	2 ft. 3 in.
Height over all	5 ft. 3 in.	4 ft. $7\frac{1}{2}$ in.	4 ft. 2 in.	3 ft. $2\frac{5}{8}$ in.
Height to top of Hopper	4 ft. 0 in.	3 ft. 4 in.	2 ft. $11\frac{1}{2}$ in.	2 ft. $8\frac{1}{2}$ in.
Height to center of Machine	2 ft. 4 in.	2 ft. 4 in.	2 ft. 0 in.	1 ft. 9 in.



American No. 329 Auger Machine

This machine is designed for the manufacture of Building Brick, Fire Brick and Street Paving Blocks, also Hollow Building Blocks and Fire-Proofing, in all sizes.

Rated Capacity Per Hour —

Building Brick, 10,000 to 15,000 per hour.
Street Paving Blocks, 7,500 to 10,000 per hour.
Fire-Proofing or Hollow Blocks, 10 to 15 tons per hour.

The capacity is governed by speed at which the pulley is driven, nature and character of clay, size and kind of ware manufactured, and by management.

Specifications

Base —

The base of this machine is a heavy one-piece casting carrying the shaft bearings and forming an oil reservoir for the gears, also forming the lower half of the clay cylinder.

Shafts —

The auger shaft is forged steel turned to 6½ inches diameter in bearings and wheel fit, 5 inches hex for sectional knives or 7½ inches diameter for inserted knives in clay cylinder, intermediate shaft is 5 inches diameter and the driving shaft is 4½ inches diameter. Standard machine always furnished unless otherwise specified; has 5-inch hex auger shaft and sectional knives.

Bearings —

The machine is fitted with ring oiling babbitted bearings. Bearings on the auger shaft are $20\frac{1}{2}$ inches long. On the driving and intermediate shafts they are 13 inches long. The independent self-aligning, self-oiling end thrust bearing is 12 inches diameter.

Gears —

The gears are cast iron American gear metal, driving pinion 10 inches diameter, $2\frac{1}{4}$ inches pitch, 8 inches face, intermediate gear $25\frac{3}{4}$ inches diameter, $2\frac{1}{4}$ inches pitch, 8 inches face. Intermediate pinion 10 inches diameter, $2\frac{1}{2}$ inches pitch, 10 inches face. Master gear $39\frac{3}{4}$ inches diameter, $2\frac{1}{2}$ inches pitch, 10 inches face, ratio 10.5 to 1.

Augers —

The machine is fitted with augers having a chilled wearing surface, and with either inserted or sectional knives, according to the service desired. The standard expressing auger is $14\frac{1}{2}$ inches diameter. Machine may be fitted with an expressing auger 12 inches diameter, or a 16-inch expressing auger for large work. The augers are inserted or removed from the front of the machine.

Liners —

The clay cylinder of this machine is fitted with sectional removable liners throughout its entire length. Tapering sectional liners are used around the expressing auger, making it possible to insert new sections to compensate for the wear on the auger and keep it tightly encased to secure the greatest efficiency. All liners are inserted or removed from the front of the machine.

Driving Pulley —

Machine is furnished with a friction-clutch driving pulley 48 inches diameter, 16 inches face.

Speed —

Speed of driving pulley, 150 R. P. M. to 250 R. P. M., according to capacity desired and character of work.

Power —

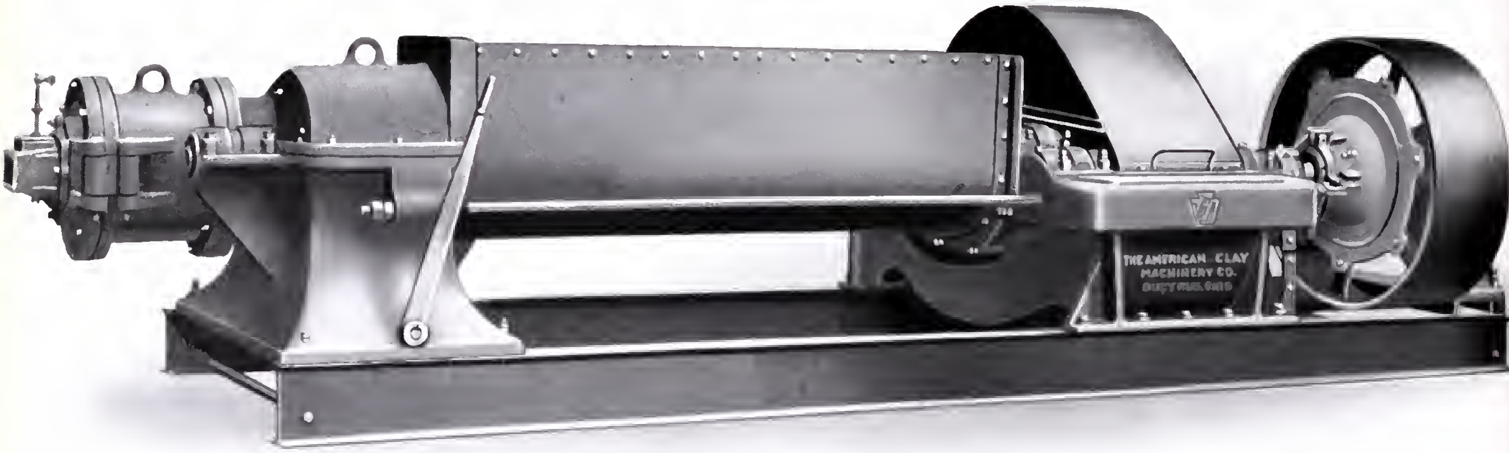
Power required to operate this machine will vary from 40 H. P. to 75 H. P., according to capacity, kind of ware manufactured and character of material used.

Weight —

20,720 pounds, without dies.

Dimensions

Length over all	16 ft. 1 in.
Length of Sills	13 ft. 8 in.
Length from center of Hopper to Die	5 ft. $5\frac{1}{2}$ in.
Length from center of Hopper to center of Driving Pulley	8 ft. $3\frac{1}{8}$ in.
Width over all	7 ft. 10 in.
Width over Sills	4 ft. 8 in.
Height over all	5 ft. $6\frac{5}{8}$ in.
Height to top of Hopper	4 ft. 4 in.
Height to center of Machine	3 ft. $2\frac{1}{2}$ in.



American No. 280 Combined Auger Machine and Pug Mill

This machine is designed for manufacture of Building Brick, Fire Brick, and Street Paving Blocks, also Hollow Building Blocks and Fire-Proofing in all sizes.

Rated Capacity Per Hour —

Building Brick, 7,500 to 10,000.
Street Paving Blocks, 5,000 to 7,500.
Fire-Proofing or Hollow Blocks, 10 to 15 tons.

The capacity is governed by speed at which pulley is driven, nature and character of clay, size and kind of ware manufactured and by management.

Specifications

Base —

The base of this machine is a heavy one-piece casting carrying the shaft bearings, forming an oil reservoir for the gearing and the rear support for the pug mill shell.

Clay Cylinder —

The lower half of the clay cylinder is a heavy one-piece casting carrying the outer bearings of the auger and tempering shafts, and the forward support of the pug mill shell.

Shafts —

The auger shaft is forged steel, turned to 5 inches diameter. The tempering shaft is of forged steel, 4 inches square. The driving shaft is of forged steel, turned to 4 inches diameter.

Bearings —

The machine is fitted with ring oiling babbitted bearings throughout. The bearings on the auger shaft are 16 inches, 14 inches and 12½ inches long. The tempering shaft bearings are 12 inches long. The driving shaft bearings are 13½ inches long. The independent self-oiling, self-aligning thrust bearing on the auger shaft is 10 inches in diameter. The thrust bearing on the tempering shaft has a thrust collar 10 inches outside diameter and 5 inches inside diameter, and is self-oiling.

Gears —

All gears are cast iron American gear metal. The master gear is $1\frac{3}{4}$ inches pitch, 8 inches face, and $51\frac{1}{4}$ inches diameter. The driving pinion is $1\frac{3}{4}$ inches pitch, $8\frac{3}{4}$ inches face, shrouded, and 9 inches diameter. Ratio of gears, 5.75 to 1. The driving gears for tempering shafts are $2\frac{1}{4}$ inches pitch, 10 inches face and 18 inches diameter.

Augers —

The machine is fitted with a continuous auger, having a chilled wearing surface. The standard expressing auger is 12 inches diameter. The augers are inserted or removed from the front of the machine. The tempering knives and auger and expressing augers overlap both ways, so that no power is wasted in transferring the material from one to the other.

Liners —

Tapering sectional liners are used around the expressing auger, making it possible to insert new sections to compensate for the wear on the auger and keep it tightly encased to secure greatest efficiency. All liners are inserted or removed from the front of the machine.

Shell —

The shell for the tempering chamber is made of a single piece of tank steel $\frac{1}{4}$ inch thick. The tempering chamber is 8 feet long, 24 inches wide and 29 inches deep.

Knives —

The tempering knives are cast iron, having chilled wearing surfaces, and are bolted around a square shaft and so arranged that one may be removed without disturbing the others.

Driving Pulley —

The machine is furnished with friction-clutch pulley, 48 inches in diameter, 16 inches face.

Speed —

Speed of driving pulley, 125 R. P. M. to 175 R. P. M., according to capacity desired and character of work.

Power —

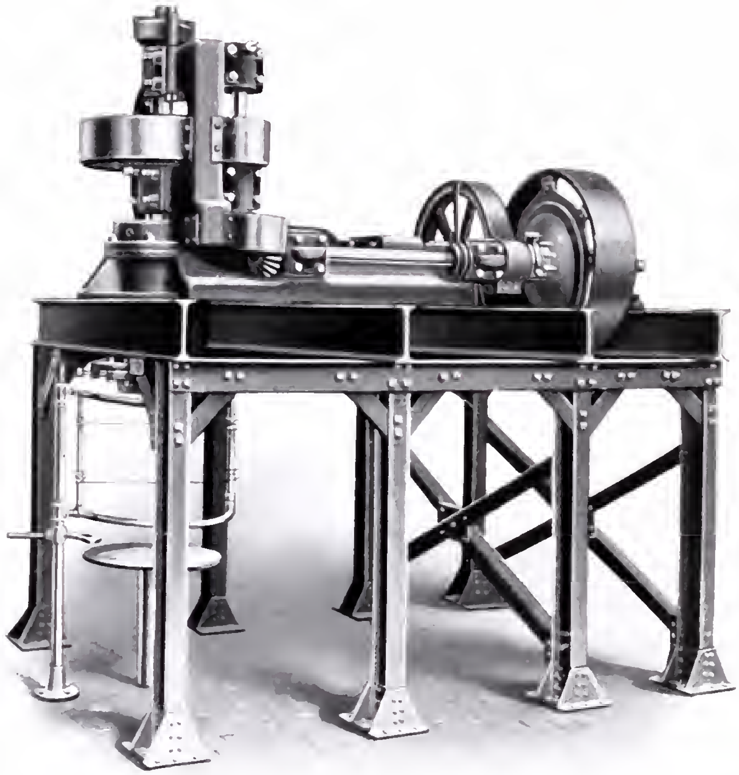
The power required to operate this machine will vary from 75 horse-power to 125 horse-power, according to capacity, kind of ware manufactured, and character of material used.

Weight —

21,675 pounds.

Dimensions

Length over all	21 ft. 3 in.
Length of Sills	18 ft. $10\frac{1}{2}$ in.
Length from center of Pulley to receiving end of Shell	6 ft. 6 in.
Length from receiving end of Shell to Die	12 ft. 10 in.
Width over all	7 ft. $4\frac{1}{2}$ in.
Width of Sills	5 ft. $7\frac{3}{4}$ in.
Height over all	5 ft. $\frac{1}{4}$ in.
Height to top of Shell	4 ft. $5\frac{1}{2}$ in.
Height to center of Auger Shaft	2 ft. 10 in.



American No. 263 Down-Delivery Tile Machine

American No. 263 Down-Delivery Tile Machine

The larger sizes of Drain Tile are more successfully made when formed vertically downward in order to preserve their true round form. This machine will turn out as many tile as can be properly handled by the crew of men, does good work and does it economically. It is substantially built, and all parts are easily accessible. To facilitate taking clay in the machine, a long hopper is provided, below which are two continuous augers revolving toward each other. This prevents clogging in the hopper and discharges the material evenly to the vertical expressing auger.

The vertical auger is mounted on a hollow shaft and the die core is held by a rod extending through the shaft, taking all the end thrust and relieving the gear frame from end thrust strain. This arrangement permits the use of light bridges for centering and supporting the core sideways and reduces the tendency to weaken the walls of the tile from this source.

The frame work is simple and strong. Shafts of large diameter; gears large diameter, wide face. The safety factor throughout is high.

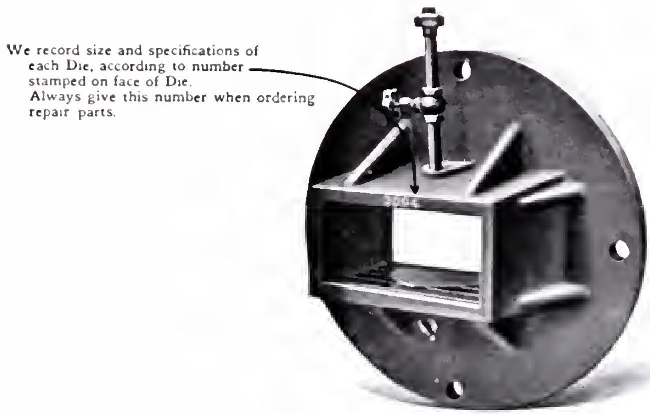
The No. 263 Machine will make tile as small as 8 inches and as large as 30 inches internal diameter and as rapidly as they can be properly handled. The cutting mechanism is capable of rapid and accurate work.

This machine is mounted on a steel frame, as shown in the illustration.

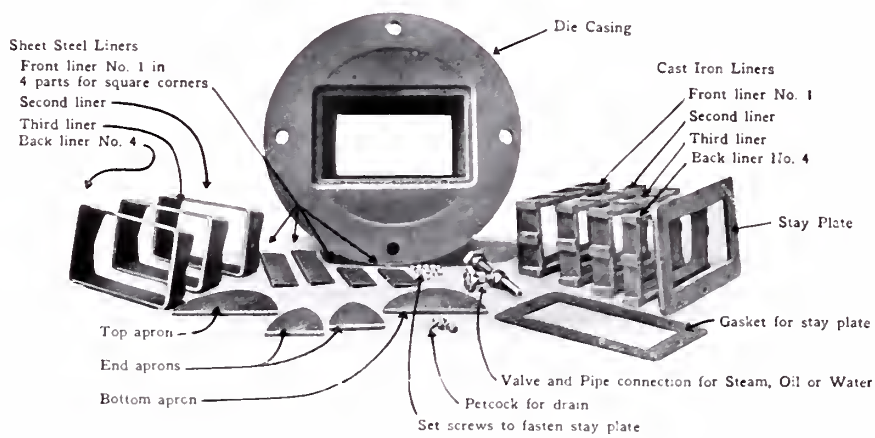
Specifications

Weight without Dies	18,000 pounds
Length over all	12 ft. 1 in.
Center of Pulley to center of Hopper	6 ft. 1 in.
Center of Hopper to center of Die	2 ft. 7½ in.
Length of Hopper	20 in.
Height, Platform to top of Hopper	19½ in.
Platform to center of Pulley	12 in.
Platform to top of Frame	5 ft. 10¼ in.
Platform downwards to back of Die	16¼ in.
Usual height of Framework	7 ft. 6½ in.
Width over all	6 ft. 3½ in.
Width of Base	3 ft. 10 in.

Friction-Clutch Pulley, 48 x 12. Speed, 150 R. P. M.



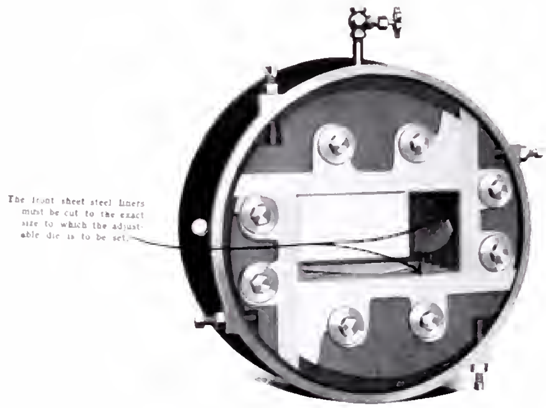
Standard 4-Liner Niedergesaess Lubricating Side-Cut Brick Die



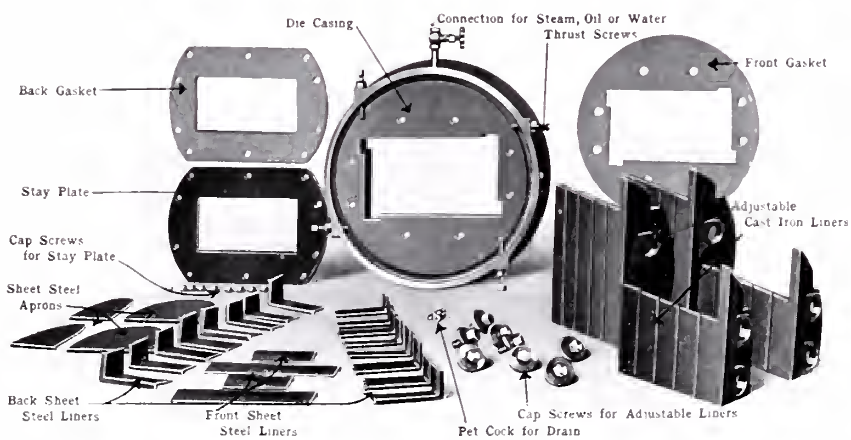
American Niedergesaess Lubricating Side-Cut Brick Die

To manufacture brick successfully it is highly essential to have a first-class brick die to be used in connection with the auger machine. The American Niedergesaess Lubricating Die has been used for more than twenty years and has proven successful in many different kinds of clays. It can be lubricated with either water, oil or steam, according to the character of the clay to be worked. The connecting pipe with valve, shown in the cut, may either lead to the boiler or a water tank, or to an oil reservoir. On the right are shown four cast iron liners having channels around their edges. These liners fit into the die casing. On the left are shown the sheet steel liners which fit into each cast iron liner. The front four sheet steel liners fit into the front cast iron liners and make the sharp corners on the brick. When round corners are desired on the brick, these are replaced by a liner similar to the second liner. The four round edged plates in the foreground are termed the aprons, and are put in last over all the liners. The whole is held in the die casing by the stay plate. Proper packing, cement or putty, is used to prevent leakage. The duties of the aprons are twofold: to prevent wearing of the liners and to exclude the lubricant where not wanted, so as to insure an even flow. It is highly necessary that only clean fluid be used, as otherwise the channels will become filled up, making the die inefficient. For some clays, dry steam answers the purpose better than either water or oil.

Each die is fitted complete and inspected before shipment. The size and description are carefully recorded for future reference.



The Ehrick Adjustable Brick Die



The Ehrick Adjustable Brick Die

The necessity of changing the entire front of your brick machine in order to vary the size of the brick is a thing of the past, as the Ehrick Adjustable Brick Die makes it possible to vary the size in a few moments by simply adjusting a few set-screws. This is a big advance in die construction and The American Company takes pleasure in calling the attention of the brick-maker to this convenience. It is manufactured and sold exclusively by The American Clay Machinery Company and we will be pleased to write you regarding it.

The Ehrick Adjustable Brick Die has been designed with the idea of making it possible to change the size of the brick die readily and at very slight expense. The die consists of three principal parts — the die casing, the adjustable cast iron liners and the renewable sheet steel liners. The adjustable cast iron liners are made in four pieces, forming the top, bottom and ends of the die. These adjustable liners fit into the casing in such a manner as to make it possible to shift their position and alter the length and width of the die. The variation or the amount of adjustment that can be secured depends upon the size of the casing. The sheet steel liners are made to fit into slots cut in the adjustable cast iron liners and the sheet steel liners take the wear on the die. They are made so that they can be readily renewed, and these are the wearing parts of the die. The adjustable cast iron liners and the casing will never wear out.

The front sheet steel liners are made to fit in the front of the die; these consist of four pieces, which form the top, bottom and both ends of the die. These four front liners must be cut to the exact size to which the die is to be set. The back sheet steel liners are made right and left hand to fit in on opposite sides of the die. These liners are the same in all dies, and they need not be changed or altered when changing the size of the die. The sheet steel aprons fit in the die over the sheet steel liners. They serve to distribute the lubrication and to protect the liners. The front gasket is placed in front of the die casing and seals the joint when the adjustable cast iron liners are placed in position and securely fastened with the cap-screws.

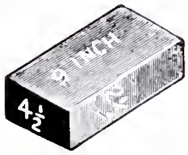
The back gasket fits in the rear of the casing and seals the joint under the stay plate. The stay plate forms the back of the die and is securely held in position with cap-screws. The die casing is made so that there is a cavity around the outside of the cast iron liners and the lubrication, either steam, oil or water, is fed into the casing and around the liners. The lubrication flows through the corners of the die under the sheet steel liners and follows the column of clay as it passes through the die. This insures perfect lubrication and makes it possible to obtain sharp corners on the column of clay.

The Ehrick adjustable die when made in casing No. 330-10 can be adjusted to any size from 8¾ long by 4 inches wide to 9¾ long by 5 inches wide, making it possible to adjust the die for the manufacture of common brick, paving block or fire brick. In changing the size of the die it is only necessary to change the size of the front sheet steel liners. If the change in the die, however, is greater than ¼ of an inch in either direction, it is advisable to secure a new stay plate having a larger or smaller opening, as may be required. The back sheet steel liners and the sheet steel aprons need not be changed in order to change the size of the die. All of these sheet steel wearing parts may be readily renewed, and in this manner there is no wear on the adjustable die liners and the size of the die does not increase due to the wear on the die.

Die casing No. 330-10 is made to fit the front of the brick machine having a 15½-inch round opening. The Ehrick adjustable die when made in this casing will weigh 125 pounds. Each die is fitted up complete and thoroughly inspected before shipment. Renewable sheet steel liners for the die may be forwarded promptly by mail or express.

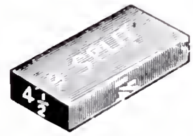
Standard Nine-Inch Fire Brick Shapes

The following cuts represent the principal nine-inch shapes that are used, and dimensions given are the long-established standards adopted by fire brick manufacturers.

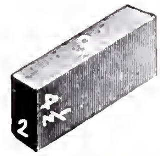


9-Inch

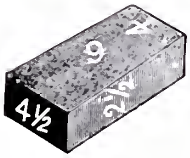
Soap



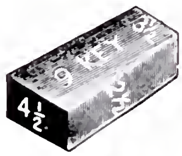
No. 1 Split



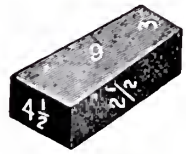
No. 2 Split



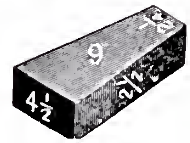
No. 1 Key



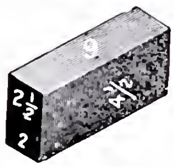
No. 2 Key



No. 3 Key

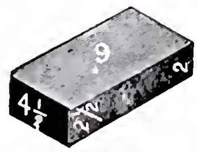


No. 4 Key

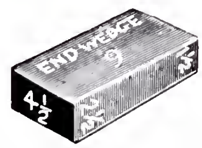


No. 1 Arch

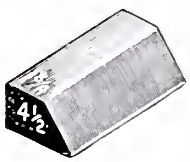
No. 2 Arch



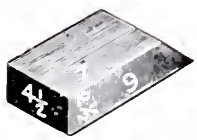
No. 1 Wedge



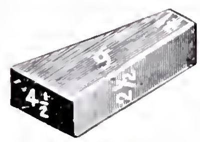
No. 2 Wedge



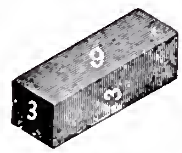
Side Skew



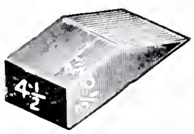
End Skew



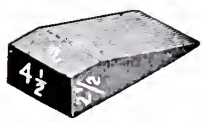
Skew Back



Checker



No. 1 Neck



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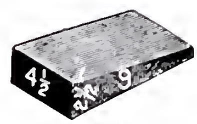
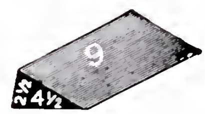
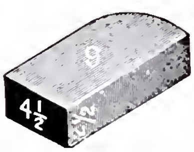


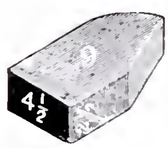
No. 3 Neck



Feather Edge



No. 1 Jam



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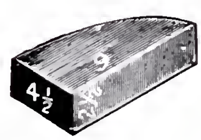

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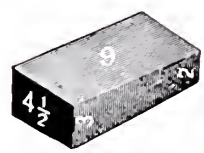
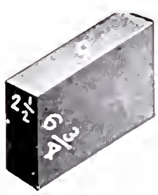
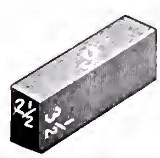


No. 3 Bull Head



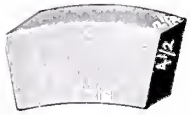
Large 9-Inch



Small 9-Inch

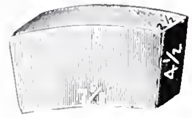
Circle Brick

No. 2 24-Inch Circle



No. 3 36-Inch Circle

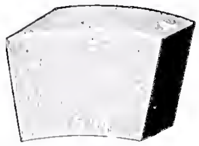
No. 4 48-Inch Circle



No. 5 60-Inch Circle

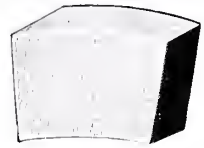
Cupola Blocks

No. 1 30-Inch Circle



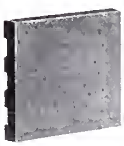
No. 2 36-Inch Circle

No. 3 48-Inch Circle



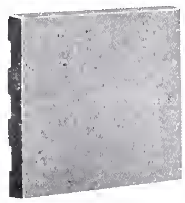
No. 4 60-Inch Circle

Quarry Tile



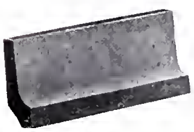
6 x 6 x 1

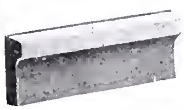
6 x 9 x 1

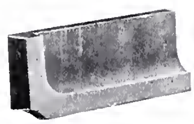


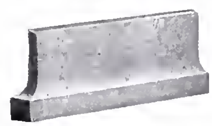
9 x 9 x 1⅛

12 x 12 x 1½









Standard Paving Block Designs

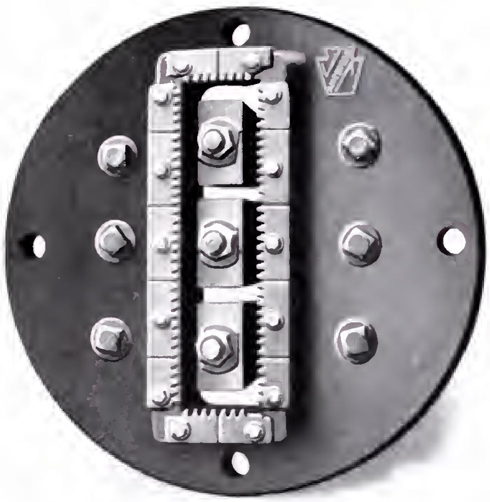
Hollow Ware Dies

We make a specialty of dies for all kinds of hollow ware. Our Die Department is in the hands of the most competent die-makers in the trade, and the greatest of care is given to all die orders.

We solicit correspondence in regard to all die work, and especially for the manufacture of hollow ware.

We will be pleased to send you printed matter and any information you may desire on this subject.

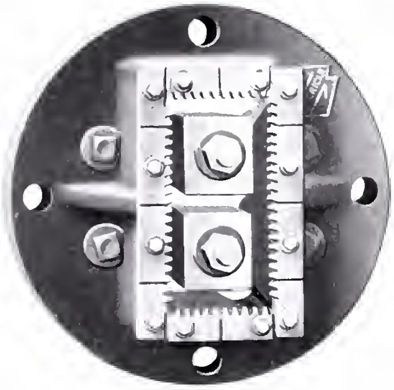
Dry Hollow Block Dies



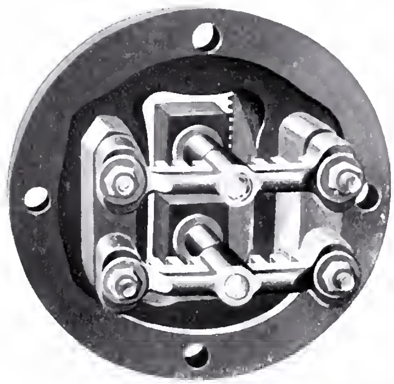
Front View

Rear View

4-in. x 12-in. Hollow Block Die

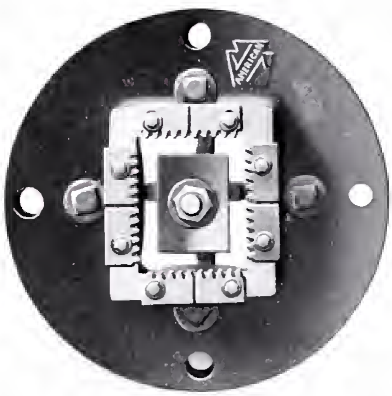


Front View

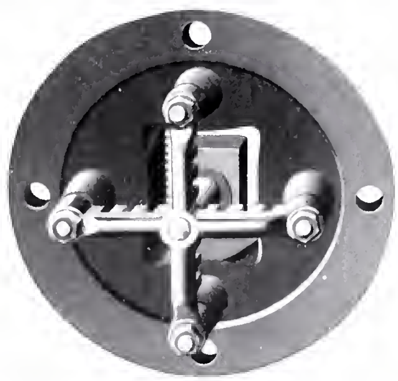


Rear View

5-in. x 8-in. Hollow Block Die



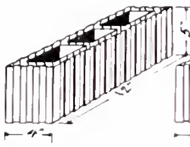
Front View

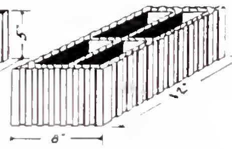


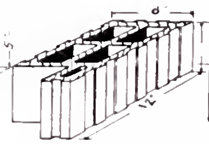
Rear View

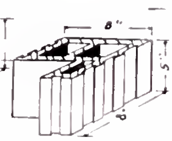
4-in. x 5-in. Hollow Block Die

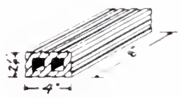
Jumbo Brick

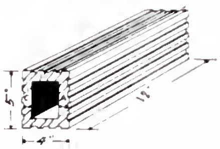

5"x4"x12" Corner Block

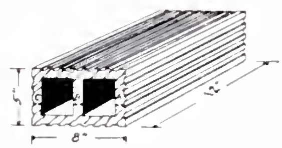

5"x8"x12" Corner Block


5"x8"x12" Jamb Block

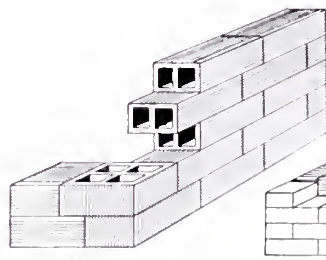

5"x8"x8" Jamb Block

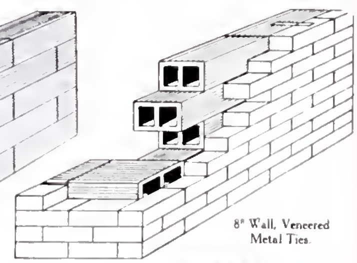

Standard Hollow Brick

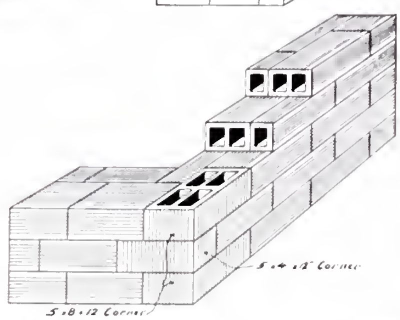

5"x4"x12" Jumbo Brick


5"x8"x12" Jumbo Brick

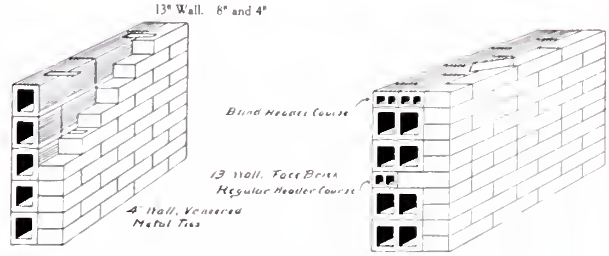
Jumbo Brick Wall with Brick Veneer


8" Wall.

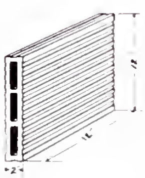

8" Wall, Veneered Metal Ties.

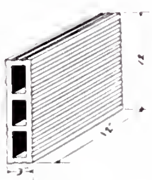


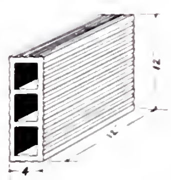
13" Wall. 8" and 4"

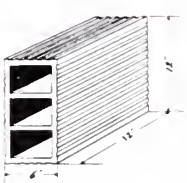


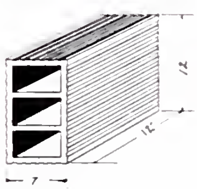
Partition Tile

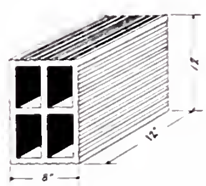

2" Partition.

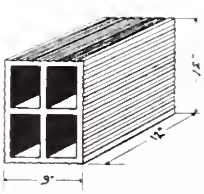

3" Partition.

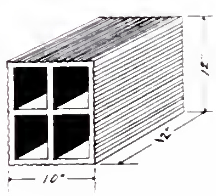

4" Partition.

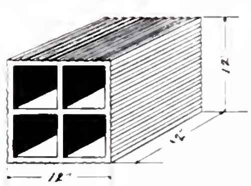

5" or 6" Partition.


7" Partition.

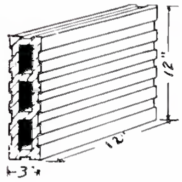

8" Partition

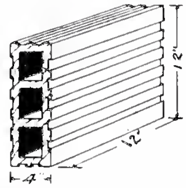

9" Partition.

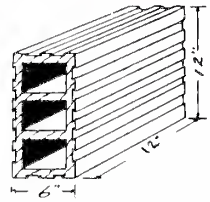

10" Partition.

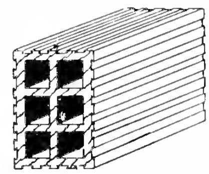

12" Partition.

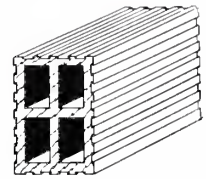
Hollow Building Block


3"x12"x12"


4"x12"x12"

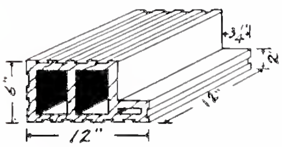

6"x12"x12"


8"x12"x12"


8"x12"x12"

Jamb Blocks

Half Jamb Blocks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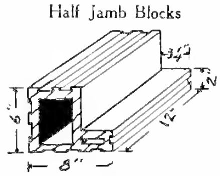
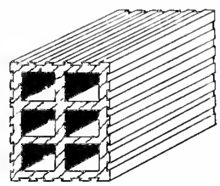
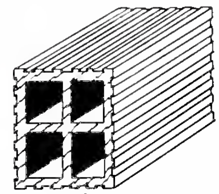
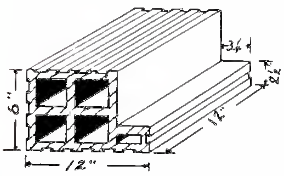
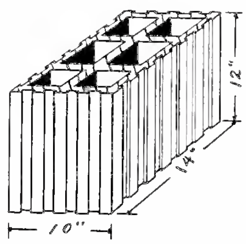

6"x12"x8"


10"x12"x12"


10"x12"x12"


8"x12"x12"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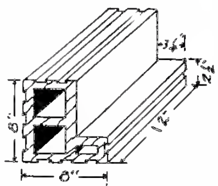
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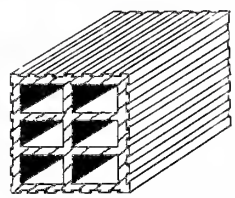
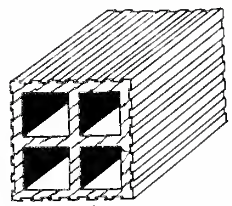
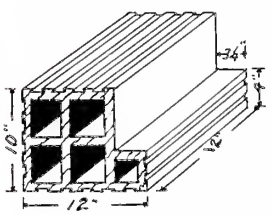
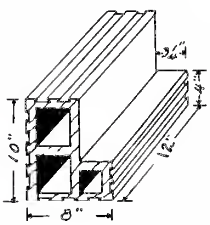
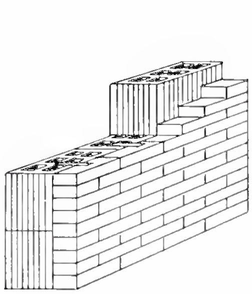

12"x12"x12"

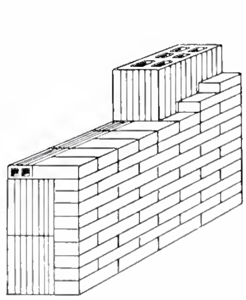

12"x12"x12"

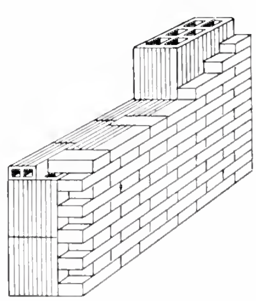

10"x12"x12"


10"x12"x8"

Hollow Block Wall Veneered with Brick


Metal Ties.


Header Courses.


Flemish Bond.

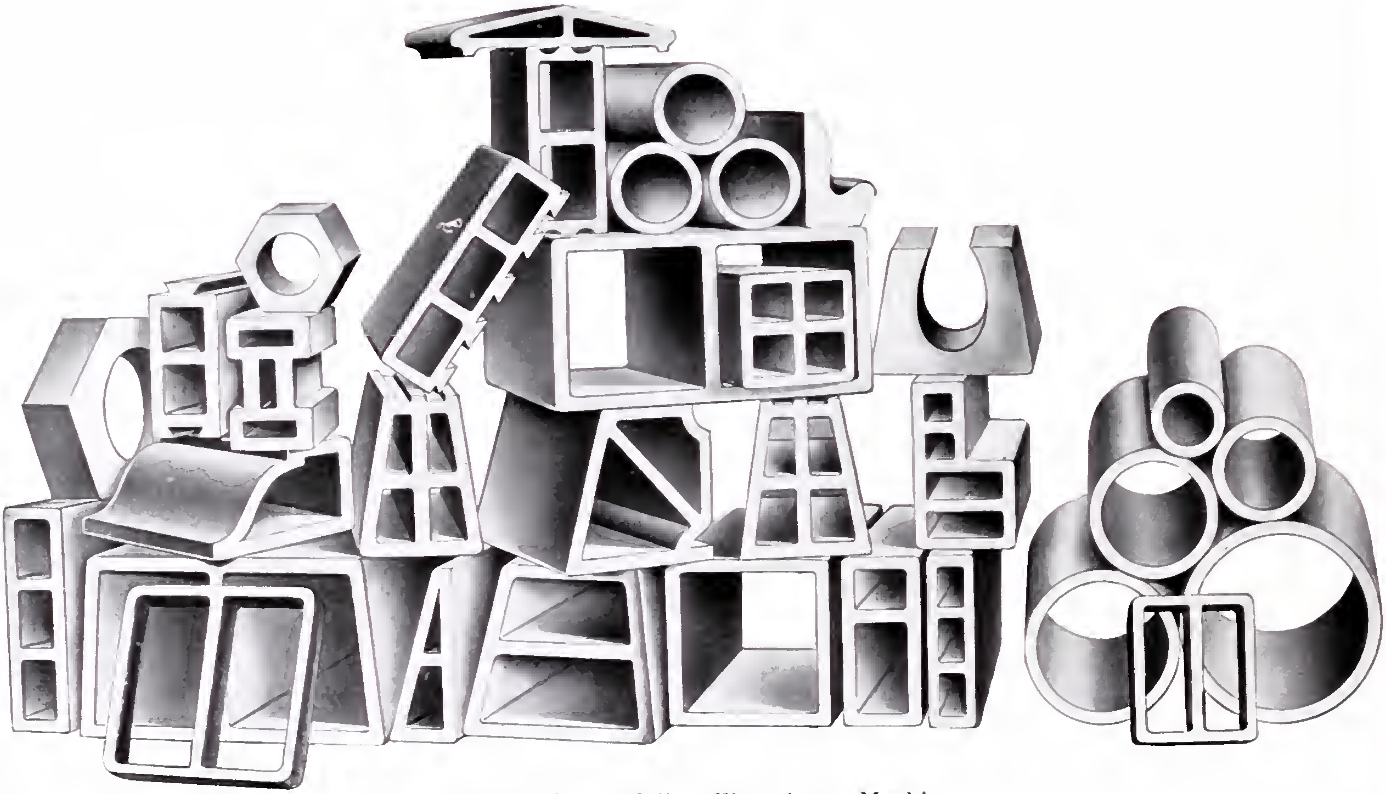
Hollow Ware

The range of hollow ware which can be made on our auger machinery includes hollow building blocks, electrical conduits, drain tile, fire-proofing, and other staples in clay ware. These products are readily marketable, from the drain tile, which is a common necessity, to hollow blocks, which have taken their place in the better class of building material.

In the manufacture of vitrified clay conduits there is a field which promises an increasing demand from year to year as the public and the electric service companies become more conversant with the benefits of clay conduits for carrying service wires. Millions of feet of conduit are laid every year and the demand for a good conduit is such that attractive prices maintain.

Drain tile has always met with a good demand, and is especially promising in localities where farm drainage has not yet been completed. There will always be a good demand for this staple clay product, but the activity of the demand depends upon the location and its needs. The benefit of farm drainage has long been conceded and will create a steady demand for tile, while in the cities and towns scarcely an improvement is carried out in which this class of clay product is not used.

Fire-proofing needs no advocate to call attention to its importance. The fire record of the past few years shows the crying need of better and more thorough fire-proof construction.

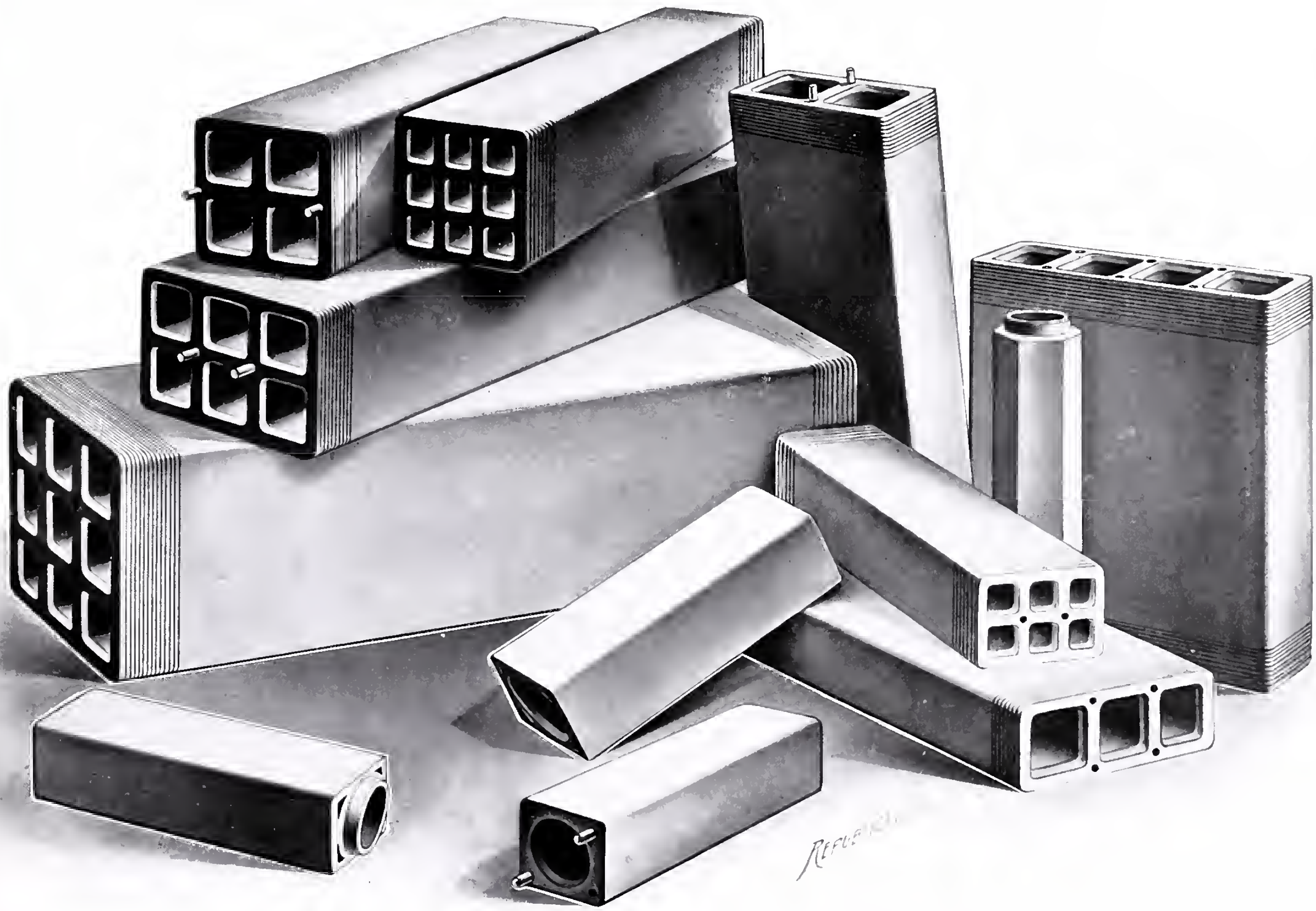


Products of Our Hollow Ware Auger Machines

Those buildings which have been constructed of burned clay products have withstood the fire test with great credit, and are excellent evidence that the very best fire-proof building material is of burned clay.

All these hollow clay products are most economically made on our machinery because the machines are well adapted to their production.

The hollow ware field has many attractive features. Though requiring some extra care in the handling of the products, the market value of the finished article is a compensating advantage. To those who have a suitable clay, this branch of the clay trade should prove profitable. If you desire a test made of your clay, we will be pleased to place our testing-room at your disposal and will send you finished samples of hollow ware made from your clay. We will give you further particulars regarding the manufacture of hollow ware upon your request.



Products of Our Hollow Ware Auger Machines

Fire-Proof Building Material

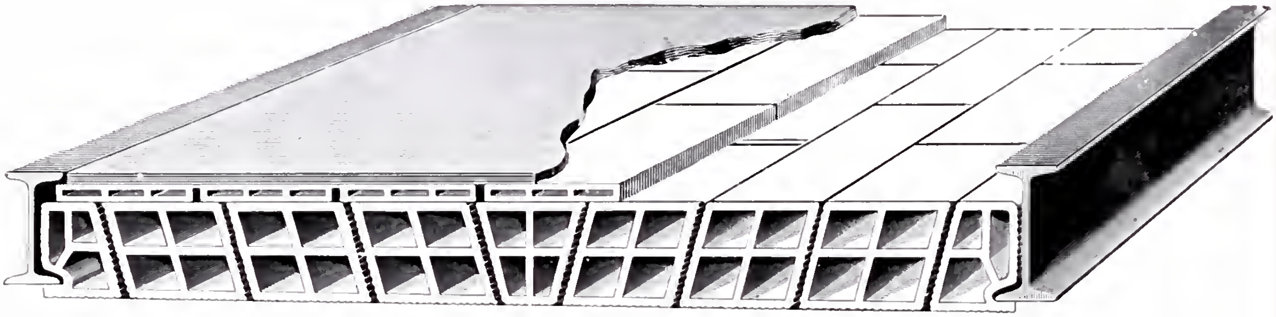
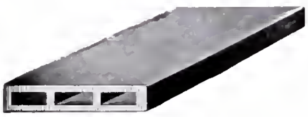
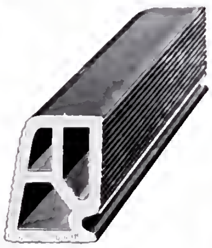


FIG. A.

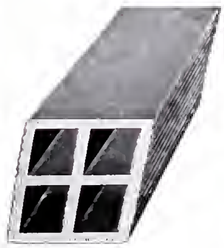
FIG B.



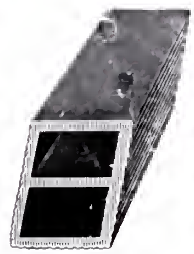
FLOOR TILE ABOVE ARCH



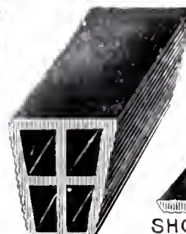
SKEWBACK



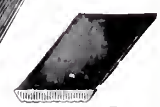
STANDARD Nº I.



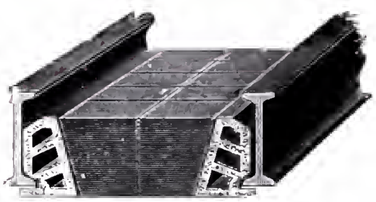
STANDARD Nº2.



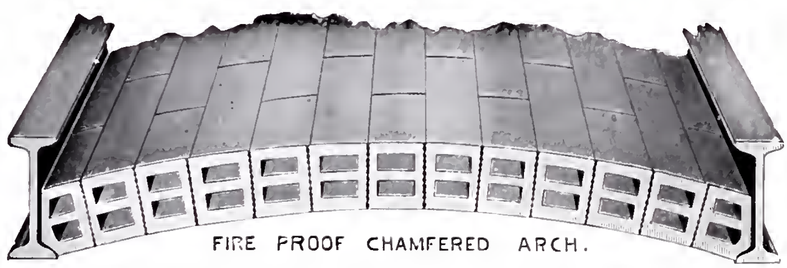
KEY



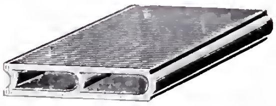
SHOE TILE UNDER I BEAM



End and Side Construction
Combined
Floor Arch No. 2



FIRE PROOF CHAMFERED ARCH.



BOOK TILE

FURRING TILE .

FURRING TILE .

End Construction
Floor Arch No. 1

American Granulators

American Granulators are used for preparing plastic clay and feeding it to the crushing rolls in a properly prepared condition and at a constant and uniform rate.

A hopper should be built above the granulator large enough to store one or more carloads of material, to provide against interruptions in the hauling from the bank.

The American Granulator reduces the labor of feeding the clay to the crusher. The knives are adjustable as to pitch and may be set at the proper angle to deliver the quantity of material for each individual plant installation and furnish a uniform supply of clay, which means practically constant and dependable daily output.

The knife shaft is round and is cast from our standard "American gear metal." It is of sufficient diameter to insure against breakage from crystallization, and soon takes a high polish, consuming but little power from friction, and will wear for years. The sockets for the knives and keys are cast in the shaft, thus toughening the metal and obtaining the strongest casting it is possible to make.

American Granulators are built either bevel geared or spur geared, and profiting by our experience in the construction of a line of strictly modern machines, we use but a single pair of gears, one spur or bevel gear, as the case may be, and one pinion, completely enclosing them in such a way that they run in a bath of oil in a dirt-proof case.

The bearings of American Granulators are ring oiling, excepting the end thrust on the main shaft, which is a "marine" type. The advantage of this type of bearing is that it will take the thrust from either direction, and the machines are readily convertible, so as to discharge the material at either end of the shell, that is, between the gear frame and the shell or at the opposite end, as may be most convenient. The arrangement of the knives is such that they may be reversed and run in the opposite direction.

The shaft is the same for all American Granulators of a given size, regardless of the direction of motion or whether spur or bevel geared.

While the American Granulators are convertible as to direction of discharge and direction of motion, in ordering it is advisable that we be informed as to these points to enable us to ship the machine arranged to suit requirements. Each machine is erected complete in our factory and thoroughly inspected before shipment.

American Pug Mill and Granulator Shaft

The round shaft and adjustable knives as incorporated in our standard line of Granulators and Pug Mills contribute to greater efficiency.

The shaft is large in diameter and is free from vibrations, reducing the tendency to crystallize. They are cast from a mixture of steel and charcoal iron, making a close-grained structure of great strength and wearing qualities. In service, they become polished, so that the full area of the tempering chamber is effective entirely up to the shaft. The adjustable knife feature makes it possible to obtain the maximum amount of mixing and the proper quantity of material at all times. The method of keying the knives in the shaft provides a safe method of securing the blade to the shaft and at the same time a convenient method of adjustment for pitch and for renewal.

American Granulator and Pug Mill Shaft

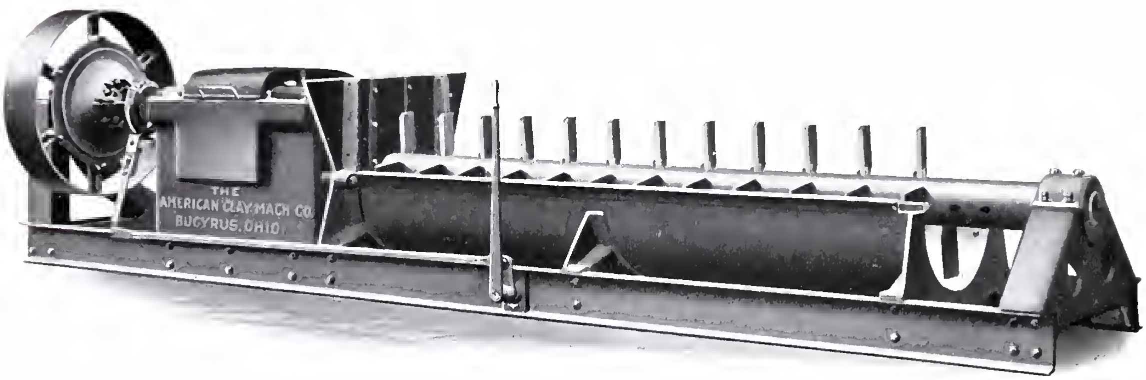
American Pug Mill and Granulator Knives

Our American Pug Mill knives are of the "Battle Ax" type, having a thin cutting edge with heavy back and round shank. New faces can be welded on when the blade becomes worn, and the round shank permits adjustment of the blade to any angle, regulating the discharge to a nicety.

Our standard line of pug mills owe their efficiency largely to this knife, to the round shaft and to the increased area of the tempering section.

American Granulator and Pug Mill Knife

American No. 354 and No. 355 Granulators



American No. 354 Granulator

(Pushing Type, Weight 15,415 lbs.)

These are single-geared, single-shaft granulators. The design of the machine is such as to permit driving it in either direction and arranging it for either the pushing or the pulling type. The two machines are identical in construction with the exception that the No. 354 Granulator is the pushing type, arranged to push the material forward, away from the driving end and discharge at the forward end of the shell, while the No. 355 Granulator is arranged to pull the material and discharge between the gear frame and the shell.

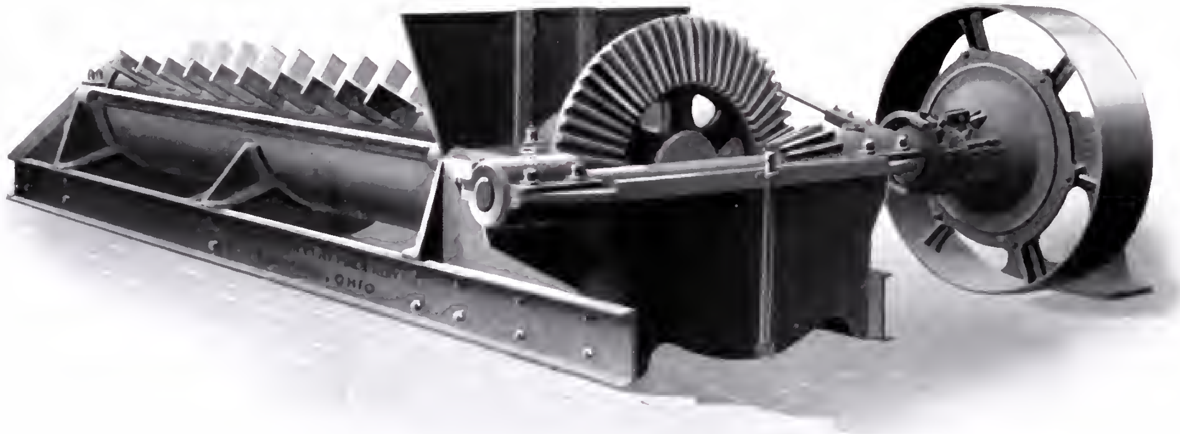
American No. 357 and No. 358 Bevel-Geared Granulators

The two machines are identical in construction with the exception that the No. 357 Granulator is the pushing type, while the No. 358 Granulator is the pulling type.

Rated Capacity Per Hour —

Building Brick, 5,000 to 15,000 per hour.

Capacity is governed by speed at which the pulley is driven, angle at which the knives are set, nature and character of clay, and by management.



American No. 357 Bevel-Geared Granulator
(Gear Cover Removed) Pushing Type

American No. 358 Bevel-Geared Granulator
Pulling Type, Weight 13,500 pounds

Specifications

Base —

The base of this machine is a heavy one-piece casting carrying the shaft bearing and forming an oil reservoir for the gears.

Shafts —

The cast iron mixing shaft is 9 inches diameter, made from the same material used in American gears, and arranged for inserting the mixing knives, which are secured in position by steel keys. The pulley shaft is steel, 4 inches diameter.

Bearings —

The machine is fitted with ring oiling babbitted bearings. The bearing on the driving end of the mixing shaft is of the marine type for end thrust and is 18 inches long. The bearing on the forward end of this shaft is 9½ inches long. Bearings on the driving shaft are 18 inches and 14 inches long.

Gears on Nos. 354 and 355 Granulators —

The gears are cast American gear metal 2-inch pitch, 10-inch face. Master gear is 38⅞ inches diameter, driving pinion is 9⅝ inches diameter, ratio 4 to 1. They are incased and run in a bath of oil.

Gears on Nos. 357 and 358 Bevel-Geared Granulators —

The gears are cast American gear metal 2½ inches pitch, 10 inches face. Master gear is 45½ inches diameter, driving pinion is 11¼ inches diameter, ratio 4 to 1. They are incased and run in a bath of oil.

Shells —

The shell is made from one-piece of tank steel $\frac{5}{16}$ inch thick. The mixing chamber is 12 feet long, 32 inches wide and 16 inches deep.

Knives —

The mixing knives are hammered steel, Battle Ax type. They are inserted in the mixing shaft and secured by steel keys, the arrangement being such as to permit setting the knives at any angle required for thorough mixing. The blades are 10 inches long and 5½ inches wide. Fifty-two knives are required for the mixing shaft.

Driving Pulley —

The machine is furnished with a Bucyrus friction-clutch driving pulley 48 inches diameter, 12 inches face.

Speed —

The speed of the driving pulley should be 60 to 120 R. P. M. This may be increased or decreased according to the capacity desired and the character of the work.

Power —

Power required to operate this machine will vary from 35 H. P. to 60 H. P., according to capacity, character of clay and quality of mixing required.

Dimensions No. 354 and No. 355 Granulators

Length over all	23 ft. 6 in.
Length of Sills	23 ft. 6 in.
Width over all	6 ft.
Width of Sills	4 ft. 4 in.
Height over all	5 ft. 5½ in.
Height to top of Shell	2 ft. 3 in.
Height to center of Driving Pulley	3 ft. 5½ in.
Height to center of Mixing Shaft	2 ft. 1 in.
Length from Discharge end to center of Pulley on No. 354 Granulator	19 ft. 5½ in.
Length from Discharge end to center of Pulley on No. 355 Granulator	8 ft. 11 in.
Space for Discharge	17 in.
Weight	15,415 pounds

Dimensions No. 357 and No. 358 Bevel-Geared Granulators

Length over all	19 ft. 6 in.
Length of Sills	18 ft. 6 in.
Width over all	10 ft. 6 in.
Width of Sills	4 ft. 4 in.
Height over all	4 ft. 2½ in.
Height to top of Shell	27 in.
Height to center of Driving Pulley	25 in.
Height to center of Mixing Shaft	25 in.
Length from Discharge end to center of Pulley Shaft — No. 357 Granulator	15 ft. 1⅜ in.
Length from Discharge end to center of Pulley Shaft — No. 358 Granulator	4 ft. 6⅜ in.
Distance from center of Driving Pulley to center of Machine	5 ft. 5½ in.
Space for Discharge	17 in.
Weight	13,500 pounds

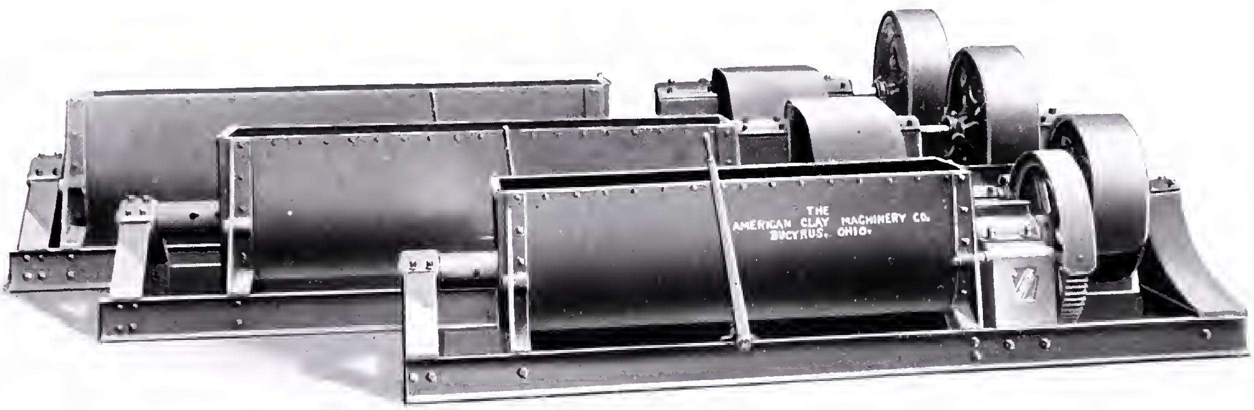
American Pug Mills

Pug Mills, so called, are in reality mixing machines, used for the purpose of preparing clay for the Auger Machine. The demand for better wares and less waste calls for better preparation of material than has been obtained in the old style Pug Mills.

To meet the above requirements, we have developed a line of standard Pug Mills, increasing the area of tempering chamber, increasing the number of knives, and decreasing the pitch of the knives, so as to obtain more thorough mixing and tempering.

The pitch of the knives is readily adjusted, so as to retain the material evenly throughout the entire length of the tempering chamber.

The end thrust is of the marine type, taking the thrust from either direction, enabling the machine to be run in either direction and to discharge the material at either end of the



tempering chamber. In other words, they may be readily converted from a right to a left hand machine, or to discharge the tempered clay between the gear frame and the tempering chamber, or at the opposite end, as desired.

The bearings are ring oiling, excepting the thrust bearing, and the gears run in an oil tight case.

The machines are heavier than the older type, and the metal is distributed to absorb the vibrations and stresses.

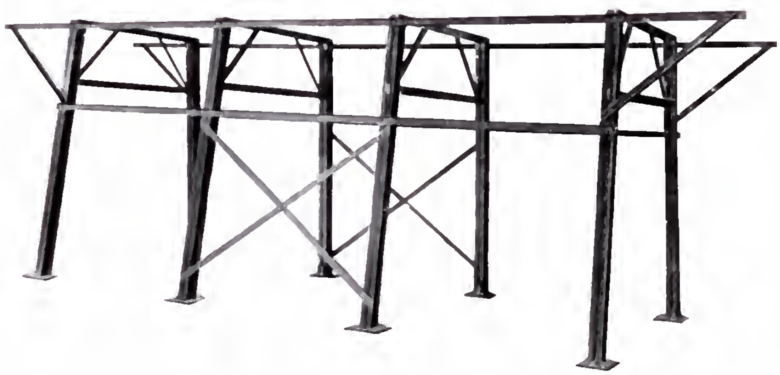
All of these machines are single geared and have open ends.

A space is left between the tempering chamber and shaft bearings to avoid the possibility of clay working into the bearings.

The intent of the designer is to produce a utility machine that will stand up to its work indefinitely and do good work with a minimum amount of power.

American Steel Frame for Mounting Pug Mill

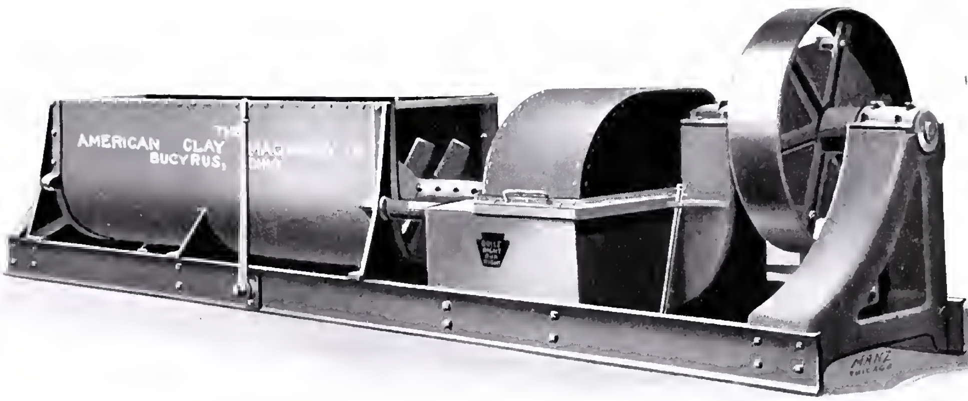
In designing modern brick plants it is good practice to set the Pug Mill over the Brick Machine so that the clay will feed by gravity from the Pug Mill direct into the Brick Machine. It has been the custom to support the Pug Mill on a cumbersome wood frame, which, in case of fire, burns out from under the Pug Mill, allowing it to fall on the Brick Machine, often ruining it, and at the same time breaking and bending the Pug Mill so it is a total loss. In order to prevent this, we have designed a line of neat, strong, well-braced structural steel frame supports to mount the Pug Mill over the Brick Machine.



The height of standard frame is 8 feet 6 inches. Each leg is provided with a base plate, which should be anchored to a brick or concrete foundation. The length is governed by the length of the Pug Mill. The width from center to center of foundation bolts is 7 feet 4 inches; the width of the top of the steel frame where the Pug Mill sets is 6 feet 9 inches. The wood platform can be made as wide as desired; 8 feet is preferable. This we do not furnish. The frame is made long enough to premit the operator to walk around to either side at the discharge end of the Pug Mill.

Where necessary, we build a special frame to suit conditions.

Each frame is set up and carefully fitted before being knocked down for shipment.



American No. 291 Pug Mill
Pulling Type, Weight 15,415 pounds

American No. 302 Pug Mill
Pushing Type

American No. 303 Pug Mill
Pulling Type

American No. 304 Pug Mill
Pushing Type, Weight 11,000 pounds

American Standard Pug Mills

We build these Standard Pug Mills in three different sizes, with tempering chamber 8 feet, 10 feet, and 12 feet long. They are all of the same general design and vary in size and capacity. These are single-geared, single-shaft Pug Mills designed for thoroughly tempering clay and shale. The design of the machine is such as to permit driving it in either direction and arranging it for either the pushing or the pulling type. The two machines are identical in construction with the exception that one Pug Mill is the pushing type, arranged to push the material forward, away from the driving end and discharge at the forward end of the shell, while the other Pug Mill is arranged to pull the material and discharge between the gear frame and the shell.

American No. 291 and No. 302 Pug Mills

12-ft. Tempering Chamber

Rated Capacity Per Hour —

Building Brick, 10,000 to 15,000 per hour.
Paving Blocks, 5,000 to 10,000 per hour.

American No. 303 and 304 Pug Mills

10-ft. Tempering Chamber

Rated Capacity Per Hour —

Building Brick, 4,000 to 7,500 per hour.
Paving Blocks, 2,500 to 5,000 per hour.

American No. 282 and 283 Pug Mills

8-ft. Tempering Chamber

Rated Capacity Per Hour —

Building Brick, 2,000 to 4,000 per hour.
Paving Blocks, 1,500 to 2,500 per hour.

Capacity —

Capacity is governed by speed at which the pulley is driven, angle at which the tempering knives are set, nature and character of clay, quality of tempering required and by management.

General Description

Gear Frame —

The gear frame of the machine is a heavy one-piece casting carrying the shaft bearing and forming an oil reservoir for the gears.

Shafts —

The cast iron tempering shaft is made from the same material used in American gears and arranged for inserting the tempering knives, which are secured in position by steel keys. The pulley shaft is steel.

Bearings —

The machine is fitted with ring oiling babbitted bearings. The bearing on the driving end of the tempering shaft is of the marine type for end thrust.

Gears —

The gears are cast American gear metal. They are incased and run in a bath of oil, except on the No. 282 and No. 283 Pug Mills.

American No. 282 Pug Mill
Pushing Type, Weight 5,760 pounds

Shell —

The shell is made from one piece of tank steel. The tempering chamber is 8 feet, 10 feet, or 12 feet long.

Knives —

The tempering knives are hammered steel, Battle Ax type. They are inserted in the tempering shaft and secured by steel keys, the arrangement being such as to permit setting the knives at any angle required for thorough tempering.

Driving Pulley —

The machine is furnished with a Bucyrus friction-clutch driving pulley.

Speed —

The speed of the driving pulley may be increased or decreased according to the capacity desired and the character of the work.

Power —

Power required to operate these machines will vary according to capacity, character of clay and quality of mixing required.

Specifications Standard Pug Mills

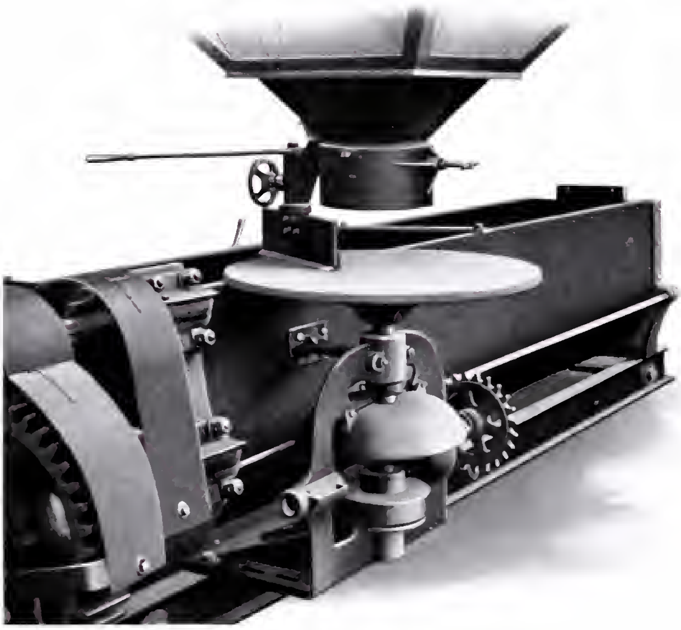
	Nos. 291 and 302 Pug Mills	Nos. 303 and 304 Pug Mills	Nos. 282 and 283 Pug Mills
Rated capacity per hour Building Brick ($8\frac{3}{4}$ x $4\frac{1}{2}$ x $2\frac{1}{2}$)	10,000 to 15,000	4,000 to 7,500	2,000 to 4,000
Rated capacity per hour Street Paving Blocks (10 pounds)	7,500 to 10,000	3,500 to 5,000	1,000 to 2,500
Rated capacity per hour Fire-Proofing, Hollow Blocks or Drain Tile	10 to 15 tons	7 to 10 tons	5 to 7 tons
Diameter of Cast Iron Tempering Shaft	9 in.	8 in.	7 in.
Diameter of Steel Driving Shaft	4 in.	3 in.	$2\frac{1}{2}$ in.
Length of Bearings on Tempering Shaft	18 in. and $9\frac{1}{2}$ in.	16 in. and $8\frac{1}{2}$ in.	14 in. and 8 in.
Length of Bearings on Driving Shaft	18 in. and 14 in.	16 in. and 12 in.	10 in.
Master Gear	$38\frac{7}{8}$ in. dia. 10 in. face 2 in. pitch	34 in. dia. 8 in. face $1\frac{3}{4}$ in. pitch	$34\frac{3}{8}$ in. dia. $4\frac{1}{2}$ in. face $1\frac{1}{2}$ in. pitch
Driving Pinion	$9\frac{5}{8}$ in. dia. 10 in. face 2 in. pitch	$8\frac{3}{8}$ in. dia. 8 in. face $1\frac{3}{4}$ in. pitch	$6\frac{1}{4}$ in. dia. $1\frac{1}{2}$ in. pitch.
Ratio of Gears	4 to 1	4 to 1	5.5 to 1
Pug Mill Shell	12 ft. long, 32 in. wide 39 in. deep	10 ft. long, 28 in. wide $33\frac{3}{4}$ in. deep	8 ft. long, 24 in. wide 29 in. deep
Thickness of Steel Plate in Shell	$\frac{5}{16}$ inch	$\frac{5}{16}$ inch	$\frac{1}{4}$ inch
Steel Tempering Knives	Blade $10\frac{1}{2}$ in. long $5\frac{1}{2}$ in. wide	$8\frac{1}{2}$ in. long $5\frac{1}{8}$ in. wide	$7\frac{1}{2}$ in. long $4\frac{5}{8}$ in. wide
Number of Tempering Knives in Shaft	52	44	31
Friction-Clutch Driving Pulley	48 in. dia. 12 in. face	42 in. dia. 10 in. face	36 in. dia. 10 in. face
Speed of Driving Pulley	80 to 120 R. P. M.	80 to 120 R. P. M.	100 to 140 R. P. M.
Power required	20 to 40 H. P.	15 to 30 H. P.	10 to 15 H. P.
Weight	15,415 pounds	11,000 pounds	5,760 pounds

Dimensions

Length over all	23 ft.	20 ft.	14 ft. 5 in.
Length of Sills	23 ft.	20 ft.	14 ft. 4 in.
Width over all	6 ft.	5 ft. 4 in.	4 ft. 10 in.
Width of Sills	4 ft. 4 in.	3 ft. 10 in.	2 ft. 10 in.
Height over all	5 ft. $5\frac{1}{2}$ in.	4 ft. 10 in.	3 ft. 10 in.
Height to top of Shell	4 ft.	3 ft. $6\frac{3}{4}$ in.	3 ft. 3 in.
Height to center of Driving Pulley	3 ft. $5\frac{1}{2}$ in.	3 ft. 1 in.	2 ft. $4\frac{1}{2}$ in.
Height to center of Tempering Shaft	2 ft. 1 in.	1 ft. 11 in.	1 ft. 10 in.
Length from Discharge end to center of Pulley on Pushing Type Pug Mill	18 ft. $7\frac{3}{4}$ in.	15 ft. $11\frac{3}{4}$ in.	11 ft. $\frac{3}{4}$ in.
Length from Discharge end to center of Pulley on Pulling Type Pug Mill	7 ft. $8\frac{1}{4}$ in.	6 ft. $11\frac{3}{4}$ in.	3 ft. $11\frac{1}{2}$ in.

American No. 162 Automatic Disc Feeder for Pug Mill

This machine is designed to be attached to a Pug Mill, and arranged so that it will operate only when the Pug Mill is in operation, the arrangement being such that the flow of clay is automatically regulated at all times. This insures uniform and regular tempering and greatly improves the quality of the brick. When attached to the Pug Mill the Disc Feeder is driven from the Pug Mill shaft by a sprocket chain. The machine is self-contained and is substantially constructed in every detail. It is built for long and continuous service. It may be installed and operated as an independent machine entirely separate from the Pug Mill.



The standard size of the circular plate or disc is 36 inches diameter. Where it becomes necessary to enlarge the diameter of this disc due to certain requirements or conditions, we do so by attaching a circular steel plate to the top of the cast iron disc. Above the Disc Feeder it is necessary to install a small clay bin for receiving the material which is to be fed to the Pug Mill. We do not furnish the clay bin with the Disc Feeder. We do, however, furnish a hopper which is to be attached to the clay bin. The lower end of this hopper is circular and is made with a thread or screw upon which we mount an adjustable spout, which can be raised or lowered by turning on the screw. This increases or decreases the distance between the hopper and horizontal disc, and in this way the amount of clay passing from the bin can be accurately regulated. The construction is such that the spout can be set in any position and securely locked, so that it will not jar loose and change the adjustment. There is also a scraper attached to the hopper, so arranged that it may be adjusted to deliver the clay from the revolving disc to the Pug Mill. With the Disc Feeder properly adjusted and with proper means for controlling the water supply, uniform tempering can be secured without the aid and without the necessity of having a man in charge of the Pug Mill constantly.

Specifications

Shafts —

All shafts are steel. Diameter vertical shaft, $2\frac{1}{2}$ inches. Diameter of driving shaft, $1\frac{1}{2}$ inches.

Bearings —

Bearings are well proportioned and carefully made. Length of vertical shaft bearings, 5 inches. Length of driving shaft bearings, 8 inches. Diameter of disc in step bearing, 7 inches.

Gearing —

All gears are made of American gear metal. Bevel gear 17.92 inches diameter, 3 inches face, $1\frac{1}{8}$ inches pitch. Bevel pinion, 7.91 inches diameter. Gear ratio, 2.25 to 1.

Feeder Disc —

The standard feeder disc is 36 inches diameter.

Driving Pulley —

The driving pulley, when used as an independent machine separate from the Pug Mill, is 12 inches diameter, 4 inches face. Speed, 40 R. P. M.

Capacity —

This machine will feed clay for a Pug Mill of the largest capacity.

Power —

The power required, 1 to 2 H. P., will vary, dependent on the quantity and quality of the clay.

Weight —

1,390 pounds.

Dimensions

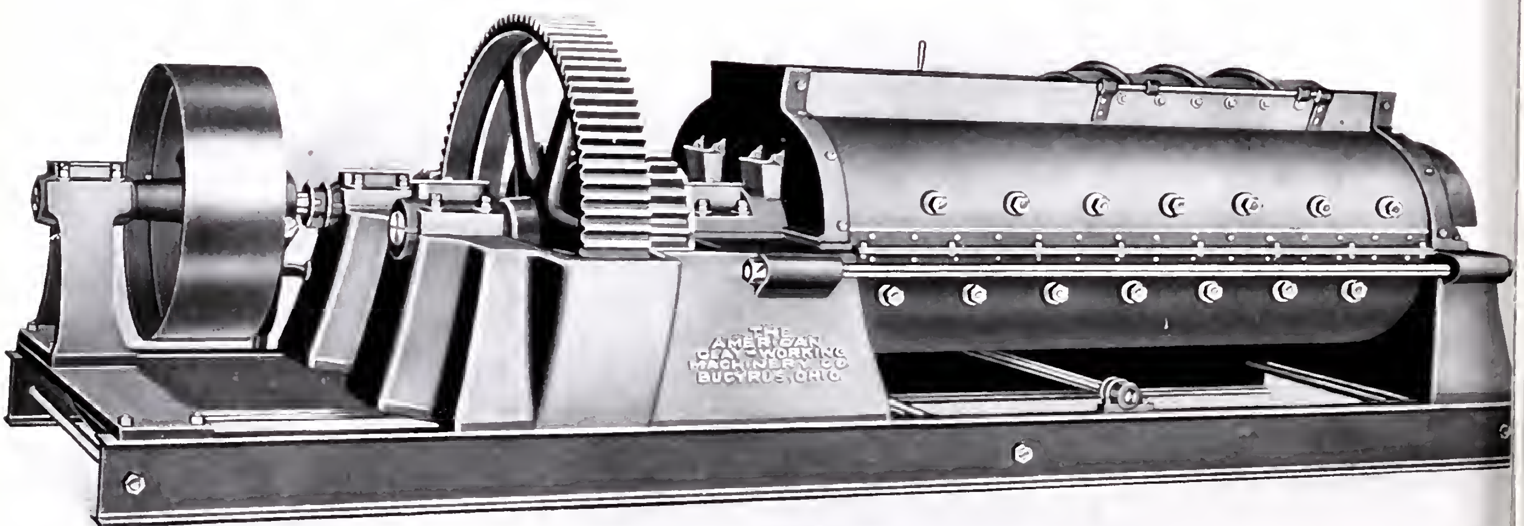
Length over all	3 ft. 6 in.
Height to top of Disc	2 ft. 8 in.
Height to top of Hopper	4 ft. 5 in.
Size of standard Hopper	20 x 20 in.
Size of special Hopper	24 x 24 in.

American No. 26 Double-Shaft Pug Mill

This is a heavy double-shaft Pug Mill designed for thoroughly mixing and tempering clay and shale. It is especially recommended for mixing materials that do not take water readily, or for mixing two or more different materials when the mixture must be thorough and uniform.

The standard machine is constructed with the discharge end closed on the bottom, and is arranged to discharge the material above and over the top of the mixing shafts.

The Pug Mill shell is partially closed to prevent the clay from working out over the top at the discharge end. When specified on the order the machine can be furnished with the discharge end open at the bottom, but when constructed in this manner, the machine does not



give as thorough pugging as when it is arranged to discharge over the top of the tempering shafts.

To increase the pugging capacity of this machine a series of steel bars are placed above and below the tempering shafts, passing through between the knives. These bars are 1¼ inches diameter.

Rated Capacity Per Hour —

Building Brick, 4,000 to 6,000 per hour.

Capacity is governed by speed at which the pulley is driven, nature and character of clay, and by management.

Specifications

Gear Frame —

The gear frame of this machine is a heavy one-piece casting carrying the shaft bearings. The machine is mounted on 8-inch steel "I" beam skids.

Shafts —

The tempering shafts are forged steel, 4 inches square in the mixing chamber and 5 inches diameter in the bearings. The driving shaft is steel, 3 inches diameter.

Bearings —

The bearings on the driving shaft and on the tempering shafts are 12 inches long. These are well babbitted with the best grade of metal for the purpose. The chilled discs in the end thrust bearings are 8 inches diameter.

Gears —

The gears are cast American gear metal 1.75 inches pitch, 10 inches face. Master gear 51.25 inches diameter, driving pinion 8.96 inches diameter, ratio 3.7 to 1. The intermediate gears are 2.25 inches pitch, 8.5 inches face, 17.95 inches diameter, ratio 1 to 1.

Shell —

The shell is made in three pieces; these are tank steel 1/4 inch thick. The tempering chamber is 8 feet long, 48 inches wide and 36 inches deep.

Knives —

The tempering knives are cast from a special mixture of metal, same as used in making American gears. These knives are arranged to clamp around the square shaft in the tempering chamber. Each pair of knives will occupy a space 6 inches on the tempering shaft. The knives are 10 1/2 inches long and are 6 inches and 3 inches wide. Sixty-four knives are required for both tempering shafts.

Driving Pulley —

The machine is furnished with a friction-clutch driving pulley 42 inches diameter, 12 inches face.

Speed —

The speed of the driving pulley should be 75 to 150 R. P. M., according to the capacity desired and the character of the work.

Power —

Power required to operate this machine will vary from 40 H. P. to 50 H. P., according to the capacity and the character of the clay.

Weight —

15,865 pounds.

Dimensions

Length over all	16 ft. 8 in.
Length of Sills	16 ft. 8 in.
Width over all	7 ft. 0 in.
Width of Sills	5 ft. 2 in.
Height over all	4 ft. 6 in.
Height to top of Shell	4 ft. 1 in.
Height to center of Driving Pulley	2 ft. 4 in.
Height to center of Tempering Shaft	2 ft. 4 in.
Length from Discharge end to center of Driving Pulley	15 ft. 0 in.
Width from center of Machine to center of Driving Shaft	1 ft. 9 in.

American No. 168 Taper Tub Pug Mill

This Pug Mill was designed for retempering clay and is used where thorough tempering is required. The clay must be partially tempered or soaked before it is delivered to this machine. The No. 168 Pug Mill is adapted particularly for fire clay used in glass works, also potteries and terra cotta plants. It is made short, the discharge end being only a short distance

from the hopper, so that the clay can be returned from the discharge back into the mill to be repugged as often as desired.

The tempering cylinder, which is 4 feet long, is made tapering. The lower half is provided with rectangular steel cleaner teeth mounted on a steel rod, forming a hinge and held in position by a shearing pin. These cleaner teeth extend towards the pug shaft between the tempering knives. The knives working between the cleaner teeth promote thorough mixing of the material. Should a stone or piece of iron get into the mill the small shearing pin will shear off, permitting the cleaner teeth to fold up into the upper half of the cylinder or concave, which is provided with a cavity so that the cleaner teeth can fold up sufficiently to let the knives clear them without breaking.

The tub is tapering from the receiving to the discharge end, to which is bolted an extension, and to this is hinged a front having a 12-inch round opening. The front is provided with a safety attachment which shears a pin, allowing the front to open when the clay in the mill becomes too stiff. The discharge opening may be made any size required.

The mill is provided with a self-contained gearing frame mounted on steel I-beam skids, which extend back to receive the outboard bearing on the driving shaft and forward to receive a pedestal which supports the front end of the pugging cylinder, making the mill self-contained. The pug shaft is forged from a steel billet. The bearings, which form a part of the gear frame, are made of sufficient length to carry the tempering shaft without the necessity of a bearing on the discharge end of the shaft. The rear end of the shaft is provided with our standard thrust bearing, consisting of two chilled discs between which is a bronze disc revolving in oil.

Specifications

Gear Frame —

The gear frame of this machine is substantial and firmly mounted on 7-inch "I" beam skids. The bearings are a part of the frame.

Shafts —

The forged steel pug shaft is 3½ inches square in pugging chamber and 5 inches in the bearings. The driving shaft is steel 2½ inches diameter.

Bearings —

The bearings on the pug shaft are 14 inches long and the driving shaft bearings are 9½ inches long. All bearings are carefully made and babbitted with our special metal. The chilled discs in the end thrust bearing are 9 inches diameter and run in an oil bath.

Gears —

The gears are cast American gear metal. Master gear is 36.75 inches diameter, 1.75 inches pitch, 5.5 inches face. Pinion is 6.25 inches diameter. Gear ratio, 6 to 1.

Shell —

The Pug Mill shell or tub is cast in halves, carefully planed and securely bolted. Length, 4 feet.

Knives —

The pug shaft is fitted with 8 double blade tempering knives varying in length to conform to the taper of the pugging chamber. The blades are 3.5 inches wide and each knife will occupy a space of 5 inches on the shaft.

Driving Pulley —

The machine is fitted with a friction-clutch driving pulley 36 inches diameter, 8 inches face.

Speed —

The speed of the driving pulley should be 150 R. P. M., dependent on capacity desired and character of the work.

Power —

The power required to drive this mill will vary from 20 to 30 H. P., according to capacity and character of material.

Weight —

6,800 pounds.

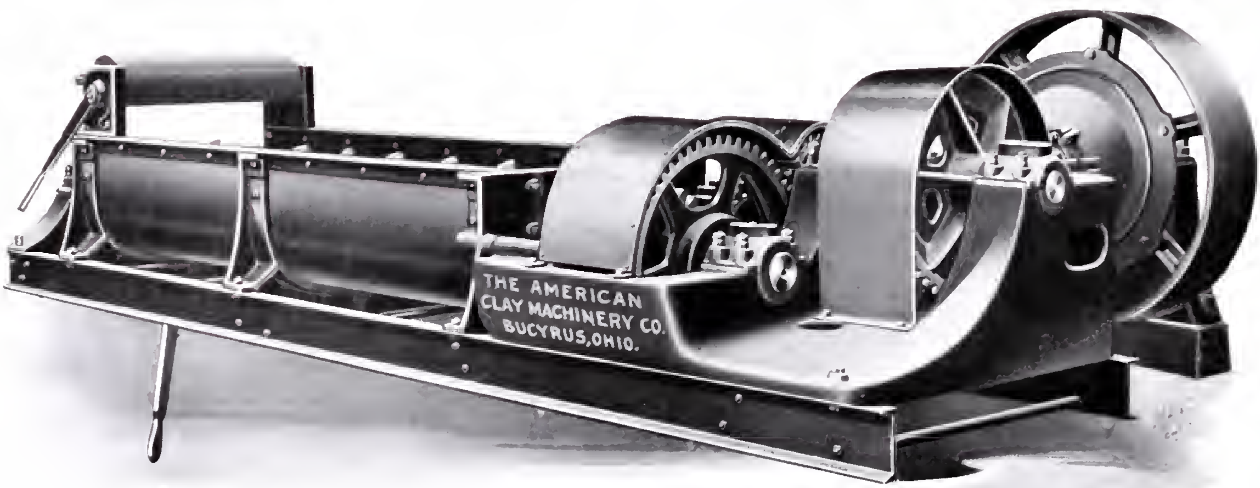
Dimensions

Length over all	10 ft. 9 in.
Width	5 ft. 6 in.
Height	3 ft. 11 in.
Height from top of floor to top of Pug Shell	2 ft. 5 in.
Length from center line of Driving Pulley to Discharge end	9 ft. 1 in.

American No. 247 Double-Shaft Clay Feeder and Mixer

This machine is designed for preparing and feeding plastic clay. As a feeder it forms the bottom of a clay storage bin and will discharge the material at a uniform rate, determined by the speed at which the pulley is driven, by the pitch at which the knives are set, and by the position of the adjustable gate which regulates the final control.

It may also be used to an advantage as a double-shaft Pug Mill, in which case the clay bin and the gate are omitted. The standard machine, which is always furnished unless otherwise specified, is bevel geared, with the driving pulley on the right-hand side, as shown in the illustration. Driving pulley may be placed on the left-hand side, if so specified. The machine may also be built spur geared when ordered. The standard machine discharges the material at the end of the mixing chamber opposite the driving gears, but the machine may be built so as to discharge the material between the mixing chamber and the gear frame when so specified.



Rated Capacity Per Hour —

Building Brick, 3,500 to 5,000 per hour.

Capacity is governed by speed at which the pulley is driven, nature and character of the clay, and the position of the adjustable discharge gate.

Specifications

Base —

The base of this machine is a heavy one-piece casting carrying the shaft bearings.

Shafts —

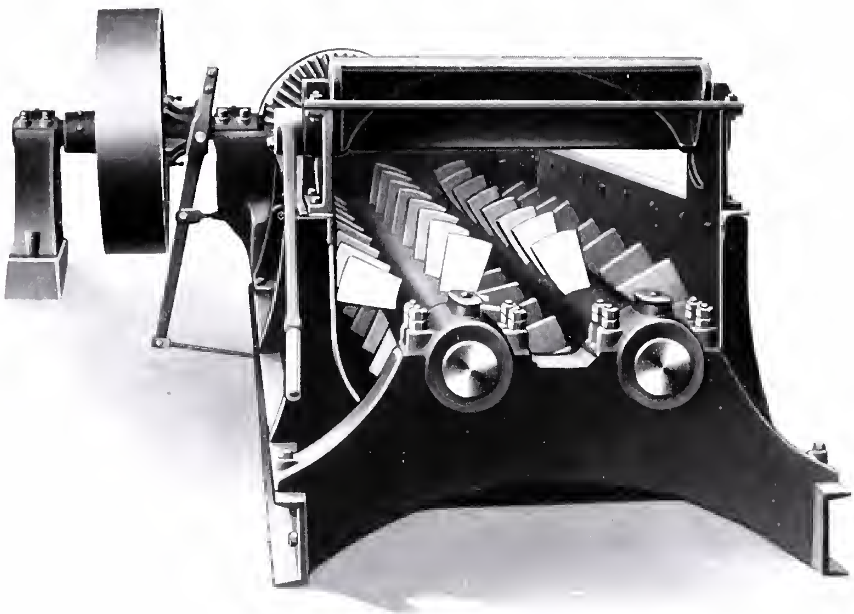
The mixing shafts are hammered steel 5½ inches diameter. The driving shaft is 2½ inches diameter. The intermediate shaft is 3 inches diameter.

Bearings —

The bearings on the mixing shafts at the forward end are 7 inches long. At the gear end the bearings are of the marine type end thrust, 10 inches long. Pulley shaft bearings are 5 inches and 7 inches. Intermediate shaft bearings, 7 inches long.

Gears —

Gears on the mixing shafts are cast steel $1\frac{3}{4}$ inches pitch, 6 inches face, 14 inches diameter, ratio 1 to 1. Intermediate gears are cast American gear metal, $1\frac{1}{2}$ inches pitch, $5\frac{1}{2}$ inches face. Master gear is $25\frac{7}{8}$ inches diameter, pinion $7\frac{1}{2}$ inches diameter, ratio 3.6 to 1. Bevel gears are cast American gear metal, $1\frac{1}{2}$ inches pitch, 4 inches face. Bevel gear is 22 inches diameter, pinion $7\frac{1}{4}$ inches diameter, ratio 3 to 1.



End View of American No. 247 Double-Shaft Clay Feeder and Mixer

Knives —

The knives in the mixing shafts are hammered steel, inserted and secured by keys. Sixty-four knives required for both mixing shafts.

Shell —

The shell forming the mixing chamber is 8 feet long, 31 inches wide, made of steel plate $\frac{1}{4}$ inch thick, reinforced on the edges with angle iron.

Driving Pulley —

The bevel-geared machine is furnished with a friction-clutch driving pulley, 36 inches diameter, $8\frac{1}{2}$ inches face. The spur-geared machine is furnished with friction-clutch driving pulley, 48 inches diameter, $8\frac{1}{2}$ inches face.

Speed —

Speed of driving pulley on bevel-geared machine, 100 to 250 R. P. M. On spur-geared machine, 35 to 90 R. P. M., according to capacity desired and character of work.

Power —

Power required to operate this machine will vary from 5 H. P. to 10 H. P. when the machine is used as a Feeder, and from 10 H. P. to 20 H. P. when the machine is used as a Pug Mill, depending upon the capacity required and character of material used.

Weight —

7,250 pounds.

Dimensions of Bevel-Geared Machine

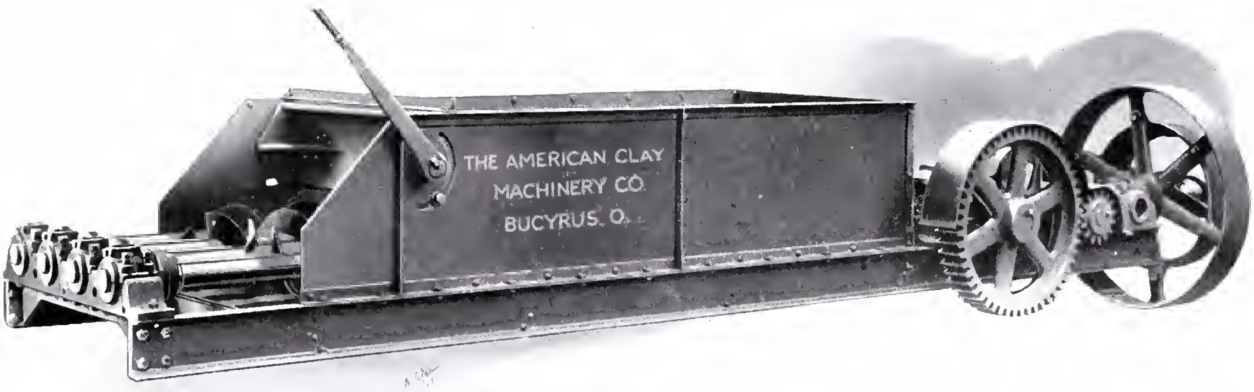
Length over all	14 ft. 10 in.
Length of Sills	14 ft. 8 in.
Length from center of Driving Shaft to end of Shell	3 ft. 7 in.
Length of Shell	8 ft. 0 in.
Width over all	6 ft. 6 in
Width of Sills	3 ft. 5 in.
Width from center of Driving Pulley to center of Mixing Chamber	3 ft. 1½ in.
Height over all	3 ft. 6 in.
Height to top of Shell	1 ft. 11½ in.
Height to center of Driving Shaft	1 ft. 11½ in.
Height to center of Machine	1 ft. 2½ in.

Dimensions of Spur-Geared Machine

Length over all	17 ft. 6 in.
Length of Sills	14 ft. 8 in.
Length from center of Driving Pulley to end of Shell	5 ft. 10½ in.
Length of Shell	8 ft. 0 in.
Width over all	4 ft. 7 in.
Width of Sills	3 ft. 5 in.
Width from center of Driving Shaft to center of Mixing Chamber	0 ft. 7 in.
Height over all	4 ft. 0 in.
Height to top of Shell	1 ft. 11½ in.
Height to center of Driving Shaft	1 ft. 11½ in.
Height to center of Machine	1 ft. 2½ in.

American No. 274 and No. 316 Spiral Clay Feeders

The American No. 274 Spiral Clay Feeder is designed for handling plastic clay direct from the bank, or for handling material that has been ground and screened. When installed in a plant, it should form the bottom of a storage bin, and will discharge the material continuously at a uniform rate. The American No. 316 Spiral Clay Feeder is identical in construction, with the exception that the No. 274 Spiral Clay Feeder is the pushing type, arranged to push the material forward, away from the driving end and discharge it at the forward end of the hopper, while the No. 316 Spiral Clay Feeder is arranged to pull the material and discharge it between the hopper and the gear frame. These machines are built with four shafts, upon each of which is a spiral or screw; the shafts turn toward the center of the machine, making it impossible for the material to bridge over and hang in the storage bin.



Rated Capacity Per Hour —
Building Brick, 2,000 to 3,500 per hour.

Capacity is governed by speed at which the pulley is driven, nature and character of the clay, and the position of the adjustable discharge gate.

Specifications

Base —
The base of this machine is a heavy one-piece casting carrying the shaft bearings.

Shafts —
The shafts are steel; pulley shafts, intermediate shaft and bevel-gear shaft are $2\frac{1}{2}$ inches diameter, miter-gear shafts are 3 inches diameter, and the shafts carrying the spirals or screws are $2\frac{15}{16}$ inches diameter.

Bearings —
The machine is fitted with babbitted bearings. Bearings on the driving shaft, intermediate shafts and miter-geared shaft are 6 inches long. The bearings for the screw shaft are $4\frac{3}{4}$ inches long.

These machines are built either spur geared or bevel geared, as may be specified. The spur gears or the bevel gears are made of cast iron American gear metal. The miter gears are made of cast steel. Bevel gears, $2\frac{1}{2}$ inches pitch, $3\frac{1}{2}$ inches face, 21 inches and $5\frac{3}{8}$ inches diameter, ratio 4 to 1. Spur gears, $1\frac{1}{2}$ inches pitch, 5 inches face, $25\frac{7}{8}$ inches and $7\frac{1}{8}$ inches diameter, ratio 3.6 to 1. The miter gears are $1\frac{1}{4}$ inches pitch, 3 inches face, 8 inches diameter.

Hopper —
The hopper or shell of the machine is made of steel sheets, well riveted together. These sheets are $\frac{3}{16}$ inch thick and the shell is 7 feet long, 38 inches wide, 23 inches deep.

Screws —
The screws form a continuous spiral. They are made of steel plate and are 9 inches diameter.

Driving Pulley —
Machine is furnished with a friction-clutch driving pulley, 36 inches diameter, $6\frac{1}{2}$ inches face.

Speed —
Speed of the driving pulley is 70 R. P. M. This may be increased or decreased, according to the capacity required and the character of the work.

Power —
Power required to operate this machine will vary from 5 H. P. to 10 H. P., according to the capacity and character of the material used.

Weight —
4,660 pounds.

Dimensions of Bevel-Geared Machine

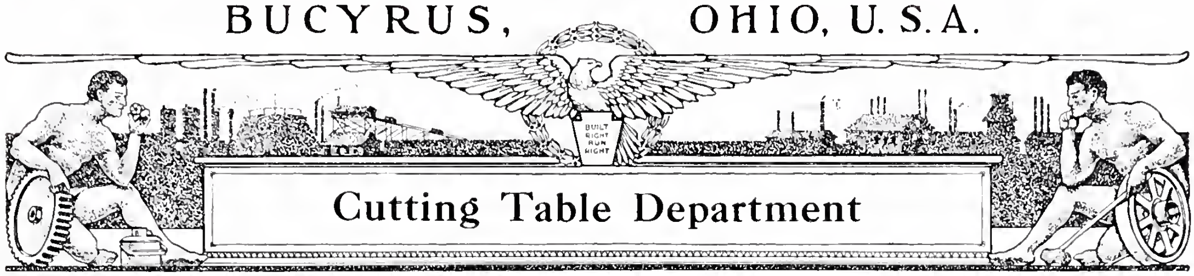
Length over all	16 ft. 2 in.
Length of Sills	14 ft. 3 in.
Length from Discharge end of Hopper to center of Driving Pulley for No. 274 Feeder	13 ft. 3 in.
Length from Discharge end of Hopper to center of Driving Pulley for No. 316 Feeder	6 ft. $1\frac{1}{4}$ in.
Width over all	5 ft. 3 in.
Width of Sills	3 ft. 6 in.
Height over all — above Channels	2 ft. $3\frac{1}{2}$ in.
below Channels	0 ft. $9\frac{1}{2}$ in.
Height to top of Hopper	2 ft. $2\frac{1}{2}$ in.
Height to center of Machine	0 ft. $9\frac{1}{2}$ in.

Dimensions of Spur-Geared Machine

Length over all	15 ft. 1 in.
Length of Sills	14 ft. 3 in.
Length from Discharge end of Hopper to center of Driving Pulley for No. 274 Feeder	11 ft. 10 in.
Length from Discharge end of Hopper to center of Driving Pulley for No. 316 Feeder	4 ft. 10 in.
Width over all	6 ft. 6 in.
Width of Sills	3 ft. 6 in.
Height over all — above Channels	2 ft. $3\frac{1}{2}$ in.
below Channels	0 ft. $9\frac{1}{2}$ in.
Height to top of Hopper	2 ft. $2\frac{1}{2}$ in.
Height to center of Machine	0 ft. $9\frac{1}{2}$ in.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.

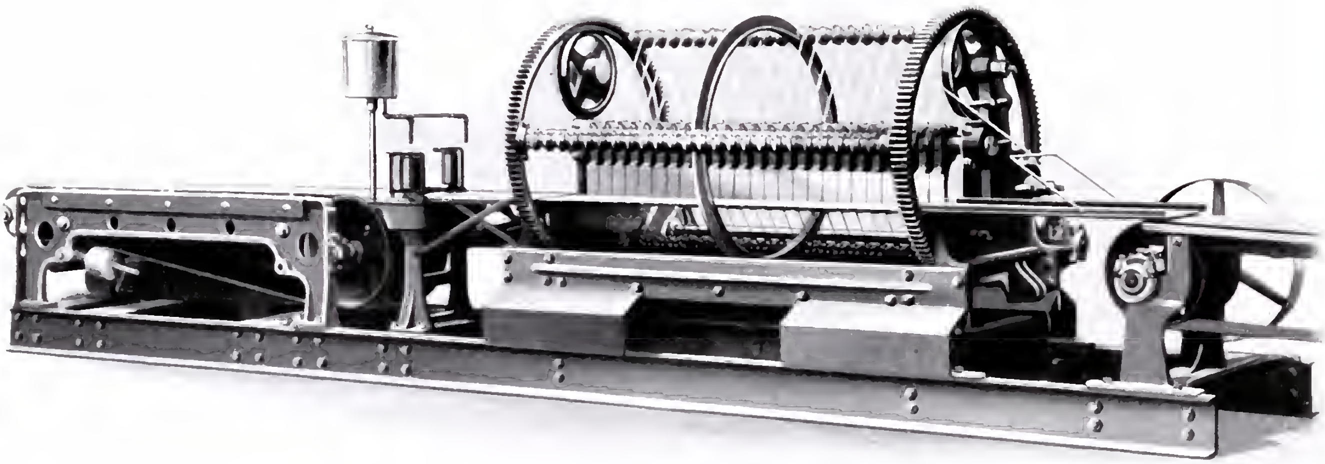


Cutting Table Department

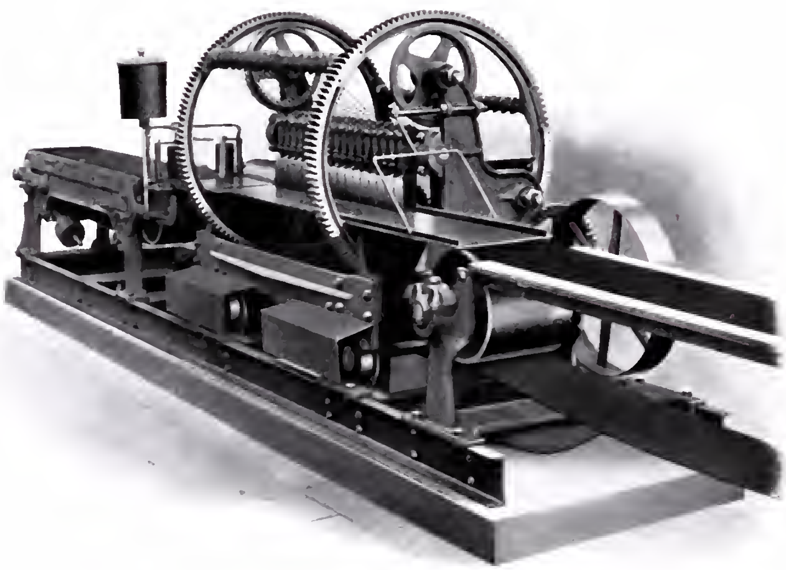
Cutting Tables

No matter what you may need in the line of Cutting Tables, we can exactly fill your wants. We have a line of cutters which cannot be approached in range, capacity or workmanship. Starting from the most simple cutters for the smallest plants and progressing up to our largest cutters, there is a uniform excellence of design and construction which insures satisfactory operation. All these cutters, comprising a variety of sizes and capacities, are carefully designed and built. The smallest as well as the largest are built in one department of our modern factory, superintended by our expert cutter builder, assisted by a crew of workmen who have been building cutters for years and have a special knowledge and adaptability for this branch of clay-working machinery. The material from which our cutters are built is of the highest grade. In the process of manufacture — from the foundry, where the castings are made, to the machine-room, where the parts are tooled, and the erecting-room, where they are fitted — every care is given that is possible in a strictly modern plant to insure the very best results and a finished machine which will be a credit to the "Built Right, Run Right" line.

After completion, each machine is carefully inspected and tested, so that, barring accidents in shipment, it is in perfect condition when it reaches the customer. The excellence of our Cutting Tables and the extent of the line make it possible for us to exactly meet the needs of the buyer without any necessity to change a cutter to try and make it perform a special purpose for which it was not intended or built. We solicit an investigation of our line, courting the most careful inspection and comparison.



American No. 350 Rotary Automatic Cutter
Capacity 7,500 to 12,500 Brick per hour



American No. 342 Rotary Automatic Cutter
Capacity 6,000 to 7,500 Brick per hour

American Rotary Automatic Cutter

This cutter is built in two sizes, both on the same general design and vary only in size and capacity.

No. 350 Rotary Automatic Cutter is designed for large capacity and is used with the largest size Auger Machine.

No. 342 Rotary Automatic Cutter is designed for medium capacity and is used with the medium size Auger Machine.

Rated Capacity Per Hour No. 350 Automatic Cutter—

Building Brick, 7,500 to 12,500 per hour.
Paving Block, 6,000 to 10,000 per hour.

Rated Capacity Per Hour No. 342 Automatic Cutter—

Building Brick, 6,000 to 7,500 per hour.
Paving Block, 5,000 to 6,000 per hour.

Capacity is governed by speed, size of brick, nature of clay and by management.

These machines will cut Roman brick up to 5 inches by 13½ inches; hollow blocks up to 8 inches by 8 inches. Radial chimney block up to 7 inches by 12 inches. Can also cut two or three streams of end-cut brick or hollow brick.

These machines are thoroughly reliable, positive in all their movements, and require but very little attention to keep them in proper adjustment for satisfactory service at all times. There are but two points that are adjustable or will require adjustment at any time. These are the brake and the locking device. The brake is attached for the purpose of absorbing the shocks due to starting and stopping the cutting reel suddenly and repeatedly. It is fitted with fiber friction surfaces and will require a slight adjustment as these may become worn. The service is not severe and the wear is not excessive, so that adjustments are seldom required, and when necessary the adjustment is made by simply turning a set-screw. The plate which unhooks the locking device is also made adjustable, but the wear is so light that it will seldom require any attention.

The cutter is belt driven, the power being taken from a counter-shaft, which should be located overhead. A separate belt from the same counter-shaft drives the off-bearing table with a quarter-turn drive.

The measuring belt operates the locking device, which holds the cutter section in position, and which, when released, automatically trips the clutch that drives the cutting reel, passing the wires through the column of clay. After the cut has been made the clutch is automatically disengaged. The cutting section moves forward to the end of its travel and automatically engages a gear and pinion, which return it to its proper position for the next cut, where it is locked and held until the measuring belt trips the locking device. The operation is smooth, quiet and easy, permitting high speed. The cutting section is mounted on large wheels, giving an easy motion forward with the column of clay while the cut is being made. The track under the cutting section has renewable plates, so that there is no wear on the main castings. The power to return the cutting section to position after the cut has been made is taken from the belt which drives the off-bearing table. The strain on the measuring belt necessary to open the locking device and trip the clutch is so slight that there is no tendency to swell the column of clay.

The spaces between the measuring belt, cutting section and off-bearing belt are bridged with a steel apron, leaving no gaps for the bar of clay to fall through.

The cutter has three sets of cutting wires and is equipped with the latest type of wire fasteners, which accommodate wires of various lengths and permit rapid replacement of broken wires. The cutting wires are cleaned automatically after each cut. The wires pass through the column of clay with a downward shearing motion, making a smooth cut on the face and end of the brick.

The construction of the machine is high class in every detail. It will give the best of service with the minimum amount of wear and requires but very little attention. It has very few wearing parts and these are interchangeable and are easily replaced at a very small expense.

Specifications

Frame —

The cutter is mounted on a heavy frame constructed of two steel channels, held together by heavy cast iron stretchers. The cast iron bearing stands for the driving mechanism are securely bolted to the frame.

Shafts —

All shafts are steel. The driving shaft is 2 inches diameter. The platen shaft is 3 inches diameter, and the shafts on which the wire fasteners are mounted are $1\frac{3}{4}$ inches diameter.

Bearings —

Bearings are ring oiling and well babbitted, with the best metal for the service required.

Gears —

All gears are cast American gear metal. They are broad faced and heavy pattern, with ample strength for service required.

Measuring Belt —

The iron frame for the measuring belt on No. 350 Cutter is 7 feet long, and on No. 342 Cutter it is 6 feet long. The cutter is fitted with a 14-inch 4-ply canvas measuring belt, laced with wire and provided with a substantial tightening device.

Off-Bearing Belt —

The cutter is furnished with a standard steel frame off-bearing table 20 feet long, having a 12-inch 4-ply canvas off-bearing belt. Additional length of off-bearing belt can be furnished when so specified on the order.

Driving Pulley —

The No. 350 Cutter is furnished with a standard driving pulley, 28 inches diameter, 12-inch face. Speed, 35 R. P. M.

The No. 342 Cutter is furnished with a standard driving pulley, 28 inches diameter, 8-inch face. Speed, 35 R. P. M.

Off-Bearing Belt Drive —

The off-bearing table on No. 350 Cutter is furnished with a standard cast iron driving pulley, 24-inch diameter, 6-inch face.

The off-bearing table on No. 342 Cutter is furnished with a standard cast iron driving pulley 18-inch diameter, 6-inch face. It should be driven with a quarter-turn belt from a counter-shaft, speed 18 R. P. M. The driving end of the off-bearing table is mounted on the forward end of the steel channels forming the frame for mounting the cutter, insuring rigid construction.

Length of Cut No. 350 Cutter —

Maximum length of cut is 62 inches. The cutter will cut 24 brick $2\frac{5}{8}$ inches thick. Increasing the thickness of the brick will reduce the number of brick cut at each operation.

Length of Cut No. 342 Cutter —

Maximum length of cut is 40 inches. The cutter will cut 15 brick $2\frac{5}{8}$ inches thick. Increasing the thickness of the brick will reduce the number of brick cut at each operation.

Dimensions No. 350 Cutter

Length over all, including 20-Foot Off-Bearing Belt	40 ft. 3 in.
Width over all	4 ft. 10 in.
Height over all	5 ft.
Height from floor to top of Platens	2 ft. 7 in.
Distance from center line of Driving Shaft to center line of Measuring Belt	2 ft. $6\frac{5}{8}$ in.
Height to center line of Driving Shaft from floor	1 ft. $11\frac{1}{4}$ in.
Weight, with standard 20-foot Off-Bearing Belt	9,000 pounds

Dimensions No. 342 Cutter

Length over all, including 20-foot Off-Bearing Belt	36 ft. 8 in.
Width over all	4 ft. 10 in.
Height over all	5 ft.
Height from floor to top of Platens	2 ft. $5\frac{1}{8}$ in.
Distance from center line of Driving Shaft to center line of Measuring Belt	2 ft. $6\frac{5}{8}$ in.
Height to center line of Driving Shaft from floor	1 ft. $9\frac{1}{4}$ in.
Weight, with standard 20-foot Off-Bearing Belt	6,500 pounds

American Cutting Wires

Economy of Good Wires

It's not economy to have a broken penny cutting wire cripple or shut down a $50,000 plant, and yet that extravagance is permitted frequently. There are two things which will obviate this — the cutter and the wire.

This is a "wire message," and it will show you how your wire troubles can be greatly lessened and your output thereby increased.

A cutting wire is, in itself, a small item, and yet, if you can make it last twice as long, you are making one hundred per cent profit right there, to say nothing of the delay to the entire plant which a broken wire might cause.

Quality Is Important

We have made a study of the cutting-wire problem from all sides. We find the vital points are — quality of wire, method of making the loop and care of wires after made.

We have tested all wires of all manufacturers and have adopted the best brands of imported and domestic wire.

We have invented machinery for measuring off the exact amount of wire from the reel to insure each cutting wire being the exact length. The machine straightens the wire which has been curved by coiling in rolls. It forms the loop — all loops being exactly alike. It twists the wire and solders it fast.

Here, then, is a completed cutting wire made perfect by a combination of quality in material and correctness of manufacture.

Rust Prevention

Having made a perfect wire, we have done what we could to be sure that it will continue in a perfect condition until put into service. This we accomplish by giving the wires a rust-proof treatment to protect them, keep them straight and clean and insure their not becoming tangled and bent.

Not satisfied with our own tests, we sent one hundred of these wires to the largest brick plant in the world. This plant is making 300,000 brick every eight hours, and in such a plant, operated at such a speed, a good cutting wire is important.

This plant has been using a wire with a double loop in order to prevent delay. Our single-loop wires were offered as a substitute for the double-loop wires, which amused the superintendent of the plant.

However, the test was made and here is the report of the representative of the brick company who made the test:

Report of Test

"Gentlemen: One hundred of your single-loop cutting wires lasted forty-seven and a half hours and in that time cut 1,771,000 brick. In this competition, 120 of our own double-loop wires lasted forty-six hours and cut 1,650,000 brick."

This report shows that though twenty per cent more of the double-loop wires were used, they lasted over an hour less time and cut 119,000 less brick than the hundred of our single-loop wires, which shows there is twenty-five per cent more efficiency in our single-loop wire than in the double-loop wire.

Having arrived at a standard of excellence in making cutting wires, our constant effort will be to keep our wires up to that standard.

We have perfected testing appliances which will enable us to make periodical tests of wires in order to be sure that the product is constantly kept up to the standard.

Our latest weekly report from this wire-testing department shows that our special American wire stands an average strain of 372 pounds. Tests were made on No. 18 wire. American wire of 20 gauge tested 430 pounds.

All Wire Is Tested

All these tests were made with cutting wire made on our special machinery, while wires of other manufacturers broke on much lower strain.

Our wire is automatically straightened and is therefore much easier to place in position on rapidly-moving cutting machines than the old-fashioned wires which are in the form of a semi-circle.

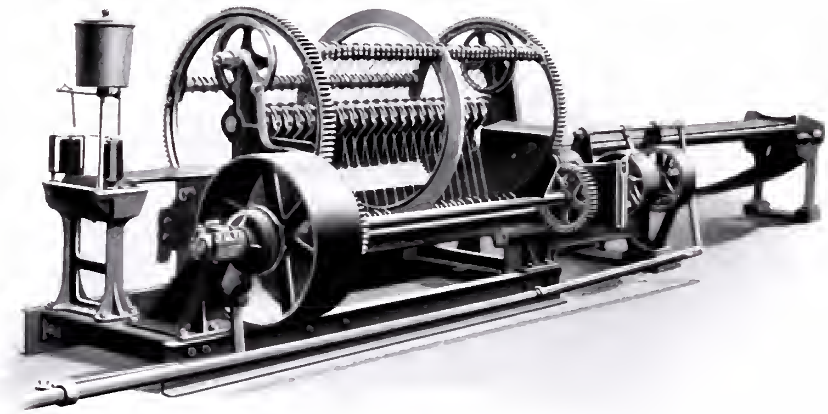
Tests made indicate that our double twist with soldered loops is the best possible way to make cutting wires, as wires made in this way stand a much higher test and show that the loop will hold more than the tensile strength of the wire. With this method of manufacturing our double-twist, single-loop wires are better than a double-loop wire.

Will Not Tighten on Hooks

A disadvantage in most cutting wires is the fact that they tighten up on the hooks or wire holders, which makes it a difficult matter to remove broken wires. This causes annoying delays and has caused serious accidents. Our wires, made on our special plan, will not close up in the loop. Our tests also show that our wires run more uniform, as there is not near the variation in our wires as there is in the wires of other manufacturers. This uniformity is due to the fact that our wires are made on an automatic machine which twists each wire exactly alike and with the same amount of tension, and insures wires being exactly the same length and strength. Wires made by hand are usually made by boys, and therefore cannot be anywhere near as uniform as when made by our automatic machinery.

Our wires are put up in straight, clean bundles of 100 wires each and are treated with a preparation to prevent rust. This preparation will not eat into the wires and destroy them, no matter how long the wires are stored away. The long life of our wires led us to perfect this preserving composition. This care of preparation and packing insures better preservation, and full efficiency from every wire, because all crooking or buckling of wires is obviated. In furnishing these wires for cutters not of our own manufacture, it is best to have a sample sent in with the order, so we can duplicate the length of the wire and also make the proper size loop.

You don't need to buy a large quantity. Let us send you a few to try, and your order will be sure to follow.



American No. 348 Rotary Cutter

The No. 348 cutter is designed to operate in connection with an expressing machine from which the clay column flows intermittently, consequently the reel carriage does not travel.

The cutter is belt driven, the power being taken from a counter-shaft, which should be located overhead. Separate belts from the same counter-shaft drive the off-bearing belt. The off-bearing belt has two speeds, a high speed while the column of clay is running onto the platens, and a low speed while the cut is being made. This is accomplished by two belts running at different speeds with the friction-clutch pulleys on the off-bearing table driving shaft. By throwing the clutch lever in one direction the high-speed belt drives, and in the other direction the low-speed belt does the driving.

No measuring table is required, for the column of clay passes over oil rollers directly onto the platens and the cut is made when the column of clay comes to a stop. The clutch which rotates the cutting wires and the clutch lever on the off-bearing table are both operated by the expressing machine and in this way the cut is made and the off-bearing belt speed changed at exactly the proper time. A brake is attached to the cutting reel driving shaft for the purpose of absorbing the shocks due to starting and stopping, and is fitted with fiber friction surfaces, which may be adjusted to suit conditions and to take up wear.

The cutter has three sets of cutting wires and is equipped with the latest type of wire fasteners, which accommodate wires of various lengths and permit rapid replacement of broken wires. The cutting wires are cleaned automatically after each cut. The wires pass through the column of clay with a downward shearing motion, making a smooth cut on the face and end of the brick.

The construction of the machine is high class in every detail. It will give the best of service with the minimum amount of wear, and requires but very little attention. It has very few wearing parts, and these are interchangeable and are easily replaced at a very small expense.

Rated Capacity Per Hour —

Building Brick, 4,000 to 6,000 per hour.
Paving Block, 3,000 to 4,500 per hour.

Capacity is governed by speed, size of brick, nature of clay and by management.

Machine will cut Roman brick up to 5 inches by 13½ inches, hollow blocks up to 8 inches by 8 inches, radial chimney block up to 7 inches by 12 inches. Can also cut two or three streams of end-cut brick or hollow brick. Maximum length of cut is 62 inches.

Specifications

Frame —

The cutter is mounted on a heavy frame, constructed of two 8-inch steel channels, held together by heavy cast iron stretchers.

The cast iron bearing stands for the driving mechanism are securely bolted to the frame.

Shafts —

All shafts are steel. The driving shaft is 2 inches diameter. The platen shaft is 3 inches diameter and the shafts on which the wire fasteners are mounted are 1¾ inches diameter.

Bearings —

Bearings are ring oiling and well babbitted, with the best metal for the service required.

Gears —

All gears are cast American gear metal. They are broad faced and heavy pattern, with ample strength for service required.

Off-Bearing Belt —

The cutter is furnished with two-speed steel frame off-bearing table, 20 feet long, having a 12-inch 4-ply canvas off-bearing belt. Additional length of off-bearing belt can be furnished when so specified on the order.

Driving Pulley —

The cutter is furnished with a standard driving pulley, 28-inch diameter, 10-inch face. Speed, 15 to 25 R. P. M. The cutter and the off-bearing belt should be driven from a counter-shaft.

Off-Bearing Belt Drive —

The off-bearing table is furnished with two friction-clutch driving pulleys, 16-inch diameter, 6-inch face. The slow-speed pulley should be driven at 6, 10, or 15 R. P. M., and the high-speed pulley should be driven at 38, 61, or 90 R. P. M., according to the size and kind of ware that is being cut and speed required on off-bearing belt.

Length of Cut —

Maximum length of cut is 62 inches. The cutter will cut 23 brick 2⅝ inches thick. Increasing the thickness of the brick will reduce the number of brick cut at each operation.

Weight —

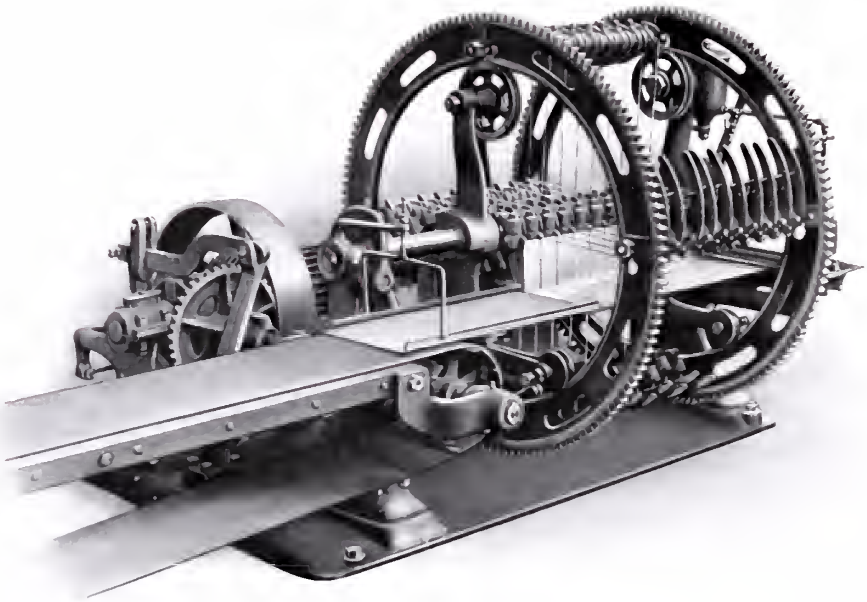
6,300 pounds, including standard 20-foot off-bearing belt.

Dimensions

Length over all, including 20-foot Off-Bearing Belt	31 ft. 9 in.
Width over all	4 ft. 10 in.
Height over all	5 ft. 2 in.
Height from floor to top of Platens	2 ft. 7⅛ in.
Distance from center line of Driving Shaft to center line of column of clay	2 ft. 6⅝ in.
Height to center line of Driving Shaft from floor	1 ft. 11¼ in.

American No. 158 Semi-Automatic Cutter

This machine is designed for cutting either side- or end-cut brick as well as hollow brick or hollow block, by arranging the proper platens. There are two operating levers. One lever operates the pin clutch attached to the driving pulley. This drives the shaft with the two long pinions which revolves the cutting reel. After each revolution of the shaft, which causes one set of wires to pass through the column of clay, the clutch is automatically disengaged and the cut-



ting reel stops. The second lever permits the operator to assist the bar of clay to move the carriage in correct register with the traveling bar of clay and also to return the carriage to its original position after the cut has been made. These levers are placed at the die end of the machine in order that the operator may watch the bar of clay and its proper lubrication. The off-bearing table is driven by a pair of bevel gears. Maximum width of column of clay, 13 inches. Maximum height of column, 5 inches. Maximum distance between end wires, 24.5 inches.

Specifications

Base —

The base of the machine is a one-piece casting carrying the shaft bearings, the pedestals supporting the reel carriage and the off-bearing table.

Shafts —

The driving shaft is steel 2¼ inches diameter. The steel platen shaft is 2¼ inches diameter. The steel wire bar shaft is 1½ inches diameter.

Bearings —

This cutter is fitted with babbitted bearings.

Off-Bearing Table —

The standard off-bearing table is 10 feet long, furnished with a belt 12 inches wide.

Number of Brick —

This cutter will cut 9 brick 2.5 inches thick or an equivalent in other sizes. It has four sets of cutting wires.

Capacity —

The capacity of this cutter is 3,500 to 5,000 brick per hour, the capacity is governed by the nature and condition of the clay and by management.

Driving Pulley —

This cutter is equipped with a pin-clutch driving pulley, 24 inches diameter, 4 inches face.

Speed —

Speed of driving pulley, 25 R. P. M.

Power —

Power required to drive cutter and off-bearing table is 2 H. P.

Weight —

The weight of this cutter with standard ten-foot off-bearing table is 2,865 pounds.

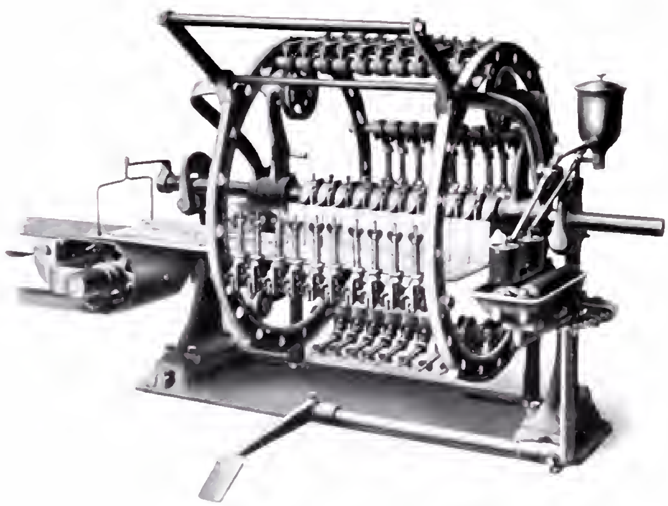
Dimensions

Length over all, including 10-foot Off-Bearing Table	15 ft. 6 in.
Height over all	4 ft. 2 in.
Width over all	5 ft. 2 in.
Height from floor to Platens	21 in.

American No. 62 Hand-Power Rotary Cutter

This Cutting Table has been designed to meet the wants of brick plants of medium capacity requiring a perfect brick. It is a self-contained machine, designed with a substantial base. The uprights, which are securely bolted to each end of the base, are planed perfectly smooth on the bottom, and the base is planed smooth where the uprights are bolted so that the joints are absolutely perfect and rigid. The top of the upright is made in the shape of a goose neck. A substantial roller having an anti-friction pin bearing is secured in the top of the upright.

On these rollers a steel shaft, 2.25 inches diameter, is supported and the reel to which the cutting wires are attached is supported on this steel shaft. The shaft travels back and forth on the rollers, giving the necessary motion required in order to secure a perfect cut. The table



moves forward with the column of clay while the wires are passing through and after the cut is made it is returned to the proper position for the next cut by a foot lever which is located convenient to the operator.

The platens are supported on the steel shaft moving with the reel. The reel is constructed with a substantial cast iron ring at each end. The inside of the ring is turned off smooth in a "V"-shape and it is supported on three "V"-shaped grooved rollers. This permits the reel to revolve readily. The upper roller is mounted on an eccentric pin, which affords a means of taking up the wear. The outside of the cast rings are provided with teeth which work in connection with the dogs or pawls, similar to a ratchet. These pawls are operated by a horizontal bar. As the table stands in position for cutting the dogs engage the teeth on the ring and a downward motion of the horizontal bar revolves the reel, forcing the wires through the column of clay. After the cut is made the horizontal bar is lifted until the dogs drop into place on the next set of teeth on the ring.

It does not require skilled labor to operate this cutting table, as the operation is very simple and readily understood. The cutting reel is fitted with four sets of wires secured with improved wire fasteners. Ample facilities are provided for oiling the platens and bearings on the machine.

When so ordered the No. 62 Cutter can be arranged for cutting Roman size brick as well as standard size brick. The standard off-bearing belt furnished with the cutter is 10 feet long and is driven with a pulley 12 inches diameter, 6 inches face. Speed, 10 R. P. M.

The construction of the table throughout is strictly first class. Each and every cutter is erected complete and thoroughly inspected before shipment. The No. 62 Cutter may be used for cutting end-cut brick as well as side-cut brick and can also be used for cutting hollow brick or hollow blocks when fitted with the proper platens.

Capacity, 2,500 to 4,000 brick per hour, depending somewhat upon the ability of the operator. Table cuts 9 brick 2.5 inches thick; maximum distance between end wires, 23 inches; maximum width of column, 13.25 inches; maximum height of column, 5 inches.

Specifications

Frame —

The base is one-piece casting. Side reels are cast and machine carried on heavy machined side frames bolted to base.

Shaft —

The shaft is steel and carries the reel. It is $2\frac{1}{4}$ inches in diameter.

Off-Bearing Belt —

This cutter is furnished with standard length off-bearing belt 10 feet long. The width of this belt is 12 inches.

Driving Pulley —

The diameter of the driving pulley for the off-bearing table is 12 inches. Face, 6 inches. Speed, 10 R. P. M. Diameter of spider pulley, 9 inches.

Length of Cut —

This table will cut 9 standard $2\frac{1}{2}$-inch brick at one movement. Maximum distance between end wires, 23 inches. Maximum length of brick, $13\frac{1}{4}$ inches. Maximum width of brick, 5 inches. There are four sets of cutting wires.

Weight —

Weight, 1,800 pounds, including 10 feet off-bearing belt.

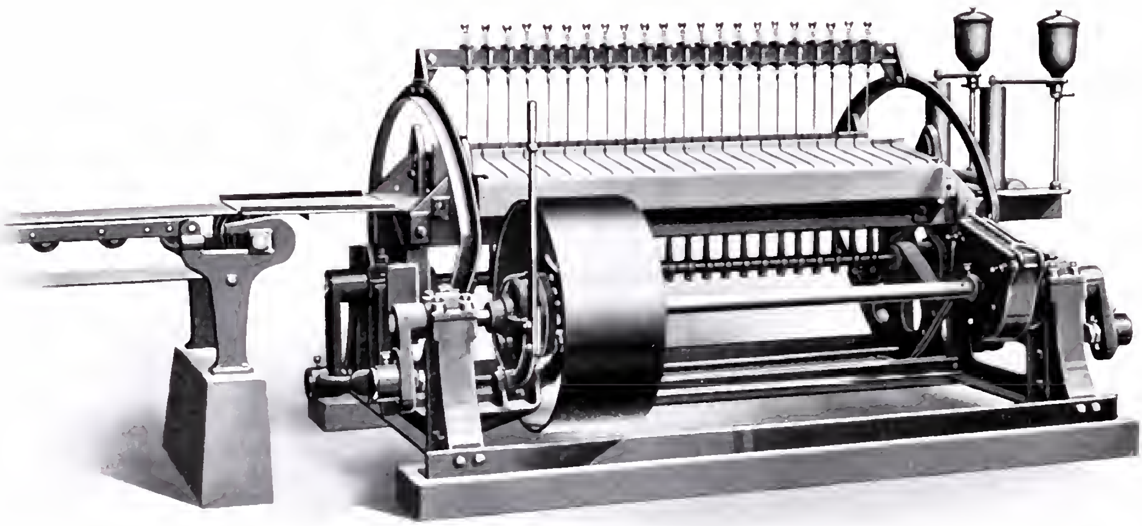
Dimensions

Length over all, including 10 feet Off-Bearing Belt	15 ft. 10 in.
Width over all	4 ft. 8 in.
Height over all	5 ft. 2 in.
Height from floor to top of Platens	1 ft. 9 in.
Height from floor to center of Driving Pulley on Off-Bearing Belt	1 ft. 4 in.

The American No. 366 Semi-Automatic Cutter

No. 366 Semi-Automatic Cutter is for use in connection with a Steam Press or Plunger Machine.

This cutter is semi-automatic in that the clutch is tripped by a hand lever. In some installations it may be convenient to connect the tripping lever to the plunger in such a way as to convert it into a full-automatic machine. It will take a column as wide as 16 inches and as



high as 12 inches and as long as 60 inches. The platens can be made so as to space the wires any distance apart.

This cutter will cut fire brick, block and tile, also hollow ware.

The platen is adjustable for height and the stroke adjustable for various widths of column.

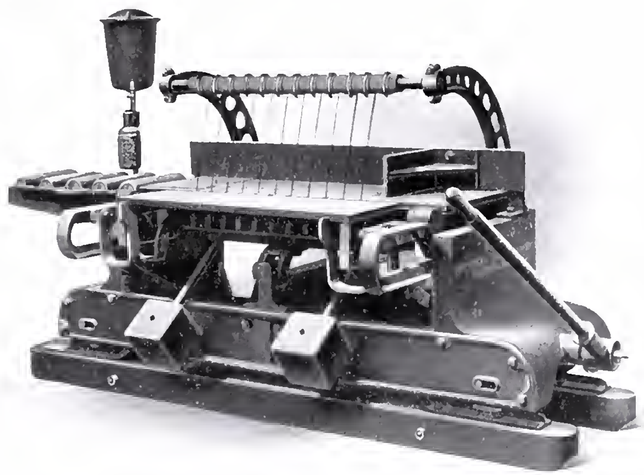
Clearance Dimensions of Cutting Section

Length over all	9 ft. 6 in.
Width over all	6 ft. ½ in.
Height over all with Platen down	3 ft. 8 in.
Height over all with Platen raised	4 ft.

Size of Pulley, 28 inches diameter by 12 inches face.
Speed of Pulley, 40 revolutions per minute.
Any length Off-Bearing Belt may be had.
Standard sections Off-Bearing Belt 20 feet long.
Weight, crated, with 20-foot Off-Bearing Belt, 5,080 lbs.

American No. 8 Down-Cut Board-Delivery Cutting Table

Arranged for Haking Pallets



The accompanying cut shows the No. 8 Down-Cut Board Delivery Table arranged for the use of haking pallets 36 inches long, 10 inches wide, with risers $\frac{7}{8}$ inch thick and $6\frac{3}{4}$ inches high over all. Distance between risers, $32\frac{1}{2}$ inches. The construction of this cutter is similar to that of the standard cutter, but the pallet brackets and cross-bar are arranged to accommodate the legs of the haking pallets as shown.

Weight of No. 8 Cutter, arranged for haking pallets, 1,300 pounds.

American No. 8 Down-Cut Board-Delivery Cutting Table

Arranged for Roman Brick

The No. 8 Down-Cut Board Delivery Tables, arranged both for standard pallets and haking pallets, can be constructed for cutting Roman brick. The maximum size brick that can be so cut is $4\frac{1}{2}$ inches by $13\frac{1}{2}$ inches. The construction of the Roman brick cutter is similar to that of the standard cutters for the two types of pallets, but the platen, pallet and kindred parts are made wider to correspond with the increased width of the bar of clay required in making Roman brick.

Weight of No. 8 Cutter, arranged for Roman brick, 1,500 pounds.

Weight of No. 8 Cutter for Roman brick, arranged for haking pallets, 1,600 pounds.

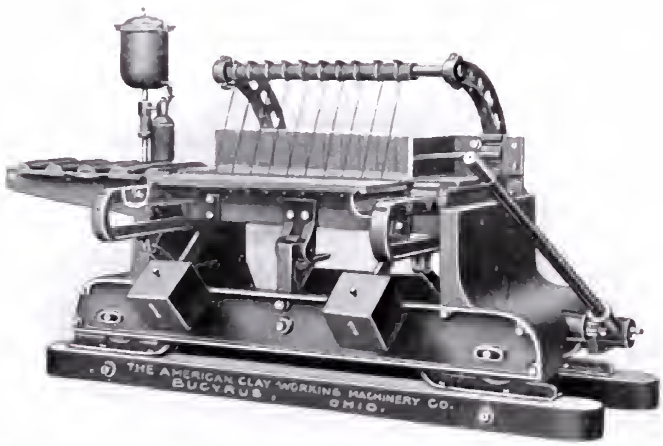
American No. 8 Down-Cut Board-Delivery Cutting Table

This cutting table is designed for cutting side-cut brick, face brick, fire clay slabs, fire brick, etc.

Rated Capacity Per Hour —

2,000 to 3,000 standard size brick per hour.

Capacity depends upon the ability of the operator.



Specifications

Arrangement of Wires —

The wires are suspended on a movable cutting frame fitted with latest type rotary wire tighteners, and the push board is stationary. By this means the slab of clay is cut into brick or blocks without any waste.

Operation —

The operator stands at the end of the table farthest from the machine, and operates the lever by which the wires are drawn through the bar of clay, insuring a clean cut and one smooth edge and end on each brick. The pallet or board is drawn under the brick while being cut. The cutting is done at the moment when the traveling column of clay abuts against a stopping plate near the operator, which starts the table to move outward with the column of clay. After the cut is made the operator pulls the table toward him; this enables the wires to clear the end of the traveling column of clay. The back stroke of the lever replaces the wires in their original position and deposits the board with brick at the front of the table, so that they can be removed by hand.

Points of Superiority —

This table is made entirely of iron and steel, and all the working parts move on compound anti-friction rollers. The push board is so constructed that the back of it is clear, which prevents clay sticking to the wires and clogging. The end abutment is fastened to the push board. In addition to other points of merit, it also possesses all the advantages of the other board delivery tables. It is a very popular cutter and has been purchased for use with a large variety of machines.

Hand—

It can be built for either right- or left-hand delivery. The cut shows a left-hand delivery.

Capacity—How Regulated—

If the brick are to be removed from the pallets at each stroke of the lever ten brick are cut; but if the brick are to be dried on the pallets only eight brick are cut at each operation, to permit separation and facilitate drying. The thickness of the brick to be cut can be varied, but the thicker the brick the fewer can be cut at a time.

Weight—

Weight of standard cutter, 1,200 pounds.

Dimensions

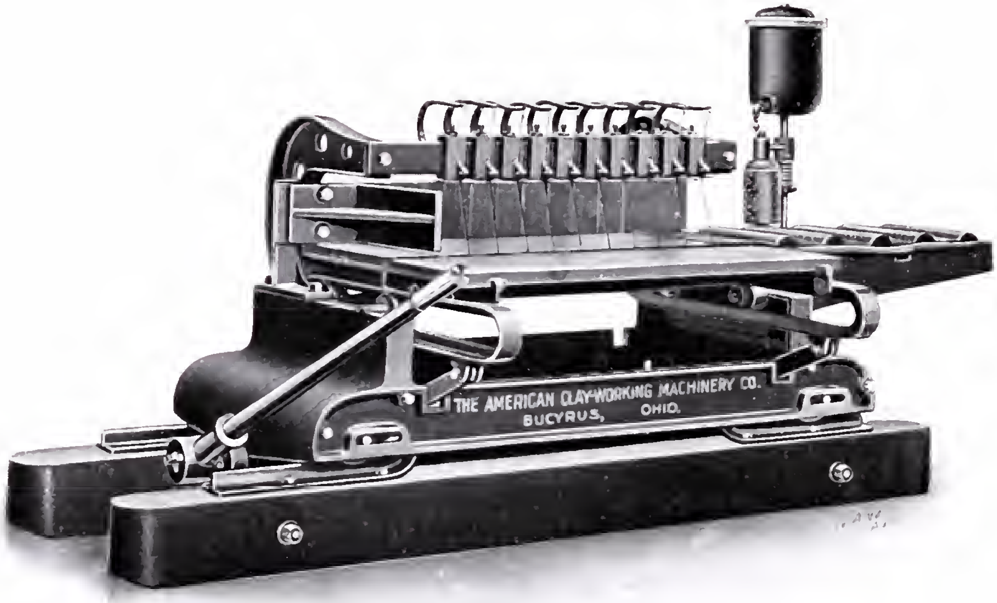
Length	6 ft. 0 in.
Width	4 ft. 0 in.
Height	4 ft. 0 in.
Standard size of Pallets	28 in. x 10 in. x $\frac{7}{8}$ in.
Size of Sills	$5\frac{1}{2}$ x $5\frac{1}{2}$ x 5 ft. 6 in.

American No. 5 Board-Delivery Cutting Table

This cutting table is designed for cutting side-cut brick of smooth, straight quality and without waste.

Rated Capacity Per Hour —

2,000 to 3,000 standard size brick per hour.



Specifications

Operation —

Ten brick are cut at each movement of the lever and the brick are deposited upon a pallet ready for the off-bearer. The wires are suspended on a movable cutting frame and the push board is stationary. By this means the slab of clay is cut into bricks without any waste. The operator stands at the end of the table farthest from the machine and operates the lever by which the wires are drawn across the slab, and the pallet, or board, is drawn under the brick while being cut. The cutting is done at the moment when the traveling column of clay abuts against a stopping plate near the operator, which starts the table to move with the column of clay. After the cut is made the operator pulls the table toward him, enabling the wires to clear the end of the traveling column of clay. The back stroke of the lever replaces the wires in their original position and deposits the pallet of brick at the front of the table so that it can be removed.

Polished Plate —

A short, polished plate, with a lubricating roller at each end, is substituted for the rollers that are generally used to carry the column of clay from the die to the cutting table. This is an improvement by which the cleaning of the sticky rollers is avoided.

Details of Construction —

A device is supplied for oiling the side and bottom of the bar of clay to prevent sticking. The table is made entirely of iron and steel, and all the working parts move on compound anti-friction rollers. The push board is so constructed that the back of it is clear, which prevents clay sticking to the wires and clogging.

Cutting Wires —

The stopping plate is fastened to the push board. The cutting wires are held at the lower end by lugs and at the upper end by spring bows, the loops of the wires passing over the lugs and the bows. By means of a suitable lever, furnished with the cutter, the spring bows can be easily depressed, so that the wires can be quickly and instantly removed or replaced.

Hand —

This table can be constructed to deliver the brick on the right-hand or left-hand side, as may be ordered. The illustration shows right-hand delivery. When ordering, state whether right or left-hand is wanted and give spacing of wires.

Special Service —

When desired, the No. 5 table can be built to cut Roman brick. An extra charge is made for this construction. Special No. 5 tables have also been made for cutting radial chimney brick, hollow blocks, etc.

Weight —

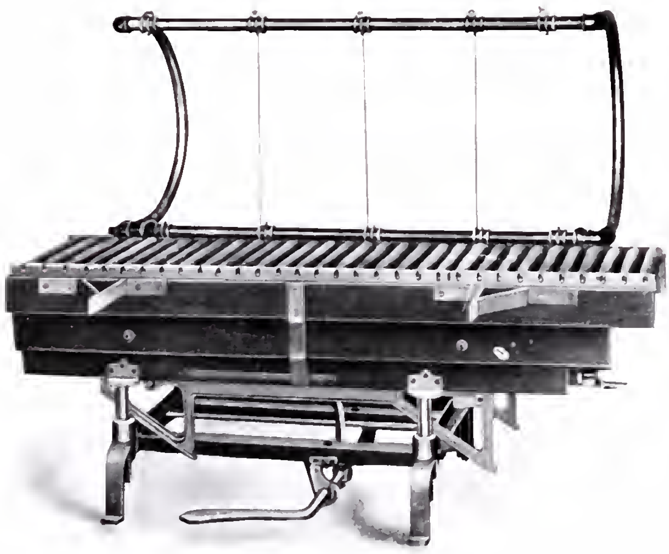
Weight of standard cutter, 750 pounds.

Dimensions

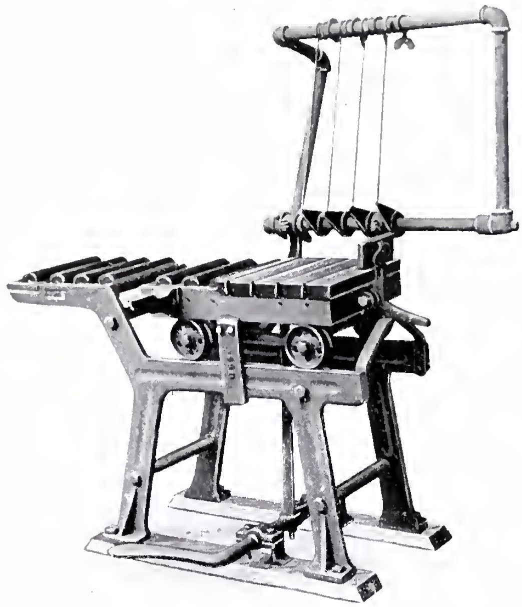
Extreme length	6 ft. 0 in.
Width	4 ft. 0 in.
Height to top of Wire Holders	2 ft. 9 in.
Height over all	3 ft. 8 in.
Extreme size of Pallets	34 in. x 10 in. x $\frac{7}{8}$ in.
Size of Sills	$5\frac{1}{2}$ x $5\frac{1}{2}$ x 5 ft. 6 in.

American No. 1 Combination Cutting Table

The No. 1 Combination Table is adapted for cutting drain tile, hollow building blocks, fire-proofing, terra cotta lumber, etc. When brick, hollow ware or small tile are to be cut, suitable straight rollers are furnished, while for drain tile grooved rollers are supplied, with depressions in them for one, two or three streams of tile. All sizes of tile up to and including 5 inches



in diameter are cut and handled on the rollers; from 6 inches to 8 inches in diameter are cut and handled in copper-lined or wooden troughs, which are made to fit the table. For large hollow blocks an additional cutting frame of suitable size can be attached in place of the small one usually supplied. A screw adjustment raises and lowers the table to any desired height. Floor space, 2 feet 2 inches by 6 feet.



American No. 6 Cutting Table

The American No. 6 Cutting Table is adapted for cutting side-cut brick, though it can be arranged for end-cut and double wedge if desired. It is built with an iron frame, the top of which forms tracks on which the cutting frame moves easily on grooved rollers. The abutment plate is hinged, and after the cut is made the table is moved back, which releases the abutment plate, allowing it to fall back out of the way of removing the brick, which is done before the cutting frame is raised.

Rated Capacity Per Hour — Building Brick, 1,500 to 2,000 per hour.

Capacity is governed by the ability of the operator. Standard machine will cut side-cut brick up to 5 inches by 9½ inches; maximum length of cut, 10 inches. Can be built to cut Roman brick 13½ inches long.

Specifications

Frame —

The carriage travels on two cast iron side frames, which act as tracks for rollers, being held together by stretcher bolts. These frames also carry the oil pan and rollers for supporting the column of clay.

Sills —

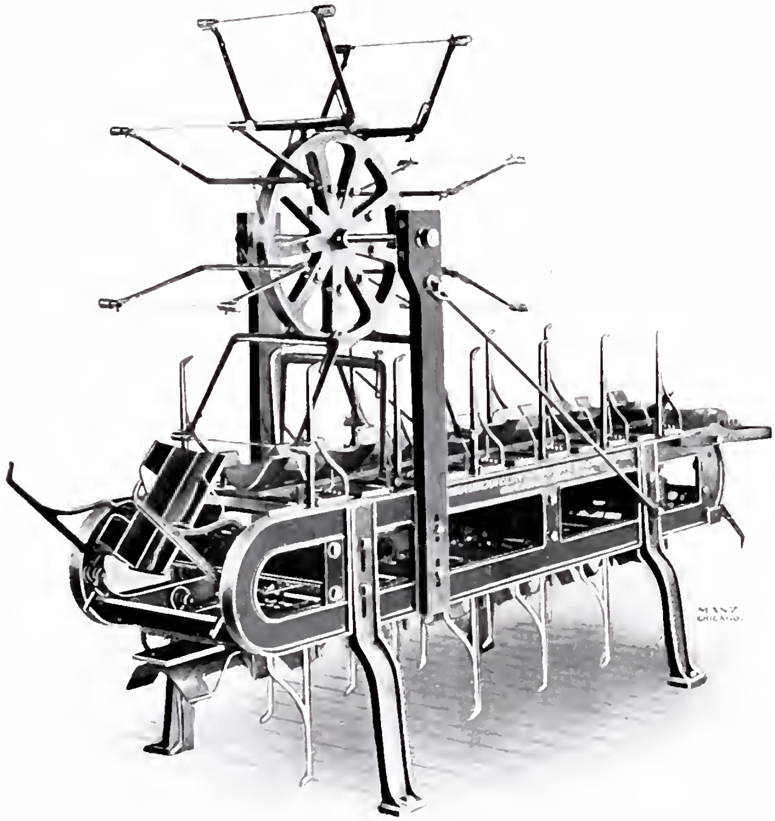
The cutter is mounted on suitable wooden sills, making the cutter self-contained and easy to handle in case the cutter is moved in and out of position.

Weight —

Standard cutter, 250 pounds.
Special for Roman Brick, 350 pounds.

Dimensions

Length over all	4 ft. 4 in.
Height over all	4 ft. 2 in.
Width over all	2 ft. 10 in.
Height from floor to Platens	2 ft. 4 in.



Automatic Tile and Hollow Block Cutting Table

Automatic Tile and Hollow Block Cutting Table

By the use of this Automatic Tile Cutter the expense of a man to cut off is saved and you have no stub ends to throw back into the machine. It is strong, durable, accurate, absolutely automatic, and is a positive economy to buy it, as it will save its cost in less than a season. The table will operate successfully with any of our Auger Machines. This table is made of iron and steel. It sets close to the die and supports the tile column as soon as it leaves the machine. It cuts any size tile from 3 to 8 inches, inclusive, and will cut as many tile in a day as any machine on the market. The adjustment for different sizes of tile can be quickly made. All ends are cut absolutely square.

The tile carriers, or troughs, may be detached and a set of flat pallet boards attached to the table for cutting hollow blocks. The table works equally as well on all sizes of hollow blocks up to 8x8 inches. Standard length of cut is 13½ inches.

Weight —

1,000 pounds.

Dimensions

Length over all	10 ft. 0 in.
Width	2 ft. 7 in.
Height over all	6 ft. 9 in.
Height to bottom of Troughs	2 ft. 6¾ in.

Large Automatic Cutting Table

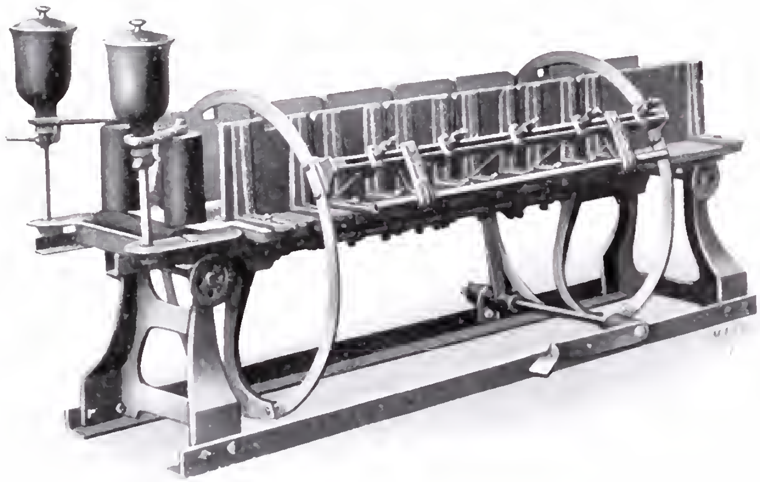
We furnish a large table of the same design for cutting tile 10 inches and 12 inches in diameter. Flat pallet boards may be attached to this table and used to cut hollow block as large as 12x12 inches. Standard length of cut, 13½ inches.

Weight —

1,200 pounds.

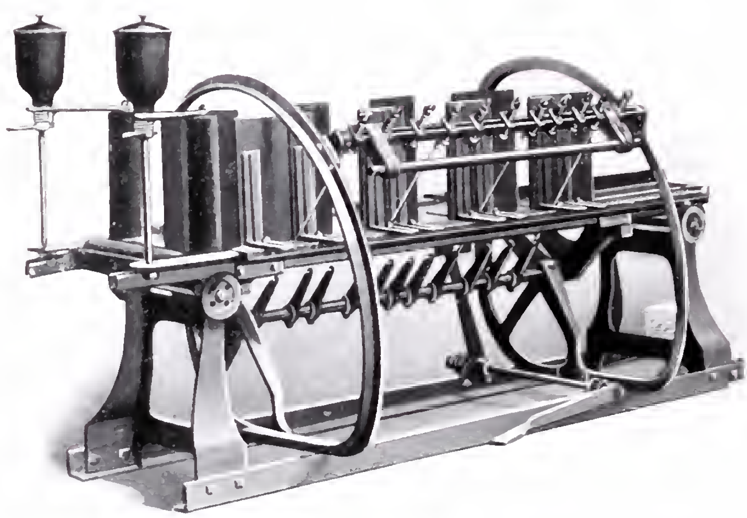
Dimensions

Length over all	10 ft. 11 in.
Width	2 ft. 9 in.
Height over all	8 ft. 1 in.
Height to bottom of Troughs	2 ft. 11½ in.



American No. 320 Hand-Power Cutter for Hollow Ware

This cutter is designed for cutting hollow ware up to 6 inches by 12 inches flat.



American No. 321 Hand-Power Cutter for Hollow Ware

This cutter is designed for cutting hollow ware up to 12 inches by 16 inches flat.

American No. 320 Hand-Power Cutter

This cutter is furnished with a standard top arranged to cut three 12-inch lengths of hollow blocks. The top of the table is made of wood and steel lined. The side platens are wood, but not metal lined. The side platens are held in position by adjustable cast iron brackets, making it possible to vary the width between the platens to suit the width of the block being cut.

The table is furnished with an oil roller to lubricate the bottom of the column of clay, and also oil rollers to lubricate the sides of the column. The side rollers being arranged to adjust themselves to position according to the width of the column of clay.

The standard top furnished with the No. 320 Cutter is of sufficient size to permit cutting 6-inch by 12-inch block flat, or any 12-inch sizes not higher than 6 inches. If 8-inch by 8-inch hollow blocks are to be cut without changing the length of the cut, the only change necessary in the standard top would be to increase the height of the side platens. As these are made of wood and attached to the cast iron brackets they can readily be changed on the plant and need not be furnished from the factory.

Cutter for End-Cut Brick —

The No. 320 Cutter can be used for cutting two-stream end-cut hollow brick or solid brick, but will require an extra top and extra wire fasteners for this use.

Cutter for Side-Cut Brick —

The No. 320 Cutter can be used for cutting side-cut brick, but will require an extra top and the necessary wire fasteners to space the wires according to the thickness of the brick. When used for a side-cut brick cutter, we do not advise attempting to cut more than six brick at a time.

Cutter for Radial Chimney Blocks —

The No. 320 Cutter can be used for cutting the radial chimney blocks, but will require an extra top and wire fasteners for this use. The standard top for making chimney blocks will permit cutting blocks as large as 7-inch by 12-inch or any sizes smaller. In making chimney blocks the side platens are made special to fit the radial side of the block. The distance between the side platens can be changed to suit the different sizes of radial chimney blocks, and one top is all that is necessary unless there is a change in the thickness of the blocks.

Cutter for Drain Tile —

The No. 320 Cutter can be used for cutting single stream drain tile in sizes from 3-inch to 8-inch, and for this purpose there would be three sets of copper-lined troughs, one set for cutting 3-inch and 4-inch tile, one set for cutting 5-inch and 6-inch tile, and one set for cutting 7-inch and 8-inch tile.

American No. 321 Hand-Power Cutter

The No. 321 Cutter is built especially for use in handling the larger sizes of hollow ware. The standard top furnished with this machine is designed to cut hollow block 12-inch by 16-inch flat, or smaller sizes not higher than 12-inch. 3-inch by 12-inch, 4-inch by 12-inch and 8-inch by 12-inch hollow blocks can be cut on edge. The space between the platens can be varied to suit the width of the block. The table cuts three 12-inch lengths of hollow ware.

We do not recommend the No. 321 Cutter for making the smaller sizes of hollow ware, such as 4-inch by 5-inch, 5-inch by 8-inch, etc., but it is a satisfactory table for cutting 8-inch by 8-inch blocks.

Cutter for Chimney Block —

The No. 321 Cutter can be used for cutting the radial chimney block in all sizes, but for this purpose must be fitted with a special top and special curved side platens to conform to the radial side of the block. Extra wire fasteners are required to permit spacing the wires for the proper thickness.

Cutter for Drain Tile —

The No. 321 Cutter can be used for cutting single stream drain tile in all sizes from 3-inch to 12-inch, and for this purpose would require extra copper-lined troughs for the top. One set for 3-inch and 4-inch tile, one set for 5-inch and 6-inch tile, one set for 7-inch and 8-inch tile, one set for 9-inch and 10-inch tile, and one set for 11-inch and 12-inch tile.

Standard Off-Bearing Belt to Be Used with American No. 320 or No. 321 Cutter, When Specified —

The standard steel frame off-bearing table is 20 feet long, and is furnished with a 14-inch 4-ply belt, being of sufficient width to handle 12-inch blocks or the larger size radial chimney blocks. The off-bearing belt is driven at the farther end away from the cutting table, making it possible to raise and lower the end of the off-bearing belt at the cutter to suit the size of the ware being made. Standard driving pulley 24 inches diameter, 4 inches face, speed 12 R. P. M., giving a speed of 29 feet per minute on off-bearing belt.

Special Off-Bearing Belt for American No. 321 Cutter —

When it is desired to manufacture 12-inch by 16-inch hollow blocks on the No. 321 Cutter, it will also be necessary to have a special width of off-bearing belt if these blocks are to be handled on a belt instead of taking them off at the end of the cutter. When specified, we will furnish an off-bearing table 20 feet long, equipped with an 18-inch 4-ply belt. This special off-bearing belt is not required except to manufacture 12-inch by 16-inch blocks and deliver them on the off-bearing belt. As a rule, these large size blocks are not delivered on an off-bearing belt but are handled in a box direct from the end of the cutter.

Counter-Shaft for Driving Off-Bearing Belt —

It is usually necessary to drive the off-bearing belt on the cutter with a quarter-turn belt, and for this purpose we furnish a short counter-shaft with the necessary pulleys and hangers as follows:

1 piece $1\frac{15}{16}$-inch shaft 5 feet long.
2 $1\frac{15}{16}$-inch collars.
2 $1\frac{15}{16}$-inch ball and socket drop hangers.
1 pulley 6 inches by 4 inches by $1\frac{15}{16}$ inches.
1 pulley 24 inches by 4 inches by $1\frac{15}{16}$ inches.

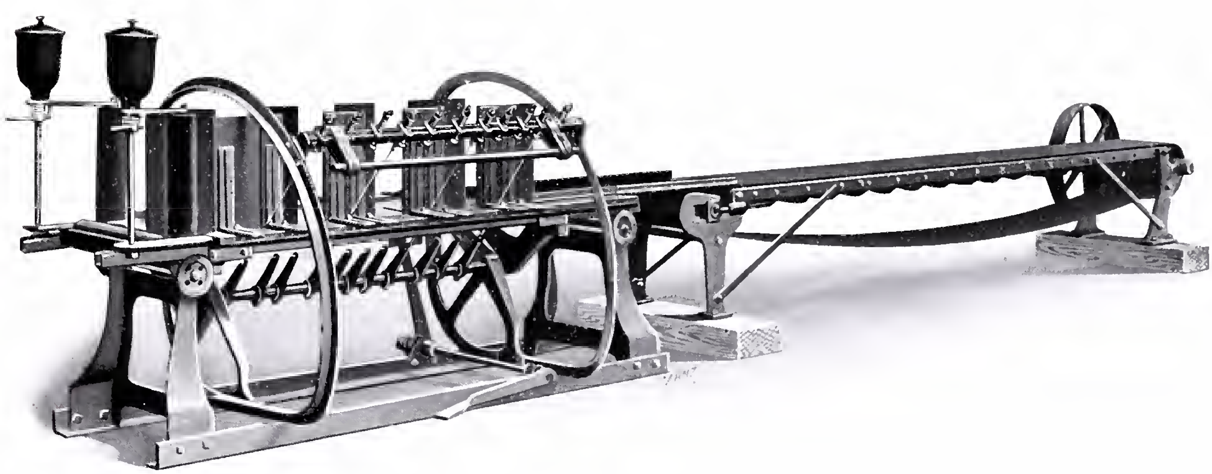
This is our standard equipment for counter-shaft drive. Extra length of shaft, or additional bearings, can be furnished to suit conditions in the plant, according to requirements.

Dimensions No. 320 Cutter

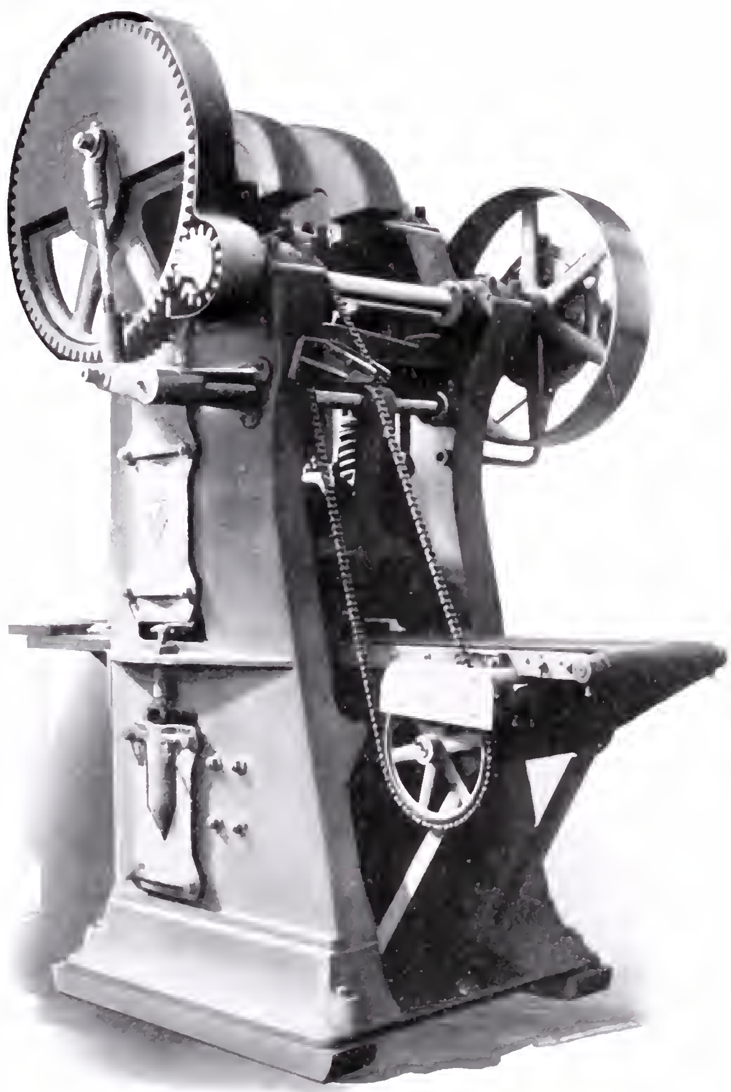
Length over all without Off-Bearing Table	7 ft. 4 in.
Length over all with Off-Bearing Table	29 ft. 0 in.
Width over all	3 ft. 0 in.
Height over all	2 ft. 8½ in.
Height to top of Table	1 ft. 8 in.
Weight without Off-Bearing Table	775 pounds
Weight with Off-Bearing Table and Driving Jack	2,050 pounds

Dimensions No. 321 Cutter

Length over all without Off-Bearing Table	8 ft. 0 in.
Length over all with Off-Bearing Table	29 ft. 9 in.
Width over all	4 ft. 6 in.
Height over all	3 ft. 8 in.
Height to top of Table	2 ft. 2 in.
Weight without Off-Bearing Table	900 pounds
Weight with Off-Bearing Table and Driving Jack	2,180 pounds



American No. 321 Hand-Power Cutter with Standard Off-Bearing Table



American No. 346 Repress
Designed for Repressing Large Fire-Brick Shapes

THE AMERICAN CLAY MACHINERY COMPANY
BUCYRUS, OHIO, U. S. A.

Repress Department

The American Represses

Our line of represses is recognized throughout the country as a standard of value in the brick trade. No other represses are so well designed and so carefully built. Their construction insures long and excellent service and the quality of the brick manufactured will be better from the fact that they are made on the "Built Right, Run Right" machinery. No matter what capacity you desire, we can fully supply your wants. From the No. 346 Repress down to the Hand-Power Represses we are prepared to place in your plant machinery that will satisfactorily perform the work for which it is intended. Our represses are well designed, without unnecessary small parts and attachments to get out of order. The best quality of material is used. The workmanship is all a model plant with modern tools, good material and competent and careful workmen can insure. The machines are heavy, to insure great strength. The parts are carefully fitted. The steel shafting is large. The gearing is ample and strong. The mold boxes are carefully made and fitted, and the entire machine is such as to insure most satisfactory service.

American No. 346 Repress

This machine is designed for repressing large fire brick shapes.

The construction of the press is high class in every detail. All wearing surfaces are large and parts are easily accessible for adjustment or renewal. Ample provision is made for lubrication and wearing parts are well protected from dirt. The most simple mechanical movements are used and the machine is built with the least number of parts possible. All working parts are above the point where the pressing occurs, except the lower cross-head and bottom plungers.

The bricks are retained under pressure and moved in the mold box, allowing more time for the re-arrangement of the particles constituting the structure of the brick. The bottom plungers are each provided with a powerful spring to regulate the pressure, and each brick is pressed independent of the other.

Rated Capacity Per Hour —

Standard 13½-inch Fire Brick, 1,200 to 1,800 per hour, using double mold box.

The capacity is governed by speed at which the machine is operated, size and kind of ware being repressed, and by the ability of the operators to handle the ware.

Specifications

Main Frame —

The main frame of this machine is built up of two heavy side frame castings, carrying the shaft bearings on top, supporting the mold box in the middle and securely fastened at the bottom to a heavy one-piece base, which receives the pressure. Two heavy stretchers hold the side frames together at the top. All joints are machined, accurately fitted and securely bolted together, making a most rigid construction of ample weight and strength to take all pressure strains and absorb vibrations.

Shafts —

The crank shaft is cast steel turned down to 8 inches diameter, and is fitted with counter-weights to balance weight of working parts. The crank stroke is 14 inches. The driving shaft is 4 inches diameter, the charger is 2½ inches diameter, and the driving shaft on the off-bearing belt is 1¾ inches diameter.

Bearings —

The crank shaft bearings are 16 inches long. The driving shaft bearings are 12 inches long. These are ring oiling bearings and well babbitted with the best metal for the service required.

Gears —

The gears are semi-steel. They are 2 inches pitch and 6 inches face. Master gear on crank shaft is 47¾ inches diameter and the driving pinion is 9⅝ inches diameter. Ratio of gears, 5 to 1. Gears are covered with a sheet steel guard. Master gear is cast with a counter-weight to permit stopping the press on the up stroke.

Connecting Rod —

A single connecting rod is used between the crank shaft and the upper cross-head. This rod is fitted with a cast iron sleeve, having a right and left-hand thread for adjusting the length of the rod and regulating the thickness of the brick to be pressed. When properly adjusted for thickness of the brick the sleeve is locked and cannot move to displace the adjustment while operating.

Mold Box —

The mold box is cast iron with chilled and ground surfaces, which may be reground when worn. Mold box is 11 inches deep and will press a block 9 inches thick; 16 inches by $8\frac{3}{4}$ inches is the largest block that can be pressed in a standard double mold box, and 16 inches by 20 inches is the largest single block that can be pressed.

An adapter to take on the standard mold box of our No. 292 Repress and suitable upper and lower pressure feet can be furnished with this machine. The No. 292 mold box is $6\frac{3}{4}$ inches deep and will repress a block $5\frac{1}{2}$ inches thick; 11 inches by 5 inches is the largest block that can be pressed in double mold box, and 11 inches by 13 inches is the largest single block that can be pressed.

Charger —

The charger is operated from a crank pin on the master gear. This eliminates lost motion and insures the correct placing of the brick in the mold box. The motion is easy and permits of rapid work without damage to the finished product. Connecting rod on the charger is fitted with a right and left-hand thread for proper adjustment, according to the length of the brick. A flat charger running under a flat feeding table is furnished with this repress.

Oil Tank —

A cast iron oil tank is furnished with the repress and provided with pipes and valves to deliver oil to the feeding table and oil roller. This tank is hung in brackets on the main frame and may be easily lifted out at any time.

Off-Bearing Table —

The machine is furnished with a standard steel frame off-bearing table 60 inches long, having an endless leather off-bearing belt 22 inches wide. The off-bearing belt is driven with a steel roller chain running on cut cast iron sprocket wheels, 1-inch pitch; ratio, 3 to 1.

Driving Pulley —

The machine is furnished with a standard Bucyrus friction-clutch driving pulley, 42 inches diameter, 8 inches face.

Speed —

Speed of driving pulley, 50 R. P. M. to 75 R. P. M., according to capacity required and kind of ware being pressed.

Power —

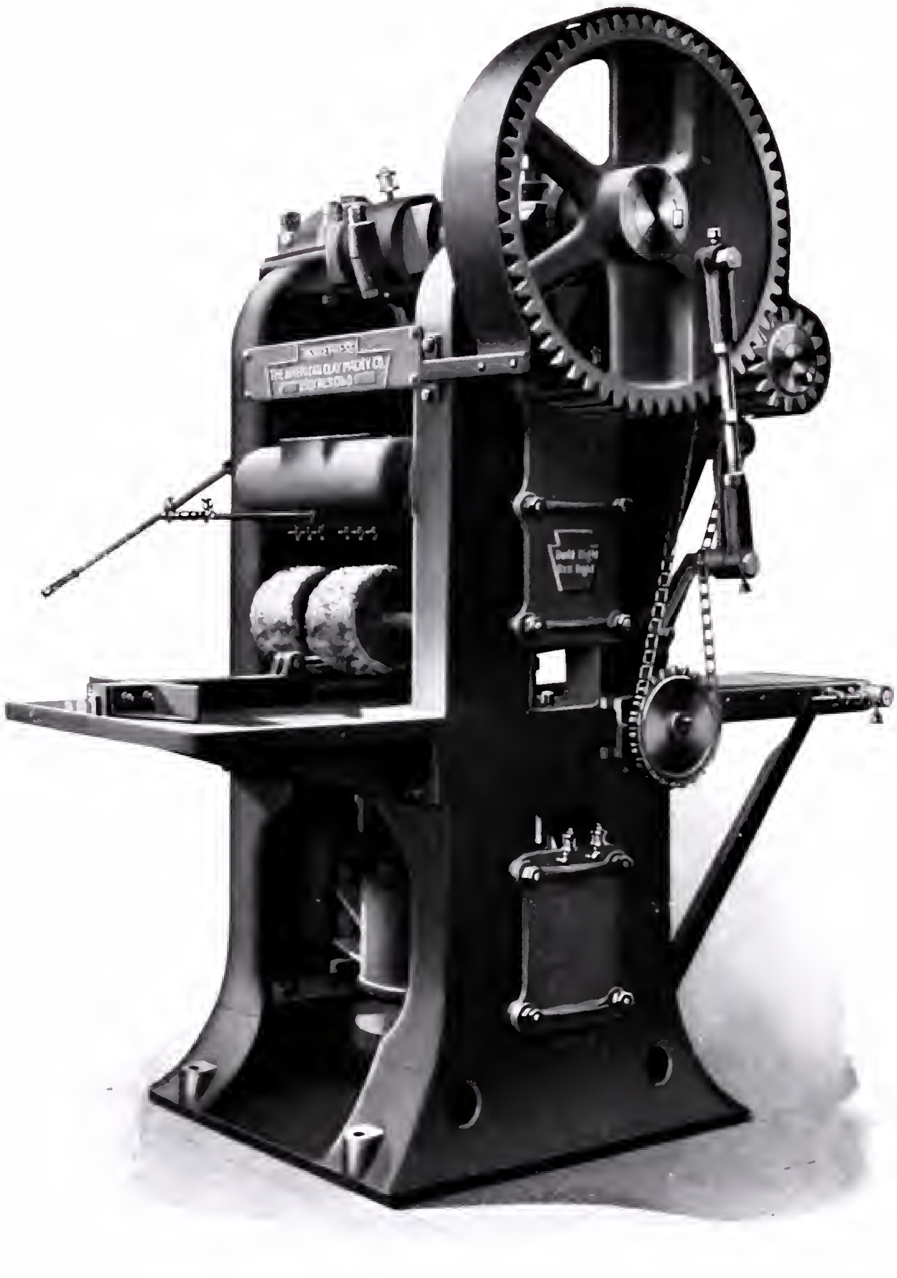
Power required to operate this repress will vary from 7 H. P. to 15 H. P., according to capacity, kind of ware manufactured, and character of material used.

Weight —

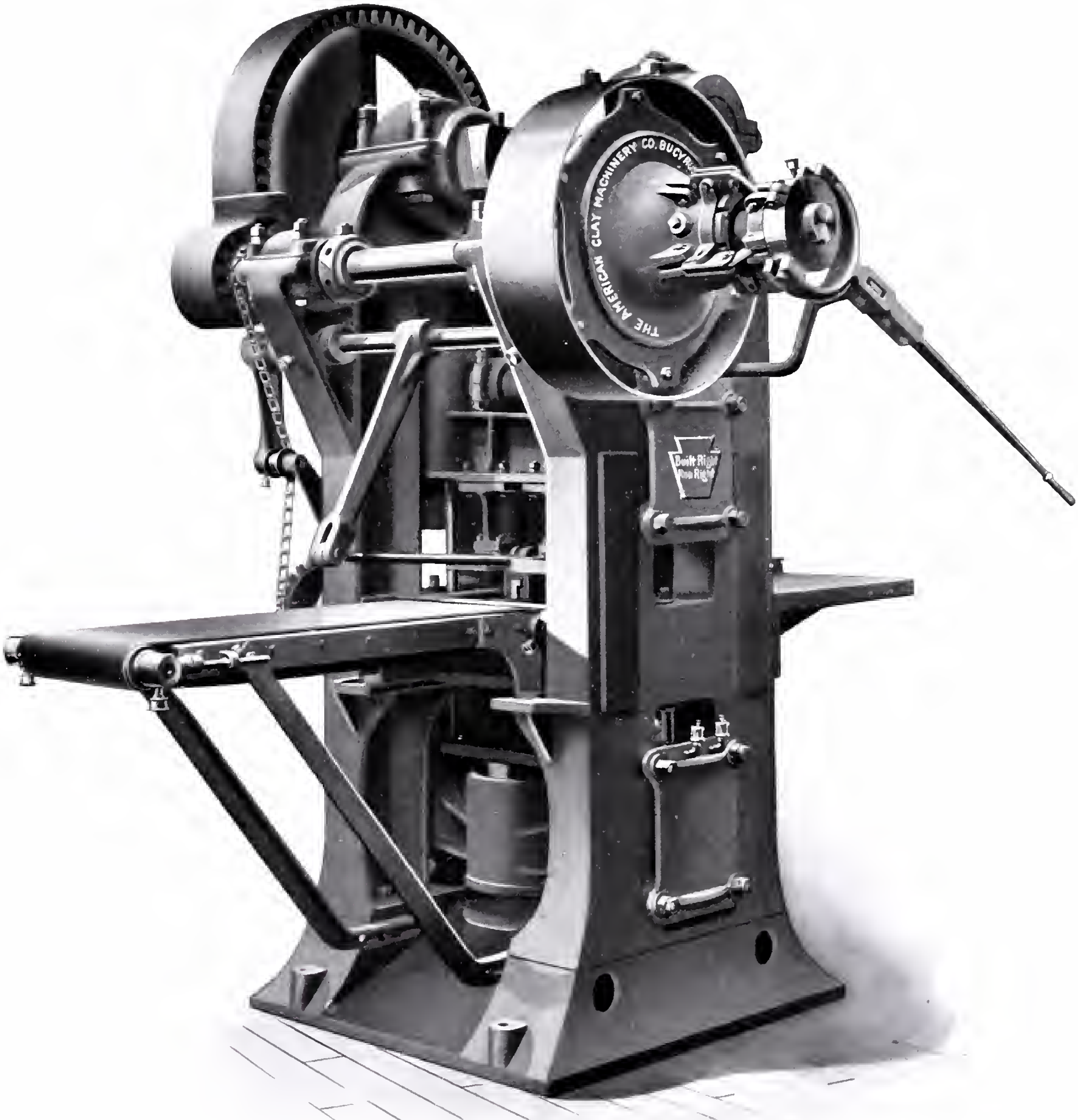
23,050 pounds.

Dimensions

Height over all	11 ft. $3\frac{1}{2}$ in.
Width over all	8 ft. $2\frac{3}{4}$ in.
Length over all, including Off-Bearing Table	10 ft. 4 in.
Distance from center of Machine to center of Driving Pulley	2 ft. 10 in.
Height from floor to top of Mold Box	4 ft. $1\frac{3}{4}$ in.
Distance from center of Machine to outer end of Feeding Table	4 ft. $\frac{1}{2}$ in.
Distance from center of Machine to outer end of Off-Bearing Table	6 ft. $3\frac{1}{2}$ in.
Height from floor to center of Driving Pulley	8 ft. $4\frac{1}{4}$ in.
Distance from center of Machine to center of Driving Shaft	2 ft. $\frac{5}{8}$ in.



American No. 363 Repress—Front View



American No. 363 Repress—Rear View

American No. 363 Repress

This machine is designed for repressing large and medium fire brick shapes.

The construction is high class in every detail. All wearing surfaces are large and parts are easily accessible for adjustment or renewal. Ample provision is made for lubrication and wearing parts are well protected from dirt. The most simple mechanical movements are used and the machine is built with the least number of parts possible. All working parts are above the point where the pressing occurs, except the lower cross-head and bottom plungers.

The bricks are retained under pressure and moved in the mold box, allowing more time for the re-arrangement of the particles constituting the structure of the brick. The bottom plunger is provided with a powerful spring to regulate the pressure.

Rated Capacity Per Hour —

Standard 13½-inch Fire Brick, 1,200 to 1,800 per hour, using double mold box.

The capacity is governed by speed at which the machine is operated, size and kind of ware being repressed, and by the ability of the operators to handle the ware.

Specifications

Main Frame —

The main frame of this machine is built up of two heavy side frame castings, carrying the shaft bearings on top, supporting the mold box in the middle and securely fastened at the bottom to a heavy one-piece base, which receives the pressure. Two heavy stretchers hold the side frames together at the top. All joints are machined, accurately fitted and securely bolted together, making a most rigid construction of ample weight and strength to take all pressure strains and absorb vibrations.

Shafts —

The crank shaft is forged and turned to 6 inches diameter, and the crank stroke is 12 inches. The driving shaft is 3½ inches diameter, the charger shaft is 2 inches diameter, and the driving shaft on the off-bearing belt is 1½ inches diameter.

Bearings —

The crank shaft bearings are 16 inches long. The driving shaft bearings are 12 inches long. These are ring oiling bearings and well babbitted with the best metal for the service required.

Gears —

The gears are semi-steel. They are 2 inches pitch and 8 inches face. Master gear on crank shaft is 37½ inches diameter and the driving pinion is 9½ inches diameter. Ratio of gears, 4 to 1. Gears are covered with a sheet steel guard. Master gear is cast with a counter-weight to permit stopping the press on the up stroke.

Connecting Rod —

A single connecting rod is used between the crank shaft and the upper cross-head. This rod is fitted with a sleeve, having a right and left-hand thread for adjusting the length of the rod and regulating the thickness of the brick. When properly adjusted for thickness of the brick the sleeve is locked and cannot move to disturb the adjustment while operating.

Mold Box —

The mold box is cast iron with chilled and ground surfaces which may be reground when worn. Mold box is 9 inches deep and will press a block 7 inches thick; 18 inches by 7½ inches is the largest block that can be pressed in a standard double mold box and 18 inches by 18 inches is the largest single block that can be pressed.

An adapter to take on the standard mold box of our No. 292 Repress and suitable upper and lower pressure feet can be furnished with this machine. The No. 292 mold box is $6\frac{3}{4}$ inches deep and will repress a block $5\frac{1}{2}$ inches thick; 11 inches by 5 inches is the largest block that can be pressed in double mold box, and 11 inches by 13 inches is the largest single block that can be pressed.

Charger —

The charger is operated from a crank pin on the master gear. This eliminates lost motion and insures the correct placing of the brick in the mold box. The motion is easy and permits of rapid work without damage to the finished product. Connecting rod on the charger is fitted with a right and left-hand thread for proper adjustment according to the length of the brick.

Oil Tank —

A cast iron oil tank is furnished with the repress and provided with pipes and valves to deliver oil to the feeding table and oil roller. This tank is hung in the main frame and may be easily lifted out at any time.

Off-Bearing Table —

The machine is furnished with a standard steel frame off-bearing table 48 inches long, having an endless leather off-bearing belt 18 inches wide. The off-bearing belt is driven with a chain running on sprocket wheels, 1-inch pitch.

Driving Pulley —

The machine is furnished with a standard Bucyrus friction-clutch driving pulley, 30 inches diameter, 8 inches face.

Motor Drive —

When required this press can be built for motor drive, using a direct-connected motor. Either alternating or direct current. Slow-speed motor should be used.

Speed —

Speed of driving pulley, 50 R. P. M. to 75 R. P. M., according to capacity required and kind of ware being pressed.

Power —

Power required to operate this repress will vary from 7 H. P. to 15 H. P., according to capacity, kind of ware manufactured, and character of material used.

Weight —

14,000 pounds.

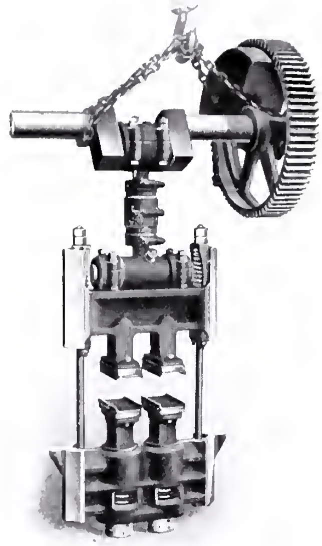
Dimensions

Height over all	9 ft. $5\frac{1}{2}$ in.
Width over all	7 ft. $9\frac{3}{4}$ in.
Length over all, including Off-Bearing Table	8 ft. $11\frac{1}{2}$ in.
Distance from center of Machine to center of Driving Pulley	$19\frac{3}{4}$ in.
Height from floor to top of Mold Box	3 ft. 9 in.
Distance from center of Machine to outer end of Feeding Table	3 ft. 7 in.
Distance from center of Machine to outer end of Off-Bearing Table	5 ft. 4 in.
Height from floor to center of Driving Pulley	6 ft. 9 in.

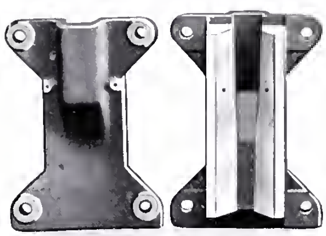
American No. 292 Repress

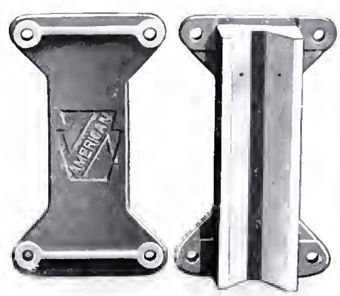
This machine is designed for repressing paving blocks, building brick, or fire brick.

Main frame of the American No. 292 Repress, cast in one piece.



Working parts of the American No. 292 Repress, located inside of the main frame.





Adjustable "V"-shaped guides for the cross-heads. These guides are bolted to the outside of the main frame. They can be readily removed or adjusted to take up the wear.

American No. 292 Repress

The construction of the press is high class in every detail. All wearing surfaces are large and parts are easily accessible for adjustment or renewal. Ample provision is made for lubrication and wearing parts are well protected from dirt. The most simple mechanical movements are used and the machine is built with the least number of parts possible. All working parts are above the point where the pressing occurs, except the lower cross-head and bottom plungers.

The bricks are retained under pressure and moved in the mold box, allowing more time for the re-arrangement of the particles constituting the structure of the brick. The bottom plungers are each provided with a powerful spring to regulate the pressure, and each brick is pressed independent of the other.

Rated Capacity Per Hour —

Paving Block or Brick, 2,000 to 3,000 per hour, using a double mold box.

The capacity is governed by speed at which the machine is operated, size and kind of ware being repressed, and by the ability of the operators to handle the ware.

Specifications

Main Frame —

The main frame of this machine is a heavy one-piece casting carrying the shaft bearings on top, supporting the mold box in the center, and having a heavy base to receive the pressure strains.

Shafts —

The crank shaft is hammered steel, turned down to 4½ inches diameter. The crank stroke is 8 inches. The driving shaft is 3 inches diameter, the charger shaft is 2 inches diameter, and the driving shaft on the off-bearing belt is 1½ inches diameter.

Bearings —

The crank shaft bearings are 12 inches long. The driving shaft bearings are 9 inches long. These are ring oiling bearings and well babbitted with the best metal for the service required.

Gears —

The gears are cast American gear metal. They are 1¼-inch pitch and 5-inch face. Master gear on crank shaft is 30⅝ inches diameter and the driving pinion is 7½ inches diameter. Ratio of gears, 4 to 1. Gears are covered with a sheet steel guard. Master gear is cast with a counter-weight to permit stopping the press on the up stroke.

Connecting Rod —

A single connecting rod is used between the crank shaft and the upper cross-head. This rod is fitted with a cast iron sleeve, having a right and left-hand thread for adjusting the length of the rod and regulating the thickness of the brick to be pressed. When properly adjusted for thickness of the brick the sleeve is locked and cannot move to displace the adjustment while operating.

Mold Box —

The mold box is cast iron with chilled and ground surfaces, which may be reground when worn. Mold box is 6¾ inches deep and will press a block 5½ inches thick; 11 inches by 5 inches is the largest block that can be pressed in a standard double mold box, and 11 inches by 13 inches is the largest single block that can be pressed.

Charger —

The charger is operated from a crank pin on the master gear. This eliminates lost motion and insures the correct placing of the brick in the mold box. The motion is easy and permits of rapid work without damage to the finished product. Connecting rod on the charger is fitted with a right and left-hand thread for proper adjustment, according to the length of the brick. The illustration of the repress shows the "T" head charger which is always furnished with the standard machine. The old-style flat charger, running in under a flat feeding table, can be furnished with this repress when so specified in the order.

Oil Tank —

A cast iron oil tank is furnished with the repress and provided with pipes and valves to deliver oil to the feeding table and oil roller. This tank is hung in brackets on the main frame and may be easily lifted out at any time.

Off-Bearing Table —

The machine is furnished with a standard steel frame off-bearing table 49½ inches long, having an endless leather off-bearing belt 14 inches wide. The off-bearing belt is driven with a steel roller chain running on cut cast iron sprocket wheels, 1-inch pitch, ratio 2½ to 1.

Driving Pulley —

The machine is furnished with a standard Bucyrus friction-clutch driving pulley, 30 inches diameter and 6¾ inches face.

Speed —

Speed of driving pulley, 100 R. P. M. to 125 R. P. M., according to capacity required and kind of ware being pressed.

Power —

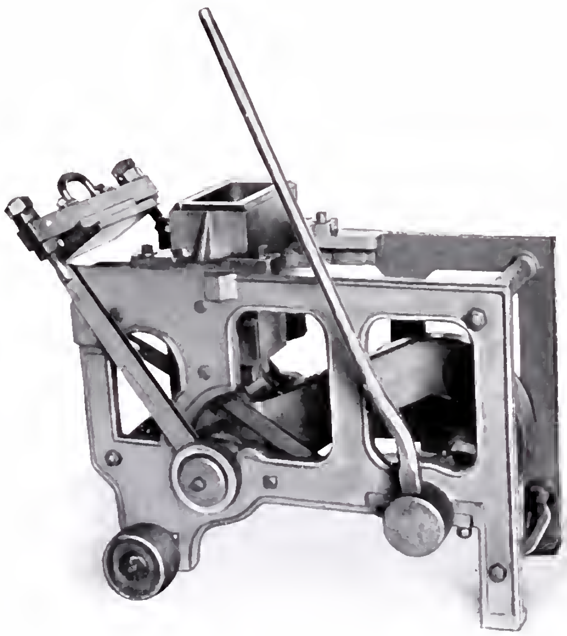
Power required to operate this repress will vary from 5 H. P. to 7 H. P., according to capacity, kind of ware manufactured, and character of material used.

Weight —

7,285 pounds.

Dimensions

Height over all	7 ft. 4 in.
Width over all	5 ft. 7 in.
Length over all, including Off-Bearing Table	7 ft. 10½ in.
Distance from center of Machine to center of Driving Pulley	2 ft. 1¾ in.
Height from floor to top of Mold Box	2 ft. 8 in.
Distance from center of Machine to outer end of Feeding Table	2 ft. 6⅝ in.
Distance from center of Machine to outer end of Off-Bearing Table	5 ft. 4 in.
Height from floor to center of Driving Pulley	5 ft. 4¾ in.
Distance from center of Machine to center of Driving Shaft	1 ft. 6 in.

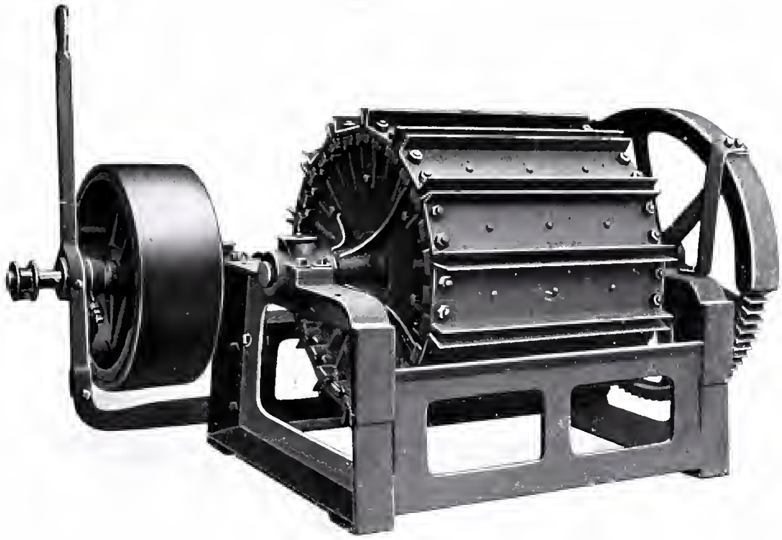


American No. 1 and No. 2 Hand-Power Brick Repress

There are few factories where this hand-power repress would not be a great convenience. For a few special brick, where they vary in size or shape, it will be found very convenient to press them on the hand-power repress. This machine is compactly built and is extremely simple and strong. It is made portable and can be moved about to different parts of the plant. It is equally well adapted to stiff or soft-mud brick, and is capable of producing a fine grade of brick, compact, perfectly square, of equal thickness, and with edges and corners clearly defined. It is operated with one lever, which serves the double purpose of pressing the brick and ejecting it from the mold.

The No. 1 press has a mold 5 inches deep, and the press will handle brick up to 9x9 inches. Weight, 900 pounds.

The No. 2 press has a mold box 5 inches deep, and will press a block $12\frac{3}{4}$x$12\frac{3}{4}$ inches. Weight, 1,300 pounds.



American No. 122 Paving Brick Rattler

On February 7, 1911, the National Paving Brick Manufacturers' Association, in session at Louisville, Ky., adopted standard specifications for a Paving Brick Rattler. The American No. 122 Rattler is built in accordance with these standard specifications, which are now universally recognized throughout the country.

Weight —

2,275 pounds.

Standard Specifications for Rattler Test on Paving Block

The Abrasive Charge

(a) The abrasive charge shall consist of two sizes of cast iron spheres. The larger size shall be three and seventy-five hundredths (3.75) inches in diameter when new and shall weigh when new approximately seven and five-tenths (7.5) pounds (3.40 kilos) each. Ten shall be used.

These shall be weighed separately after each ten (10) tests, and if the weight of any large shot falls to seven (7) pounds (3.175 kilos) it shall be discarded and a new one substituted; provided, however, that all of the large shot shall not be discarded and substituted by new ones at any single time, and that so far as possible the large shots shall compose a graduated series in various stages of wear.

The smaller size spheres shall be when new one and eight hundred seventy-five-thousandths (1.875) inches in diameter and shall weigh not to exceed ninety-five-hundredths (.95) pounds (0.430 kilos) each. Of these spheres so many shall be used as will bring the collective weight of the large and small spheres most nearly to three hundred (300) pounds, provided that no small sphere shall be retained in use after it has been worn down so that it will pass a circular hole one and seventy-five-hundredths (1.75) inches in diameter, drilled in a cast-iron plate one-fourth (¼) inch in thickness or weigh less than seventy-five-hundredths (.75) pounds (or .34 kilos). Further, the small spheres shall be tested by passing them over such an iron plate drilled with such holes, or shall be weighed after every ten (10) tests, and any which pass through or fall below specified weight, shall be replaced by new spheres, and provided, further, that all of the small spheres shall not be rejected and replaced by new ones at any one time, and that so far as possible the small spheres shall compose a graduated series in various stages of wear. At any time that any sphere is found to be broken or defective it shall at once be replaced.

(b) The iron composing these spheres shall have a chemical composition within the following limits:

Combined carbon—Not less than 2.50 per cent.
Graphitic carbon—Not more than 0.10 per cent.
Silicon—Not more than 1 per cent.
Manganese—Not more than 0.50 per cent.
Phosphorus—Not more than 0.25 per cent.
Sulphur—Not more than 0.08 per cent.

For each new batch of spheres used the chemical analysis must be furnished by the maker, or be obtained by the user, before introduction into the charge, and unless the analysis meets the above specifications, the batch of spheres shall be rejected.

The Brick Charge

The number of brick per charge shall be ten (10) for all bricks of the so-called "block sizes" whose dimensions fall between from eight (8) to nine (9) inches in length, three (3) and three and three-fourths (3¾) inches in breadth and three and three-fourths (3¾) and four and one-fourth (4¼) inches in thickness. No block should be selected for test that would be rejected by any other requirements of the specifications.

The brick shall be clean and dried for at least three (3) hours in a temperature of one hundred (100) degrees Fahr. before testing.

Speed and Duration of Revolutions

The rattler shall be rotated at a uniform rate of not less than twenty-nine and one-half (29½) nor more than thirty and one-half (30½) revolutions per minute, and eighteen hundred (1,800) revolutions shall constitute the standard test.

A counting machine shall be attached to the rattler for counting the revolutions. A margin of not to exceed ten (10) revolutions will be allowed for stopping. Only one (1) start and stop per test is regular and acceptable.

The Results

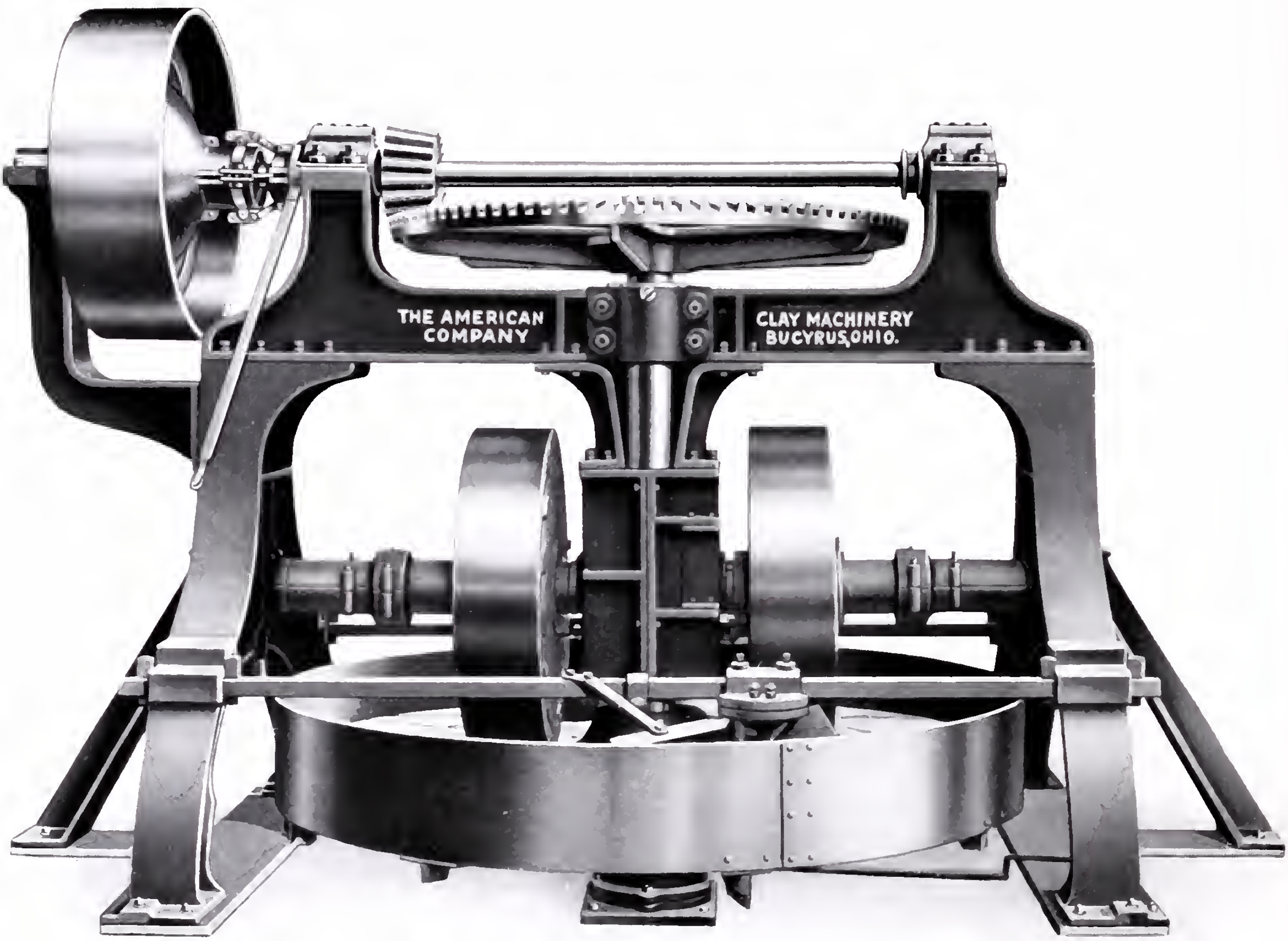
The loss shall be calculated in percentage of the original weight of the dried brick composing the charge. In weighing the rattled brick any piece weighing less than one (1) pound shall be rejected.

Dry and Wet Pans

To the exacting buyer of Dry and Wet Pans our line appeals strongly, because of the superiority of design and excellence of material and workmanship, all of which are features that are of the greatest importance in the permanent satisfactory operation of pans. The capacity of a pan depends largely upon its design and construction, and the distinctive features embodied in our line of pans have given them a greater capacity than others and have insured more working hours per pan with fewer delays and repairs than can be had from other styles of pans. We have been generous in the design of each pan, our line being the heaviest on the market. The feature should be given special consideration, as a lighter-weight pan is necessarily much cheaper and should not be compared with our heavy, durable and efficient machines.

The heavy side frames are substantially tied together at the top by the cross-beam, in the center by tie-bars and also on the floor line. The shafting is large and of steel. The gears are of special design and excellent quality. The bearings are long and well babbitted. The mullers are heavy, adjustable and removable. The screen plates are made of special iron. The step is of our approved type and the complete pan is one that can be depended upon under more than ordinary circumstances. All joints are carefully machined and fitted and bolts are made secure by lock nuts. The vertical shaft and muller shafts are secured by large removable bearings, which make it possible to remove any of these shafts or the mullers without disturbing the balance of the pan. The gearing is kept to its full efficiency by our device for taking up any possible wear, which insures a perfect mesh of the teeth at all times.

For preparing successfully many kinds of fire clay and shale used for making clay products, dry or wet pans are a necessity. The wet pans are particularly adapted for handling material in moist condition, while for use in dry pans it should be practically dry, so that when ground, it will readily pass through the screen plates without clogging. The power is applied to the driving shaft of the pan which causes the main shaft and pan to revolve rapidly and, in turn, communicate motion to the crushing mullers. These mullers revolve on the muller shafts, holding them in position, but do not travel around the pan. As the material is thrown into the rapidly-revolving pan, centrifugal motion tends to throw it to the outside of the pan, where it encounters the scrapers or plows, which in turn throw it under the revolving mullers. In our dry pans this operation is repeated until the material is fine enough to sift through the screen plates in the bottom of the pan. Below the revolving pan should be arranged either a wooden platform or a second stationary pan to catch the material as it falls through the screen plates, arranged with an opening communicating with the boot of an upright bucket elevator. To the arms which hold the screen plates in position are bolted steel scrapers or wings, which catch the material as it drops through the screen plates onto the platform or stationary pan and convey it to the discharge opening, where it drops into the boot of the bucket elevator. The elevator catches the clay and conveys it to a screen, either stationary or revolving, which screens the clay and deposits it in a suitable bin ready for use. The tailings, or portions of material not fine enough to pass through the screen, are returned to the dry pan and reground.



American No. 339 Ten-Foot Dry Pan—Always Furnished With Sole Plate and Side Braces

American Standard Dry Pans

Description

The Dry Pan is a machine designed for crushing, grinding and screening hard clay, shale and similar material preparatory to the manufacture of brick and other clay products.

In the construction of the American pans only the best material is used and skilled labor employed. Each pan is erected complete and is carefully inspected before leaving the factory. The pan is dismantled for shipment and the parts are carefully marked, so that no trouble or delay is experienced in erecting the pan at the brick works, and no filing, chipping or drilling is necessary to make the parts fit properly in erecting it.

The American Standard Dry Pans are built in six sizes: The No. 339 Ten-Foot Pan; No. 57 Heavy Duty Nine-Foot Pan, designed for grinding the hardest class of material; the Standard Nine-Foot Pan, for ordinary clay or shale; Standard Eight-Foot, Seven-Foot, and Five-Foot Pans for smaller capacities.

Capacity —

The capacity of a dry pan is governed by the nature and condition of the material being ground and the degree of fineness required.

Pan Frame —

The pan frame consists of two heavy "A"-shaped side frames with a heavy top cross frame securely bolted to broad bearing surfaces on the top of the side frames. At the front and back of the frame, just above the rim of the pan and passing through each side frame, are two square tie-bars. These bars are slotted where they pass through the side frames, and through these slots substantial tapered keys are driven. This construction securely locks the frame, both top and bottom. Both the side frames and the top cross-beam are heavy and made in proportion to stand the strain to which they are subjected. The joints are accurately and carefully made, and all bolts are fitted with lock nuts.

Shafts —

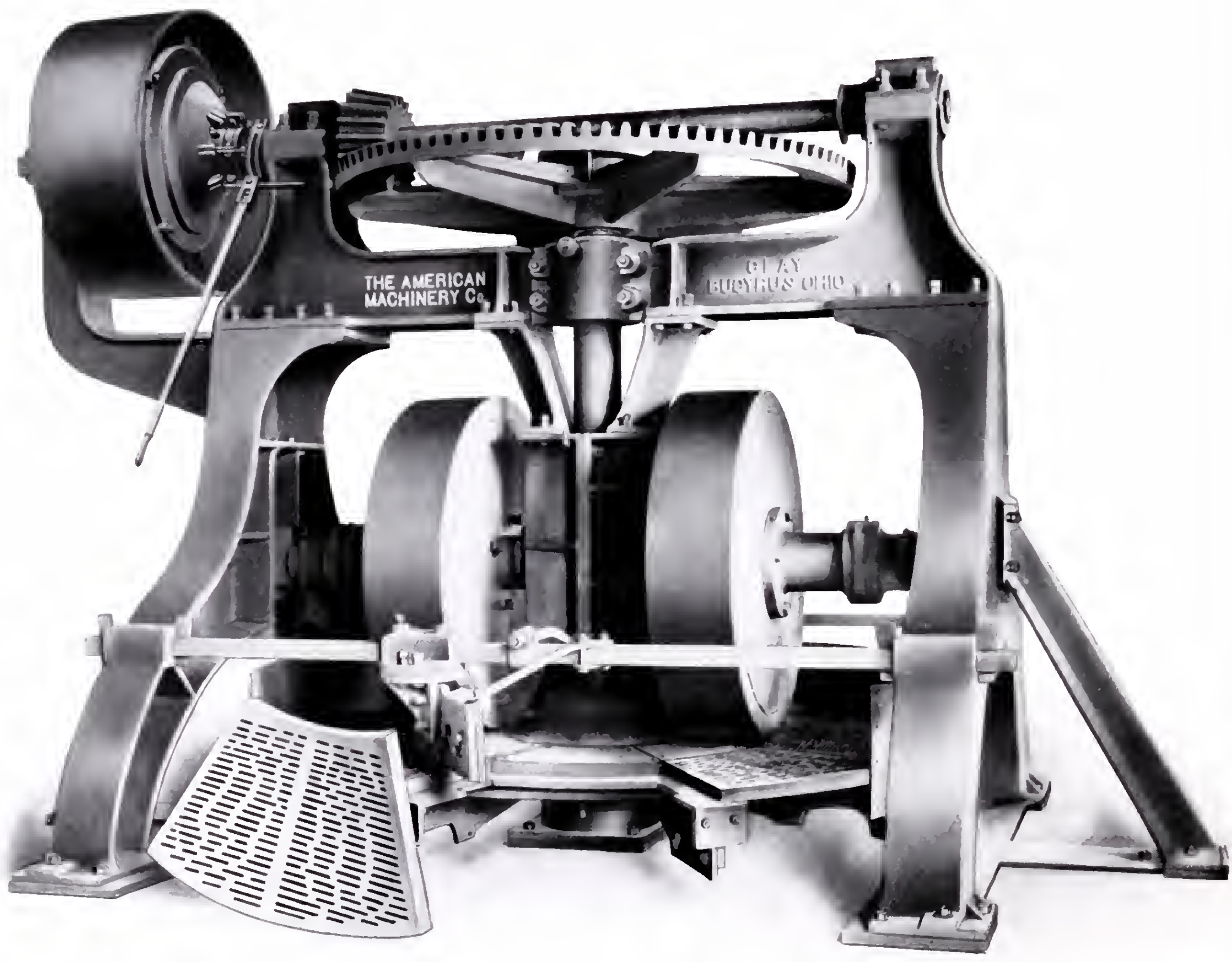
The vertical shaft is hammered steel, forged in our own factory and turned to the proper diameter for bearing and wheel fit. The driving shaft and muller shafts are cold rolled steel.

Bearings —

Bearings are long and well babbitted with the best grade of babbitt metal for the purpose. The 8 and 9-foot dry pans are fitted with a heavy cast iron bracket, bolted to the side frame of the pan to provide an outboard bearing for the driving shaft. The 7 and 5-foot dry pans are not furnished with the outboard bearing.

Step Bearings —

The step bearing of the vertical shaft is one of the special features in the American Dry Pan. It consists of two chilled plates, between which is placed a hard phosphor bronze disc. These plates are placed in an oil chamber, with ample arrangement for keeping the step supplied with oil. The bottom chill plate is constructed so that it is self-adjusting, by which means the face of these plates are always at a perfect right angle with the vertical shaft, insuring a perfect and even wearing surface, and preventing heating due to unequal wearing on the chilled plates. This dry pan step bearing is the result of many years' experience and gives universal satisfaction.



American No. 57 Nine-Foot Dry Pan for Heavy Duty — Always Furnished with Sole Plate and Side Braces

Gears —

The gears are made of a special mixture of American gear metal. They are well proportioned and of ample strength for the service required.

Base —

The base, or hub, of the dry pan is a heavy one-piece casting keyed to the vertical shaft. The top of the casting is machined smooth, to receive the muller plates. The arms supporting the screen plates are securely bolted to the base and the pan rim is bolted to the end of the arms.

Muller Plates and Screen Plates —

The muller plates and screen plates are made of a special mixture of iron, which we find gives long and satisfactory service. Either six or eight plates required for each pan, according to the diameter. The actual number of openings in the screen plates are as great as can be secured and retain the proper strength in the casing. The standard size screen plate, always furnished unless otherwise specified, has openings 1/8 inch wide.

Scrapers —

The scraper holders are attached to the tie-bars, one on each side of the pan. The scrapers are hung on swivel joints, and may be hung at any angle desired. They can also be lowered when worn. The scrapers are provided with face plates made of our special mixture of iron. These face plates are made interchangeable and reversible, making it possible to use all four surfaces, and thus prolonging their usefulness. When the scraper plates are worn out they can be readily removed and new plates substituted, at a small cost, without the necessity of buying a whole scraper.

Mullers —

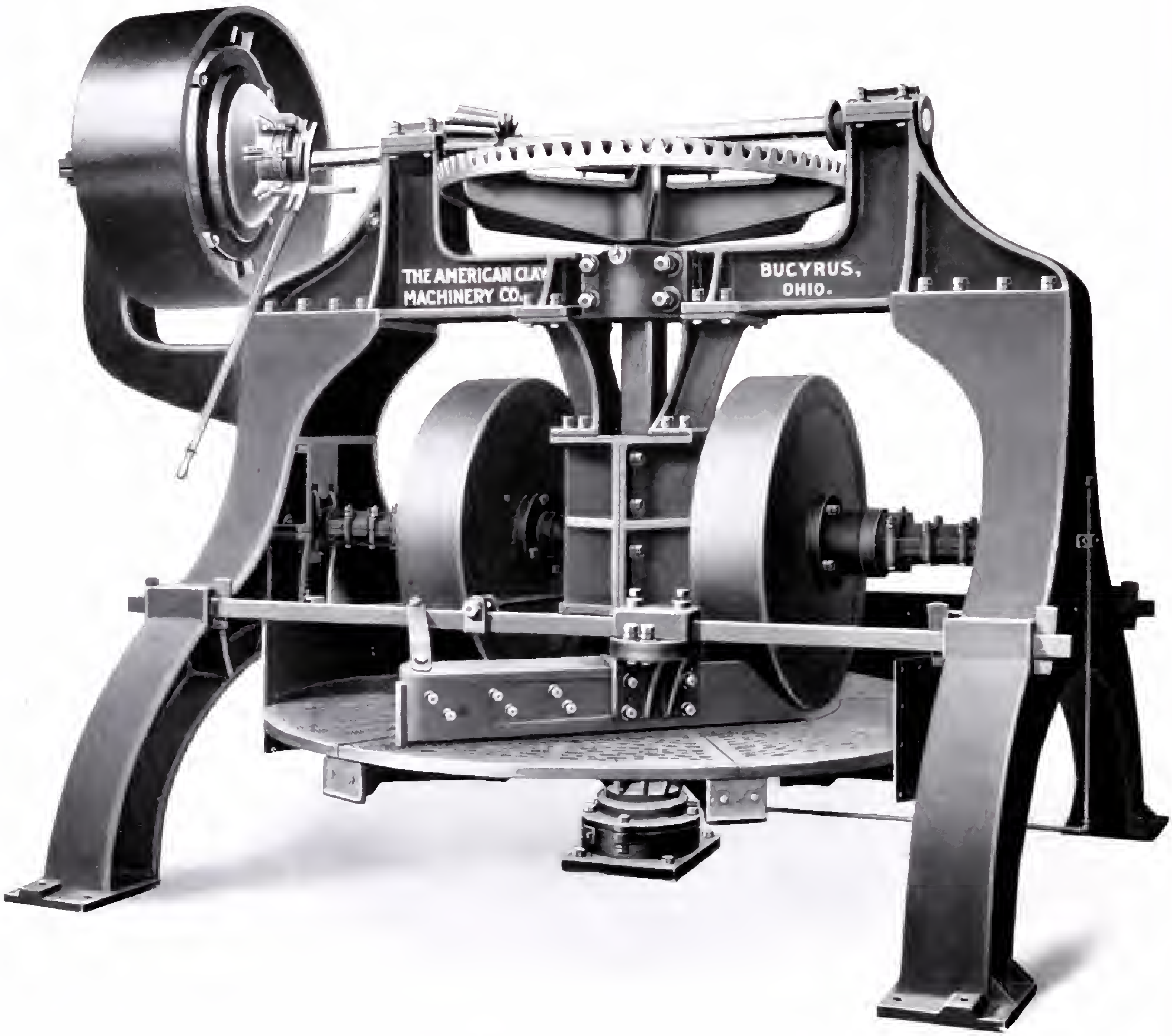
The mullers are supported on steel shafts, which are independent of each other. The ends of these shafts are provided with shoes which move in guides in the frame and in the shroud encircling the vertical shaft. The independent muller construction makes either muller removable without disturbing the other, and also makes it possible to set the mullers close to the vertical shaft, thus increasing the screening surface. The muller is a heavy casting, fitted with a hard, white iron tire, secured with white pine wedges. This tire is readily removed when worn. Each muller is fitted with a sleeve, forming the bearing on the shaft, and this bearing is supplied with oil from a reservoir inside of the muller. A chilled disc is fitted on the shaft to take the end thrust of the muller, and the space between the muller sleeve and the shoe on the muller shaft is fitted with split collars, which are readily removable at any time it may become necessary to make repairs. The ends of the muller shaft are supported by heavy steel springs, which may be set in such a position that the mullers are close to, but do not touch, the muller plates when the dry pan is empty. The space between the mullers and the muller plates can be adjusted to suit the material to be ground.

Driving Pulleys —

Each pan is fitted with a friction-clutch driving pulley, of the proper size in proportion to the work to be performed.

Speed —

The speed of the driving pulley will vary under different conditions, according to the nature of the material being ground.



American Nine-Foot and Eight-Foot Dry Pan

Power —

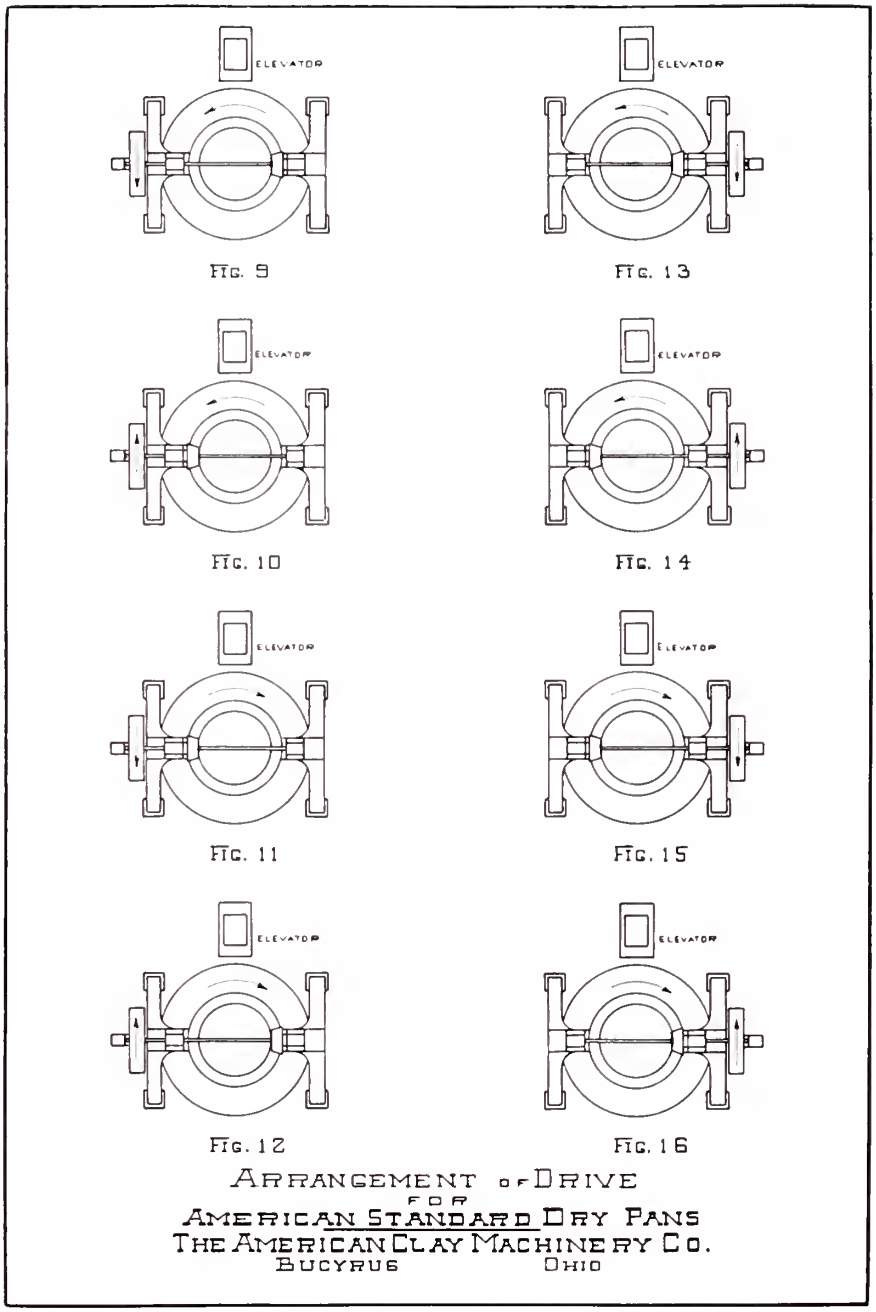
Power required to operate the dry pan will vary under different conditions, and is governed largely by the nature of the material being ground.

Specifications

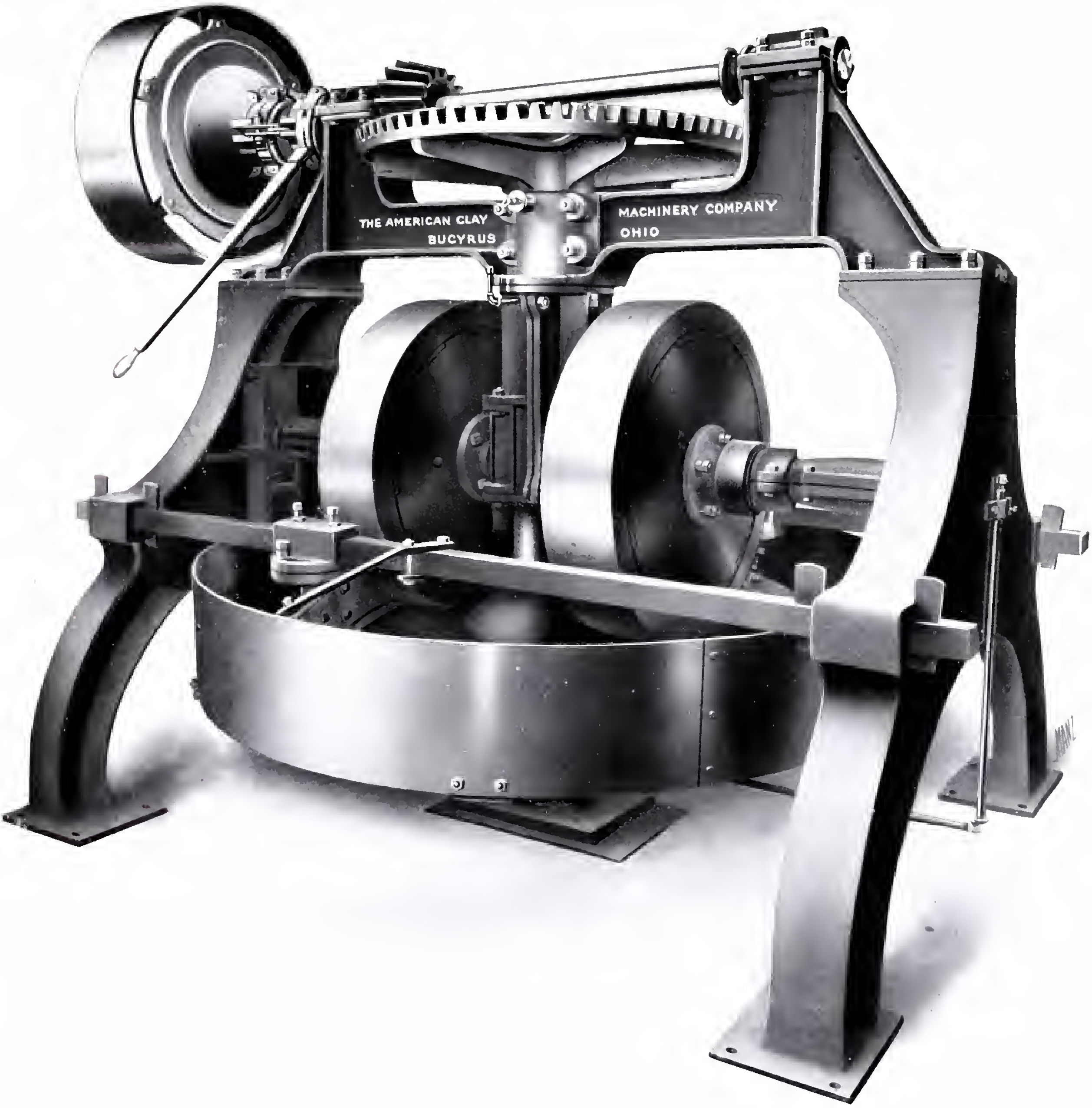
	Standard No. 339 10-ft. Dry Pan	No. 57 Heavy Duty 9-ft. Dry Pan	Standard 9-ft. Dry Pan	Standard 8-ft. Dry Pan	Standard 7-ft. Dry Pan	Standard 5-ft. Dry Pan
Rated capacity per hour in tons	10 to 15	5 to 10	5 to 10	3 to 8	2 to 6	1 to 4
Diameter of Vertical Shaft	8 in.	8 in.	$6\frac{7}{8}$ in.	$6\frac{1}{2}$ in.	6 in.	$4\frac{5}{8}$ in.
Diameter of Driving Shaft	4 in.	4 in.	$3\frac{1}{2}$ in.	$3\frac{1}{4}$ in.	3 in.	3 in.
Diameter of Muller Shaft	5 in.	5 in.	$3\frac{15}{16}$ in.	$3\frac{1}{2}$ in.	3 in.	3 in.
Length of Bearings on Driving Shaft	10 and 12 in.	10 and 12 in.	10 in.	11 in.	10 in.	9 in.
Length of Bearings on Vertical Shaft	13 in.	13 in.	10 in.	16 in.	$10\frac{1}{2}$ in.	$10\frac{1}{8}$ in.
Diameter of Chilled Disc in Step Bearing	10 in.	10 in.	10 in.	8 in.	8 in.	$4\frac{7}{8}$ in.
Diameter of Chilled Disc in Thrust Bearing on Muller Shafts	$10\frac{1}{4}$ in.	$10\frac{1}{4}$ in.	$8\frac{1}{2}$ in.	$8\frac{1}{2}$ in.	7 in.	
Diameter of Bevel Gear	$84\frac{1}{2}$ in.	$84\frac{1}{2}$ in.	$61\frac{1}{4}$ in.	56 in.	$47\frac{1}{4}$ in.	44 in.
Diameter of Bevel Pinion	$16\frac{3}{4}$ in.	$16\frac{3}{4}$ in.	$12\frac{3}{8}$ in.	14 in.	$11\frac{3}{8}$ in.	$8\frac{7}{8}$ in.
Face of Gear and Pinion	8 in.	8 in.	8 in.	$7\frac{1}{2}$ in.	$6\frac{1}{2}$ in.	$5\frac{1}{2}$ in.
Pitch of Gear and Pinion	$2\frac{3}{4}$ in.	$2\frac{3}{4}$ in.	$2\frac{3}{4}$ in.	$2\frac{3}{4}$ in.	$2\frac{1}{4}$ in.	2 in.
Ratio of Gear and Pinion	5 to 1	5 to 1	5 to 1	4 to 1	4.1 to 1	5 to 1
Diameter of Mullers	54 in.	54 in.	48 in.	44 in.	40 in.	36 in.
Face of Mullers	13 in.	13 in.	10 in.	10 in.	$8\frac{1}{2}$ in.	7 in.
Thickness of White Iron Muller Tires	$3\frac{5}{8}$ in.	$3\frac{5}{8}$ in.	$3\frac{3}{4}$ in.	4 in.	$3\frac{15}{16}$ in.	$2\frac{1}{2}$ in.
Weight of each Muller and Accessories	8,277 lbs.	8,277 lbs.	5,200 lbs.	4,100 lbs.	3,775 lbs.	1,750 lbs.
Length of Muller Sleeve	$28\frac{3}{8}$ in.	$28\frac{3}{8}$ in.	$18\frac{1}{8}$ in.	$18\frac{1}{8}$ in.	$11\frac{3}{4}$ in.	11 in.
Distance center to center of Mullers	$46\frac{1}{2}$ in.	$46\frac{1}{2}$ in.	46 in.	$36\frac{1}{8}$ in.	$32\frac{3}{4}$ in.	$24\frac{3}{8}$ in.
Thickness of Muller Plates	$2\frac{1}{2}$ in.	$2\frac{1}{2}$ in.	2 in.	$1\frac{3}{4}$ in.	$1\frac{3}{4}$ in.	$1\frac{1}{2}$ in.
Width of Muller Plates	16 in.	16 in.	13 in.	$11\frac{1}{2}$ in.	$10\frac{3}{4}$ in.	$8\frac{3}{8}$ in.
Number of Muller Plates required	8	8	8	6	6	6
Width of Screen Plates	$28\frac{3}{4}$ in.	$22\frac{3}{4}$ in.	25 in.	$23\frac{1}{2}$ in.	$19\frac{3}{4}$ in.	$13\frac{3}{4}$ in.
Number of Screen Plates required	8	8	8	6	6	6
Number of Arms required to support Screen Plates	8	8	8	6	6	6
Thickness of Steel Pan Rim	$\frac{3}{8}$ in.	$\frac{3}{8}$ in.	$\frac{3}{16}$ in.	$\frac{3}{16}$ in.	$\frac{3}{16}$ in.	$\frac{3}{16}$ in.
Number of sections in Rim	3	3	3	3	2	2
Depth of Pan	11 in.	11 in.	$11\frac{1}{2}$ in.	12 in.	$9\frac{1}{4}$ in.	9 in.
Diameter of Friction-Clutch Driving Pulley	48 in.	48 in.	48 in.	42 in.	36 in.	36 in.
Face of Friction-Clutch Driving Pulley	14 in.	14 in.	12 in.	12 in.	10 in.	8 in.
Speed of Driving Pulley R. P. M.	125 to 150	125 to 150	125 to 150	100 to 120	100 to 120	100 to 125
Power required H. P.	50 to 60	30 to 50	20 to 40	20 to 30	15 to 20	10 to 15
Average weight	50,500 lbs.	46,650 lbs.	31,250 lbs.	23,980 lbs.	15,940 lbs.	9,950 lbs.

Dimensions

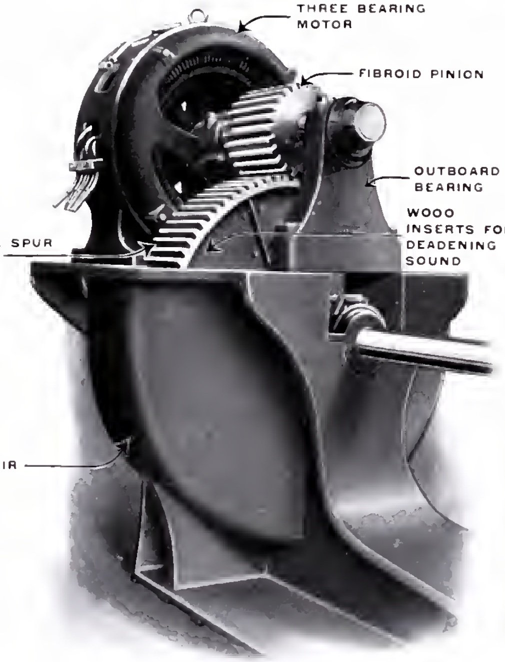
Length over all	17 ft. $2\frac{1}{4}$ in.	15 ft. $10\frac{1}{4}$ in.	14 ft. $\frac{1}{2}$ in.	11 ft. 1 in.	10 ft. 4 in.	8 ft. $1\frac{1}{2}$ in.
Width over all	10 ft.	9 ft. 8 in.	9 ft. 6 in.	8 ft. 1 in.	7 ft. 2 in.	5 ft. 1 in.
Length from center of Pan to center of Driving Pulley	7 ft. $1\frac{1}{8}$ in.	6 ft. 3 in.	6 ft. 3 in.	4 ft. 7 in.	4 ft. 3 in.	3 ft. 6 in.
Length from center of Pan to end of Driving Shaft on Pulley side	8 ft. $7\frac{1}{2}$ in.	8 ft. 3 in.	8 ft. $3\frac{1}{2}$ in.	6 ft. $7\frac{1}{2}$ in.	5 ft. $4\frac{1}{2}$ in.	4 ft. 7 in.
Height over all	12 ft. 5 in.	11 ft. 3 in.	10 ft. 11 in.	9 ft. 9 in.	8 ft. $10\frac{1}{2}$ in.	7 ft. $11\frac{1}{2}$ in.
Height from floor to top of Pan Rim	2 ft. $2\frac{3}{8}$ in.	2 ft. $2\frac{3}{8}$ in.	2 ft. $11\frac{1}{2}$ in.	2 ft. $10\frac{1}{2}$ in.	2 ft. $8\frac{1}{2}$ in.	1 ft. $11\frac{5}{8}$ in.
Height from floor to center of Driving Shaft	9 ft. 3 in.	9 ft. 3 in.	8 ft. 11 in.	8 ft. 11 in.	7 ft. $4\frac{1}{2}$ in.	6 ft. $5\frac{1}{2}$ in.



Unless otherwise specified all dry pans are built to drive according to Figure 10 shown in the above illustration.

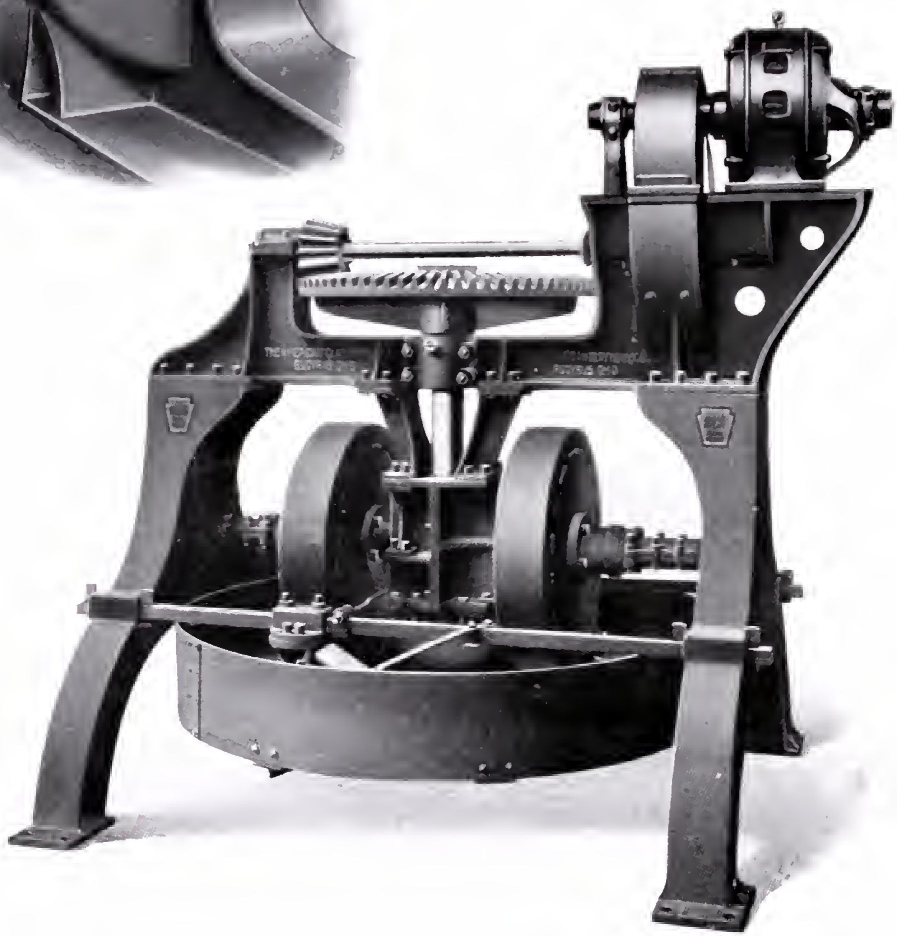


American Seven-Foot and Five-Foot Dry Pan



Motor Drive for Pans

Detail of superior features of our motor drive for pans. Note the many points of excellence to secure long life, easy, noiseless operation and complete satisfaction.



American Nine-Foot Dry Pan with Direct-Connected Motor

Motor Drive for Pans

Our method of mounting motors for driving wet and dry pans by means of gears has proven very successful in practice. The motor is rigidly supported and there is a bearing on both sides of the gear and pinion, insuring correct mesh and permanent alignment. This is correct practice when using motors of the size required for these machines when the pinion is mounted on the motor shaft, and we **will not deviate from this method.** The cut steel gear and fibroid pinion run in oil and are entirely enclosed, reducing wear to the minimum.

It will be noted that a motor having an extended shaft and an outboard or third bearing is essential. Preference should always be given to the slow-speed motors and the maximum speed named should never be exceeded. When alternating current is used the slip-ring type of motor is required. When direct current is used a constant-speed compound-wound motor is required and preference should be given to the inter-pole type.

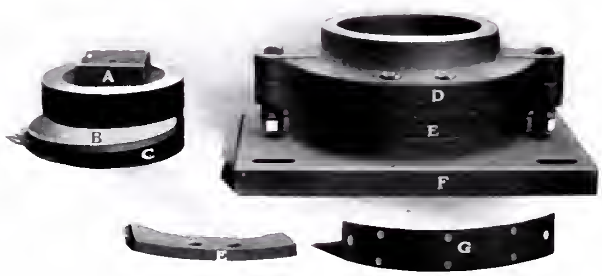
We recommend Motors for our Pans as follows:

No. 339 Ten-Foot Dry Pan, 75 H. P. Motor, 514 R. P. M.
No. 57, Nine-Foot Dry Pan, 50 H. P. Motor, 514 R. P. M.
Standard Nine-Foot Dry Pan, 35 H. P. Motor, 720 R. P. M.
Standard Eight-Foot Dry Pan, 35 H. P. Motor, 720 R. P. M.
Standard Seven-Foot Dry Pan, 25 H. P. Motor, 720 R. P. M.
Standard Five-Foot Dry Pan, 20 H. P. Motor, 900 R. P. M.

No. 57 Nine-Foot Wet Pan, 75 H. P. Motor, 514 R. P. M.
No. 335 Eight-Foot Wet Pan, 75 H. P. Motor, 514 R. P. M.
Standard Nine-Foot Wet Pan, 50 H. P. Motor, 514 R. P. M.
Standard Eight-Foot Wet Pan, 35 H. P. Motor, 720 R. P. M.
Standard Seven-Foot Wet Pan, 35 H. P. Motor, 720 R. P. M.
Standard Five-Foot Wet Pan, 25 H. P. Motor, 720 R. P. M.

The space allowed for the pinion on the motor shaft between the motor and the outer or third bearing is as follows: On the No. 339 Ten-Foot Dry Pan, No. 57 Nine-Foot Pan, Standard Nine-Foot Pan, and No. 335, Eight-Foot Wet Pan is 13 inches. On the Eight-Foot Pan and Seven-Foot Pan it is 10 inches and on the Five-Foot Pan it is 7 inches.

Parts of Pan Step



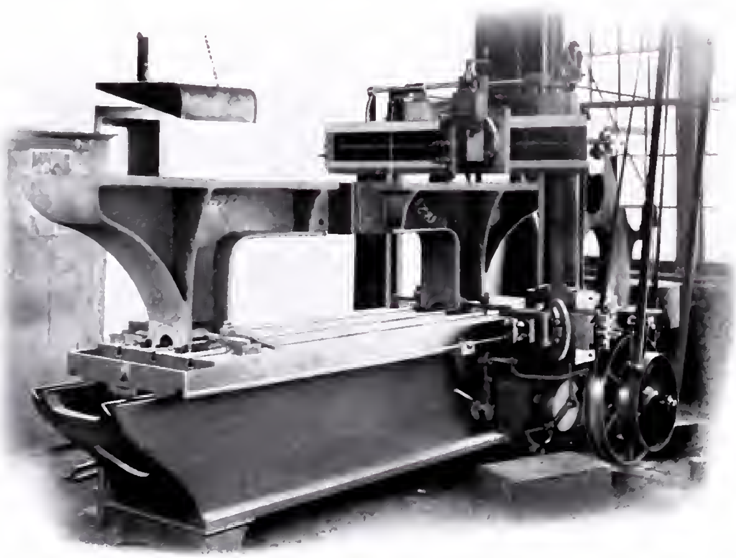
American Standard Pan Step

The accompanying cuts illustrate the under side of our pan "base"; also stub end of shaft and different parts of our Standard Step. "H" is the grinding base of pan, which has a deep recess bored in the bottom to receive the large end of the stub "I," which is turned and faced to fit the recess. The large flange of "I" has four slots, as shown, which correspond with four slots in the bottom of base to admit four large bolts to hold the "stub" in position, and affords quick means for removing the bolts when it is necessary to remove the stub. In the illustration "I" is shown bolted to "H." "I" is also shown separate. The hammered steel vertical shaft enters the base "H" from the upper side, the end resting on the stub "I," and is securely keyed to the base "H." The small end of this stub is turned and faced. In the bottom is a square socket which fits over the square projection on the upper chilled disc "A." The upper surface of "A" is faced off, so as to form a true bearing for the lower end of the stub "I" to rest on. The lower surface of chilled disc "A" is chilled and ground perfectly true. This surface rests on the upper surface of the bronze disc "B." The square projection of "A" fitting into the square socket of the stub causes "A" to revolve with the pan base "H." Both sides of the bronze disc "B" are faced true and scraped to a uniform thickness. The lower surface of the bronze disc rests on the upper ground surface of the lower chilled disc "C." This disc is made of the same material as disc "A," and both have oil channels cast in the faces to insure oil passing between the surface of the discs and the bronze disc. The lower disc is provided with a square projection on the underside similar to the one shown on "A." This projection fits loosely in a square socket cast in the bottom of the step casting "F." This prevents the chilled disc "C" from turning. The bottom surface of the square projection of "C" is rounded and rests on the flat bottom of the base casting "F." This permits the chilled disc "C" to rock or equalize itself so that the entire rubbing surface of the different discs rest on their entire contact surface.

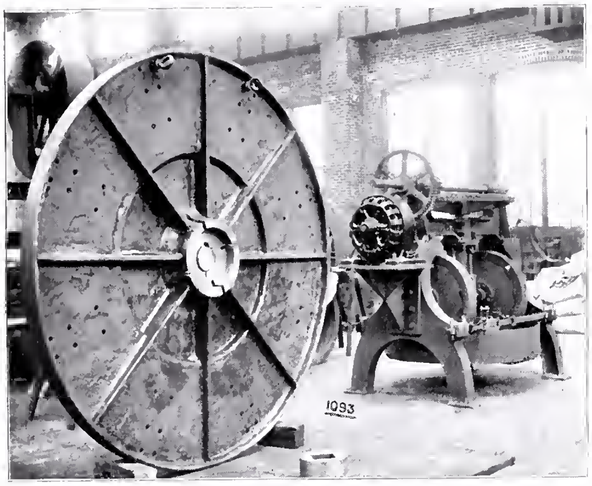
Bolted to "F" is a wearing collar "D." The joint between these is faced off smooth and made male and female, so as to hold "D" in a central position. The hole in the collar "F" is bored to fit the small end of the stub "I," and keeps the pan base "H" and vertical steel shaft in alignment. When this collar "D" wears it can be removed. In the side of the base plate "F" is cast a slot cutting through from the outside to the cavity which holds the discs. Inserted in this slot is a filler "E." This filler "E" holds the bronze disc in a central position. This filler is so located that by moving it the bronze disc "C" can be removed without disturbing the other portions of the step, except the cover "G," which is bolted with cap-screws to the side of the base "F." The design of the step is such that the discs run in a bath of oil, which is fed into the step by a pipe leading from the collar "D" to the outside of the pan frame, or leg. There is a hole drilled in the side of the base plate "F" and closed with a pipe plug, which plug can be removed, and by running water through the oil pipe the step can be washed clean.

When it is necessary to remove the bronze disc, base "H" is simply raised with jack-screws to relieve the weight from the disc, which can then be removed and a new one inserted, if necessary. The base of the step rests on wood blocks, so arranged that they can be unbolted and removed; then the entire step will drop down sufficiently to permit the removal of all parts of the step, including the step casting, without molesting any part of the pan.

Machining Pan Frames to Make Secure Joints

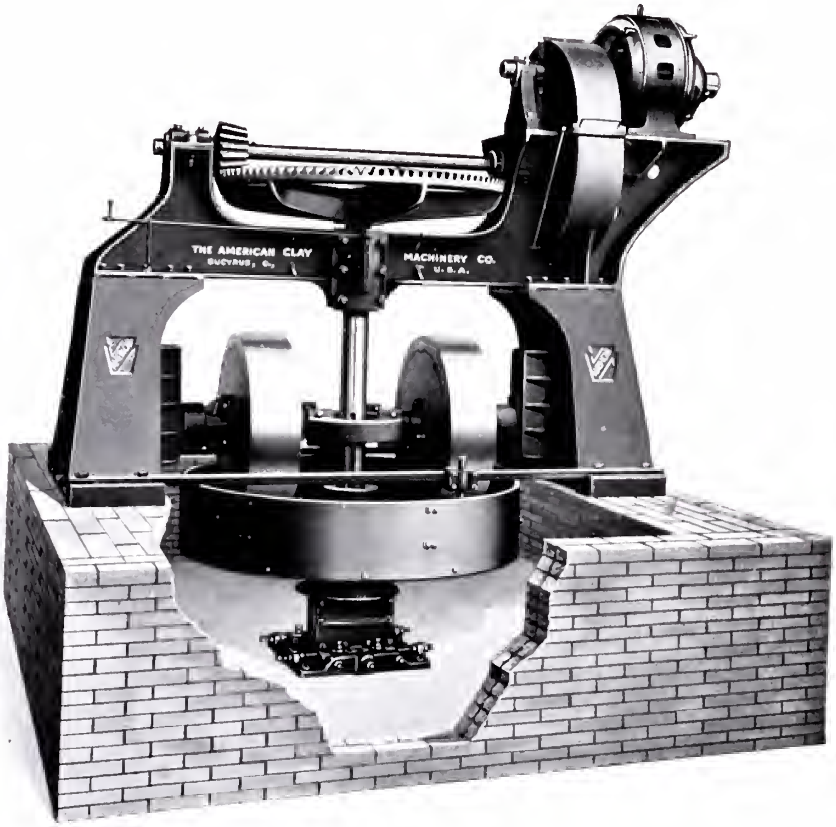


Planing Joints on a Pan Cross-Frame



Nine-Foot Wet Pan Base Casting

View of Pan Erecting Floor, Bucyrus Factory



Extra Heavy Wet Pan — American No. 335

The American No. 335 pan has been developed to meet the demands for a heavier and stronger machine than the standard patterns. An idea of its ability to stand hard usage may be had when we state that two of them have been in operation 24 hours daily for almost two years, that they weigh in excess of 60,000 pounds without motor and that only the best materials for the purpose are used throughout their construction.

When arranged for motor drive, using direct-connected motor, as here illustrated, we recommend the use of a 75 H. P. 3-bearing motor operating at 514 R. P. M. If alternating current is used we advise use of slip-ring type motor.

We use a wide face cut steel gear on drive shaft with rawhide pinion on motor shaft for connecting motor to pan.

Each pan is erected complete in the factory and before dismantling for shipment each part is carefully fitted, marked and inspected so that no fitting is necessary to erect it in the field, thereby avoiding unnecessary delay and trouble.

Note —

This pan is built either belt driven or motor driven. The belt-driven pan is standard and will be furnished unless otherwise specified.

Capacity —

The capacity is governed by the size and nature of the material to be prepared, the degree of fineness and the amount of mixing and tempering required.

Side Frames —

The side frames of this machine are heavy one-piece castings, tied together by the cross-beam and by two 2x5-inch steel tie-bars. The bearing surface on each side frame where it fits onto the cross-beam is 30x33 inches and ten 1-inch bolts with lock nuts are used in each. The bearing surface on the foundation is 24 inches by 72 inches. Four $1\frac{1}{2}$-inch anchor bolts fasten each side frame to the foundation and also clamp the tie-bar to side frames.

Cross-Beam —

The cross-beam is a heavy one-piece casting carrying the shaft bearings and forming a tie at the tops of the side frames, making a rigid and heavy construction to withstand all strains and absorb vibrations.

Shafts —

The vertical shaft is made of hammered steel, forged and turned to the proper diameters for bearing and wheel fits. The muller yoke and shafts are forged in one piece and accurately turned to size for bearings and fit. The driving shaft is made of cold rolled steel.

Bearings —

The driving shaft is provided with ring oiling bearings 14 inches long. The outboard is a one-piece A frame casting extending full length from driving shaft to foundation. The vertical shaft bearings are self-oiling, and 24 inches long. All of these bearings are babbitted with the best grade of metal for the purpose.

The self-aligning and self-oiling step bearing is 14 inches diameter and consists of a phosphor bronze disc between two polished chilled iron plates immersed in oil.

The thrust bearings on muller shaft are $10\frac{1}{4}$ inches diameter.

Gearing —

The gearing is made of American gear metal and well proportioned for the service required.

Base —

The base is a heavy one-piece casting designed with deep reinforcing ribs and having a bearing on the vertical shaft of 22 inches. The top of the base is machined smooth to receive the muller and wearing plates.

Muller and Wearing Plates —

The muller plates are made of white cast iron and afford a hard, durable grinding surface. The wearing plates are made of hard cast iron.

Pan Unloader —

The unloader is our standard plow type, which is hinged and can be raised or lowered by means of a lever. When lowering for discharging the toe of plow rests on the pan bottom and the clay is forced upward and discharged over the edge of the rim. When not in use it can be raised and held out of the way.

Scrapers —

The scrapers are so placed that the material is constantly turned and thrown under the mullers, insuring perfect grinding, mixing and tempering. These scrapers are all made of white cast iron and the two outer scrapers are provided with removable toe pieces of the same material. Swivel holders clamped to the tie-bars allow the scrapers to be adjusted to suit conditions.

Mullers —

The mullers are heavy, cast iron rolls fitted with hard, white cast iron tires secured with white pine wedges. This tire is readily removed when worn. Each muller is fitted with a sleeve, forming the bearing on the muller shaft, and provided with a pair of chilled discs to take the end thrust.

Rim —

The outer rim is made up of three steel plates accurately fitted and bolted to the pan base. Riveted to the inside of the outer rim are three steel plates forming an inner wear-resisting surface of great durability. These inner plates are 1 inch thick.

Driving Pulley —

Each pan if belt driven is fitted with a cast iron driving pulley equipped with Bucyrus type friction-clutch of ample proportion to handle the load.

Power —

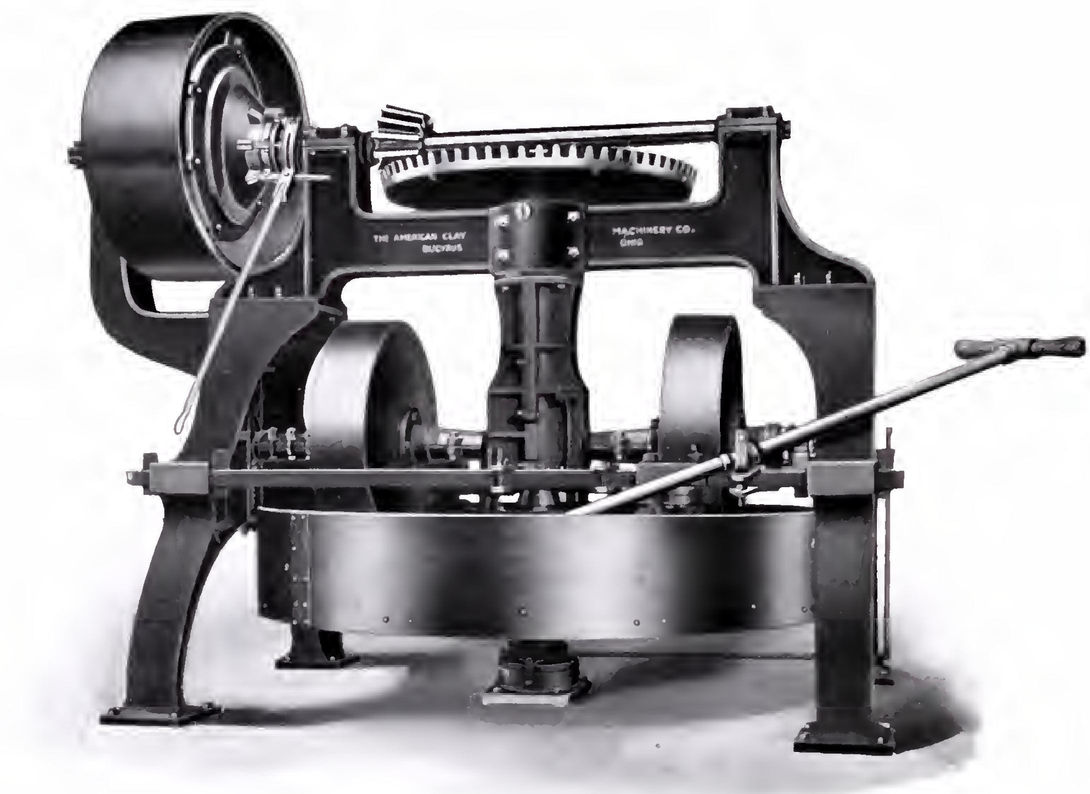
Power to operate this wet pan will vary with the nature of the material to be ground and tempered.

Specifications

Rated capacity per hour, in tons	3 to 7
Diameter of Vertical Shaft	8 in.
Diameter of Driving Shaft	4 in.
Diameter of Muller Shaft	5 in.
Length of Bearing on Driving Shaft	13½ in.
Length of Bearing on Vertical Shaft	24 in.
Diameter of Chilled Disc in Step Bearing	14 in.
Diameter of Chilled Disc in Thrust Bearing on Muller Shaft	10¼ in.
Diameter of Bevel Gear	85 in.
Diameter of Pinion	14 in.
Face of Gear and Pinion	8 in.
Pitch of Gear and Pinion	2¾ in.
Ratio of Gear and Pinion	6 to 1
Diameter of Mullers	54 in.
Face of Mullers	14½ in.
Thickness of White Iron Muller Tires	4 in.
Weight of Mullers and Shaft complete	20,050 lbs.
Length of Muller Sleeve	28 in.
Distance center to center of Mullers	56½ in.
Width of Muller Plates	19 in.
Thickness of Muller Plates	3 in.
Number of Muller Plates required	8
Thickness of Pan Rim	½ in.
Thickness of Pan Rim Lining	1 in.
Number of sections in Pan Rim	3
Number of sections in Pan Rim Lining	3
Depth of Pan	12 in.
Diameter of Friction-Clutch Driving Pulley	60 in.
Face of Friction-Clutch Driving Pulley	12 in.
Speed of Driving Pulley, R. P. M.	170
Power required, H. P.	50 to 75
Average weight	60,150 lbs.

Dimensions

Length over all	18 ft. 10 in.
Width over all	8 ft. 3 in.
Length from center of Pan to center of Driving Pulley	7 ft. 7 in.
Length from center of Pan to end of Driving Shaft Pulley side	9 ft. 9¾ in.
Height over all	15 ft. 1 in.
Height from floor to top of Pan Rim	2½ in.
Height from floor to center of Driving Shaft	7 ft. 11 in.
Height from bottom of Step to floor line	4 ft. 1½ in.
Height from bottom of Step to top of Rim	4 ft. 4 in.



American Nine-Foot and Eight-Foot Wet Pan Equipped With Standard Hand Unloading Shovel

American Standard Wet Pans

Description

The wet pan is a machine designed for tempering clay, shale or similar material after same has been prepared in a dry pan or crusher preparatory to the manufacture of brick and other clay products.

In the construction of the American pans only the best material is used and skilled labor employed. Each pan is erected complete and is carefully inspected before leaving the factory. The pan is dismantled for shipment and the parts are carefully marked, so that no trouble or delay is experienced in erecting the pan at the brick works, and no filing, chipping or drilling is necessary to make the parts fit properly in erecting it.

The American Standard Wet Pans are built in four sizes: 9 feet, 8 feet, 7 feet and 5 feet diameter.

Capacity —

The capacity of a wet pan is governed by the nature and condition of the material being tempered.

Pan Frame —

The pan frame consists of two heavy "A" shaped side frames, with a heavy top cross-frame securely bolted to broad bearing surfaces on the top of the side frames. At the front and back of the frame, just above the rim of the pan and passing through each side frames, are two square steel tie-bars. These bars are slotted where they pass through the side frames, and through these slots substantial tapered keys are driven. This construction securely locks the frame both top and bottom. Both the side frames and the top cross-beam are heavy and made in proportion to stand the strain to which they are subjected. The joints are accurately and carefully made, and all bolts are fitted with lock nuts.

Shafts —

The vertical shaft is hammered steel, forged in our own factory, and turned to the proper diameter for bearing and wheel fit. The driving shaft and muller shafts are cold rolled steel.

Bearings —

Bearings are long and well babbitted with the best grade of babbitt metal for the purpose. The 8- and 9-foot wet pans are fitted with a heavy cast iron bracket, bolted to the side frame of the pan to provide an outboard bearing for the driving shaft. The 7- and 5-foot wet pans are not furnished with the outboard bearing.

Step Bearing —

The step bearing of the vertical shaft is one of the special features in the American Wet Pan. It consists of two chilled plates, between which is placed a hard phosphor bronze disc. These plates are placed in an oil chamber, with ample arrangement for keeping the step supplied with oil. The bottom chill plate is constructed so that it is self-adjusting, by which means the face of these plates are always at a perfect right angle with the vertical shaft, insuring a perfect and even wearing surface, and preventing heating due to unequal wearing on the chilled plates. This wet pan step bearing is the result of many years' experience, and gives universal satisfaction.

Gearing —

The gears are made of a special mixture of American gear metal. They are well proportioned and of ample strength for the service required.

Base —

The base of the wet pan is a heavy circular casting keyed to the vertical shaft. The top of the casting is machined smooth, to receive the muller plates and wearing plates.

Muller Plates and Wearing Plates —

The muller plates and wearing plates are made of a special mixture of iron, which we find gives long and satisfactory service.

Scrapers —

The scraper holders are attached to the tie-bars, one on each side of the pan. The scrapers are hung on swivel joints, and may be hung at any angle desired. They can also be lowered when worn. A pair of plows, or scrapers, is placed near the center of the pan. These plows turn the material and throw it to the outside edge of the pan, where the outer scrapers again turn it and throw it under the mullers. This frequent turning insures more thorough mixing and tempering.

Unloading Shovel —

For discharging the material from the pan a long handled shovel is furnished. The shovel is operated on a swivel supported on the tie-bar, and may be placed on either side of the pan to suit conditions. This shovel is made with a steel blade, which may be readily renewed when worn.

Mullers —

The mullers are supported on steel shafts, which are independent of each other. The ends of these shafts are provided with shoes which move in guides in the frame and in the shroud encircling the vertical shaft. The independent muller construction makes either muller removable without disturbing the other. The muller is a heavy casting, fitted with a hard white iron tire, secured with white pine wedges. This tire is readily removed when worn. Each muller is fitted with a sleeve, forming the bearing on the shaft, and this bearing is supplied with oil from a reservoir inside of the muller. A chilled disc is fitted on the shaft to take the end thrust of the muller, and the space between the muller sleeve and the shoe on the muller shaft is filled with split collars, which are readily removable at any time it may become necessary to make repairs. The ends of the muller shaft are supported by heavy steel springs, which may be set in such a position that the mullers are close to, but do not touch, the muller plates when the pan is empty. The space between the mullers and the muller plates can be adjusted to suit the material to be tempered.

Driving Pulley —

Each pan is fitted with a friction-clutch driving pulley of the proper size in proportion to the work to be performed.

Speed —

The speed of the driving pulley will vary under different conditions, according to the nature of the material being tempered.

Power

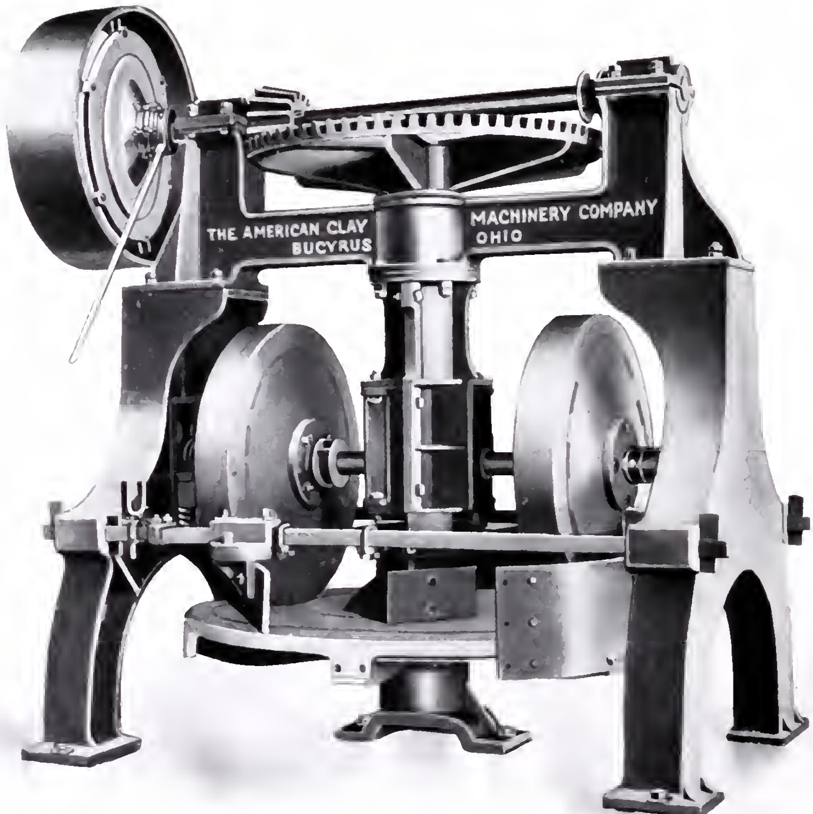
Power required to operate the wet pan will vary under different conditions, and is governed largely by the nature of the material being tempered.

Specifications

	No. 57 Heavy Duty 9-ft. Wet Pan	Standard 9-ft. Wet Pan	Standard 8-ft. Wet Pan	Standard 7-ft. Wet Pan	Standard 5-ft. Wet Pan
Rated capacity per hour in tons	4 to 8	4 to 8	3 to 7	2 to 5	1 to 3
Diameter of Vertical Shaft	8 in.	$6\frac{7}{8}$ in.	$6\frac{1}{2}$ in.	6 in.	$4\frac{5}{8}$ in.
Diameter of Driving Shaft	4 in.	$3\frac{1}{2}$ in.	$3\frac{1}{4}$ in.	3 in.	3 in.
Diameter of Muller Shaft	5 in.	$3\frac{15}{16}$ in.	$3\frac{1}{2}$ in.	3 in.	3 in.
Length of Bearings on Driving Shaft	10 and 12 in.	10 in.	11 in.	10 in.	9 in.
Length of Bearings on Vertical Shaft	13 in.	10 in.	16 in.	$10\frac{1}{2}$ in.	$10\frac{1}{8}$ in.
Diameter of Chilled Disc in Step Bearing	10 in.	10 in.	8 in.	8 in.	$4\frac{7}{8}$ in.
Diameter of Chilled Disc in Thrust Bearing on Muller Shafts	$10\frac{1}{4}$ in.	$8\frac{1}{2}$ in.	$8\frac{1}{2}$ in.	7 in.	
Diameter of Bevel Gear	$84\frac{1}{2}$ in.	$61\frac{1}{4}$ in.	56 in.	$47\frac{1}{4}$ in.	44 in.
Diameter of Bevel Pinion	$16\frac{3}{4}$ in.	$12\frac{3}{8}$ in.	14 in.	$11\frac{3}{8}$ in.	$8\frac{7}{8}$ in.
Face of Gear and Pinion	8 in.	8 in.	$7\frac{1}{2}$ in.	$6\frac{1}{2}$ in.	$5\frac{1}{2}$ in.
Pitch of Gear and Pinion	$2\frac{3}{4}$ in.	$2\frac{3}{4}$ in.	$2\frac{3}{4}$ in.	$2\frac{1}{4}$ in.	2 in.
Ratio of Gear and Pinion	5 to 1	5 to 1	4 to 1	4.1 to 1	5 to 1
Diameter of Mullers	54 in.	48 in.	44 in.	40 in.	36 in.
Face of Mullers	7 in.	7 in.	7 in.	7 in.	5 in.
Thickness of White Iron Muller Tires	$3\frac{5}{8}$ in.	$3\frac{3}{4}$ in.	4 in.	$3\frac{15}{16}$ in.	3 in.
Weight of each Muller and Accessories	7,677 lbs.	4,380 lbs.	3,300 lbs.	2,820 lbs.	1,625 lbs.
Length of Muller Sleeve	$28\frac{3}{8}$ in.	$18\frac{1}{8}$ in.	$18\frac{1}{8}$ in.	$11\frac{3}{4}$ in.	11 in.
Distance center to center of Mullers	72 in.	72 in.	44 in.	63 in.	41 in.
Thickness of Muller Plates	$2\frac{1}{2}$ in.	2 in.	$1\frac{3}{4}$ in.	$1\frac{1}{8}$ in.	$1\frac{1}{2}$ in.
Width of Muller Plates	16 in.	$13\frac{1}{2}$ in.	14 in.	$10\frac{3}{4}$ in.	9 in.
Number of Muller Plates required	8	8	6	6	6
Thickness of Steel Pan Rim	$\frac{3}{8}$ in.	$\frac{3}{16}$ in.	$\frac{3}{16}$ in.	$\frac{3}{16}$ in.	$\frac{3}{16}$ in.
Number of sections in Rim	3	3	3	2	2
Depth of Pan	11 in.	12 in.	12 in.	$9\frac{1}{4}$ in.	9 in.
Diameter of Friction-Clutch Driving Pulley	48 in.	48 in.	42 in.	36 in.	36 in.
Face of Friction-Clutch Driving Pulley	14 in.	12 in.	12 in.	10 in.	8 in.
Speed of Driving Pulley R. P. M.	150 to 175	150 to 175	120 to 140	120 to 140	100 to 125
Power required H. P.	30 to 50	30 to 50	20 to 40	15 to 30	10 to 20
Average weight	49,560 lbs.	33,920 lbs.	26,540 lbs.	19,240 lbs.	11,250 lbs.

Dimensions

Length over all	15 ft. $10\frac{1}{4}$ in.	14 ft. $\frac{1}{2}$ in.	11 ft. 1 in.	10 ft. 4 in.	8 ft. $1\frac{1}{2}$ in.
Width over all	9 ft. 8 in.	9 ft. 6 in.	8 ft. 1 in.	7 ft. 2 in.	5 ft. 1 in.
Length from center of Pan to center of Driving Pulley	6 ft. $9\frac{1}{8}$ in.	6 ft. 3 in.	4 ft. 7 in.	4 ft. 3 in.	3 ft. 6 in.
Length from center of Pan to end of Driving Shaft on Pulley side	8 ft. $3\frac{1}{2}$ in.	8 ft. $3\frac{1}{2}$ in.	6 ft. $7\frac{1}{2}$ in.	5 ft. $4\frac{1}{2}$ in.	4 ft. 7 in.
Height over all	11 ft. 3 in.	10 ft. 11 in.	9 ft. 9 in.	8 ft. $10\frac{1}{2}$ in.	7 ft. $11\frac{1}{2}$ in.
Height from floor to top of Pan Rim	2 ft. $2\frac{3}{8}$ in.	3 ft. 0 in.	2 ft. $10\frac{1}{2}$ in.	2 ft. $8\frac{1}{8}$ in.	1 ft. $11\frac{5}{8}$ in.
Height from floor to center of Driving Shaft	9 ft. 3 in.	8 ft. 11 in.	8 ft. 11 in.	7 ft. $4\frac{1}{2}$ in.	6 ft. $5\frac{1}{2}$ in.



American Seven-Foot and Five-Foot Wet Pans Arranged for Hand Unloading Shovel

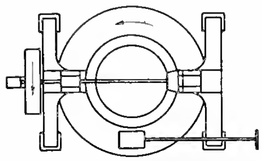


Fig. 1

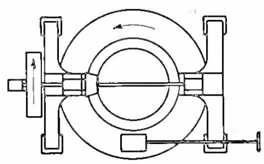


Fig. 2

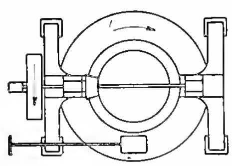


Fig. 3

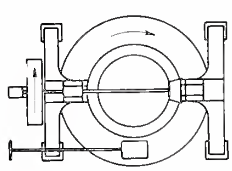


Fig. 4

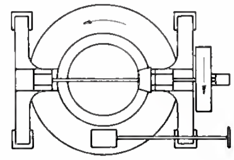


Fig. 5

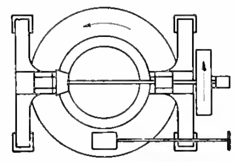


Fig. 6

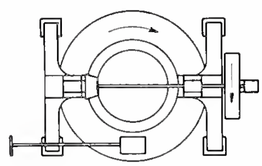


Fig. 7

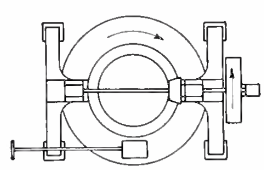
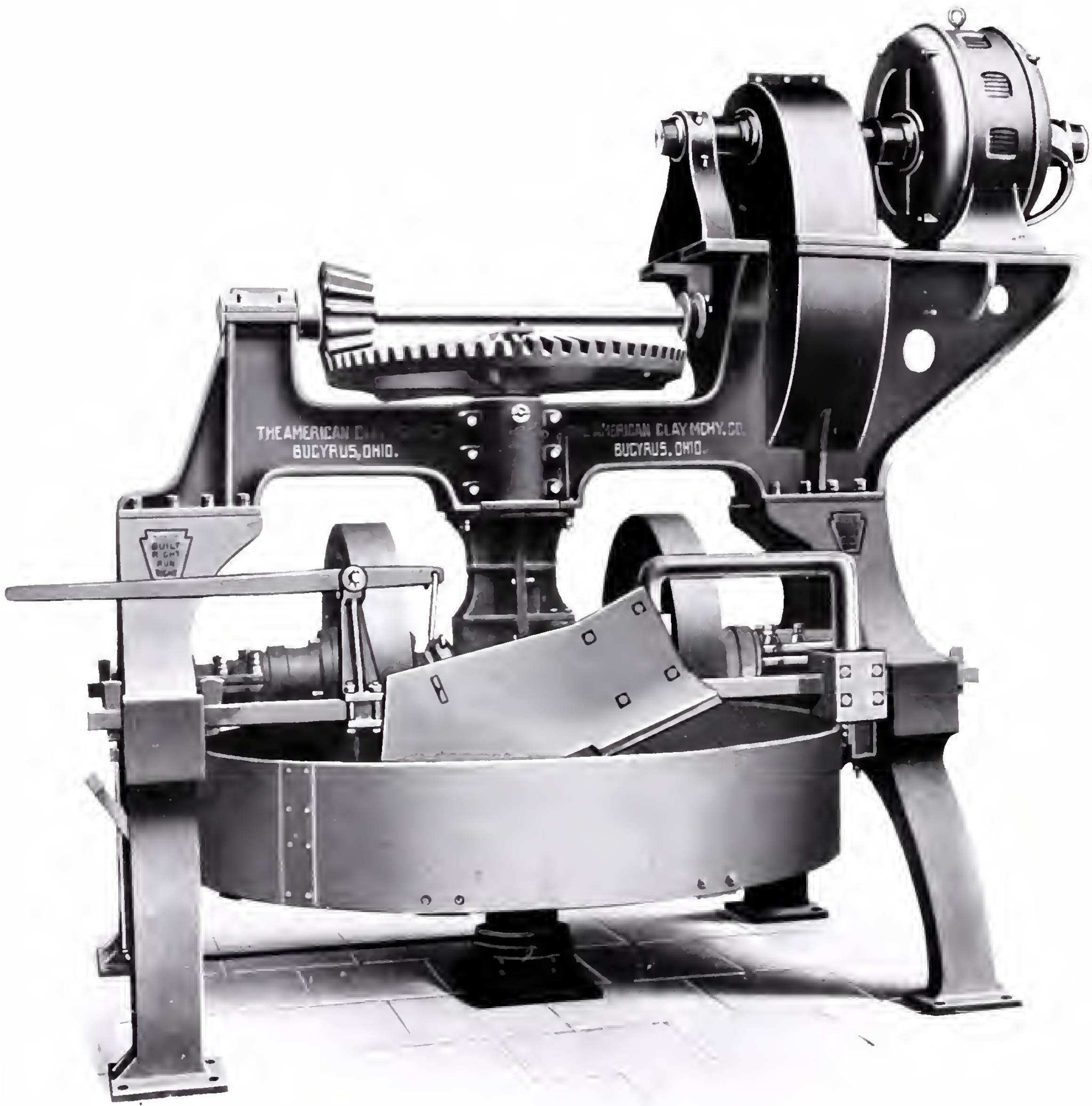


Fig. 8

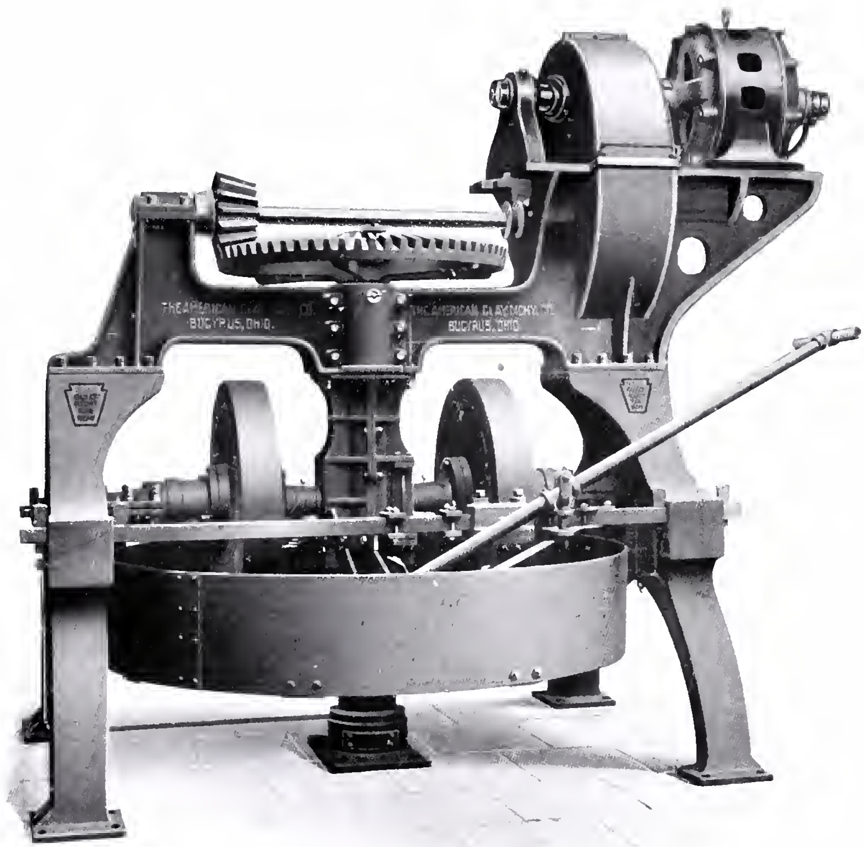
Arrangement of Drive for American Standard Wet Pans

Unless otherwise specified all wet pans are built to drive according to Figure 2 shown in above illustration.



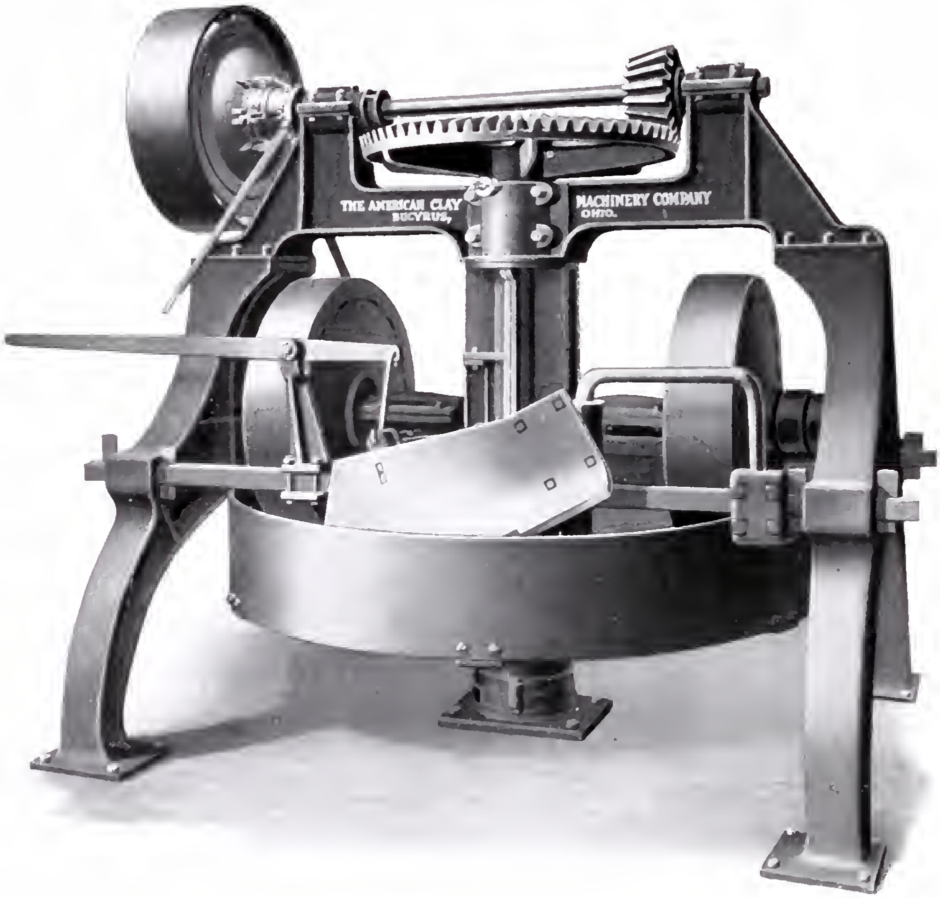
American Eight-Foot Wet Pan with Direct-Connected Motor and Mechanical Unloader

American Mechanical Unloader is not furnished with the wet pan unless especially ordered



American Eight-Foot Wet Pan with Direct-Connected Motor and Standard Hand Shovel for Unloading

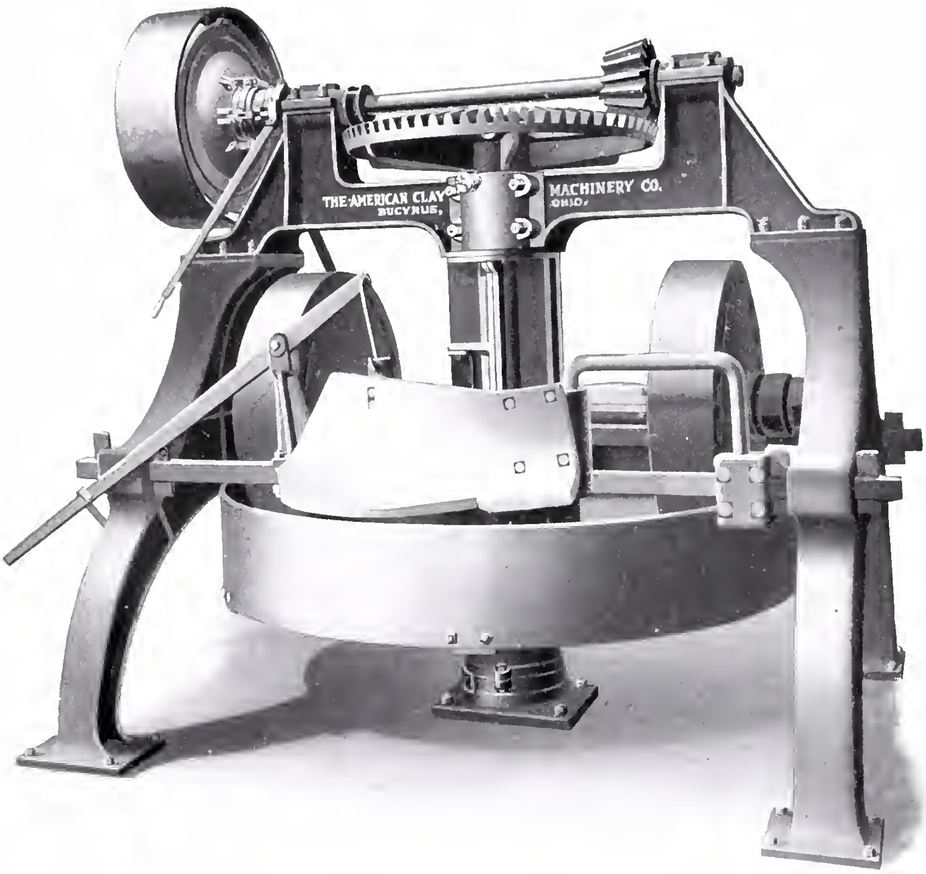
The standard hand shovel for unloading is always furnished with the wet pan unless the mechanical unloader is ordered



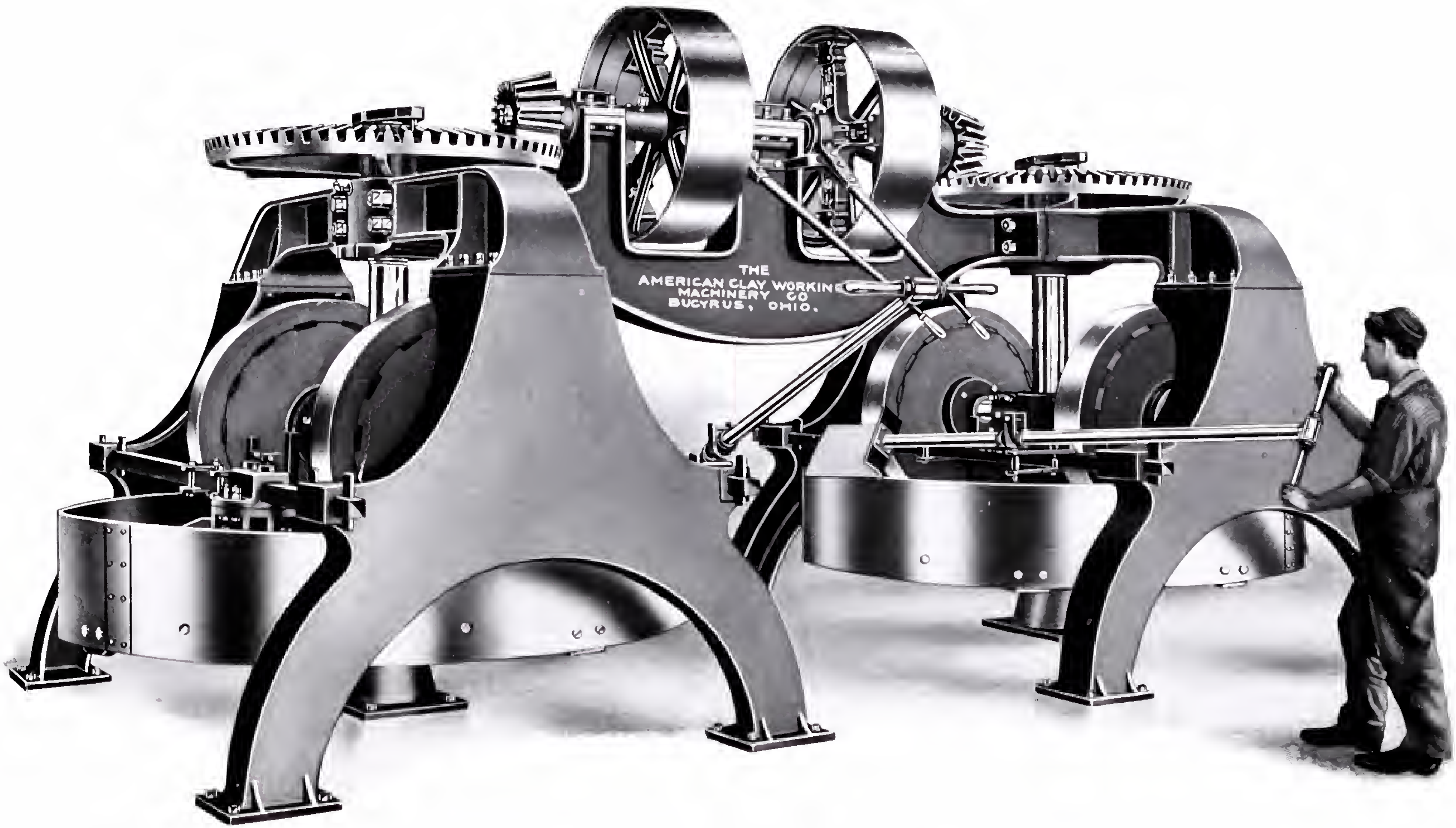
Mechanical Unloader for American Wet Pans

American Wet Pans may be equipped with the American Mechanical Unloader, which enables the operator to unload the pan rapidly while in motion. The unloader is well and substantially built and is a thoroughly practical appliance. The illustrations show the position of the unloader when in the pan in position to unload, also the position when at rest out of the pan while the material is being thoroughly mixed or ground.

The mechanical unloader is not furnished with the pan unless especially ordered.



Mechanical Unloader for American Wet Pans, Raised for Mixing

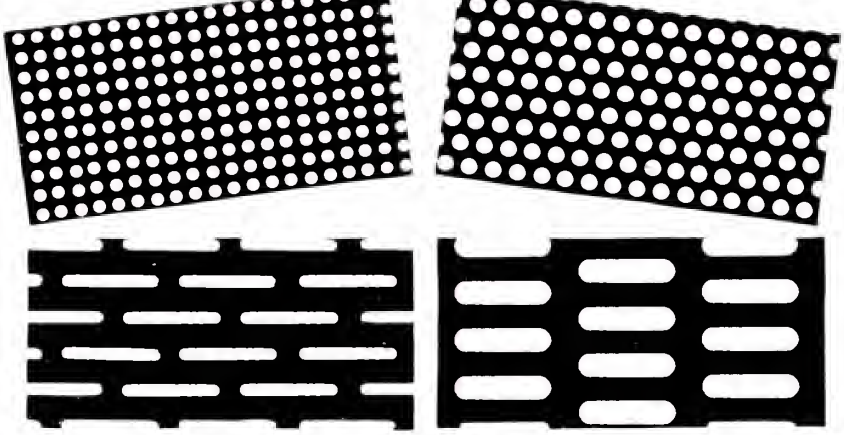


American Eight-Foot Duplex Wet Pan (Patented)

American No. 87 Piano Wire Screen

American No. 87 Piano Wire Screen

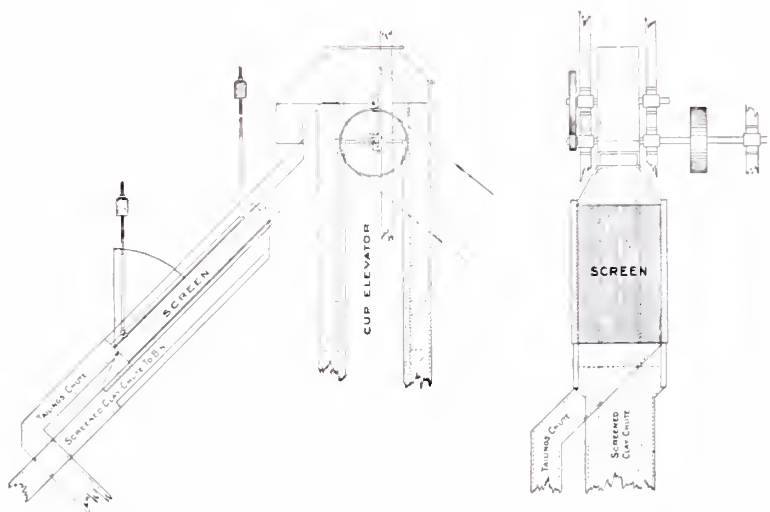
The American No. 87 Piano Wire Screen is a very successful and economical screen for screening clay, sand and similar material. It has been thoroughly tried and tested and gives splendid results. It will screen more material at less expense and will require less room to install than any other screen as yet invented. As the name implies, the screen is made of heavy steel piano wires. These wires are strung on a strong, substantial frame. The wires are drawn to a high tension and are firmly secured so that they cannot slip. One piece of wire will string two wires on the screen, as the wire is looped over an iron plug at one end, and the two ends of the wire are secured to a strong set screw at the opposite end of the screen. The wires can be drawn to any tension required. At each end of the frame the wires are drawn over a heavy rod, which is threaded to suit the space required between the wires. The wires lay in the threads cut in these rods, and by cutting the rods with larger or smaller threads, the openings between the wires can be arranged to suit the conditions under which the screen is to be used. Our standard construction allows $\frac{3}{32}$ of an inch space between the wires, and this we find will screen clay sufficiently fine for all general purposes, and at the same time give a good capacity. Threaded rods are also placed in the middle of the screen to prevent the wires from spreading apart. The screen is usually set at an angle of about 45 degrees, and it is generally set so that the angle of the screen can be readily changed if it becomes desirable to do so, owing to the condition of the clay. The screen should be set so that the elevator delivers the clay to a spreading board at the top of the screen and not directly on to the wires of the screen. By using the spreading board the clay is delivered to the screen constantly and is evenly spread over the entire surface, so that it screens more rapidly. There are no cross wires in this screen and consequently no tendency to clog, if the clay is damp. The American No. 87 Piano Wire Screen is 2 feet 6 inches wide by 6 feet long, and under ordinary conditions will screen sufficient clay for 3,000 to 5,000 bricks per hour.



Gravity Screens

The most simple method of screening clay is by the use of the gravity screens, which may be made of perforated sheet steel plates or woven-wire cloth. The size of screen may be built to suit requirements.

We are prepared to furnish perforated sheet steel plates or woven-wire cloth according to your requirements.



Method of Setting American No. 87 Piano Wire Screen

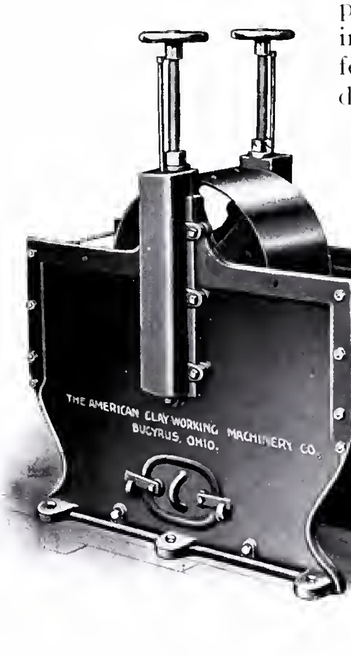
THE AMERICAN CLAY MACHINERY COMPANY

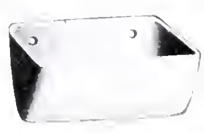
BUCYRUS, OHIO, U. S. A.

American Bucket Elevator and Boot with Adjustable Dust-Proof Bearings

Our elevators are specially designed for conveying ground clay from the dry pan to the screen in the upper part of the building. In the construction of our bucket elevators we use a belt two inches wider than the buckets. This makes it impossible for the buckets to drag and catch on the sides and pull off the belt. The buckets when attached to the belt are 18 inches from center to center.

In the construction of the elevator boot, which is made of iron and steel, we do not use a solid drum, as experience has shown that the clay will accumulate on the drum and have a tendency to make the belt travel to one side, causing it to rub on the side of the boot. We use a double-arm spider pulley in place of a drum. This makes it impossible for the clay to accumulate and interfere with the correct travel of the belt. The boot is fitted with adjustable take-up boxes, and these boxes are provided with a special stuffing box, which prevents the dirt or dust from working into the bearings. This is a special feature and one which saves a great deal of trouble.





Style "A"
Elevator Bucket

American Bucket Elevator

The elevator boot, as a general thing, is located in a pit where it is inconvenient to inspect, consequently it receives as little attention as it is possible to give it. With our special arrangement for supplying oil to the bearings in connection with the stuffing box, our elevator boot will give long and satisfactory service.

We furnish all elevator fixtures, boot, belt, buckets, head shaft, bearings, gears, and driving pulley. Each elevator is carefully inspected before shipment.

Specifications

Construction —

This elevator is made of selected material. The boot is made up of cast iron sides and steel plates. Spanner rods hold the side frames in correct position. The bearings are ample and enclosed. A clean-out door is provided. Adjustable take-up boxes and spider drum are improved features. Belting is of good quality and buckets are made of malleable iron.

Shafting —

Diameter of head shaft, 2 inches. Diameter of driving shaft, 2 inches. Diameter of foot shaft, 2 inches.

Bearings —

Length of head shaft bearings, 5¼ inches. Length of foot shaft bearings, 5¼ inches.

Pulleys —

Diameter of head pulley, 24 inches. Diameter of foot spider, 20 inches for small buckets, and for large buckets 24 inches.

Straight Gear —

On the straight-geared elevator the gear is 20.5 inches diameter, 3.5 inches face, 1.25 inches pitch. Pinion, 7.25 inches diameter. Gear ratio, 3 to 1.

Bevel Gear —

On the bevel-geared elevator the gear is 21.25 inches diameter, 3.5 inches face, 1.25 inches pitch. Pinion, 7.25 inches diameter. Gear ratio, 3 to 1.

Driving Pulley —

This elevator is furnished with driving pulley 24 inches diameter, 6 inches face.

Speed —

Speed of driving pulley, 113 R. P. M. Speed of elevator belt, 236 feet per minute.

Cup Spacing —

The standard spacing of cups is 18 inches centers.

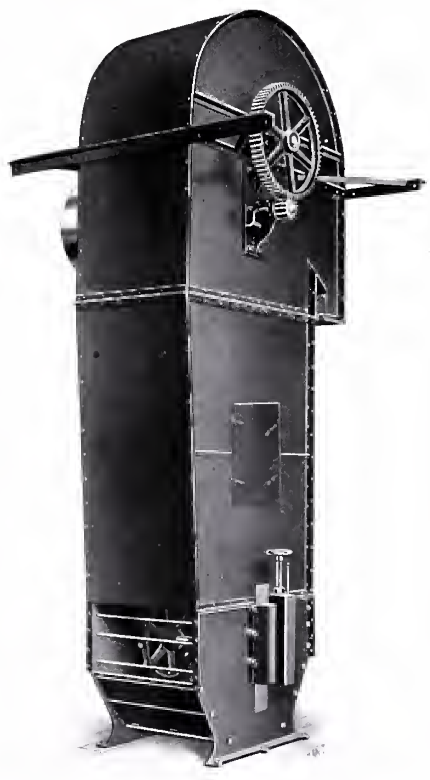
Cups —

Standard cups are Style A malleable iron and are furnished in the following sizes: 8 inches x 5 inches, 10 inches x 6 inches, 12 inches x 7 inches, 14 inches x 7 inches, 16 inches x 8 inches, 18 inches x 8 inches.

Dimensions for Standard Cup Elevator

Width of head over all — Straight Gear	6 ft. 0 in.
Length of head over all — Straight Gear	5 ft. 9 in.
Width of head over all — Bevel Gear	4 ft. 3 in.
Length of head over all — Bevel Gear	7 ft. 0 in.
Height above center of Head Shaft	2 ft. 3 in.
Width of Boot over all	3 ft. 1 in.
Length of Boot over all	3 ft. 3 in.
Height from floor to center of Boot	1 ft. 6 in.
Length from center of Elevator to center of Driving Pulley — Straight Geared	2 ft. 4 in.
Length from center of Elevator to end of Driving Shaft on Pulley end — Straight Geared	4 ft. 6 in.

Belting

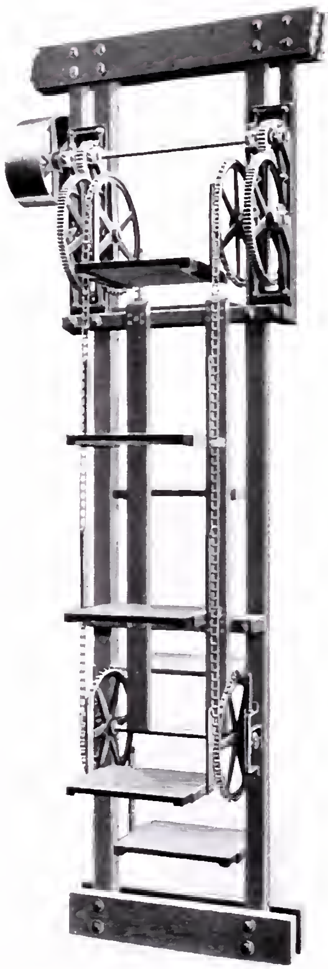


Steel Housing for Elevators

American No. 326 Tile Elevator

This elevator is especially designed for conveying tile, pipe and hollow ware from one floor to another.

The construction of this elevator is such that if the operator on the upper floor fails to remove the ware it simply passes on over and comes down on the other side. The dry ware may be lowered from the upper floors at the same time the green ware is being elevated to the upper floors.



Specifications

Construction — The driving head is made up of two cast iron one-piece gear frames which support the head sprockets, gears and driving pulley.

The adjustable take-up bearings which carry the sprockets at the lower end are made of cast iron and are of our heavy pattern. The chain carrying the trays is extra heavy with links of the pintle type.

We furnish the elevator complete except the wood frame, which must be made to suit conditions.

The standard length of elevator is 20 feet center.

Shafting — All shafting is steel, 2 inches diameter.

Bearings — All bearings are babbitted; the driving shaft and head shaft bearings are 4 inches long, the take-up bearings are 3 inches long.

Trays — The trays are made of wood, with cleats at each end to rest on hangers. Size of trays, 16 inches wide, 24 inches long, and will take on 12-inch ware. The hangers are made with 24-inch drop spaced $48\frac{9}{16}$ inches apart.

Gearing — Cast iron, 2½-inch face, 1-inch pitch; pinion, 4½ inches diameter; gear, $26\frac{7}{16}$ inches diameter. Ratio, 6 to 1.

Chain Sprocket Wheels — Cast iron, 24½ inches diameter.

Driving Pulley — This elevator is furnished with a tight and loose pulley, 24 inches diameter, 4½ inches face.

Speed — Speed of driving pulley, 60 R. P. M.

Dimensions

Width over all	3 ft. 6 in.
Length over all	6 ft. 9½ in.
Height from center of Head Shaft	2 ft. 3¾ in.
From center of Take-Up Shaft to floor	3 ft. 7 in.
From center of Elevator to center of Driving Pulley	3 ft. ½ in.

Waste Clay or Wet Clay Elevator

Waste-clay elevators are, as a rule, used for elevating the clippings and imperfect brick from the cutter and off-bearing table. They are delivered to a conveyor, which conveys them to the pug mill.

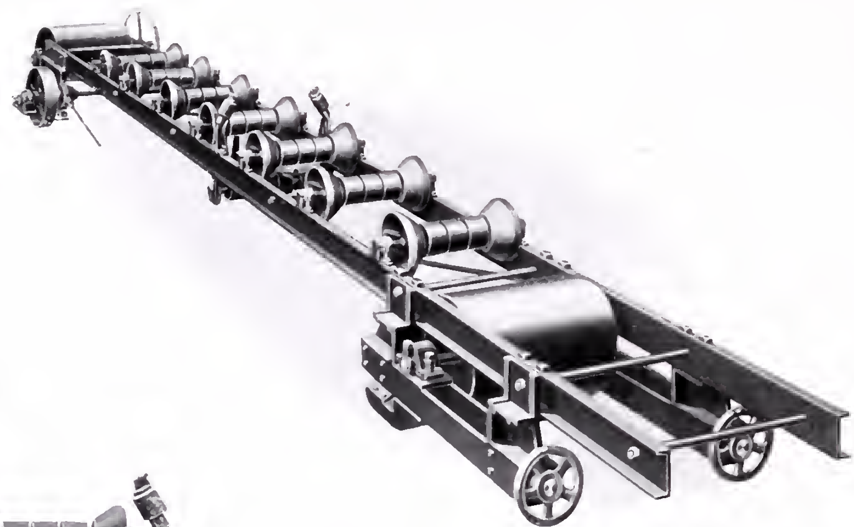
The illustration shows one style of the head of a bevel-geared waste-clay elevator with swivel attachment. This attachment makes it possible to stand the elevator at an angle to suit conditions and adjust the driving shaft so that it is level with the shaft it is to be driven from. This elevator is also made with the head pulley driven with spur gears, similar to our style "B" conveyor.

The frame consists of angles well braced and tied together, the side members extending above the head pulley or spider so that it can rest against a timber of the building. These side members also extend below the foot take-up pulley and are supplied with hinged foot castings to be fastened to the floor. To the side frames are bolted small bearings to receive the gudgeons of wood rollers which are placed at intervals to support the belt. This belt is provided with style "C" elevator buckets, which are designed to handle plastic clay. They are made so as to form a shelf at right angle with the belt, the ends being closed by the metal being bent and riveted to the parts, thus forming a triangle.

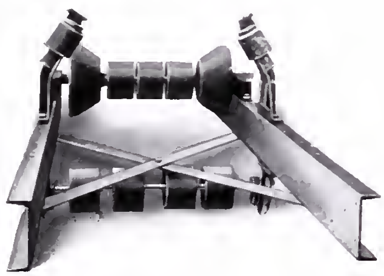
The height of these elevators is made to suit conditions. Our standard waste-clay elevator is provided with 16-inch belt and 14-inch buckets. Our standard wet-clay elevator is provided with 18-inch belt and 16-inch buckets.

Style "C" Elevator Bucket

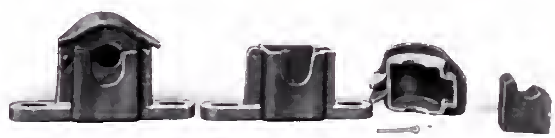
American No. 315 Steel Frame Conveyor



American No. 315 Conveyor for 30-inch Belt



Concentrating Roll; Idler Roll; Guide Rolls



Detail of Bearings

American No. 315 Steel Frame Conveyors

The American No. 315 Conveyors are designed for heavy service and are built with substantial steel frames. They are equipped with concentrating rolls, which form the belt into a trough, preventing the clay from dropping off in transit. These conveyors are built two standard sizes, 18-inch and 24-inch width of belt. The length can be made to suit requirements. These conveyors can be furnished either straight or bevel geared.

Steel Frame—

For lengths up to and including 150 feet, the steel frame for this conveyor is built of 4-inch channels, securely braced with steel lattice bars, $2\frac{1}{2} \times \frac{1}{4}$ inches, and tied together by $\frac{3}{4}$-inch stretcher rods, with 1-inch pipe spacers between channels. For lengths over 150 feet, 6-inch steel channels are used.

Driving End—

The bearings for the head shaft and driving shaft are bolted to the steel frame. In the case of the bevel-gear drive, a swivel arrangement is provided so that the conveyor can be set at an angle.

Take-Up End —

Castings carrying steel guides for the take-up bearings are bolted to the lower end of the steel frame. The sliding bearings are adjusted by means of screws with hand wheels. The amount of take-up is made in proportion to the length of the conveyor.

Gearing —

All gears are made of a special mixture of American gear metal and are well proportioned for the service required.

Concentrating Rolls —

Concentrating rolls are spaced 4 feet apart, and consist of outside cone pulleys 12 inches in diameter, loose on a 1-inch shaft, with center pulleys 6 inches in diameter set-screwed on the shaft. The cone pulleys are provided with a pocket filled with waste soaked with oil for lubrication.

Idler Rolls —

From the lower side of the conveyor frame are suspended idler rolls for supporting the returning belt. These idler rolls are 6 inches diameter set-screwed to a 1-inch shaft, and are spaced 10 feet from each end of conveyor and 18 feet apart.

Guide Rolls —

Vertical guide rolls are mounted on each side of the frame, 10 feet from each end and 30 feet apart, to keep the belt in line.

Bearings —

All bearings for the driving and take-up ends are long and well babbitted with the best grade of metal for the purpose, and are ring oiling. The bearings for the concentrating and idler rolls are hardwood blocks soaked with oil and set in dust-proof casings, which form an oil reservoir. The guide rolls are provided with oil reservoirs and dust-tight caps.

Driving Pulleys —

These conveyors are equipped with Bucyrus cast iron friction-clutch driving pulleys of ample proportion to transmit the power required.

Conveyor Belts —

All conveyor belts are 6-ply red stitched canvas. These conveyors can be furnished without belts if required.

Speed of Conveyor Belt —

The standard speed for the conveyor belt is 200 feet per minute.

Power Required —

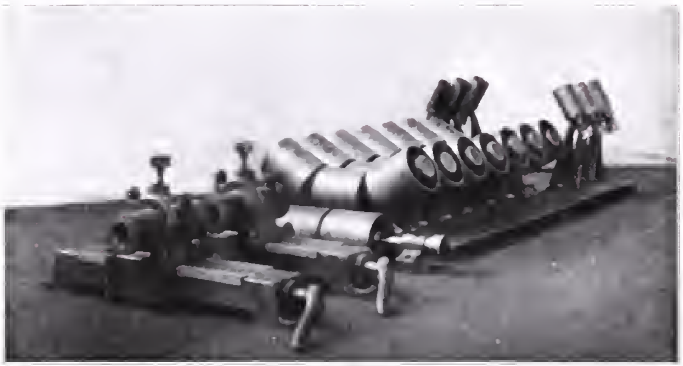
The power required will vary with the length and width of conveyor, the weight of the material and the height to which it is elevated.

American Concentrating Belt Conveyor — Style D

This conveyor is designed for handling clay, sand, ore and other materials in the most advantageous manner.

Capacity —

Dependent upon speed and width of belt.



Specifications

Range in Sizes —

This conveyor is manufactured in both light and heavy patterns, dependent upon the length of conveyor, the width of belt to be used and the work to be accomplished. The range in width of belt is from 10 inches to 36 inches. The light-weight pattern is suitable for belt widths from 10 inches to 20 inches. The heavy-weight pattern is adapted for belts from 18 inches to 36 inches.

Equipment —

The equipment furnished with light-weight conveyors includes a suitable wooden framework, but in the heavy conveyors the iron work only is furnished to be installed according to our drawings.

The materials shown in the accompanying illustration, referred to in the order in which they appear from front to back of the group, are:

1. The two take-up boxes.
2. The return idler pulleys, bearings and grease cups.
3. Seven sets of troughing or concentrating rolls, with stands mounted.
4. Three pairs of retaining rolls, showing grease cup connections and showing the position in which they are mounted with relation to the troughing rolls, their purpose being to retain the conveyor apron in its position on the carrying rolls.

Fixtures —

Fixtures for both light and heavy-weight pattern conveyors include tight and loose driving pulleys.
Driving shaft, with bearings and set collars.
Spur or bevel-geared driving mechanism.
Adjustable take-up boxes.
Head pulley, with shaft and bearings.
Foot pulley, with shaft and bearings.
Concentrating rolls, spaced 4 feet apart.
Return rolls.
Retaining or guide rolls, spaced 8 feet apart.
Conveyor belt of size and kind specified.

Long Lengths —

This type of conveyor is well adapted for making up in long lengths, and in some stone crushing and mining establishments they are made up to 600 or 700 feet in length. The entire apparatus is designed for durability and will require very little attention and but few repairs.

Oiling System —

Each idler pulley is supplied with a large grease cup, which holds a sufficient amount of lubricant for many days' service.

Pulley, Speed, Power and Weight –

These conveyors we will furnish with suitable pulley, dependent upon the size and length of belt. The speed of pulley is governed by the capacity required and the material to be handled. The power required and the weight are also dependent upon the length of the conveyor and the amount of material being handled. Estimates for any particular installation will be furnished upon application.

American Style "A" Steel-Frame Conveyor

The American Style "A" Steel-Frame Conveyor is built in two standard sizes, 18 inches in width and 24 inches in width. The length of the conveyor may be made to suit requirements. These conveyors are built with a substantial steel frame and they are light, strong and durable. They are equipped with concentrating rolls which form the belt into a trough carrying the clay in the center of the belt and preventing the clay from dropping off at the sides of the belt in transit.

Specifications

Steel Frame —

The steel frame for the conveyor is built of angles 3x2½x¼ inches. These are securely braced with a lattice work of steel.

Driving End —

The head gearing frame is bolted to the steel frame and contains the bearings for the head shaft, the driving shaft and pedestal bearings for one concentrating roll. Bearings for the head shaft and driving shaft on the 18-inch conveyor are 3½ inches long, and on the 24-inch conveyor 4 inches long. The head pulley on the 18-inch conveyor is 11 inches diameter, and on the 24-inch conveyor 16 inches diameter. Head shaft and driving shaft on the 18-inch conveyor are 1½ inches diameter, and 2 inches diameter on the 24-inch conveyor.

Gearing —

Gears are made of American gear metal. On the 18-inch conveyor the master gear is 16¾ inches diameter, 2 inches face and 1¼ inches pitch. The driving pinion is 5¼ inches diameter. On the 24-inch conveyor the master gear is 20½ inches diameter, 3 inches face and 1⅛ inches pitch. The pinion is 6½ inches diameter. Ratio of gearing on 18-inch conveyor, 3.2 to 1. Ratio of gearing on 24-inch conveyor, 3 to 1.

Gearing for Bevel-Geared Conveyor —

When the conveyors are arranged for bevel-geared drive, the master gear on the 18-inch conveyor is 18 inches diameter, 3 inches face, 1⅛ inches pitch. The pinion is 8 inches diameter. On the 24-inch conveyor the master gear is 21¼ inches diameter, 3½ inches face, 1¼ inches pitch. The pinion is 7¼ inches diameter. Ratio of gearing on 18-inch conveyor, 2¼ to 1. Ratio of gearing on 24-inch conveyor, 3 to 1.

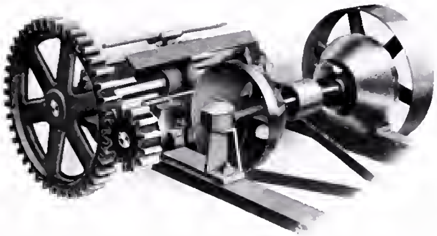
Take-Up Pulley —

At the lower end of the frame is bolted a take-up bearing in which is mounted the foot pulley or reel, constructed of cast iron spiders and steel slats. The diameter of the take-up pulley on the 18-inch conveyor is 11 inches; diameter of take-up pulley on the 24-inch conveyor, 16 inches. Diameter of shaft on 18-inch conveyor, 1½ inches; diameter of shaft on 24-inch conveyor, 2 inches. Length of take-up bearing, 3⅛. Length of take-up, 8 inches on 18-inch conveyor, and 7½ inches on 24-inch conveyor.

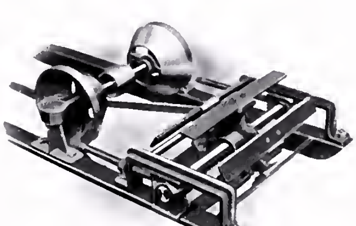
Concentrating Rolls —

The concentrating rolls are spaced three feet apart. These rolls are mounted on shafts 1 inch in diameter. The outside or cone pulleys are 10 inches diameter. These cone pulleys are loose on the shaft and turn with the belt. The center pulleys, which support the center of the belt, are keyed to the shaft and are 3½ inches in diameter.

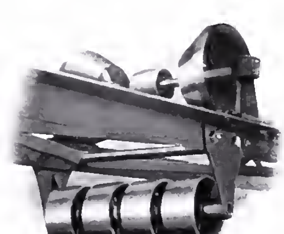
Style "A" Steel-Frame Conveyor



Head Pulley of Steel-Frame Conveyor



Adjustable Foot Pulley of Steel-Frame Conveyor



Concentrating Rolls on Steel-Frame Conveyor

Pedestal Bearings for Concentrating Rolls —

The pedestal bearings for the concentrating rolls are cast iron. They are made in the shape of the letter U. The concentrating roll shafts rest in these bearings and they are covered with a dust-proof cast iron cap. These bearings are made for lubricating with grease. The dust-proof cap can be removed and the bearings filled with grease, which will run for a long period of time without being renewed.

Idler Rollers —

The lower side of the conveyor frame is equipped with idler rollers, suspended in suitable bearings. These idler rollers are for supporting the belt on the under side of the conveyor. They are spaced 20 feet apart. The idler rolls are 3½ inches diameter, mounted on 1-inch shaft. They are supported in substantial bearings, arranged to be lubricated with grease.

Driving Pulleys —

The conveyors are fitted with plain driving pulleys, and on the 18-inch conveyor the driving pulley is 16 inches diameter, 4 inches face, and the speed is 100 R. P. M. When the conveyor is bevel geared the speed is 70 R. P. M. The driving pulley on the 24-inch conveyor is 24 inches diameter, 6 inches face, and the speed is 78 R. P. M. On conveyors longer than 75 feet the driving pulley is 24 inches diameter, 8 inches face.

Speed of Conveyor Belt —

When operating at the speeds given above the 18-inch conveyor belt travels 89 feet per minute. The 24-inch conveyor belt travels 106 feet per minute.

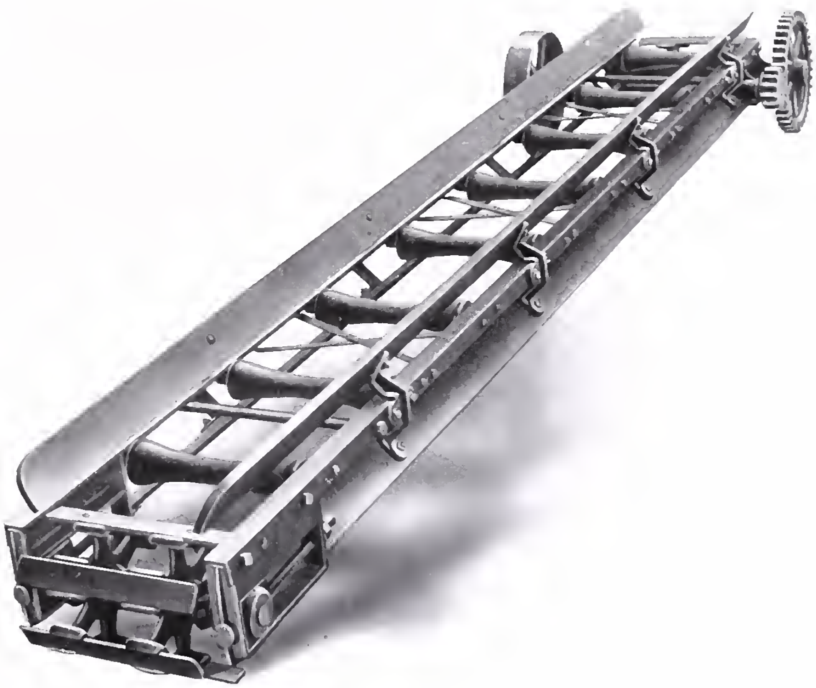
General —

The conveyors may be furnished complete without belt if required, or may be furnished with either 4-ply or 6-ply belt, as may be specified. The 18-inch conveyor, when built more than 50 feet in length, is built on the same specifications as a 24-inch conveyor, using the same head gearing, driving pulley, etc.

Dimensions

	Conveyor 18-inch	Conveyor 24-inch
Height of Belt above top of Side Rail	10 in.	13 in.
Clearance required below top of Side Rail	12 in.	12 in.
Distance from center of Conveyor to center of Driving Pulley	18 in.	24 in.
Distance from center of Conveyor to end of Driving Shaft	24 in.	30 in.
Distance from center of Head Shaft to center of Driving Pulley — Bevel Geared	17½ in.	20 in.
Distance from center of Conveyor to center of Driving Shaft — Bevel Geared	22½ in.	25½ in.
Width over Steel Frame	24 in.	30 in.
Width over all — Straight Geared	3 ft. 6 in.	4 ft. 1 in.
Width over all — Bevel Geared	3 ft. 11 in.	4 ft. 5 in.
Width of Belt	18 in.	24 in.
Length of Conveyor, as may be specified in order.		
Weight of Conveyor, 10 ft. long, without Belt	950 lbs.	1,085 lbs.
Weight of each additional foot in length	40 lbs.	52 lbs.

American Style "B" Belt Conveyor



The American Style "B" Belt Conveyor is built in two widths, 16 inches and 18 inches, and in various lengths up to 100 feet, inclusive.

Side frames are made from 2x3x¼-inch angles, to which the other parts are attached.

The head is back geared.

Spur Geared —

The pulley is 16x4 for lengths up to 50 feet, and runs 100 revolutions per minute.

For lengths between 50 and 100 feet the pulley is 24x6, and should run 80 revolutions per minute.

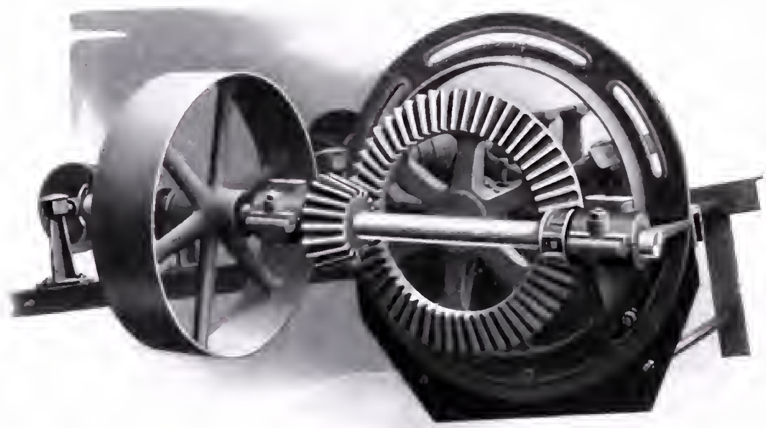
Bevel Geared —

For lengths up to 50 feet the pulley is 16x4, and should run 70 revolutions per minute.

For lengths between 50 and 100 feet the pulley is 24x6, and should run 80 revolutions per minute.

The take-up drum is adjustable to compensate for stretch of belt and to guide the belt centrally.

Adjustable Bevel-Geared Drive for Conveyors



Owing to the large number of conveyors we furnish, and the difficulty of our customers furnishing us the angle of the conveyor when installed, we have designed an adjustable bevel-gear attachment, which can be set at any angle to suit the condition and bring the driving shaft in line with the shaft it is to be driven from.

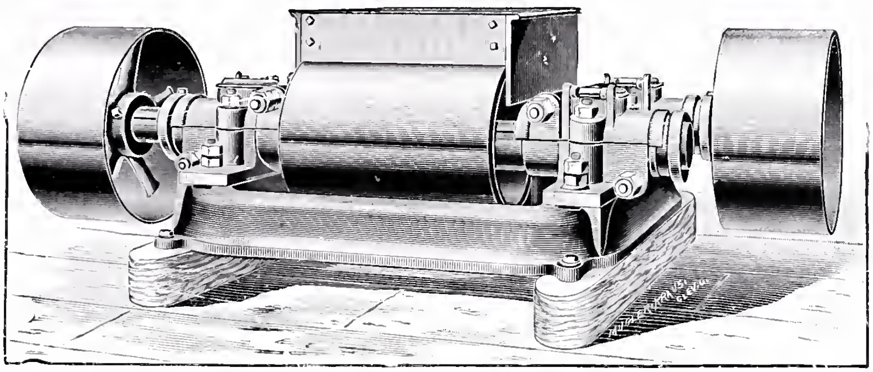
It consists of a circular plate with elongated holes, the plate being firmly secured to the steel frame of the conveyor. Bolted to this circular plate is the bevel gearing frame which swivels on the head drum shaft. By this arrangement the driving pulley of the conveyor can be set to suit any angle at which the conveyor may be placed.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.

Crusher and Disintegrator Department

American Differential Motion Smooth-Roll Crushers



These crushers are designed especially for service where fine grinding of clay is desired or for crushing clay containing small stones. They are strong, durable machines. The rolls are held in a fixed position. No gears are used. Each roll is driven independently by belt and the rolls may be driven at the same speed or at different speeds, as may be desired, according to the work required.

In this type of crusher the repairs are reduced to the minimum. The only parts which it is necessary to renew are the steel scrapers and the chilled wearing sections forming the wearing surface of the rolls. These repairs are easily and economically made.

We build this type of crusher in three different sizes all on the same general design:

No. 540 Crusher, with rolls 24 inches diameter, 48 inches long; capacity, material for 5,000 to 7,000 bricks per hour.

No. 539 Crusher, with rolls 24 inches diameter, 36 inches long; capacity, material for 4,000 to 6,000 bricks per hour.

No. 6 Crusher, with rolls 18 inches diameter, 24 inches long; capacity, material for 2,000 to 3,000 bricks per hour.

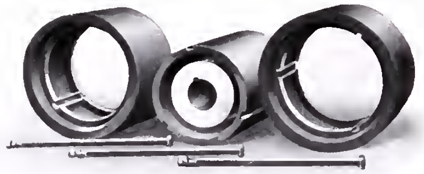
The capacity of these crushers is materially influenced by the speed at which the rolls are driven and by the nature and character of the clay.

Each crusher is set up and thoroughly inspected in our factory before shipment. It is a self-contained unit and is shipped set up ready for belts.

Base Frame —

The rolls and bearings, together with hopper and scrapers, are mounted on a continuous one-piece casting of the box type, which makes the machine self-contained, easy to handle and install, and always maintains the bearings in perfect alignment.

Rolls —



Removable Chilled Iron Shells

The crusher rolls consist of a heavy cast iron body or hub on which are keyed sectional chilled rims. These rims are secured in place by heavy key bolts. The rims are made with hard chilled iron surfaces which are ground true. They comprise the wearing parts of the roll and are made interchangeable, thereby providing for the ready replacement of worn surfaces at low cost. The hub or body of the roll is keyed to the roll shaft and is finished on the ends to proper length to give a perfect contact against the ends of the shaft bearings, preventing end motion of the roll.

One roll is mounted in fixed bearings. The other is mounted in adjustable bearings so that the distance between rolls may be regulated to suit requirements.

Roll Shafts —

The roll shafts are forged steel, turned to suitable diameter, and properly key-seated for the roll and driving pulley.

Roll Shaft Bearing —

The bases for two of the bearings are cast solid to the base frame. The other two bearings are adjustable, sliding in machined grooves and secured to the frame by means of two "T" head bolts passing through the upper section of the base frame. All bearings are well babbitted and scraped to a perfect bearing for the shaft. The caps are recessed at the center for oil reservoirs or grease boxes and are fitted with hinged lids. They are secured to the boxes by four through bolts with square heads and hex nuts. The bearings are of the 45-degree type, which brings the thrust of the rolls in the base of the bearing and insures thorough lubrication of the wearing surfaces of the bearings.

Tension Bolts —

The four bearings are connected by heavy tension bolts passing through each pair of bearings above and below the roll shafts. By this construction the thrust of the rolls is received upon the tension bolts instead of upon the machine base and the relative position of the rolls to each other is always maintained without any danger of breakage of the base.

Scrapers —

Adjustable steel scrapers are fitted to each roll, so arranged that the face of the scraper is held firmly in position close to the face of the roll, effectively clearing the rolls from adhering clay and discharging the clay underneath the rolls.

Hopper and Roll Guard —

A suitable cast iron hopper is bolted to the base frame. Cover plates or roll guards are fitted to the inside of the hopper ends. These guards are adjustable vertically and prevent any clay or stone from working past the ends of the rolls.

Driving Pulleys —

Each roll is fitted with a plain crown-faced driving pulley securely keyed to the roll shaft. Both pulleys on each crusher are the same size.

Speed —

The rolls may be driven at any reasonable speed. The capacity desired and the character of the material to be crushed determines in a measure the speed. For ordinary conditions a speed of 300 R. P. M. is recommended. If it is desired to operate the rolls at different speeds, the adjustable roll may be driven at 200 R. P. M. and the fixed roll at 400 R. P. M.

Drawings —

A general drawing giving outline dimensions will be furnished for installing the crusher.

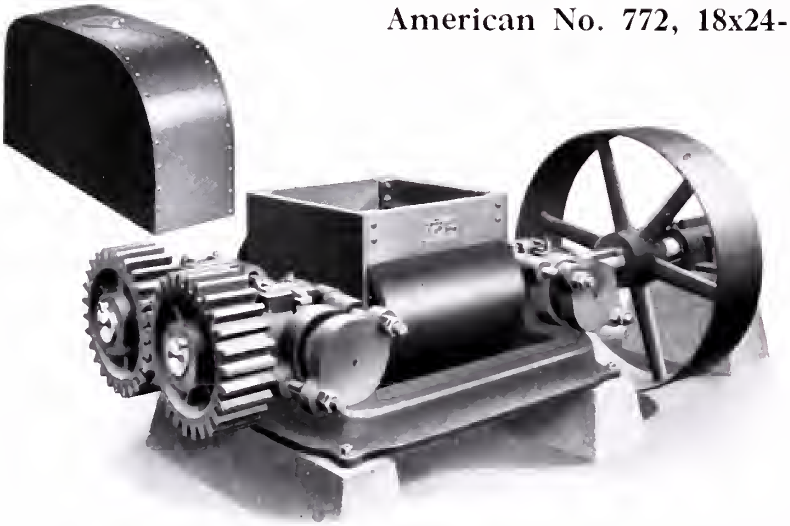
Specifications Smooth Roll Crushers

	No. 540 Crusher	No. 539 Crusher	No. 6 Crusher
Rated capacity per hour Building Brick ($8\frac{3}{4} \times 4\frac{1}{2} \times 2\frac{1}{2}$)	5,000 to 7,000	4,000 to 6,000	2,000 to 3,000
Size of Rolls	24 in. dia. 48 in. face	24 in. dia. 36 in. face	18 in. dia. 24 in. face
Diameter of Roll Shafts	$5\frac{15}{16}$ in.	$4\frac{3}{4}$ in.	$4\frac{3}{8}$ in.
Length of Bearings on Roll Shaft	18 in.	18 in.	14 in.
Diameter of Tension Bolts	$1\frac{3}{4}$ in.	$1\frac{1}{2}$ in.	
Number of Tension Bolts	8	8	4
Plain Driving Pulley on each Roll	36 in. dia. 12 in. face	36 in. dia. 10 in. face	30 in. dia. 10 in. face
Speed of Driving Pulleys	300 to 400 R. P. M.	300 to 400 R. P. M.	300 to 400 R. P. M.
Power required	20 to 35 H. P.	15 to 25 H P.	10 to 20 H. P.
Weight	14,100 lbs.	9,515 lbs.	4,333 lbs.

Dimensions

Length of Base	6 ft.	5 ft. 7 in.	4 ft. 5 in.
Width of Base	6 ft. 6 in.	5 ft. 5 in.	4 ft. 5 in.
Width over all	10 ft. 9 in.	9 ft. 4 in.	7 ft. 4 in.
Distance center of Roll to center of Pulley	4 ft. 4 in.	3 ft. 8 in	3 ft. 3 in.
Height of Machine above Shipping Sills	3 ft. 2 in.	3 ft.	2 ft. 2 in.
Height from bottom of Base to center of Roll Shaft	1 ft. $5\frac{1}{2}$ in.	$12\frac{7}{8}$ in.	$11\frac{1}{2}$ in.

American No. 772, 18x24-In. Smooth-Roll Crusher



This crusher is a geared machine, designed for use where a single-belt drive is desired. It is fitted with a pair of twin gears. It is a strong, durable crusher, designed especially for service where fine grinding of clays is desired or for crushing the clays which contain shale flakes or small stones. It is often installed as a finishing machine, following a corrugated stone separating crusher or a disintegrator, in preparing plastic clays for thin shell hollow-ware where lumps or stones would obstruct the flow of clay to the die.

Rated Capacity Per Hour — Material for 2,000 to 3,000 bricks.

The capacity is materially influenced by the speed at which the rolls are driven and by the character of the clay.

Specifications

The crusher is self-contained, with frame, bearings and shafts proportioned for heavy duty. The bearings are accessible and the oil reservoirs ample to insure smooth running. One roll is stationary, the bases of the bearings being made as a part of the main frame. The other roll is adjustable, making it possible to set the rolls as close together as may be required to secure the desired results. The bearings of the movable roll are arranged to slide in the frame and are cushioned with double coil springs.

Rolls — The rolls are made with sectional chilled iron wearing rims, which are easily removed when worn. This provides an inexpensive way of keeping them in good working condition. These sectional rims are surfaced in automatic grinders so they will run true and be effective as fine grinders.

Drive — The rolls are driven by means of a friction-clutch driving pulley and a pair of twin gears, which make the rolls operate at the same speed.

Pulley—Size of friction-clutch driving pulley, 42 inches diameter, 12 inches face, 4⅜ inches bore.

Speed — 300 to 400 R. P. M.

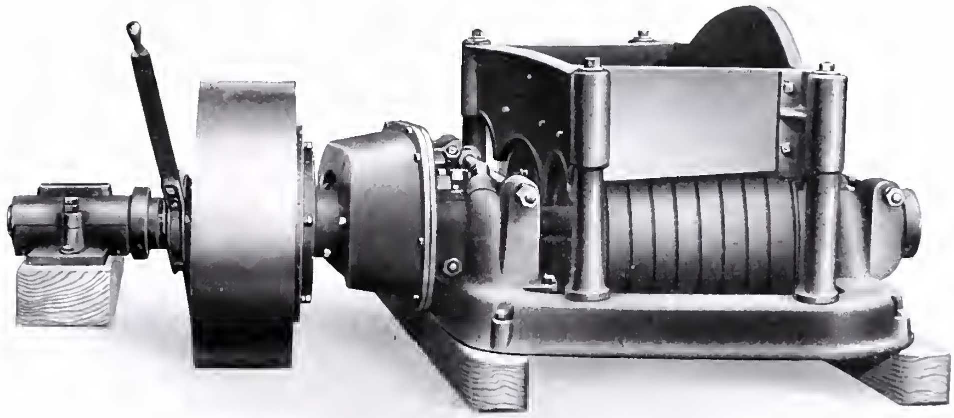
Power — Power required to operate this crusher will vary from 10 to 20 H. P., according to the capacity and speed of rolls.

Weight — 4,589 pounds.

Dimensions

Diameter of Rolls	18 in.
Face of Rolls	24 in.
Floor space	4 ft. 1 in. x 5 ft. 3 in.
Extreme width over all	7 ft. 4 in.
Length over all	5 ft. 4 in.
Height from bottom of Sills	31 in.
Distance from center of Rolls to center of Pulley	36 in.
Distance between centers of Sills	4 ft.
Diameter of Roll Shafts	4⅝ in.
Length of Roll Shaft Bearings	14 in.

American No. 8 Conical Corrugated Crusher



This crusher is designed for use where clay contains stone or lumps, it being especially adapted for work of this nature.

Rated Capacity Per Hour —
4,000 to 8,000 brick.

Specifications

General —
This crusher is heavy, and embodies the advantages of both corrugated and conical rolls. The rolls are thoroughly chilled, and are provided with removable outer shells, so that each roll can be made as good as new by simply replacing the outer shells. The rolls are provided with scrapers to keep them free from accumulations of clay. The crusher is single geared and has no feeder.

Pulley —
This crusher is provided with 32 x 10-inch American friction-clutch pulley.

Speed —
Speed of pulley, 150 R. P. M.

Power —
Power required, 25 to 40 H. P.

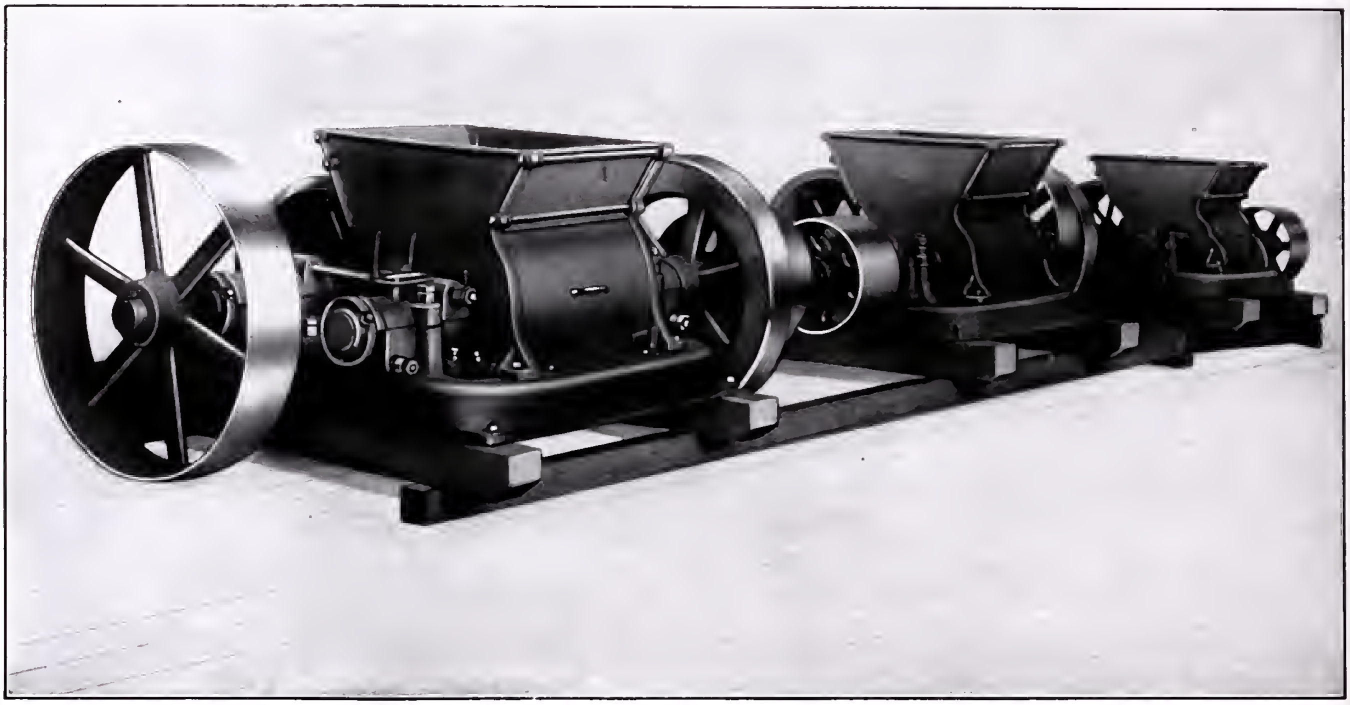
Weight —
7,050 lbs.

Dimensions

Floor space	6 ft. x 8 ft. 8 in.
Height from bottom of Sills	3 ft. 6½ in.
Height to center of Pulley Shaft	15¾ in.
Distance from out to out of Sills	4 ft. 2 in.
Distance from center line of Rolls to center line of Bearing	5 ft. 6 in.
Distance from center line of Rolls to center line of Pulley	3 ft. 11 in.
Length of Rolls	27 in.
Diameter of Rolls at large end	24 in.
Diameter of Rolls at small end	18 in.

American Standard Disintegrators

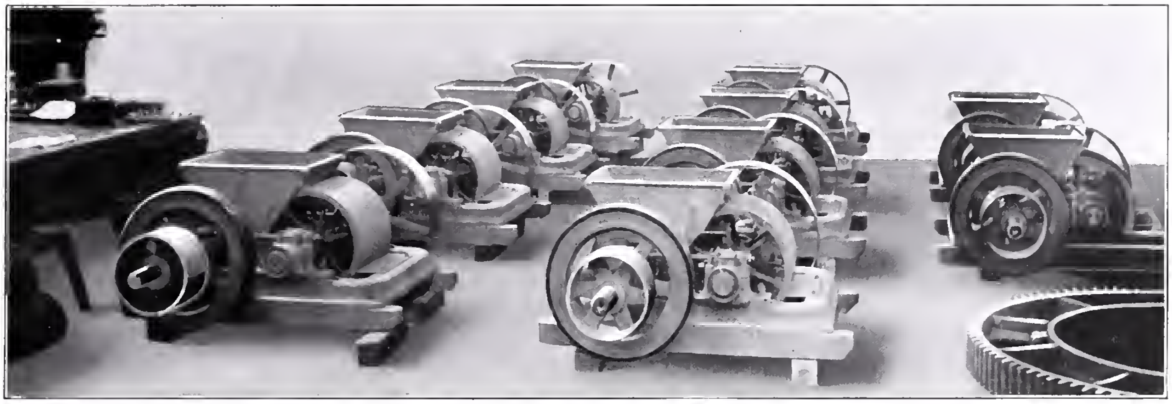
These machines are designed for handling either dry or damp clay, thoroughly reducing it and putting it into condition for tempering in the pug mill. The machine may be located directly over the pug mill or set to one side in such a way as to deliver the clay on to a conveyor which carries it to the pug mill. When the raw material is brought into the building in clay cars it is generally more convenient to locate the disintegrator above the pug mill and avoid the use of the conveyor.



The large feed roll has a slow motion, but the small disintegrating roll, which is provided with steel cutting bars, is driven at a high rate of speed. This combination has the desired effect of removing successive portions of the clay, and at the same time breaking it up and destroying its original grain or fiber. In construction these machines are neat, compact, and self-contained, with heavy base containing the shaft bearings, which are long and conveniently arranged for oiling.

The shafting is heavy and extends outward to receive the driving pulleys, each roll being driven by an independent pulley and given an independent, positive motion. The feed roll is chilled and balanced. It runs at slow speed, its function being chiefly to assist in feeding the clay through and to gauge the fineness of the disintegrated material. The distance between the two rolls can be regulated by adjustable bearings on the feed roll. The disintegrating roll is provided with a number of projecting steel cutting bars. These parts of the roll can be easily and cheaply replaced when worn.

These disintegrators are built in three sizes, 14-inch, 18-inch and 24-inch. Each machine is set up and thoroughly inspected in our factory before shipment. It is a self-contained unit and is shipped set up ready for belts.



Manufacturing Disintegrators in the Plant of The American Clay Machinery Company

Specifications Standard Disintegrators

	14-in. Disintegrator	18-in. Disintegrator	24-in. Disintegrator
Rated capacity Brick per hour	1,500 to 2,000	2,500 to 4,000	4,000 to 6,000
Size of Feed Roll	24 in. dia. 14 in. face	28 in. dia. 18 in. face	30 in. dia. 24 in. face
Size of Disintegrating Roll	12 in. dia. 14 in. face	14 in. dia. 18 in. face	18 in. dia. 24 in. face
Diameter of Roll Shafts	$2\frac{7}{8}$ in.	$3\frac{3}{8}$ in.	$4\frac{3}{8}$ in.
Length of Bearings	10 in.	12 in.	14 in.
Size of Fly-Wheel	None	None	36 in. dia. 5 in. face
Number of Steel Cutting Bars on Disintegrating Roll	6	6	8
Size of Steel Cutting Bars	$\frac{1}{2}$ x 1 x 14 in.	$\frac{1}{2}$ x 1 x 18 in.	$\frac{3}{4}$ x 1 x 24 in.
Size of Driving Pulley on Feed Roll	30 in. dia. 4 in. face	36 in. dia. 6 in. face	40 in. dia. 8 in. face
Speed of Pulley on Feed Roll	30 to 50 R. P. M.	30 to 50 R. P. M.	30 to 50 R. P. M.
Size of Pulley on Disintegrating Roll	16 in. dia. 8 in. face	18 in. dia. 10 in. face	20 in. dia. 12 in. face
Speed of Pulley on Disintegrating Roll	400 to 600 R. P. M.	400 to 600 R. P. M.	400 to 600 R. P. M.
Power required	8 to 10 H. P.	12 to 15 H. P.	20 to 25 H. P.
Weight	2,035 pounds	3,200 pounds	6,150 pounds

Dimensions

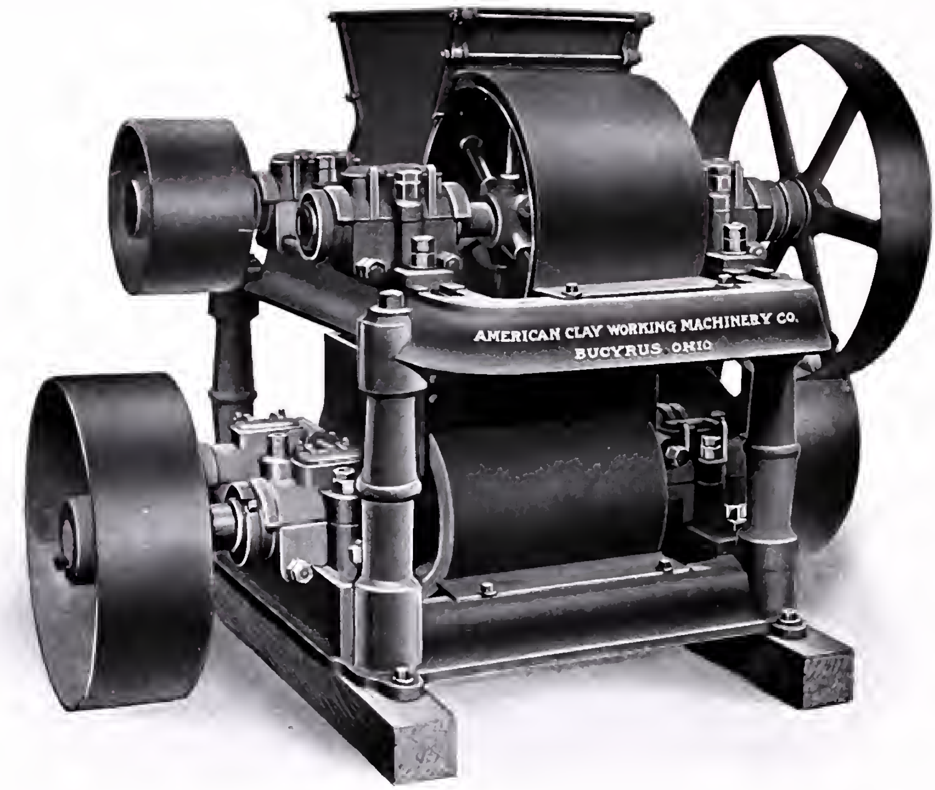
Length of Base	4 ft. 4 in.	5 ft.	5 ft. 6 in.
Width of Base	2 ft. 11 in.	3 ft. 9 in.	4 ft. 2 in.
Width over all	5 ft. 4 in.	6 ft. 8 in.	8 ft. 6 in.
Height of Machine above Shipping Sills	2 ft. 1 in.	2 ft. 6 in.	2 ft. $8\frac{1}{2}$ in.

American Combined Disintegrator and Crusher

These machines are designed for grinding clays containing small stones. Such clays require more than the ordinary amount of preparation, and the combined machine embodies the advantages of both disintegrator and crusher.

We build this combination machine in three different sizes, all on the same general design:

14-inch disintegrator combined with a smooth roll crusher, having rolls 18 inches diameter, 24 inches long.



Capacity, material for 1,500 to 2,000 bricks per hour.

18-inch disintegrator combined with a smooth roll crusher having rolls 18 inches diameter, 24 inches long.

Capacity, material for 2,500 to 4,000 bricks per hour.

24-inch disintegrator combined with a smooth roll crusher having rolls 24 inches diameter, 36 inches long.

Capacity, material for 4,000 to 6,000 bricks per hour.

The capacity of these machines will vary according to speed of machine and nature and character of the clay. In each case the upper part of the machine is a standard disintegrator and the lower part is a standard smooth roll crusher. The crusher is mounted on a heavy cast iron base of the box type and the combination of disintegrator and crusher is made by means of cast iron columns and tie-rods. This insures perfect rigidity and alignment of all parts.

Each roll is equipped with a plain crown-faced driving pulley and arranged to be driven independently. Each machine is set up and thoroughly inspected in our factory before shipment. It is a self-contained unit, and is shipped set up ready for belts.

A general drawing giving outline dimensions will be furnished for installing the machine.

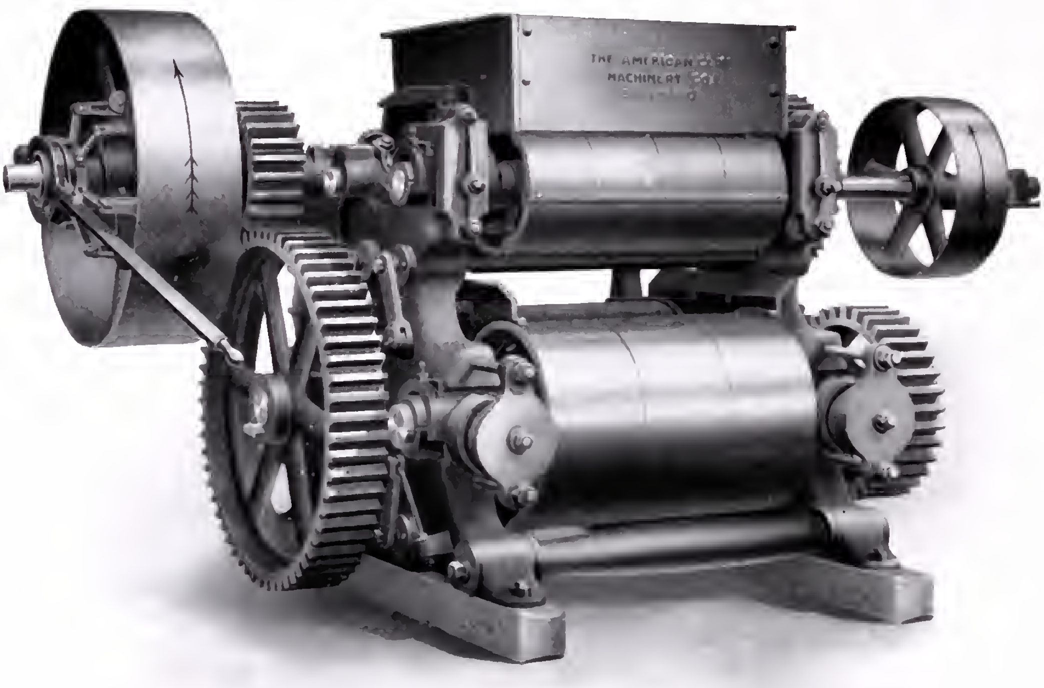
Specifications Combined Disintegrator and Crusher

	14-in. Combined Disintegrator and Crusher	18-in. Combined Disintegrator and Crusher	24-in. Combined Disintegrator and Crusher
Rated capacity per hour	1,500 to 2,000	2,500 to 4,000	4,000 to 6,000
Size of Feed Roll on Disintegrator	24 in. dia. 14 in. face	28 in. dia. 18 in. face	30 in. dia. 24 in. face
Size of Disintegrating Roll	12 in. dia. 14 in. face	14 in. dia. 18 in. face	18 in. dia. 24 in. face
Diameter of Roll Shafts	2⅞ in.	3⅜ in.	4⅜ in.
Length of Bearings	10 in.	12 in.	14 in.
Size of Fly-Wheel on Disintegrating Roll Shaft	None	None	36 in. dia. 5 in. face
Number of Steel Cutting Bars on Disintegrating Roll	6	6	8
Size of Steel Cutting Bars	½ x 1 x 14 in.	½ x 1 x 18 in.	¾ x 1 x 24 in.
Size of Crusher Rolls	18 in. dia. 24 in. face	18 in. dia. 24 in. face	24 in. dia. 36 in. face
Diameter of Crusher Roll Shafts	4⅜ in.	4⅜ in.	4¾ in.
Length of Bearings	14 in.	14 in.	18 in.
Size of Driving Pulley on Feed Roll on Disintegrator	30 in. dia. 4 in. face	36 in. dia. 6 in. face	40 in. dia. 8 in. face
Speed of Driving Pulley on Feed Roll on Disintegrator	30 to 50 R. P. M.	30 to 50 R. P. M.	30 to 50 R. P. M.
Size of Driving Pulley on Disintegrating Roll	16 in. dia. 8 in. face	18 in. dia. 10 in. face	20 in. dia. 12 in. face
Speed of Driving Pulley on Disintegrating Roll	400 to 600 R. P. M.	400 to 600 R. P. M.	400 to 600 R. P. M.
Size of Driving Pulleys on Crusher Rolls	30 in. dia. 10 in. face	30 in. dia. 10 in. face	36 in. dia. 10 in. face
Speed of Pulleys on Crusher Rolls	400 R. P. M.	400 R. P. M.	400 R. P. M.
Power required	15 to 20 H. P.	20 to 25 H. P.	25 to 35 H. P.
Weight	6,500 pounds	9,152 pounds	12,000 pounds

Dimensions

Length of Base	4 ft. 6 in.	4 ft. 6 in.	5 ft. 6 in.
Width of Base	4 ft. 3 in.	4 ft. 3 in.	5 ft. 6 in.
Width over all	7 ft. 5 in.	7 ft. 5 in.	9 ft. 2 in.
Height of Machine above Shipping Sills	4 ft. 7 in.	5 ft. 0 in.	6 ft. 4 in

American No. 10-D Compound Four-Roll Crusher



This crusher is designed for the crushing and preparing of plastic clays for large capacity yards, and will be found a very efficient machine for this purpose. It has been used by some of the largest manufacturers of hollow ware where plastic clays only are available. It embodies all the advantages of disintegrators and differential motion smooth roll crushers.

Rated Capacity Per Hour —

Material for 4,000 to 6,000 brick.

Specifications

Rolls —

There are two upper and two lower rolls; the upper rolls are 17 inches diameter, 36 inches long, and the lower rolls are 24 inches diameter, 36 inches long. The upper pair consists of one chilled sectional smooth roll, serving as a feeding roll and working in connection with a sectional disintegrating roll. The lower pair are both smooth rolls and are much larger in diameter than the upper ones, so that even when set close together they will take the clay through as fast as the upper rolls supply it.

Disintegrating Roll

The disintegrating roll in the upper pair is made in three sections, which are keyed to the shaft, each section being 17 inches diameter, 12 inches face. There are six ¾-inch by 1¼-inch by 36-inch steel cutter bars inserted at equal distances in the face of this disintegrating roll and secured in place by "T" head bolts. The design is such as to admit of quick replacement when worn. The upper smooth roll is 17 inches diameter, 36 inches long, made of three sections with chilled surfaces and keyed to the shaft.

Lower Rolls —

The 24-inch by 36-inch lower rolls are made up of a heavy hub casting, accurately machined and keyed to the shaft. On this hub are mounted chilled sectional rims, which may be replaced at small expense when worn. In the standard construction, these rolls are driven at the same speed, but when the crusher is made to order, they can be arranged for different speeds, if so desired.

Lubrication —

All bearings are provided with suitable and convenient oiling facilities. The adjustable roll bearings are fitted with grease cups.

Driving Pulleys—

The machine is equipped with a friction-clutch pulley, 42 inches diameter, 12 inches face, for the main drive, and with a 24-inch diameter, 10-inch crown face tight pulley for the disintegrating roll.

Speeds —

The speed of the 42-inch x 12-inch main driving pulley is 150 R. P. M.; the speed of the disintegrating roll pulley from 400 to 600 R. P. M., according to the capacity desired and the character of the clay.

Power —

The power required to operate this machine is from 20 to 30 H. P., depending upon the capacity desired and the character of the material used.

Weight —

14,500 pounds.

Dimensions

Height over all	6 ft. 0 in.
Width over all	9 ft. 6 in.
Length over all	7 ft. 0 in.
Distance from center of Pulley Shaft to top of Machine	1 ft. 7½ in.
Size of Sills	6 in. x 6 in. x 7 ft.
Distance from center to center of Sills	4 ft. ½ in.
Distance from center line of Machine to center line of Driving Pulley	4 ft. 1 in.
Length of Pulley Shaft Bearings	0 ft. 10 in.
Length of upper Roll Shaft Bearings	1 ft. 0 in.
Length of lower Roll Shaft Bearings	1 ft. 0 in.
Diameter of Pulley Shaft	0 ft. 3⅜ in.
Diameter of upper Roll Shafts	0 ft. 3¼ in.
Diameter of lower Roll Shafts	0 ft. 4⅞ in.

American No. 16 Reduction Mill

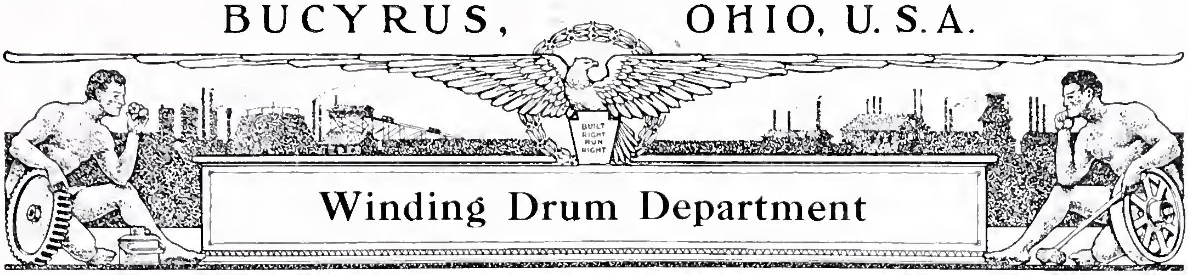
The No. 16 Reduction Mill is used for grinding and mixing dry clay and broken brick or calcined clay for fire mortar at the same operation. It is also used for pulverizing dry plastic clay.

The mill is well designed with a substantial cast base, to which is bolted the shell with a large hopper, to facilitate feeding. The material to be ground is thrown into this hopper, around which are a number of hard iron rings with saw-tooth edges. The rapid movement of the perforated bottom plate is communicated to the material and it is powerfully agitated. The material is ground by the movement of the mass among its own particles and against the saw-tooth edges of the rings. The movement reduces the mass rapidly to dust and it is thrown out by centrifugal force between the rings and through the perforations in the bottom plate. This ground material is conveyed to any desired point. A steel step supports the perforated plate which revolves at the bottom of the shell.

The material is not confined between plates, to cause undue strain and breakage, and the mill cannot be injured by running backward, as it is made to run in either direction. The mill is supplied with a pulley 11 inches in diameter and 8 inches face. Speed, 600 revolutions per minute. Floor space, 2 feet 6 inches by 3 feet. Power required, 8 horse. Weight, 900 pounds.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.

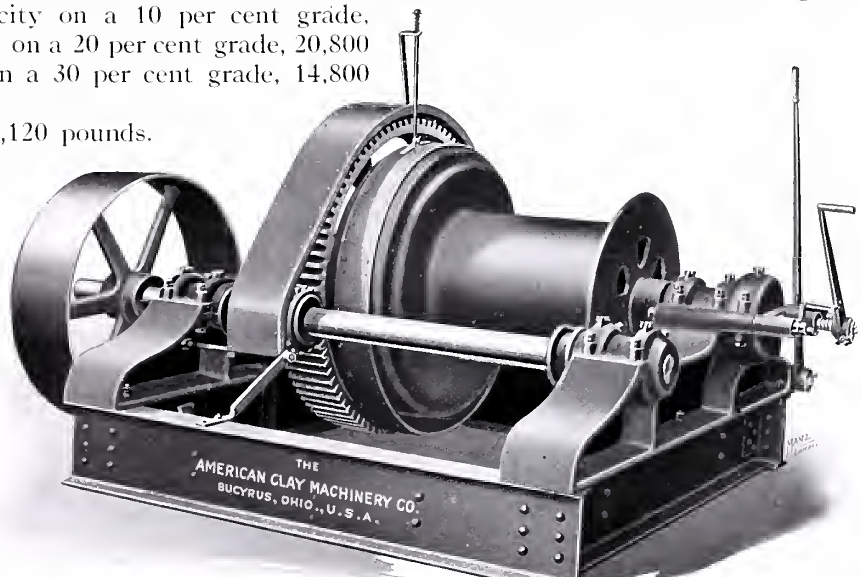


Winding Drum Department

American No. 325 Winding Drum

The machine is designed for heavy service. It is self-contained, being mounted on a heavy frame, constructed with 12-inch steel "I" beams, and is equipped with ring oiling bearings. Hoisting capacity on a 10 per cent grade, 38,400 pounds; on a 20 per cent grade, 20,800 pounds, and on a 30 per cent grade, 14,800 pounds.

Weight, 8,120 pounds.



Specifications

Diameter of Drum	2 ft. 0 in.
Length of Drum	2 ft. 5 in.
Diameter of Drum Shaft	0 ft. 4½ in.
Diameter of Driving Shaft	0 ft. 4 in.
Length of Ring Oiling Bearings	1 ft. 0 in.
Diameter of Master Gear	4 ft. 3¼ in.
Diameter of Driving Pinion	0 ft. 9 in.
Face of Gears	0 ft. 8 in.
Pitch of Gears	0 ft. 1¾ in.
Ratio of Gears	5¼ to 1
Capacity of Drum, ¾-inch Cable	3,500 ft.
Speed of Cable per minute	255 ft.
Driving Pulley	40 in. x 10 in.
Speed of Driving Pulley	175 R. P. M.
Power	35 H. P.

Dimensions*No. 325 Winding Drum

Length over all	7 ft. 0 in.
Width over all	10 ft. 0 in.
Height over all	5 ft. 0 in.
Height from floor to center of Driving Shaft	2 ft. 0 in.
Height from floor to center of Drum Shaft	2 ft. 4 in.
Distance from center of Drum to center of Driving Pulley	4 ft. 8½ in.
Distance from center of Drum to end of Driving Shaft	5 ft. 8 in.

American No. 242 and No. 245 Winding Drums

These machines are used to draw cars loaded with clay from the clay pit into the building. They are self-contained machines, being mounted on a substantial cast iron base. They are equipped with oil reservoir bearings, which insure proper lubrication.

The drum runs loose on the shaft, and by means of a lever and screw is forced against the cone wood friction, which is securely bolted to the large spur gear. An independent lever is provided to operate the friction-band brakes. They are strong, simple and durable machines. Each machine is built complete, and thoroughly inspected before shipment.

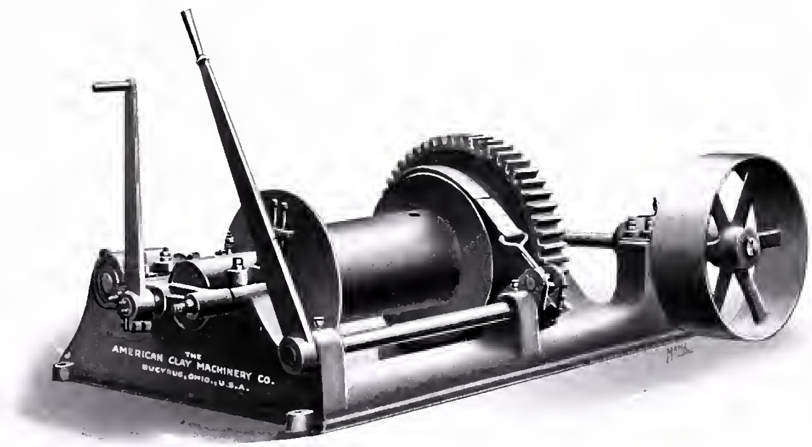
Specifications

	No. 242	No. 245
Hoisting capacity on 10 per cent grade	18,000 lbs.	22,000 lbs.
Hoisting capacity on 20 per cent grade	10,000 lbs.	12,000 lbs.
Hoisting capacity on 30 per cent grade	7,400 lbs.	8,200 lbs.
Diameter of Drum	12 in.	24 in.
Length of Drum	23 in.	29 in.
Height of Flanges	5 in.	5 in.
Diameter of Drum Shaft	3 in.	3½ in.
Diameter of Driving Shaft	2½ in.	2¾ in.
Length of Bearings	8 in.	9 in.
Diameter of Master Gear	30⅜ in.	40¾ in.
Diameter of Pinion	6⅝ in.	6¾ in.

	No. 242	No. 245
Face of Gears	4½ in.	5¾ in.
Pitch of Gears	1¾ in.	1¾ in.
Ratio of Gears	4½ to 1	6 to 1
Capacity of Drum, ⅝-inch Cable	1,300 ft.	2,800 ft.
Average Cable Speed per minute	147 ft.	185 ft.
Driving Pulley	24 in. x 6 in.	24 in. x 8 in.
Speed of Driving Pulley	150 R. P. M.	150 R. P. M.
Power	10 H. P.	15 H. P.
Weight	2,400 lbs.	4,230 lbs.

Dimensions

	No. 242	No. 245
Length over all	4 ft. 4 in.	6 ft. 0 in.
Width over all	6 ft. 7 in.	7 ft. 9 in.
Height over all	4 ft. 6 in.	4 ft. 6 in.
Height from floor to center of Driving Shaft and Drum Shaft	1 ft. 7 in.	2 ft. 0 in.
Distance from center of Drum to center of Driving Pulley	3 ft. 3 in.	3 ft. 10 in.
Distance from center of Drum to end of Driving Shaft	3 ft. 8 in.	4 ft. 3 in.



American No. 243 and No. 246 Miter-Geared Winding Drums

These machines are built with a miter-gear drive, to secure a right angle drive when required to accommodate their installation and meet conditions existing in the brick plant. No. 243 Drum corresponds in size and specifications with No. 242 Drum, and No. 246 Drum corresponds with No. 245. Miter gears are 1½-inch pitch, 3½ inches face, and 12 inches diameter.

Weight No. 243 Drum, 2,640 lbs.

Weight No. 246 Drum, 4,630 lbs.

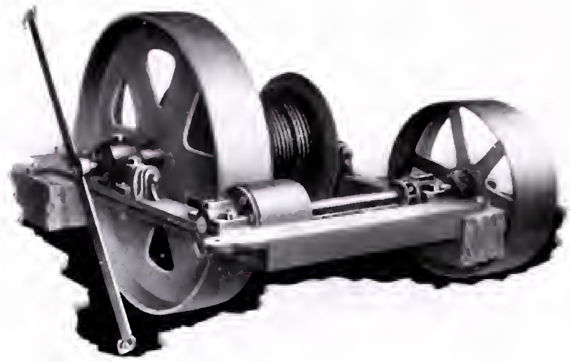
Dimensions

	No. 243	No. 246
Length over all	5 ft. 4 in.	6 ft. 6 in.
Height over all	4 ft. 6 in.	4 ft. 6 in.
Width over all	7 ft. 5 in.	8 ft. 6 in.
Height from floor to center of Driving Shaft and Drum Shaft	1 ft. 7 in.	2 ft. 0 in.
Distance from center of Drum Shaft to center of Driving Pulley	2 ft. 2½ in.	3 ft. 1 in.
Distance from center of Drum Shaft to end of Driving Shaft	2 ft. 7 in.	3 ft. 6 in.

American No. 1 Friction Winding Drum

This machine is self-contained, being mounted on a heavy cast iron base. The drum shaft is provided with a large friction wheel and the driving shaft is provided with a paper friction pulley.

The shifting lever is placed on the end of the drum shaft, on the side next to the friction wheel. The bearing on this side of the frame is made with an eccentric in the box, so that a



slight movement of the lever will move the drum shaft, bringing the large friction wheel in contact with the paper friction pulley. On the opposite side of the large friction wheel is the brake shoe, against which the wheel is forced when it is necessary to use the brake. The drum is so arranged that the shifting lever can be operated, if necessary, from a distance. It is, therefore, not absolutely necessary for the operator to be stationed at the winding drum if it is more desirable to have him stationed at some distant point.

The construction of the machine throughout is strictly first class. Each and every machine is erected complete and carefully inspected in our factory before shipment.

The No. 1 Winding Drum is also built to drive with miter gears when required.

Hoisting capacity, on a 10 per cent grade, 12,000 pounds; on a 20 per cent grade, 6,400 pounds; and on a 30 per cent grade, 4,500 pounds.

Specifications

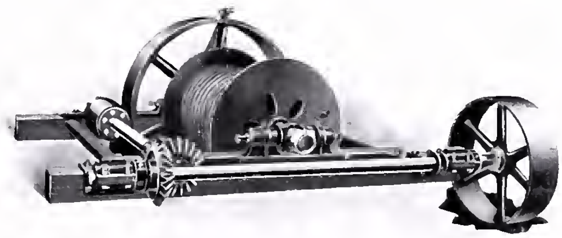
Diameter of Drum	12 in.
Length of Drum	17 in.
Diameter of Drum Shaft	2½ in.
Diameter of Driving Shaft	2 in.
Length of Bearings on Drum Shaft	4 in.
Length of Bearings on Driving Shaft	4 in.
Diameter of Friction Wheel	40 in.
Face of Friction Wheel	7½ in.
Diameter of Paper Friction Pulley	8 in.
Ratio of Friction Wheels	5 to 1
Capacity of Drum, ⅝-inch Cable	675 ft.
Average Cable Speed per minute	125 ft.

Driving Pulley	24 in. x 6 in.
Speed of Driving Pulley	150 R. P. M.
Power	5 H. P.
Weight	1,435 lbs.

Dimensions

Length over all	6 ft. 0 in.
Width over all	4 ft. 4 in.
Height over all	4 ft. 5 in.
Height from floor to center of Driving Shaft	2 ft. 0 in.
Height from floor to center of Drum Shafts	2 ft. 2 in.
Distance from center of Drum to center of Driving Pulley	1 ft. 10½ in.
Distance from center of Drum to end of Driving Shaft	2 ft. 2 in.

American No. 1 Miter-Geared Friction Winding Drum



Miter gears, 1½-inch pitch, 3½ inches face, 11½ inches diameter.
Weight, 1,692 pounds.

Dimensions

Length over all	6 ft. 6 in.
Width over all	5 ft. 2 in.
Height over all	4 ft. 5 in.
Height from floor to center of Driving Shaft	2 ft. 0 in.
Height from floor to center of Drum Shaft	2 ft. 2 in.
Distance from center of Drum Shaft to center of Driving Pulley	2 ft. 8 in.
Distance from center of Drum Shaft to end of Driving Shaft	3 ft. 0 in.

American No. 309 Winding Drum

This machine is designed for motor drive and arranged to have the motor direct connected, using a cut steel gear and pinion to connect motor to driving shaft. Motor is mounted on the heavy cast iron base, which forms a part of the machine. Motor is not furnished with the winding drum. Any standard make of motor can be used. It must be a 40 H. P. reversible type motor, operating at not more than 600 R. P. M.

Hoisting capacity on a 10 per cent grade, 38,400 pounds; on a 20 per cent grade, 20,800 pounds, and on a 30 per cent grade, 14,800 pounds.

Weight, without motor, 5,520 pounds.

Specifications

Diameter of Drum	2 ft. 0 in.
Length of Drum	2 ft. 5 in.
Diameter of Drum Shaft	0 ft. 3½ in.
Diameter of Driving Shaft	0 ft. 2¾ in.
Length of Ring Oiling Bearings	0 ft. 9 in.
Diameter of Master Gear	3 ft. 4¾ in.
Diameter of Driving Pinion	0 ft. 6¾ in.
Face of Gears	0 ft. 5⅜ in.
Pitch of Gears	0 ft. 1¾ in.
Ratio of Gears	6 to 1
Capacity of Drum, ¾-inch Cable	3,500 ft.
Speed of Cable per minute	255 ft.
Speed of Driving Shaft	200 R. P. M.
Power	40 H. P.

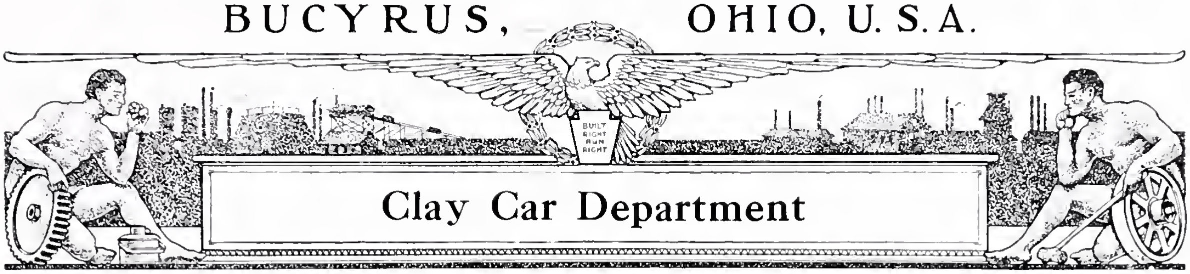
Using 600 R. P. M. motor, the cut steel gear on driving shaft will be 3 inches pitch, 2½ inches face, 27 inches diameter; the cut steel or rawhide pinion on the motor will be 9 inches diameter.

Dimensions

Length over all	7 ft. 6 in.
Width over all	6 ft. 0 in.
Height over all	4 ft. 0 in.

THE AMERICAN CLAY MACHINERY COMPANY

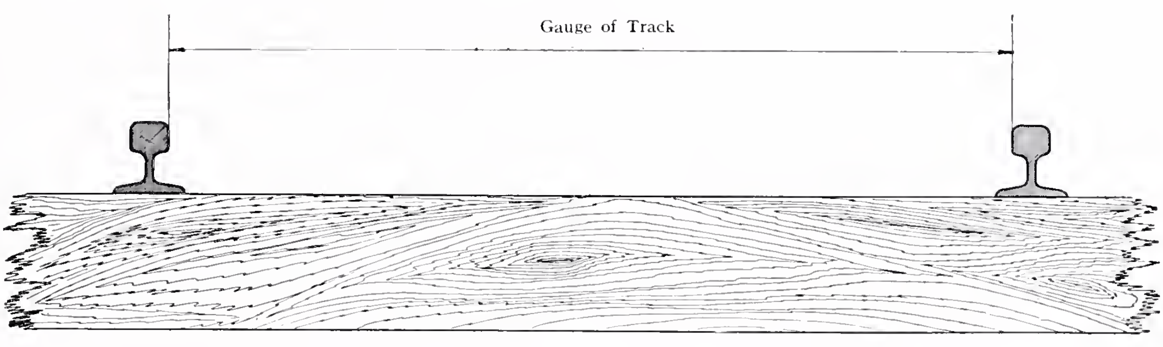
BUCYRUS, OHIO, U. S. A.



Standard American Clay Cars

We build a complete line of standard Clay Cars which are substantially designed and built of excellent material. These cars are of the side dumping and bottom dumping variety and include both steel and wood construction. We feel that in submitting this line of cars to the Clay Trade we have anticipated every requirement with a car that will exactly meet the needs and built for the service required.

The track gauge specified is in accordance with the accompanying diagram.



American Steel Side-Dump Clay Cars

These cars are constructed of steel and iron. They are strong and substantial. Built in several sizes, ranging in capacity from 1 to 2½ cubic yards.

Specifications

Frame —

The body of the car is made of steel plates, reinforced with heavy angles. The frame is made of flat steel bars, securely riveted at corners and thoroughly braced.

Dumping Device —

When loaded, the car is held in an upright position by a lock bar, which is hinged to the rocker track. This bar is held to the top of the rocker by a removable pin. By pulling the pin the lock bar can be swung back from the rocker track, allowing the car to be dumped. Strong chains are provided to prevent the car rocking too far when being dumped.

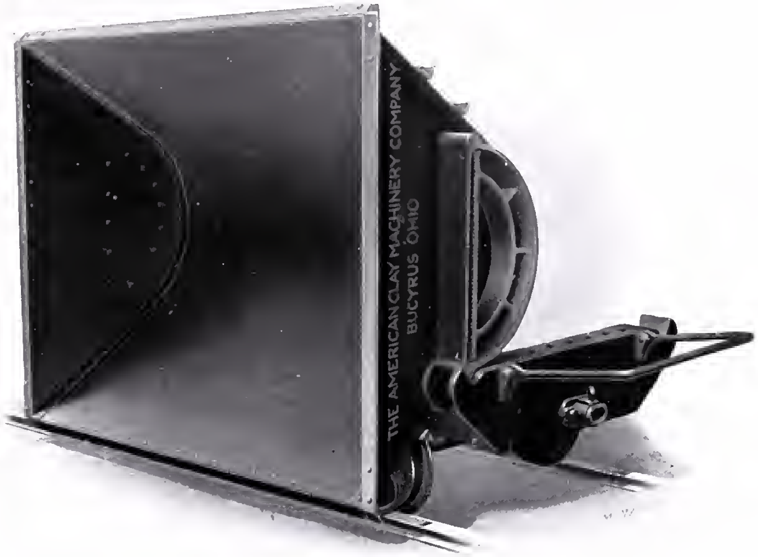
Bearings —

The bearings are babbitted with a superior grade of metal for the service required.

Wheels —

The heavy chilled wheels are bored true, and are pressed on to the axle.

American Steel Side-Dump Clay Cars



Axles —

The axles are made of cold rolled steel, turned true in the bearings.

Brakes —

Cars Nos. 74, 68, 70 and 81 are not equipped with Brakes.

Cars Nos. 73, 67, 69 and 80 are equipped with a substantial Foot Brake operating on two wheels.

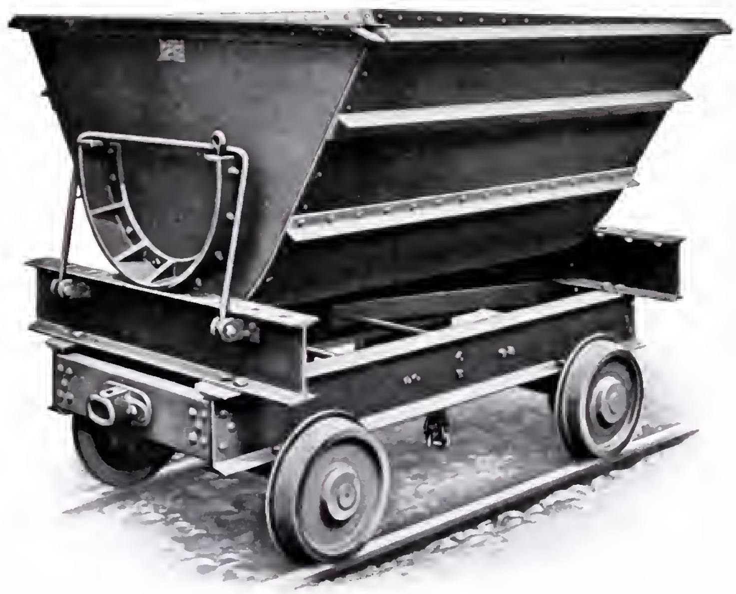
Couplers —

A coupling device is supplied at each end of the car, the bolts passing through the angle braces, so that the strain of pulling the load is not applied to the end piece alone.

Dimensions

Car Number	**74**	**68**	**70**	**81**	**73**	**67**	**69**	**80**
Capacity, cu. yd.	1	1½	2	2½	1	1½	2	2½
Length	6′ 4″	6′ 10″	8′ 2″	10′ 0″	8′ 2″	8′ 8″	10′ 0″	11′ 8″
Width	4′ 10″	5′ 4″	5′ 4″	5′ 4″	4′ 10″	5′ 4″	5′ 4″	5′ 4″
Height	3′ 9″	4′ 4″	4′ 4″	4′ 4″	3′ 9″	4′ 4″	4′ 4″	4′ 4″
Wheel Base	3′ 6″	4′ 0″	4′ 0″	4′ 6″	3′ 6″	4′ 0″	4′ 0″	4′ 6″
Diameter Axle	2″	2″	2″	2½″	2″	2″	2″	2½″
Diameter of Chilled Wheels	14″	14″	14″	16″	14″	14″	14″	16″
Gauge of Track	30″	36″	36″	36″	30″	36″	36″	36″
Frame Flat Bars	6x⅜″	6x⅜″	6x½″	6x¾″	6x⅜″	6x⅜″	6x½″	6x¾″
Thickness of Hopper Plate	$\frac{3}{16}$	$\frac{3}{16}$	$\frac{3}{16}$	¼	$\frac{3}{16}$	$\frac{3}{16}$	$\frac{3}{16}$	¼
Weight	1,500	1,700	2,495	2,855	1,600	1,983	2,782	3,250

American No. 171 and No. 200 Steel Side-Dump Clay Cars

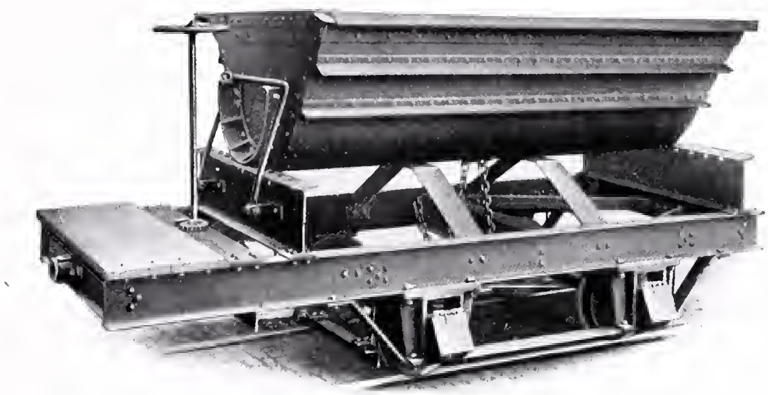


These cars are designed for heavy work, such as they would be subjected to in receiving shale direct from large capacity steam shovels. The frame is made of 8-inch steel "I" beams, well riveted and braced. The body frame is made of $\frac{3}{16}$-inch steel plate, reinforced, and 2-inch x 2-inch x ¼-inch angles.

Dimensions

	Car No. 171	Car No. 200
Capacity, cubic yards	1½	2
Length over all, without Brake	7 ft. 0 in.	8 ft. 2 in.
Length over all, with Brake	8 ft. 10 in.	9 ft. 11 in.
Width	5 ft. 5 in.	5 ft. 5 in.
Height	4 ft. 8 in.	4 ft. 8 in.
Wheel Base	4 ft. 0 in.	4 ft. 0 in.
Diameter of Axle	0 ft. 2½ in.	0 ft. 2½ in.
Diameter of Chilled Wheels	1 ft. 2 in.	1 ft. 2 in.
Track Gauge	3 ft. 0 in.	3 ft. 0 in.
Weight without Brake	1,993 lbs.	2,110 lbs.
Weight with Brake	2,156 lbs.	2,325 lbs.

American No. 197 and No. 212 Steel Side-Dump Clay Car



These cars are substantially constructed of steel and iron, and are especially designed for use in connection with a steam shovel. They are built to withstand the shock of steam shovel loading and the stress of handling in a train.

Frame and Body —

The frame is 8-inch steel "I" beams, securely riveted and braced. The body is made of $\frac{1}{4}$-inch steel plates, reinforced by $2\frac{1}{2}$ x $2\frac{1}{2}$ x $\frac{1}{4}$-inch angles.

Bearings —

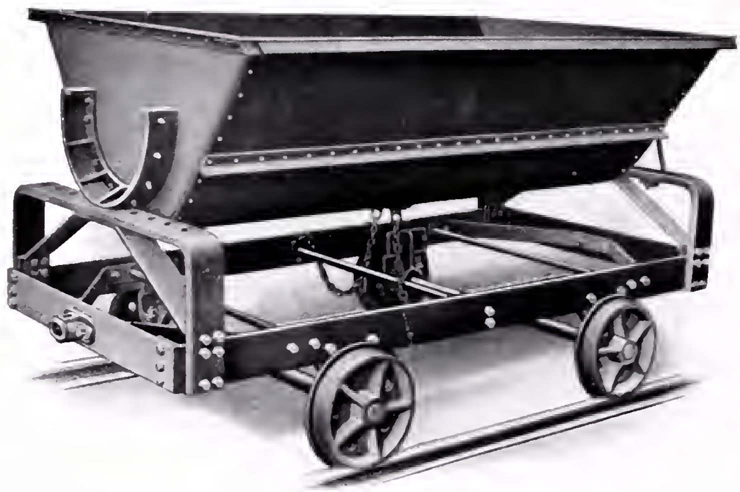
The bearings are made according to Master Car Builders' specifications, and are furnished with brasses and have reservoirs for oiled waste underneath the axles. The bearings are covered with suitable hinged caps for the exclusion of dirt. The pedestal bearings are well braced, to withstand the shocks of coupling. Suitable bumpers are also provided. The journals are provided with springs for taking up shocks while loading.

Dimensions

	Car No. 197	Car No. 212
Capacity, cubic yards	$2\frac{1}{2}$	$2\frac{1}{2}$
Length over all	12 ft. $1\frac{1}{2}$ in.	9 ft. 11 in.
Width	5 ft. 9 in.	5 ft. 9 in.
Height	5 ft. $5\frac{1}{2}$ in.	5 ft. $5\frac{1}{2}$ in.
Wheel Base	4 ft. 0 in.	4 ft. 0 in.
Diameter of Axle	0 ft. $3\frac{1}{4}$ in.	0 ft. $3\frac{1}{4}$ in.
Diameter Chilled Wheels	1 ft. 5 in.	1 ft. 5 in.
Gauge of Track	3 ft. 0 in.	3 ft. 0 in.
Weight	4,717 lbs.	4,322 lbs.

No. 197 Car is equipped with a substantial Brake.
No. 212 Car is not equipped with Brake.

American No. 144 Steel Side-Dump Clay Car

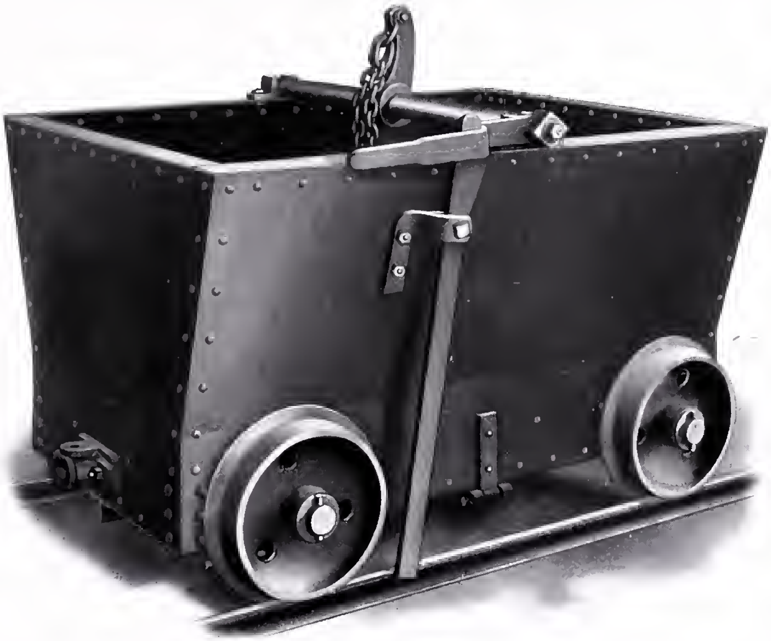


This car is constructed of steel and iron. It is strong and substantial. The capacity is 2½ cubic yards, and is only built for standard railroad track gauge, 4 feet 8½ inches.

Dimensions

Capacity	2½ cubic yards
Track Gauge	4 ft. 8½ in.
Length over all	10 ft. 8 in.
Width over all	5 ft. 5 in.
Height	5 ft. 2½ in.
Wheel Base	4 ft. 6 in.
Diameter Chilled Wheels	1 ft. 4 in.
Axle	0 ft. 2½ in.
Weight	4,150 pounds

American No. 71 Steel Bottom-Dump Clay Car



This is a well built car, constructed throughout of iron and steel. It is substantially braced and bolted, and will be found satisfactory in all respects.

Specifications

Dumping Device —

The car is fitted with an automatic dumping device, so arranged that by placing a trip along side the track the latch holding the double doors, which form the bottom of the car, is released, and the doors swing open.

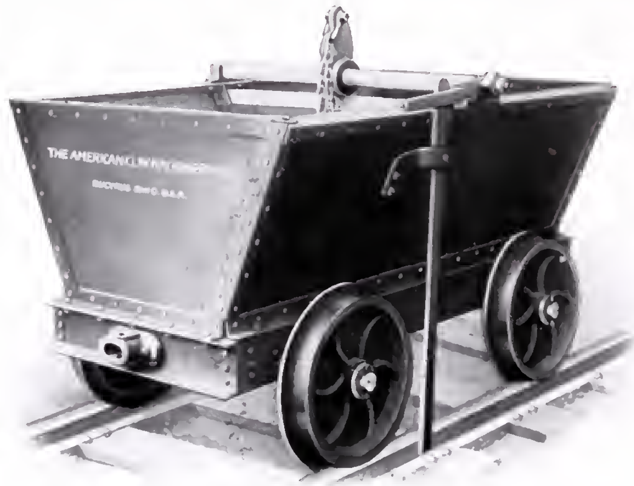
Frame and Body —

The main body of the car is made of sheet steel plates, ¼ inch thick, and thoroughly reinforced by 2x2x¼-inch steel angles, and supported on a frame made up of 6-inch by ⅜-inch steel bars.

Dimensions

Capacity	1½ cubic yards
Length	5 ft. 10 in.
Width	3 ft. 11 in.
Height, top of Rail to top of Bed	2 ft. 11 in.
Height over all	3 ft. 10 in.
Wheel Base	3 ft. 6 in.
Diameter of Axle	0 ft. 2⅜ in.
Diameter of Wheels	1 ft. 2 in.
Gauge of Track	3 ft. 0 in.
Weight	1,430 lbs.

American No. 235 Steel Bottom-Dump Clay Car



This car is substantially designed and built. The material in its construction is iron and steel. It is especially fitted for automatic dumping and is so arranged that when dumped at the top of an incline it can be returned to the bottom without closing the door.

Specifications

Frame and Body —

The frame of this car is 6-inch steel channels, securely braced and riveted. The body is $\frac{3}{16}$-inch steel plates, reinforced by $2x2x\frac{3}{16}$ angles.

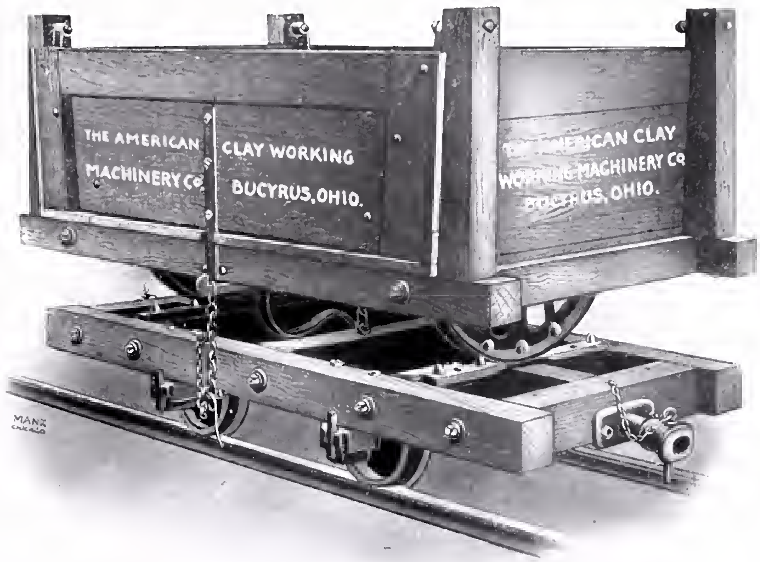
Dumping Device —

The car is fitted with an automatic dumping device, so arranged that by placing a trip along side the track the latch holding the double doors, which form the bottom of the car, is released, and the doors swing open.

Dimensions

Capacity	1½ cubic yards
Track Gauge	3 ft. 0 in.
Length over all	7 ft. 10 in.
Length of Body on top	6 ft. 0 in.
Width over all	4 ft. 2 in.
Width of Body on top	3 ft. 10 in.
Width of Body on bottom	2 ft. 3 in.
Height over all	4 ft. 5 in.
Height, top of Rail to top of Body	3 ft. 6 in.
Wheel Base	3 ft. 6 in.
Diameter of Chilled Wheels	1 ft. 8 in.
Diameter of Axle	0 ft. 2⅜ in.
Weight	1,740 lbs.

American No. 1 Side-Dump Clay Car



Specifications

Wood Work —

The frame of this car is made of heavy car timbers throughout, carefully mortised, pinned and bolted together. The end and bottom boards and hinged sides are made of 1¼-inch seasoned white oak lumber, reinforced. The proportions of all wood in the car have been established by long use, and the hopper and truck frame stand service satisfactorily.

Bearings —

The standard type of journal box is employed, consisting of a base, a removable wearing plate, an oil waste cap and key. This requires lubrication only at long intervals, and the cost of renewing the wearing plates is small.

Brakes —

When so ordered, the car can be equipped with brakes on either two or four wheels, for which additional charge is made.

Operation —

The car dumps on either side. The sides are hinged at the top, with automatic latches at the bottom, so that when the body is tilted over, the latch is disengaged and the car emptied. The latch re-engages as the body resumes the vertical position. Suitable chains and staples are provided on each side to keep the car body in place while being loaded or when in transit.

Dimensions

Capacity	1½ cubic yards
Inside dimensions of Box as follows:	
Length	6 ft. 5 in.
Width	3 ft. 10 in.
Depth	1 ft. 11 in.
Standard Gauge of Track	1 ft. 11½ in.
Extreme Gauge for which Car can be constructed	3 ft. 0 in.
Wheel Base	2 ft. 9 in.
Length of Track, exclusive of Couplers	7 ft. 5¼ in.
Diameter of Wheels on Tread	0 ft. 11⅝ in.
Diameter of Wheels on Flanges	1 ft. ½ in.
Diameter of Axle	0 ft. 2 in.
Weight of standard Gauge Car, without Brake	1,575 pounds
Weight of 36-inch Gauge Car, without Brake	1,760 pounds

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.

Barrow and Truck Department

American No. 727 Brick Barrow

This barrow is designed for handling burned brick from kiln to cars or to storage yard. It can also be used for tile.

Specifications

Design —

The design is modern, keeping hard service in mind. The frame is oak and the bent braces are of heavy section, giving great strength. The deck and dash are hard maple. Legs are cast iron shod, the shoes being removable. Handles are convenient for operator, and grips of approved design. Wheel is strong and designed for easy running.

Weight —

100 pounds.

Dimensions

Length of Handles	4 ft. 9 in.
Height of Dash	1 ft. 6 in.
Width of Dash	1 ft. 11 in.
Length of Bottom	2 ft. 5½ in.
Width of Bottom	1 ft. 11½ in.
Diameter of Wheel	1 ft. 4 in.
Face of Tire	1½ in.
Height of Deck at Dash	1 ft. 1 in.
Height of Deck at Handles	1 ft. 6 in.
Height to top of Handles	1 ft. 7 in.
Distance outside to outside of Handles	2 ft. 4¾ in.
Width of extreme front end	1 ft. 11 in.
Bore of Wheel	1¼ in.
Diameter of Axle	1¼ in.

American No. 733 Common Brick Barrow. Iron Clad, with Cast Iron Bearings

This barrow is designed for heavy service in handling brick or paving block.

Specifications

Body —

The frame is made of selected seasoned hardwood, carefully mortised and pinned together, and securely ironed. The deck and dash are faced with steel slats 3x1/8 inch. These slats are bent on bulldozer forms to uniform shape, and the screw holes for attaching them are drilled and countersunk to templet. Duplicates can be supplied. The legs are equipped with cast iron shoes and are securely braced.

Wheel —

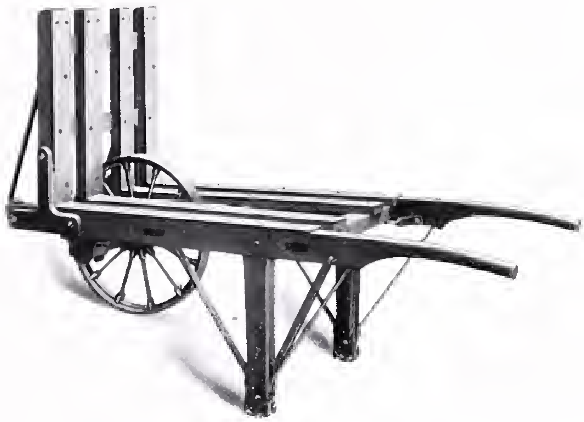
In designing the wheel, axle and bearings for this barrow, we have taken fully into consideration the very heavy duty required of such a barrow on many yards. These important parts are adequate and will not disappoint the purchaser. The wheel is of heavy section, with substantial hub and rim, and twelve 3/4-inch oval steel spokes. Bearings are of cast iron.

Weight — 135 pounds.

Dimensions

Length of Handles from Dash to end	4 ft. 3 in.
Length of Deck	2 ft. 7 in.
Height of Dash	1 ft. 9 in.
Height to top of Handles	1 ft. 11¼ in.
Height of Deck at rear end	1 ft. 7¼ in.
Height of Deck at front end	1 ft. 1¼ in.
Distance outside to outside of Handles	2 ft. 2¾ in.
Width at extreme front end	1 ft. 9 in.
Diameter of Wheel	1 ft. 6 in.
Face of Wheel	2 in.
Bore of Wheel	$1\frac{7}{16}$ in.
Diameter of Axle	$1\frac{7}{16}$ in.

American No. 734 Common Brick Barrow. Iron Clad with Cage Roller Bearings



This barrow is designed for heavy service in handling brick or paving blocks.

Specifications

Body —

The frame is made of selected seasoned hardwood, carefully mortised and pinned together, and securely ironed. The deck and dash are faced with steel slats, 3x1/8 inch. These slats are bent on bulldozer forms to uniform shape, and the screw holes for attaching them are drilled and countersunk to templet. Duplicates can be supplied. The legs are equipped with cast iron shoes, and are securely braced.

Wheel —

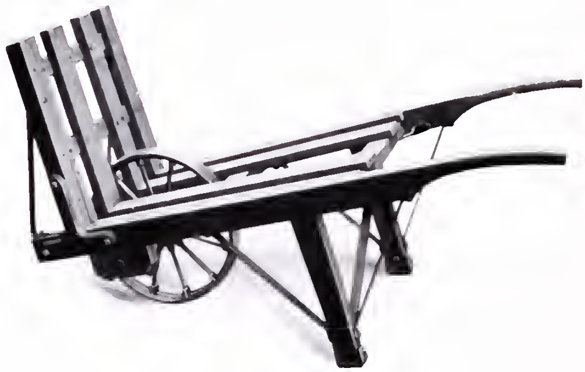
In designing the wheel, axle and bearings for this barrow, we have taken fully into consideration the very heavy duty required of such a barrow on many yards. These important parts are adequate and will not disappoint the purchaser. The wheel is of heavy section, with substantial hub and rim, and twelve 3/4-inch oval steel spokes. Bearings are of the cage roller type.

Weight — 135 pounds.

Dimensions

Length of Handles from Dash to end	4 ft. 3 in.
Length of Deck	2 ft. 7 in.
Height of Dash	1 ft. 9 in.
Height to top of Handles	1 ft. 11 1/4 in.
Height of Deck at rear end	1 ft. 7 3/4 in.
Height of Deck at front end	1 ft. 1 1/4 in.
Distance outside to outside of Handles	2 ft. 2 3/4 in.
Width at extreme front end	1 ft. 9 in.
Diameter of Wheel	1 ft. 6 in.
Face of Wheel	2 in.
Bore of Wheel	1 7/16 in.
Diameter of Axle	1 7/16 in.

American No. 735 Common Brick Barrow



This barrow is designed for heavy service in handling brick or paving block.

Specifications

Body —

The frame is made of selected seasoned hardwood, carefully mortised and pinned together and securely ironed. The legs are equipped with cast iron shoes and are securely braced.

Wheel —

In designing the wheel, axle and bearings for this barrow, we have taken fully into consideration the very heavy duty required of such a barrow on many yards. These important parts are adequate and will not disappoint the purchaser. The wheel is of heavy section with substantial hub and rim, and twelve $\frac{3}{4}$-inch oval steel spokes.

Weight —

135 pounds.

Dimensions

Length of Handles from Dash to end	4 ft. 3 in.
Length of Deck	2 ft. 7 in.
Height of Dash	21 in.
Height to top of Handles	$23\frac{1}{4}$ in.
Height of Deck at rear end	$19\frac{3}{4}$ in.
Height of Deck at front end	$13\frac{1}{4}$ in.
Distance outside to outside of Handles	2 ft. $2\frac{3}{4}$ in.
Width at extreme front end	21 in.
Diameter of Wheel	18 in.
Face of Wheel	2 in.
Bore of Wheel	$1\frac{7}{16}$ in.
Diameter of Axle	$1\frac{7}{16}$ in.

American No. 4 Spring Barrow for Pressed Brick

This body is designed for the careful handling of pressed brick, either dry or burned.

Specifications

Design —

This is a strong, durable barrow, made of the best seasoned hardwood and securely ironed and braced. It is equipped with quarter springs which cushion the load, preventing loss from chipping. From the saving on this score alone the barrow will prove a profitable investment. The legs are fitted with renewable cast iron shoes.

Weight —

92 pounds.

Dimensions

Length of Handles	4 ft. $4\frac{1}{2}$ in.
Height of Dash	22 in.
Width of Dash	20 in.
Width of Deck at junction of Handles	2 ft. 2 in.
Length of Deck	2 ft. 1 in.
Diameter of Wheel	$17\frac{1}{4}$ in.
Face of Wheel	$1\frac{3}{4}$ in.
Bore of Wheel	$1\frac{7}{16}$ in.
Axle	$1\frac{7}{16}$ in. x 18 in.
Bearings	$\frac{15}{16}$ in. x $1\frac{3}{4}$ in.
Springs, sectional three-leaf	$1\frac{1}{2}$ in. x 20 in.

American No. 6 Tile Barrow

The No. 6 is designed to handle tile from the dryer to the kiln.

Capacity —

84 2½-inch tile.
60 3-inch tile.
Other sizes in proportion.

Specifications

This barrow is built of selected materials throughout. It is provided with quarter springs, is well balanced, runs easily and saves breakage in transferring unburned tile into the kiln. The springs add to the life of the barrow, and to the ease with which the load is carried. The frame is substantially ironed off and securely braced.

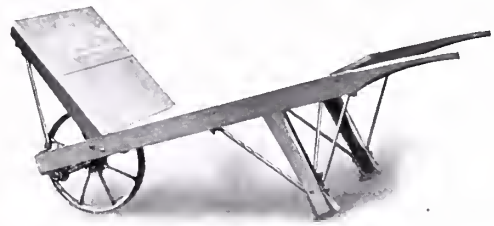
Weight —

110 pounds.

Dimensions

Height of Dash	24 in.
Length of Platform	32½ in.
Width of Platform	26 in.
Length over all	58 in.
Height of Deck	19½ in.
Diameter of Wheel	17¼ in.
Width of Tire	1¾ in.

American No. 12 Sewer Pipe and Tile Barrow



This barrow is of long pattern especially for handling tile and sewer pipe from the kiln.

Capacity —
Twelve 8-inch x 2-foot drain tile or sewer pipe. Other sizes in proportion.

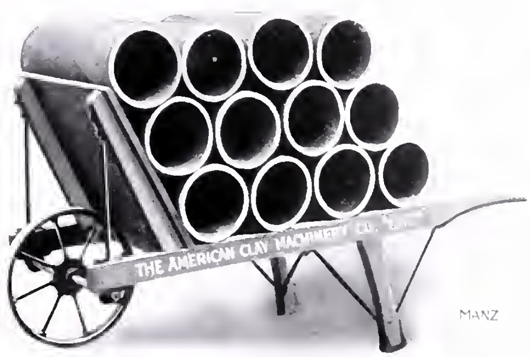
Specifications

Design —
This barrow is carefully constructed and well proportioned. The frame is made from selected white oak throughout, carefully mortised and thoroughly braced. The tops of handle bars are protected by steel cover strips $1\frac{3}{4}$ inches x $\frac{1}{8}$ inch. The legs are fitted with renewable cast iron shoes.

Weight — 112 pounds.

Dimensions

Length of Handles	5 ft. 6 in.
Height of End Boards	24 in.
Width of Deck at junction of End Boards with Deck	$22\frac{1}{2}$ in.
Length of Deck	34 in.
Width at junction of Handles	$25\frac{3}{4}$ in.
Diameter of Wheel	$17\frac{1}{4}$ in.
Face of Wheel	2 in.
Length of Axle	$24\frac{1}{2}$ in.
Diameter of Axle	$1\frac{1}{4}$ in.
Size of Bearings	$\frac{15}{16}$ in. x $2\frac{1}{4}$ in.



American No. 1 Spring Herdic

This herdic is designed for use in handling sewer pipe and tile in clay plants.

Capacity —

450 to 500 pounds.

Specifications

General —

The frame and body of this herdic are made of seasoned white oak. It is balanced on two elliptic springs, so that the load is carried almost exclusively by the wheels, and there is little weight on the handles. The axles are made of 1⅛-inch square steel, with bearings 3 inches long. The wheels are made with cast hubs and rims and wrought spokes. The standards or legs are fitted with cast iron shoes. The frame is substantially braced with wrought iron braces. The springs are heavy and sufficiently strong to carry a load equal to the strength of the frame, or approximately 450 to 500 pounds.

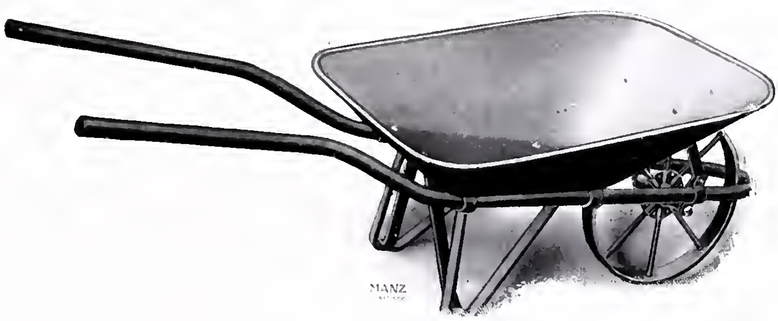
Weight —

160 pounds.

Dimensions

Diameter of Wheels	20 in.
Face of Wheels	2 in.
Distance between Tread	$25\frac{1}{16}$ in.
Length of Herdic over all	72 in.
Width over all	30⅞ in.
Width of Deck	23¼ in.
Length of Platform	3 ft. 9 in.
Height of End Boards	24 in.
Height from floor to Platform	21 in.

American Steel Barrow



Specifications

The body of this barrow is made of pressed sheet steel, carefully supported on a framework of bent pipe, which projects in front to form handles. This makes a light barrow. The legs are strong and light and are fastened to the pipe frame. The iron wheel runs in a frictionless bearing and the whole barrow is most excellent for convenient use and long life. It is adapted for sand, ashes, etc.

Capacity —

No. A-5—Capacity, 3 cubic feet.
No. B-5—Capacity, 4 cubic feet.
No. 10—Capacity, 6 cubic feet.

American No. 1 Platform Spring Truck

This truck is designed for use in off-bearing brick, hollow blocks and drain tile from the machine to the dry floors and in wheeling the dried ware into the kilns. It is a general favorite for this work and repeat orders are frequently received from the trade.

Capacity —

Sixty-four brick, or equivalent in drain tile, fire-proofing and hollow building blocks.

Specifications

Design —

The frame work is of hardwood, securely bolted together and rigidly braced, and the construction is strong and substantial throughout, with due regard for lightness. The truck is provided with flexible steel springs and is made single or double wheeled as preferred. When furnished with one wheel it can be used on a single-plank runway. Where good floors are available the two-wheel construction is preferable. It is so designed that the load is in perfect balance, which makes the work very light on the operator.

Weight —

One-Wheel Truck, 137 pounds.
Two-Wheel Truck, 155 pounds.

Dimensions

Length of Deck	6 ft. 0 in.
Width of Deck	30 in.
Height of Deck above floor when loaded	20½ in.
Diameter of Wheels	17¼ in.
Face of Wheels	2 in.
Bore of Wheels	$\frac{15}{16}$ in.
Distance through Hub	3½ in.

American No. 736 Single-Handle Slatted Deck Truck for Soft-Mud Brick

This truck is designed for handling soft-mud brick in molds or on pallets. By its use they can be transported from the machine to the dry racks or yard at considerable distance without damage.

Capacity —
5 molds or pallets of brick.

Specifications

Design —
This truck is constructed of the very best seasoned hardwood and is securely ironed. The springs are of the best make and carefully selected for the load to be carried. The wheels are of our standard pattern with oval steel spokes. They are of ample size to insure a substantial, easy-running truck. The handle is conveniently arranged and securely braced. The wheels turn on the axle.

Weight —
130 pounds.

Dimensions

Length of Platform	5 ft. 0 in.
Width of Platform	2 ft. 0 in.
Height from floor	2 ft. 2 in.
Diameter of Wheels	20 in.
Face of Wheels	2 in.
Bore of Wheels	1 in.
Distance center to center of Wheels	19¾ in.
Size of Axle	1 in. square
Length of Truck over all	6 ft. 5 in.
Width over all	2 ft. 1 in.

American No. 737 Double-Handle Slatted Deck Truck for Soft-Mud Brick

This truck is designed for handling soft-mud brick in molds or on pallets.

Capacity —

5 molds or pallets of brick.

Specifications

Design —

This spring platform truck is a duplicate of the No. 736 slatted deck truck with the exception that it is provided with double handles and the bracing and legs are changed to conform. Some customers prefer double-handle trucks. The handles are convenient for the operator and the grips correct in design. The springs and wheels are strong and heavy, insuring ease of operation and rigidity of construction. The bearings are of our standard roller bearing type.

Weight —

155 pounds.

Dimensions

Length of Platform	5 ft. 0 in.
Width of Platform	2 ft. 0 in.
Height of Platform	2 ft. 1½ in.
Diameter of Wheels	20 in.
Face of Wheels	2 in.
Bore of Wheels	1⅛ in.
Center to center of Wheels	16 in.
Length over all	6 ft. 8 in.
Width over all	2 ft. 1 in.

American No. 739 Dry Press Brick Truck

This truck is designed for transferring dry pressed brick from the machine to the kilns.

Capacity —
56 standard size brick, 2¼ inches thick.

Specifications

General —
The deck of this truck consists of four parallel hardwood bars with separator and end boards. The carrying bars are cushioned with soft rubber strips to protect the green brick from damage. The brick are placed on edge, in two parallel rows, with the heads against the separating bar. This has been found to be the best method for handling pressed brick without injuring the edges. The frame work and bracing are substantial; the materials carefully selected. The wheels are of improved type, with oval steel spokes, cast rims and hubs, and turn on the axle. The general design embodies a collection of excellent features that have appeared in other models of trucks heretofore built by us. The No. 739 is recommended without reserve to all dry press brick-makers.

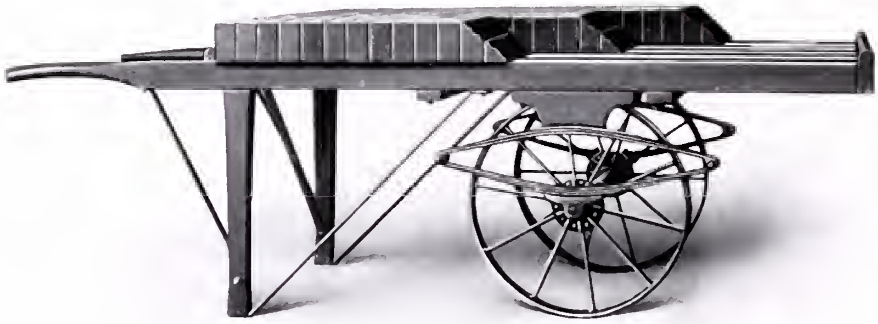
Weight — 176 pounds.

Dimensions

Over all length of Truck	7 ft. 7 in.
Height of Deck at front end	2 ft. 6¾ in.
Height of Deck at rear end	2 ft. 5¾ in.
Length of Deck	5 ft. 5⅞ in.
Width over all	2 ft. 4 in.
Diameter of Wheels	24 in.
Face of Wheels	2 in.
Bore of Wheels	1 in.
Length of Hub	4 in.
Center to center of Wheels	23 in.

Springs, 30 inches long, 2 inches wide, two-leaf.

American No. 594 Slatted Deck Truck



This truck is designed especially for use in assorting burned pressed brick in the kiln when taking them to storage piles.

Capacity —

84 standard size brick, figured as follows:

The deck consists of six slats, arranged to receive three courses of brick placed on edge. The length of the deck is 64 inches, which gives a capacity of 28 brick 2¼ inches thick per course, or a total of 84 brick.

Specifications

General —

Into this truck have been incorporated most of the valuable features of our No. 1 and No. 736 trucks. The deck slats are 1⅜ inches thick, set on edge and mortised into the end cross-bars, which extend 1½ inches above the slats. The deck slats are further strengthened by two cross-bars secured to the upper side of the six slats. These cross-bars serve to distribute the load at the handle-bars and to keep all the slats uniformly spaced. The truck is so proportioned that when loaded the weight is in proper balance. It may be used for handling dry press brick from the press, although it is especially designed for burned brick. This truck is also built with a single handle when so ordered.

Weight —

154 pounds.

Dimensions

Length over all	7 ft. 3 in.
Width over all	2 ft. 4 in.
Diameter of Wheels	1 ft. 10 in.
Face of Wheels	2 in.
Bore of Wheels	1⅛ in.
Tread of Wheels	1 ft. 8 in.

American No. 683 Two-Wheeled Spring Platform Truck

This truck was originally designed to special order to meet the requirements in a large sewer-pipe factory where a heavy platform truck was needed for very exacting service.

Capacity —

450 to 500 pounds.

Specifications

General —

This truck is built especially strong, of hardwood, iron, and steel. It is balanced on two heavy seat-springs, so that the load is light on the handles. The wheels are extra heavy, with steel tires shrunk on to a cast iron rim. The truck is substantially braced and the legs are fitted with cast iron shoes.

Weight —

238 pounds.

Dimensions

Length over all	6 ft. 10 in.
Length of Platform	5 ft. 8 in.
Width	26 in.
Height	26½ in.
Springs	1½ in. x 30 in. x 4-leaf
Diameter of Wheels	21 in.
Face of Wheels	2½ in.

American No. 114 Platform Truck

This truck is especially designed for the convenient handling of the cakes of clay on the racks on which they are dried.

Capacity —

600 to 800 pounds.

Specifications

Construction —

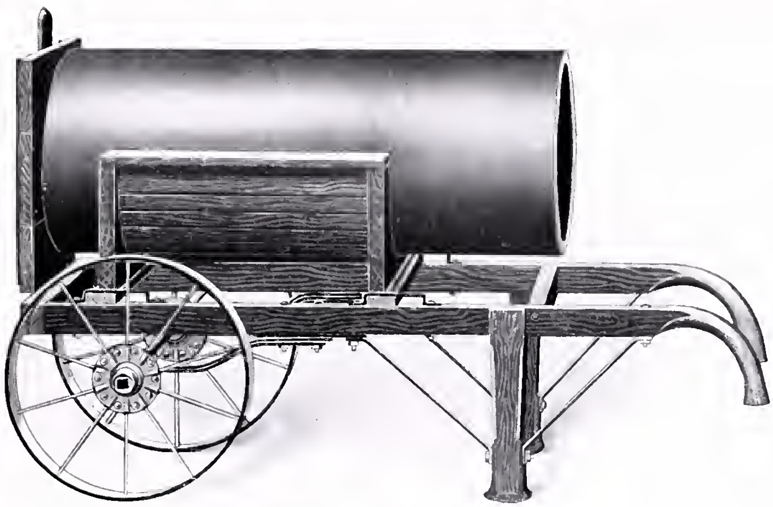
This truck is so built as to allow it to pass underneath the filter press from end to end and receive the cakes of clay direct from the press. In construction it is designed for hard and continuous use, combining strength, durability and ease of operation. The truck is well balanced, the main axle being located near the center of gravity. The end casters are of ample size and strength. The material of which the truck is made is the best obtainable and the bearings are frictionless. The end casters are provided with improved swivel bearings.

Weight —

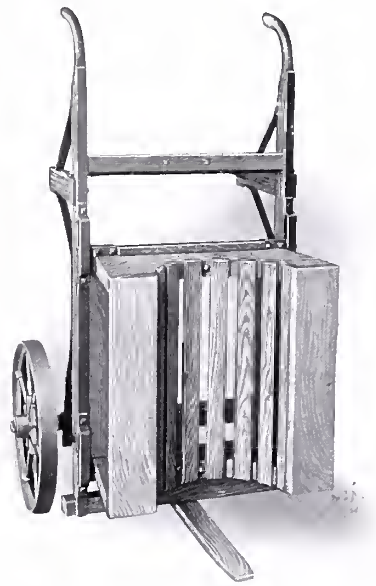
297 pounds.

Dimensions

Length of Bed	6 ft. 6 in.
Width	2 ft.
Height from floor to top of Bed	1 ft. 8 in.
Diameter of Wheels	18 in.
Face of Wheels	$3\frac{1}{2}$ in.
Bore of Wheels	$1\frac{1}{8}$ in.
Diameter of Axles $1\frac{1}{4}$ in. and turned down to $1\frac{1}{8}$ in. in bearing.	
Diameter of end Casters	6 in.
Face of end Casters	$2\frac{1}{2}$ in.



American No. 1 and No. 2 Spring Saddle Truck



This truck is used for handling large pipe from dry floor to kiln. Its design and construction make it particularly adapted for this work. The springs prevent breakage of ware.

Capacity —

The No. 1 Truck will handle pipe from 10 to 16 inches.
The No. 2 Truck will handle pipe from 18 to 24 inches.

Specifications

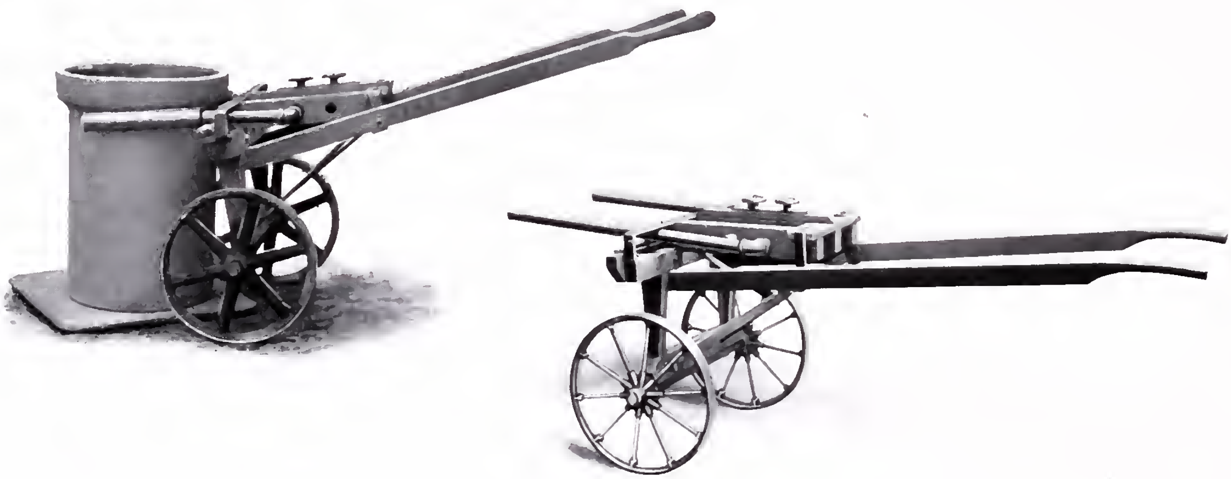
This truck is made of selected material and is carefully constructed. It is securely ironed and braced and has springs to take up shocks and prevent breakage of wear. The workmanship is first-class.

Dimensions

	No. 1 Truck	No. 2 Truck
Size of Wheels	$17\frac{3}{4}$ in. x 2 in.	$17\frac{3}{4}$ in. x 2 in.
Height of Deck	$15\frac{1}{8}$ in.	$16\frac{1}{8}$ in.
Width over all	2 ft. $9\frac{1}{2}$ in.	2 ft. $9\frac{1}{2}$ in.
Length over all	4 ft. $4\frac{5}{8}$ in.	4 ft. $10\frac{7}{8}$ in.
Weight	128 lbs.	160 lbs.

American No. 740 Rubber-Cushioned Sewer Pipe Truck

(Minter Patent)



This truck is designed for handling dry and semi-dry pipe on the floors, and for removing them from the pallet boards and closing up for reserve kiln stock. It may also be used for returning the pallet boards to the press.

Capacity —

This Truck will handle all size pipe from 15 to 24 inches.

Specifications

Advantages —

By the use of this truck the press can be run with fewer boards, owing to the fact that the truck can be used to lift the pipe from the boards and place it on the slatted dry floor as soon as the sockets begin to harden.

This makes more room on the dry floor, hastens the drying and eliminates all trimming and waste which might be carried into the kiln on the boards. The use of this truck saves loss of time in loading and unloading and prevents chipping and disfiguring the pipe, for the reason that it is maintained in practically a vertical position at all times.

Design —

The truck consists of a set of wheels and an axle on which is bolted a main supporting frame. From beneath the cross-head three arm supports extend back towards the handles. The rear ends of these arm supports are bound together by a sub-cross-head, from each end of which a drop iron is bolted to the handles, forming an elastic supporting frame. The center arm support has two hand-wheel clamps, to hold the arms rigidly where ever set. This makes the truck quickly adjustable to any size pipe. The supporting arms rest upon a rubber cushion where they pass over the main cross-head, which gives them an elastic bearing to support the load. The arms, where they come in contact with the pipe, are encased with heavy rubber tubing, and the vertical frame, likewise, is faced with rubber at all points of contact to prevent injury to the pipe while in transit.

Wheels —

The wheels are of our standard type, 22 inches diameter, 2 inches face, with oval steel spokes.

Weight —

215 pounds.

Dimensions

Diameter of Prongs	$1\frac{3}{4}$ in. plus rubber cushions.
Height above floor	32 in.
Minimum distance between Prongs	16 in.
Maximum distance between Prongs	30 in.
Length of Handles	77 in.
Distance between Handles	23 in.
Diameter of Wheels	22 in.
Face of Wheels	2 in.
Size of Axle	$1\frac{1}{4}$ in. square by 36 in. long
Length over all	96 in.
Width over all	40 in.

American No. 1 and No. 2 Viall Truck

This truck is designed for handling and turning sewer pipe. It is handy, strong, durable and efficient.

Capacity —

The No. 1 Truck will handle 20 to 24-inch pipe, weight 168 pounds.
The No. 2 Truck will handle 27 to 36-inch pipe, weight 183 pounds.

Operation —

As the sewer pipe emerges from the press, bell end down, the truck is run up to receive it. The one large prong is pushed beneath the pallet upon which the pipe rests. The truck is then lowered to the position shown in the cut. The cradle containing the pipe is mounted on a pin or swivel and has a sliding base. This cradle is pulled towards the handles of the trucks and slides easily on the grooved base. When the cradle has been pulled forward it is swung around on its swivel until the position of the pipe has been reversed with the plane end down. The truck is then righted to a perpendicular position, which deposits the pipe on the pallet plane end down, and it is transferred to the dry house.

Specifications

The frame of this truck is made of the best selected oak, securely ironed and braced. The cradle is made of wood, carefully slatted. The wheels are cast iron. The prong is steel and the slides in the base are faced with steel.

Dimensions

Size of Wheels	11 in. x $2\frac{1}{4}$ in.
Distance through Hub	$3\frac{1}{4}$ in.
Size of Axles	$1\frac{5}{8}$ in.
Length over all	5 ft. $4\frac{7}{8}$ in.
Distance between Handles	$20\frac{7}{16}$ in.
Length of Prong	2 ft. 6 in.

American No. 1 and No. 2 Pronged Pipe Truck

This truck is intended for moving large pipe or tile from the machine to dry floor and for transferring them about the plant.

Capacity —

The No. 1 Truck will handle pipe from 12 to 15 inches.
The No. 2 Truck will handle pipe from 15 to 24 inches.

Specifications

The handles are of selected wood, are long with well-designed grips. The wheels are steel; large, to insure easy running. The prongs are long, to make it possible to pick up pipe quickly.

Dimensions

No. 1 Truck

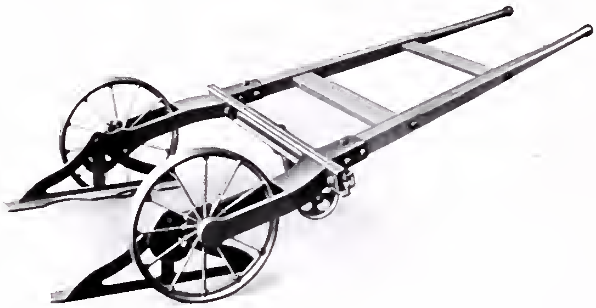
Size of Wheels.......17¼ in. x 1¾ in.
Size of Axles, 1⅝ in. diameter; 33½ in. long.
Width center to center of Wheels.......28¾ in.
Width over all.......34 in.
Length over all.......5 ft. 5½ in.
Weight.......150 lbs.

Dimensions

No. 2 Truck

Size of Wheels.......22 in. x 2 in.
Size of Axles, 1⅝ in. diameter; 46½ in. long.
Width center to center of Wheels.......41 in.
Width over all.......49 in.
Length over all.......6 ft.
Weight.......170 lbs.

American No. 751 Side-Lift Pipe Truck



This truck is designed for handling 18-inch, 20-inch, 22-inch and 24-inch sewer pipe on pallets from the press to the dry floor.

Specifications

General —

This truck operates on the lever principle, and as the fulcrum is located close to the center of gravity of the load, the operator is enabled to handle 24-inch single and double pipe with ease. The loaded pallet is lifted by substantial cast iron side brackets. By raising the handles the brackets pass close to the floor under the edge of the pallets, and by lowering the handles the load is lifted from the floor. The wheels run on 1⅛-inch x 6-inch steel axles, which are securely fastened on the wheel frame. The adjustment for different sizes of pallets is secured by loosening the nuts of the bolts which hold the wheel brackets to the main frame. The heads of the bolts slide laterally in slots in the frame so that any desired adjustment for width of pallet can be quickly made. The maximum width of pallet is 43½ inches.

Frame —

The frame is of seasoned hardwood and the handles are provided with cross-braces and tie-rods. Handles are sustained in a convenient position for the operator by the trolley wheel, which is held in an adjustable clevis.

Wheels —

The wheels are of our improved type with heavy cast rims and hubs and with twelve ⅜-inch x ¾-inch oval steel spokes. Wheels are 21 inches in diameter, 2½ inches face. The hubs are fitted with self-closing oilers.

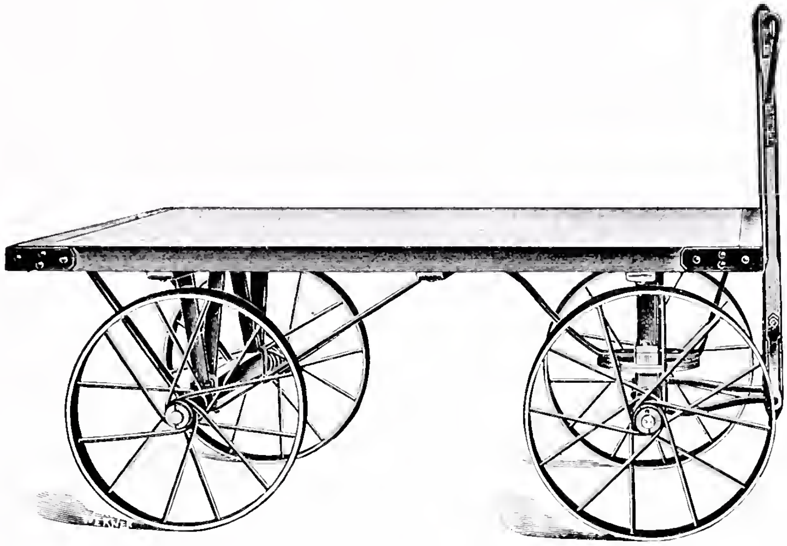
Weight — 350 pounds.

Dimensions

Length over all	7 ft. 10 in.	Distance through Hubs	3½ in.
Width	4 ft. 5¼ in.	Diameter of Third Wheel	8 in.
Diameter of Wheels	21 in.	Face of Third Wheel	1½ in.
Face of Wheels	2½ in.	Bore of Third Wheel	¾ in.
Bore of Wheels	1⅛ in.	Maximum width of Pallet	43½ in.

Length of Handles	4 ft. 9 in.
Distance center to center of Handle Grips	22½ in.
Diameter of Handle Grips	1¼ in.
Distance center to center of Handles where they are attached to frame	38⅞ in.

American No. 1 Platform Pipe Wagon



This wagon is designed for handling hollow ware and clay products, either green or burned, where it is not desired to use a spring wagon. It was built to meet the requirements of one of the largest clay manufacturers and has found a ready market.

Capacity —

1,500 to 2,000 pounds.

Specifications

Details of Construction —

This wagon is well built of the very best materials. It is carefully ironed and braced. The wrought iron fifth wheel is of large diameter. All wood used in the frame and deck is of the very best thoroughly seasoned hardwood.

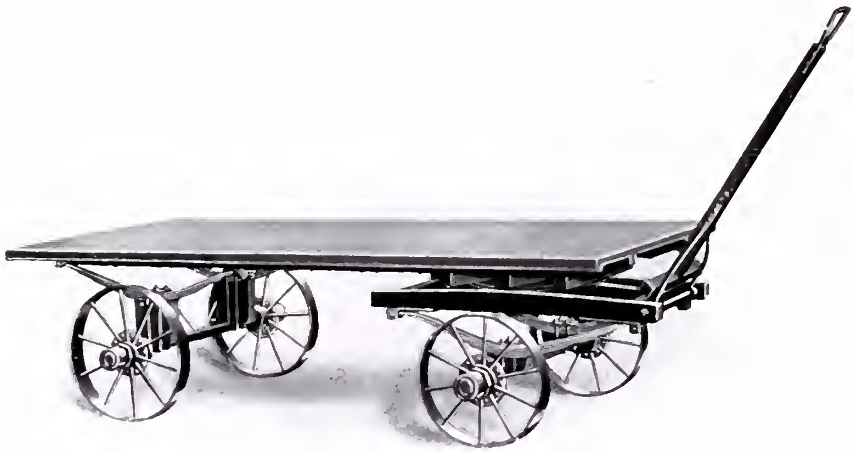
Weight —

273 pounds.

Dimensions

Length of Top	5 ft. 6 in.
Width of Top	3 ft.
Height above floor	2 ft. 3 in.
Diameter of Wheels	22 in.
Face of Wheels	2 in.
Diameter of Axle at Bearing	$1\frac{1}{8}$ in.

American No. 2 Spring Platform Pipe Wagon



This wagon is designed for handling small pipe from the press or elevator to the dry floor or kiln, or for general use about any clay plant.

Capacity —

1,000 to 1,500 pounds.

Specifications

Details of Construction —

All wood used in the frame and deck is the best obtainable seasoned hardwood. The wheels are of our latest improved pattern, with oval steel spokes, cast iron rims and hubs. They are equipped with pressed steel caps and cage roller anti-friction bearings. This construction makes the wagon run very light when well loaded.

Weight —

475 pounds.

Dimensions

Length of Platform	8 ft.
Width of Platform	3 ft. 4 in.
Diameter of Wheels	20 in.
Face of Wheels	$2\frac{1}{2}$ in.
Size of Axle	$1\frac{1}{8}$ in. x $1\frac{1}{8}$ in.
Size of Springs	$1\frac{1}{2}$ in. wide x 30 in. long, 4 leaf
Height of Deck from floor	26 in.

American No. 542 Hand Pipe Wagon

This wagon is designed for handling sewer pipe, tile, hollow ware and other clay products, and also for general service in clay or sewer pipe plants.

Capacity —

From 1,500 to 2,000 pounds.

Specifications

Height —

The extreme height of the platform is only 18 inches above the floor level, hence it will be found especially valuable wherever it is desired to have the load close to the ground. The center of gravity in the loaded truck is kept well down and the possibility of overturning it, is reduced to a minimum.

Details of Construction —

It is made of hardwood, framed and iron banded on the corners. It is supported by strong, forged iron braces. The handle is made of hardwood and is fitted with springs to hold it in a vertical position when loading and unloading, and to prevent its dropping to the ground. It is provided with a strap loop through which ropes may be passed in case it is desired to hitch two or three of the cars together and handle them by mule power in tandem form.

Wheels —

The wheels are made with cast iron hubs and rims, and with wrought steel spokes of oval section. They are provided with protected steel pin bearings of approved design, which make the truck run very light when heavily loaded.

Weight —

270 pounds.

Dimensions

Height of Deck above floor level	18 in.
Length of Deck	5 ft. 6 in.
Width of Deck	3 ft.
Size of Front Wheels	14 in. x 2½ in.
Size of Rear Wheels	15 in. x 2½ in.
Diameter of Fifth Wheel	14 in.
Size of Axle	1⅛ in. x 1⅛ in.
Distance from center to center of Tread Face of Wheels	2 ft. 5½ in.

American No. 1 Mule Truck

The No. 1 Mule Truck is designed for use about sewer pipe plants and brick yards, and is used also extensively in fire-proofing and brick plants where shipments are made by water.

Capacity —

6,000 pounds.

Specifications

Details of Construction —

The woodwork is made of the best selected seasoned hardwood, ironed off in a very strong and durable manner. The wheels are equipped with steel anti-friction pin bearings. The truck shown in the illustration is constructed with a hand brake, which is omitted unless especially ordered. This illustration shows a tongue attachment for handling brick by hand. When so ordered it can be provided with thills, and the illustration shows lugs over which the thills are hooked.

Weight —

920 pounds.

Weight of Shafts —

100 pounds.

Dimensions

Length of Platform	7 ft. 6 in.
Width of Platform	4 ft.
Height of ends	2 ft. 8 in.
Height of Platform	2 ft. 6 in.
Diameter of Front Wheels	22 in.
Diameter of Rear Wheels	24 in.
Face of all Wheels	4 in.
Diameter of Fifth Wheel	22 in.
Size of Steel Axles	1½ in. x 1½ in.

American No. 0 Mule Truck

This truck was designed primarily as a hand wagon for handling dry or burned hollow ware about the factory, yard and kilns. It may also be constructed as a light mule truck and provided with a pair of detachable thills.

Capacity —

1,500 to 2,000 pounds.

Specifications

General —

This truck is built of thoroughly seasoned hardwood, substantially ironed and thoroughly braced and is supplied with large fifth wheel. By means of the end boards at front and back the load is carried without danger of falling off. The bracing, axles, wheels and all iron work are of heavy design, thereby insuring a strong, durable and convenient truck.

Weight —

Weight of Mule Truck with Tongue, 380 pounds.
Weight with Shafts, 480 pounds.

Dimensions

Width of Top	3 ft.
Length of Top	5 ft. 6 in.
Height of Deck above floor	2 ft. 3 in.
Height of End Boards	2 ft.
Diameter of Wheels	22 in.
Face of Wheels	2 in.
Distance through Hubs	5 in.
Diameter of Axles with Bearings	1⅛ in.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.

Sewer Pipe Department

Sewer Pipe Machinery

The demand for better machinery in modern sewer pipe plants has led to almost a complete revolution in the building of this class of clay-working machinery and appliances.

In these improvements The American Clay Machinery Company has taken a leading part. Our machinery has long been recognized as being well designed and exceptionally well built. A superior combination of methods, material and workmanship has given our line of sewer pipe machinery and appliances a quality which is recognized and which is an assurance of successful operation.

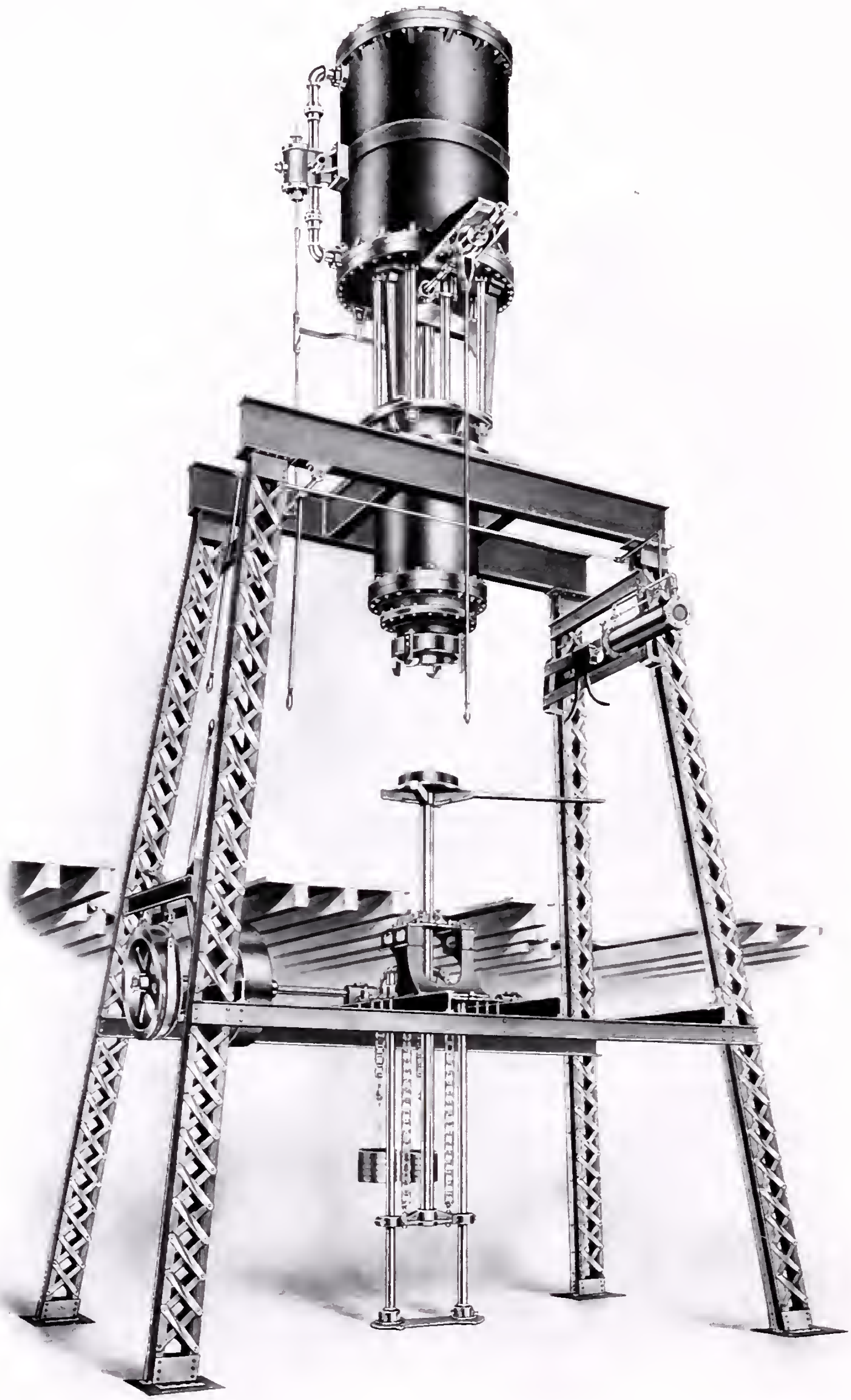
The clay cylinder is ample and is carefully fitted and bolted, being substantially reinforced. The shafting, disc rod, connecting rods and pistons are large and made of steel; the valves are large and of approved type. In a word, each machine is, in every detail, built according to high-grade engine practice. Our line of cutters includes both automatic and hand power, and we make trucks, rounders, formers, trays, turners, drums and other appliances, as well as any dies which may be required. The frames are carefully made of steel, our steel channel lattice-work frame being a most substantial setting for this class of machinery. The designing of sewer pipe plants for the economical handling of material and ware has been made a special study by our Engineering Department and we will be pleased to take up the matter with those interested.

American 52-Inch Steam Sewer Pipe Press

This press embodies in its construction the results of twenty years' experience in manufacturing and operating this class of machinery. It is very heavy and massive in all its details, and has been designed especially for the most exacting demands of modern plants, and for effective service in making the larger sizes of pipe, such as 24-inch, 30-inch and 36-inch single and double strength.

This press has a steam cylinder 52 inches diameter with a 60-inch stroke of piston. The main steam valve is of the balanced piston type, $4\frac{3}{4}$ inches inside diameter. The valve cylinder is bushed, and the piston fitted with snap rings, which effectually prevent leakage of steam. The live steam connections are $3\frac{1}{2}$ inches, the exhaust 3 inches.

The clay cylinder is 28 inches inside diameter, bushed with sectional cast iron bushings $\frac{5}{8}$ inch thick to the bottom of the stroke. There is an outside flange on this cylinder, $14\frac{1}{2}$ inches from the top, which rests upon a finished iron plate which is attached to the 15-inch "I" beams that support the press. This supporting plate is made in halves, so that it may be



American 52-Inch Steam Sewer Pipe Press

slipped into position and bolted together after the press is elevated to its proper position, a great convenience in making the installation.

The steam and clay cylinders are connected with three iron spanners, having finished tenons fitting in corresponding mortises in the cylinder heads. Six 2½-inch steel tension rods bind the cylinders together.

There are three cold drawn steel piston rods 3 inches in diameter. These are provided with stuffing boxes of approved design.

The hollow core stem, 4¾ inches in diameter, which supports the cores, and through which the knife cutter rod passes, is hung at the top in a three-arm steel yoke attached to the cylinder spanners, at a point immediately underneath the steam cylinder. This core stem is centered at the lower end by means of corrugated steel arms attached to a ring surrounding the stem, and connected with adjusting set-screws that pass through the clay cylinder shell.

The clay piston is 28 inches in diameter, 4½ inches in thickness, and is fitted with a crowning cover, and provided with three air valves. It is bushed on the outside with a removable steel ring, and with a bronze bushing in the center around the core stem.

The disc rod is made of finished steel tubing, and is provided with four adjustable concave guide rollers, and two vertical guide bars. The latter are made of 2-inch square cold rolled steel, with both upper and lower ends mounted in adjustable bearings. The yoke on the lower end of the disc rod is fitted with adjustable brass bushings about the square guide rods. By this mechanism the perfect alignment of the disc rod can be maintained at all times.

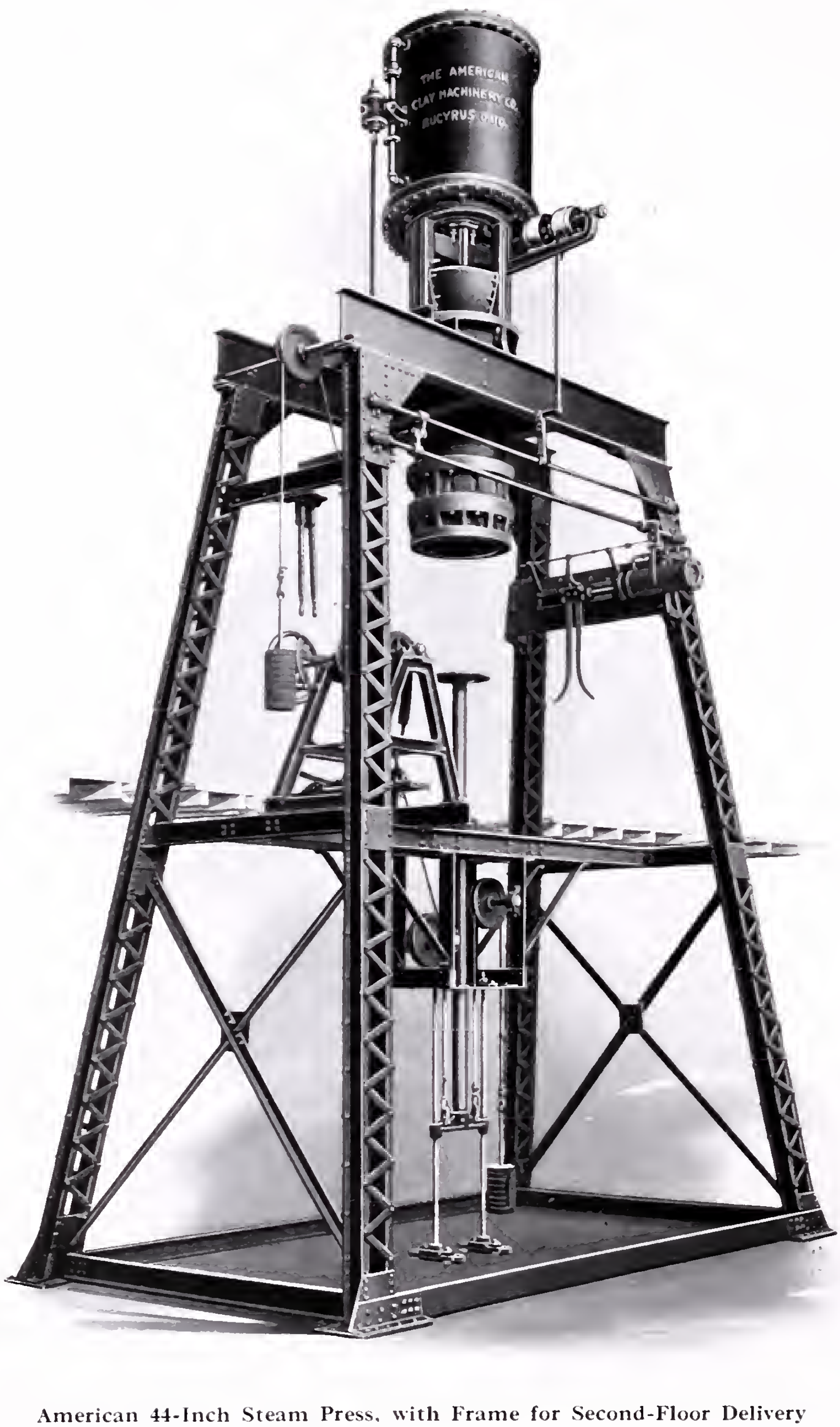
The power disc rod controller is operated by a friction-clutch pulley and by a friction brake, the levers to both being conveniently under the control of the pressman.

When the press is to be used for making small pipe, or other light-weight products in the making of which rapid action of the disc rod is desirable, we can furnish a combined hand and power horizontal controller. When so constructed the change from the power to hand controller is easily made and the same smooth, rapid action of the press is obtained that has made our smaller presses such favorites with the trade. For this combination an extra charge is made. We fit this machine with our latest improved knife cutter, belt driven, with twin friction-clutch pulleys as shown in accompanying cut. Cutter knives are not furnished unless dies accompany the press. An 8-inch steam die locker is furnished with the press, and attached to the frame as shown.

All levers necessary for operating the press are placed convenient to the pressman.

We can supply with this press two face plates for receiving dies, one for the standard die plates used on the 20-inch clay cylinders, including sizes up to 24 inches, the other for 27-inch, 30-inch and 36-inch dies.

It is not advisable to use this press without the steel frame. The 28-inch press and frame are in consequence always sold together.



American 44-Inch Steam Press, with Frame for Second-Floor Delivery

American 44-Inch Steam Sewer Pipe Press

The 44-inch Press is Built in Four Sizes:

Steam cylinder, 44 inches diameter; 50-inch stroke; clay cylinder 20 inches diameter.
Steam cylinder, 44 inches diameter; 50-inch stroke; clay cylinder 22 inches diameter.
Steam cylinder, 44 inches diameter; 62-inch stroke; clay cylinder 20 inches diameter.
Steam cylinder, 44 inches diameter; 62-inch stroke; clay cylinder 22 inches diameter.

This type of press is built in a very strong and substantial manner throughout. It is strictly a heavy-duty press. Its construction is of the most modern type, great care having been taken to secure rapid operation, correct alignment, suitable provision for adjustment and repair of working parts, together with ease of erection.

The steam cylinder is designed for a safe working pressure of 150 pounds, with an ample factor of safety. It is fitted with three cold drawn steel piston rods, each of which is provided with a suitable stuffing box. Live steam connections, 3 inches. Exhaust connections, 2½ inches.

The clay cylinder is made in three sections. The upper section is bushed with removable rings to the bottom of the stroke of the clay plunger. There is a heavy double flange on the outside which rests on the "I" beams of the frame on which the press is supported. The middle section contains the adjusting guides to the hollow core stem. The lower section is that to which the dies are attached, and may be constructed to suit any style of die in common use. The diameter of our standard die ring, and the number and diameter of die bolt holes, are uniform with those in use by most other press-makers, so that dies of other makes can usually be attached to this press without alteration.

The clay piston is bushed about the hollow core stem in the center with a bronze bushing, and is fitted with three air valves and a removable crowning cover.

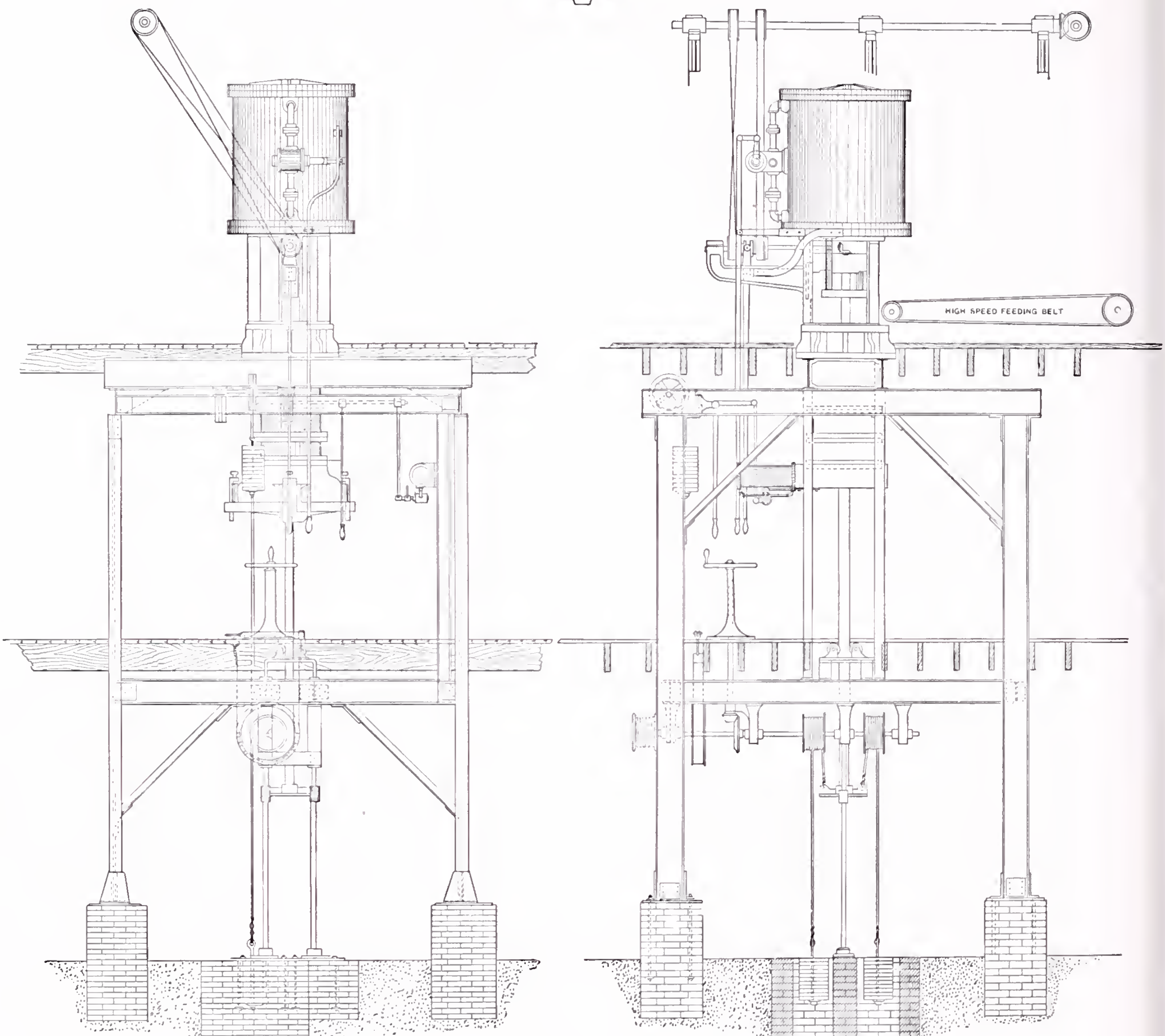
The steam and clay cylinders are connected with a cast spanner made in one piece, having turned mortises on both ends to fit corresponding tenons in the lower steam cylinder head and in the upper clay cylinder flange. Six ¾-inch steel rods pass through the spanner and bind the cylinders together. This construction insures great strength and rigidity, and at the same time maintains perfect alignment of working parts, cylinders, pistons, piston rods and core stem.

The main steam valve is of the balanced piston type. This gives the operator perfect control of the press. A safety lever is connected with the steam valve, so that the steam is automatically cut off when the piston reaches the upper end of the stroke.

The disc rod is made of finished steel tubing. It is kept in perfect alignment by means of four concave adjustable guide rolls and two cold rolled steel guide rods, the bearings for which are adjustable in all directions. The disc rod is counter-balanced by weights which may be varied to suit different sizes of pipe. The weights which are located under the operating floor remain constant, and those near the pressman are changed as occasion requires.

We equip the press with either a vertical controller, bevel geared, as shown in sectional view "B," or with a horizontal controller, as shown in sectional view "G." In the latter case the counter-balances are connected direct with leather belts to the controlling sheaves, without intermediate gears. Many prefer the horizontal controller. The counter-balance weights in either case are located in the same convenient manner for making quick changes. The speed and capacity of a press are largely influenced by the ease of operation and perfect balance of the disc rod mechanism. In all of our late machines we have made great improvements in these directions by introducing pin bearings throughout.

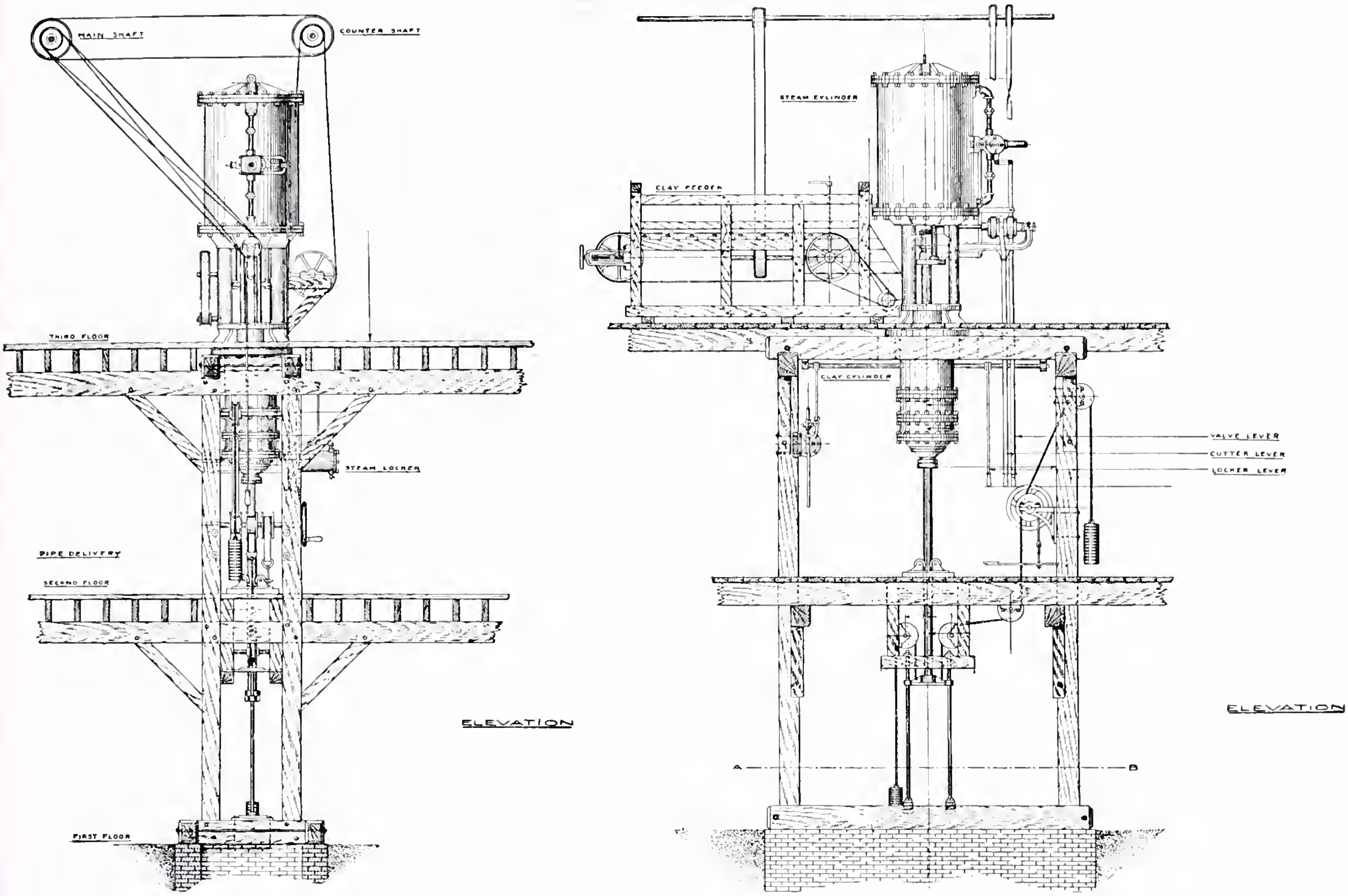
Our patented knife cutter is of very superior design, and is made in three sizes for cutting single and double strength pipe. The mechanism which actuates the knife is contained in a



FRONT ELEVATION SIDE ELEVATION

44-Inch Steam Sewer Pipe Press — Sectional View "B"

small circular case or knife stock, attached to the lower end of the vertical cutter rod, and located immediately under the die core. When the knife case is set in motion in one direction it thrusts the knife through the pipe, and at the same time revolves and severs the pipe.

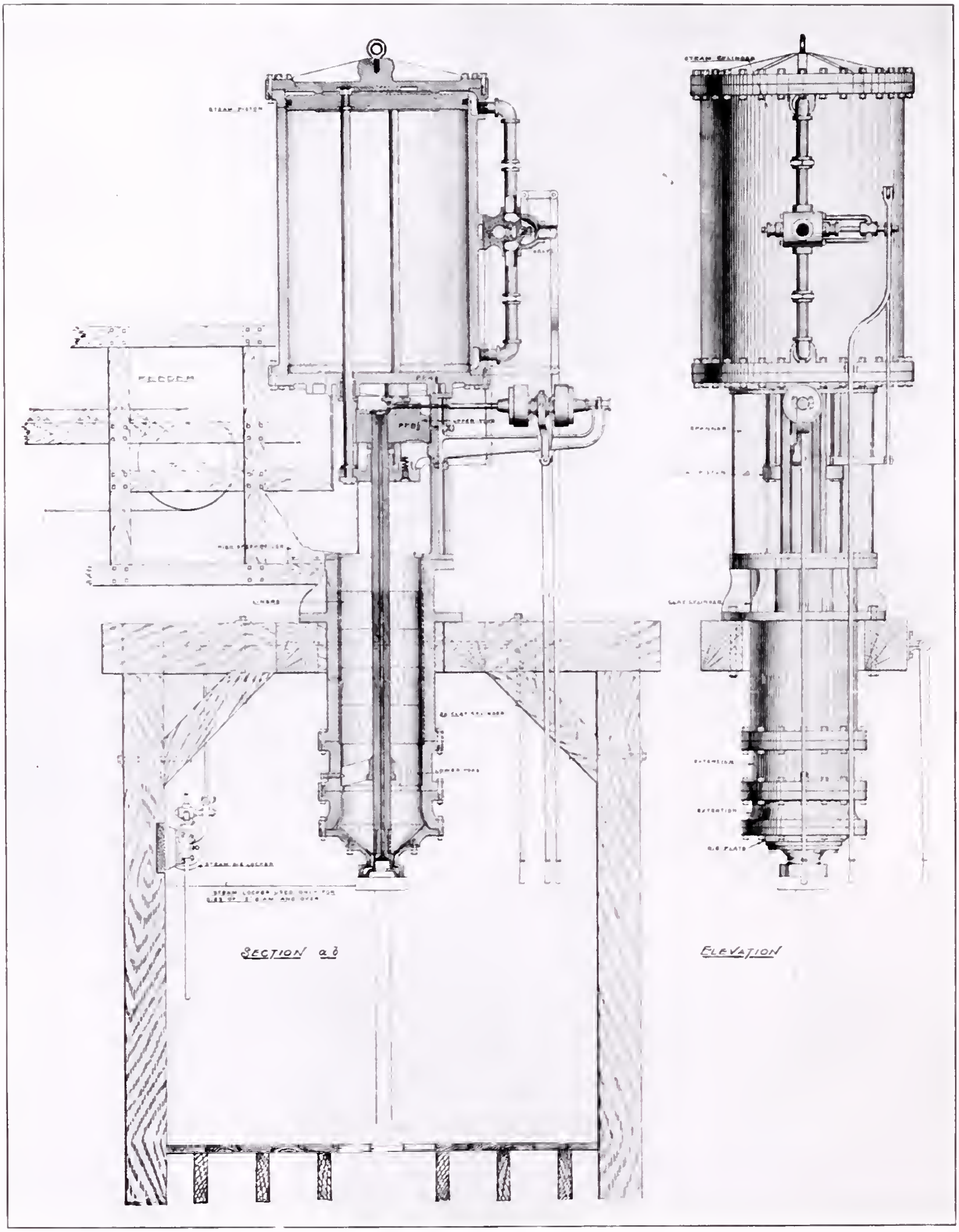


44-Inch Sewer Pipe Press — Sectional View "G"

Reversing the direction of the knife stock withdraws the knife. The action of the knife is positive. The power cutters are driven by twin clutches controlled by a single lever. When the lever is thrown in one direction the pipe is cut, and when in the opposite direction the knife is withdrawn.

We equip all presses with the hollow core stem suspended from above the clay cylinder in a three-arm yoke, which is attached to the cylinder spanners immediately underneath the steam cylinder. This core stem is centered at the lower end by means of corrugated steel arms connected with adjusting set-screws. Our regular automatic knife pipe cutter is used with this hollow core stem, and is driven by a shaft passing through the core stem, and connected with bevel gears to a horizontal pulley shaft at the top. Twin clutch pulleys, with a straight belt on one and cross-belt on the other, drive the cutter shaft, as shown in cut of 52-inch press, also in sectional view "B."

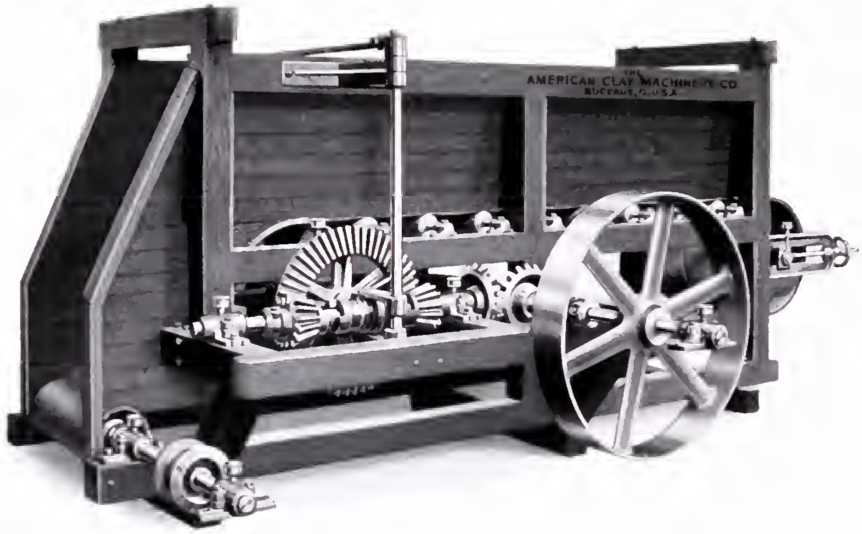
Our socket pipe die patterns are all of modern and most improved design, and include sizes from 3 inches to 24 inches, single and double strength. Dies from 3 inches to 16 inches may be


SECTION a b
ELEVATION

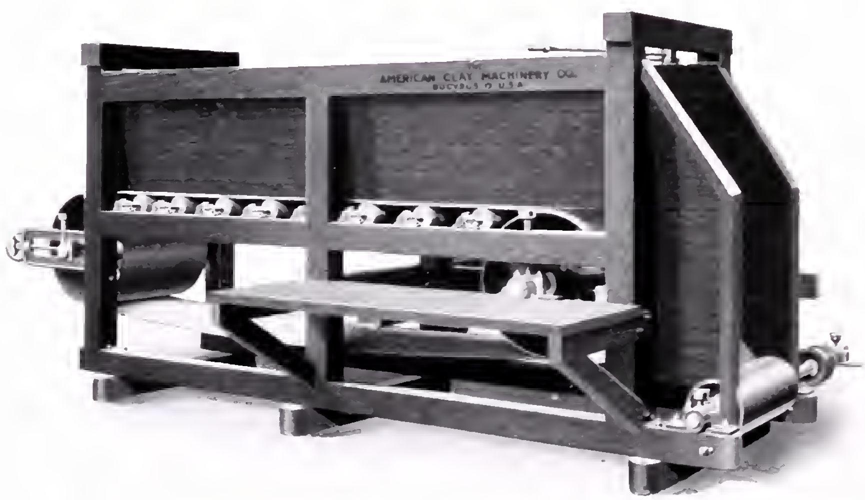
fitted with both inside and outside bushings at a slight additional price. Dies from 3 inches to 10 inches are usually attached to a face plate. A die consists of four pieces, the outside shell, core, socket former and locking lever.

Our 7-inch steam die locker is used on the 44-inch presses. It is a very quick and convenient device for locking and unlocking the socket former on dies from 15 inches up. All levers necessary for operating the press are located convenient to the pressman.

The 44-inch presses are furnished with steel frames. This frame is made for delivering pipe on the first floor or the second floor of the factory, as may be required.



No. 752 Sewer Pipe Press Feeder



No. 752 Sewer Pipe Press Feeder

No. 752 Sewer Pipe Press Feeder

The accompanying illustration represents the standard design of clay feeder, which we manufacture for use in charging the prepared clay into sewer pipe presses.

Capacity —

The feeding capacity of this machine is ample for either a 20-inch, 22-inch, or 28-inch press. The holding capacity of the storage apron is approximately twenty-four cubic feet.

Specifications

General —

This is a strong, well-built feeder, the frame work being constructed throughout of heavy timbers, on which substantial shafting, gears and iron work are mounted.

Drive —

It can be arranged for either right-angle or parallel drive; the one shown in the cut being a right-angle drive.

Shifter —

The storage apron operates in either direction, the shifting lever being conveniently placed. This double movement is accomplished through a pair of right and left-hand hub clutch pinions. By this provision the operator can keep the storage apron uniformly filled at all times throughout its entire length. This insures quick charging of the press.

Supporting Rolls —

The storage apron is supported by a series of rolls. The four at the receiving end of the apron are welded hollow steel tubing, the others are hardwood with steel gudgeons.

Operator's Platform —

The operator's platform, shown in the lower cut, is so located that the operator can watch the accumulation of clay on the storage apron, as well as the movements of the clay piston, and thus be in position to obtain the maximum speed of press action.

Speed Roll —

The feeder or speed roll is independently driven, and is so placed as to effectively prevent clogging of the clay in the process of charging, and at the same time it greatly accelerates the filling of the clay cylinder, and places the material quite uniformly in the cylinder. Many prefer this speed roll to the high-speed feed-belt type of feeder sometimes employed.

Pulley —

The flange driving pulley is 6 inches diameter between flanges, 4½-inch face.

Speed —

400 R. P. M.

Storage Belt —

The 24-inch belt forming the bottom of the storage trough may be of standard make of either stitched cotton or of rubber. The proper tension of this storage apron is secured by means of adjustable take-ups on the rear end bearings so that the apron always responds promptly to the operator's lever.

Driving Pulley —

The standard size of the driving pulley is 36 inches diameter, 6 inches face.

Speed —

85 R. P. M. giving 130 feet of storage belt per minute.

Power Required —

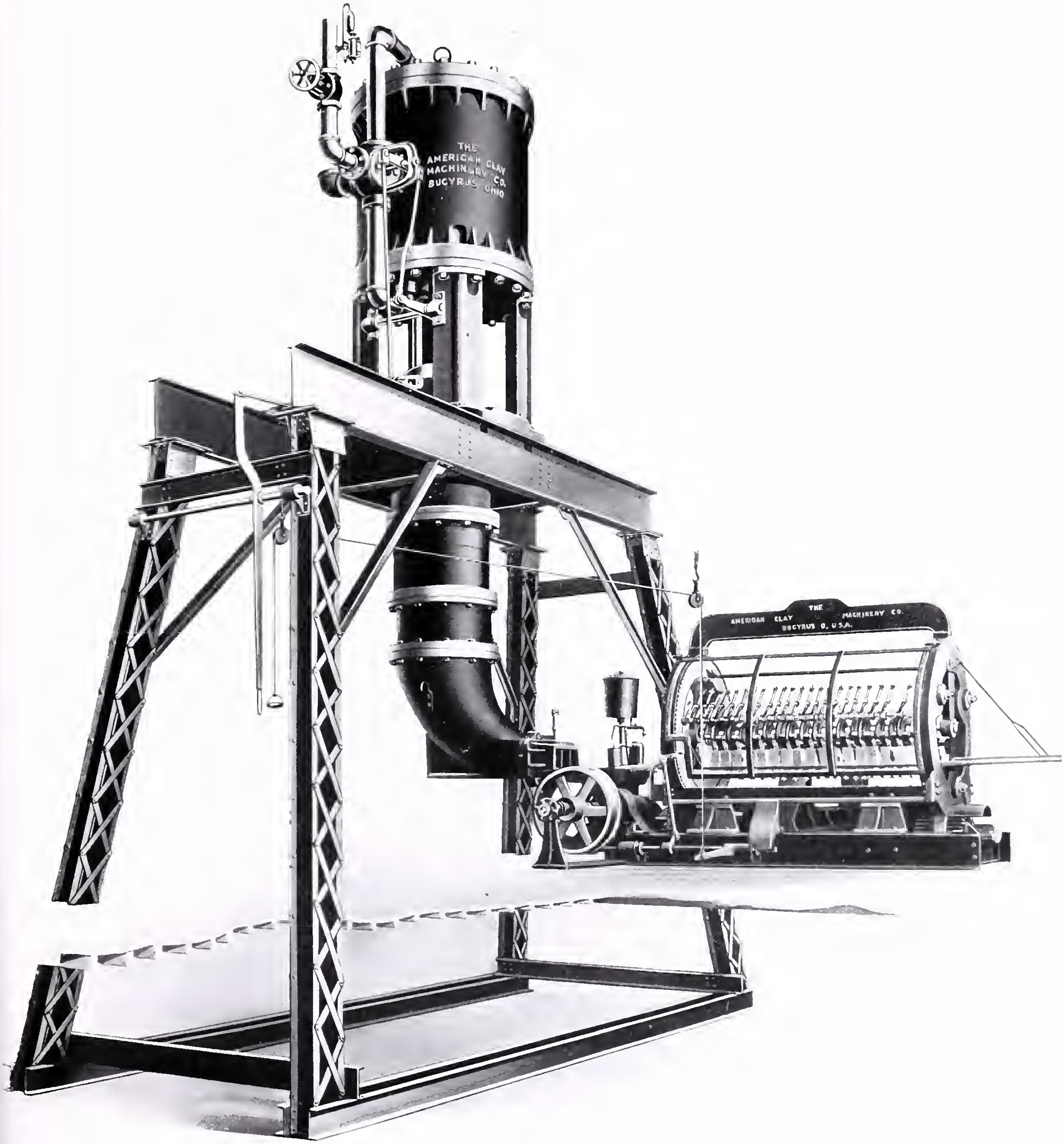
Not to exceed 5 horse-power intermittently.

Weight —

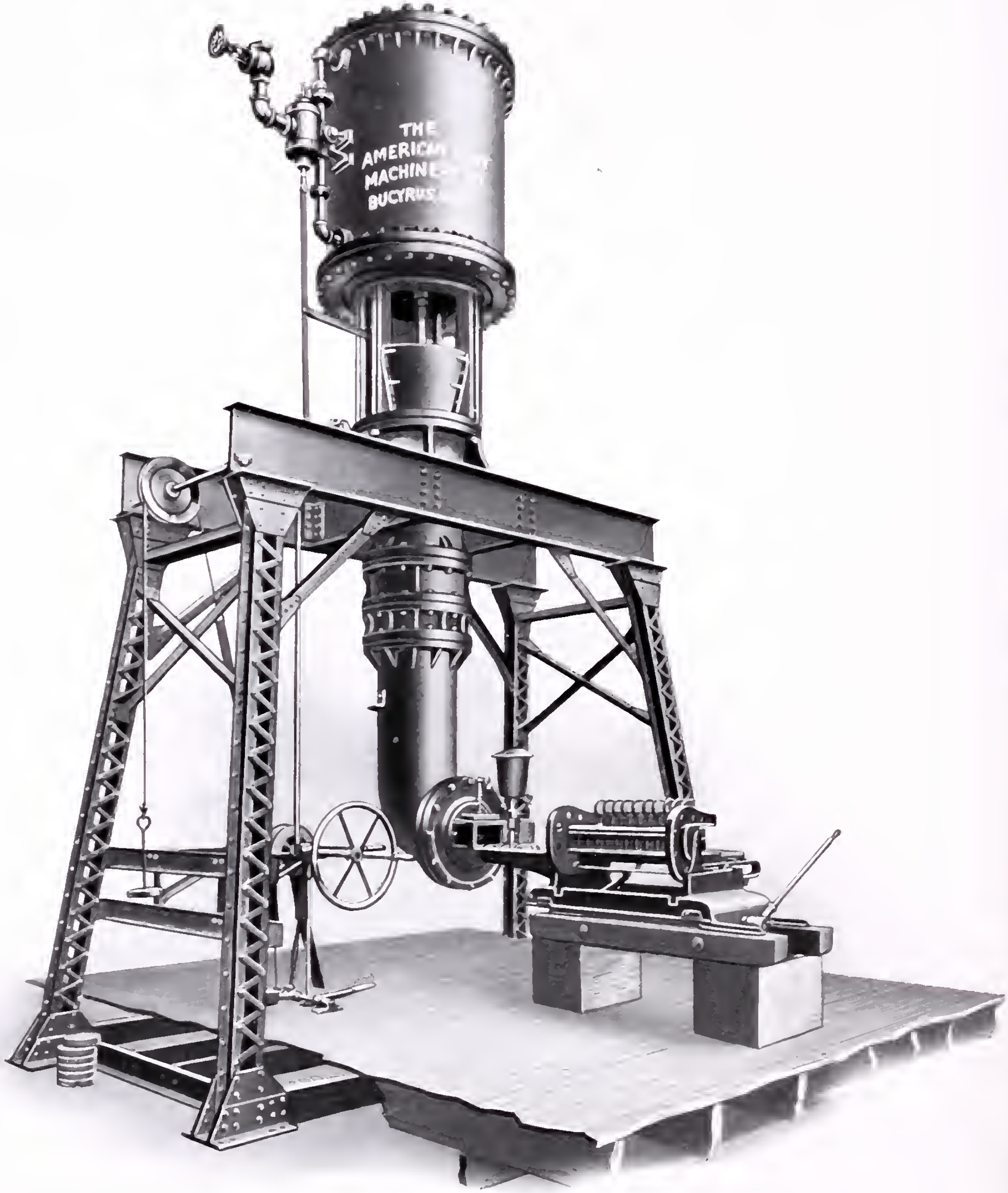
3,350 pounds.

Dimensions

Length over all	14 ft. 2 in.
Height over all	6 ft.
Width over all	9 ft. 9 in.
Height of Operator's Platform	2 ft. 3 in.
Width of Storage Belt	24 in.
Speed of Storage Belt	130 ft. per min.
Height to top of Belt	3 ft. 5 in.



American 44-Inch Steam Sewer Pipe Press, with Goose-Neck and Semi-Automatic Cutter for Making Brick



American 44-Inch Steam Sewer Pipe Press with Goose-Neck and Board Delivery Cutter for Brick

Steam Sewer Pipe Press

Used for the Manufacture of Various Kinds of Clay Products.

While the steam press was developed and is used extensively in the manufacture of sewer pipe in all sizes, it is also well adapted for the manufacture of many other kinds of clay products, such as drain tile, fire-proofing, hollow building blocks, fire brick, fire clay blocks, paving block and building brick. We make and are prepared to furnish all of the necessary attachments required with our steam presses for the manufacture of these different kinds of clay products.

When the press is to be used only for making sewer pipe it is furnished with a steel frame for mounting, so that the pipe will be delivered on the second floor of the factory, but when it is to be used for making brick as well as pipe and other kinds of ware it is furnished with a steel frame for mounting, so that the product is delivered on the first floor of the factory.

Sewer pipe, large drain tile and large sizes of fire-proofing or hollow building block are delivered from the press in a vertical position and the different dies for this class of product are made to bolt on to the lower end of the clay cylinder.

When making fire brick, paving block or building brick it is necessary that the column of clay be delivered in a horizontal position, and to accomplish this a goose-neck is attached to the lower end of the clay cylinder and the dies are made to attach to the goose-neck. Small drain tile and small hollow building tile can be made in this way in a horizontal position. For handling the goose-neck when not in use on the steam press we use the American No. 741 Goose-neck Truck.

For cutting the horizontal column of clay we furnish a semi-automatic cutter of suitable design for the class or kind of ware being produced. Brick or hollow blocks may be cut on the same table. Small drain tile may be cut either on an automatic table or on a hand-power cutter. The operator starts the steam press and forces the column of clay through the die and out onto the cutting table until it reaches the end of the platens, he then stops the press and trips the clutch on the semi-automatic cutter. This puts the cutter in motion and cuts the brick. The cutter automatically stops when the cut is completed. The operator then starts the press and the column of clay issuing from the die forces the brick over the cutter and off onto the off-bearing belt. From the off-bearing belt the brick are taken by hand and placed on dryer cars or they may be repressed directly from the off-bearing belt.

The quality of the ware produced on the steam press is excellent. The capacity of the press is, of course, governed by the nature and character of the clay and the size and kind of ware being produced and by management. A steam press equipped with a 22-inch clay cylinder may be operated at a capacity of from 4,000 to 6,000 bricks per hour or other clay products in proportion.

No. 741 Goose-Neck Truck

This truck is designed for handling the goose-neck which is frequently used in connection with a sewer pipe press for making brick and other materials that it is desired to run and cut off in a horizontal position. The goose-neck is too heavy to be handled conveniently by hand and this truck has been designed to carry it to and from the press.

Capacity —
The truck is of ample strength to easily carry a load of 1,200 pounds.

Specifications

The truck is provided with a structural iron platform securely riveted and with an upright frame and supports conforming to the shape of the goose-neck. It is of the fifth-wheel type. A flange near the top of the goose-neck rests upon a corresponding curved angle at the top of the frame while the lower horizontal part sets in a saddle on the cross-frame.

Wheels —
The wheels are our standard pattern with oval spokes and cast hubs and rims. They are 18 inches diameter, 2 inches face, with 12 spokes. The tongue or handle is made of pipe securely braced and fitted with wooden grips.

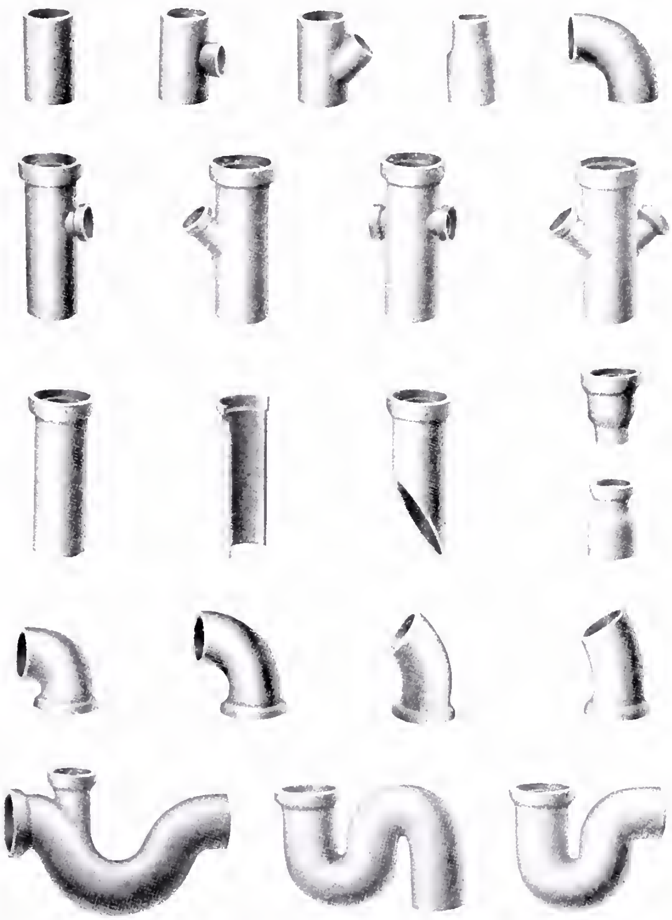
Weight —
775 pounds.

Dimensions

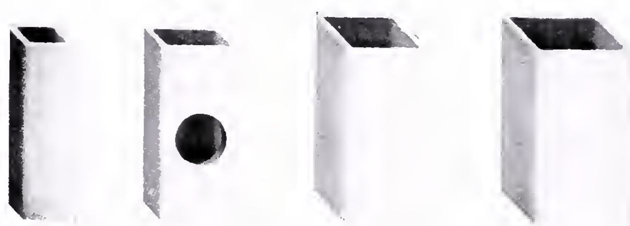
Wheel Base	5 ft.
Length over all	10 ft.
Width over all	4 ft.
Height	6 ft. 3 in.
Height from floor line to bottom of Channel Iron Frame	1 ft. 4 in.
Distance between Hubs of Wheels	3 ft. 2 in.
Size of Pipe used in Tongue	$1\frac{1}{4}$ in.
Diameter of Wheel	18 in.
Face of Wheels	2 in.
Length of Hub	4 in.
Bore of Wheels	$1\frac{3}{4}$ in.

Axles 2 inches square by 3 ft. $11\frac{3}{16}$ inches long.

Standard Sewer Pipe Shapes

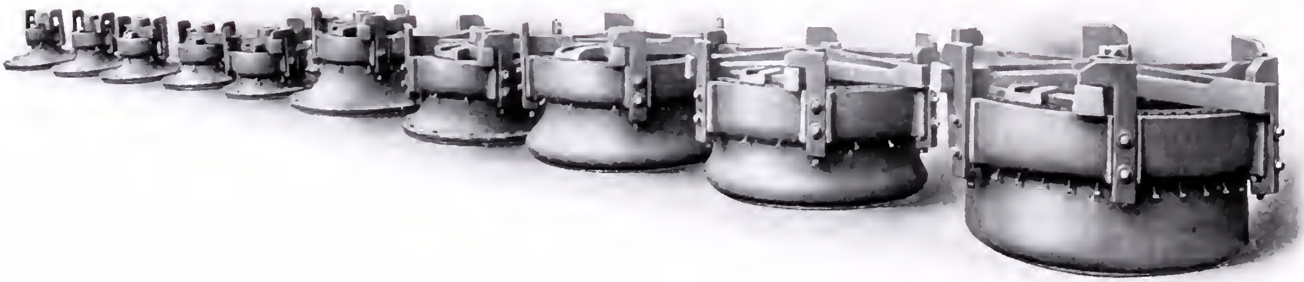


Flue Linings



Sewer Pipe Dies

We give the construction of our sewer pipe dies a great deal of thought, proportioning them so as to give the least trouble possible and to form the pipe with the least waste of time and material. We also take the clay we have to work with into consideration and as nearly as possible shape the dies to suit this material. We spare no time or expense in machining our dies, to get as near as possible perfect working surfaces for the clay to slide on, which is necessary for good working dies. We study the strength necessary and distribute the material and give sufficient weight to insure a high factor of safety and prevent annoying and expensive breaks. Pipe spalling, cracking and warping can often be overcome by designing the dies to overcome the defects.



Set of Sewer Pipe Dies

The accompanying cut shows a set of sewer pipe dies usually sent out with our medium size of presses. The set includes all standard sizes from 4 inches up to 24 inches. Larger dies are furnished with our larger presses. Our dies are accurately planed and fitted; are unexcelled in quality.

Turner

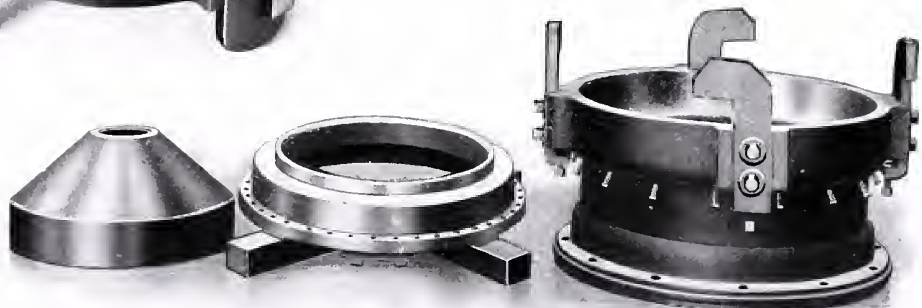
Tray

Drum

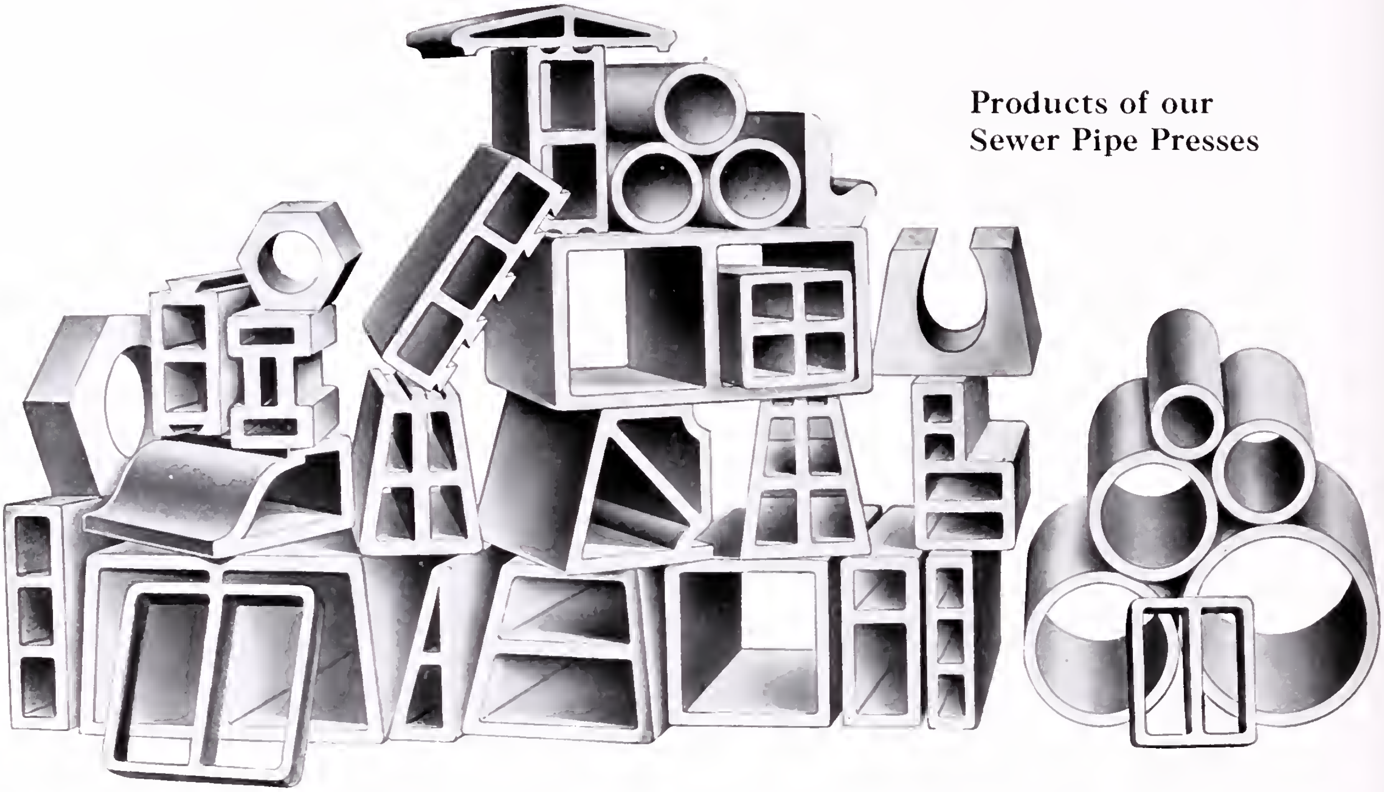
Rounder

Sewer Pipe Dies

We make Sewer Pipe Dies to order. The accompanying cuts show the various parts of one of our pipe dies.



Socket Boards



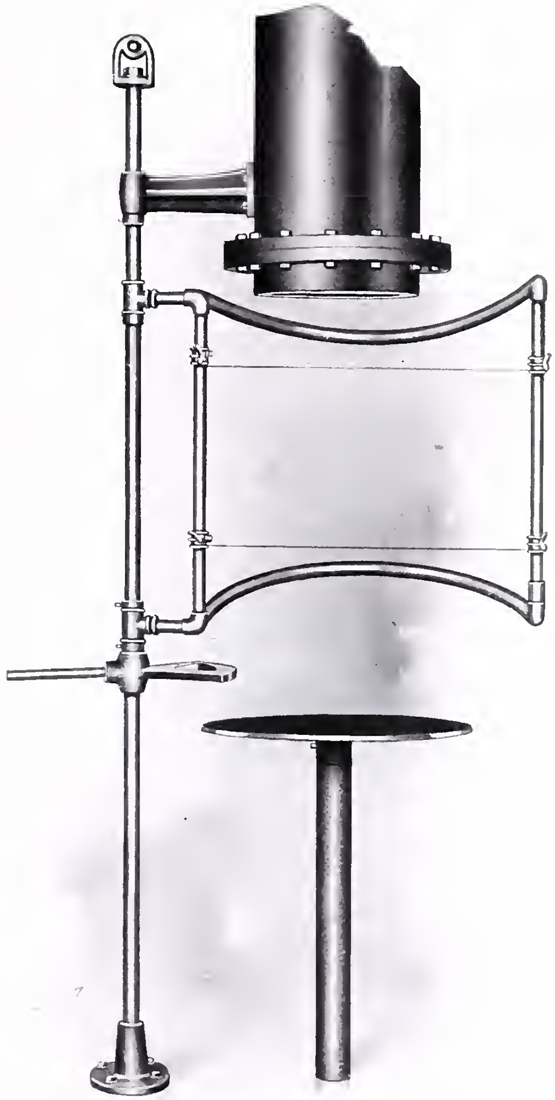
Products of our Sewer Pipe Presses

Clay Conduits

Three, Four and Six-Duct Conduits

One, Two and Nine-Duct Conduits

American Balanced Bow Drain Tile Cutter



Balanced Bow Drain Tile Cutter, for Sewer Pipe Press

Our Balanced Bow Cutter has been especially designed for cutting drain tile, hollow block, conduits and hollow fire-proofing. For this class of hollow ware this cutter will be found neat, strong, light and serviceable. It is well designed, strong, and works free and easy, making a clean cut. This cutting table can be attached to our 44-inch sewer pipe press. It is designed with a substantial vertical turned shaft, passing through a bracket guide which is bolted to the side of the clay cylinder of the press and through a guide casting secured to the floor. To the upper end is attached a chain or cable which passes over grooved rollers and to which weights are attached sufficient to balance the cutter. The wire frame is made of pipe and two sets of wire fasteners are provided. The wire frame is mounted loose on the vertical rod, so as to swing on same in cutting the ware. The gauge is also mounted on the vertical shaft to gauge the length of the ware. The shaft and cutter frame can be raised and lowered at will and are easy to handle.

American Horizontal Hollow Block Cutter for Sewer Pipe Press

Where hollow blocks, conduit, drain tile and similar ware is made on a sewer pipe press a better method of cutting than that usually supplied becomes necessary. For the cutting of this class of hollow ware we have designed our horizontal cutter, shown in the accompanying cut. This cutter is built in a light, strong and very durable manner, to give an easy movement and insure long-continued satisfactory service. The material from which this cutter is built is care-

fully selected and the workmanship is superior. It consists of a table resting on top of the balance or disc rod of the sewer pipe press. This table has suitable adjustable guides for receiving a horizontal reciprocating wire frame, having two upright wire bars, to which adjustable wire holders are attached. This permits different lengths of ware to be cut. The reciprocating frame is large enough to cut one block at a stroke and another at the return stroke without returning the wire through the cut. A pallet, or board with cleats, is placed on top of the table to receive and handle the larger blocks or tile.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.

Dry Press Brick Machinery

In the manufacture of high-grade dry press brick nothing is more essential to success than the proper preparation of the clay. It should be carefully and thoroughly ground, pulverized and screened to the consistency of flour and should be delivered to the press in practically a dry condition, only a small amount of moisture being incorporated with it.

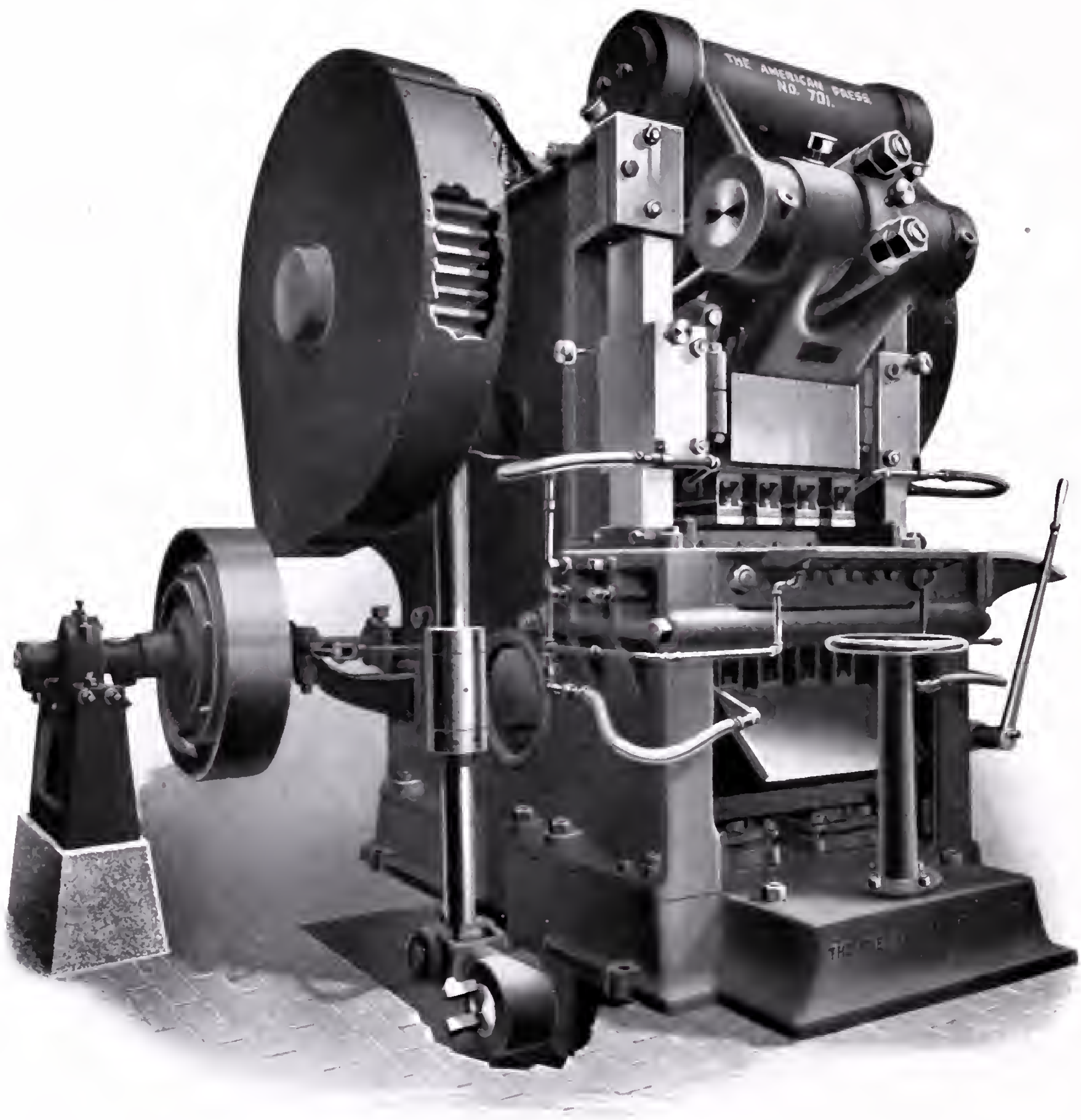
The prepared clay is deposited in bins directly over a revolving press feeder or over the hopper of the press, the press feeder or bin being connected with the press hopper by two flexible canvas tubes. At each revolution of the machine the automatic charger moves forward, fills the molds and withdraws. The top and bottom plungers then move toward each other in the mold, subjecting the material between them to an enormous pressure from both top and bottom. This double pressure insures a dense, compact brick, containing the greatest possible amount of material, and does away with soft centers and stratified texture when burned. Each brick comes from the press with sharp, well defined corners, perfect angles and highly polished sides. The brick are raised in the molds under pressure and are ejected by the lower plunger. The forward movement of the charger pushes the brick upon the table, from which they are removed by the attendant to the trucks, barrows or dry cars, and the operation is repeated.

It is the practice of some factories to set the brick directly into the kiln from the press, while others prefer to dry them in an artificial dry kiln before they are burned. While the advisability of drying before burning depends somewhat on the nature of the clay, it is generally conceded that more uniform results and a more desirable product can be secured if the brick are dried.

The amount of clay that can be successfully compressed into a brick of a given size depends largely upon the nature of the clay and the length of time the pressure remains upon the brick. Our machines are provided with a feed regulator for controlling the amount of clay the charger deposits in the mold. The feed may be quickly changed by means of a simple mechanism placed underneath the discharging table within easy reach of the operator.

In building our Dry Press Brick Machinery we use the best and most generously proportioned steel shafting, long bearings and proportionately strong gearing. In those parts which sustain the greatest strain and are subject to the most severe service, steel forgings and steel castings are employed. The mold frames are very heavy and are conveniently constructed for making quick changes of liners, for the purpose of regrinding, or for a change in size. Interchangeable liners of the most durable materials are used. They can be reground when worn. The upper and lower plungers are arranged for steam connections.

In design and construction these presses are built for efficient service. They are simple, accurate and substantial, and are carefully constructed and thoroughly tested before leaving the factory.



American No. 701 Dry Press Brick Machine

American No. 701 Dry Press Brick Machine

This press is the latest development in construction of machines of similar design that have been in use many years. It has been strengthened in all its principal working parts by increasing the size of the respective parts, and we have substituted open hearth steel castings and semi-steel castings for many parts that were formerly made of gray iron castings, which has given us a press proportioned in every part to withstand exceptionally severe service.

Specifications

Gears —

All gears are made of an excellent semi-steel mixture and the teeth are machine cut. The master gears are made of our standard semi-steel mixture consisting of No. 1 selected pig iron with 30 per cent of new crop ends of standard steel rails with a small percentage of Mayari pig iron, which gives a very excellent wearing material and one that tests from 36,000 to 40,000 pounds tensile strength.

Gear Shields —

The master gears and pinions are enclosed in suitable steel plate covers to protect them from the surrounding dirt and grit and to guard the operators from possible accident.

Pinions —

Working into the master gears are open hearth steel pinions with cut teeth, which, in combination with the hard semi-steel gears, insure smooth running and durability.

Semi-Steel Parts —

In addition to the master gears and intermediate gear, the following parts are made of semi-steel: Right and left-hand side frames, upper and lower toggles, upper cross-head, charger cam and charger arms.

Open Hearth Steel Castings —

In addition to the steel pinions, which are cut from open hearth steel blanks, the following parts are made from open hearth steel castings: Lift-out rocker shaft and connecting parts, lift-out rocker arm, lift-out cam, lift-out cam arm, lift-out cylinders, lower cross-head and charger cam arm.

Top Toggle Pin —

The top toggle shaft has been enlarged in this machine to 7½ inches diameter, the largest diameter in the previous models being 6½ inches. It is forged from open hearth steel of from 60 to 80 carbon, which insures good wearing surfaces and great strength.

Center Toggle Pin —

This shaft has been increased to 7 inches in diameter and is made from the same specifications as the top toggle pin.

Lower Toggle Pin —

This shaft has a bearing throughout its entire length of the cross-head and is made of the same materials as the center and upper toggle pins.

Side-Bars —

The tension side-bars are of heavy section and are forged from steel that shows a tensile strength of 80,000 pounds, with not to exceed 20 per cent elongation in 2 inches. The entire pressure is sustained by these forgings and they have been designed of ample strength to meet every possible requirement.

Cross-Head —

The semi-steel upper cross-head is made from strengthened pattern. The shaft in same has a bearing throughout its entire length which makes a very rigid construction.

Charger Table —

The charger table is faced with removable steel plate, so that when it becomes worn it can be refaced at small cost. This is an important provision in a press working ores or sharp silica sand.

Mold Frame —

The front section of the mold frame is likewise faced with steel liners to take care of renewals.

Mold Charger —

Both the top and bottom wearing surfaces of the charger are faced with removable steel plates, which serve to greatly strengthen the charger as well as to take care of the wear on this important part, as well as obviating the necessity of installing a new charger when the surfaces become worn.

Bearings —

All bearings are large, and, with the exception of the charger rocker shaft, are babbitted with a high grade of bearing metal. The charger rocker shaft is bronze bushed.

Mold —

The mold liners are what we designate as soft back steel liners. They can be readily removed and replaced when worn.

Steam Heat —

The upper and lower mold standards and discharge table are connected with steam pipes, so that the molds and pressure plates are steam heated, thereby preventing the materials from adhering to them. Most materials stick badly when the die plates are cold, but give very little trouble with the steam heated plates.

Operating Lever —

The operating lever is placed at the right hand of the mold table in a convenient location, and with a single stroke of this lever the clutch on the driving pulley is disconnected and the clutch on the brake is thrown in so that the machine can be instantly stopped.

Depth of Material —

There is a regulating wheel for depth of material. It is located immediately underneath the discharge table and in front of the operator, so that in case of variation of the material in moisture or other ingredients the depth of material can be increased or diminished, as may be necessary, to secure the proper pressure on the briquettes. Turning the wheel to the right or left a very short distance gives a required adjustment.

Gear Ratio —

The machine is back geared 34.2 to 1, which gives ample power to deliver the greatest pressure required for successfully making Dry Press Brick.

Pulley —

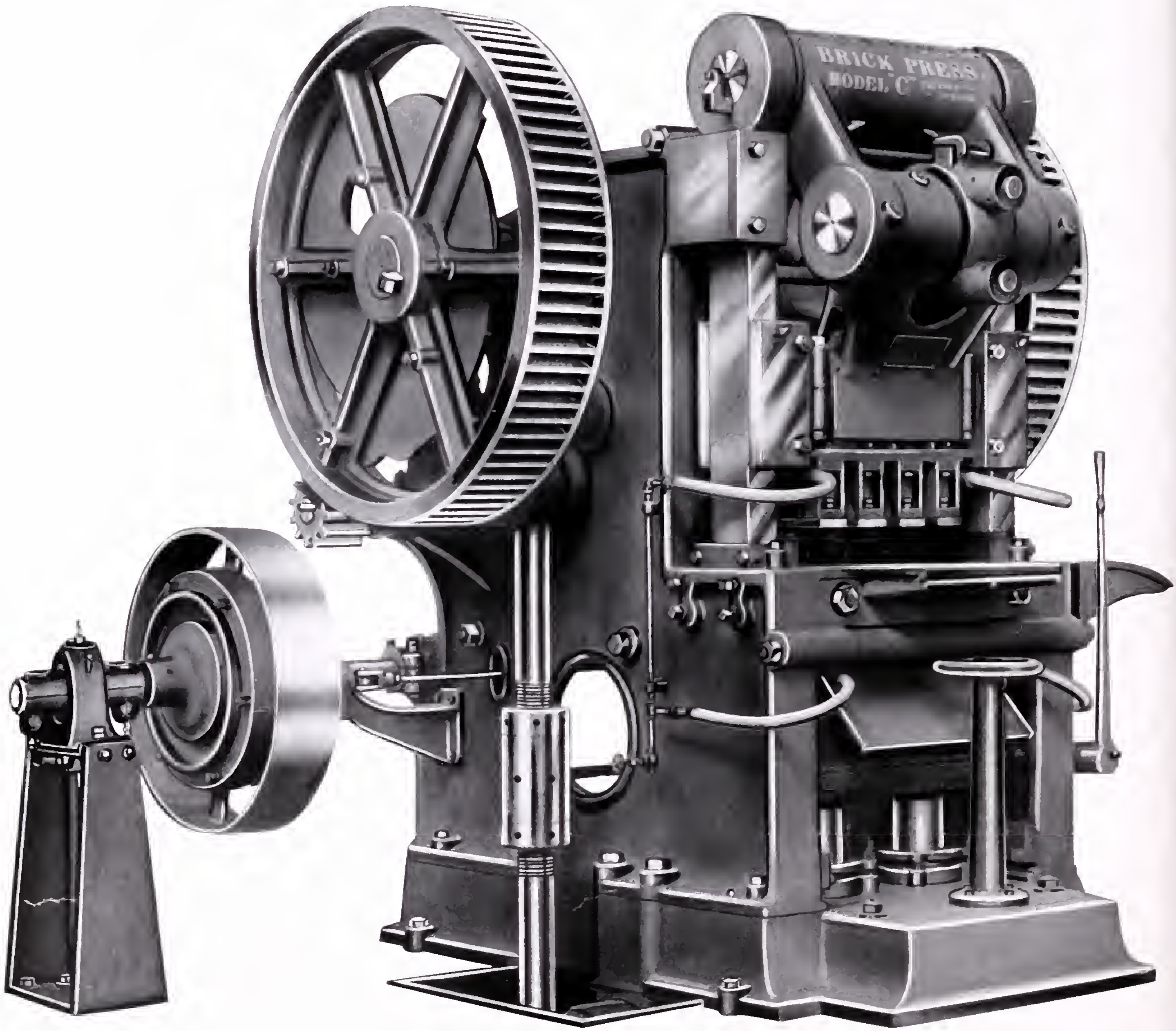
The press is equipped with a 36 x 8½-inch American friction-clutch pulley with 22-inch clutch. The pulley is keyed to the driving shaft and the latter is supported by an outboard bearing in addition to the two bearings in the side frames.

Weight —

32,000 pounds.

Dimensions

Floor space	9 ft. 6 in. wide x 8 ft. long
Extreme height above floor line	8 ft. 6 in.
Length of foundation	12 ft. 7 in.
Width of foundation	8 ft. 11½ in.
Depth of foundation	5 ft. 8 in.
Distance from center line of Machine to center line of Pulley	4 ft. 1½ in.



American Four-Mold Model "C" Dry Press Brick Machine

American Four-Mold Model "C" Dry Press Brick Machine

The 1918 model "C" press shown in the accompanying cut is designed especially for making high-grade press brick.

Rated Capacity Per Hour —

1,600 brick per hour at speed of 240 R. P. M. of the driving pulley or seven molds per minute.

2,000 brick per hour at speed of 285 R. P. M. of the driving pulley or eight and one-third molds per minute.

34.2 revolutions of the pulley gives one mold of four brick. The machine is usually speeded at from 7 to 10 molds per minute.

Specifications

Special Features —

The press is self-contained, the heavy side frame being mounted on a massive bed plate. All parts subject to excessive strain are made of steel. The application of power is uniformly distributed upon the frame, the crank shaft and kindred parts by the use of two master gears, on one of which is mounted the lift-out cam and on the other the charger cam. This is a most valuable feature. In comparison with the earlier models of this press, we have now incorporated in its construction many details which serve to steady its movements and to greatly increase the durability as well as the ease of making repairs to the mold table, the charger, the cams and the friction rollers. The charger shaft, the toggle shafts, and the main crank shaft have been greatly enlarged and the machine, as now offered, possesses all of the refinements in materials, in design and in workmanship that have resulted from experience in its operation in many plants over a long period of time.

Clutch Pulley and Brake —

It is supplied with a friction-clutch driving pulley and a clutch brake mounted on the same shaft and actuated by a single lever. This enables the operator to start or stop the machine instantly, with the pressure heads in any desired position.

Bearings —

The shaft bearings in the frame are babbitted, are unusually long, and are so arranged that the wear can be taken up in the most effective manner.

Gears —

All gears are of ample proportions for the most severe duty. The master gears are made from our semi-steel gear metal, giving great durability and strength. The pinions are open hearth steel and both gears and pinions have machine cut teeth.

Toggles —

The toggle movement is composed of forged steel shafts and so arranged as to present almost the entire surface of the under side of the shafts to the line of pressure. Special attention is called to this point, as this arrangement is of great value, inasmuch as the toggles will have the maximum of surface and therefore will wear longer than any other possible combination of parts. Another advantage of this arrangement of the toggles is that the shafts always compress from their lowest side, thus assuring a most positive lubrication.

Side-Bars —

The side-bars are of forged steel, of sufficient sectional area to withstand a tensile strain of over 1,560 tons without danger of breaking. The bars are located in such a manner as to serve as guides for the upper and lower cross-heads, thus assuring the perfect alignment of these parts and preventing any of the brick from being thicker at one end than at the other, and likewise providing an easy adjustment of the gibs on the cross-heads to compensate for wear.

Ejecting of Brick —

The method of ejecting the brick from the mold is very simple. The side-bars do not move upward with the brick, but only the lower cross-head, thus relieving the machine from the extra labor involved with such arrangement.

Mold Frame and Liners —

The construction of the mold frame is a great improvement over designs heretofore employed. By it the liners can be removed in a very few minutes' time, whenever it is necessary to change the size of the mold or to renew the liner plates. The adjustment of the liner plates is regulated entirely from the outside of the frame, the molds are easily accessible, and the entire design is of the most convenient and substantial character. The liners may be reground when worn without enlargement of the mold cavities.

Adjustments —

The adjustments for controlling the charger, for regulating the depth of material in the mold, and for maintaining the lower pressure plates level with the table, are of the most improved type, and are the result of long experience in designing presses of this character and in operating them in brick manufacturing establishments.

Charger —

The charger has an extra long throw, and is equally well adapted to the Roman size brick as to standard size. It is also arranged so as not to drag the material to the back end of the mold, but distributes it evenly, which insures equal density throughout the brick.

Pressure —

The press is constructed so that the upper plunger dwells on the brick under pressure the longest possible time, thus assuring a perfect bond. Another important feature that this press embodies is that it does not press the material simultaneously from the top and bottom, but alternately, which insures the expulsion of the atmosphere from the brick. It also moves the brick in the mold box under pressure, which not only insures a finer polish, but prevents any seam or weakness around the middle of the face of the brick.

Driving Pulley —

This press is equipped with an American friction-clutch driving pulley, 36 inches diameter, 8 inches face, with 22-inch clutch.

Speed —

Speed of driving pulley for a capacity of 1,600 brick per hour, 250 revolutions per minute.

Power —

Power required, 15 to 25 horse-power.

Weight — 30,060 pounds.

Dimensions

Floor space	9 ft. 6 in. wide by 8 ft. long
Extreme height above floor line	8 ft. 6 in.
Length of foundation	12 ft. 7 in.
Width of foundation	8 ft. 11½ in.
Depth of foundation	5 ft. 8 in.
Distance from center line of Machine to center line of Pulley	4 ft. 1½ in.

American No. 599 Six-Mold Dry Press Brick Machine

This machine is designed for the manufacture of dry press clay brick, fire brick and sand-lime brick, and can also be used for making a limited number of ornamental shapes.

Rated Capacity per Hour —

This machine, speeded at 200 R. P. M., gives eight pressures per minute and a capacity of 2,880 brick per hour. Capacity per hour is dependent upon the speed at which it is operated, as indicated above, and the usual range is from 2,300 to 3,600 brick per hour.

Specifications

Design Result of Long Experience —

This press is built in such a substantial manner that it will stand many years of hard service, at the same time turning out an excellent product. It is the result of a long period of practical experience in designing and operating machines of this type. It is constructed on the simplest possible lines, and all its parts are readily accessible and easily kept in repair.

Pressure on Brick —

The mechanical movements of the press are such that the full pressure is maintained upon the brick for a maximum interval. This result is accomplished, however, without loss of time or diminution of capacity. Thus brick are produced that are perfect in form, of uniform consistency, and without a flaw, seam or granulation in any part.

Starting and Driving Mechanism —

The machine is supplied with an American friction-clutch pulley, with clutch brake mounted on the same shaft, both being actuated by a single lever conveniently located at the right of the mold table. This enables the operator to start or stop the machine instantly, and gives him complete control over it at all times.

Stresses Not on Frame —

The stresses incident to the pressing of the brick are borne by two massive forged steel tension bars. These side-bars not only actuate the lower cross-head when the brick are being pressed, but they also serve as guides for both upper and lower cross-heads. The gibs on both cross-heads are of ample length, and, as both slide up and down on the same bars, it is evident that the plungers are kept in perfect alignment and in perfect register with the mold at all times.

Toggle Movement —

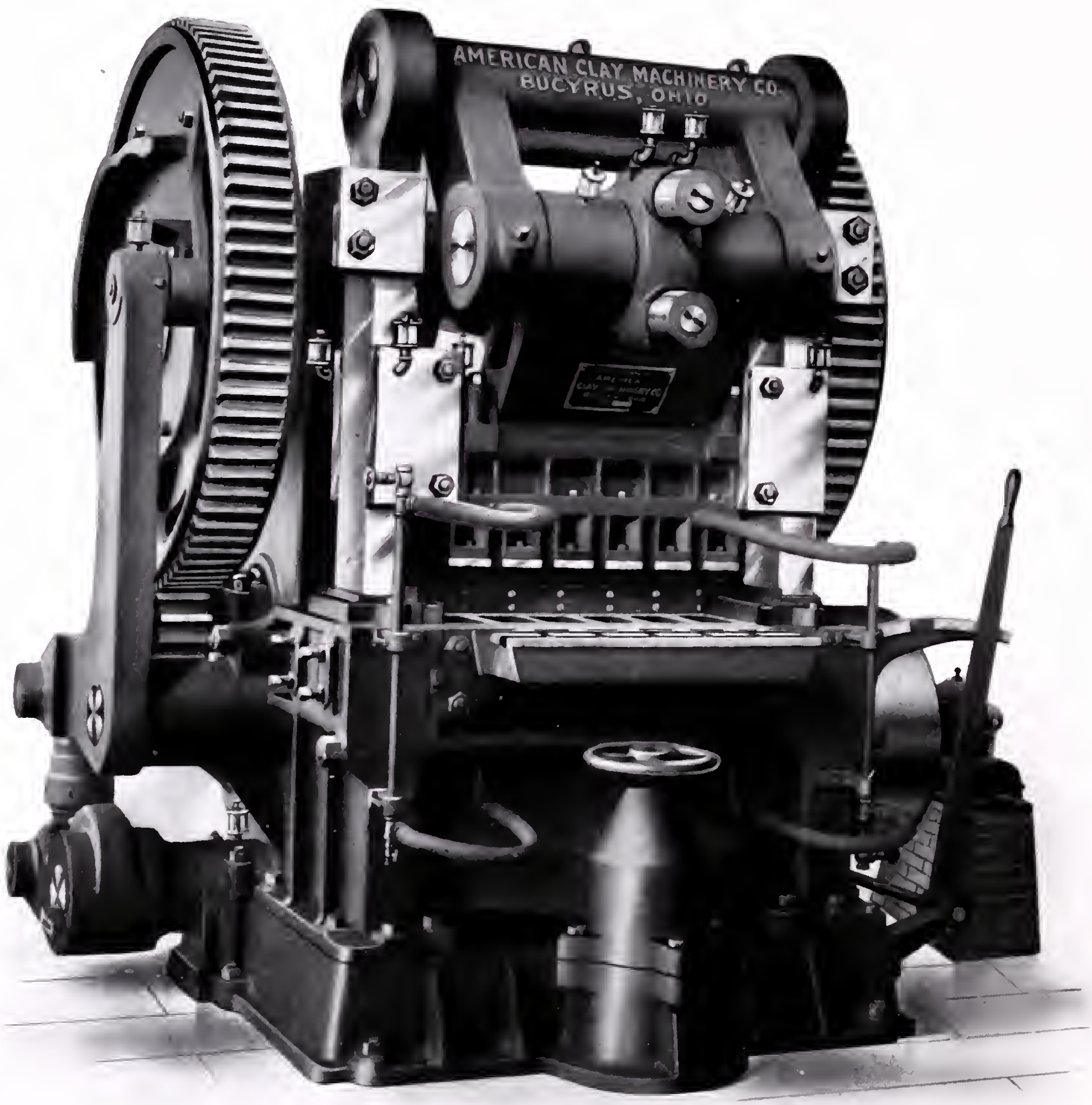
In this machine the pressure is applied by means of powerful toggles, accurately finished and of abundant strength. The mechanism is so arranged that the wear comes on the bottom of the three toggle shafts, thus making perfect lubrication possible.

Ejection of Brick —

The method of ejecting the brick from the mold is such that the side-bars, toggles and upper cross-head do not move upward with the brick, the lower cross-head only being lifted to bring the brick flush with the top of the mold.

Mold Charger —

The mold charger is arranged with separate side guides, which serve the double purpose of relieving the wearing action of the charger on the mold table and of preventing any chattering or vibrating while the bricks are being pushed out onto the mold table. This feature will be greatly appreciated by all experienced users of vertical presses. The charger is driven and timed by a cam mounted on the master gear. All parts actuating it are readily accessible from the rear of the machine, enabling the operator to remove the charger in a very few minutes should this at any time become necessary.



American No. 599 Six-Mold Dry Press Brick Machine

Destruction of Mold Box —

The mold box is so designed that the liners can be removed and renewed in the shortest possible time. The adjustment of the liners is regulated entirely from the outside of the frame, the work being easily and quickly done. This is a very valuable feature, and one that will commend itself to all practical brick-makers. The mold liners may be reground and replaced without any enlargement of the mold cavities.

Adjustments —

The several adjustments of the press are easily made. The thickness of the brick can be changed in a few moments' time. The lower die plates can be made flush with the mold table by the simple operation of adjusting a right and left-hand nut located on the ejecting bar outside of the frame of the press and readily accessible. It will be noted therefore that these adjustments are peculiar to this machine, and are of great value to the practical operator.

Bearings and Gearing —

The bearings are long, of large diameter, and arranged so that the wear can be taken up in the most effective manner. The main gearing is massive and well adapted to driving the heavy steel crank shaft which is connected by a pitman to the toggle mechanism.

Frame and Bed Plate —

The press is self-contained, and provided with a heavy and substantial main bed plate on which the side-frames are mounted and securely bolted. The side-frames are so made that the operator can readily reach the rear of the cross-head to remove the upper pressure plates when necessary.

Driving Pulley —

The machine is equipped with 42-inch x 10½-inch American friction-clutch driving pulley with 18-inch clutch. Gear ratio, 25 to 1.

Speed —

Speed of driving pulley approximately 200 R. P. M., according to the capacity desired and the character of the work.

Power Required —

Power required to operate this machine is approximately 20 H. P. When operated at a higher speed than 200 R. P. M., the horse-power increases proportionately.

Weight —

26,428 pounds, including one standard mold.

Dimensions

Floor space.................9 ft. 10 in. wide, 8 ft. long
Height over all above foundation.................8 ft.
Projections below foundation.................14 in.
Length of foundation over all.................11 ft. 1 in.
Width of foundation over all.................6 ft.
Depth of foundation.................6 ft. 4 in.
Length from center of Driving Pulley to center of Machine.................5 ft.
Length from center of Machine to center of Outboard Bearing.................6 ft. 3 in.

American No. 1 Agitating Clay Feeder

This machine is designed for mixing and feeding clays, sand, etc. As a feeder for dry presses it is excellently adapted, serving also as an equalizer or overflow receiver to take care of the irregular supply of material from the grinding machinery and screen. In this way the press hopper is always kept filled.

Rated Capacity Per Hour—

Ample for a capacity of 1,600 to 2,000 brick, or, in other words, for model "C" press.

Specifications

How Installed —

This feeder is mounted immediately above the brick press and the two feeding tubes from the press hopper are attached direct to the two 8-inch pipe flanges in the base plate of the agitating pan.

Construction —

In construction the machine consists of a large steel pan or tub having two openings in the bottom through which the material passes to the press. In the center of the tub is a vertical shaft to which is attached a heavy arm operating a drag which contains the agitating device. This drag consists of a horizontal knife bar, vertically adjustable on the center shaft, provided with a series of steel blades on the under side. This knife bar revolves with the shaft and adjusts itself to accommodate the amount of material in the machine.

Operation —

The machine is made entirely of iron and steel, and is simple, strong and durable. The materials to be mixed are spouted into the machine near the center, and by the action of the agitating blades they are thoroughly mixed and at the same time gradually move toward the discharge openings.

General —

The shafts are steel and all bearings are long and well babbitted. The feeder is back geared four to one. Each machine is erected complete and thoroughly inspected in our factory before shipment.

Driving Pulley —

The machine is fitted with tight and loose driving pulleys, 30 inches in diameter, 6 inches face. When desired a friction-clutch pulley can be substituted.

Speed —

The pulleys are ordinarily run at from 40 to 60 R. P. M., according to capacity desired. Speed of agitating shaft 10 to 20 R. P. M.

Power —

The power required to operate this machine is approximately 5 H. P.

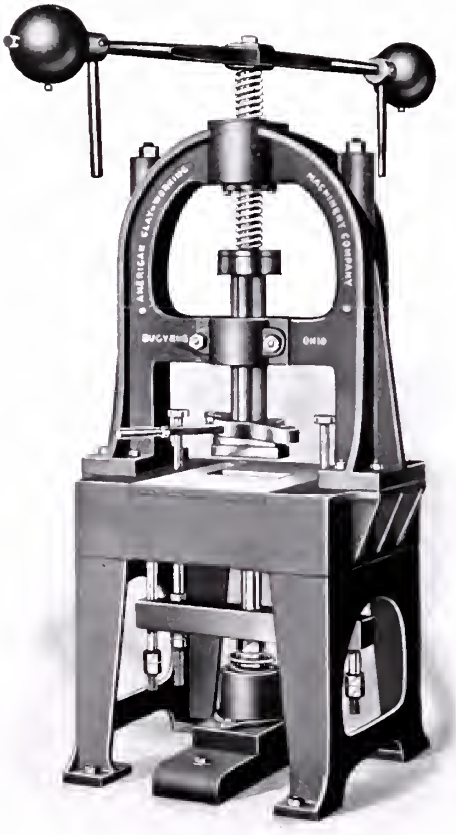
Weight —

1,728 pounds.

Dimensions

Length	5 ft. 6 in.
Width	4 ft.
Height	4 ft. 3 in.
Size of Pan	48 in. diameter, 24 in. deep

American No. 7 Hand-Power Screw Press



A hand-power press is a valuable and convenient machine to have about a plant. It can be used on short runs or special sizes and in the general work of the plant.

Our No. 7 Screw Press is adapted for pressing granulous clay into dry press brick, fine floor tile, mantel tile or fancy shapes. This press is furnished with a long handle, fitted with adjustable weight balls, which makes operation easy, no matter what size of ware is being pressed. An ingenious device discharges the tile when the screw is run up. The planed surfaces of the upper side frame are bolted to the base casting, which is planed to insure a perfect joint. Heavy steel tie-rods add to the strength of the press.

The mold box has a depth of 4 to 8 inches, as may be ordered, according to requirements. Largest mold that can be used is 12 inches square. All molds are carefully made to the exact size and design as ordered.

Floor space, 2 x 3 feet; height, 6 feet 6 inches; height to top of table, 32 inches.

Weight, 2,400 pounds.

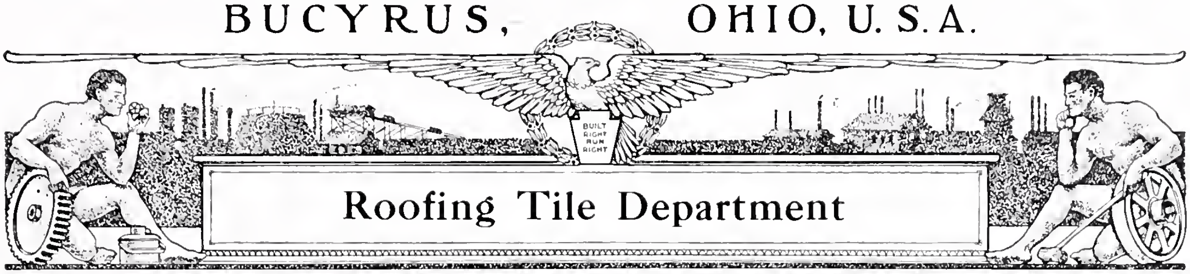
American No. 172 Briquette Press

The American Briquette Press is adapted to the manufacture of small sample dry press brick. The frame is a substantial one-piece casting carefully machined. The pressure is applied by a lever acting in connection with a toggle. The depth of mold is adjustable and the one lever ejects the brick when pressed as well as applying the pressure. The capacity is limited to the speed of the operator. Good samples can be made on this press and the pressure plates can be lettered with name of the company or trade name of the brick, thus making a good advertisement.

The press is 14 inches wide, 18 inches long, and 5 feet high, including the lever. Size of mold, $3\frac{1}{4}$ inches by $1\frac{3}{4}$ inches. Size of clay hopper, 7 inches diameter; depth, 6 inches.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.



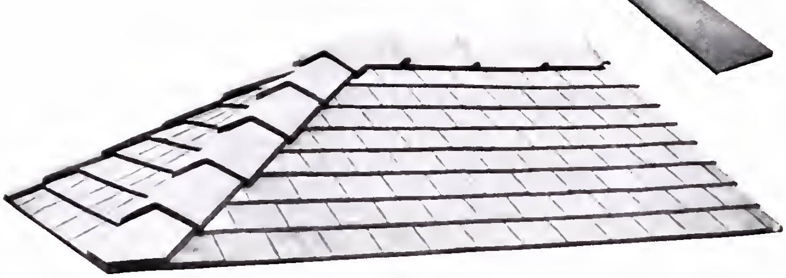
The Roofing Tile Industry

Clay as a roofing material is of by no means recent origin. The earliest history of civilization finds a clay-covered thatch as the roof of even the most primitive habitation. It is only in comparatively recent years that attention has been turned to the evolution of unbaked clay as a roofing material to the excellent roofing tile of today. The change came by degrees until the United States took up the industry and with characteristic energy pushed it to prominence and perfection. The earlier history of this country found roofing tile inadvisable for use. Though this roofing material has been in use in foreign countries for centuries, the cheaper material to be had here in abundance prevented the use of tile. Demand has placed the wooden shingle out of the race because the forests of the country are disappearing and because the many slate quarries have been making inroads upon the territory of the wooden shingle. The cost of the slate has been increased with the advance in the price of labor, and the manufacture of roofing tile has been perfected to such an extent that there is little difference in the cost of a good slate roof and one of roofing tile. From a permanent investment standpoint and taking appearances into consideration, the roofing tile is by far superior and the demand has increased accordingly.

The manufacture of roofing tile depends largely upon the clay, and the clay worker who has a clay which will make a good roofing tile is particularly fortunate. There is a ready demand for good roofing tile at a good price and the manufacture is removed from the closer competition which exists in the marketing of some of the other clay products. The equipment of a roofing tile plant is not extensive, though the handling of the product must be carefully looked after to insure a first-class article. On the quantity of products depends the size of the equipment, but whether you desire a large or small capacity plant you will find in this catalogue the necessary machinery and appliances to exactly meet your needs. In the making of clots or blanks for pressing into tile, our heavy auger machinery can be used with almost an unlimited capacity, or some of the smaller and slower machinery can be installed. In presses there is the same range from heavy machines of large capacity down to the hand-power presses. In other machinery there is a similar range. If it is desired to add a roofing tile branch to an already established clay plant or to change a plant to the manufacture of roofing tile, it is probable much of the present equipment can be used. If you are interested in this branch of the clay trade it would be an excellent plan to have your clay tested for the manufacture of roofing tile. Our clay testing department can make this test for you and will send you finished samples showing just what can be done with your clay.

Correspondence is solicited and will receive prompt attention.

Standard Roofing Tile Shapes

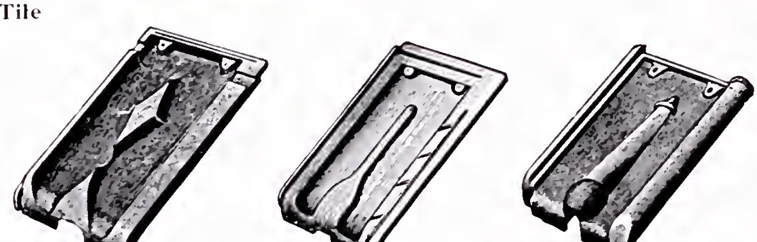


Clay Shingles

Mission Tile

Spanish Tile

Roofing Tile Designs



No. 1 No. 2 No. 3

French Inter-Locking Tile

While there are a number of standard styles of roofing tile, clay shingles, finials and crestings, there are also a number of specials in the trade. Some of these cannot be made by machinery, but are strictly hand-made shapes. Where it is possible to make a design by machinery we can supply the machines and appliances best adapted to the work. We can also supply any dies wanted for any standard or special shapes. The designs here shown are only a few of many, and in addition to roofing tile and clay shingles they show finials, crestings and hip rolls. Correspondence is solicited relative to machinery, methods and other particulars regarding the manufacture of roofing tile.

The Manufacture of Roofing Tile

We have received numerous inquiries regarding the equipment of a roofing tile plant, cost of buildings, machinery, operation, etc. While we build a complete line of machinery for manufacturing roofing tile, it would be a difficult matter to give accurate figures without going thoroughly into the conditions which exist in each particular case, and being fully advised as to the capacity desired and styles of tile to be manufactured. There is such a wide variance in conditions and equipment that no two plants would figure exactly alike.

In order to make an intelligent estimate as to the cost of the plant, we should first become familiar with the circumstances and conditions governing the erection and operation of the plant, and should also prepare detail plans and specifications. There is such an increasing demand for roofing tile that it will be found advisable to so design and equip the plant that the capacity can be increased without disturbing the initial plant. As in the manufacture of other clay products there are different methods and practices in vogue, the best or most acceptable of which must be adopted. In the manufacture of roofing tile it is not always advisable to use the material direct from the bank. It is often best to harvest the clay and put it through a sweating and weathering process before attempting to use it. Where this is found advisable we recommend installing a clay storage building sufficient to hold six or eight months' supply. Through the center of this building an elevated track should be installed. The clay can be loaded in cars at the bank and drawn up into the building, where it should be deposited in a long, narrow pile and allowed to weather thoroughly before being used. To save expense in handling the clay from the storage shed, a conveyor extending the full length of the building should be installed under the floor of the storage shed. The conveyor should be installed in such a way that the clay can be fed to it by one man and delivered directly to the grinding machinery. The clay should be ground and screened very fine, and for this purpose a dry pan and screen should be used. After being screened the material is deposited in a clay storage bin, from which it is delivered as required to a wet pan. In the wet pan the material is thoroughly pugged and tempered, and from the wet pan it is delivered to a special balling machine, which forms the clay into balls convenient for handling. These balls of clay are placed in what is called the wet storage bin or cellar, where the clay is allowed to remain for some time before it is manufactured into tile. This wet storage process is found very beneficial and assists materially in producing tile of good quality. From the wet storage cellar the material is carried automatically and delivered to a pug mill or second balling machine, from which it is delivered directly to the tile-making machine, or to a machine which forms the clots to be repressed if interlocking roofing tile is to be manufactured. For the equipment of a modern and model plant we recommend the following machinery:

Four clay cars, one winding drum with cable, one dry pan, one screen, one wet pan, two taper tub pug mills, two automatic cutters for cutting balls, necessary elevators and conveyors to handle the material as near automatically as possible, two auger machines (one fitted with dies and cutters to manufacture "S"-shaped tile and clay shingles, the other fitted with dies and cutters to manufacture clots to be repressed into interlocking tile, hip rolls, valley tile, etc.); also dies for sagger tile, which would be used in setting the roofing tile in the kilns for burning; one large press fitted with two sets of dies for interlocking tile, one small press fitted with four sets of dies for making hip rolls and valley tile, to be used with interlocking tile, "S"-shaped tile and clay shingles.

The small press should also be fitted with one die for making the bottom "S"-shaped tile.

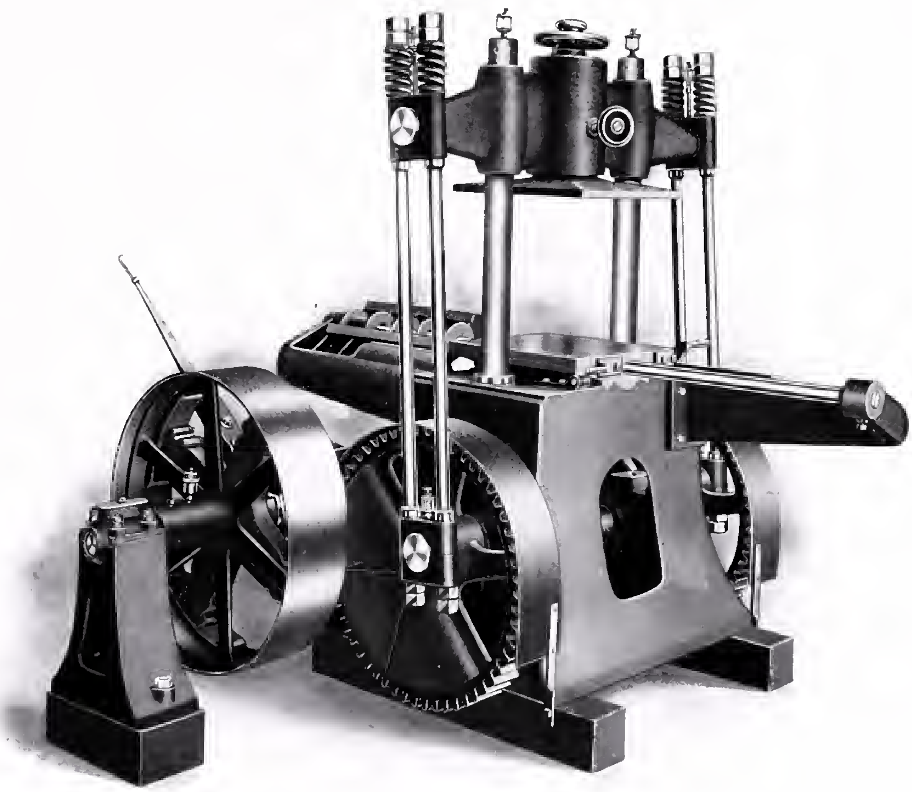
There would also be required a number of plaster molds for making crestings and finials. These are made by hand, being generally too large to make in a press. These plaster molds are made as required and additional molds or dies may be made for the presses or machines, as may be required according to the size or design of the tile or shingle to be manufactured. A modern plant should be fitted to make a large variety of tile, hip rolls, crestings, finials, etc., but the demand will regulate the number and kind of molds and dies required.

For drying the tiles and shingles we recommend the use of a tunnel dryer. By this system the tile are placed on pallets and loaded on steel rack cars at the press or machine, and are placed in the tunnel for drying. After the tile are dried the cars are transferred directly to the kiln, where the tile are set, ready for burning. This system eliminates considerable handling and saves damage to the tile. For heating the dryer a steam coil heater could be used, and it should also be arranged to utilize the waste heat from the cooling kilns. In this way it is possible to dry the tile at the least possible cost, and at the same time give a fixed daily output of dried ware ready to be set in the kiln for burning. For burning tile it will be found advantageous to use a substantial down-draft kiln of the most improved type, calculated to save fuel and to give a uniform burn in order to produce the ware of uniform color and texture. To operate the plant we recommend the installation of a high-grade economical engine of 175 horse-power, and two high-grade boilers, each of 150 horse-power. This will give sufficient steam for operating the engine and also for the dryer. This power plant is of greater capacity than would be required for the first installation, but anticipating an increased demand and the advisability of installing additional machinery later on, ample power to provide for increasing capacity is recommended. The construction of the dryer is such that it can be readily increased when it is found advisable to increase the capacity of the plant, and additional kilns can be erected at any time extensions may become necessary.

This model plant would have a capacity of 40 squares of interlocking tile and 20 squares of clay shingles per day, together with the necessary hip rolls, valley tile, crestings and finials. The arrangement of the machinery should be such as to reduce the cost of production to the minimum. The demand for roofing tile and the price is such that clay workers would find it a profitable investment to produce this popular building material. Your clay can be tested in our testing room and samples of the burned tile sent for your inspection.

The equipment here mentioned is for a large plant, but should not be construed to be a suggestion as to the minimum capacity which we recommend. As in other branches of the clay trade, the plant can be made of any capacity, and we supply machines for greater or smaller capacity than the one outlined. Our range is from hand-power to the largest plants. Correspondence on this or any other subject pertaining to clay products is invited.

American No. 39 and No. 46 Roofing Tile Press



The American Roofing Tile Presses are designed for making roofing tile in various shapes and sizes; also suitable for making plain crestings, hip rolls, ridge rolls, etc. The machine is substantially built in every detail, and its operation is smooth, quiet and easy. The machine is designed for two operators, one stationed on each side of the machine to operate the mold tables.

A set of molds for this machine consists of three parts, two of which are duplicates and are attached to the mold tables. The other piece is attached to the upper cross-head or plunger. The mold tables are provided with ball bearings where they slide in onto the face plate, or bed plate, of the machine, and when under pressure these mold tables are at rest on the bed plate.

The operator places a clot of clay onto the mold and slides the mold table onto the bed plate under the plunger. After the tile has been pressed he draws the table toward him, permitting the operator on the opposite side of the machine to enter the mold table from that side. Operating in this manner a tile is pressed at each revolution of the machine. When the operator draws the mold table toward him it is supported on a steel shaft, which also acts as a pivot upon which to turn the table. The operator places a pallet on top of the tile as it is pressed in the mold, and then tips the mold table over so that it is upside down. This deposits the tile upon the pallet. The mold table is then turned back into position and is ready to receive another clot of clay to be pressed. The mold table is provided with a guide and with a stop, so that it is readily pushed onto the bed plate and stopped in the correct position so that the molds are in register.

The upper cross-head has an adjustment to accommodate various thicknesses of molds. The machine has a stroke of 10 inches, and when the upper cross-head is down at the lowest point there is a distance of 10½ inches between the mold table and the face plate of the cross-head. This permits the machine to accommodate molds for hip rolls and similar pieces.

Molds —

The Roofing Tile Press may be furnished with cast iron molds made to suit the design and size of the tile or other articles to be pressed. **The molds are always made special, according to the design, and the prices are made accordingly.** The press may also be furnished with cast iron frames for attaching molds made of plaster of Paris. In many clays the plaster molds give better results than the metal molds. The molds for this press consist of three pieces, two to be attached to the mold tables, and one piece to be attached to the upper plunger or cross-head.

Rated Capacity Per Hour —

The capacity of the machine is governed by the speed at which the machine is operated, the size, design and kind of ware that is being pressed, and by the ability of the operators. Two operators, with their helpers, working under the most favorable conditions should be able to press three hundred pieces per hour.

Specifications

Main Frame —

The main frame is a heavy one-piece casting, carrying all of the shaft bearings and supporting the guides for the upper cross-head. This frame is made heavy and substantial and supports the mold tables when pressure is being applied to form the tile.

Shafts and Guides —

The crank shaft is forged steel, the driving shaft and the shafts upon which the mold tables slide are steel. The steel guides are inserted in bored holes in the frame, and firmly held in position. The top ends of the guides are drilled for oil cups and oil passages for lubricating the guides.

Bearings —

The bearings are all well babbitted with the best metal for the service required.

Gears —

The gears are cast American gear metal. All gears are covered with sheet steel guards. The master gears are cast with counter-weights, to permit stopping the press on the up stroke.

Connecting Rods and Crank Pins —

Double connecting rods are used on each side of the machine to connect the crank gear and the upper cross-head. The connecting rods are fitted with split bearings and provided with safety springs to equalize the pressure when the clot of clay may be more than is required to fill the mold.

Mold Tables —

The mold tables are fitted with ball bearings where they slide in onto the bed plate, and they are supported on a steel shaft when they are drawn out from under the upper cross-head. These mold tables are operated by hand, and are so equipped that they will operate very easily. They are provided with guides and stops, which permit ready operation and make it possible to place the mold in register with the upper cross-head without difficulty.

Upper Cross-Head —

The upper cross-head is provided with an adjustable pressure foot with a hand wheel and lock nut for operating the adjustment and regulating the distance between the top of the mold table and the upper pressure foot to suit the height of the mold used. The maximum distance between the mold table and upper pressure foot is 20½ inches.

Driving Pulley —

The machine is furnished with a friction-clutch driving pulley.

Dimensions

	No. 39 Press	No. 46 Press
Size of Mold Table	22 in. x 20 in.	14 in. x 12 in.
Diameter of Crank Shaft	4 in.	3½ in.
Diameter of Driving Shaft	2½ in.	2¼ in.
Diameter of Mold Table Shaft	2 in.	1¾ in.
Diameter of Guides for Cross-Head	3½ in.	3 in.
Length of Crank Shaft Bearings	12 in.	10 in.
Length of Driving Shaft Bearings	8 in.	6 in.
Diameter of Master Gears	31¾ in.	22 in.
Diameter of Driving Pinions	$8\frac{7}{16}$ in.	6¼ in.
Face of Gears	4 in.	3 in.
Pitch of Gears	1¾ in.	1½ in.
Ratio of Gears	3.9 to 1	3.5 to 1
Diameter of Connecting Rods	1⅝ in.	1¼ in.
Diameter of Crank Pins	3¼ in.	2¾ in.
Adjustment of Upper Cross-Head	6 in.	5 in.
Size of Driving Pulley	36 in. x 8 in.	24 in. x 6 in.
Speed of Driving Pulley	25 to 40 R.P.M.	20 to 35 R.P.M.
Power required	5 to 10 H.P.	3 to 7 H.P.
Height over all	7 ft. 3 in.	5 ft. 7 in.
Width over all	7 ft. 3 in.	5 ft. 8 in.
Length over all	7 ft. 8 in.	5 ft. 9 in.
Distance from center of Machine to center of Driving Pulley	3 ft. 3 in.	2 ft. 7 in.
Height from floor to center of Driving Pulley	2 ft.	1 ft. 5 in.
Height from floor to top of Table	3 ft. 8 in.	2 ft. 9 in.
Distance from center of Machine to center of Driving Shaft	1 ft. 8 in.	1 ft. 2 in.
Weight without Molds	5,870 lbs.	3,148 lbs.

American No. 47 Hand-Power Roofing Tile Press

The American No. 47 Roofing Tile Press is designed for making roofing tile in medium sizes, operating by hand power. The machine is substantially built in every detail, and its operation is very simple. The machine is designed for three operators, one stationed on each side of the machine to operate the mold tables, and one to operate the plunger to press the tile.

A set of molds for this machine consists of three parts, two of which are duplicates and are attached to the mold tables. The other piece is attached to the upper cross-head or plunger. The mold tables are provided with ball bearings where they slide in onto the face plate or bed plate of the machine, and when under pressure these mold tables are at rest on the bed plate. The operator places a clot of clay onto the mold and slides the mold table onto the bed plate under the plunger. After the tile has been pressed he draws the table toward him, permitting the operator on the opposite side of the machine to enter the mold table from that side. Operating in this manner a tile is pressed as rapidly as possible by hand power. When the operator draws the mold table toward him it is supported on a steel shaft, which also acts as a pivot upon which to turn the table. The operator places a pallet on the tile as it is pressed into the mold, and then tips the mold table over so that it is upside down. This deposits the tile upon the pallet. The mold table is then turned back into position and is ready to receive another clot of clay to be pressed. The mold table is provided with a guide and with a stop, so that it is readily pushed onto the bed plate and stopped in the correct position so that the molds are in register.

The mold tables are 14 inches long and 12 inches wide. They will receive a mold for a medium size roofing tile. The upper cross-head has an adjustment of 5 inches to accommodate various thicknesses of molds. The machine has a stroke of 8 inches.

Mold —

The No. 47 Roofing Tile Press may be furnished with cast iron molds made to suit the design and size of the tile or other articles to be pressed. **The molds are always made special, according to the design, and the prices are made accordingly.**

The press may also be furnished with cast iron frames for attaching molds made of plaster of Paris. In many clays the plaster molds give better results than the metal molds. The molds for this press consist of three pieces, two to be attached to the mold tables and one piece to be attached to the upper plunger, or cross-head.

Rated Capacity Per Hour —
The capacity of this machine is governed by the size, design and kind of ware that is being pressed, and by the ability of the operators. Three operators, with their helpers, working under the most favorable conditions, should be able to press one hundred pieces per hour.

Specifications

Main Frame —
The main frame is a heavy one-piece casting, carrying all of the shaft bearings and supporting the guides for the upper cross-head. This frame is made heavy and substantial, and supports the mold tables when pressure is being applied to form the tile.

Shafts and Guides —
The forged steel crank is $3\frac{1}{2}$ inches diameter and the shafts upon which the mold tables slide are $1\frac{3}{4}$ inches diameter. The hammered steel guides for the cross-head are 3 inches diameter. These steel guides are inserted in bored holes in the frame, and firmly held in position. The top ends of the guides are drilled for oil cups and oil passages for lubricating the guides.

Bearings —
The crank shaft bearings are 10 inches long. These bearings are all well babbitted with best metal for the service required.

Connecting Rods and Cranks —
Connecting rods are used on each side of the machine to connect the crank and the upper cross-head. These are made of flat bar steel 1 inch thick. The two cranks have a stroke of 8 inches and are provided with counter-weights to permit stopping the press on the up stroke. The operating lever is 4 feet long.

Mold Tables —
The two mold tables are 14 inches long and 12 inches wide. The tables are fitted with ball bearings where they slide in onto the bed plate, and they are supported on the steel shaft where they are drawn out from under the upper cross-head. They are provided with guides and stops, which permit ready operation, and make it possible to place the mold in register with the upper cross-head without difficulty.

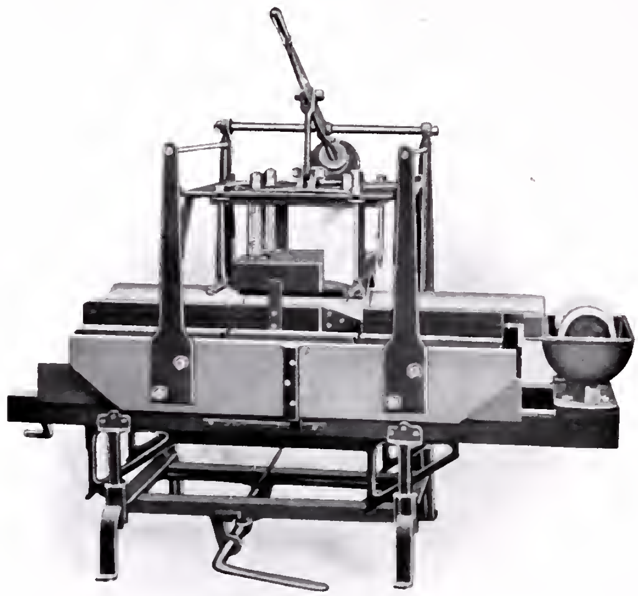
Upper Cross-Head —
The upper cross-head is provided with an adjustable pressure foot, 12 inches wide, 14 inches long. It is provided with a hand wheel and lock nut for operating the adjustment and regulating the distance between the top of the mold table and the upper pressure foot to suit the height of the mold used. The maximum distance between the mold table and upper pressure foot is $18\frac{1}{2}$ inches, and there is an adjustment of 5 inches in the upper cross-head.

Weight — The weight of the machine complete, without molds, is 2,000 pounds.

Dimensions

Height over all	5 ft. 7 in.
Width over all	3 ft. 4 in.
Length over all	7 ft. 0 in.
Height from floor to top of Table	2 ft. 9 in.

American No. 45 Roofing Tile Cutter



This cutter is adapted to cutting, punching and trimming roofing tile, or clay shingles, and is designed with a removable top and clamp so that a variety of shapes, sizes, and lengths can be cut by providing suitable tops and clamps. The under frame can be raised and lowered to suit conditions and between the under frame and carriage there is a roller frame allowing the carriage to be easily moved by a tender bar of clay, although a spring is provided to assist this movement. The carriage is returned and held in position by means of a foot lever while the clay is running onto the table.

Four uprights form guides for a light square frame carrying the clamp, cutting wires, trimming knives and punches. This cutting frame is operated by a balanced lever connected to it by a link, and the whole operation of cutting, trimming and punching a tile is done at one stroke.

An oil pan and roller is provided to lubricate the tile before it passes over the table, and to this oil pan an apron is attached to support the column of clay between the die and the carriage.

Maximum size of roofing tile or shingle, 16 inches wide x 16¾ inches long.

Capacity —

This cutter cuts one tile or shingle at a stroke and capacity depends upon the operator.

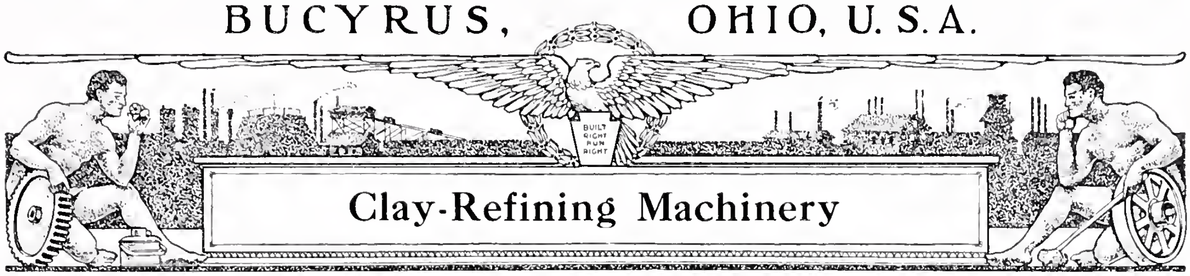
Weight — Weight, 500 pounds.

Dimensions

Length over all	5 ft. 3 in.
Width over all	5 ft. 6 in.
Height over all	4 ft. 0 in.
Height to top of Table	23 in.
Vertical adjustment	6 in.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U.S.A.



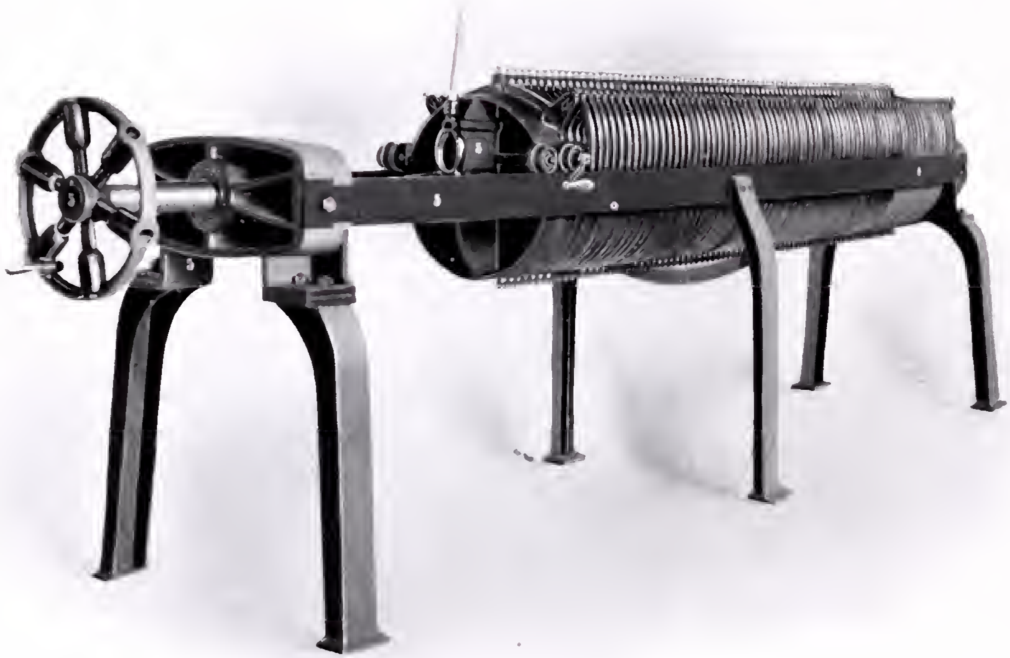
Clay-Refining Machinery

The use of filter presses for the separation of various liquids is of comparatively recent origin. This process was first employed in England and afterward quite extensively developed in Germany. Many of the filter presses in use in this country have been imported, and as there is room for improvement in the construction of this class of machinery and in its adaptation to local conditions, especially those pertaining to filtration of clay and kindred substances, we have been led to the design and construction of a line of filter presses and their associate preparing machinery. The rapidity with which the liquid is separated from the solids during the filtration depends principally upon the force with which it is urged through the filtering medium and the resistance with which the medium opposes it. As the solids held in solution differ greatly in character there is no uniformity in the capacity which can be obtained from a filter press on different materials. In some materials the liquid passes freely through the solid matter as it forms on the filtering surface, so that the separation is very rapid even up to the time the press is completely filled. In others the resistance is rapidly increased as the solid material is deposited, and the discharge of the liquid is consequently very greatly reduced. The exact capacity can only be determined by actual operation of the presses upon the material to be separated.

Long experience in designing and manufacturing clay-working machinery, and a thorough understanding of its details, enables us to produce clay-refining machinery which is the standard of excellence for this class of work. We are prepared to advise our customers as to special construction. When seeking information, the correspondent should advise:

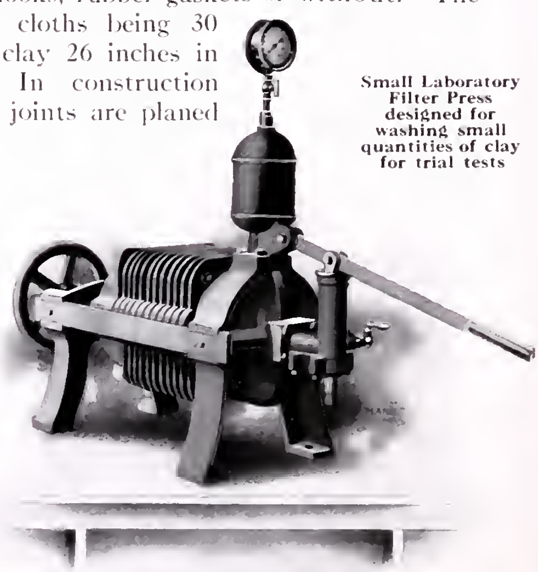
FIRST — Whether the liquid or solid portion is desired to be kept, or both, and if the solid is to be further dried after leaving the filter press. SECOND — The quantity of material to be handled in a given time, and the approximate proportion of solid matter to be separated from the liquid. THIRD — Whether the liquid to be treated is gritty, dense or limpid, hot or cold.

In design, material construction and workmanship this line is superior to anything on the market. Its excellence is attested by satisfied users. Investigation and correspondence are invited.

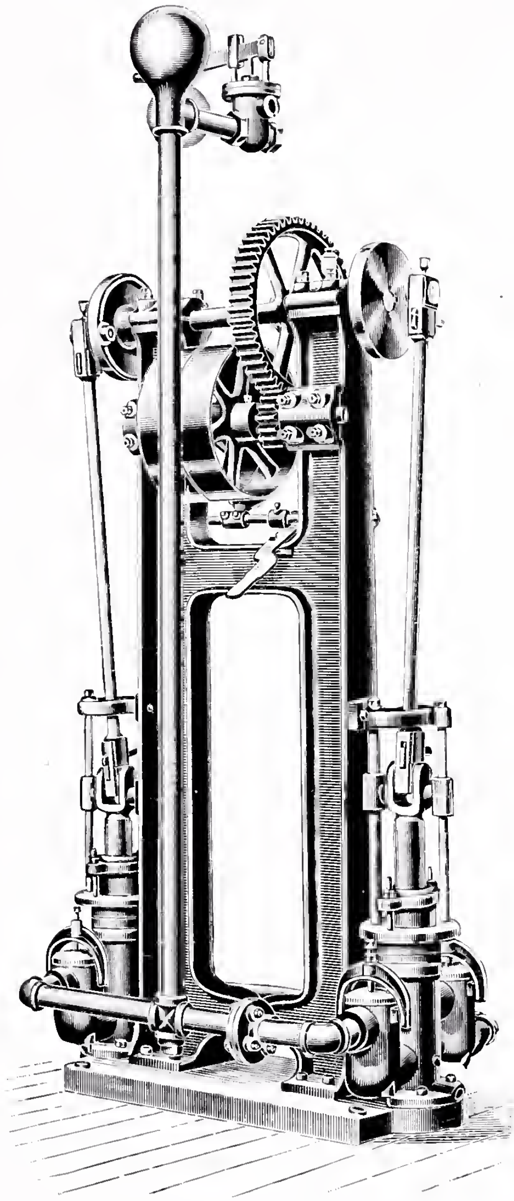


American Filter Press, Round Form

This machine is built in six sizes and with either circular or vertical grooves and either kind of sack attachment desired. Also with center clamps or hooks, rubber gaskets or without. The plates are made wide enough to take in 28½ inches; cloths being 30 inches between rails. The plates will press a cake of clay 26 inches in diameter, the standard thickness being 1¼ inches. In construction this press is superior. All parts are perfectly fitted, all joints are planed or turned up true, and all plates have the best possible outlet, which insures free flow of liquid. Either long or short supports are put on the machine at the option of the buyer. When a car is used to receive the clay from the press the high pattern is the best, but where the clay is removed by hand the standard length legs are generally used. The standard sizes of this machine are built with the following number of chambers: 36, 42, 48, 54, 60 and 72. Floor space required for seventy-two chamber press: Length of press, 16 feet 5½ inches; length over all, 18 feet; height from floor to center of press, 3 feet 1 inch; height from floor to top of press, 4 feet 9 inches; width over all, 4 feet 6 inches.



Small Laboratory Filter Press designed for washing small quantities of clay for trial tests



American No. 1 Slip Pump

American No. 1 Slip Pump

This double-plunger geared pump is designed especially for pumping slip clay from the agitator vats to the filter presses.

Rated Capacity — 50 to 100 gallons per minute.

Specifications

General — This pump is designed to be anchored securely to a sufficient masonry foundation. The discharge to the filter press is provided with a safety valve and over-flow to be used when the pressure reaches 150 pounds, which is the proper working pressure of the filter presses and pump. The valve allows the surplus material to return to the agitator vats.

Installation — In installing the pump it should be connected with the main pipe leading to the entire series of agitator vats. The discharge should be connected to two filter presses with the necessary intervening valves, so that the pump may be operated on one press while the other is being emptied. The pump is constructed in the most careful manner throughout, with steel pins, steel shafting, forged connecting rods and brass wristpin boxes.

Pulley — Size of tight and loose pulleys, 22 inches diameter, 5-inch face.

Speed of Pulley — 125 to 140 R. P. M.

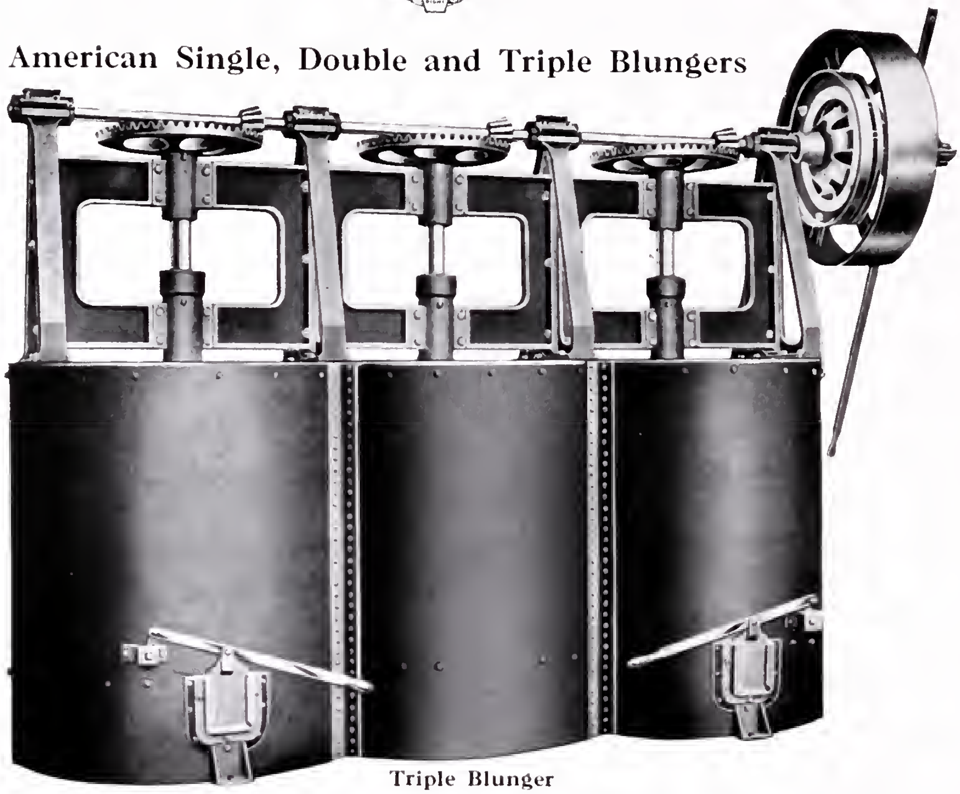
Power Required — 2 to 3 H. P.

Weight — 2,340 pounds.

Dimensions

Diameter of Receiving Pipe	2 in.
Diameter of Discharge Pipe	2 in.
Pump is Back Geared	4 to 1
Diameter of Plunger	$3\frac{1}{2}$ in.
Length of Stroke	10 in.
Height over all	8 ft. 6 in.
Height from floor line to center of Driving Pulley	6 ft. 6 in.
Height from floor to center of Discharge Pipe	$12\frac{1}{2}$ in.
Length of foundation	6 ft.
Width of foundation	4 ft. 6 in.
Height of foundation	36 in.
Distance from center to center of Plungers	$39\frac{1}{4}$ in.

American Single, Double and Triple Blungers

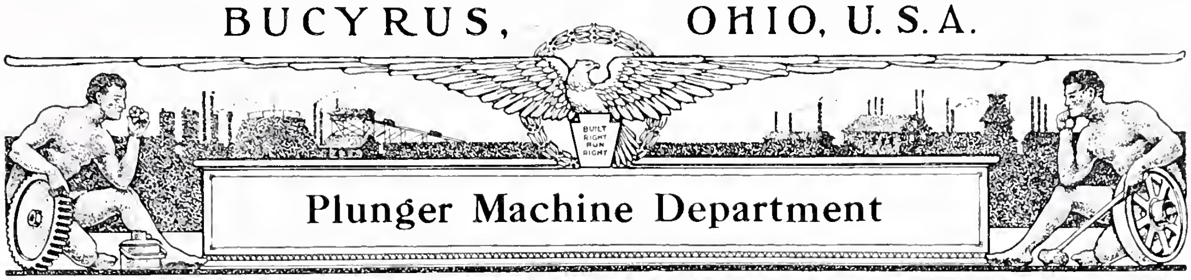


Triple Blunger

The illustration shows the delivery side of a triple machine. It is also representative of the single and double sizes which we manufacture. The blunger is used for dissolving clay in water by centrifugal motion, and is the first step in the process of clay refining by the filtering system. The bottom of the blunger is made of Portland cement, there being no iron bottom in the machine. We do not supply the bottoms. The shell is anchored to a concrete foundation by means of anchor bolts passed through the four projecting lugs, two of which are shown immediately underneath the discharge openings in the front of the cut. The blunger consists of a shell 5 feet $8\frac{1}{2}$ inches in height and 5 feet in diameter; $8\frac{1}{2}$ inches of the bottom may be filled with Portland cement. Immediately above this cement bottom the steel shell is lined with cast iron plates 15 inches in height, these being designed as renewable wear plates to prevent the action of the clay in the bottom of the blunger from wearing out the outside casing. On the inside of the top of the shell a large continuous cast plate is bolted, to which are attached the uprights carrying the shafting and gears. The main upright shaft has two bearings with bevel wheel on the upper end. A collar above the lower bearing sustains the weight and thrust of the gear. The vertical shaft is provided with gates or wings, consisting of three $\frac{1}{2}$ x 2-inch horizontal arms clamped to the shaft, to which are fitted vertical wrought iron slats. The two-end blungers are provided with discharge gates from which the floated clay or slip is thrown off through open channels to the agitator vats. The diameter of the pulley and pinion shaft is $2\frac{7}{16}$ inches. Size of friction-clutch driving pulley, 48 x 12 inches; gearing, 5 to 1; 160 revolutions of shaft give 32 revolutions of blunger shafts. The capacity is regulated entirely by the readiness with which the clay dissolves in water. It is customary to install the blunger machine above the level of the top rim of the agitator vats. This permits of a gravity discharge from the blunger machine to the agitator vats.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.



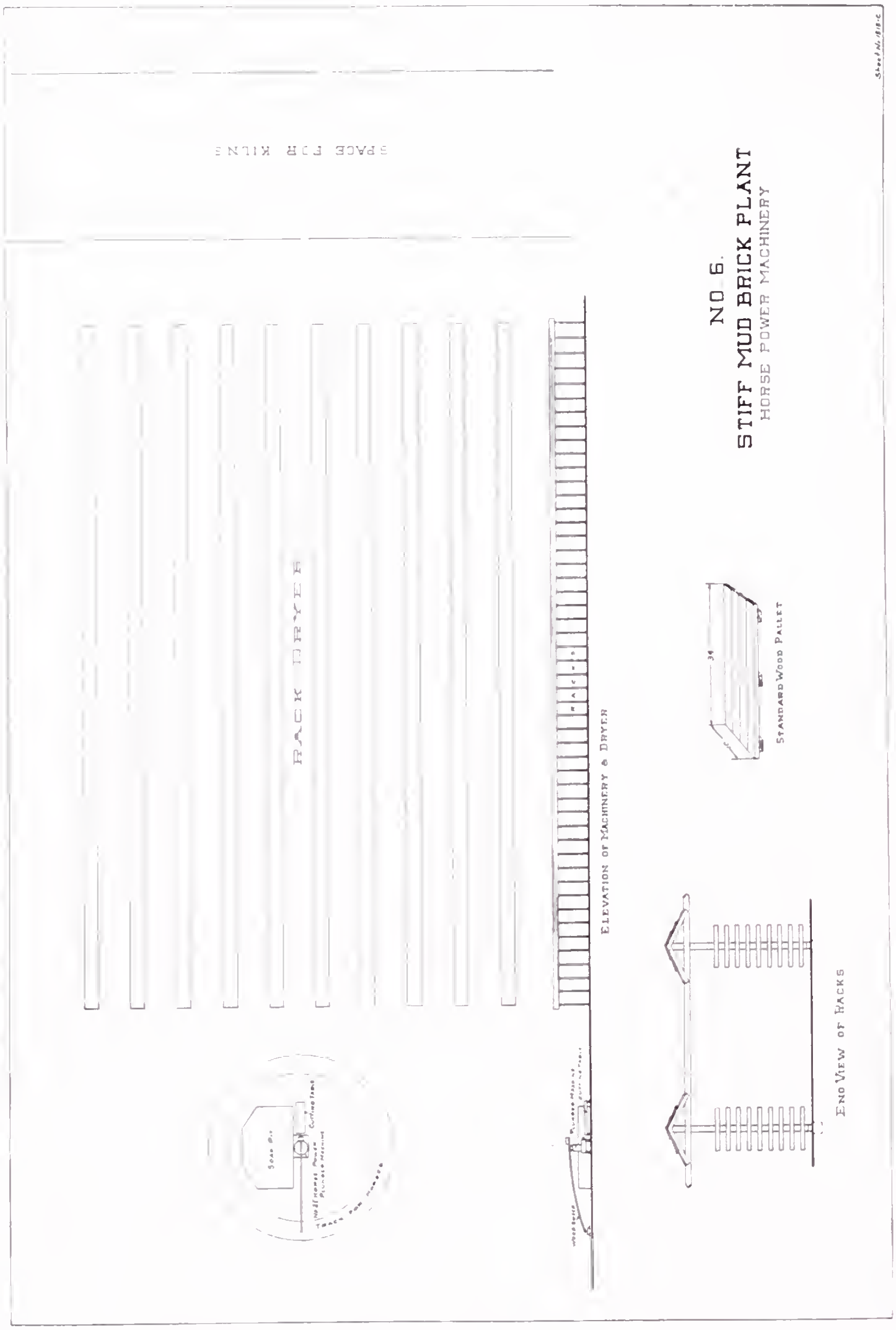
Plunger Machine Department

Plunger Machines and Their Use

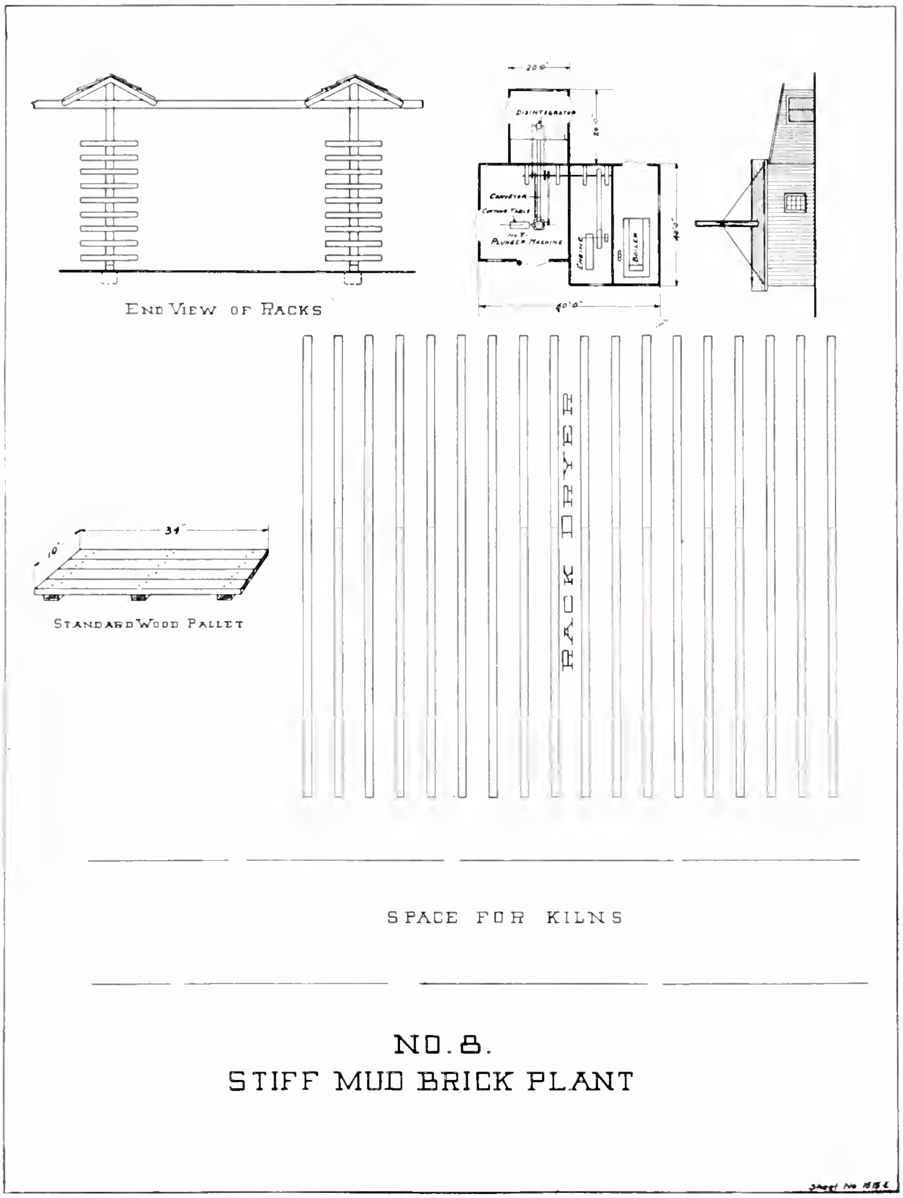
In addition to the manufacture of common building brick, Plunger Machines are used for making a variety of the other clay products. By handling the brick carefully and drying them upon pallets, a very fine quality of face brick can be secured without repressing. These brick are well adapted for facing up fine fronts, and can be sold at an advanced price over common brick, although it costs no more to make them on these machines. A variety of shapes of ornamental brick and blocks can be produced. Our Plunger Machines are especially suited for the production of all kinds of hollow fire-proof building material, terra cotta lumber, hollow building blocks, foundation and cellar blocks, and are unexcelled for the manufacture of drain tile, making all sizes at the least possible expense. Plunger machines are also successfully used for producing blanks for roofing tile, clay shingles, etc., these blanks being repressed to secure the desired form and configuration.

The clay, before going to the brick machine, should be thoroughly and evenly tempered and of such consistency that the brick made from it can be hacked direct from the machine. The clay is fed into the tempering cylinder, in the center of which is a shaft fitted with blades which mix the clay and force it through a port-hole into the pressing chamber. The plunger presses the clay through the die and upon the cut-off table. The plunger is propelled by a steel cam on the main shaft between the upper and lower bed plates. The cam works upon rollers at both ends of the sliding plunger frame, giving alternately a backward and forward motion at each revolution of the shaft. The machines are made either single or double workers, one cam doing the work in either case.

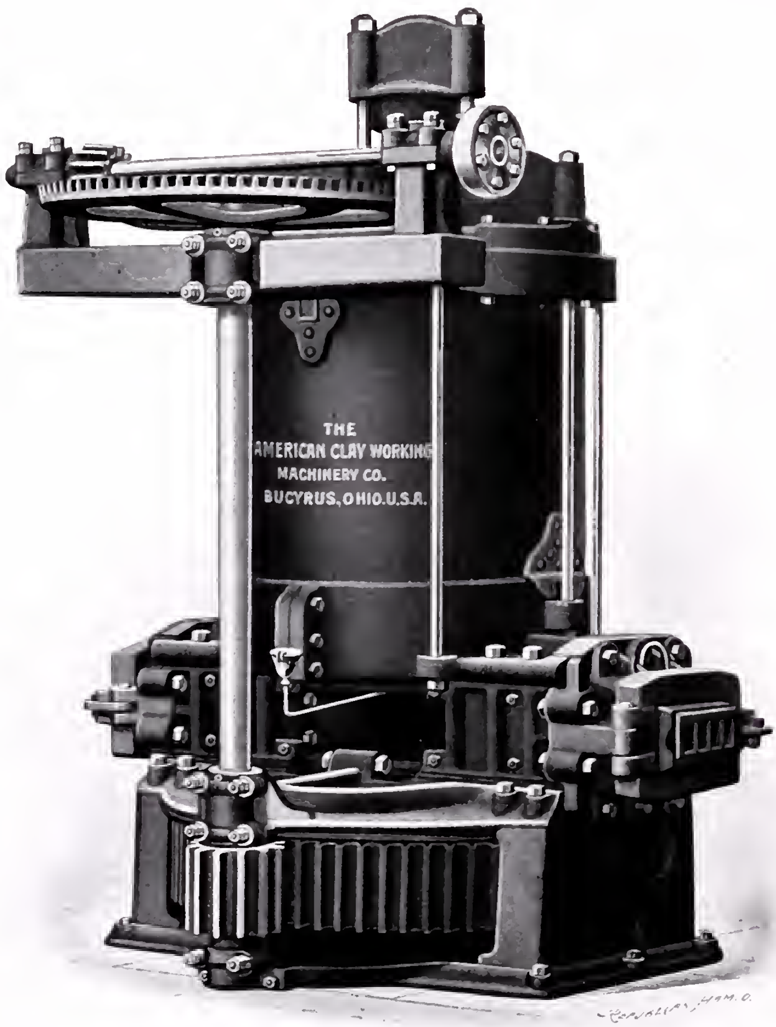
As soon as the bar of clay comes to rest on the cut-off table, the operator pulls the wire-strung cutter frame forward and downward, forcing the wires through the bar of clay and separating it into the desired lengths. The product is then removed and placed upon barrows or dry cars, preparatory to conveying to the drying department. The cutter is not thrown back until the product has been lifted from the cut-off table. Our Plunger Machines are substantially constructed. The gearing is extra heavy and strong. The main shafts are of forged steel, being square or hexagon in shape where the knives fit on, holding the knives in position without keying or set-screwing. The cam, friction rollers in the plunger head and bevel pinions are of steel. In the No. 20 plunger machine the spur pinions are also of steel, and the pressing boxes are lined with renewable steel plates. The plunger heads of the No. 20 machine have renewable steel liners. The shell is of steel plate, and a suitable door for cleaning out the shell is provided in the larger size machines. The plunger head is provided with an adjustable scraper or wing to compensate for wear. Our special patterns of cut-off plates allow a larger amount of clay to pass through the port-hole and into the clay chamber each time than in any similar machine. The capacity is thus greatly increased.



Layout for No. 6 Plant



Layout for No. 8 Plant



American No. 20 "A" Plunger Brick Machine

American No. 20 "A" Plunger Brick Machine

This machine is of large capacity and is designed for making brick, hollow ware, fire-proofing and other clay products in large capacity plants.

Rated Capacity Per Hour —

5,000 to 8,000 standard size brick per hour.

Capacity is governed by operating conditions.

Specifications

Shafting —

The main shaft is of forged steel, 7½ inches diameter. The bevel wheel shaft is 4⅜ inches diameter, and the pulley shaft is 2⅞ inches diameter.

Gearing —

The master gear is made from an extra heavy pattern and weighs 3,500 pounds. The pinions are of steel. The machine is back geared 42 to 1.

Drive —

Unless otherwise specified the pulley shaft is arranged parallel to the cut-off table. We can arrange it at right angles if so desired.

Bed Plates —

The bed plates are in halves and are of heavy section throughout. The main shaft bearing in the top bed plate is of gun metal with housing to keep the clay out. The bearings in the bottom bed plate and bottom bridge-tree are in halves with bronze bushings, adjustable and removable.

General —

The machine is provided with hinge die fronts, doors in the tub, extra heavy steel cam and rollers and steel plunger heads and cut-off plates, preventing leakage of the clay.

Driving Pulley —

Size of driving pulley, 48 inches diameter, 12 inches face, with improved American friction-clutch.

Speed —

Speed of driving pulley, 140 R. P. M., which gives 3.3 plunges per minute, or a capacity of 3,960 ordinary size brick per hour when used as a single worker. When used as a double worker the capacity is practically doubled.

Power Required —

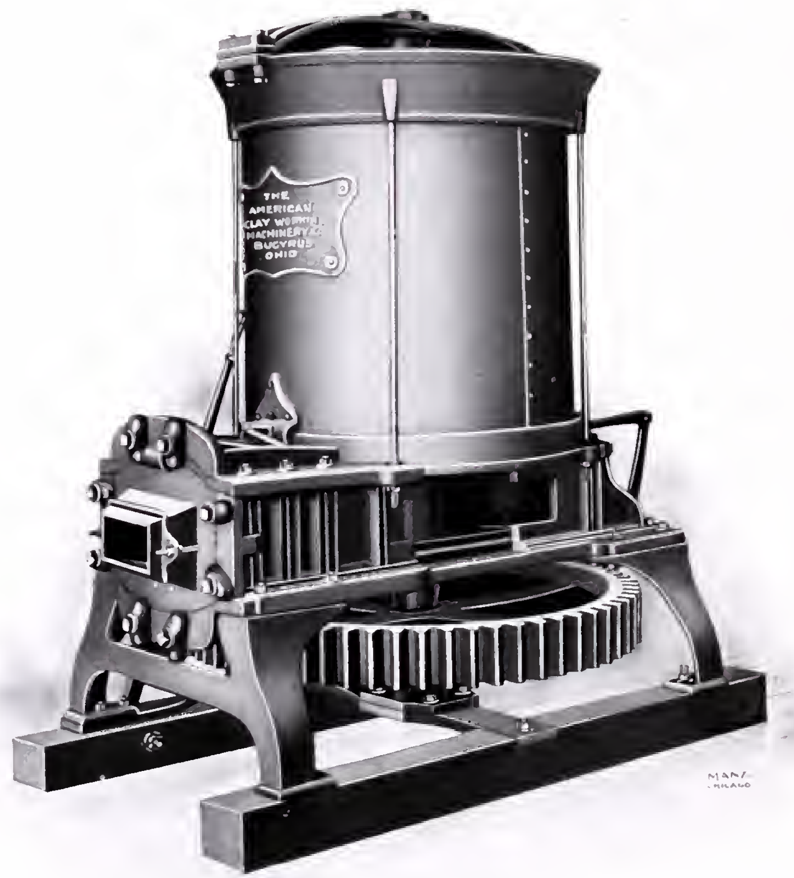
30 to 50 H. P., depending upon operating conditions.

Weight —

30,680 pounds.

Dimensions

Height over all	11 ft. 6 in.
Length of sills	7 ft. 0 in.
Distance across Spur Gear	7 ft. 0 in.
Distance from outside to outside of Dies	8 ft. 0 in.



American No. 6 and No. 7 Plunger Brick Machines
These Machines May be Furnished With Dies and Cutting Tables for Making Brick, Tile or Hollow Blocks

American No. 6 and No. 7 Plunger Brick Machines

These machines are designed for the manufacture of common brick and drain tile up to 8 inches diameter.

Rated Capacity Per Hour —

No. 7 Plunger Brick Machine, 1,500 to 1,800 brick per hour.
No. 6 Plunger Brick Machine, 1,000 to 1,500 brick per hour.

Capacity is governed by operating conditions.

Specifications

General —

The main shaft is of forged steel and hexagon where the knives slip over. The gearing is extra heavy and the bevel pinion is of steel. The top bed plate is provided with suitable lugs over which the tub fits, preventing it from turning. The tub is held in position by heavy rods securely bolting the hopper and top bed plate together. The box to the main shaft in the bottom bridge-tree is adjustable. Unless otherwise ordered the pulley shaft is arranged parallel to the cut-off tables.

Driving Pulley —

The machine is provided with an American friction-clutch driving pulley, 32 inches diameter, 8-inch face, with 16-inch clutch.

Speed —

Speed of driving pulley, 100 R. P. M.

Power —

No. 7 Plunger Brick Machine, 10 to 15 H. P.
No. 6 Plunger Brick Machine, 8 to 10 H. P.

Weight —

No. 7 Plunger Brick Machine, 6,000 pounds.
No. 6 Plunger Brick Machine, 5,175 pounds.

Dimensions

	No. 7 Machine	No. 6 Machine
Height over all	6 ft. 10 in.	6 ft. 10 in.
Length of Sills	5 ft. 9 in.	5 ft. 6 in.
Width from out to out of Sills	3 ft. 4 in.	3 ft. 3 in.
Width over all	5 ft. 9 in.	5 ft. 9 in.

American No. 2 "E" Horse-Power Plunger Machine Arranged for Drain Tile

This machine is designed for making drain tile in sizes up to and including 8 inches. It is also adapted to the manufacture of brick, as explained in the following description.

Rated Capacity Per Hour—

8-inch Drain Tile, 180 to 200 per hour.
4-inch Drain Tile, 300 to 400 per hour.
Other sizes in proportion.

The capacity is governed by the speed at which the horses are driven, the nature and character of the clay, the size and kind of ware manufactured, and by management.

Specifications

General Construction—

The accompanying cut shows the horse-power plunger machine arranged for tile. It is equally well suited for the manufacture of either brick or tile, and is provided with the same style of improved dies as is furnished for the larger machines. This is an excellent machine to purchase for starting a small yard, because when the demand increases and it is necessary to change to steam power, we can at any time furnish gearing which can be attached to this machine and transform it into a perfect steam-power machine. When so fitted it is of the same capacity and strength as the No. 6 Plunger Machine. We build the machine extra heavy with this in view, putting in a heavy steel shaft, heavy grinding knives and mudwing; in fact, making it of proportionate strength throughout. The machine has an enlarged front, thus nicely adapting it to the manufacture of tile as large as 8 inches. The tub of this machine is 34 inches in diameter, 34½ inches high and 108 inches in circumference. The upper half of the tub contains the mixing knives, seven in number.

Operation —

The mudwing is 11½ inches wide and 16 inches long. The cutting table generally used is 7 feet 10 inches long. The machine will deliver eight standard size brick at each plunge or a proportionate number of tile. It is usually the practice to fill the pits and then run the machine until the pits are emptied, and then haul in clay and fill the pits again. When operated in this way a good strong team can do all the work. Three men only are necessary to operate the machinery — one in the pit, one at the cutter and one to off-bear the tile or brick. If the machine is to be run continuously it will be necessary to have an extra team to haul in clay from the bank and a man to attend to setting and burning the kilns.

Sweep —

A sweep extending 18 feet from the center of the main shaft to the point where the doubletrees are attached will be found most satisfactory. This would make the outside diameter of the circle for the team about 40 feet.

Speed —

The horse-power machine is arranged to be run as rapidly as a good team of horses can pass around the circle described by the sweep.

Power —

Power required, 2 H. P.

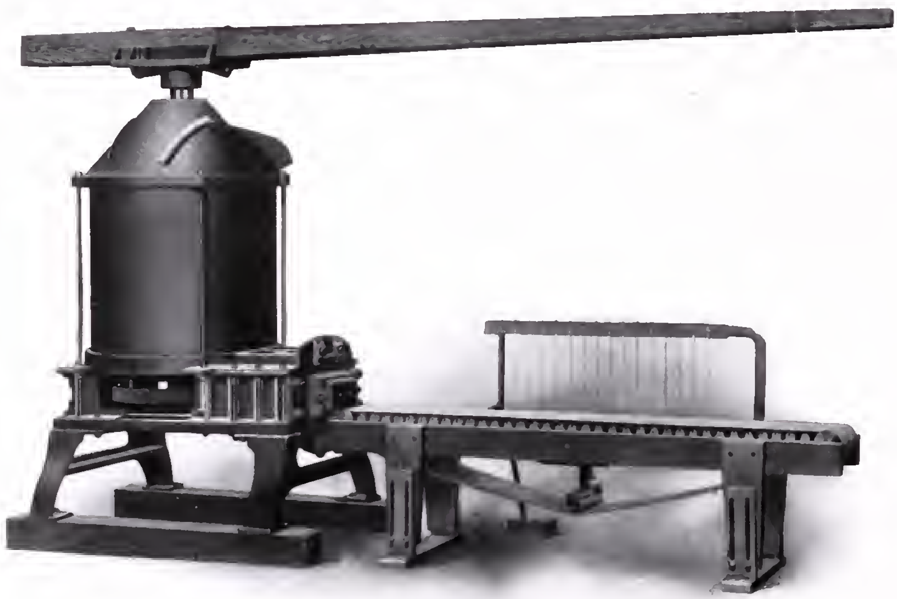
Weight —

3,272 pounds, without dies.

Dimensions

Length...4 ft. 4 in.
Width..3 ft. 6 in.
Height over all...7 ft. 3 in.
Length of Sweep, 18 ft. from center of Main Shaft to point where Doubletrees are attached.
Size of Sills..5½ in. x 5½ in. x 5 ft. 4 in.

No. 2 "E" Horse-Power Plunger Machine Arranged for Brick



This machine is designed and excellently adapted for making brick of good quality.

Rated Capacity Per Hour —

Under ordinary conditions, 600 brick per hour.

Specifications

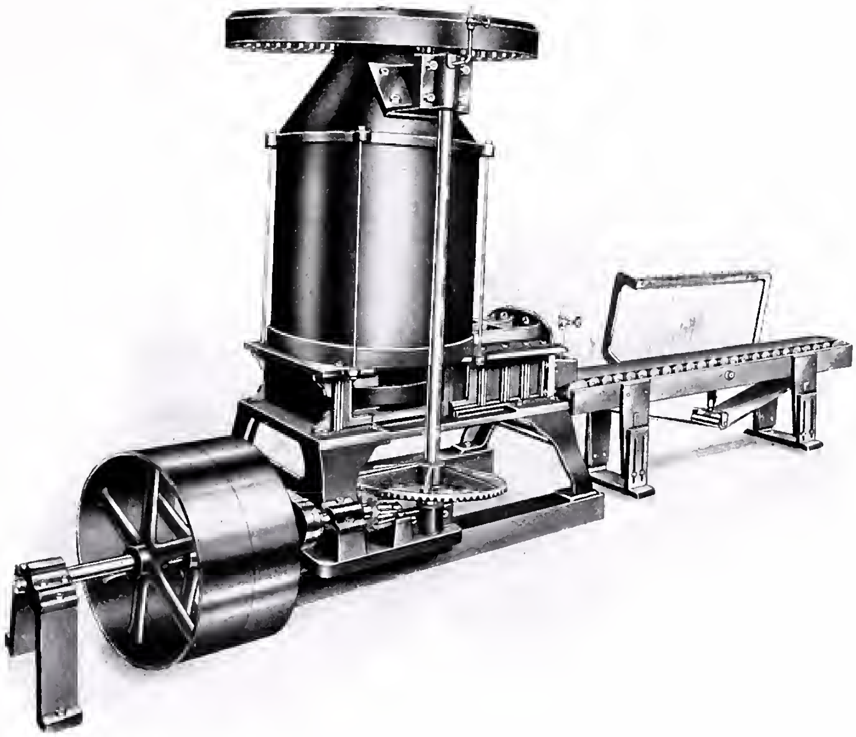
General —

A fine grade of building brick is usually within the range of this machine, and finds a ready market.

Changing to Steam Power —

For a yard of moderate capacity this type of machine is an excellent one to install, because of the possibility of keeping pace with a growing business without the purchase of new machinery. Should the demand make it advisable, this machine can be changed to steam power by the purchase of the necessary gearing at a moderate cost. The change to steam power can be easily made. When so fitted it is of the same capacity and strength as the No. 6 Plunger Machine. We build this machine extra heavy with this in view, putting in a heavy steel shaft, heavy grinding knives and mudwing; in fact, making it of proportionate strength throughout. This machine has an enlarged front, thus nicely adapting it to the manufacture of large tile.

Steam-Power Attachment for American No. 2 "E" Horse-Power Plunger Machine



The attachment shown in the accompanying cut is designed for changing the No. 2 "E" horse-power plunger machine into a steam-power machine.

Rated Capacity Per Hour—1,000 to 1,500 brick and a corresponding number of tile.

Specifications

Method of Attaching—The essential features of the machine remain the same. The gearing attachment shown in the accompanying cut can be installed by any competent mechanic, and the machine does not need to be returned to the factory.

Driving Pulley—The machine is provided with 36-inch by 8-inch tight and loose driving pulleys.

Speed—Speed of driving pulley, 275 R. P. M.

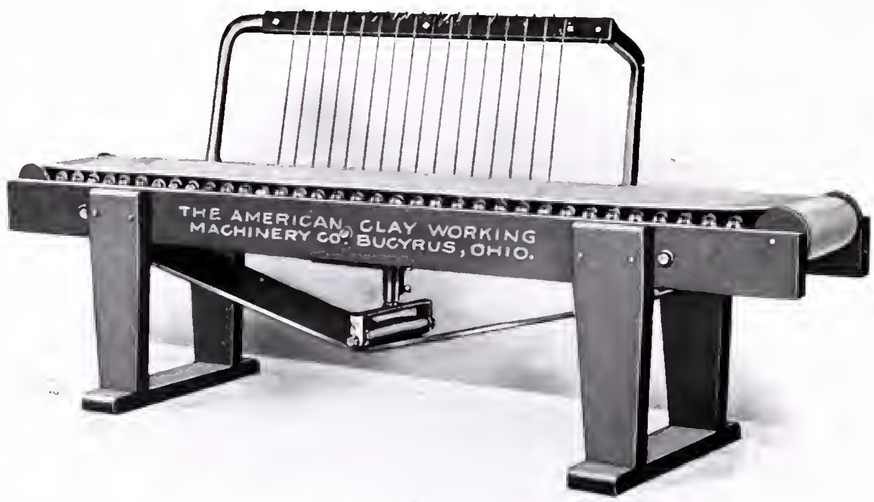
Power—Power required to operate is from 8 to 10 H. P.

Weight—Weight of steam gearing attachment, 2,297 pounds.

Dimensions

Diameter of Main Shaft where Top Gear is attached	4 in.
Diameter of Intermediate Shaft	2⅝ in.
Diameter of Pinion Shaft	1⅞ in.

American No. 16 Side-Cut Brick Table for Plunger Machine



This cutting table is especially designed for use in connection with our various sizes of plunger brick machines.

Rated Capacity Per Hour —

From 600 to 3,000 brick per hour, or equal in capacity to any of our plunger machines up to and including the No. 20-A Plunger Machine.

Specifications

Frame and Rollers —

It is substantially built and when desired is fitted with adjustable legs for regulating height of table. The table is provided with wooden rollers, having iron gudgeons and iron bearings, these rollers forming a support for the belt. For the end rollers, iron-flanged wheels are used.

Operation —

As soon as the bar of clay comes to rest on the cut-off table, the operator pulls the wire-strung cutter frame forward and downward, forcing the wires through the bar of clay and separating it into brick. The brick are then removed and placed upon barrows or dry cars, preparatory to conveying to the drying department. The cutter frame is not thrown back until the brick are lifted from the cut-off table.

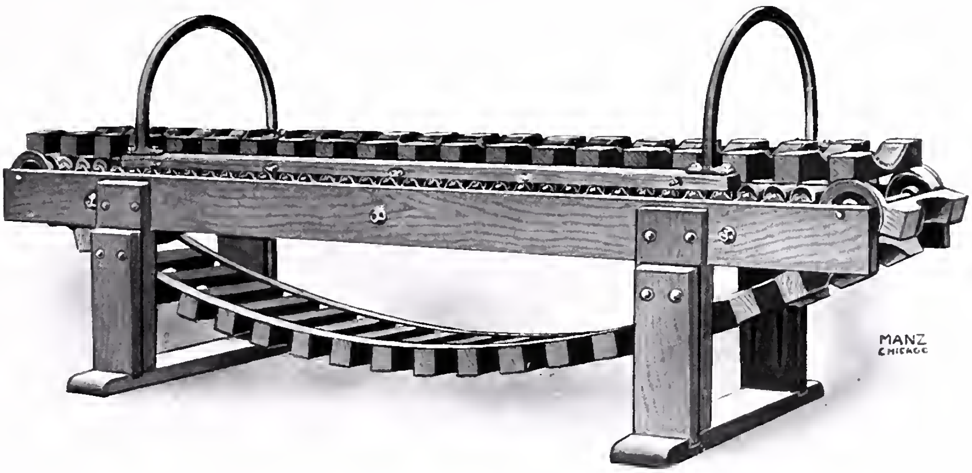
Weight —

200 pounds.

Dimensions

Length of Table for all Machines excepting No. 20-A	7 ft. 8 in.
Height over all	23 in.
Extreme height when adjustable	30 in.
Width of Frame	14¼ in.
Width over all	19¾ in.

American No. 19 Tile Table for Plunger Machines



This machine is designed for cutting tile from 3 inches to 8 inches diameter made on our standard plunger machines.

Rated Capacity Per Hour —

Ample capacity for the output of a No. 2 "E" horse-power, No. 6 or No. 7 Plunger Machine.

Specifications

Details of Construction —

In this cut it is shown equipped with a 6-inch lag belt and an 8-inch cutter frame. When desired, it is fitted with adjustable legs by which the height of the table may be changed to suit the size of tile being made. The lags are hollowed out and padded to fit the several sizes of tile, so that the tile may be cut and handled without marring.

Carriage Rollers —

The carriage is provided with a series of rollers having iron gudgeons and bearings which form a support for the lag belt. Iron flange wheels are used for the end rollers, which keep the lag belt in alignment. This lag belt carriage has given splendid satisfaction for cutting and handling all sizes of tile up to and including 8 inches in diameter.

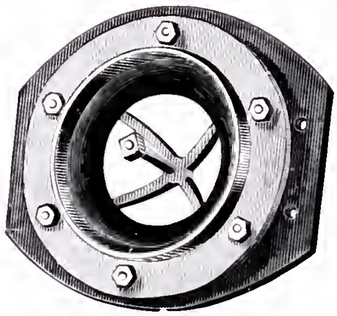
Weight —

Weight, with one lag belt, 225 pounds.

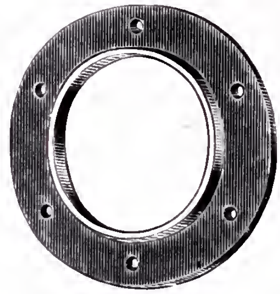
Dimensions

Length of Table for all Machines excepting No. 20-A	7 ft. 8 in.
Height to center of Lags	23 in.
Extreme height when adjustable	30 in.
Width of Frame	18 in.
Width over all	23½ in.
Length of Standard Lags	14 in.

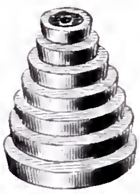
American Plunger Machine Dies



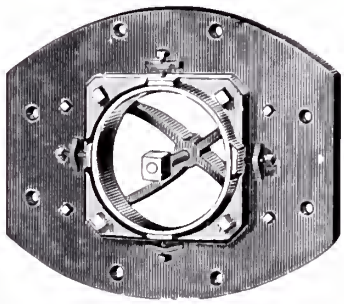
12-Inch Face Plate



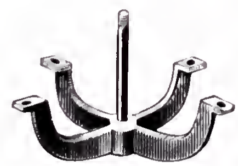
12-Inch Die Plate



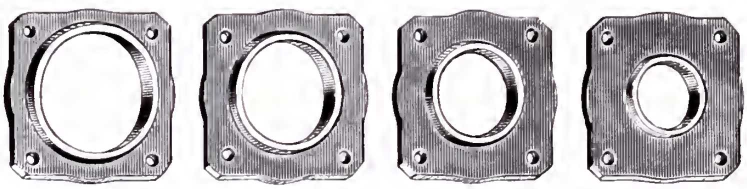
Die Centers



8-inch Face Plate
With Die Plate Attached



Yoke to Face Plate



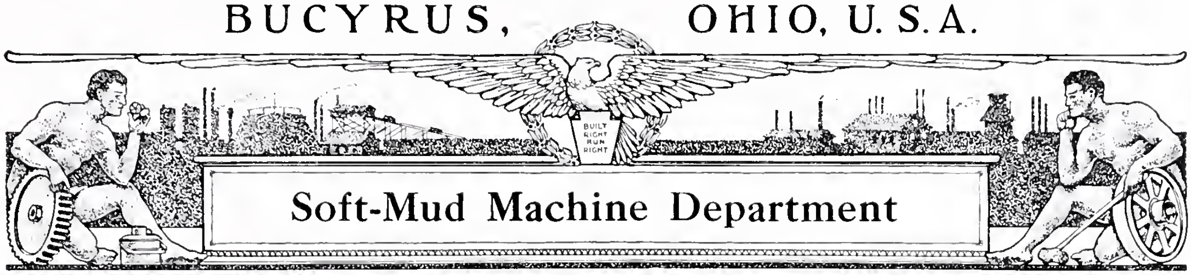
Die Plates for Tile Dies

Tile Dies and Attachments for Plunger Machines

Our Plunger Tile Machines are provided with an improved system of dies, which can be securely fastened to the machine, accurately centered and quickly changed. The dies for tile smaller than 4 inches are each complete in themselves, and are attached direct to the machine. The dies from 4 inches to 8 inches are held in position by a special face plate, and the change from one size to another is quickly made, without removing the face plate from the machine. The centers slip upon the core stem in the center of the yoke, being held in position by a nut. The face plate is provided with suitable set-screws, by means of which the die can be quickly and accurately centered. The die plates are light and convenient to handle, and yet are not liable to be broken, as the pressure is sustained by the heavy face plate. For 9, 10, and 12-inch dies a special 12-inch face plate is used.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.



Soft-Mud Machine Department

Soft-Mud or Sand-Mold Brick

In the manufacture of soft-mud brick almost any clay can be used. For many purposes this grade of brick is counted superior. The soft-mud process is of recognized excellence in the manufacture of fire-clay products, including fire brick, cupola block, circle brick, coke oven tile, jamb and bullhead brick. In many of the best factories of the country devoted to the manufacture of high-grade fire-clay products, the soft-mud or sand-mold process is used exclusively. The process of manufacture is more simple and the machinery equipment is less expensive. A soft-mud plant can be established at a comparatively small cost and the output can be readily marketed, because of the demand for this grade of brick.

Years ago and in the smaller plants of today the clay has been prepared in a soak pit, but this method has given way to the disintegrator and the pug mill. Where the clay is not tough and lumpy the disintegrator need not be used, though many manufacturers find it advisable to install it. The pug mill is used to thoroughly mix the clay with water and temper it for the brick machine, where the clay is molded into brick. The finished brick can be dried in any of the usual ways, either on an open yard on pallets, or in an artificial dryer.

If the proper machinery has been used the brick when burned will be of excellent quality, with sharp, clean, well-defined edges, perfectly solid, but without the grain or strata which is sometimes counted an objection in other brick. The mason finds the soft-mud brick easier to cut when necessary, and in consequence expresses a preference for them. Owing to the fact that almost any clay will produce a soft-mud brick, this class of brickyard is very general, and because of the reasonable first cost of a small plant, many factories start in a small way by the installation of soft-mud machinery and grow to larger proportions as the demand justifies.

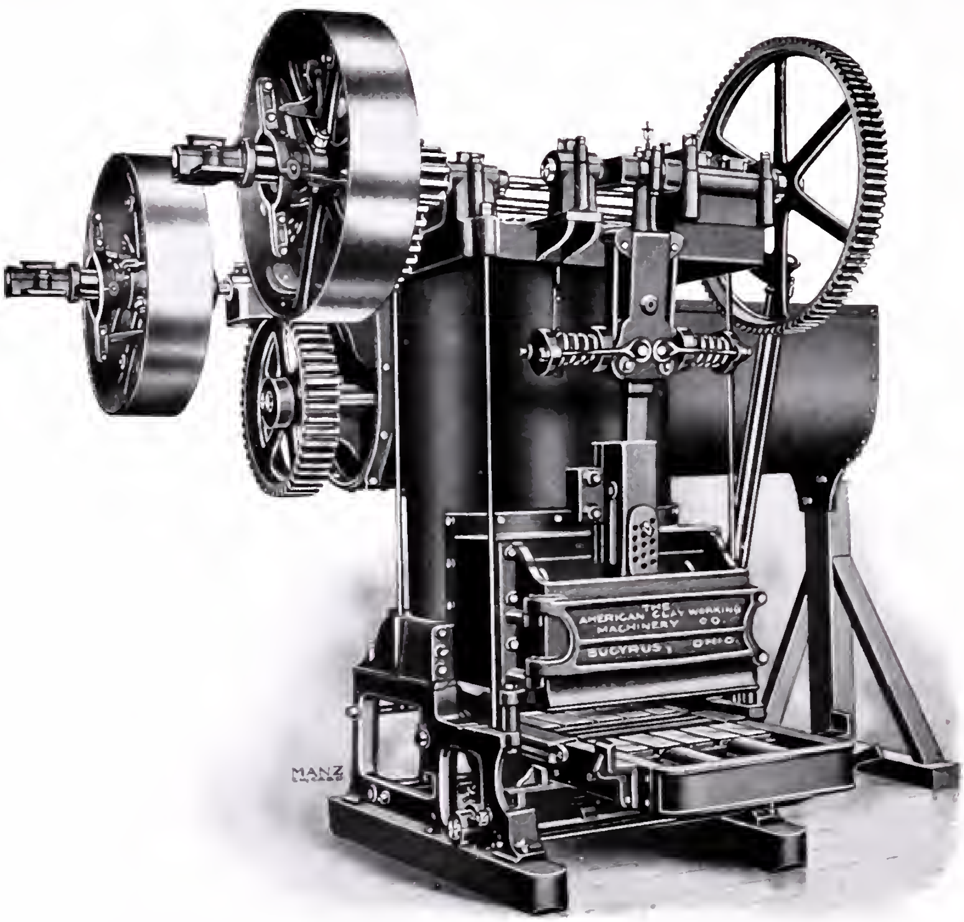
We manufacture a full line of soft-mud brick machinery and appliances, molds, mold sander, conveyors, barrows, trucks, crushers, disintegrators, etc. The size and capacity of these machines range from 1,000 to 5,000 brick per hour. We are prepared to fill your requirements and furnish a machine of a capacity suitable for your needs.

Our Eagle Horse-Power Brick Machine has a capacity of from 5,000 to 10,000 brick per day. Should the demand grow beyond the capacity of the horse-power machine it can be easily equipped for steam power by the purchase of the necessary gearing, which we supply. This would increase the capacity and would make it possible to make from 12,000 to 15,000 brick per day. Our all-iron upright soft-mud brick machine and pug mill has an easy capacity of 30,000 to 50,000 brick per day. These machines have been in constant use for many years and have given universal satisfaction.

Our Champion Mold Sander is guaranteed to properly sand the molds. Our molds are strictly first-class. Our wheelbarrows, trucks, conveyors, etc., are well designed and are made of the best quality of material.

Where the nature of the clay makes a disintegrator or crusher necessary our extensive line of these machines makes it possible to select one exactly adapted to the conditions and your needs.

We are prepared to furnish a complete equipment for a modern soft-mud brick plant and guarantee it to be all that we claim for it, as it will be supplied complete from our own factory.



American Upright Soft-Mud Brick Machine and Pug Mill

This machine is designed for use in the many cases where the condition of the clay or the market requirements make it advisable to manufacture soft-mud brick.

Rated Capacity Per Hour —

From 3,000 to 5,000 standard size brick per hour.

The capacity is governed by speed at which the pulley is driven, nature and character of clay, size and kind of ware manufactured, and by management.

Specifications

Points of Excellence —

For making this class of brick there is no machine superior to our upright brick machine. It has all the requisite points which combine to make an excellent, serviceable, durable machine. Where a large capacity is desired, this machine will prove a splendid investment.

Quality of Product —

The upright brick machine is the very best of its class, and should not be confounded with machines of smaller size and cheaper design. It is built entirely of iron and steel. The pressing chamber is large, and makes it possible to produce six American standard brick per mold, all uniformly pressed, of correct shape, with perfect edges and corners.

Operation —

A crusher or disintegrator should be used, and may be set on the same floor as the brick machine and the clay elevated from it into the pug mill; or the crusher or disintegrator may be mounted directly over the pug mill and discharge into it. The pug mill tempers and mixes the clay thoroughly and feeds it into the machine, where it is forced into the pressing chamber by the mudwings. The molds should be evenly sanded with sharp, clean, fine molding sand. They are fed in at the side of the machine, just back of the pressing chamber. At each revolution of the machine the mold carriage moves the empty mold forward into position under the jack mold, at the same time pushing the filled mold upon the mold table in front of the machine. The surplus clay, if any, is then struck off and the brick are dumped from the mold onto pallets, or the molds are loaded upon trucks and conveyed to the drying yard and dumped.

Detailed Construction —

The pug mill and machine are securely bolted together, but are independently geared and driven by separate pulleys. The main shafts of the machine and pug mill are of forged steel. The gearing throughout is heavy and of approved design. The pressing and pugging are performed by separate gearing, thus making the machine doubly strong and greatly increasing its durability. The brick machine tub is 54 inches high, 39 inches diameter, and is made of heavy steel plate. The pug mill is 9 feet long and 2 feet 6 inches wide at the top; the section next to the machine is covered with steel plate — the balance of the mill being left open to give ample opportunity for examining the clay and adding water when necessary. Heavy cross-rods are fitted in the body of the pug mill to increase the mixing and to prevent the clay from swinging in the mill.

Machine Knives and Mudwings —

The machine is provided with double knives, having cast hubs and rolled steel blades, the blades being secured in the hubs with steel pins. The heavy cast iron mudwing is fitted with a rolled steel point, which is easily renewed when worn. The blades above the mudwing can also be readily replaced without removing the hubs from the shaft.

Pug Mill Knives —

The pug mill knives and mudwing are of two-piece construction, so that they may be conveniently replaced when worn without removing the pug mill shaft. They are made of intensely hard metal, which gives great durability.

Press Box —

All sides of the clay pressing chamber are machined, the rear side being self-adjusting, to take up any wear on the plunger and at the same time to insure the plunger moving freely and without binding. The front of the chamber is hinged, giving ready access to the jack mold. The jack mold is machined on the top, bottom and ends, and slides easily into position, where it is held by a tongue and groove in each end. It can be quickly removed and replaced.

Mold Stop —

An adjustable mold stop is provided to bring the mold into proper position when fed into the machine.

Mold Table —

The mold table, as will be seen from the illustration, is of approved design. Three heavy steel rolls support the molds when filling and facilitate pushing them forward on the table. The table can be adjusted to any height to suit the size of mold by means of hand-wheel screws underneath the center of the table, and, when necessary, may be instantly dropped by a hand lever to release a mold.

Pressure Relief —

The length of stroke of the vertical plunger which fills the molds can be varied a maximum distance of 6 inches, which is sufficient to meet the requirements of the clay in any condition of temper. This plunger has a double escapement, or release, so that in case a stone or other obstruction gets under it the excessive pressure operates the steel dogs, releasing the plunger and obviating all danger of breakage. As the machine completes its revolution, the relief escapement re-engages itself automatically, and, in case the obstruction remains under the plunger, the same operation will be repeated until it is removed or the machine stopped. The relief is equally effective in case the regulating pin should be inserted too low in the plunger sleeve, making the pressure too great.

Mold Relief —

The mold feeding device is also provided with a similar relief, which is so adjusted that if the molds get caught in any way the escapement will operate, preventing damage to mold or machine. These escapements can be adjusted to the desired tension by tightening or loosening the nuts on the spring caps.

Spanish Brick —

When so ordered, we build this machine to make Spanish brick, burned size $5\frac{1}{2}$ inches by 11 inches by 3 inches, in which case four brick per mold are made and the capacity per hour is two-thirds that given for standard American size, where six bricks per mold are made.

Driving Pulleys —

Both the machine and pug mill are furnished with a friction-clutch driving pulley, 42 inches in diameter and 10 inches face, with 18-inch American clutch, bore $2\frac{7}{16}$ inches.

Speed —

Gear ratio, 15 to 1. For a capacity of ten molds per minute the 42-inch by 10-inch driving pulley should make 150 R. P. M. Corresponding speed of pug mill about 50 R. P. M.

Power —

Power required for the combined machine and pug mill will vary from 20 H. P. to 30 H. P. according to capacity and character and condition of material used.

Weight —

15,100 pounds.

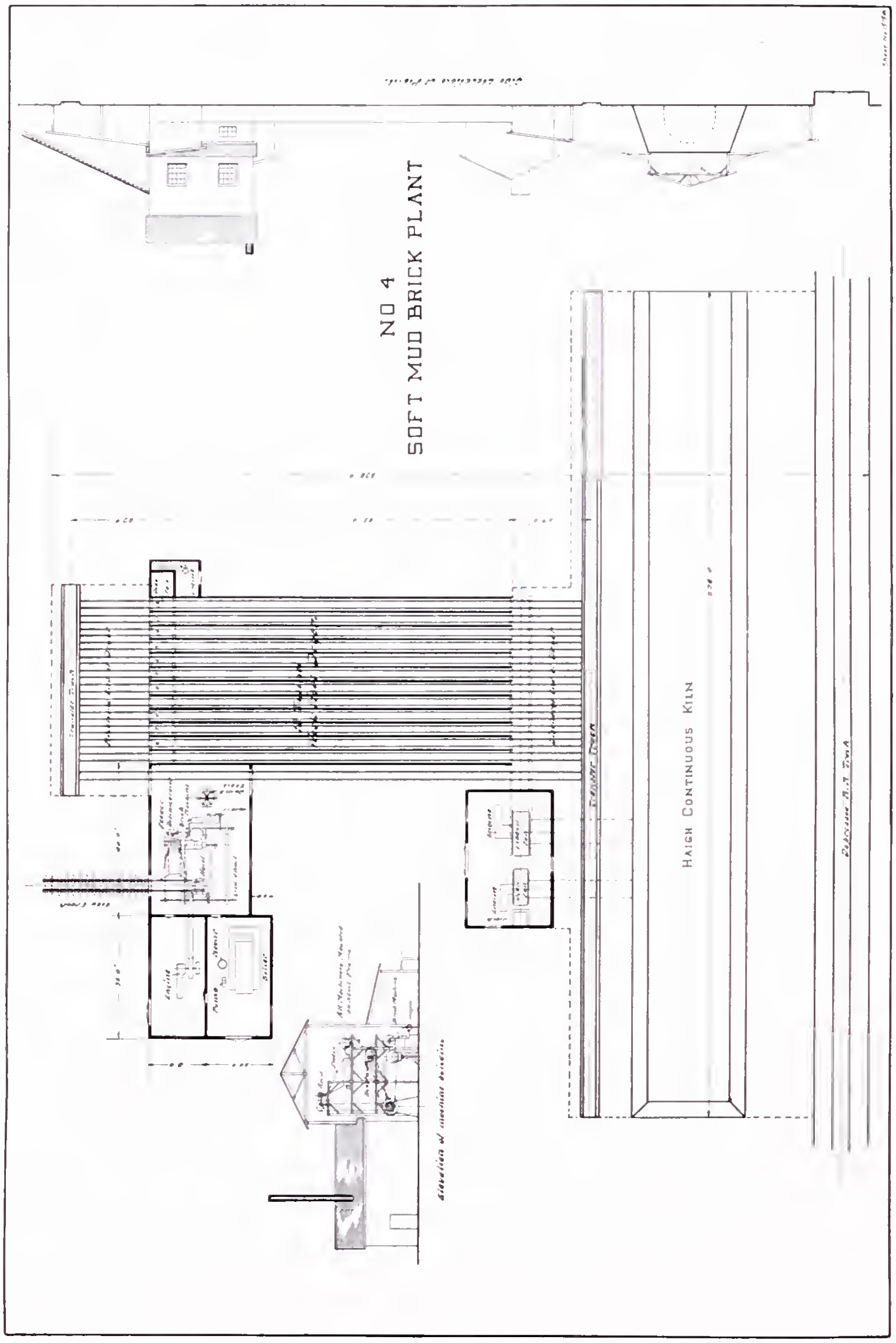
Dimensions

Height over all above floor level	10 ft. 0 in.
Height of Mold Table	2 ft. 1 in.
Height of Pug Mill Hopper above floor level	7 ft. 5 in.
Floor space for Machine	5 ft. x 7 ft. 6 in.
Floor space for Machine with Pug Mill	10 ft. x 16 ft.
Distance from floor level to center line of Pulley Shaft on Brick Machine	8 ft. 4⅜ in.
Distance from floor line to center line of Pulley Shaft on Pug Mill	7 ft. 6½ in.
Distance from center line of Brick Machine to center line of Bearing on Brick Machine Pulley Shaft	8 ft. 1 in.
Distance from center line of Brick Machine to center line of Bearing on Pug Mill Pulley Shaft	5 ft. 6 in.
Distance from center line of Brick Machine to center line of Brick Machine Pulley	6 ft. 6 in.
Distance from center line of Brick Machine to center line of Pug Mill Pulley	4 ft. 0 in.

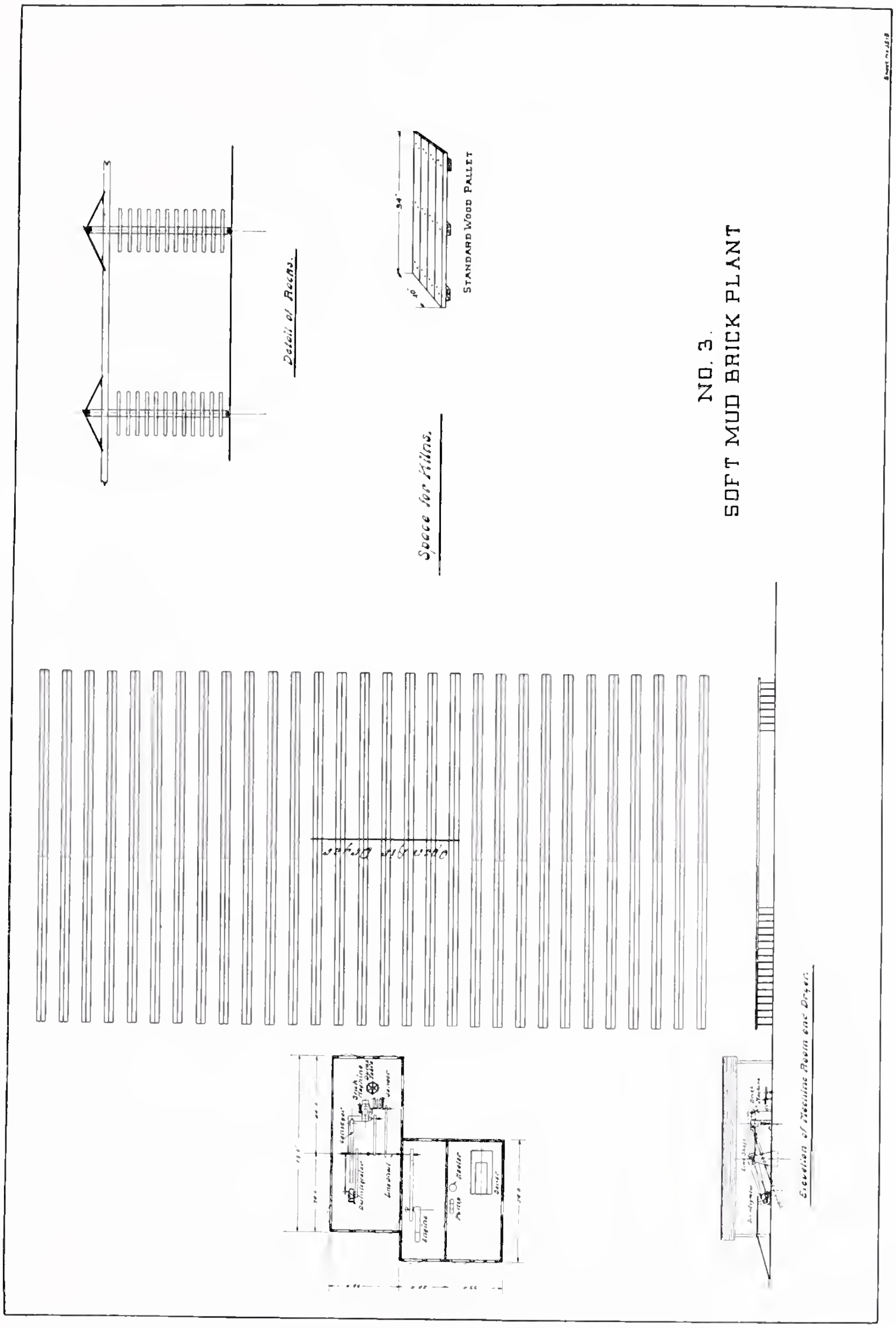
Fire Brick Special Soft-Mud Brick Machine

For the manufacture of fire brick and fire-clay tile, we build a special pattern of our upright brick machine. While the general design of the machine remains unchanged, we have increased the size of the jack mold, the width and depth of the opening into which the molds are fed, and the height of the legs on which the machine is mounted. This special machine is capable of producing blocks up to 6 x 12 x 32 inches, green size. Any size within this range can be made; or smaller sizes, where combined area does not exceed these dimensions, with sufficient allowance for partitions. The maximum mold space is 7½ inches high, 13½ inches wide, and 35 inches long. The minimum mold space is 2⅞ inches high, 9 inches wide, and 35 inches long. The molds must be enough smaller than the maximum mold space to permit them to move freely without binding.

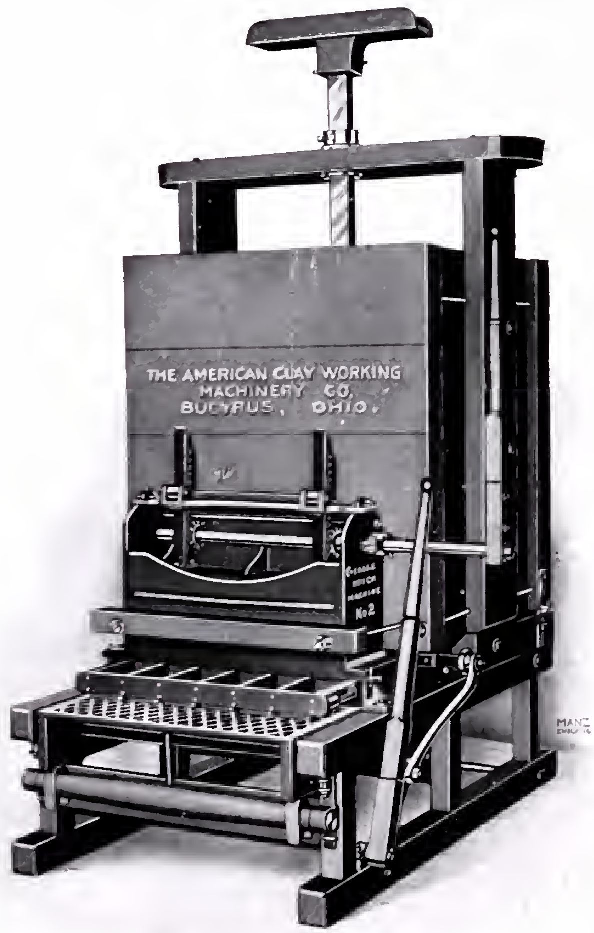
The machine may also be fitted with molds for making various shapes; in fact, any shape that can be produced on a soft-mud machine can be satisfactorily made on the fire-brick special. In fitting up the machine for special shapes, it is necessary to have a jack mold for each size or shape to be produced. The fire-clay product of this machine has been found to be in all essential qualities equal to hand-made ware.



NO 4
SOFT MUD BRICK PLANT
HAIGH CONTINUOUS KILN


NO. 3.
SOFT MUD BRICK PLANT
Detail of Racks.
STANDARD WOOD PALLET
Space for Kilns.
Open Air Dryer
Elevation of Machine Room and Dryer.

American Eagle Horse-Power Brick Machine



The most simple method of making brick by machinery is by the use of the American Eagle Brick Machine, built by The American Clay Machinery Co., of Bucyrus, Ohio, U. S. A.

This machine is strong, simple and durable. There is nothing to get out of order and ordinary labor is all that is required for the manufacture of good brick.

This machine is well adapted for use on large farms, estates or ranches where a quantity of brick is needed for use on the place. After it has served the purpose it can be sold, as there is little depreciation when carefully used.

Any one wishing to go into the manufacture of brick, making five to ten thousand brick a day, will find this machine well adapted for the purpose, as no costly outfit is needed. A few barrows or trucks to carry the bricks to the drying yard are all that is required.

Having found a suitable bed of clay, the Eagle Machine should be set up at a convenient point. A smooth piece of ground should be selected, where the brick are to be laid out to dry.

This ground should be leveled off and made smooth. The clay should be hauled to the brick machine and made wet enough to mold easily. The clay for a day's run should be allowed to stand over night in a soak pit, to make it work easily. When the clay is in the right condition the machine box should be shoveled full. Place a mold, bottom side up, in the machine to keep the clay from working through the machine, and then start the horse. This will mix the clay through, and when you are ready to make brick take another mold which has been soaked in water and sanded with clean, sharp, dry sand. This mold should be slipped into place close to the stop. Now pull the lower lever forward, which will slide out the empty mold and shove in the one to be filled. Then raise the lever and slide in another well sanded mold. Now pull the upper lever steadily, carefully and firmly forward, holding it with the right hand while with the left hand you pull the lower lever forward. This will push the filled mold out and replace it with an empty one. A long-handled, straight-edge knife is supplied, with which the operator scrapes the extra clay from the top of the mold. The mold is then lifted from the machine table and can be carried away to the drying yard. Should the brick stick to the mold, a light tap on each end of the mold will loosen them. If the molds are cleaned carefully and are well sanded there should be no sticking. Practice will teach any ordinary person how to work the machine without trouble. It is important that the clay be in the right condition and that the molds be well soaked and evenly sanded with good sand. The molds should be washed frequently and cannot be too wet or too clean. The openings in the bottom of the mold are for letting in air, and should be kept one-sixteenth of an inch wide.

The molds of brick are taken direct to the drying yards and dumped on the smooth and leveled ground.

After the brick have been dried thoroughly they are ready to be placed in the kiln and burned. The time necessary for drying depends upon the climate and the weather conditions. Provisions should be made to protect the unburned brick from the rain.

While some brick-makers carry the brick from the machine to the drying yard by hand, it has been found that the use of trucks will make the work easier and faster. We build trucks for this work.

In operating this machine, one man should attend to the machine. A second man should see that the molds are clean, sanded and ready at all times. A third man should keep the tempering box filled with clay, and two or three to carry away the bricks. One good horse will be able to furnish the power, though the quality and condition of the clay may make two horses necessary.

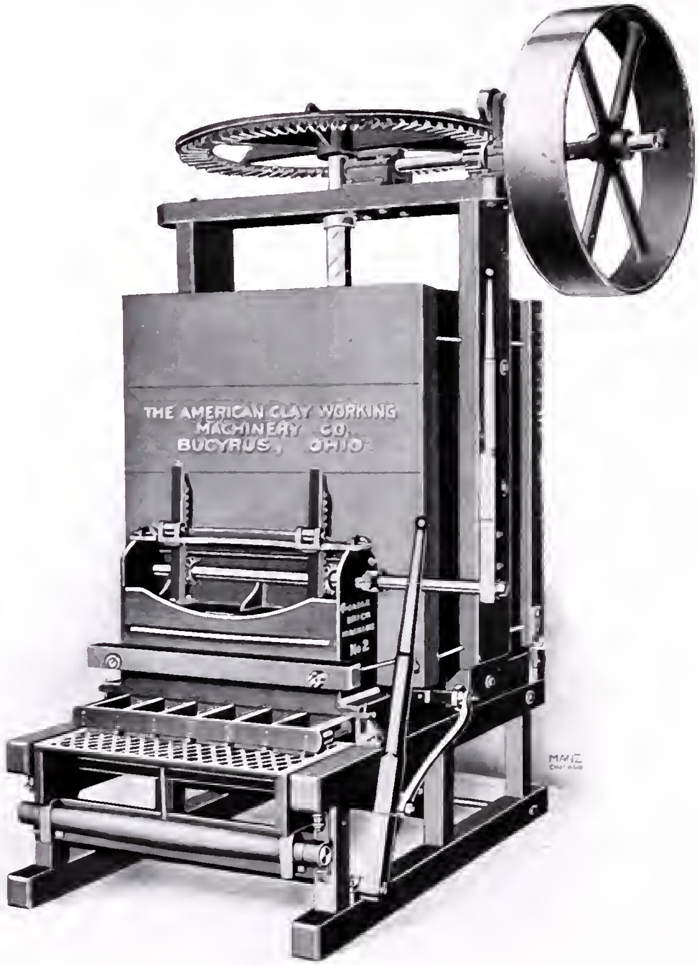
The clay should be tempered as soft as possible to secure good results. The brick when dumped on the ground should be stiff enough to retain their shape and not flatten out.

In hot, dry weather the molds may get so dry that sand will not stick to them. In such cases the mold should be dampened, as the coating of the sand on the molds is necessary to make the brick leave the molds when dumped.

This machine will make bricks as large as 12 x 6 x 3 inches, but special attachments are needed for large sizes.

We would recommend the purchase of eighteen molds with each machine. These molds will be specially made for the size of brick you desire to manufacture.

American Eagle Steam-Power Brick Machine



The accompanying illustration shows the Eagle Brick Machine equipped for power. The pulley is 30 inches in diameter and has a 6-inch face. Speeds should be from 35 to 40 revolutions per minute.

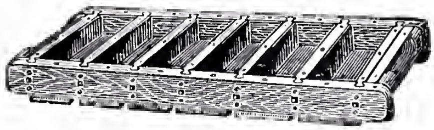
Sand Box

In making brick it is necessary that the molds be well sanded on the inside. While we furnish machinery for sanding the molds it may be found just as convenient on small yards to sand the molds in a box which can be easily made right in the yard. In making this sand box use good two-inch lumber. Cut four pieces 3 feet 6 inches long by 12 inches wide. These pieces are for the ends and sides of the box. For legs use 4 x 4's. The length of the legs will depend on the elevation of the machine when it is set up. Nail the side and end pieces to the legs. The pieces for the bottom can then be cut. The bottom should be made double with broken joints so as to make a sand tight bottom. Across the end of the box on top should be placed a plank shelf 12 inches wide. This is used to lay the empty molds. This box will be found convenient in small plants, but where there is power and larger capacity is desired we recommend our Champion Mold Sanding Machine.

American Striking Knives

When the mold full of bricks comes from the machine it is necessary to remove any extra clay from the top of the mold. For this work we supply a striking knife with which the clay can be struck or scraped off. The machine man soon becomes expert in the use of the strike knife. We make these knives with one or two handles as preferred by the customer.

American Brick Molds



We supply good brick molds, made of selected material, securely joined and iron bound.

Ordinarily six brick are made in each mold, but where special sizes of shapes are made the number will vary.

The picture shows the mold made for a standard 8¼ x 4 x 2½-inch brick. The molds will in each case be made the size the customer desires to make. This size should be given when placing the order and allowance should be made for the shrinkage of the clay in drying and burning.

Brick Drying

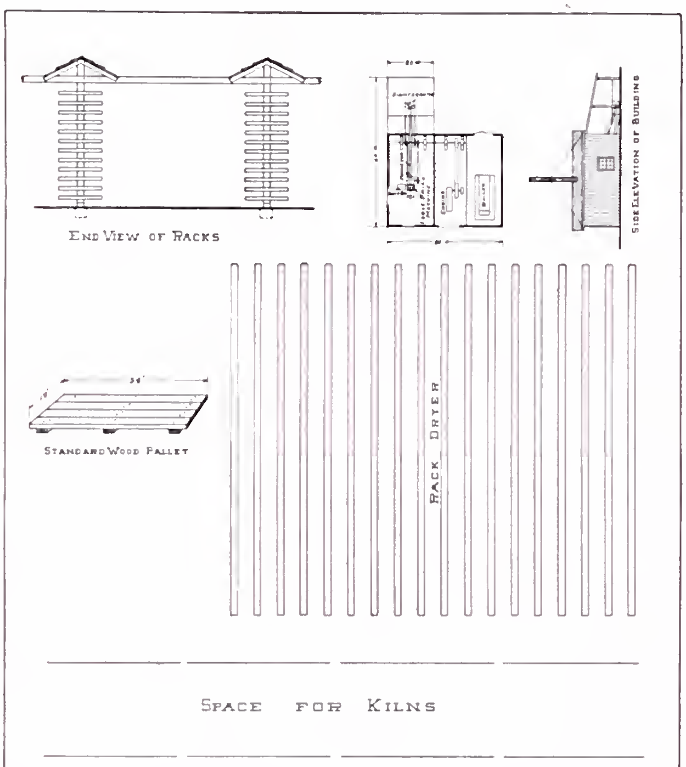
While it is often found possible to dry the brick on a smooth piece of ground leveled off for that purpose, it is advisable to construct dry racks to protect the soft brick from the weather. In this way the bricks are allowed to dry on the pallets, which are placed on the racks. This method is a step in advance over drying the brick on the ground or on the floor. It is not a difficult matter to construct drying racks, and in order to assist in the work we give the amount of lumber necessary to take care of sixty thousand brick, which would be equivalent to an output for one week at ten thousand brick a day.

Material for Racks —

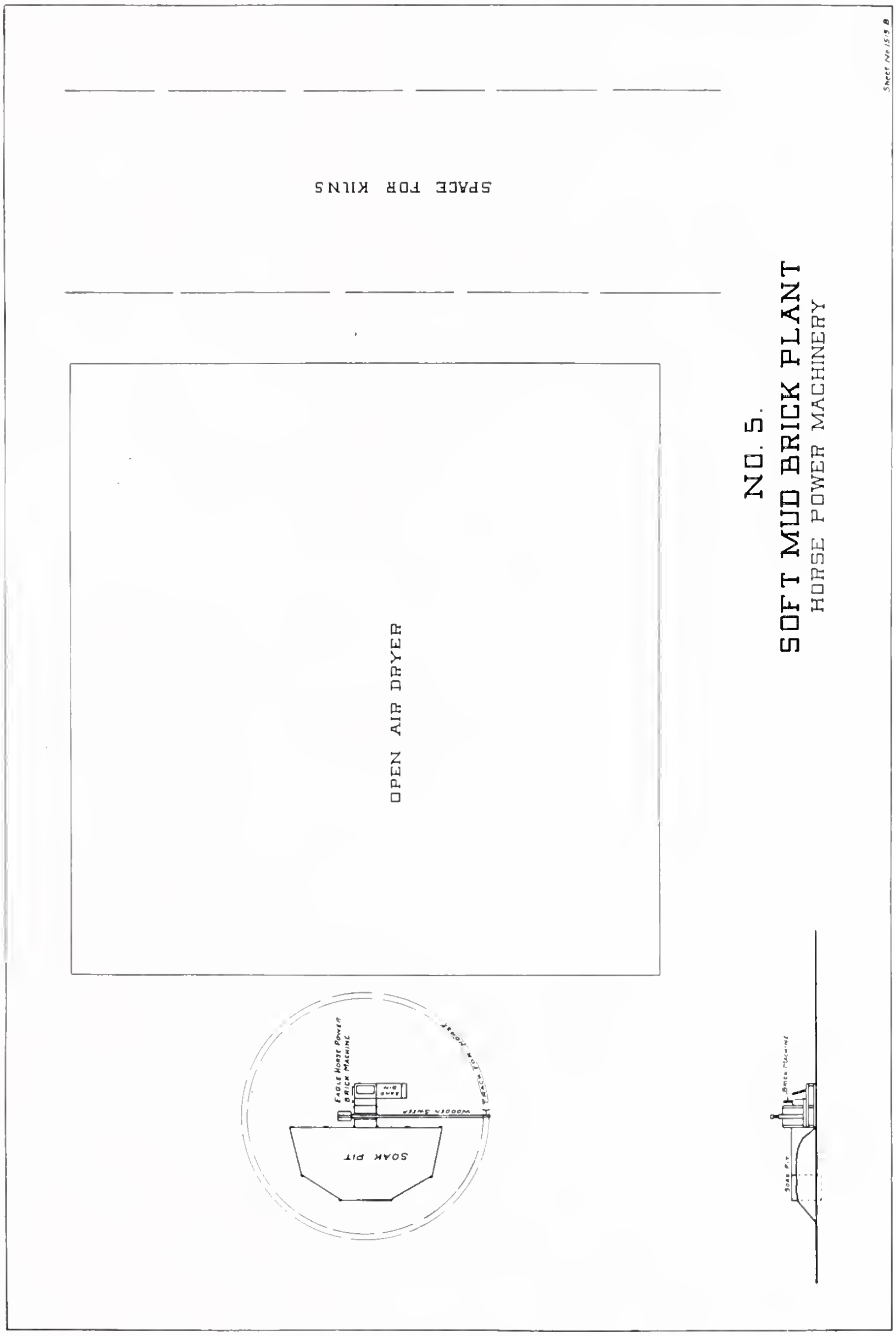
140 pieces 4 inches x 6 inches x 16 feet mud sills.
440 pieces 4 inches x 6 inches x 7 feet posts.
6,000 pieces 1 inch x 1½ inches x 2 feet cleats.
250 pieces 1½ inches x 6 inches x 12 feet braces.
850 pieces 1 inch x 8 inches x 16 feet covering.
23,000 feet B. M.

Material for Pallets —

10,000 wood pallets 10 inches wide x 34 inches long.
40,000 pieces ⅝ inch x 2½ inches x 34 inches top board.
30,000 pieces 1 inch x 1½ inches x 10 inches cleats.
24,000 feet B. M.

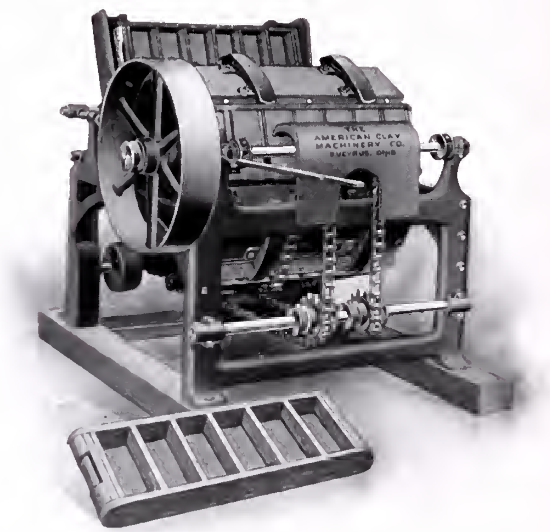


NO. 7.
SOFT MUD BRICK PLANT


NO. 5.
SOFT MUD BRICK PLANT
HORSE POWER MACHINERY
SPACE FOR KILNS
OPEN AIR DRYER
SOAK PIT
WOODEN SWEEP

American No. 22 Brick Mold Sander

This machine is designed for sanding the molds automatically before delivering them to the soft-mud brick machine. It is substantially constructed and is strong and durable in all its parts. The cylinder upon which the molds ride has eight sides, four of which are open to receive the molds to be sanded. The molds are fed to the machine from one side and the cylinder containing clean sharp sand revolves, depositing an even coating on the molds, and delivers them at the opposite side of the machine.



The molds fit the openings accurately, so that the sand is retained in the cylinder and is not wasted. Three molds are always in process of sanding and only the face of the mold comes in contact with the sand. In using this machine it is necessary to have clean dry sand; the molds being damp, the sand readily adheres to the sides and bottom.

The machine is operated at a speed which will deliver the mold at the proper time for delivering same to the brick machine. It is fitted with a driving pulley, 24 inches in diameter, 3 inches face, and should be operated at 20 R. P. M. to give a speed of 10 molds per minute. The driving shaft is fitted with a jaw-clutch so that the machine may be started and stopped readily. Floor space required, 58 inches by 55 inches. Power required, 1 H. P.

Specifications

Rated capacity	10 to 20 molds per minute
Diameter Drum Shaft	$1\frac{1}{2}$ in.
Diameter Driving Shaft	$1\frac{1}{2}$ in.
Length of Bearings, Drum Shaft	3 in.
Length of Bearings, Driving Shaft	3 in.
Pitch diameter Driving Sprockets	$4\frac{3}{4}$ in.
Style of Chain	May Oborn
Size of Chain	No. 62
Number of Strands of Chain	2
Number of Molds on Drum	4
Maximum length of Mold inside	$31\frac{1}{2}$ in. or 6 brick $4\frac{7}{8}$ in. wide
Diameter of Jaw-Clutch Driving Pulley	24 in.
Face of Jaw-Clutch Driving Pulley	4 in.
Speed of Jaw-Clutch Driving Pulley	20 R. P. M.
Power required	1 H. P.
Average weight in pounds	1,525

Dimensions

Length over all	5 ft. 5 in.
Width over all	4 ft. 11 in.

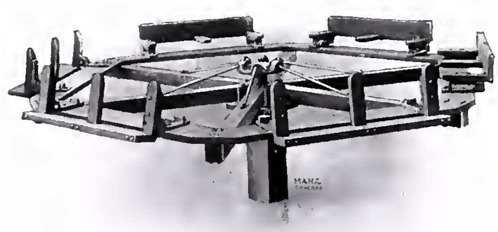
Height over all	3 ft. 11 in.
Length from center of Sander to center of Driving Pulley	28½ in.
Length from center of Sander to end of Driving Shaft Pulley side	2 ft. 8½ in.
Width from center of Sander to center of Driving Shaft	20½ in.
Height from floor to center of Driving Shaft	2 ft. 8 in.
Height from floor to top of Mold on Guide Charging side	3 ft. 10 in.
Height from floor to top of Chain Shield Discharging side	2 ft. 11½ in.

American Brick Molds

American Standard Brick Molds are carefully fitted and accurately made to size. The partitions are firmly secured in the mold and the molds are securely bound with steel. In the construction of our molds we use cherry, as it has been demonstrated that this class of wood is the most suitable for brick molds, owing to the fact that it has a very close grain and does not absorb water rapidly. It also remains smooth when wet. To produce good brick it is absolutely necessary to have substantial, well-constructed brick molds. In ordering brick molds, be particular to specify the exact length, width and depth of mold required, and number of bricks per mold.

American Revolving Dump Table

American Revolving Dump Tables are used for carrying the pallets upon which the bricks are dumped from the molds. The table is built in a strong, substantial manner and operates easily. The table can be furnished with four, five or six leaves, as may be required to suit the arrangements of the plant. In operation the table is set directly in front of the mold sander,



where it is convenient for the dumper to return the empty molds to the sanding machine. When the bricks are dumped on one side of the table it is revolved, bringing an empty pallet ready to receive another mold of brick, at the same time delivering them to the opposite side of the table, where they are convenient for the truckers or loaders, who remove the pallets loaded with brick to the trucks or the dryer cars.

American Strike Knife

American Strike Knives are made of cold rolled steel and are fitted with double handles. The strike knife is used to strike off the top of the mold as it issues from the brick machine, thus removing all surplus clay and making the bricks of a uniform thickness.

American Sand Dryer for Soft-Mud Plants

This machine is designed for the purpose of supplying the necessary quantity of clean, dry sand which is essential to the successful operation of a soft-mud brick outfit.

Rated Capacity Per Hour —

Ample for plants of from 5,000 to 10,000 brick per hour.

Specifications

General —

Without clean, dry sand, the sticking of the brick in the mold will cause annoying delays, which will materially affect the day's output. Our sand dryer furnishes a simple, convenient means to insure a supply of properly dried sand. The heat dome, under which a small fire is maintained, is surrounded by a cylinder of perforated metal. This screen cylinder is held rigidly in place by connections between the dome and screen and its rigidity is increased by wide bands of unperforated metal around the top and bottom circumference. An opening at the bottom of the screen allows the sand to fall through as fast as it is thoroughly dry. With this device an ample supply of dry sand is assured at all times.

Weight —

1,100 pounds.

Dimensions

Floor space .... 38 x 38 in.

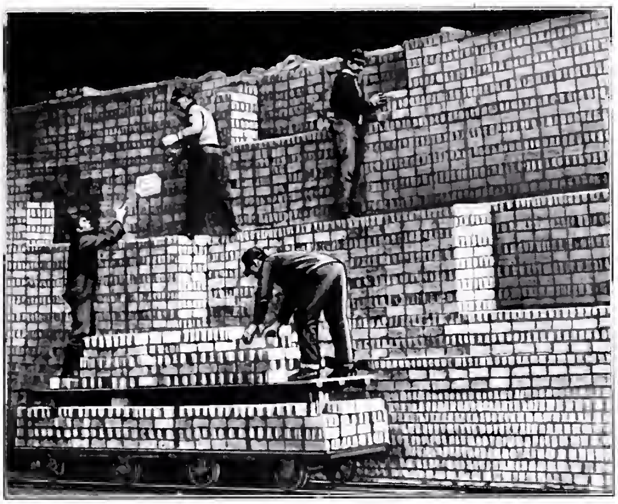
The American Clay Machinery Company

BUCYRUS, OHIO, U. S. A.

BUILT RIGHT RUN RIGHT

Mechanical Brick Setter Department

Mechanical Brick Setter



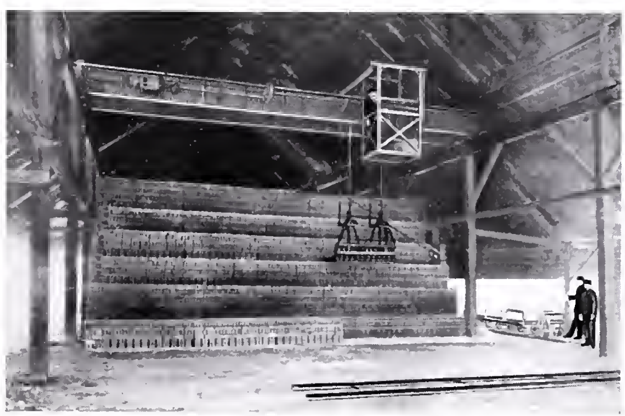
Old Method of Hand-Set Brick

For centuries all brick have been set in the kiln by hand. The advent of machinery of large capacity for the making and drying of brick has made the old hand-set method of kiln building too slow and to provide more rapid and better means for setting brick became a problem. As in other matters of extreme advancement in clay manufacturing The American Clay Machinery Company worked out the problem, with the result that the Penfield Setting System is in daily use on many brick yards and is, in every case, giving the best of satisfaction. While this system is naturally best adapted to plants of large capacity, it is none the less interesting to all manufacturers of clay products.

The Mechanical Brick Setter is at once ingenious, simple, thorough and successful and does in a perfectly satisfactory way the work set before it. Briefly stated it will handle each day as many brick as, under the old method, required the services of from thirty to sixty men, and it does the work better and with practically no spoilage of brick, where the hand method of the past exacted toll to an alarming extent.

The installation of this system is not prohibitive from an expense standpoint and the cost will prove insignificant when the results are taken into account. The system is best adapted to the open-top continuous kiln, being applicable to the setting of stiff-mud, dry-press and soft-mud brick.

In addition to the great saving in time and labor effected by this setting machine, there is a marked improvement in the quality of the brick and freedom from friction



New Method of Setting Brick by Machinery in handling a body of men. To operate the machine requires a craneman and a helper; the helper, however, need not give his entire time to the setting machine.

The illustrations here shown give an accurate idea of the simplicity of the setting machine and the work it is doing.

These photographs were taken of the machine in actual use. The work of the machine has been witnessed by many leading brick-makers from all parts of the country and all express satisfaction with, and astonishment at, the method and the work accomplished.

The use of the Mechanical Brick Setter does not interfere in any way with any other department of the plant. The brick are taken from the off-bearing belt and are hacked on dry cars just as of old, except that each car is hacked on a standard plan, leaving a small space between the bricks of the bottom row to provide an entering space for the fingers of the setting machine. Each dry car is loaded with 800 to 1,000 brick, which are called a unit. The setting machine handles a full carload of brick at each lift, touching only the bottom rows and doing the work without dropping, chipping or injuring the brick.

Setting Machine Raising the Load

Setting Load of Brick on Top Bench of Kiln. Note Evenness of Brick on Under Side of Load

Setting Machine With Load Ready to Lift

The only preparation necessary for the installation of the Penfield Setting System in any plant is to equip the kiln shed with an overhead electric crane. The track upon which this crane runs should be built down the entire length of the kiln shed, or as much of it as is desired for machine-set brick, in order that the setting machine may operate freely over the top of the kiln. To this overhead crane the brick-setting machine is attached.

The setting machine is built throughout of steel and has a number of prehensile fingers which enter the spaces left between the bottom rows of brick as hacked on the dry cars. Each stack or carload having been built on a uniform plan, it is easy for the operator of the crane to run the carrier up to the dry car and slip the fingers of the carrier into the spaces left to receive them. The crane then starts to raise the load and the weight of the load on the carrier causes a series of grip plates on the fingers of the carrier to close automatically, putting just sufficient pressure on the bottom row of brick to hold them firmly. The bulk of the weight of the load is

Setting Load of Brick on Third Bench of Kiln

Setting Machine Raising the Arch Unit Note Space Between Bottom Row of Bricks for Fingers to Enter

carried by the heavy steel fingers, as the third course of brick from the bottom is built crossways of the fingers. The lower row of brick having been automatically clamped, the load is raised and is successfully carried to any part of the kiln, where it is set accurately in any place desired on any bench of the kiln. When the load has been lowered into position in the kiln and the weight is no longer on the machine, the pressure is automatically released from the grip plates and they release their hold on the bottom row of brick so that the craneman can back the carrier out from under the load and return with the carrier to the dry cars for another lift.

So perfectly is this machine built and so easy of operation that the craneman finds no difficulty in picking up and setting a dry carload of brick each minute and with a marked saving in time, labor, money and damaged brick. The usefulness of the Penfield system does not end, however, with setting the brick in the kiln. After the brick are burned the carrier can again be brought into use to pick up each unit or load and transfer it to the storage shed or load it on railway cars for shipment. Here again a lot of men are supplanted and the work can be accomplished by the use of this machine at a much less cost.

The Penfield Setting System is not an experiment. It is covered by numerous patents and is fully protected. It is in daily operation in a number of modern brickyards. In the Chicago territory this machine is doing the work of from thirty to sixty men at each yard and affords money-saving possibilities which are most attractive and will insure any brick manufacturer a handsome profit and a substantial dividend at the end of the year. It is for these reasons that the advent of the Penfield Setting System has been watched with great interest by all branches of the brick industry. It is such an important unit in a modern brick plant from a cost-reducing standpoint that a brick manufacturer who is without it cannot hope to compete with his more fortunate competitor who has it.

Any person interested in this labor-saving, money-making revolution in brick-making machinery will be given further information, estimates, etc., upon request. The machine is not sold, but will be installed on a royalty basis. Further particulars will be given on application.

Electric Traveling Cranes

We have designed and constructed for use in connection with the Penfield Brick Setting and Brick Handling Systems a line of three-motor Electric Traveling Cranes, containing such special features as were required for use in this class of work. We are, therefore, prepared to furnish to our customers who install these systems this part of the equipment of whatever capacity and size may be required in the installation. The very best practice in crane construction has been followed in the design and production of these important units, and by them we secure the desired speeds, the smoothness of action and the close inspection of the operator, which are essential in this work. Our illustrations are examples of one of these cranes as installed and in operation in a customer's plant.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.

Kiln Department

American-Haigh Continuous Kiln

We have a complete catalogue describing and illustrating the Haigh kiln, which we will be pleased to send on request.

Following the long-established custom of The American Clay Machinery Company, we have gone thoroughly into the burning question with a desire to obtain the very best and most economical kiln. Our representatives have visited all sections of the United States and Europe for the purpose of studying the burning of clay products and to ascertain just what system possessed the most points of advantage.

In Europe economy and system in the manufacture of clay products have kept pace with the well-known conservative and modern methods of other lines of manufacture. They have closely studied the kiln question and have universally adopted the continuous kiln.

Owing to the high cost of fuel in Europe it was imperative that the consumption of fuel be cut to the minimum. The universal use of the continuous kiln in Europe is, therefore, significant.

The American-Haigh Continuous Kiln is the most satisfactory and economical burning system ever introduced.

Its record of operation **as told by others** is the only testimony we ask you to consider.

The statements of users are convincing and should prove our claims of superiority.

Why not put in an American-Haigh Continuous Kiln and burn twice as much clay goods with the fuel you are now using?

We recommend your careful consideration of this subject and offer our best services in an endeavor to reduce your burning cost and make your operation more profitable.

Will you give us the opportunity to figure with you?

Let us show you one of these kilns in operation and estimate the cost of construction and the saving it will be to you.

Many manufacturers are saving more than half of their old burning cost by use of the Haigh kiln, and are turning out a better product with less waste.

Haigh's Improved System of Continuous Kiln

The Haigh system of kiln differs from all others in important essentials.

It combines the economy of the continuous with the utility of the up-draft and the down-draft kilns, and is a pronounced improvement over any kiln of any type heretofore placed on the market.

The Saving We Offer You

We can save any manufacturer 60 per cent of his fuel, as it costs nothing to water-smoke the ware and to bring it up to the settling point. This is done by the **advancing heat system** we use in the Haigh Continuous Kiln.

110 Chamber Haigh Continous Kiln. Five Fires

To obtain the high-heat point, other kilns use between 50 per cent and 60 per cent of the total amount of fuel which is ordinarily required to burn the kiln.

This is the fuel we save, because by the Haigh method we bring the kiln to the high-heat point with advancing heat before commencing direct firing, and we thus complete the burn on 40 per cent to 50 per cent of the total amount of fuel used by other kilns.

Top and Side Firing

The Haigh Continuous Kiln, is not fired exclusively from the top, it is also fired from the sides, much the same as with ordinary up-draft or down-draft kilns with the exception that no grates are required, as the fuel is burned directly on the floor of the combustion chamber. These side fires maintain a uniform heat in the burning chambers and also furnish the advancing heat for water-smoking the green ware. The top firing is started in the chamber or compartment ahead of the side fires, and is commenced when the advancing heat from the other compartments has raised the temperature to such a degree that the slack coal used in top firing is gassified as it is fed into the kiln and perfect combustion results. Because of the perfect combustion of the top fires and equally perfect combustion of the side fires it is possible to burn ware without discoloration.

Perfect Control of Heat

The Haigh Kiln is easy to understand and operate. The advancing of the fires and the distribution of heat are under perfect control of the operator. This perfect control is particularly important in burning and thoroughly annealing paving brick. For burning paving brick the Haigh Kiln has been demonstrated to be a great success. Vitrified paving brick burned in the Haigh Kiln have been found to be tougher and better annealed than those produced in the same plants before the Haigh system was introduced, and stand a better rattler test. This more perfect annealing of the product is largely due to the fact that the heating and cooling of the brick during the entire process of burning is very gradually accomplished. No cold air comes in contact with them at any time while they are burning or cooling.

In uniformity and accuracy of burning the Haigh Kiln is equally superior, and paving brick can be burned with the same certainty of perfect vitrification and freedom from heat defects as

Haigh Continuous Kiln, Showing Coal Elevator
66 Chambers, Three Fires

when burned under the most perfect known conditions in round down-draft kilns. Fire-proofing, with all kindred hollow clay goods, are burned with equally satisfactory results, both as to cost and quality.

Surplus Heat

In the Haigh Kiln, by a system of draft flues the surplus heat from the compartments which are under fire is drawn into the compartments ahead of them, and is utilized in water-smoking the unburned brick and in raising them to a high temperature before direct firing is applied.

The compartment next to the burning chamber becomes nearly as hot as the one burning. The second ahead from the burning chamber is cooler than the first, the third cooler than the second, the fourth cooler than the third, the fifth and sixth just about water-smoked. As the heat travels it is followed along with the side and top fires, thus taking advantage of the heat which goes to waste in down-draft and up-draft kilns.

The Haigh Kiln thus secures to the user the advantages of other types of continuous kilns in the economy of fuel consumed, together with some very important results not obtained in other kilns.

Each Compartment Fired Independently

An important advantage secured by the Haigh system of burning arises from the fact that each compartment, so called, is fired independently of the other compartments, and the settle of the ware in each is uniform from top to bottom. Another advantage is that different kinds of brick can be successfully burned in the kiln at the same time.

Filled and Emptied Simultaneously

The general form of construction of the Haigh Kiln is such that the dried ware is taken into the inner court, and the sections are filled through the openings into the kiln from this court, while the burned ware is discharged through the doorways in the outside walls. This obviates any interference between the loading and unloading crews.

Fuels

One great advantage of the Haigh Kiln is that various kinds of fuel can be used to burn the wares without any change in the kiln construction, excepting the firing wickets. Either coal, oil or gas can be successfully used for side fires, with a small quantity of slack coal for the top firing. The percentage of slack coal for top firing varies according to the different materials to be burned. When using coal for both top and side fires, the coal used on top will run from nine to twenty per cent of the total quantity consumed.

Utilizing Waste Heat

After the heat from the burning zone in the Haigh Kiln has been utilized in water-smoking and heating the green brick preparatory to burning, there still remains a large volume of heat which is being thrown off by the burned brick while they are cooling, preparatory to being removed. In some cases this waste heat is used on dry floors constructed above the kiln, while in others by a very simple and complete arrangement it is drawn off and used in our American Waste-Heat Dryer. Experience has proven that in all kilns which are operating on a full continuous system there is sufficient heat ordinarily wasted which, when utilized by our method, will dry all the materials the kiln will burn, however great the capacity may be.

Sizes and Capacities

The Haigh Kiln is designed to be erected in three sizes for burning all classes of clay products excepting sewer pipe and other glazed wares.

HAIGH KILN, SIZE No. 1

The No. 1 Kiln is the standard size for burning common brick, paving brick, and hollow ware, where the material is hard to burn and requires very intense heat. The chambers or sections are 15 feet wide, 12 feet long and 11 feet 6 inches high. This can be built either continuous or semi-continuous for one set of fires.

This size kiln having one set of fires and consisting of 22 chambers will, when burning building brick, give a daily capacity of from 30,000 to 40,000. When burning paving brick the capacity will range from 15,000 to 20,000, and when burning fire-proofing or drain tile from 40 to 60 tons. A kiln of double this capacity would require two sets of fires, using 44 chambers. A three-fire kiln would require 66 chambers. For capacities requiring more than one set of fires it is always built continuous.

HAIGH KILN, SIZE No. 2

The No. 2 Kiln is designed for burning drain tile, fire-proofing and building brick when materials are easy burning and will mature at less than 2,000 degrees F.

The chambers or sections in the No. 2 Kiln are 15 feet wide, 16 feet long and 11 feet 6 inches high. This size kiln having one set of fires and consisting of 22 chambers will burn from 60 to 75 tons of fire-proofing per day, or an equal tonnage of 4-inch drain tile or standard hollow brick.

HAIGH KILN, SIZE No. 3

The No. 3 Kiln is designed for use in small factories or factories where it is desired to burn continuously an output equivalent to from 10,000 to 20,000 building brick per day.

The chambers or sections are 12 feet wide, 12 feet long and 9 feet high. This size is adapted to burning roofing tile in addition to the other clay products mentioned.

Showing Four Chambers Ahead of Fire. These Chambers are Water-Smoking with the Advancing Heat from the Burning Brick

Kiln Doors Just Opened with Burned Brick in View

Ask Men Who Know

The following are users of the Haigh Kiln. Write them for facts and figures. Then come to us for more names of users if you want still more testimony.

When you are satisfied that we can help you to greater economies and larger profits we will send you an estimate on a suitable kiln for your work.

We will explain to you how you can burn **all your products** without burning **all your profits.**

Put your faith in the Haigh Kiln and then watch the increasing proportion of **good products and good profits** and the decreasing cost of production.

A FEW USERS OF THE HAIGH KILN

A. F. Smith Company, New Brighton, Pa.
Capacity, 40,000 brick per day.
Columbia Clay Co., Vancouver, B. C., Canada.
Capacity, 50,000 brick per day.
Onondaga Vitrified Brick Co., Warners, N. Y.
Capacity, 60,000 brick per day.
Mira Brick Co., Sidney, N. S., Canada.
Capacity, 40,000 brick per day.
William Conway, Philadelphia, Pa.
Capacity, 40,000 soft-mud brick per day.
Standard Brick Mfg. Co., Evansville, Ind.
Capacity, 40,000 dry-press brick per day.
Anderson Brothers, Taylorville, Ill.
Capacity, 15,000 soft-mud brick per day.
Marion Brick Works, Montezuma, Ind.
Capacity, 60,000 paving brick per day.
National Fireproofing Co., Perth Amboy, N. J.
Capacity, 1,760 tons of fire-proofing per month.
National Fireproofing Co., Port Murry, N. J.
Capacity, 40,000 brick per day.
National Fireproofing Co., Hamilton, Ont., Canada.
Capacity 2,400 tons of fire-proofing per month.
Excelsior Brick Co., Fredonia, Kansas.
Capacity, 100,000 brick per day.
Sibley-Menge Brick Co., Birmingham, Ala.
Capacity, 40,000 dry-press brick per day.
Richards Brick Co., Edwardsville, Ill.
Capacity, 20,000 dry-press brick per day.
National Fireproofing Co., Lorillard, N. J.
Capacity, 2,000 tons of fire-proofing per month.
Salmon Brick & Lumber Co., Slidell, La.
Capacity, 100,000 brick per day.
Sioux City Brick & Tile Co., Sioux City, Iowa.
Capacity, 40,000 brick per day.
Bessemer Limestone Co., Bessemer, Lawrence Co., Pa.
Capacity, 80,000 paving blocks per day.
Albion Shale Brick Co., Albion, Ill.
The Whitacre Fire-Proofing Co., Chicago, Ill., 3 kilns.
The Kankakee Tile & Brick Co., Kankakee, Ill., 2 kilns.
The Lincoln Paving Block Co., Corning, O.
Rose Hill Brick Co., Rose Hill, Va.
Hope Brick Works, Hope, Ark.
Milledgeville Brick Works, Milledgeville, Ga.
Merry Bros. Brick Co., Augusta, Ga.
The Ohio Brick Co., Toledo, O.
The Lehigh Brick Works, Allentown, Pa., 2 kilns.
The Richlands Brick Corp., Richlands, Va.
First Avenue Brick & Tile Co., Evansville, Ind.
The Hallwood Brick Co., Columbus, O.
Shale Brick Co., Pine Hall, N. C.
Iola Brick Co., Iola, Kans.
The Champion Brick Co., Baltimore, Md.
Credit Forks Brick Co., Credit Forks, Can.

Estimates

The following information is required in order to make an estimate on the cost of building and burning the Haigh Continuous Kiln:

Capacity of kiln required.
State what class of clay products are to be burned: Wire cut brick, soft-mud brick, dry-press brick, paving block or brick, drain tile, hollow ware, fire-proofing or roofing tile.
At what temperature will material burn?
What is the precentage of shrinkage?
By what method is the material now being burned?
What kind of kilns are used?
How high is the kiln set?
What is the average settle on kiln?
What time is required to properly finish the kiln after the settling heat has been obtained?
What time is required to properly water-smoke and bring the kiln up to settling heat?
How long is the kiln allowed to cool?
What fuel is used for burning?
What is the cost of fuel at the plant?
What is the cost of labor for burning per hour?
Do you use waste heat for drying?
What is the nature of the ground upon which the kiln is to be built?
How does it compare with the level of the plant?
How far below the surface is water found?
What is the condition of drainage?

LOCAL MARKET PRICES OF BUILDING MATERIAL

Common brick per thousand.
Fire brick per thousand.
Fire clay for mortar per ton.
Sand per cubic yard.
Lime per bushel or barrel.
Cement per bag or barrel.
Crushed stone or gravel for concrete per cubic yard.
Lumber per thousand feet.
Cost of labor.
Common labor per day or hour.
Brick masons per day or hour.
Masons' helpers per day or hour.
Concrete workers per day or hour.
Carpenters per day or hour.

Showing Kiln Under Construction

Inner Court

Putting Dry Brick into Kiln and Withdrawing Empty Cars

Interior of Kiln Showing Method of Unloading Burned Paving Blocks by Gravity Carriers
Also a Good View of the "Drop Arch"

Loading Paving Blocks from Kiln to Cars with Gravity Carriers

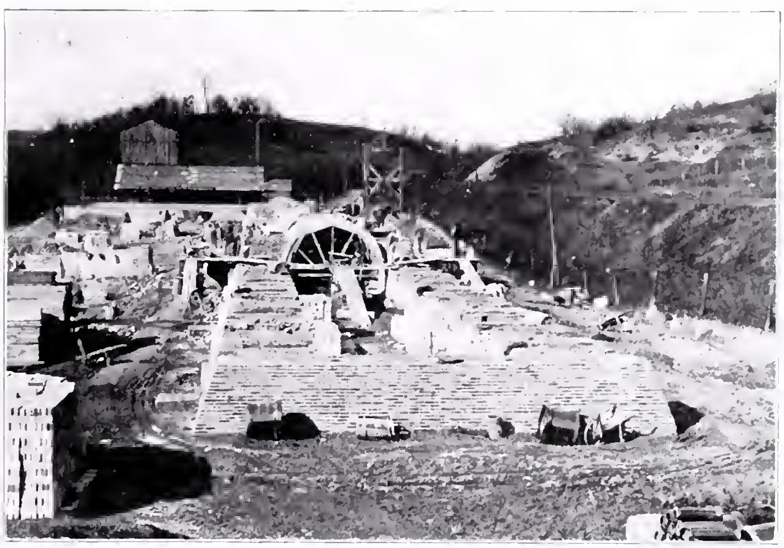
Progressive Pictures Showing the Building of a Haigh Kiln

The picture shows excavations necessary for the foundations and also the manner in which the strong foundations for the piers are laid. As the permanency of the Haigh Kiln and its continued satisfactory operation depend upon substantial construction, we are careful that the kiln from start to finish is "Built Right," in order that we may be assured that it will "Run Right." Beneath the ground, running the full length of the kiln, is a system of ducts of a sufficient capacity to insure perfect operation of the Haigh Kiln. This kiln saves half the fuel ordinarily used in burning paving brick and insures better brick and the highest per cent of No. 1 paving block.

The picture shows the finished piers on which the doorway arches and main crown are built. These piers are not solid brick. They are built hollow with substantial brace walls inside and are filled with earth. This makes a heavy, substantial wall, which will allow for expansion and will prevent radiation, reducing the loss of heat from the kiln while burning, thus making considerable saving in fuel consumption. The picture shows one side of the kiln. The opposite side of the kiln is exactly the same. These piers are substantially built and required 4,300 common brick and 600 fire brick. Between these piers are constructed the fire arches into which the fuel is fed. In order to prevent the burning out of the fire arches and to obviate the necessity of repairs, these fire arches are lined with high-grade fire brick. The entrance to chamber is through the opening between these piers.

The picture shows one of the main crown or main arch sections in position with the centers in position to build two other arches. It also shows the arches built a part of the way up the centers. The men shown are building the supporting walls for the arches. These supporting walls are not tied in with the main arch, but lean against it at the spring of the arch and for a distance of four feet up the arch from the top of the pier. This construction is used to make sure that the arch cannot bulge at the spring when the kiln is under fire. The Haigh Kiln is built to secure special results — the principal results aimed at being economy of burning, simplicity and labor-saving operation and permanence.

The picture shows 27 main arches in position with each arch supported by its supporting wall. Each arch is eleven feet in length; 2,840 fire brick are required to build each arch. The doorway arch and the main arch are both built at the same time and each form a part of the other on the inside of the kiln. In a later photograph of the inside of the kiln this feature of the construction will be shown. A close study of each step in this photographic record will show how carefully we build the Haigh Kiln to insure satisfaction in every feature. If you have any questions to ask concerning the Haigh Kiln or this photographic record we will be pleased to hear from you.



This is an interior view of the Haigh Kiln under construction. It clearly shows the doorway arch and the main arch. It will be seen that the door opening follows the curve of the main arch, which eliminates any offset at the doorway and leaves the inside of the kiln unobstructed. The openings for the drop arches can also be seen. One of the openings for the waste-heat duct will be seen between the first and second drop arch openings. Openings will also be seen along both sides which are used for top firing.

This picture was taken to show the drop arch. These arches can be seen in the top of the kiln. They have a drop of about 12 inches at the center and taper into the kiln wall on the side. These arches are 12 feet apart and are placed in the center of each chamber. The drop arch is not used unless the shrinkage of the material being burned is sufficient to give a settle in burning of 12 inches or more. More than 12 inches in burning leaves a space between the top of the brick and the under side of the crown. The drop arch prevents cold air from passing over the top of the brick too rapidly. The drop arches are built from large fire clay slabs made to conform to the radius of the kiln arch.

Each chamber is 12 feet long from center to center of doorways. Across the inside of the kiln at the ground level the kiln measures 15 feet. Each chamber is arched separately, the arch being 11 feet long, leaving an expansion joint at each drop arch. This expansion joint provides for the contracting and expansion when the kiln is heating and cooling. After the brick are set in the kiln a paper partition is put in at the drop arch.

This illustration shows very clearly, at the right-hand side, the construction of the waste-heat flue. This flue or duct runs the full length of the kiln and is connected to an opening in the top of the kiln every 12 feet, which is one connection to each chamber of the kiln. The waste heat from the cooling brick in each chamber is drawn off through this duct and is utilized in the waste-heat dryer for removing moisture from the green brick. This picture also shows the solid brick piers which are being built for the support of the kiln roof, which can be seen in course of construction in the background.

This photograph shows the two doorway openings in the starting end of the kiln. The main arch has been completed and the end wall has been built up to a height of nine feet. Two underground ducts are shown. The right-hand duct leads to the fan which furnishes draft for the kiln. The left-hand duct leads to the fan which draws off the waste heat from the kiln and forces it into the dryer for drying the brick. These flues are large enough to perform satisfactorily the work for which they are intended. To insure their proper capacity is one of the points of excellence in construction for which the Haigh Kiln is noted and which makes it possible to save half the fuel.

The picture shows the unfinished portion of the 24-Tunnel Waste-Heat Dryer. The picture also shows the large duct which runs across the end of the dryer and is connected by smaller ducts to each tunnel of the dryer. This large duct is also connected with the waste-heat duct on top of the kiln which was shown in the preceding picture. All the waste heat from the cooling brick in this Haigh Continuous Kiln passes through this duct to the dryer where it is used in drying the green brick. This is a feature of modern brick making which means a considerable saving per thousand in manufacturing cost. The saving is so great as to make the initial cost of the installation small when compared with the saving.

The photograph shows the top firing holes through which the coal is fed. It also shows the gauge holes for measuring the shrinkage of the ware when burning. The waste-heat opening is also shown. This is the long narrow opening running across the top of the kiln. This opening is connected with the waste-heat flue running over the full length of the kiln. By means of an American Clay Machinery Co. fan the waste heat from the cooling kiln is forced into the dryer. One of the great features of the Haigh Kiln is that sufficient waste heat is furnished each day to thoroughly dry the green ware, and in addition to the saving of this waste heat the Haigh Kiln saves half the amount of fuel ordinarily used for burning and half the labor of operating the kiln. When completed the top of this kiln is filled with earth, level with the piers shown in the photo and the entire top of the kiln is paved with brick, making a smooth pavement all over the top of the kiln. The castings covering the firing holes will be level with the pavement.

This picture shows the earth filling on top of the kiln. It also shows the feed holes for top firing. Through these holes the coal is fed. The gauge holes are also shown. Through these gauge holes the shrinkage of the brick or block is measured. The opening for connecting the chamber with the waste-heat flue is also shown. A steel waste-heat hood is placed over this opening and is connected to the waste-heat flue, so that the heat from the cooling kiln can be drawn off into the dryer for drying green ware. The substantially built roof, supported by heavy brick pillars, is also shown.

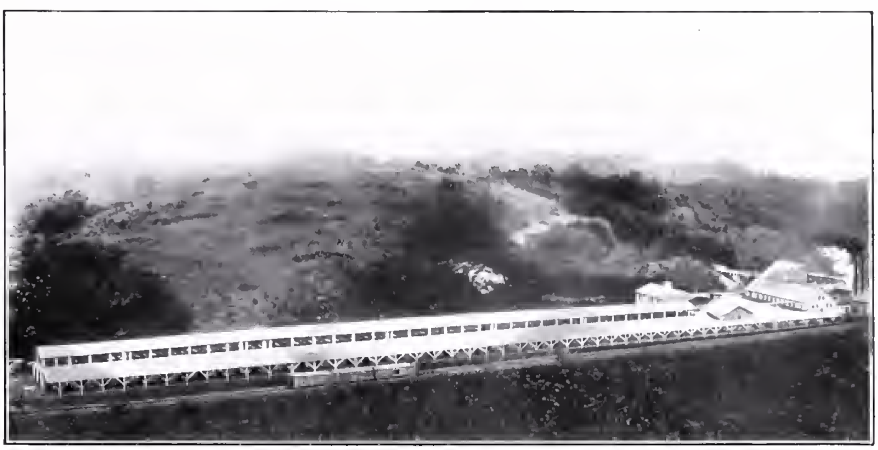
This is a side view of the kiln and shows the kiln shed under construction. The doorways into the kiln also are shown. These doorways are used to remove the burned brick. The smoke-flue openings can be plainly seen along the ground line. These openings are placed in every other chamber. The opening in the kiln wall is connected with the flue, which has been constructed of masonry built into the ground where it makes a connection with the flue to the fan. The opposite side of the kiln would show a similar view, but on that side the doorways are used for taking in the unburned ware so that there may be no confusion between the setters and the crew which is emptying the kiln or the burners. After the green brick are set in the kiln these doors are bricked up even with the outside of the wall and the doorways are used as furnaces for the side fires.

This photograph shows a part of the kiln with roof already constructed but without side sheds. It also shows the 24-Tunnel Waste-Heat Dryer nearly completed. The machine house, which is shown in this picture, is nearing completion. In the hills, which are seen back of the plant, there is material for hundreds of millions of the best of paving block. The finished product will be loaded out directly onto railway cars. The railway track parallels the kiln along its entire length.

This picture shows the finishing end of the kiln. It also shows the kiln roof and side shed complete. The side shed is built to protect the green brick from the weather when they are brought from the dryer to the kiln. This roof projects twenty feet from the kiln and covers the transfer track. The doorways show where the green brick are taken into the kiln for setting. The burned brick are loaded out from the opposite side, which prevents one gang of men getting in the way of another.

This picture shows the entire length of the kiln as well as the complete roof. The side shed projects sufficiently to protect the wickets and doorways from the weather and insures the burner being in the dry. On the ground line will be seen the steel hoods set against the damper openings in the kiln wall. These connect the kiln chamber to the flue leading to the fan which produces the necessary draft. This is the side of the kiln where the blocks are removed to cars or storage yard after the burning is completed. When the kiln is being burned the doorways shown in the picture are bricked up and in them are built the fire boxes or wickets.

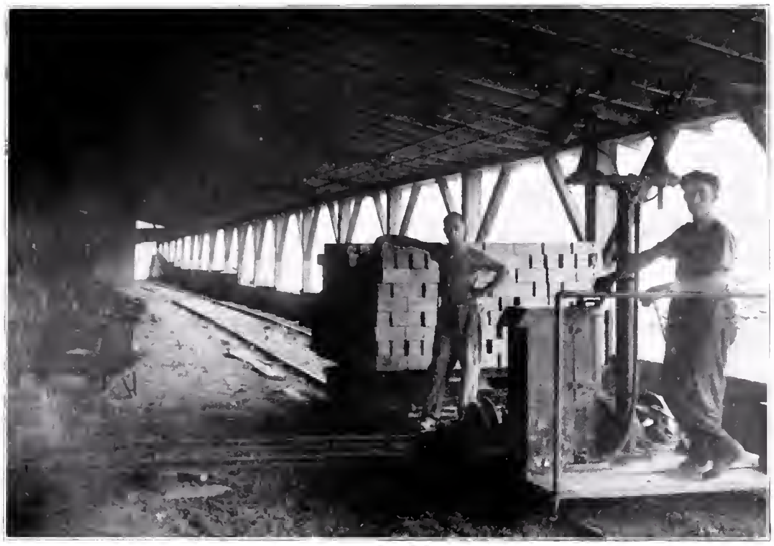
This picture shows the completed Haigh Continuous Kiln at the plant of The Lincoln Paving Block Co., Corning, Ohio. The entire plant also is shown in this picture. The plant is equipped throughout for the profitable production of paving block and the entire equipment keeps pace with the Haigh Kiln in the saving effected. The plant was designed and equipped throughout by The American Clay Machinery Co., Bucyrus, Ohio. From the day the fires were lighted in this kiln it has been in daily successful operation and has been entirely free from trouble. An investigation of this plant is invited.



This picture shows a car of green blocks from the machine room to be placed in the waste-heat dryer. The cars of blocks are taken direct from the machine room and are transferred to the American Waste-Heat Dryer. This dryer is equipped with 400 single-deck cars, and consists of 24 tunnels, having a single track in each tunnel. The waste heat comes from the cooling compartments of the continuous kiln and is drawn off through underground ducts and forced into the dryer by an American Steel Plate Exhauster.

This picture shows the dried block on the cooling track outside of the dryer. These blocks are all dried with the waste heat from the Haigh Kiln, in an American Waste-Heat Dryer. The successful drying of the paving block was a problem, but it was successfully solved by the use of the American Waste-Heat Dryer. Each compartment of the dryer is built to hold fifteen cars and each car holds 420 blocks. The blocks remain in the dryer for forty-eight hours, then they are bone-dry and are ready for setting. They are then run out of the dryer and are taken on electric driven transfer cars to the kiln for burning.

This picture shows the cars of blocks placed on the electric transfer car, which takes the blocks from the dryer to the kiln and places them opposite the doorway of the chamber, where they are set in the kiln ready to be burned. This transfer car is a most convenient and economical feature, which insures quick handling of the loaded cars at a minimum of cost. The transfer car carries three loaded cars and also returns the empties to the machine room. The operator of this car gets so accustomed to this job that he "spots" the rails accurately and without waste of time.



This picture shows the blocks on a transfer car in the kiln chamber. The cars of blocks are then moved close to the setters, who place them in position as shown here. The paper partition can also be seen in this picture. As the fire advances this paper is burned off. The paper is placed between every chamber to prevent back draft. The paper partition is placed at the drop arch separating each compartment. The paper used is not special; ordinary newspaper stock is used. This is purchaseable in rolls of from 500 to 1,000 pounds, depending upon the width.

This picture shows the wicket for side fires. This wicket is built in the doorway and no grates used, the fire being on the floor of the doorway. The picture shows one of the doorways being fired and the other with fire door in position after firing. It will be seen from the picture that when the kiln compartment has been filled, the doorway is bricked up, and the wicket shown is a part of this closing up masonry. After the burning has been completed and the waste heat withdrawn, this doorway is again opened and through it the paving block are removed.

This picture shows the top firing holes through which coal is fed into the kiln. The blocks are so set that the coal fed into the kiln can fall to the floor of the chamber. These firing holes are placed every four feet lengthwise and crosswise in the kiln. Only a small quantity of coal is used from the top, as can be seen in the picture. The operator lifts the fire-hole cover with a hooked rod and with the other hand shovels in a small amount of slack or fine coal with a small shovel. Note the coal bunkers for holding the supply of coal. The bunkers are moved along the top of the kiln as the fires advance. When the kiln is under full heat the coal is almost completely gassified before it reaches the bottom of the kiln.

This picture shows the waste-heat hoods placed in position on top of the kiln. The hood connects the opening in the top of the kiln to the opening in the duct which leads to the dryer. All the heat required for drying the blocks in the waste-heat dryer is obtained from the cooling blocks in the kiln. A previous photograph in this series showed the method in which this waste-heat duct is built into the kiln and the opening in the top of the kiln which is connected with the duct by means of this hood. The entire construction of this kiln is the culmination of years of study and research, and insures the most economical burning.

This picture shows the burned blocks in the kiln, cooled and ready for removal. The gang of wheelers who remove the finished brick are usually working seven or eight chambers behind the chambers in which the bricks are being burned. The waste heat for drying the green brick is being drawn from the cooling brick to the chambers back of the fires. At the Corning plant, when this picture was taken, the wheelers were removing every block in the compartment and were loading them as No. 1 blocks. From the top row to the bottom row they were all first-class pavers that would rattle less than twenty per cent.

This picture shows blocks wheeled out of the kiln. These blocks are taken out at the opposite side from where the green blocks enter the kiln, so that there is no confusion whatever between the setters and brick wheelers. Two chambers are generally being emptied at one time, leaving one chamber empty between the loaders and the setters. When the layout of the plant is satisfactory, the blocks can be removed and transferred from the kiln to the freight cars by conveyors. This arrangement is possible where the shipping track is depressed.

The American-Haigh Continuous Kiln has been in use in the United States for a number of years and during that period of time it has been improved and brought up to a high standard of economy for the burning of clay products. The kiln engineers of The American Clay Machinery Company take into consideration and give careful attention to the fact that the burning of clay products is just as essential to the success of the plant as the proper machinery and dryers. With this in view, and the fact that more than 50 per cent of the plant expenditure during construction is for kilns, they have followed five essential points, i. e.:

The best possible construction;
The lowest cost in expenditure; The lowest fuel cost;
The minimum cost of up-keep; The lowest labor cost.

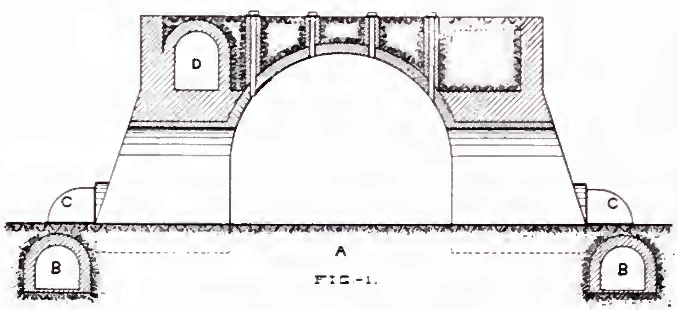


FIG-1.

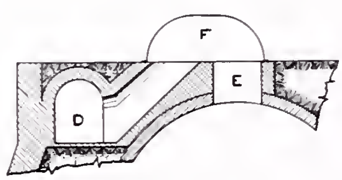


FIG-2.

With these facts in mind one can readily see from the drawing on page 334 the excellent and yet simple construction of the kiln. A careful inspection will show that the floor of the kiln is solid. The kiln foundations are not cut into by lateral ducts, see A (Fig. 1); the flues for the draft for the kiln are placed on each side of the kiln, see B (Fig. 1), and the connections to the chambers are made through the kiln wall, using a sheet steel hood, see C (Fig. 1) to complete the connection.

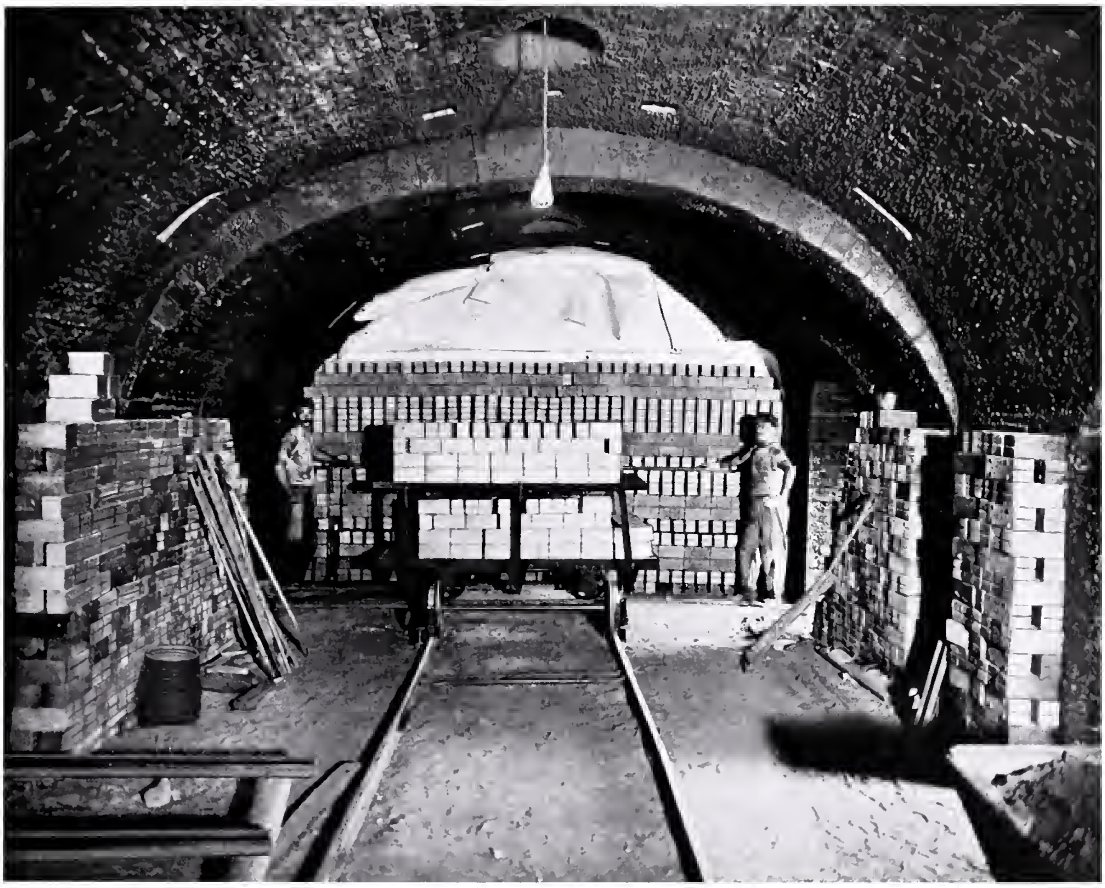


Figure 3, Interior of Haigh Kiln Showing Setting

The kiln is built in the form of a tunnel, the walls being large and heavy to support the main crown, the doors into the kiln are directly opposite each other and are placed, in distance apart from each other, according to the material which the kiln has to burn. Where economy of space is essential, the width and height of the kiln also varies according to the material to be burned, this decision, of course, resting entirely with the owner and kiln engineers, but a variety of ware can be burned in any Haigh kiln. The main crown of the kiln has small openings, 4 inches diameter, through which slack coal is fed during burning. There is also left in the

Figure 4, End Wall

crown in every chamber an opening, see E (Fig. 2), which is connected to the waste-heat duct, see D (Fig. 2) by a hood, see F (Fig. 2). After the arch is placed in position and the feed-hole chimneys and waste-heat duct are built, the kiln is then covered over on the top with 21 inches of dirt filling.

The advantages of using a continuous kiln is well known to most clay-workers. The first and foremost advantage is the saving of fuel. From data secured from scores of Haigh kilns at present in use, the saving of fuel is 50 to 55 per cent over the down-draft or up-draft kiln. We also find that there is quite a saving in burning labor. The setting labor is just about the same in all kilns; this is generally piece-work. The setting in a continuous kiln of the Haigh type is generally known as two headers, two stretchers, 5 over 2 for brick, and two headers, two stretchers, 7 over 3 for paving blocks. Fig. 3 shows plainly the setting used, in which the reader will notice that all brick have one straight face.

In the burning of the kiln a starting wall is built, at one end of the kiln, as is shown in Fig. 4, three fire wickets are built permanently in the doorways, and from these three fires the first four chambers of the kiln are practically water-smoked and the full heat for the first chamber is reached. By placing the connection, see C (Fig. 1), on chambers 2, 3 and 4, the heat is drawn through these chambers. In chamber No. 5 the first paper will be placed, this paper being put clear across the chamber (see Fig. 3). This acts as a dead wall, the same as one built of brick would act, until the fire reaches it. The reason for placing this paper is so that the fan or stack will pull the fires ahead instead of pulling in the cold air from where the setters are working. After the fifth chamber, every chamber has a like paper partition. When chamber No. 1 has reached full-heat point, then top firing with slack coal is commenced, the heat from No. 1 chamber is being drawn ahead into chambers 2, 3 and 4 by the fan or stack draft, and it will be found that chamber No. 2 is nearly as hot as chamber No. 1, and top firing can be started. With fires from Nos. 1 and 2 being now in use, the advanced heat from these extend through chambers 3, 4, 5 and 6. It can be here stated that the hoods for draft for the kiln are moved along in accordance with the speed that the heat travels. When chambers 1, 2 and 3 are all being burned, the heat extends into chambers 4, 5, 6, 7 and 8, and chambers 7 and 8 are being water-smoked, and when burning in chamber No. 1 is

Tile Set in Haigh Kiln

completed, chamber No. 4 is ready for firing, and so on through the whole kiln. The top firing is generally 24 feet ahead of the side fires when the kiln is in full operation.

Looking closely at the pictures here given, the reader will notice that the doorways are used for the firing of the kiln, a temporary firing wicket is built into each doorway. The following advantages can be claimed by the use of a Haigh Continuous Kiln:

(1) Perfect control of draft.

(2) Uniform products obtained, due to having uniform temperature throughout each chamber.

(3) It can be installed to suit any location.

(4) No disadvantage occurs by conflict of setters and unloaders, as the unburned wares enter at one side of the kiln and the burned wares are removed at the opposite side.

(5) The advantage of being able to use coal, oil, wood, natural or producer gas for fuel.

(6) The utilization of waste heat for drying purposes, which is successfully used on a large number of plants.

(7) A small section can be built and added to at any time without any additional expense, excepting that of building the other addition.

(8) The advantage of being able to burn all classes of clay wares, including paving block, building block, hollow ware, fire brick, etc., without any change in the kiln being required.

The first of these advantages—"Perfect control of draft"—is due to the fan method which we use. The fan runs at a constant speed, the change of draft being obtained by changing of the hoods or connections.

The uniformity of products obtained is due to the combination of side and top fires, the heat advancing through the chambers ahead of where the kiln is being fired brings the chamber up to full heat point before the side fires are used, this heat being distributed equally throughout the entire chamber. When the side fires are started the kiln is then close to settling point and these fires are used only until the required settle is obtained or the required time to burn the wares is ended. It can also be here stated that by using the side fires, very little fuel is used from the top of the kiln. The top fuel required varies from 10 per cent to 20 per cent of the total amount used, the remainder being used on the side fires.

The Haigh Continuous Kiln is adapted for any location. The kiln can be built in one long line, if necessary, in two lengths placed side by side, if location is suitable, or in a horse-shoe shape. Any of these kilns will still have the same advantage of having the wares enter one side and removed from the other side.

The fuel advantage is one of great importance. Without any change whatever, the side firing can be obtained by coal, natural gas or wood. There is no change necessary in the kiln for oil firing, the only change being an exterior one, in that the oil must be conveyed by means of pipes to the kiln, the same holds good for producer gas, the change being that the gas must be conveyed to the kiln through the gas connections.

In Fig. 1, D, can be seen the duct for taking the waste heat from the kiln after the wares have been burned and the fires have advanced 60 feet from the burned wares, the waste heat from those cooling wares can then be taken from the burned wares to the dryer by fan draft, as shown in Fig. 2.

In the construction of an American-Haigh Continuous Kiln, the manufacturer does not have to wait until the whole kiln is built before he begins to use the same. After a few sections are built, these sections can be used while the rest of the kiln is under construction. The kiln can also be extended at any time it is desired to do so. A large number of these kilns have been and are being enlarged by this method.

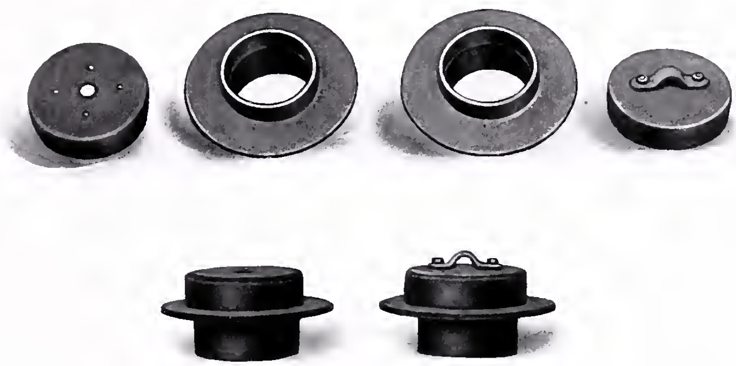
In most of the clay-products plants in this country, more than one class of product is made. Nearly all paving block plants also manufacture building brick and many of them hollow ware; likewise, the drain-tile plants manufacture hollow ware, and many fire-proofing plants manufacture fire brick. This is one of the many advantages obtained by a side-fired continuous kiln of this type. The same kiln can be used for the burning of all these wares, with the possible exception of sewer pipe and pottery.

Fuel Consumption: Generally the first question asked is: "How much coal does it require to burn a thousand brick, or a ton of hollow ware?" This is a question which cannot be answered positively and correctly for each individual plant, as there is such a variation in materials to be burned. We find from information gathered from scores of Haigh Continuous Kilns that we are burning some at as low a fuel consumption as 270 pounds of coal per thousand brick; others vary in figures up to 600 pounds of coal per thousand brick. We also find that we are burning paving block with 800 pounds of coal per thousand blocks, and as high as 1,200 pounds of coal per thousand blocks, yet we find this same variation takes place in all classes of kilns, and when we look into the saving in fuel, we find that the percentage saved is the same. If it takes more fuel on one yard than it does on another, with the identical continuous kiln on each, we also find that the same variation exists with up-draft or down-draft kilns, the variation being caused by the variation in the clays. Usually the Haigh kiln will save half your fuel.

Cost of Construction: This is another matter that is a variable one, due to the fact that building materials are not by any means the same in all localities, and here, again, the kiln engineers have been obliged to make comparison of costs. In doing this, it is strange, yet true, that the labor costs on kiln construction has shown the least change; fire brick has shown the greatest variation, due, no doubt, to the fact that fire-brick plants can only be found in spots, and the builder who has to ship fire brick a long distance has to bear the added expense in construction. Nevertheless, we find that the actual cost of construction is just about that of the Bee-Hive Down-Draft Kiln for the same daily capacity of burned wares, and when the reader takes into consideration the saving of 50 per cent of fuel in these times of high coal costs, he will readily see the advantages of installing a kiln of this type. At the present time there are quite a number of American-Haigh Continuous Kilns being installed, but a more pleasing and significant thing is the fact that many of those that have installed a Haigh Continuous Kiln are at this time enlarging the same, which proves its success. The slogan, "Repeat orders show success," is likewise true of "Repeat extension shows success."

Iron Work for Haigh Continuous Kiln

Waste-Heat Hood for Haigh Kiln

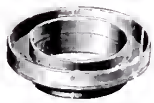


Socket and Lids for Fire Holes and Gauge Holes on Top of Haigh Kiln

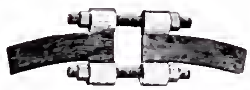
Smoke-Duct Hood

Iron Work for Kilns

The American Company is supplying all necessary iron work for kilns. Cast rings and covers for crowned kilns. Grate bars and kiln band clamps. Make your needs known.



Kiln Band Clamps



These we furnish in three sizes: No. 1, 4 inches; No. 2, 5 inches; No. 3, 6 inches.

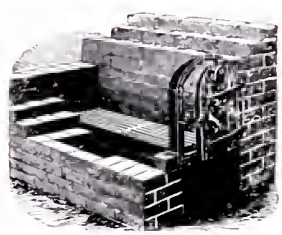
Grate Bars

We furnish the following sizes:

No. 1—36 inches long, $2\frac{1}{2}$ inches wide; weight, 34 pounds.
No. 2—26 inches long, 7 inches wide; weight, 64 pounds.
No. 3—50 inches long, $3\frac{1}{2}$ inches wide; weight, 44 pounds.
No. 4—50 inches long, 3 inches wide; weight, 40 pounds.
No. 5—32 inches long, $2\frac{3}{4}$ inches wide; weight, 23 pounds.
No. 6—24 inches long, $3\frac{1}{4}$ inches wide; weight, 21 pounds.

Kiln Doors

No. 4-A Kiln Door



No. 1-A Kiln Door

No. 2-A Kiln Door

These we make either single or with a protection plate on the inside, which can be easily replaced when burned out. We make the following sizes:

No. 1-A. Plain, flat door, with or without sliding draft, as desired. Size of opening, 13 x 17 inches.

No. 1-B. 18 inches high, $14\frac{1}{2}$ inches wide.

No. 2-A. Convex door. Size of opening, 13 x 17 inches. Weight, about 70 pounds.

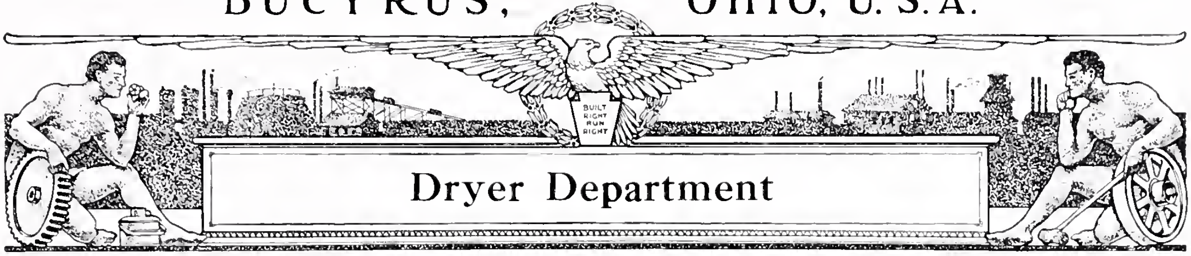
No. 2-B. 14 inches high, 14 inches wide.

No. 3. 16 inches high, 13 inches wide.

No. 4-A. Furnace and ash door combined, as shown in cut. Weight, about 250 pounds.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.



Dryer Department

The wide variation in clays, and the necessity for different treatment in different cases, has led to our making a specialty of our Dryer Department. This department is in the hands of competent specialists who have mastered the various problems of successful drying. To meet every requirement found in clays we build various types of dryers, in order that the customer may be assured of the best dryer for his particular clay without any prejudice. Each dryer equipment is built complete in our own factory, no matter whether the type of dryer is hot-air, waste-heat, steam, furnace or carless dryer. Making, as we do, every part of each equipment, we are able to be sure of the excellent quality of each part, and can include the entire equipment in one shipment. If you are in need of a dryer, or if you contemplate changes in your present drying system, we shall be pleased to hear from you.

In writing us about dryer problems, correspondents should remember to state the class of machine used, whether soft-mud, stiff-mud or dry-press; the nature of the clay, whether fire clay, shale clay, porous clay or plastic clay; the kind of product to be manufactured, and quantity to be dried daily. Give the sizes of the product to be dried, and if possible the amount of water it contains; also, whether it cracks easily when subject to the sun or wind. Information on these points will enable us to give you an accurate estimate and a full and satisfactory answer.

We have separate catalogues on drying clay products, which will be sent on request.

American Waste-Heat Dryer

The waste-heat dryer is the most economical drying system, as it utilizes the waste product in the shape of waste heat from the cooling kilns, therefore no additional fuel is necessary for heating the dryer. There is also an additional saving due to the fact that the kilns are cooled more rapidly, thereby saving from 24 to 48 hours in the time required to cool and empty the kilns.

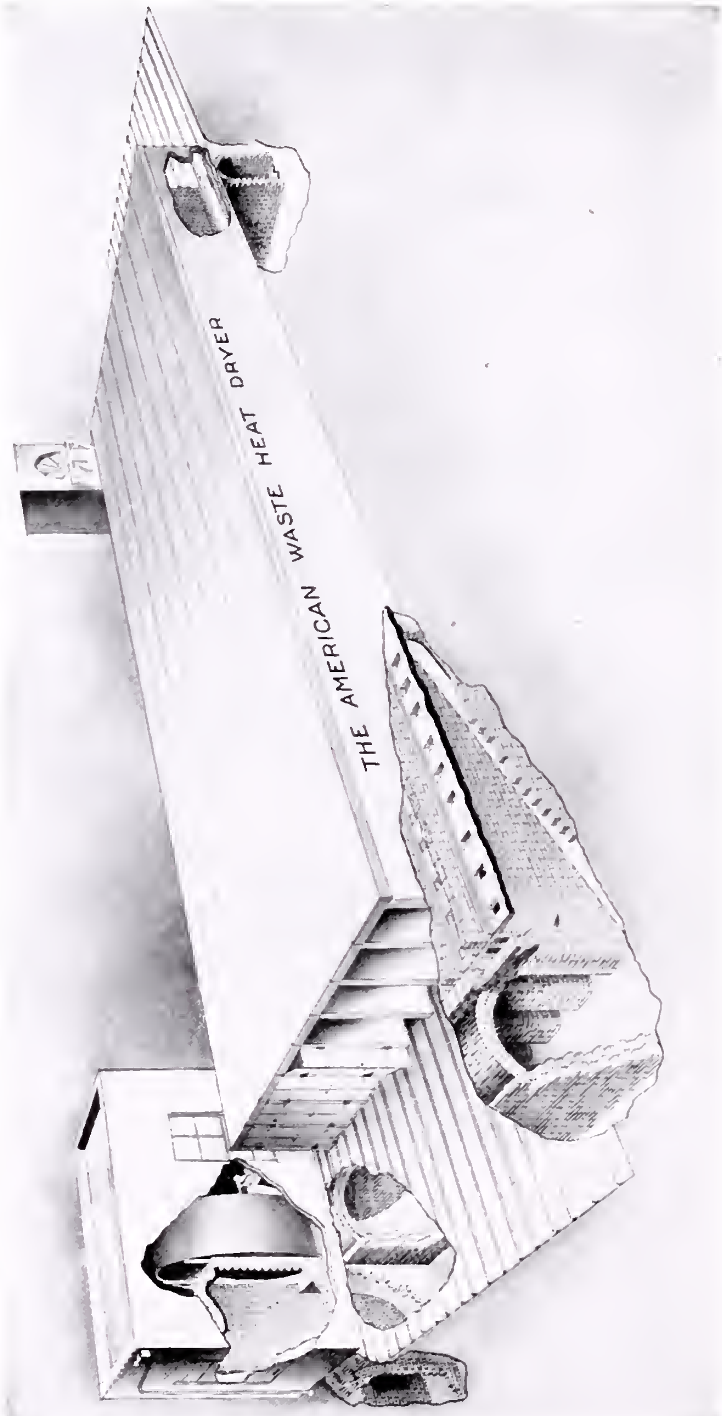
The two important factors in drying clay products are heat and circulation of air, one being as important as the other. In the American Waste-Heat Dryer both factors are amply provided for.

The waste-heat dryer may be used successfully with a battery of down-draft kilns of either the round or square type, and is used also very successfully in connection with the American-Haigh Continuous Kiln.

Construction

The dryer is constructed entirely of brick and concrete, and therefore is strictly fire-proof as well as being a permanent installation. The dryer consists of a number of tunnels. The standard length is 105 feet. The width and height of the tunnel is regulated according to the size and design of the car used for handling the ware.

At the side of the dryer and located at the discharge end of the tunnels a large fan or exhauster is installed. This fan is connected with underground flues to the different kilns on


THE AMERICAN WASTE HEAT DRYER

the plant and arranged to draw the hot air from the kilns through the fan and discharge it into a main heat duct, which is underground and directly across in front of the tunnels. Branching off from the main heat duct are smaller ducts underneath each tunnel. These ducts extend 25 feet under the tunnel and are covered the entire length, with the exception of a series of small openings through which the heated air enters the tunnel. At the upper end of the tunnel a cross-duct is built under the floor and connected to a smaller fan or exhauster for the purpose of drawing off the damp atmosphere, which is forced to the upper end of the tunnel by the large fan at the lower end. A suitable opening is left in the floor at the upper end of each tunnel to permit the damp atmosphere to reach the small exhauster. These openings are closed with dampers for the purpose of regulating the flow of air from the tunnel.

Operation

The tunnels are built on an incline or grade equal to 1 inch in every 7 feet so that the upper end or receiving end of the tunnel is 15 inches higher than the lower end or discharge end of the tunnel. It is essential that the dryer be built with a grade in order that the train of cars in the tunnel may be moved readily.

In the operation of the dryer it is essential that the tunnels be always kept full of cars loaded with brick, otherwise the efficiency of the dryer is very materially affected. When a carload of dry brick is taken from the discharge end of the tunnel the entire train of cars will move down the tunnel, leaving a space at the upper end of the tunnel to receive a carload of green brick. The green brick entering the receiving end of the dryer come in contact with the warm, moist atmosphere and are gradually heated. As the car makes progress down through the tunnel the temperature increases and the drying of the ware progresses. The temperature of the air in the tunnel at the discharge end is usually about 250 degrees Fahr., and the temperature of the air at the receiving end of the tunnel is about 125 degrees Fahr. This, however, may be regulated according to requirements.

Each tunnel is entirely separate from its neighbor and may be operated independently. Any tunnel in the dryer may be shut off and put out of operation whenever required. Additional tunnels may be added to the dryer to increase the capacity without affecting the operation of the tunnels previously installed.

Equipment

Exhausters —

For handling the waste heat in the kilns and forcing it into the dryer we use a ¾-housed steel plate exhauster or fan. The size of this exhauster is determined by the number of tunnels to be operated, the character of the clay to be dried and the kind of ware to be produced. The steel plate exhauster may be arranged for belt drive either from an engine or motor, or it may be equipped with a direct-connected engine or arranged for a direct-connected motor. The speed of the exhauster regulates the supply of air entering the tunnel and this may be varied to suit requirements and conditions.

In the upper end of the tunnel a small fan or exhauster is installed for the purpose of drawing off the damp atmosphere from the drying ware. The method of driving this exhauster may be either belt drive, engine driven or motor driven and the speed regulated according to requirements.

Suction Damper —

In connection with the large exhauster, a mixing chamber is installed through which the hot air from the kilns passes to reach the fan and in this mixing chamber is installed a suction damper for the purpose of regulating the supply of cold air to the fan in order to reduce the temperature of the waste heat before it reaches the dryer. The supply of cold air is under perfect regulation at all times.

Heat Duct Dampers —

A steel damper is installed in the heat duct underneath each tunnel for the purpose of regulating the supply of air to each tunnel, making it possible to insure an equal supply of air to the various tunnels in the dryer, the arrangement being such as to permit closing off a tunnel entirely if it is desired to put the tunnel out of operation.

Vent Dampers —

In the upper end of the tunnel a steel vent damper is installed in the opening in the floor connecting to the vent duct leading to the exhaust fan. These vent dampers are arranged to regulate the flow of air from the tunnel.

Tunnel Doors —

At the lower end or discharge end of the tunnel, we use steel tunnel doors mounted on a steel frame which is anchored to the end of the tunnel wall. This construction is substantial and permanent. At the upper end or receiving end of the tunnel, we advise the use of wooden doors, as experience has shown that steel doors rust out rapidly, due to the excessive amount of moisture in the upper end of the tunnels. The wooden doors, however, should be mounted on a steel frame anchored to the end of the tunnel walls.

Tracks in Tunnels —

The tracks in the tunnels should be made of heavy steel rails not less than 16 pounds per yard. These tracks are secured to cross-ties, which are usually made of 16-pound steel rails. Cast iron rail clamps are used for securing the steel rails to the cross-ties. With the track properly installed there should be no trouble whatever in operating the cars through the dryer, as the tracks are always in perfect line and proper gauge.

Dryer Cars —

For drying brick or paving blocks it is customary to use either a single-deck or a double-deck dryer car. These cars may be furnished with steel decks or may be equipped with wooden decks. For drying fire-proofing, hollow building block or drain tile either double-deck or triple-deck dryer cars may be used, equipped for either steel decks or wooden decks. For drying soft-mud brick, a rack car is used, arranged for using either steel or wooden pallets.

We build a standard line of dryer cars and are prepared to furnish special cars when necessary to meet some special requirement or condition.

Transfer Cars and Turntables —

We build a standard line of transfer cars and turntables suitable for use in connection with our dryers. The transfer cars are built for either single or double track, and for large plants we build triple-track transfer cars, which are usually motor driven.

Auxiliary Furnace —

In connection with the waste-heat dryer it is sometimes advantageous to install an auxiliary furnace, located near the large exhauster. This furnace is used for the purpose of heating up the dryer when starting and is only used while no waste heat is available from the kiln. We furnish complete equipment of iron work for the auxiliary furnace with plans for its installation.

American Steam-Blower Dryer

The American Steam-Blower Dryer is installed and equipped practically the same as a waste-heat dryer, and is recommended on plants where no waste heat is available for drying the ware.

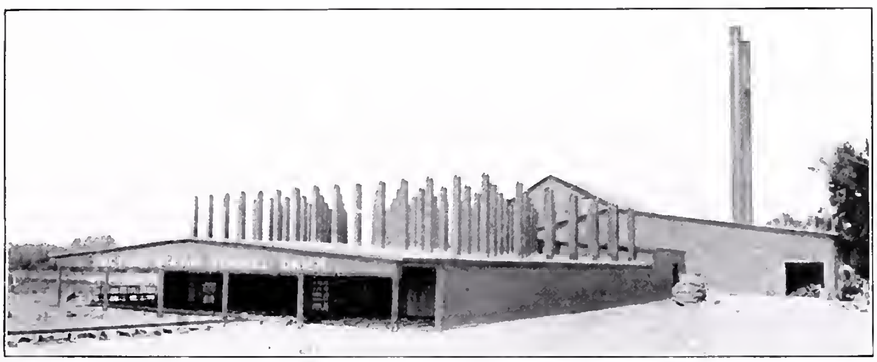
With this dryer a steam coil heater encased with a steel jacket is installed in connection with a large exhauster for the purpose of heating the air to be supplied to the tunnels. In connection with the steam coil heater we use the low-pressure vacuum system for circulating the steam, making it possible to use exhaust steam when available during the day and live steam at a low pressure during the night. We supply the vacuum traps and vacuum pump necessary for drawing off the condensation and returning the hot water to the boiler. Steam pipe connections from the boiler to the heater and from the pump back to the boiler are not furnished except under special arrangement.

Equipment

The equipment for the steam-blower dryer, consisting of cars, dampers, tracks, transfer cars, etc., is the same as it would be for a waste-heat dryer, and the operation of the dryer is practically the same.

Bucyrus Steam-Tunnel Dryer

The Bucyrus Steam-Tunnel Dryer is one of the oldest dryers in use, and has been in successful operation many years. This type of dryer was in use long before the waste heat or blower type of dryer was invented.



The dryer consists of a series of tunnels each 75 feet long. The height and width of the tunnels are regulated according to the size and design of the cars used in drying the product. Each tunnel is equipped with a series of steam pipes connected at each end by suitable manifolds and headers, and provided with independent valves, so that the tunnels may be operated independently, if desired.

There are seven lines of 1-inch steam pipe attached to the tunnel walls on each side of the tunnel and sixteen lines of 1-inch pipe on the floor of the dryer between the track rails and underneath the cars.

The dryer is operated under the low-pressure vacuum system, so arranged that exhaust steam may be used when available during the day time and live steam at low pressure is used at night. The necessary vacuum traps and vacuum pump are furnished with the equipment. Steam connections from the boiler to the dryer and hot-water connections from the pump back to the boiler are not furnished except under special arrangement.

The circulation of air in the Bucyrus Steam-Tunnel Dryer is up and down instead of longitudinally, as in other types of dryers, where the air enters at one end of the tunnel and passes out at the opposite end. At proper intervals in the tunnel walls are placed a series of warm-air ducts for conveying the warm air from the space above the dryer and underneath the shed roof, where the air is warm and free from moisture at all times. These ducts are arranged so as to discharge the air directly underneath the steam pipes located between the rails and underneath the cars. The air, coming in contact with the hot pipes, becomes more highly heated and rises up through and between the bricks on the cars, gathering moisture from them in its ascent. It then passes out through vapor stacks located in the roof of the tunnels above the cars. As the moisture-laden air travels only a few feet and passes directly into the open air, there is no tendency for the moisture to settle on the brick. Each vapor stack is equipped with a damper for regulating the draft and controlling the circulation of air among the brick, insuring uniform drying on all parts of the car.

The dryer is constructed entirely of brick and concrete, and therefore is fire-proof and durable.

The equipment of cars, etc., for this type of dryer is similar to any other type of tunnel dryer.

Detailed plans showing the construction of the dryer are furnished with each equipment.

Bucyrus Steam-Tunnel Tender-Clay Dryer

The Tender-Clay Dryer is similar in construction to the standard Bucyrus Steam-Tunnel Dryer. The tunnels, however, are 105 feet long. The standard pipe in the equipment for the 75-foot tunnel is furnished, and the upper end of the tunnel, 30 feet, is equipped with six lines of pipe, for the purpose of maintaining a low temperature in the upper end of the tunnel. By this method we find that tender clay may be dried successfully, as the brick are warmed slowly in the upper end of the dryer before passing down to the point where they receive a higher temperature. Clays which are very difficult to dry in the open air without checking or cracking have been successfully dried in this type of tender-clay dryer.

The general construction of the dryer and the equipment of cars, etc., is similar to the standard Bucyrus Steam-Tunnel Dryer.

Furnace Dryer

The Furnace Dryer or Radiated-Heat Dryer is the oldest type of dryer in use for the drying of clay products. This type of dryer was used before the steam-heated dryers were invented. The dryer consists of a series of tunnels, each having its own furnace for generating the heat and having its own flue connection to the stack for carrying off the products of combustion.

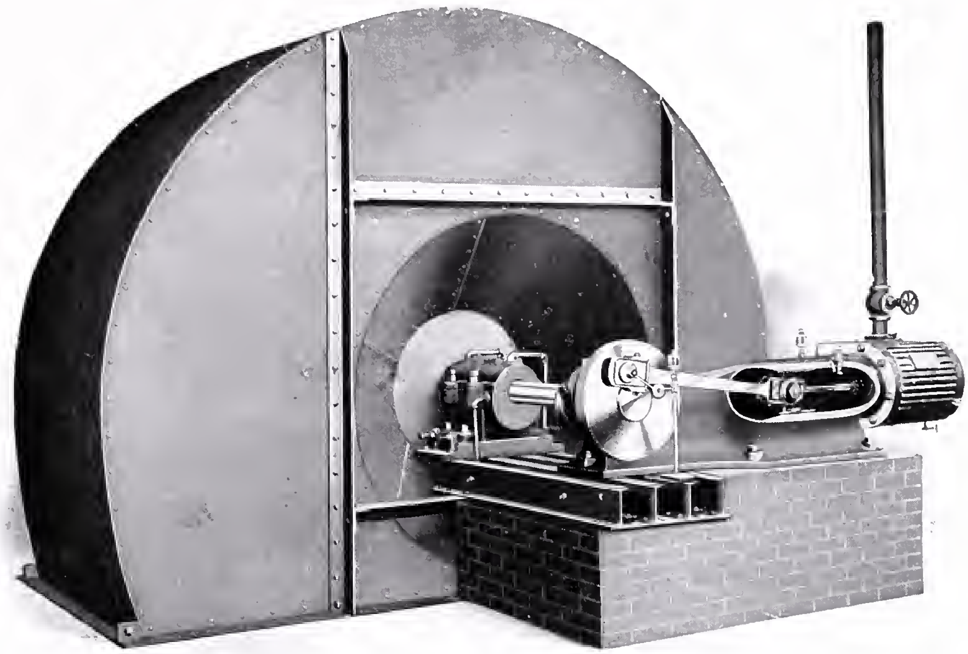
The furnaces are located below the floor of the dryer, and the track from the tunnel passes directly over the furnace. The smoke flue connecting the furnace to the stack passes underneath the tunnel and the covering of the smoke flue forms the floor of the tunnel, the heat radiating through the floor.

At the upper end of the dryer a brick stack is erected, so arranged that the smoke from the furnaces and the vapor from the drying brick in the tunnels are carried off in the same stack. The floor of the tunnel is tight and no gas or smoke from the furnace enters the tunnels.

The dryer is constructed of brick and concrete, and is a permanent and lasting installation. Many dryers of this type have been in constant use for more than thirty years.

The tunnels are 105 feet long, and the width and height of the tunnel are built in accordance with the size and kind of car used. We supply all of the structural iron work for the erection of the dryer and also the necessary equipment of cars, etc., for operating.

Complete plans and specifications are furnished with each equipment.



Steel Plate Exhausters with Direct-Connected Engine

The fan is direct connected to a horizontal throttling slide valve engine.

This engine is built with a solid cast iron bed. The engine shaft forms the fan shaft.

The guides of this engine are of large area and of cylindrical form; and, being a part of the bed, are not adjustable, consequently they cannot be misadjusted, and their concave surfaces allow the cross-head to adjust itself to the crank pin, thus rendering it impossible to throw the connecting rod in twist. The cross-head is made of cast steel, and has gibs filled with babbitt metal. The crank pin, piston rod, valve rod and some of the other minor parts are made of steel. The glands and stuffing boxes are made of brass, so that they will not rust, and cannot be screwed up to chafe the piston rod or valve stem. The piston is of the simplest form, being a plain disc, turned to fit the bore of the cylinder, and having two recesses in its surface, into which rings of eccentric shape are sprung to form a joint between the piston and cylinder surface. These require no adjustment, cause no undue friction or wear, leave the piston free to move, and at the same time are perfectly steam tight. The eccentric has two keyseats, one for the over stroke, and the other for the under stroke, with an interchangeable key, which secures it in either position, and completely frustrates any tampering with the valve adjustment. This engine is designed for quick motion, and may be run at almost any desired speed, as it has all the elements of endurance. Its bed frame is rigid, its ports are ample, and it has large bearing and wearing surfaces, adapting it to long and continuous runs under heavy duty.

Fittings

The engine will be provided with a governor throttle valve, sight-feed cylinder lubricator, oil cups, drain cocks, spanner wrench, ball and stand oiler for wrist, wipe oiler for cross-head and drip oiler for eccentric. Steam, exhaust and water pipes are not included.

Pulley-Driven Steel Plate Exhauster with Water-Cooled Bearing

When the fan is to be driven by belt, the outer end of the fan shaft is supported by a substantial bearing, and a plain crown-faced driving pulley is furnished.

Motor-Driven Exhausters for Direct-Connected Motor

When the fan is to be driven by a direct-connected motor, we furnish a heavy cast iron base for mounting the exhauster instead of the I-beam grillage.

A gear and pinion is mounted in the cast iron base and a coupling is furnished on the pinion shaft to connect to the shaft of the motor, which is mounted on a separate base or foundation.

We do not furnish the motor. Any standard type of motor may be used, but should be a medium-speed motor.

Steel Plate Exhausters or Fans

We build Three-quarter-Housed Bottom Horizontal Discharge Steel Plate Exhausters of very heavy pattern, designed for use with our waste-heat dryers.

The fan housing is built of sheet steel securely braced with angle iron, finished in a neat and workman-like manner, and painted with a good quality of metallic paint.

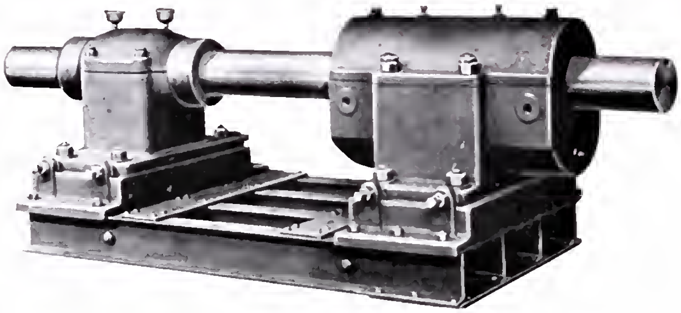
The fan wheel is made of T-iron, cast into an iron hub, forming a spider.

The blades and side plates of the fan wheel are made of sheet steel, and the wheel is further reinforced by a band of iron encircling the rim.

The wheel is carefully balanced and secured to the fan shaft by means of keys and set-screws.

The fan shaft is made of forged steel turned perfectly true.

The journal box is of our standard ring-oiling, ball-and-socket, water-jacketed type. It consists of an internal sleeve mounted in a substantial casing, the center portion of the sleeve being turned absolutely spherical. This turned portion rests in a babbitted seat in the casing, so that it is perfectly free to adjust itself to the position of the shaft. The alignment therefore is absolutely perfect, and as the sleeve is protected by the outer casing it is impossible to accidentally disturb the adjustment.



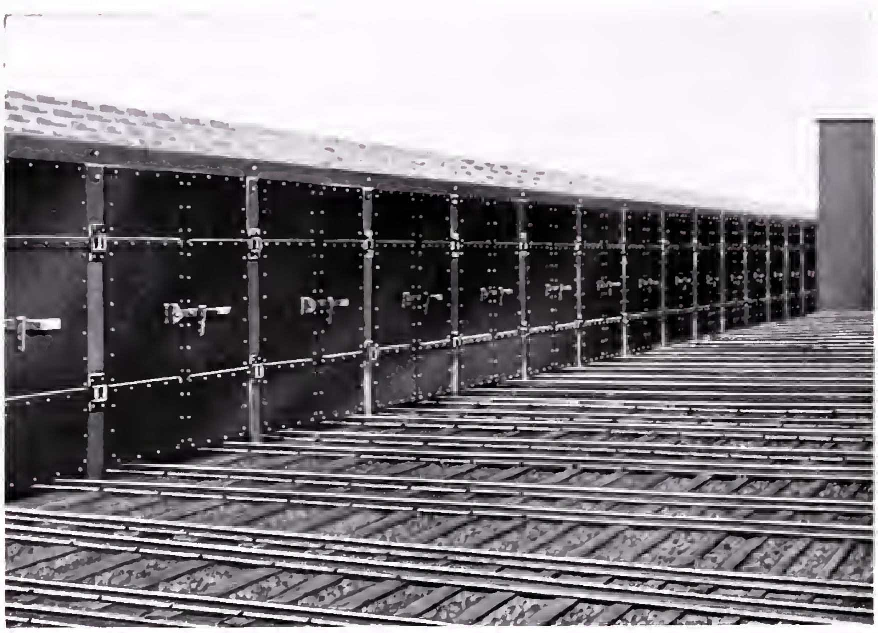
Water-Cooled Bearing

This cut illustrates a water-cooled bearing complete with shaft, grillage and outboard bearing for the size No. 320 Exhauster

The journal box is mounted on a substantial base and is securely anchored to the foundation.

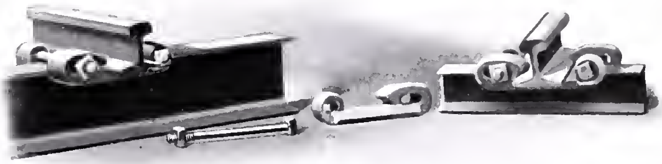
Water is introduced by pipes into the cap and lower portion of the bearing around the oil casing, giving a constant circulation of water entirely around the bearing of the shaft. This keeps the temperature of the shaft down and absolutely prevents heating of the bearing.

This is the best constructed and most durable water-cooled box manufactured, and is a requirement to the successful working of a waste-heat dryer.



View showing a series of Swinging Sheet Tunnel Doors. Complete with hinges and improved relief spring latches. Mounted on steel Dryer front

American No. 541 Universal Rail Clamp



In steam-tunnel and waste-heat dryers, where the tracks in the tunnels are supported by "I" beams or "T" rails running across the dryer at right angles to the tracks, the No. 541 Universal Rail Clamps shown in the accompanying illustration can be used to excellent advantage. They can also be used wherever steel ties are used in connection with industrial tracks. A set of the No. 541 rail clamps consists of four clamp castings, two right-hand and two left-hand, and two machine bolts with hexagon nuts for securing them in position. The castings are shaped so that they conform accurately to the dimensions of the top flanges of the "I" beams or "T" rails, and when the nuts are tightened the rail is held securely in a fixed position and in proper alignment.

Suction Damper

The Suction Damper is used for regulating the admission of cold air into the mixing chamber, in order to reduce the temperature of the waste heat coming from the cooling kilns before entering the fan, thus regulating the temperature of the air passing into the tunnels. The construction of the damper is substantial throughout. It is made with a heavy steel frame arranged to be built into the brick wall forming the mixing chamber. The damper is so constructed that it may be opened to any degree required and locked into position. In this way the amount of air passing through the damper can be regulated very closely.

American Steam-Coil Heater

The Steam-Coil Heater is used with our steel plate exhauster when used in connection with our steam-blower dryers or in connection with a combination steam-blower and waste-heat dryer.

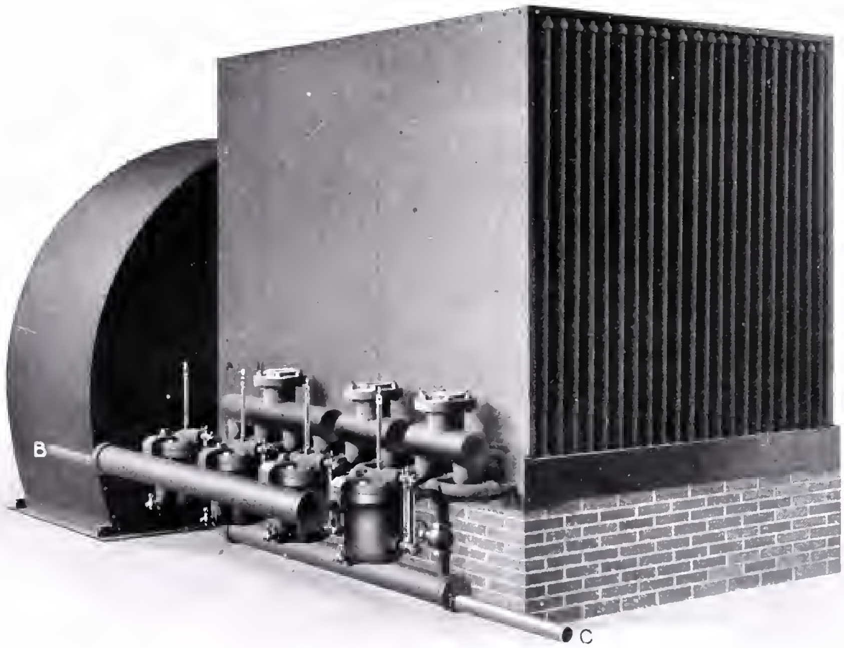
The illustration shows the construction of a heater as used with a steam-blower dryer. When the heater is used in connection with a combination waste-heat and steam-blower dryer, steel doors or shutters are furnished with the heater so that the open end may be closed to prevent drawing air through the heater while drawing the waste heat from the kilns. By regulating these doors it is possible to draw sufficient air through the heater to temper the hot air from the kilns, reducing the temperature to the proper degree before entering the fan. In such conditions the use of a regular damper such as is used with a waste-heat dryer is avoided.

The Steam-Coil Heater consists of a number of sections inclosed in a neat and substantial steel plate housing. Each section is independently connected for inlet and outlet. A section consists of a cast iron base, into which the pipes are firmly secured, the top of the pipes being connected by a special return bend. The cast iron base is so constructed that the steam enters at the top and the condensation or drain is taken from the bottom. This insures a perfect circulation at all times and it is impossible for a heater to fill up with water.

Each section is built complete and thoroughly tested before shipment, the heater being shipped in a knocked-down condition. That is, the sections are shipped independently, and the steel plate housing is shipped in sections, so that it can be readily attached to the heater when the different sections are assembled.

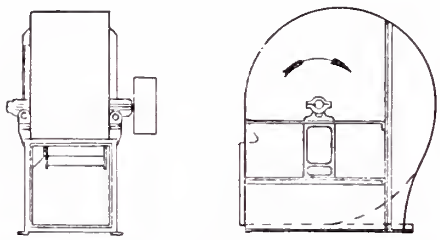
The pipe connections to the heater can be arranged to suit the conditions, and it is arranged to use exhaust steam or live steam at low pressure with the vacuum system.

Vacuum traps and vacuum pump is used to insure perfect circulation of steam and return the condensation back to the boiler. Each heater is furnished of the proper size in accordance with the steel plate exhauster with which it is used. The height, width and number of lineal feet of 1-inch pipe contained in the heater vary according to the size of the fan. The size of the heater is calculated to allow sufficient free inlet of air to supply the fan with which it is used. For the largest sizes of fans a double section of heater is used, in order to reduce the height of the heater and secure sufficient free inlet of air.

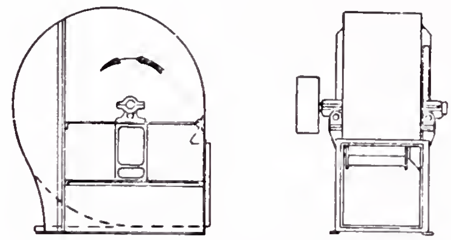


American Steam-Coil Heater

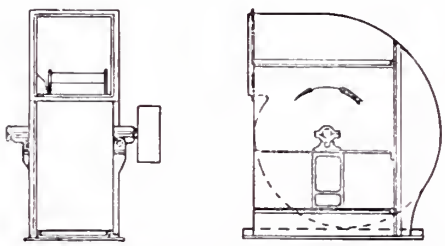
Method of Designating Hand of Fan



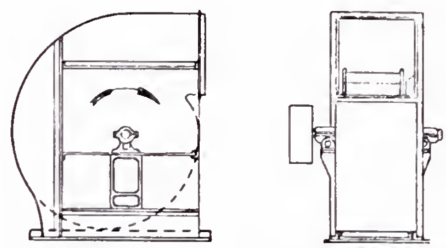
Right Hand, Bottom Horizontal Discharge



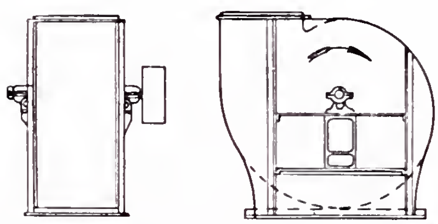
Left Hand, Bottom Horizontal Discharge



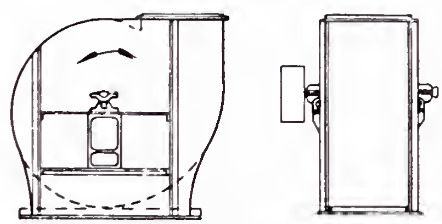
Right Hand Top Horizontal Discharge



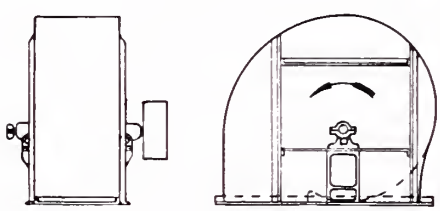
Left Hand Top Horizontal Discharge



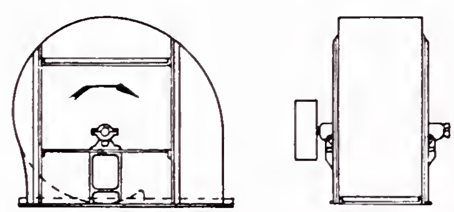
Right Hand Top Virtical Discharge



Left Hand Top Virtical Discharge



Right Hand Bottom Virtical Discharge



Left Hand Bottom Virtical Discharge

The terms Right Hand and Left Hand refer to the position of the pulley in relation to a person facing the outlet of the fan.

When direct connected engine is used it takes place of pulley. Left Hand fan has a Right Hand engine. Right Hand fan has a Left Hand engine.

The American Steam Pipe Rack-Dryer

The Steam-Pipe Rack Dryer is essentially a rapid dryer, and it is important to determine the drying qualities of clay or shale intended to be dried by this process. Brick made today are dried tonight and are taken to the kilns the following morning, and it is important to know that the clay will stand such rapid drying as this before selecting this type of dryer.

The principle of drying is that of conduction or direct radiation. Therefore it is the most economical dryer that can be installed. It is especially adapted for handling and drying soft-mud common building brick, and lends itself better to this process than to any other process of clay working.

With our system of steam-pipe rack dryers, we have organized the loading and unloading of the dryer in a scientific manner. The pallets of newly made brick go from the brick machine direct to the dryer at a certain fixed speed per minute, the men in the dryer are working at a uniform speed, and the empty pallets are being returned to the machine accordingly. This is an especially advantageous feature.

With our system of steam-pipe rack dryers, we have arranged our manifold system of piping so as to get the utmost efficiency from the steam, and operate the dryer exclusively under the vacuum system, using low-pressure steam. There are more heat units available for drying purposes in low-pressure steam than there is in high-pressure steam, and with the properly organized arrangement of manifolds and piping the utmost efficiency is secured.

With our system of taking the brick from the dryer to the kilns there is absolutely no conflict with the men who are loading the dryer, and this work is so arranged as to protect the brick and make handling as easy as it is possible to do.

The arrangement of our buildings for the dryer are such as to give the workmen plenty of light and plenty of air and tends to their satisfaction. In fact, throughout the entire system the labor conditions are most desirable.

In designing the dryer and furnishing the materials for it, we have kept paramount quality only. We recommend and use only full weight wrought iron pipe and pallets that, while light, are still heavy enough to stand the service without bending and are practically patent level.

Every pipe-rack dryer installation is a local proposition, depending upon the capacity per day desired, the space available in which to build the dryer and the number of brick per pallet; therefore we arrange to submit proposals for these dryers in accordance with the customer's requirements.

Operation

When the mold of brick is taken from the machine the brick are dumped from the mold onto a steel pallet, placed on what is termed an automatic dumping table, as shown in illustration "A."

As the man dumping the brick lifts the mold, leaving the brick on the pallet, the loaded pallet automatically passes off on the gravity carriers or cables, as the case may be, to the operator in the dryer, who places it on the steam-pipe shelves. The transferring of the loaded pallet from the cable system to the steam-pipe shelves is not a difficult operation, as may be seen from illustration "B." The top shelf is only 65 inches from the ground, and the pallets slide onto the shelves endwise.

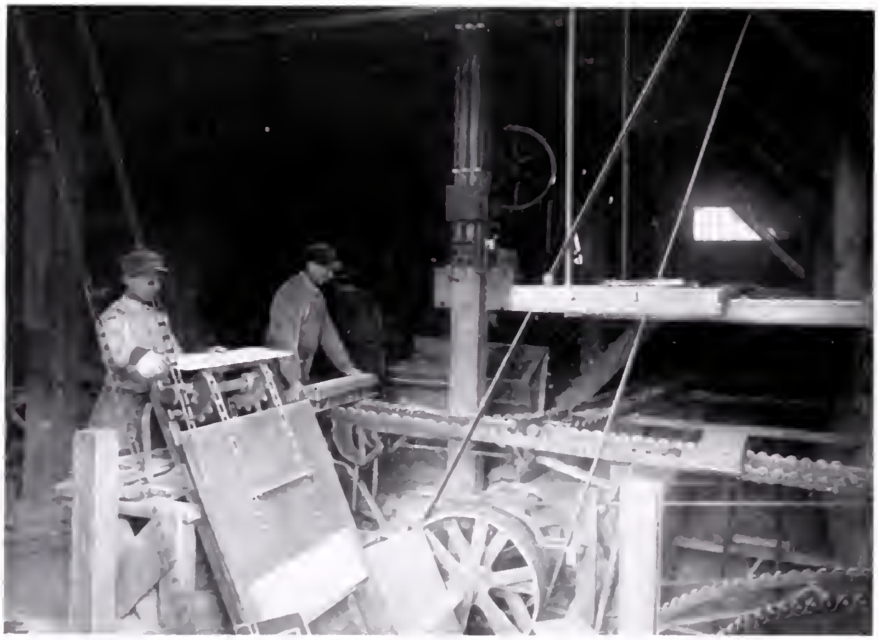


Illustration "A"

Illustration "B"

It will be seen from illustration "B," that the operator in the dryer also places the empty pallet on the under cables to be returned to the pallet boy at the brick machine, thereby systematically controlling the transfer of the loaded pallets into the dryer and the return of the empty pallets. If there are 12 molds of brick placed on the dumping table per minute, there will be 12 loaded pallets of brick placed onto the steam pipe shelves and there will be 12 empty pallets returned to the pallet boy. This operation positively prevents all congestion and the accumulation of an unnecessary supply of pallets at the dumping table. The returning empty

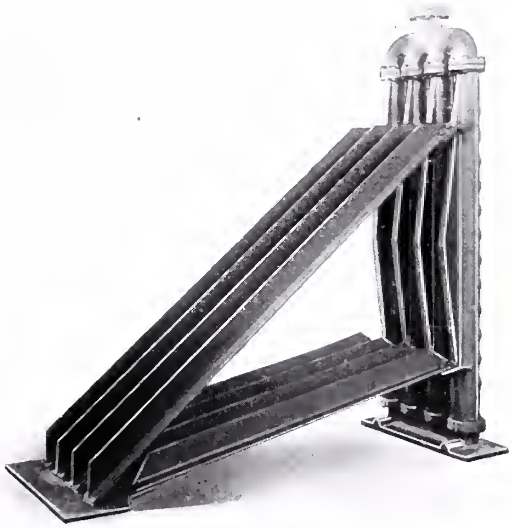


Illustration of Manifold with Braces

pallet cannot interfere with the men who are loading the dryer, and, as will be seen in illustration "A," the empty pallet returns on a small elevator, one pallet at a time, to the pallet boy, thereby making his work very much lighter than on any other system.

In unloading the dryer the operators remove the pallets of dry brick from the pipe shelves on the opposite side of the pipe shelves from the operators who are loading the dryer with green brick, as may be seen from illustration "C." The dried brick are edged by one operation onto a car holding approximately 500 brick, and when this car is loaded the same operator transfers the brick from the dryer to the setters in the kiln. By this car system it is possible for one man to transfer 10,000 brick per day from the steam-pipe shelves in the dryer to the setters in the kiln. It will be seen from illustration "D" how the system is carried out at the kiln end. An important feature of the car system is that the setting gang is made independent of the machine gang, and it is then not absolutely necessary for the cables to operate in unloading the dryer.

Illustration "C"

Illustration "D"

Building

The building covering the pipe-rack dryer is comparatively small. There is no underground brick work, excepting the foundation piers for cast iron racks and the foundations for the building walls. The dryer building is only 6 feet 6 inches high at the eaves. Illustration "F" shows the design of the building.

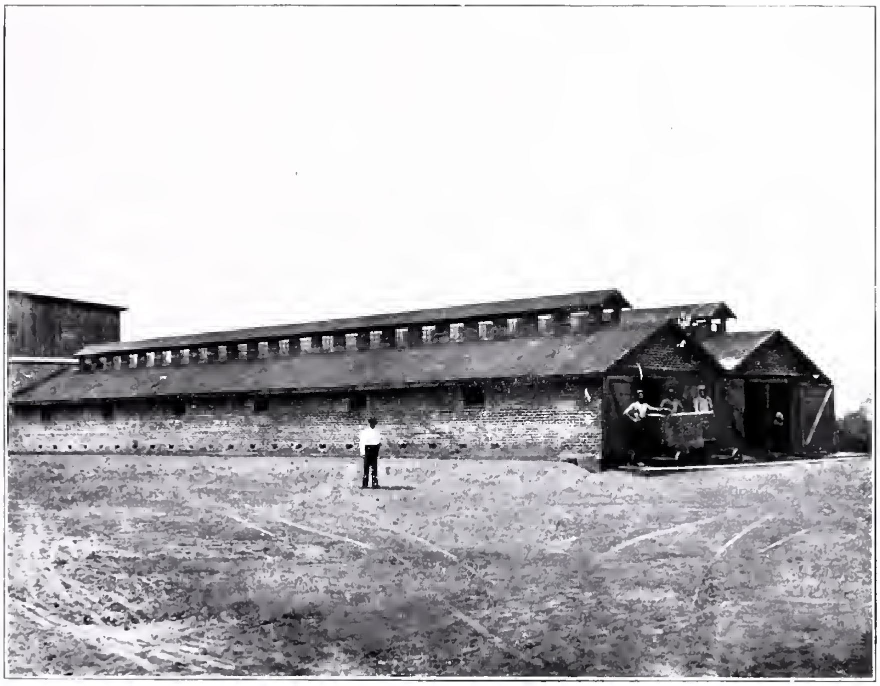


Illustration "F"
Model Construction of Steam-Pipe Rack Dryer Building

Another important feature of our design of building is the provision we make for light. The lower portion of the monitors is glazed so the rays of light enter the alley-ways obliquely, and strike fully on the racks on either side, making it just as light to work in the pipe-rack dryer as in the old rack and pallet system. The upper sides of the monitors are fitted with suitable vent openings for taking off the vapor. The vapor will rise and pass out of the ventilators while the cold air enters through the ventilators to take its place.

Low-Pressure or Vacuum System

In order to utilize exhaust steam from the engine in a compartment of the dryer as soon as it is filled, during the day, and to operate the entire dryer with live steam under low pressure during the night, we have equipped the American Steam-Pipe Rack Dryer with an automatic vacuum system, consisting of mechanically perfected devices of original design.

This automatic vacuum system insures perfect circulation of steam and the positive operation of all radiation throughout the drying system. As a partial vacuum is maintained in the return piping and right up to the outlet of each automatic vacuum return trap, the water of condensation and air are both withdrawn as fast as formed, thus all air binding and water logging of steam piping is positively prevented. With this system a modulated heat may be obtained, when full heat is not desired, without danger of the steam pipes filling with water, and as all water is quickly removed from piping, the heat units in the steam are all available for heating purposes and are not expended as work (the mechanical equivalent of heat) in pushing or forcing slugs of water through the system.

The system lends itself admirably to the use of higher pressures at night in case this may be found necessary in order to dry the brick within the desired period, and the system can be changed from exhaust steam to live steam, or vice versa, by operating not over four valves.

Of all waste heat about any plant, the exhaust steam is the most important, being the cleanest and most easily controlled, and therefore it should be utilized in every case.

When the men who place the pallets on the pipe shelves have completely filled one compartment, then the exhaust steam from the engine or a small amount of live steam from the boiler, or a mixture of both, can be turned into this section of the dryer, and in this way a large number of the brick can often be "set up" before the day's work is completed and some time gained in drying.

Advantages of the Pipe-Rack Dryer

The principle of this drying system is that of direct radiation. The steam passes through the pipes underneath and in direct contact with the pallets, and radiates through them, thereby heating the brick and taking out moisture very rapidly. As compared either to a rack and pallet system or to an open yard system, it has a great many advantages. It gives uniform drying of material, as every brick is treated independently and not collectively. This more uniform drying of the brick very often reduces the time required in burning, gives a more uniform color, and in many other ways produces more satisfactory brick.

With the use of the cable system, brick which are made with square corners and well defined edges at the brick machinery end, will go to the kiln in the same condition.

Another advantage of this dryer is that it places the brick plant on a positive commercial basis, and the brick-maker can take contracts to furnish brick at stated periods without fear of failure in fulfilling the contract.

Clay Test

Mention has been made of the pipe-rack dryer being essentially a rapid dryer. Therefore it is important to have each clay thoroughly tested in order to determine how rapidly it may be dried successfully. We have a well-equipped Clay-Testing Department in charge of experienced men and are prepared to make reliable practical tests of clays for all purposes.

Engineering

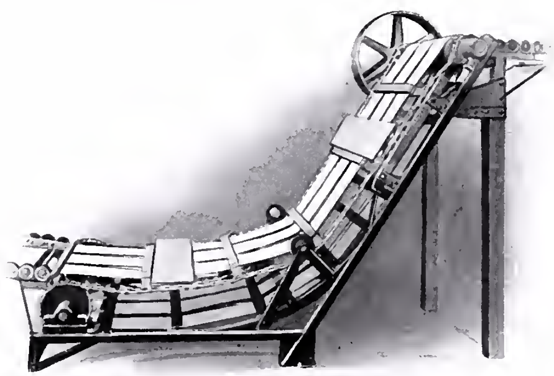
The successful solution of drying problems calls for engineering of a special character. We have a thoroughly organized Engineering Department, and therefore are prepared to handle the design, construction and installation of a pipe-rack dryer in the most approved and modern manner. This Engineering Department is maintained not only to protect ourselves, but also to protect our customers against error in design and construction. Therefore, when you place your order with us for a dryer installation, you are assured of the very best service obtainable. We build and equip all types of dryers and will install that dryer which is best adapted to your conditions and clay.

Regarding Patents

We own and control the vital patents which make the American Steam-Pipe Rack Dryer a success.

No. 709 Pallet Elevator

This elevator, shown in illustration "A," is designed for use in a pipe-rack dryer to more conveniently deliver the empty pallets from the return conveyor to the dumper and to dispense with the services of an operator to handle them. It is equally well adapted for use in connec-



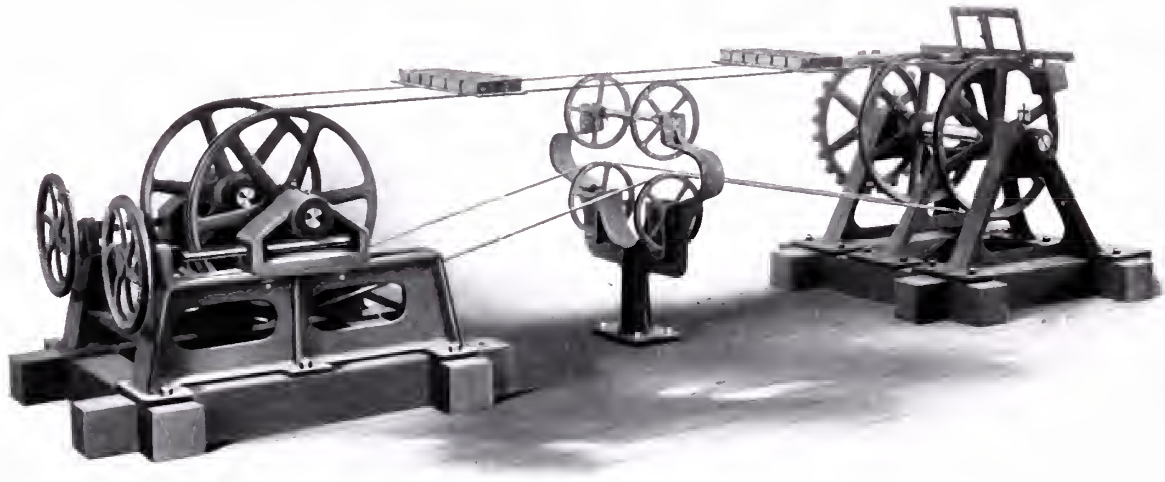
tion with pallet cable conveyors and out-door shelf rack dryers. It is a labor saver and a great convenience in soft-mud plants that are designed where these conveyors can be used. It is self-contained and of simple and substantial design.

The conveyor apron consists of link chains with steel cross-bars, to which are attached hard wood slats and suitable canvas belts. This construction is found especially advantageous for handling steel pallets without damage to the pallets or without being unduly noisy. We have used all-steel elevators, but the combination here illustrated possesses some advantages over the all-steel construction. The driving pulley is 24 inches diameter, 5½ inches face, equipped with hub-clutch, so the conveyor can be promptly stopped or started.

The elevator is installed with the lower end so situated that as the pallets descend from the end of the return gravity carrier they are received on the apron and carried upward by the slats to the top of the incline, where they pass on to another short piece of gravity carrier and are delivered to the receiving platform. The pallet boy then transfers the pallets to the dumper. Width of elevator over all, 6 feet, 4⅛ inches. Height is made to suit installation. Weight, 1,235 pounds.

Alsip Conveyor System
(Patented)

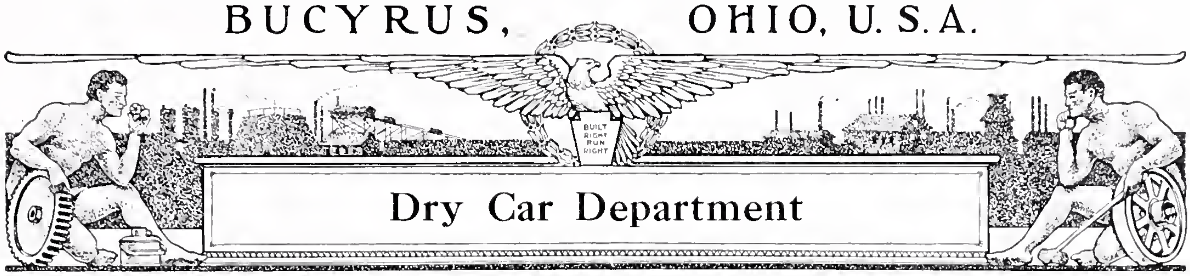
We have the exclusive right to manufacture and sell the Alsip Conveyor System, which is becoming more and more popular as clay-workers become acquainted with its advantages. This system is in use in a number of plants and has proven perfectly satisfactory. We are prepared to install the system in any plant to meet the requirements of that particular plant, and can guarantee satisfactory operation.



Equipment for Alsip Conveyor System

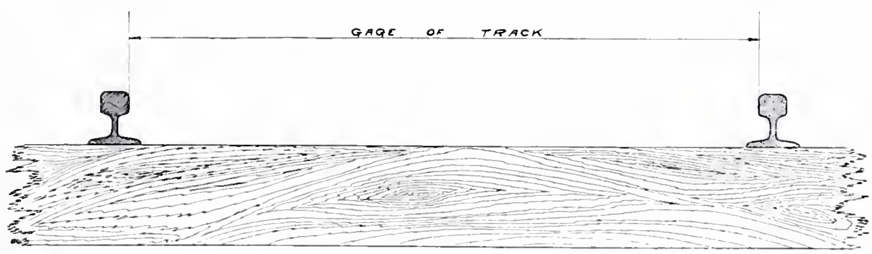
The Alsip Conveyor System is intended for conveying pallets of brick automatically from the machine to the drying racks, or to the yard where the drying is done, or into an artificial dryer. It is also used for conveying the pallets of brick from the dryer to the kiln and returning the empty pallets to the brick machine. It consists of a dumping table next to the brick machine upon which the pallets are placed and the bricks dumped thereon. The pallets containing the brick are automatically delivered to the cables, which carry them to the drying racks or dryer or yard, as the case may be. These cables are driven by sheaves which are attached to the dumping table, and are supported at intervals by idler sheaves that prevent the cables from sagging. The idlers are supported by cast iron stands, which are securely anchored to the ground and are placed about 8 feet apart. At the lower end there are sheaves placed in a securely anchored frame, and the sheaves are so arranged that the slack in the cable can be taken up by the turning of a hand wheel. This end is called the take-up end, and the upper end, which is next to the machine, is called the dumping end. The system, therefore, consists of the dumping end, the take-up end, the idler sheaves and stands, and two endless cables. The pallets, after the brick have been taken from them, are placed on the under cables, which return the pallets to the brick machine. This system is designed for carrying the brick on pallets. For soft-mud brick the pallets contain 6 brick, and for stiff-mud brick the pallets contain from 8 to 10 brick each.

THE AMERICAN CLAY MACHINERY COMPANY
BUCYRUS, OHIO, U. S. A.



Steel Dry Cars

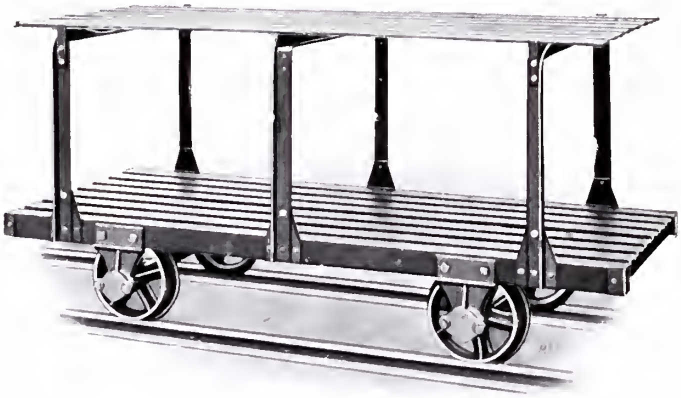
The frame of our Steel Dry Cars are made of structural steel throughout. The side rails are tied together with angle cross-ties securely riveted. The cars are prevented from telescoping by angle iron bumpers riveted to the end cross-ties and ends of side rails. The uprights are made of heavy angles, which prevent them from bending under the strain of rough usage often received. The uprights are securely riveted to gusset plates which are riveted to the side rails, making a substantial brace. This construction is an additional preventive against the uprights bending. The boxes are solid cast iron, bored true and dust-proof. They are fitted with cold



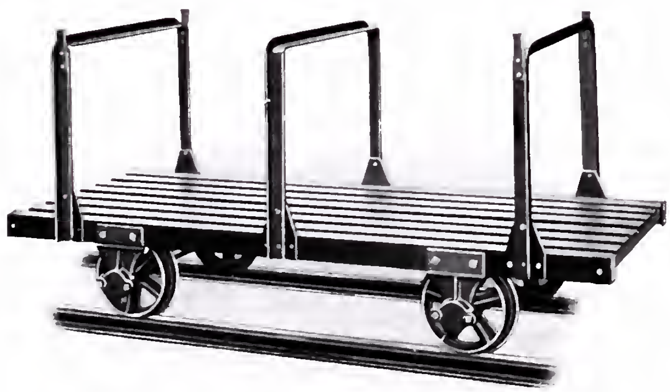
In writing about cars, it is imperative that you give "track gauge" as indicated by above diagram. Your close attention to this will avoid a great deal of unnecessary trouble and loss of time.

rolled steel pins, making them anti-friction pin bearings, insuring an easy running car. The wheels are cast iron, strong and substantial. They are bored true in the hub and pressed onto turned steel axles, which are turned so that the wheel is pressed up to a shoulder, making it impossible for the wheels to work in on the axle.

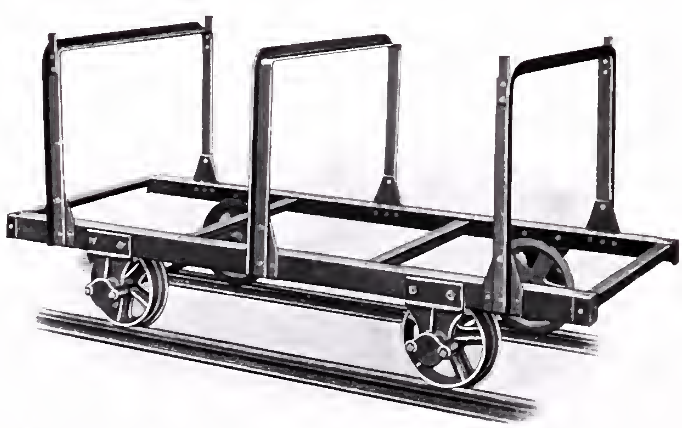
Our standard cars are of uniform width, length and height, and the wheels are pressed onto the axles to suit a 24-inch track gauge. The decks are made of channel steel. The lower deck is riveted to the cross-ties of the car, while the upper deck is independent. The upper deck is constructed of steel channels, which are riveted to cross-angles, and are provided with substantial corner braces which hold them square. While we try to confine ourselves to our standard size cars, we are prepared to furnish special cars of any dimensions or to make the gauge of wheels to suit any track gauge already established.



American No. 127 Steel Dryer Car, Weight 448 Pounds



American No. 132 Steel Dryer Car, Weight 385 Pounds



American No. 128 Steel Dryer Car, Weight 300 Pounds

Specifications

Standard Steel Double-Deck Cars

2 side frames, $2\frac{1}{2} \times 3 \times \frac{1}{4}$ angles, 6 feet 8 inches long.

4 cross-bars for double-deck cars, $1\frac{1}{2} \times 1\frac{1}{2} \times \frac{3}{16}$ angles.

Decks, $2\frac{1}{2} \times \frac{1}{2} \times \frac{1}{8}$ channels, 6 feet 6 inches long.

Uprights, $2 \times 1\frac{1}{2} \times \frac{3}{16}$ angles.

Gussets, $\frac{1}{8}$ inch thick.

Rivets, $\frac{3}{8}$.

Bumpers, $2 \times 2 \times 3 \times \frac{1}{4}$ angles.

Axles, $1\frac{1}{2}$ inches diameter.

Wheels, $10\frac{1}{2}$ inches diameter.

Bearings, $1\frac{7}{16}$ inches diameter, self-aligning roller bearing.

Rollers, $\frac{9}{16} \times 1\frac{15}{16}$ inches, 11 rollers per bearing.

Dimensions

Length over all	6 ft. $8\frac{1}{2}$ in.
Length of Deck	6 ft. 6 in.
Width over Side Rails	2 ft. 6 in.
Width over all	3 ft. $\frac{1}{4}$ in.
Height from top of Rail to top of Side Rail	$12\frac{3}{4}$ in.
Height from top of Rail to top of Uprights	2 ft. $11\frac{1}{4}$ in.
Track Gauge	24 in.
Wheel Base	3 ft. 9 in.

Specifications

Standard Steel Single-Deck Cars

2 side frames, $2\frac{1}{2} \times 3 \times \frac{1}{4}$ angles, 6 feet 8 inches long.

5 cross-bars for single-deck cars, $2 \times 1\frac{1}{2} \times \frac{3}{16}$ angles.

Deck, $2\frac{1}{2} \times \frac{1}{2} \times \frac{1}{8}$ channels, 6 feet 6 inches long.

Gussets, $\frac{1}{8}$ inch thick.

Rivets, $\frac{3}{8}$.

Bumpers, $2 \times 2 \times 3 \times \frac{1}{4}$ angles.

Axles, $1\frac{1}{2}$ diameter.

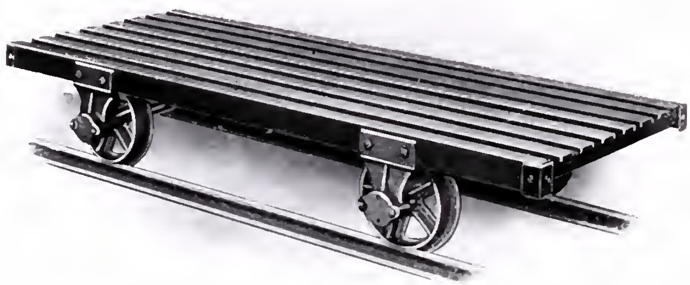
Wheels, $10\frac{1}{2}$ diameter.

Bearings, $1\frac{7}{16}$ diameter self-aligning roller bearing.

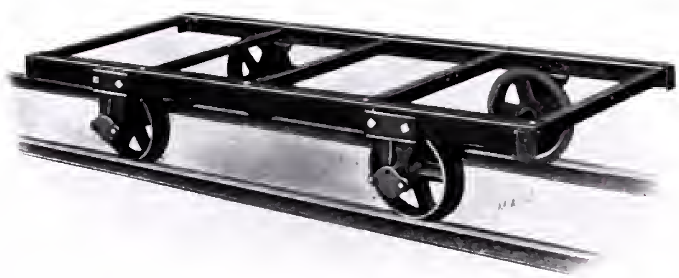
Rollers, $\frac{9}{16} \times 1\frac{15}{16}$, 11 rollers per bearing.

Dimensions

Length over all	6 ft. $8\frac{1}{2}$ in.
Length of Deck	6 ft. 6 in.
Width over Side Rails	2 ft. 6 in.
Width over all	3 ft. $\frac{1}{4}$ in.
Height from top of Rail to top of Side Rail	$12\frac{3}{4}$ in.
Track Gauge	24 in.
Wheel Base	3 ft. 9 in.



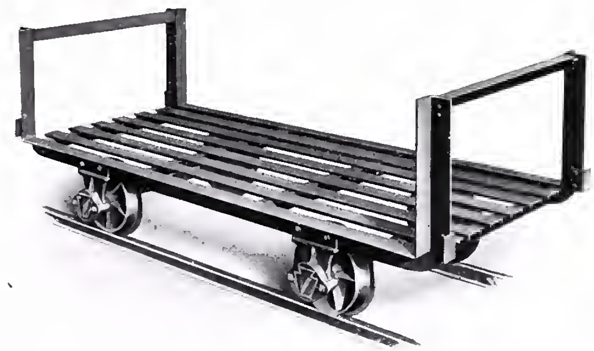
American No. 125 Steel Dryer Car, Weight 340 Pounds



American No. 126 Steel Dryer Car, Weight 270 Pounds

American No. 82 Steel Dryer Car, Weight 350 Pounds

American No. 338 Single-Deck Dry Car



The No. 338 Single-Deck Dry Car has the side rails turned out and bent up at each end, forming pushers and supports for bumpers. Weight, 382 lbs.

Specifications

Side frames, two 3-inch x $2\frac{1}{2}$-inch x $\frac{1}{4}$-inch angles.
Cross-bars, four 2-inch x $1\frac{1}{2}$-inch x $\frac{3}{16}$-inch angles.
Deck slats, six $2\frac{1}{2}$-inch x $\frac{1}{2}$-inch x $\frac{1}{8}$-inch channels.
Rivets, $\frac{3}{8}$-inch and $\frac{1}{4}$-inch diameter.
Bumpers, four 2-inch x 2-inch x $\frac{1}{4}$-inch angles.
Axles, $1\frac{1}{2}$-inch diameter.
Wheels, $10\frac{1}{2}$-inch diameter.
Bearings, self-aligning roller bearings, $1\frac{7}{16}$-inch diameter.
Rollers, $\frac{9}{16}$-inch diameter. $1\frac{15}{16}$-inches long, 11 rollers per bearing.

Dimensions

Length over all	6 ft. 11 in.
Length of Deck	6 ft. 6 in.
Width over Side Rails	2 ft. $10\frac{1}{2}$ in.
Height from top of Rail to top of Side Rail	$12\frac{3}{4}$ in.
Height from top of Rail to top of Uprights	2 ft. $6\frac{3}{4}$ in.
Track Gauge	24 in.
Wheel Base	3 ft. 8 in.
Width over all	2 ft. 11 in.

No. 295 American Triple Deck Car

For Hollow Block, Drain Tile, or Fire-Proofing

This car is built with detachable-deck supports for the middle deck, so as to adjust the height of deck to suit the size of ware. Weight 483 lbs.

Specifications

Length over all....................6 ft. 8 in.
Width over all.................3 ft. 11½ in.
Width between Uprights...........3 ft. 8 in.
Height from top of Rail to lower Deck Support or Side Rails.............12¾ in.
Height from top of Lower Deck Support to under side of First Deck Support.......................1 ft. 4 in.
Height from top of Lower Deck Support to under side of Second Deck Support....................1 ft. 10¼ in.
Height from top of First Deck Support to under side of Upper Deck Support.......................1 ft. 4 in.
Deck Supports.......2-in. x 2-in. x ¼-in. angles
Height from top of Rail to top of Upper Deck Support...........4 ft. ¾ in.
Track Gauge.............................3 ft.
Wheel Base.........................3 ft. 9 in.
Wheels.......................10½-in. Diam.
Axle..........................1½-in. Diam.
Bearings, self-aligning, pin bearing.

No. 331 American Triple-Deck Dry Car

This car is similar in construction to our No. 295; it is built with detachable deck supports for the middle deck, so as to adjust the height of deck to suit size of ware. Weight, 451 lbs.

Specifications

Length over all.................6 ft. 11¾ in.
Width over all..................3 ft. 7½ in.
Width between Uprights...........3 ft. 4 in.
Height from top of Rail to top of Lower Deck Support or Side Rail..12¾ in.
Height from top of Lower Deck Support to under side of First Deck Support.......................1 ft. 4 in.
Height from top of Lower Deck Support to under side of Second Deck Support....................1 ft. 10¼ in.
Height from top of First Deck Support to under side of Upper Deck Support.....................1 ft. 4½ in.
Height from top of Rail to top of Upper Deck Supports..........4 ft. ¾ in.
Deck Supports......2-in. x 2-in. x ¼-in. angles
Track Gauge....................2 ft. 2½ in.
Wheel Base........................3 ft. 9 in.
Wheels......................10½-in. Diam.
Axles.........................1½-in. Diam.
Bearings, self-aligning, pin-bearing.

American No. 129 Steel Rack Car

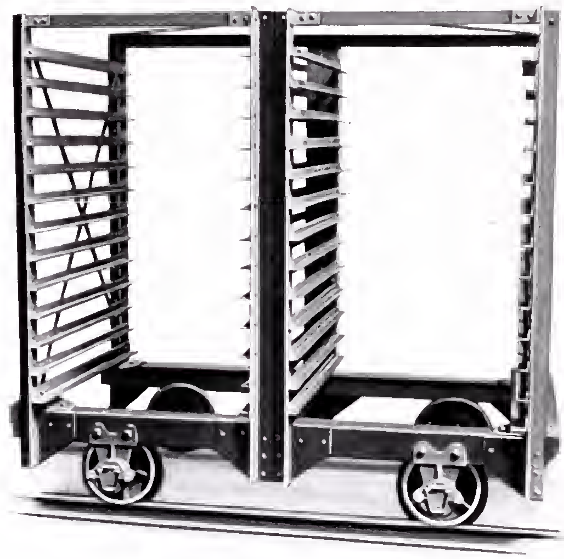
For Soft-Mud Brick

Specifications

2 side rails, 3 x 2 x $\frac{1}{4}$-inch angles, 6 feet 6 inches long.
4 cross-bars, $1\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{3}{16}$-inch angles.
8 uprights, $1\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{1}{4}$-inch angles.
48 shelves, $1\frac{1}{4}$ x $1\frac{1}{4}$ x $\frac{1}{8}$-inch angles, 2 feet 9 inches long.
Shelves spaced $4\frac{3}{4}$ inches.
Car will hold 72 pallets 34 inches x 10 inches.
Braces, $1\frac{1}{4}$ x $\frac{1}{4}$ inches.
Axles, $1\frac{1}{2}$ inches diameter.
Wheels, $10\frac{1}{2}$ inches diameter.
Wheel base, 3 feet 9 inches.
Bearings, $1\frac{7}{16}$ inches diameter, self-aligning roller bearings.
Rollers, $\frac{9}{16}$ x $1\frac{15}{16}$ inches, 11 rollers per bearing.
Bumpers, 2 x $1\frac{1}{2}$ x 2 x $\frac{1}{4}$-inch angles.

Dimensions

Length over all	6 ft. 7 in.
Width between Uprights	2 ft. 6 in.
Width over all	3 ft. $\frac{1}{4}$ in.
Height from top of Rail to top of Side Rail	$12\frac{3}{4}$ in.
Height from top of Rail to top of Upright	5 ft. $10\frac{1}{2}$ in.
Track Gauge	24 in.
Weight	495 lbs.



American No. 347 Steel Rack Dry Car

For Silica Brick

This car is especially designed for drying silica brick. The frame is built of steel throughout, securely braced, and is of an extra heavy and serviceable construction. It is built to hold 104 pallets $10\frac{1}{2}$ inches wide by 30 inches long, 2 pallets long, 4 pallets wide and 13 pallets high. Weight, 955 pounds.

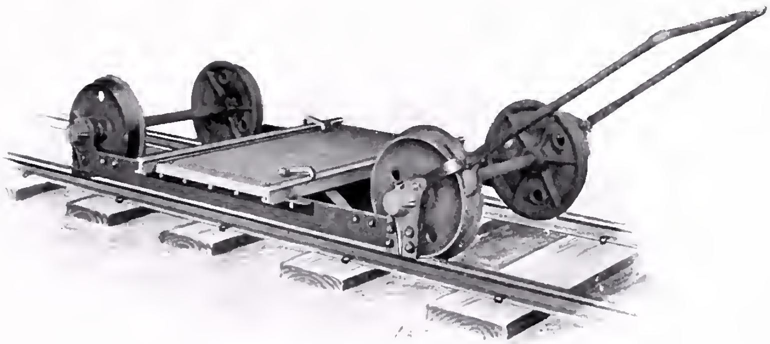
Specifications

2 side rails, $4 \times 3 \times \frac{3}{8}$ angles, 6 feet 3 inches long.
3 cross-bars, $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{8}$ angles, 3 feet $\frac{1}{2}$ inch long.
8 uprights, $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{8}$ angles, 5 feet $3\frac{1}{2}$ inches long.
4 shelves, $2 \times 2 \times \frac{5}{16}$ angles, 3 feet 6 inches long.
48 shelves, $1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{8}$ angles, 3 feet 6 inches long.
Shelves spaced, 4 inches.
2 side braces at top, $2 \times 2 \times \frac{5}{16}$ angles, 6 feet $\frac{1}{4}$ inch long.
6 diagonal braces, $1 \times \frac{1}{4}$ bar.
Axles, $1\frac{1}{2}$ inch diameter.
Wheels, $10\frac{1}{2}$ inches diameter, chilled tread, extra heavy.
Wheel base, 3 feet 9 inches.
Bearings, $1\frac{7}{16}$ diameter, self-aligning, roller bearings.
Rollers, $\frac{9}{16}$ diameter, $1\frac{15}{16}$ long, 11 rollers per bearing.
Bumpers, $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{8}$ angles.
Gussets, $\frac{1}{4}$-inch steel plate.

Dimensions

Length over all	6 ft. $3\frac{3}{4}$ in.
Width over all	3 ft. $6\frac{1}{8}$ in.
Width between Uprights	2 ft. $7\frac{1}{8}$ in.
Width over Shelves	3 ft. 6 in.
Height from top of Rail to top of Side Rail	$13\frac{3}{4}$ in.
Track Gauge	30 in.

Transfer Cars and Turn Tables



American No. 5 Transfer Car

The American No. 5 Single Transfer Car is substantially constructed and is supplied with a brake and handle.

Length over all, not including Handle....6 ft. 3 in.

Length over all, including Handle.......8 ft. 11 in.

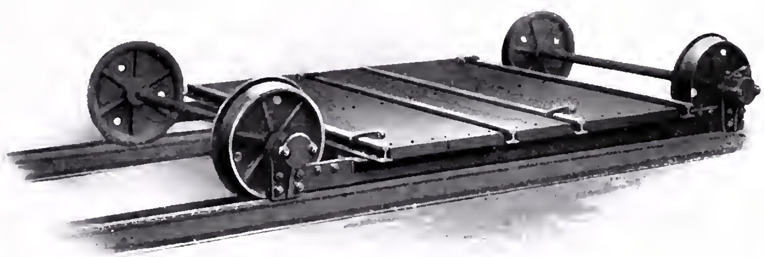
Width over all ....5 ft. 6 in.

Distance from center to center of Wheels ..4 ft. 8 in.

The Wheels are 17 inches in diameter, 2½ inches Tread.

Track Gauge between Rails..4 ft. 0 in.
Distance from top of Track Rail to top of Rail on Transfer Car........................7½ in.

Weight, 1,000 pounds.

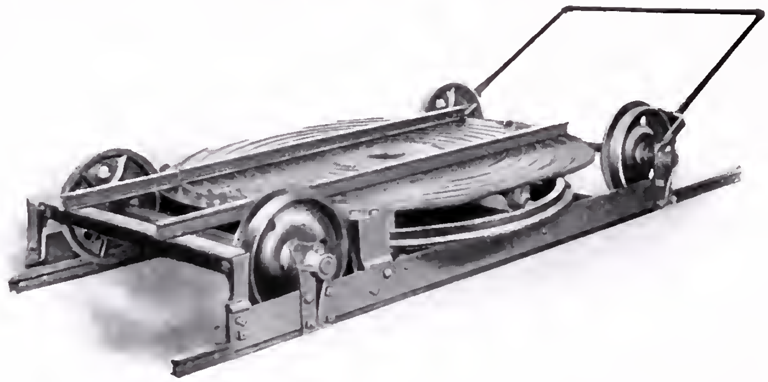


American No. 6 Transfer Car

The American No. 6 Double Transfer Car is supplied with a brake and handle, and is well and strongly built.

Length over all, not including Handle..10 ft. 3 in.
Length over all, including Handle..13 ft. 3 in.
Width over all...5 ft. 6 in.
Distance from center to center of Wheels.......................................8 ft. 6 in.
Height of Wheels...17 in.
Tread..2½ in.
Track Gauge between Rails..4 ft. 0 in.
Distance from top of Track of Rail to top of Rail on Transfer Car...................7½ in.

Weight, 1,400 pounds.



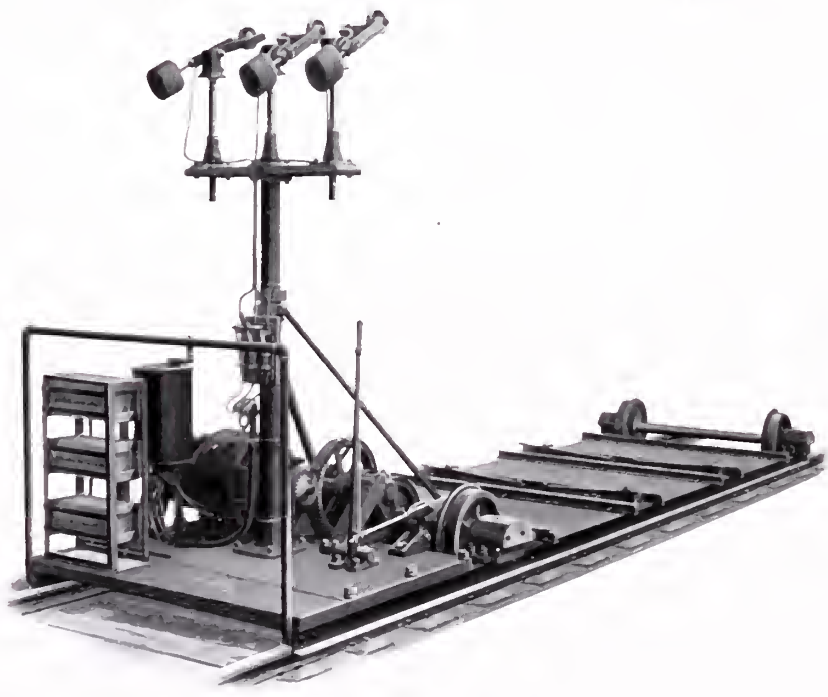
American No. 5-B Combination Transfer Car and Turntable

This is a combination of the No. 5 Transfer Car and the Style "B" 6-Foot Turntable.

Track Gauge of Transfer Car....................48 in.
Track Gauge on Turntable....................24 in.
Height from top of Rail of Transfer Track to top of Rail on Turntable....................15 in.

Weight, 1,700 pounds.

American No. 296 Triple-Track Electric Transfer Car



The No. 296 Electric Transfer Car is designed for handling dryer cars from machine room to dryer or from dryer to kiln. It is equipped with either a direct or alternating current 10

H. P. motor, also for either overhead trolley wires or the third rail system, as may be specified on order.

The motor is geared direct to the driving axle and is mounted on a heavy cast iron base plate extending full width of car, which also supports the brake apparatus, adjustable trolley pole and controller. The controller and brake lever are conveniently located for the operator, and the car is at all times under perfect control. Each dryer car track is equipped with two of our adjustable wheel locking devices for blocking the dryer car on the transfer car.

Capacity —

The rated capacity of triple-track car is two loaded and one empty dryer cars at a speed of 600 feet per minute.

Specifications

Main Frame —

The two side rails are built up sections, made of two 4-inch steel channels with a 4-inch x 1¼-inch steel plate between and all riveted together to form a beam; these are framed together with 4-inch cross-channels. The whole frame is held square and rigid by a ¼-inch thick steel plate extending the full length and width of the loading deck, making a type of construction that is stiff and yet flexible enough to take care of any unevenness in the track. The deck is supported its entire length in the center by a 4-inch x 3-inch x ⅜-inch angle, all joints made with the required number of ½-inch diameter rivets to give a large factor of safety.

Wheels —

Are chilled cast iron, strong and well proportioned, 17¼ inches diameter, 3 inches face, 1-inch flange. Weight, 150 pounds.

Journal Bearings —

Bearings are 2⅞ inches diameter, 6$\frac{5}{16}$ inches long. They are made according to Master Car Builders' specifications and are furnished with brasses and have reservoirs for oiled waste underneath the axle. They are covered to exclude dirt.

Axle —

Cold rolled steel, 3 inches in diameter.

Gauge and Wheel Base —

Track gauge, 4 feet. Wheel base for triple-track car with 24-inch gauge dryer car tracks, 13 feet 1 inch.

Dryer Car Tracks —

From top of transfer car track to top of dryer car track, 7⅝ inches. From inside of transfer track to end of dryer car track, 10 inches. Length of dryer car track, 5 feet 8 inches. Gauge made to suit specifications on order.

Weight, 5,880 pounds.

Dimensions

Length over all, 24-inch Gauge Dryer Tracks	19 ft. 0 in.
Width over all	5 ft. 11½ in.
Height of Trolley Wire, from top of Rail	8 ft. 0 in.
Center to center of Dryer Car Tracks for 24-inch Track Gauge	3 ft. 9½ in.

American Style "C" Ball Bearing Turntable

Figure 1, Style "C" Turntable Closed

Figure 2, Style "C" Turntable Open

The base of this turntable is designed with a track, which is faced true, and a center post, which is provided with a turned raceway. The turntable is also provided with corresponding track and center raceway. The table rests on eight 1-inch balls, forming a ball bearing center plate. An intermediate, independent roller frame is used, the center of which slips over the center post to keep the roller frame central and the rollers on the tracks. The base is arranged with a rim projecting above the track, and the turntable has a similar rim, which telescopes over the base rim; this prevents dirt and snow from getting under the turntable. On top of the table are two sets of track rails placed at right angles with each other, with the necessary stops to prevent the cars from running off and to hold the table from turning while cars are moving on or off the table.

Figure 1 illustrates the table down or assembled. Figure 2 represents the turntable raised, showing construction.

These tables are the lightest running on the market, and are made for heavy duty. We furnish them 6 feet and 8 feet 6 inches in diameter. The track rail can be made to suit the gauge of cars used.

Weight, 6 foot turntable, 2,330 pounds. 8 foot 6 inch turntable, 3,650 pounds.

Elevating Car Drying System

This method of drying brick without the use of dry cars was first introduced about twenty-five years ago and has become popular in many parts of the world. When used in open-air dryers it is especially adapted for the hot countries, and has been applied with great advantage in those parts of the United States where the weather conditions favor such drying. The system can also be used advantageously in connection with the steam dryer. In fitting a yard for this system the size of the equipment and number of appliances are, of course, governed by the capacity of the plant, and the low first cost of such installation is a very attractive feature.

A sufficient number of drying racks are provided and erected parallel with each other, and the track made of light "T" rails laid between the racks for the elevating cars. The drying racks are usually placed between the machine room and the kilns, and are made of a proper height to accommodate the pallets of brick from the elevating cars, and the general method of handling the product of the machines is as follows:

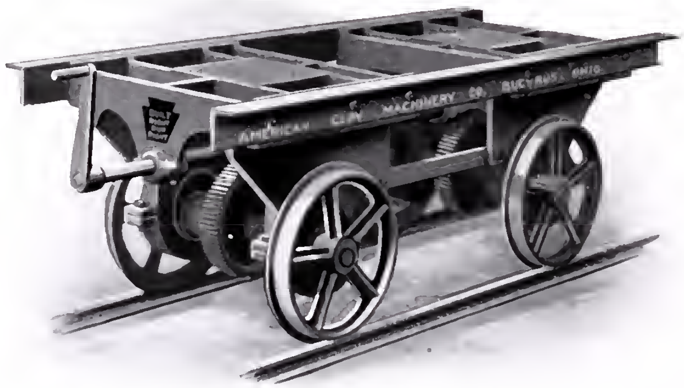
The No. 189 Turntable and Rack is placed convenient to the off-bearing table. The pallets to receive the brick are placed on the top of the supports. The brick are hacked thereon and when the capacity of the car is reached the No. 287 Car, with the upper frame let down to the lowest point, is run onto the track of the turntable holding the loaded pallets. The frame of the car is then raised up by means of a crank placed at one end of the car, which lifts the entire load of brick from the supports. The car can then be withdrawn and with its load taken to the end of the track where it is run onto one of our standard transfer cars. This transfer car is then moved to the track of the rack which is being filled and the elevating car run along the tracks between the drying racks until the proper point is reached, when the entire load is deposited upon the rack by simply lowering the frame of the car. The car is then withdrawn and returned to the machine room where the operation is repeated. When the brick are sufficiently dry to be set into the kiln another No. 287 Car is put into operation at the kiln end of the drying racks, the car being run under the loaded pallets as they rest upon the racks, and then elevated, raising the load from the racks. The car is then run up to the transfer car, one of which is also used at this end of the dryer. The transfer car containing the elevating car loaded with brick is then run to the track leading into the kiln which is being filled.

The No. 190 Portable Turntable is usually placed at the end of the track inside the kiln to facilitate the transfer of the car loaded with brick to the kiln delivery rack. The car is run onto this rack, the load lowered and the car removed. The tossers stand on a platform provided on both sides of the delivery rack and the brick are tossed to the setters.

It will readily be seen that this constitutes a system which can be operated without a great expenditure for installation and maintenance and that it can be applied in many cases and a considerable saving in drying and handling costs can be made.

The appliances here illustrated are designed especially for this work. The same care is exercised in the construction, and high-grade material is used throughout, as in the balance of our "Built Right, Run Right" line. Our Engineering Department is in a position to furnish detailed plans and specifications adapted to plants of all capacities.

American No. 287 Elevating Car

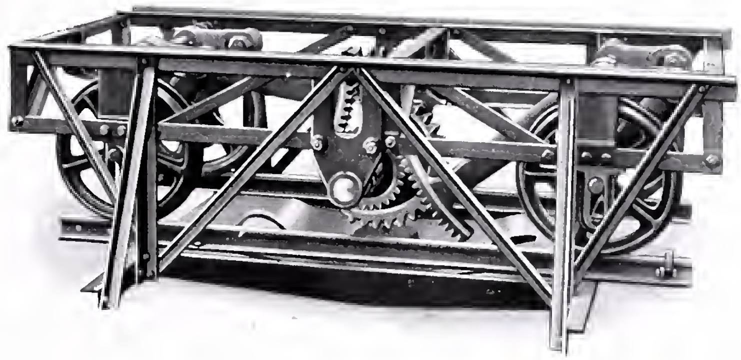


The American No. 287 Elevating Car is simple in design and efficient in operation. It can be elevated $2\frac{3}{4}$ inches. A 10-inch crank, placed at either end of the car, furnishes the means of elevating. The load can be raised any height desired up to the $2\frac{3}{4}$ inches limit and the load held at any point. The elevating device consists of a sleeve surrounding the axle with an eccentric in the middle and at each end. The eccentrics are turned to the same diameter. Those on the ends of the sleeve run in self-aligning pin-roller bearings under the car. The center eccentric carries a worm wheel. The operating worms are mounted on a shaft running over the axles and at right angles to them. This worm revolves the eccentric for raising and lowering the car. The end thrust of the worm shaft is equalized by using a right-hand worm on one end and a left-hand worm on the other. Inside the eccentric sleeve is a self-aligning pin-roller bearing at each end which carries the load and forms journals for the axles.

Specifications

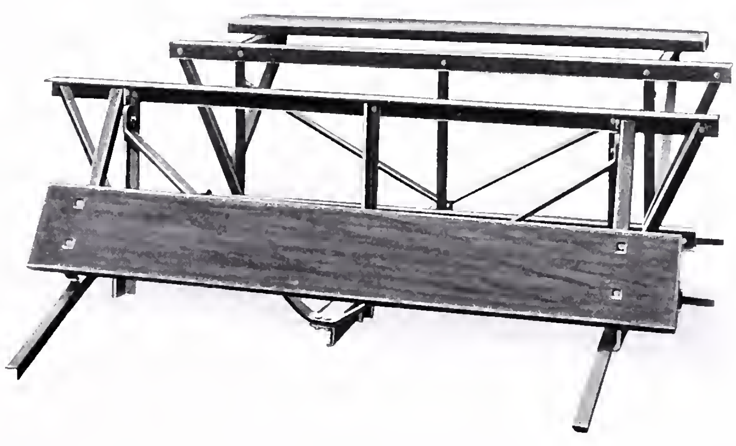
Capacity	4,000 lbs.
Track Gauge	24 in.
Wheel Base	3 ft. 5 in.
Axles	$1\frac{3}{4}$ in.
Wheels	$16\frac{1}{2}$ in. diameter, $1\frac{3}{4}$ in. tread
Height when lowered	$22\frac{1}{2}$ in. from top of track rail
Height when raised	$25\frac{1}{4}$ in. from top of track rail
Length over all	7 ft. 3 in.
Width over all	2 ft. 9 in.
Length of Deck of Car	6 ft. 4 in.
Width of Deck of Car	2 ft. 9 in.
Weight	1,200 lbs.

No. 189 Turntable and Rack for Elevating Car



This apparatus is used next the off-bearing table, and is of the best possible construction. The cast iron base is mounted on 4 x 6-inch skids which support the center plate. This plate is made with a long bearing of ample proportions which fits into the socket bored into the center of the cast base, insuring easy operation. Two "T" rails, 6 feet long and of the proper weight, are bolted to the cast base. The heavy cross-angles extending at right angles to the rails support the uprights, to which is secured the steel angle framework which forms the pallet support. The pallet supports are 6 feet 8 inches long and the distance between is 36 inches. Height from bottom of skids to top of supports 21¼ inches; the height being governed by the height of the elevating car used. Standard track gauge is 24 inches.

No. 191 Kiln Delivery Rack



Our No. 191 Kiln Delivery Rack is designed for use in the kiln. This rack received the elevating car with its load of brick hacked on pallets, the car is run onto the rack and the pallets are lowered upon the supports, the car is then removed and returned for another load. It will be noticed that there is a drop platform on each side of the rack; these platforms are for use of the tossers who stand on them when tossing the brick to the setters.

Track rails, 24 inches gauge, 6 feet long. Length of pallet supports, 6 feet 8 inches.

No. 190 Portable Turntable

It is necessary to have a portable turntable in the kiln, and the No. 190 Turntable is used for this purpose. This turntable is similar in design to our No. 189, with the exception that it is not furnished with the rack. The cast iron plate to which the rails are bolted is mounted on 4 x 6-inch skids, not shown in illustration, to which is bolted a strong, substantial center plate designed for ease of operation.

The track rails are 24 inches gauge and 6 feet long. Height from bottom of skids to top of rails 12⅛ inches.

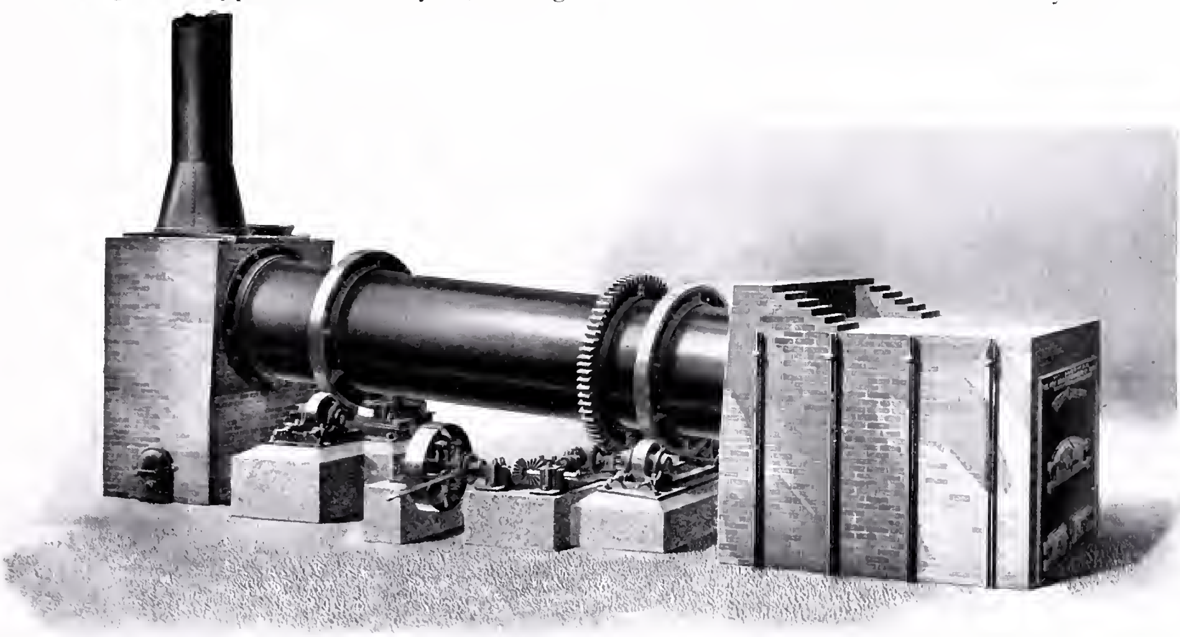
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS, OHIO, U. S. A.

Rotary Dryer Department

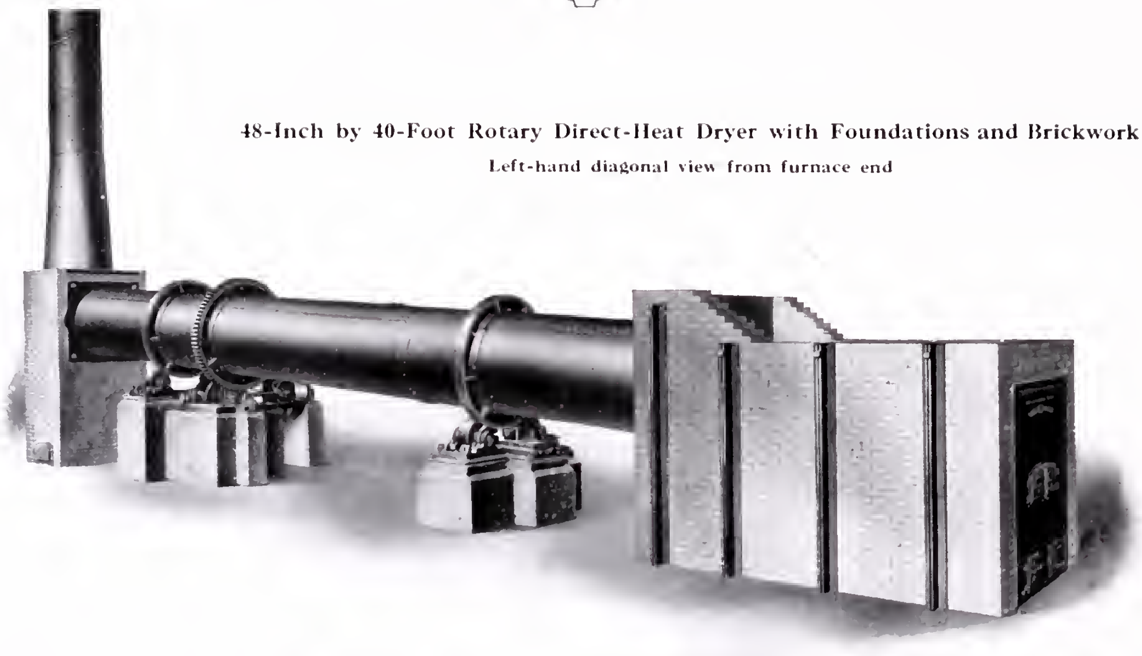
American Rotary Dryers

We manufacture a line of Rotary Dryers covering a large range of sizes and capacities and adapted to drying clays, shales, sands, marls, slurries, fertilizers, crushed limestone, and for calcining fire clays, roasting ores, and handling a great variety of other materials from which moisture must be removed at low cost, or in which special heat treatment is required. There are two general types of these dryers, distinguished as **Direct** and **Indirect** heat dryers.



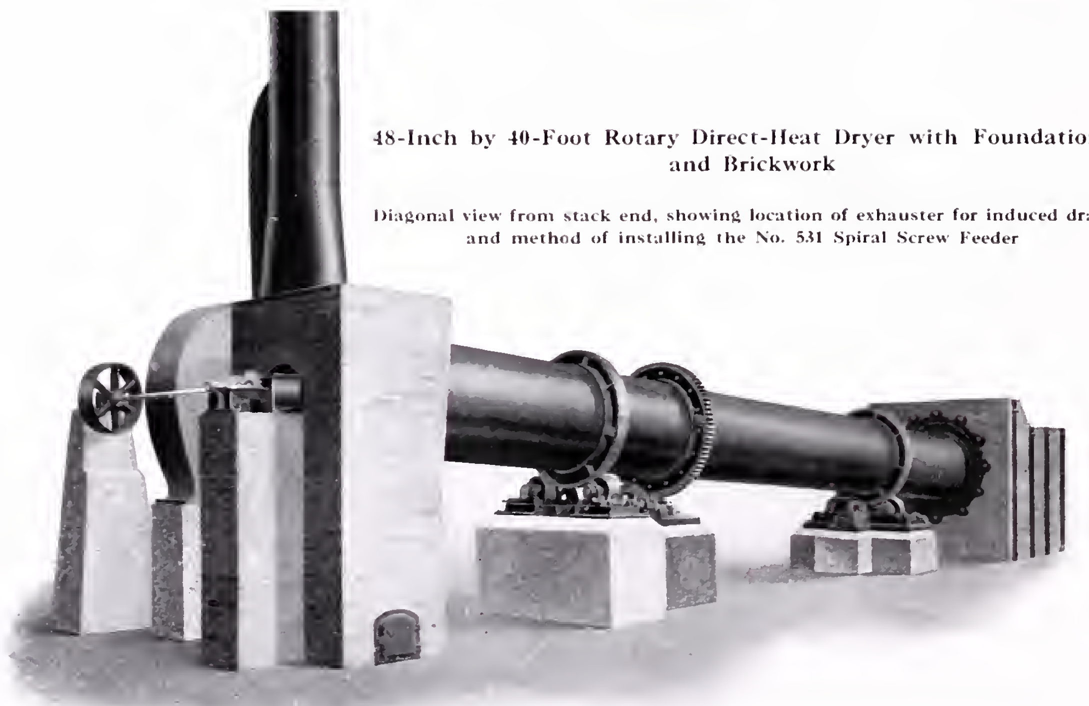
American Direct-Heat Rotary Dryers

In this type of dryer the gases of combustion are drawn through the revolving shell and brought in the most intimate contact with the wet materials. They are adapted for use in drying any materials which will not be injured by high temperatures or by the gases of combustion from the furnace. It is by this method that the greatest amount of moisture can be removed for the least fuel cost.



48-Inch by 40-Foot Rotary Direct-Heat Dryer with Foundations and Brickwork

Left-hand diagonal view from furnace end



48-Inch by 40-Foot Rotary Direct-Heat Dryer with Foundations and Brickwork

Diagonal view from stack end, showing location of exhauster for induced draft and method of installing the No. 531 Spiral Screw Feeder

American Indirect-Heat Rotary Dryers

The Indirect, or Radiated, Heat Dryers, are employed where the materials would be injured by direct contact with the gases of combustion. In this type the heat for drying is obtained by two methods, one in which the air is heated by being drawn through steam coils before it is passed through the revolving cylinder, the other by the radiation of the heat from a furnace through the shell of the dryer.

Uses in Clay-Products Trade

In the clay and shale trade the direct-heat dryer is becoming a recognized part of the equipment to prepare the materials for dry pans. It affords a positive means of maintaining the regular daily output of the pans without regard to weather conditions, and is readily one of the most valuable units in the entire equipment of such a factory.

Capacity —

4-foot dryer, capacity, 8 to 10 tons per hour.
4-foot 6-inch dryer, capacity, 10 to 15 tons per hour.
Capacity is governed by character of clay and amount of moisture it carries. Always recommend a long dryer as it will give best results. Clay must not be fed to the dryer in large pieces, as they will roll through without drying.

Inclination and Speed of Shell —

Dryer shell is set on an incline of ¾ inch per 1 foot and is usually operated at 5 R. P. M.; can be operated at 10 R. P. M.

Fuel Consumption —

The usual rule in direct-heat dryers is that one pound of bituminous coal will evaporate eight pounds of water. Clay usually contains from 15 to 40 per cent of water. On this basis 37 pounds of coal would dry one ton of clay; 1,850 pounds of coal would dry 50 tons of clay, and 3,700 pounds of coal would dry 100 tons of clay which contained 15 per cent of water. Usually calculate 500 pounds of coal per hour for 4-foot dryer and 800 pounds for 4-foot 6-inch dryer.

Pulley —

Size of pulley, 32 x 8 inches with 16-inch American clutch. Speed of pulley usually 150 R. P. M.

Type A Z 48-Inch Dryers for Sand

Size of Shell	Power Req'd	Floor Space	Grate Area	Net Weight
4 ft. x 20 ft.	3 to 5	13 ft. x 33 ft. 6 in.	25 to 36 sq. ft.	20,000 lbs.
4 ft. x 25 ft.	3 to 5	13 ft. x 38 ft. 6 in.	25 to 36 sq. ft.	21,500 lbs.
4 ft. x 30 ft.	4 to 6	13 ft. x 43 ft. 6 in.	25 to 36 sq. ft.	23,000 lbs.

The above dryers do not include mechanical draft apparatus.

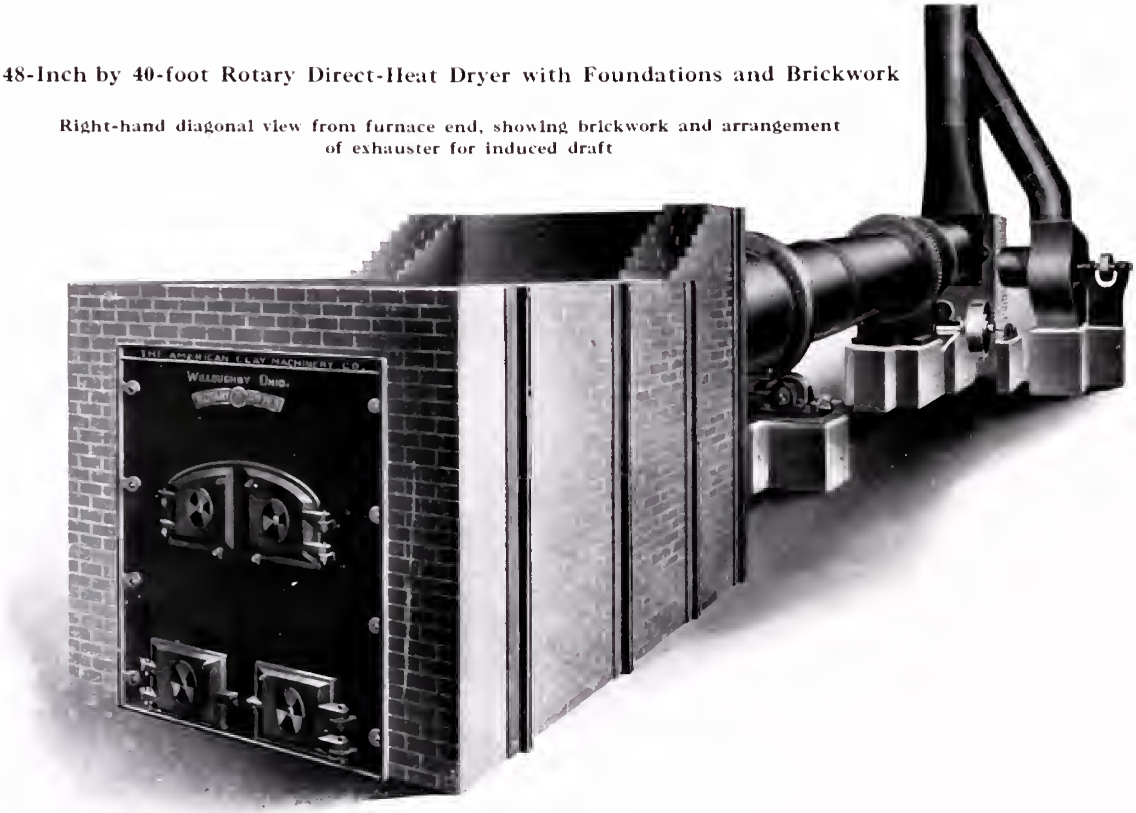
Type C C 48-Inch Dryers

Size Shell	Power Req'd	Floor Space	Grate Area	Net Weight
4 ft. x 20 ft.	3 to 5	13 ft. x 33 ft. 6 in.	25 to 36 sq. ft.	28,975 lbs.
4 ft. x 35 ft.	4 to 6	13 ft. x 48 ft. 6 in.	25 to 36 sq. ft.	30,275 lbs.
4 ft. x 40 ft.	4 to 6	13 ft. x 53 ft. 6 in.	25 to 36 sq. ft.	35,347 lbs.
4 ft. x 45 ft.	5 to 7	13 ft. x 58 ft. 6 in.	25 to 36 sq. ft.	36,712 lbs.
4 ft. x 50 ft.	6 to 8	13 ft. x 63 ft. 6 in.	25 to 36 sq. ft.	38,077 lbs.
4 ft. x 55 ft.	7 to 9	13 ft. x 68 ft. 6 in.	25 to 36 sq. ft.	39,442 lbs.
4 ft. x 60 ft.	8 to 10	13 ft. x 73 ft. 6 in.	25 to 36 sq. ft.	40,807 lbs.

The above dryers include mechanical draft apparatus, consisting of No. 80 full-housed fan, complete with steel connections to stack and base and the necessary dampers. For drying clays

48-Inch by 40-foot Rotary Direct-Heat Dryer with Foundations and Brickwork

Right-hand diagonal view from furnace end, showing brickwork and arrangement of exhauster for induced draft



and other materials where a very large amount of moisture is to be removed, the dryer shell should not be less than 40 feet in length and from that to 60 feet. We recommend the equipment for both natural and induced draft in such cases, but where the induced-draft equipment is not wanted, deduct 2,075 pounds from the weights as given. For a change in length of 4-foot diameter shell add or deduct per foot 273 pounds.

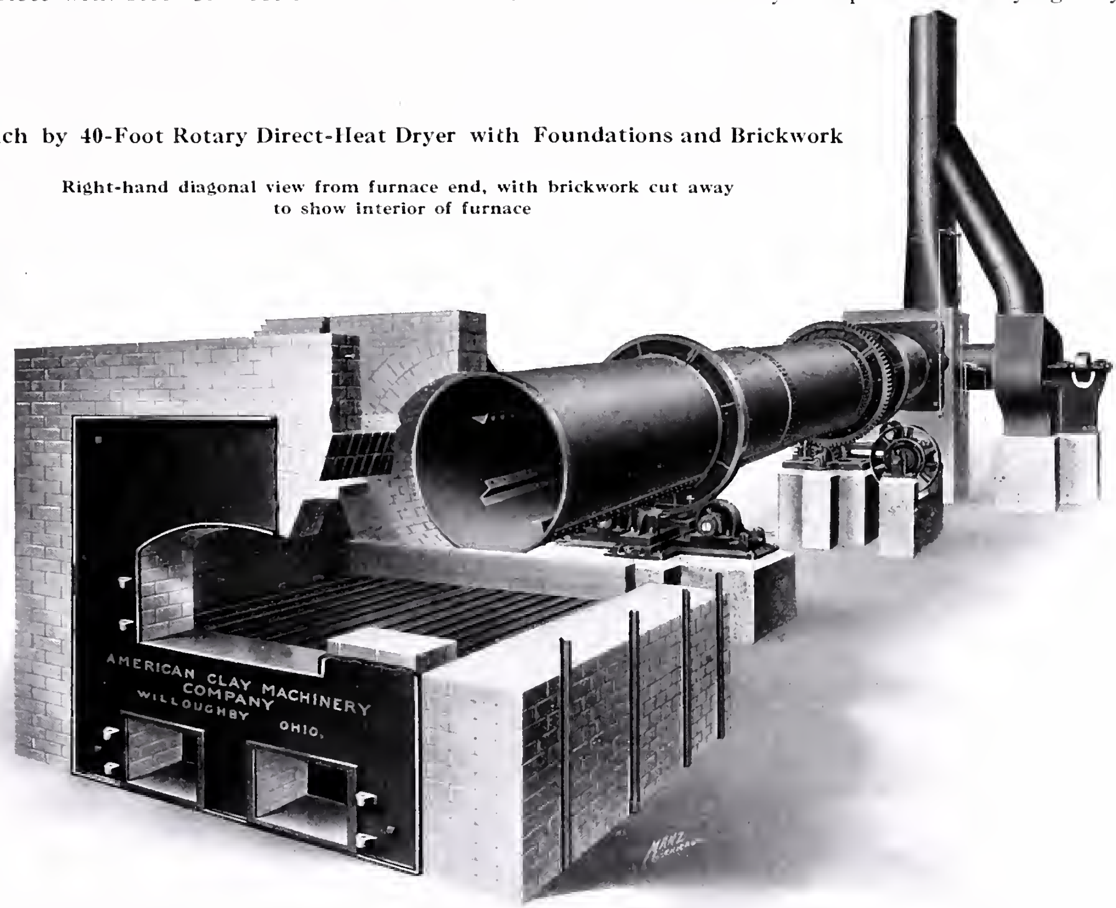
Type C C 54-Inch Dryers

Size of Shell	Power Req'd	Floor Space	Grate Area	Net Weight
4 ft. 6 in. x 20 ft.	4 to 6	13 ft. 6 in. x 34 ft. 8 in.	36 sq. ft.	32,620 lbs.
4 ft. 6 in. x 35 ft.	5 to 7	13 ft. 6 in. x 49 ft. 8 in.	36 sq. ft.	38,215 lbs.
4 ft. 6 in. x 40 ft.	6 to 8	13 ft. 6 in. x 54 ft. 8 in.	36 sq. ft.	40,280 lbs.
4 ft. 6 in. x 45 ft.	7 to 9	13 ft. 6 in. x 59 ft. 8 in.	36 sq. ft.	41,945 lbs.
4 ft. 6 in. x 50 ft.	8 to 10	13 ft. 6 in. x 64 ft. 8 in.	36 sq. ft.	42,610 lbs.

The above dryers include mechanical draft apparatus consisting of No. 80 full-housed fan complete with steel connections to stack and base and the necessary dampers. For drying clays

48-Inch by 40-Foot Rotary Direct-Heat Dryer with Foundations and Brickwork

Right-hand diagonal view from furnace end, with brickwork cut away to show interior of furnace



and other materials where a very large amount of moisture is to be removed, the dryer shell should not be less than 40 feet in length and from that to 60 feet. We recommend the equipment for both natural and induced draft in such cases, but where the induced-draft equipment is not wanted, deduct 2,075 pounds from the weights as given. For a change in length of 4-foot 6-inch diameter shell add or deduct per foot 373 pounds.

Type C D 54-Inch Dryers

Size of Shell	Power Req'd	Floor Space	Grate Area	Net Weight
4 ft. 6 in. x 50 ft.	8 to 10	13 ft. 6 in. x 64 ft. 8 in.	36 sq. ft.	50,035 lbs.
4 ft. 6 in. x 55 ft.	9 to 11	13 ft. 6 in. x 69 ft. 8 in.	36 sq. ft.	51,900 lbs.
4 ft. 6 in. x 60 ft.	10 to 12	13 ft. 6 in. x 74 ft. 8 in.	36 sq. ft.	49,372 lbs.

Stacks for 48-Inch and 54-Inch Rotary Dryers

The standard size of stack is 36 inches diameter, 40 feet high. For change in length add or deduct per foot 35 pounds. The horse-power required to operate the forced-draft fan used in connection with the stack is from 3 to 10 H. P.

Type C K 60-Inch Dryers

Size of Shell	Power Req'd	Floor Space	Grate Area	Net Weight
60 in. x 35 ft.	7 to 11	13 ft. 6 in. x 49 ft. 8 in.	36 sq. ft.	49,975 lbs.
60 in. x 40 ft.	8 to 12	13 ft. 6 in. x 54 ft. 8 in.	36 sq. ft.	52,340 lbs.
60 in. x 45 ft.	9 to 13½	13 ft. 6 in. x 59 ft. 8 in.	36 sq. ft.	54,705 lbs.
60 in. x 50 ft.	10 to 15	13 ft. 6 in. x 64 ft. 8 in.	36 sq. ft.	57,070 lbs.
60 in. x 55 ft.	11 to 16½	13 ft. 6 in. x 69 ft. 8 in.	36 sq. ft.	59,435 lbs.
60 in. x 60 ft.	12 to 18	13 ft. 6 in. x 74 ft. 8 in.	36 sq. ft.	62,000 lbs.

The standard size stack for 60-inch dryers is 40 inches in diameter, 60 feet long. For change in length add or deduct 40 pounds per foot net. The horse-power required to operate the No. 80 forced-draft fan used in connection with the stack is from 3 to 10 H. P.

Type R K 72-Inch Dryers

Size of Shell	Power Req'd	Floor Space	Grate Area	Net Weight
72 in. x 60 ft.	12 to 18	15 ft. 6 in. x 76 ft. 8 in.	48 sq. ft.	74,000 lbs.

Selection

To determine the particular size of the dryer or length of shell that is required, we must know the nature of the material, the condition in which it will come to the dryer, the percentage of moisture it contains, the percentage of moisture it is desired to remove, and the approximate number of tons to be dried per hour. Where the capacity is small and the moisture is on the surface, as in the case of sand or crushed stone, a comparatively short shell may be used, but where materials like clay are to be dried the best results are obtained by the use of dryers with shells of 40 feet or over in length.

Process

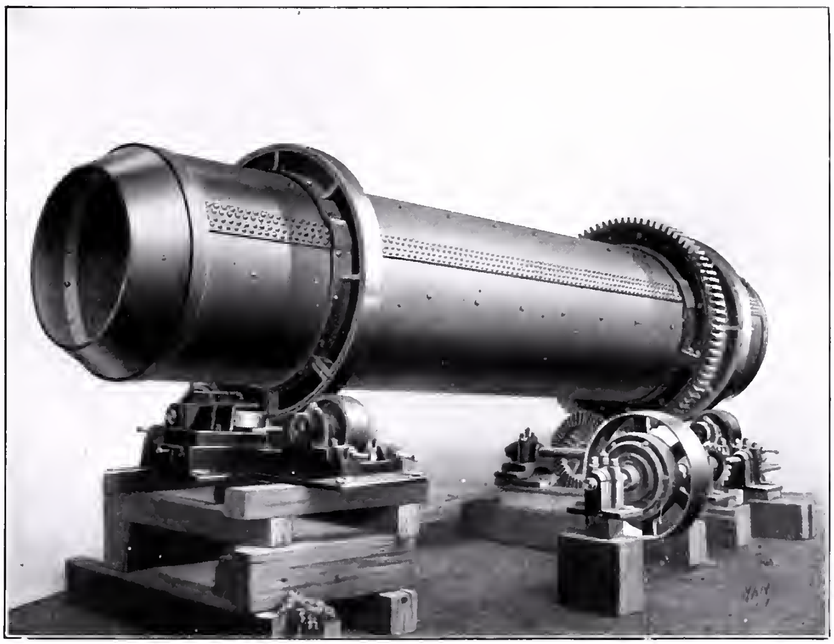
The damp materials are charged into the dryer through a feed spout at the upper end of the shell, directly from a disintegrator or granulator, or from an elevator, a conveyor, a barrow, or by shovel or other suitable means, and are then passed through the shell by gravity. The shell is installed on an incline, so that at each revolution the material is lifted by the flights and carried forward a short distance toward the discharge end. It is discharged at the lower end of the cylinder into an elevator boot or onto a conveyor and taken to the storage bin.

Drawings

Rotary dryers are usually built to order in some of the important details after the engineering data is available. To meet this condition we make special setting drawings for each installation, showing the location of the driving pulley and that of the feed pipe and discharge spout. A dimension sketch should be furnished by the purchaser giving such information as will enable us to prepare the installation drawings. This must be had before the assembling of the dryer can be commenced.

Induced Draft

Where a very large percentage of moisture is to be removed and where the greatest capacity is desired we recommend the use of an induced or mechanical draft system, for which we supply suitable equipment, consisting of a full-housed steel exhaust fan with connections to stack base and stack, and with the necessary dampers in the stack and fan connections. This gives control of the draft irrespective of the weather conditions, and provides such regulation as may be required to maintain a uniform output.



Construction

In a general way the following description is representative of the entire line of direct-heat rotary dryers. The shell is made of heavy steel plate, of butt-strap construction, with the plates so arranged as to give the greatest possible strength, with the ends reinforced by forged steel bands. The shell revolves on two carrying rings, consisting of heavy castings, riveted to the shell, on which are shrunk rolled steel tires made of the very best locomotive tire steel.

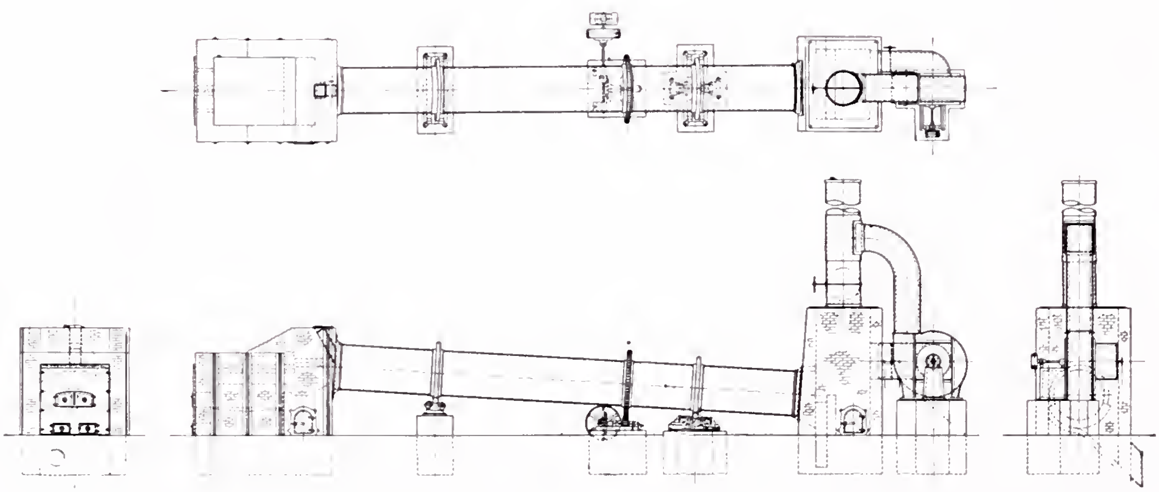
The carrying rings revolve on steel rolls. The shell is maintained in the proper horizontal position by suitable steel guide rollers, as shown in the cut of the No. 2 carrying base. In the case of the Type A Z Sand Dryer and in the indirect-heat dryers, steel flange rollers are used in place of these guide rollers. The roller bearings are adjustable on the bases, thereby providing a ready means of keeping the shell in uniform position. The inside of the shell is fitted with longitudinal Z bars or angles which serve as agitators or flights to lift the material and cascade it through the shell, bringing it constantly in contact with the heated air as it passes through the cylinder.

We construct these dryers for either spur or bevel-geared drives and for the shells to be revolved in either direction, as may best adapt them to the local conditions in which they are to be installed. The design, materials, and workmanship are of the best and they will be found to be durable and thoroughly satisfactory in every respect.

The furnaces may be constructed for firing at either side, but end firing as shown in the cuts is preferable for the reason that the furnace arches can be better sustained in that construction.

Installation

We use two methods of installation, one in which the damp materials are charged into the dryer at the end of the shell next to the furnace. This we call the "furnace feed." (See cut on this page.) By the other method the highest part of the shell is at the stack end, and the material is fed in at this point and moves forward toward the furnace at each revolution of the shell, so that when discharged it is directly in contact with the highest temperatures. Either installation will be furnished at the preference of the customer, but the stack feed is more commonly used where the greatest capacities are desired.



48-Inch by 40-Foot Furnace Fed Rotary Direct-Heat Dryer with Foundations and Brickwork

Right-hand side view showing typical installation where furnace is located at inlet end of dryer. This arrangement of furnace can be used on all sizes of rotary direct heat-dryers.

Feed Pipe

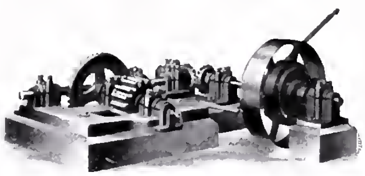
As a rule we use gravity feed pipes, of which we make several designs. These are either set in the stack plate or built into the brickwork. They are comparatively inexpensive to maintain and easy to operate. It is furnished only when specified and at an additional charge.

No. 1 Driving Base for Rotary Dryer

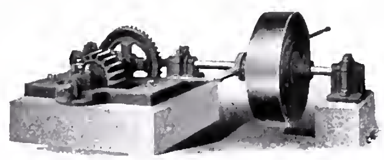
The accompanying cut illustrates our standard type of driving base for rotary dryers, for use where the line shaft is parallel with the drying cylinder. The train of gearing shown reduces the speed from sixteen revolutions of the pulley shaft to one revolution of the shell.

No. 2 Driving Base for Rotary Dryer

This cut illustrates our standard type of driving base for rotary dryers, for use where the line shaft is at right angles to the drying cylinder. The train of gearing shown reduces the speed from sixteen revolutions of the pulley shaft to one revolution of the shell.



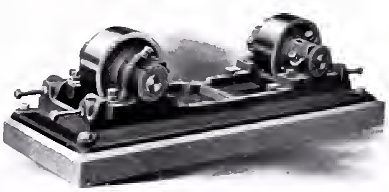
No. 1 Driving Base for Rotary Dryer



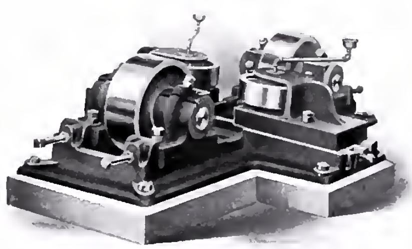
No. 2 Driving Base for Rotary Dryer

No. 1 Carrying Base for Rotary Dryer

The accompanying cut illustrates our standard type of carrying base for rotary dryers. This base is provided with two steel rolls with adjustable bearings upon which the carrying rings run.



No. 1 Carrying Base for Rotary Dryer



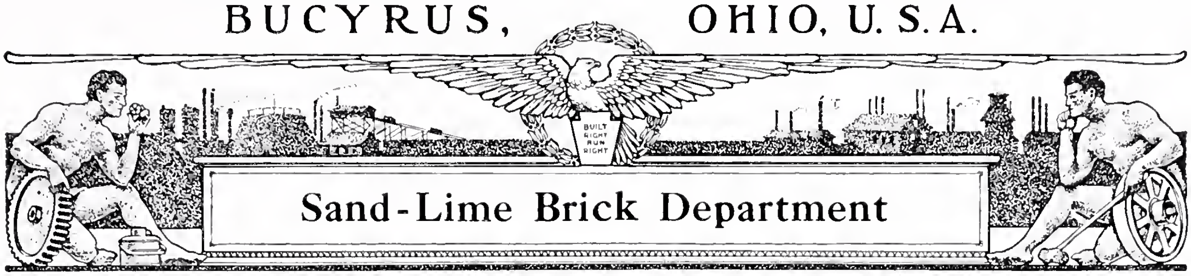
No. 2 Carrying Base for Rotary Dryer

No. 2 Carrying Base for Rotary Dryer

The accompanying cut illustrates our standard type of carrying base with horizontal thrust rolls, and carrying rolls. The function of the thrust rolls is to maintain the shell in position horizontally, while that of the carrying rolls is to keep it in a correct position vertically.

THE AMERICAN CLAY MACHINERY COMPANY

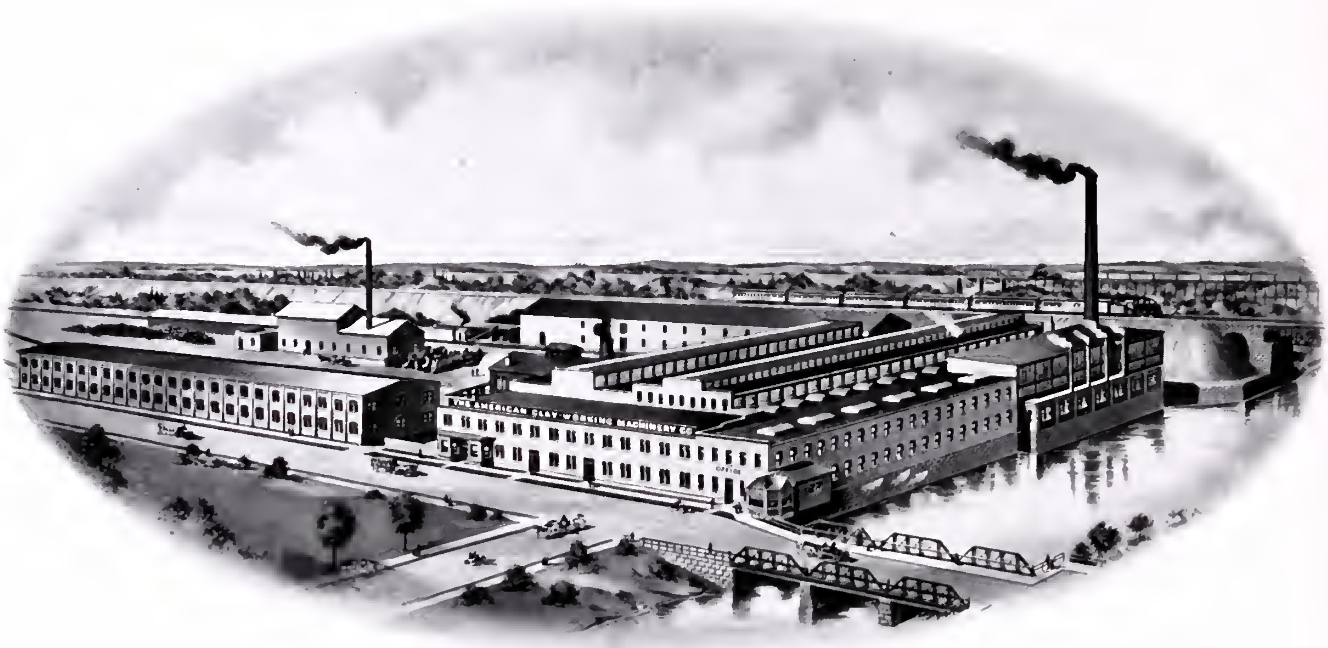
BUCYRUS, OHIO, U. S. A.



The American Line of Sand-Lime Brick Machinery

For half a hundred years The American Clay Machinery Company has been devoted to the development and manufacture of brick-making machinery. Though stiff-mud, dry-press, and soft-mud processes are entirely different, each process was taken up in its turn and developed. Not content with making a line of machinery for the manufacture of clay products by any one process, The American Company has mastered each line and has placed upon the market the recognized standard of excellence in machinery for making brick by that process. This thorough and aggressive policy has placed The American Company easily in the lead among machinery builders, and it is recognized the world over as the largest and leading manufacturer of clay-working machinery. Being leaders in the development of the brick-industry, it was but natural that the advent of sand-lime brick was met by this company with a thorough investigation of machinery and methods. The early promoters of the business surrounded it with mystery and sold secret processes and formula, claiming they were necessary to the successful manufacture of sand-lime brick. The American Company stripped the process of the mystery surrounding it and placed it on a business basis. Seeing the need of suitable machinery and methods, a line of presses, mixers, hardening cylinders, cars and other appliances was designed and placed upon the market. Being the leading manufacturers of brick-making machinery, and having experience of half a century, it was natural the American line of sand-lime brick machinery should be successful from the start, and each machine has proved to be the very best, most satisfactory and excellent appliance for the purpose. Our line of sand-lime brick machinery is by far the most extensive in the world. It includes everything necessary to manufacture sand-lime brick, each machine and appliance being built in our own factory, under our own supervision, and of a quality that we can guarantee. Correspondence is solicited on this or any other topic relating to the manufacture of structural ceramics. We issue a sand-lime brick catalogue in Spanish, which will be mailed to parties interested upon request.

Address all correspondence regarding sand-lime brick machinery to The American Clay Machinery Co., Willoughby, Ohio, U. S. A.



Sand-Lime Brick Machinery Factory of The American Clay Machinery Company, located at Willoughby, Ohio, Much the Largest Manufacturers of Sand-Lime Brick Machinery in the World

Sand-Lime Brick and Their Manufacture

General

Sand-lime brick are now successfully manufactured in nearly all the civilized countries of the world. The growth of the business during the last fifteen years has been marvelous. The business is firmly established on a commercial basis, and is undoubtedly one of the most profitable enterprises that can be established in proportion to the amount of capital involved. The most important step that has ever been taken in perfecting the manufacture of these brick was when Dr. Michaelis of Berlin discovered that they could be hardened in less than twelve hours time if subjected to the action of live steam under high pressure in a hardening cylinder. Prior to this discovery the brick had been hardened by exposure to the weather for periods extending over many months. In the modern plant the sand can be taken from the bank and made into brick ready for laying in the walls, in less than 24 hours.

Patents

For many years Dr. Michaelis, the German chemist to whom the world is indebted for the fundamental process by which sand-lime brick are made, had his discovery protected by letters patent, but these patents have long since expired, and at the present time the standard sand-lime brick can be manufactured by any of the reliable processes without infringement. Although many patents have been taken out from time to time by unscrupulous promoters on mysterious processes and chemical formulas relating to the manufacture of sand-lime brick, none of them are of any value, and they have been used, either intentionally or otherwise, for deceiving the trade. Fortunately for the welfare of the business, however, these patent processes and formulas have practically all been discarded, and the fundamental process, simplified and put on a commercial basis, is stronger than ever before. The American Clay Machinery Company has never championed any patent processes, but has concentrated its efforts in perfecting the four fundamental operations of manufacture, which are hydrating the lime, grinding and mixing the sand and lime, pressing the brick, and hardening them.

Selection of Sand

The first step to be taken in preparing for the establishment of a sand-lime brick factory is the selection of a site for the plant where sand is abundant and of proper quality. A large variety of sands, slags, crushed rock, lava and other materials can be made into first-class sand-lime brick at a reasonable cost. Parties contemplating the manufacture of sand-lime brick will do well to forward samples of their materials to our factory at Willoughby, Ohio, for examination and testing. Our sand-lime testing department is fully described elsewhere in this catalogue. Sands rich in silica, sharp and granular, are the most desirable for making into brick, although by means of our improved wet and dry grinding process many other sands have been successfully handled. Sands that are too coarse must be reduced before being made into brick, and as a general rule sands that will pass through from 60 to 100-mesh screens give the best results. The finest brick made result from the use of proper proportions of coarse and fine sand rather than from the use of all coarse or all fine sand. Sands that contain any considerable percentage of clay, loam, roots, dirt or other foreign materials, must be screened and purified before they can be used satisfactorily.

Lime

One of the most vital points in the preparation for manufacturing sand-lime brick is that of selecting a lime that is adapted to the purpose. Many limes can be successfully used in the manufacture of sand-lime brick. The first requisite is purity. It must be a high calcium lime, and should be one that analyzes 98 to 99 per cent pure calcium oxide. The lime should actually be analyzed and show a very small per cent of impurities. Limes high in magnesia hydrate slowly, and are very weak in combination with the sand. Moreover, such limes are liable to expand while the brick are being hardened and to crack a great number of them. Furthermore, limes containing magnesia are much more expensive, as this impurity is of no value in the brick, and enough more lime must be used in order to get the proper proportion of calcium oxide in the mixture. Commercial quick-lime is obtained by calcining limestone at high temperatures in a lime kiln, and in certain remote localities it is sometimes found advisable to install a lime kiln in connection with the sand-lime brick plant. Hydrated lime can now be purchased in commercial quantities from the lime manufacturers.

Mixing

The hydrated lime and the sand are ground and mixed in our improved 9-foot special wet and dry grinding mill, a machine which was first utilized in the sand-lime brick industry by The American Clay Machinery Company. It enables the manufacturer to combine the several operations of moistening, mixing, and grinding into one, thus greatly simplifying and improving the method of manufacture. It possesses the further advantage of so grinding the sand that it is given that sharp and gritty consistency which is so essential in obtaining a perfect bond between the sand and lime, and also in obtaining a high-grade product. The abrasive action of the mullers, by virtue of which the sand is broken up into sharp particles instead of into a fine powder, explains this advantage. By the use of the wet and dry-grinding mill the highest quality of brick yet made in the United States has been produced.

Characteristics of Sand-Lime Brick

Briefly enumerated, the characteristics of sand-lime brick are as follows: Great crushing strength, no efflorescence, slight heat conductivity, ability to withstand the action of acids, heat and cold-resisting qualities, valuable for sanitary purposes, great electrical resistance, and economy in laying on account of uniformity in size, shape, and color. Extensive tests conducted by expert scientists have demonstrated that sand-lime brick will resist the action of acids, weather, fire, cold, compression and moisture with more uniform results than good qualities of clay brick.

Cost of Manufacture

The cost of producing sand-lime brick compares favorably with that of making clay brick. This might be expected in consideration of the fact that the raw materials are converted into the finished product in less than 24 hours, that the method of manufacture is practically automatic, and that the process of hardening is much less expensive than that of burning brick in kilns, to say nothing of the great saving of time. The cost of sand-lime brick in the United States varies from $3.50 to $5.00 per thousand, depending on local conditions, such as cost of lime, labor and fuel. In Mexico, Central America, South America and the West Indies, the cost of manufacture, as well as the market price of the brick, varies greatly, and it is, therefore, advisable for parties contemplating the manufacture of sand-lime brick in these countries to submit to us the following information, so that we can make the estimate:

Wages per day of engineer,
Wages per day of superintendent,
Wages per day of fireman,
Cost of common labor per day,
Cost of sand, if any,
Cost of quicklime or hydrated lime delivered at plant,
Cost of fuel—wood, coal or oil.

Upon receipt of the above information we can make a reliable estimate of the cost of the brick per thousand, and if the market price of brick is also given, we can determine what margin of profit will be left for the manufacturer.

Colored Sand-Lime Brick

The great majority of sands produce brick of a light gray color, although occasionally the brick are a yellowish brown, buff, or ochre, as influenced by the color of the natural sand. By introducing artificial color pigments into the mixture, a large variety of shades and colors can be economically and satisfactorily produced.

Development of the American Clay Line of Machinery

At the time the sand-lime brick business was introduced into North America, The American Clay Machinery Company was devoting its entire attention to the manufacture of clay-working machinery. The reports received regarding the new building material were so flattering, however, that the company made a thorough investigation of the business in Germany, where it originated, through its own representatives and through United States consuls to the German Government. After having become satisfied that the business was thoroughly practical and legitimate and gave promise of permanency, The American Company then took up the comprehensive task of designing, building, testing and perfecting a complete line of machinery and appliances to cover every step in the manufacture of sand-lime brick. In order to do this it was necessary to employ a corps of expert mechanical engineers and designers to work out machine designs, elaborate plans for sand-lime brick factories, and to solve the numerous practical and mechanical problems incident to the business. So rapidly and thoroughly was this work done that in a very short time the company was enabled to offer to the trade a complete and efficient line of sand-lime brick machinery, the excellence of which immediately put it into the lead, and has kept it there ever since. To perfect this line of machinery was by no means an easy task. Each unit of the equipment had to be thoroughly tested for its particular work, and the weak points, if any, detected and remedied. In some cases it was necessary to discard certain machines and replace them with others of more approved design and more peculiarly fitted to do the particular work required of them. In this respect the motto of the company has been, "To produce a successful machine for each operation in the manufacture of sand-lime brick." After fifteen years of successful experience in the business, and after having installed scores of successful factory outfits, not only in the United States but also in Canada, Mexico, Cuba and South America, The American Clay Machinery Company's reliability stands unquestioned.

Methods of Manufacturing Sand-Lime Brick

There are a number of systems for the manufacture of sand-lime brick in general and successful use in this country. In one of these systems the quicklime, after being pulverized and hydrated, is mixed in proper proportions with the dry sand in a tube mill. Moisture is then added, and the mixture pressed into brick, which are placed on cars and run into a hardening cylinder, where they are subjected to steam pressure for the required number of hours. This is a very reliable process, and by means of it a uniform product without loss can always be obtained.

In another of these systems the quicklime, after being pulverized and hydrated, is mixed in proper proportions with the sand in a wet pan, where moisture is added. The mixture is then removed from the wet pan, conveyed to the press, and made into brick, which are placed on cars and run into the hardening cylinder. This system commends itself to every careful investigator on account of its comparative simplicity and the inexpensive outfit of machinery that is required. It is fast gaining favor with the manufacturers of sand-lime brick throughout the country.

In the third or silo system, the quicklime is first pulverized and then mixed in proper proportions with the sand, after which moisture is added and the mixture placed in storage bins, where it is allowed to stand for a period of about twenty-four hours, until complete hydration of the lime has taken place. After the hydrating process is completed the mixture is pressed into brick, which are placed on cars and run into the hardening cylinder, the same as in the other processes.

These systems are often modified to suit local conditions or the peculiarities of certain materials. In a number of cases it has been found advisable to make use of what is known as the division method. In this process the sand is divided, a part of it being mixed and ground with the total required amount of lime, while the remaining portion is added in its natural condition. In plants where tube mills are installed this result is brought about by by-passing a part of the sand to the mixer. This method may be utilized in connection with either the quicklime or the hydrated-lime processes. By this process we are enabled to retain a portion of the natural grains of sand without pulverizing, thereby obtaining the very best of results and securing a product of superior quality. This is also a very economical method, as it obviates the necessity of either drying or grinding that portion of the sand which is by-passed.

The American Clay Machinery Company is prepared to furnish complete equipments of machinery and appliances for making sand-lime brick by these and all other known processes. Our Engineering Department is under the direction of skilled and competent engineers, thoroughly acquainted with both foreign and domestic practices in this line, and we are prepared to furnish drawings and specifications for the erection of complete plants which will embody the most convenient construction in all details.

Sand-Lime Testing Department

Parties who contemplate taking up the manufacture of sand-lime brick should in every case investigate the merits of their material and determine whether or not they can be successfully and economically made into this kind of brick. When subjected to a practical test some apparently excellent materials prove utterly worthless, while others superficially less promising produce exceptionally good brick. In testing out some materials it becomes apparent that the cost of manufacturing brick will be too great to make the proposition a profitable one. In such cases we tell our prospective customers the plain truth and save them any further expense or trouble.

To parties wishing to have their materials tested we offer the facilities of our Testing Department at Willoughby, Ohio, at any time. This department is equipped with testing machinery and appliances of the most approved design, and the tests are made under the personal supervision of experts, who conduct them impartially and in the most thorough manner possible. For the present, no charge is made for these tests, our only stipulation being that all freight and express charges be prepaid, and that all shipments of material be plainly marked with the name and address of the shipper.

We aim to make all tests promptly, and as soon as they are completed sample brick, together with complete reports of the test, are sent to the correspondent. We are always glad to have prospective customers present in person when their materials are being tested, for in this way they have an opportunity to observe the several steps and processes in the manufacture of the brick.

Four-Mold Model "C" Sand-Lime Brick Press

The 1918 model "C" press shown in the accompanying cut designed especially for making high-grade press brick.

Rated Capacity Per Hour—

1,600 brick per hour at speed of 240 R. P. M. of the driving pulley or seven molds per minute.

2,000 brick per hour at speed of 285 R. P. M. of the driving pulley or eight and one-third molds per minute.

34.2 revolutions of the pulley gives one mold of four brick. The machine is usually speeded at from 7 to 10 molds per minute.

Specifications

Special Features—

The press is self-contained, the heavy side frame being mounted on a massive bed plate. All parts subject to excessive strain are made of steel. The application of power is uniformly distributed upon the frame, the crank shaft and kindred parts by the use of two master gears, on one of which is mounted the lift-out cam and on the other the charger cam. This is a most valuable feature. In comparison with the earlier models of this press, we have now incorporated in its construction many details which serve to steady its movements and to greatly increase the durability as well as the ease of making repairs to the mold table, the charger, the cams and the friction rollers. The charger shaft, the toggle shafts and the main crank shaft have been greatly enlarged and the machine, as now offered, possesses all of the refinements in materials, in design and in workmanship that have resulted from experience in its operation in many plants over a long period of time.

Clutch Pulley and Brake—

It is supplied with a friction-clutch driving pulley and a clutch brake mounted on the same shaft and actuated by a single lever. This enables the operator to start or stop the machine instantly, with the pressure heads in any desired position.

Bearings—

The shaft bearings in the frame are babbitted, are unusually long, and are so arranged that the wear can be taken up in the most effective manner.

Gears—

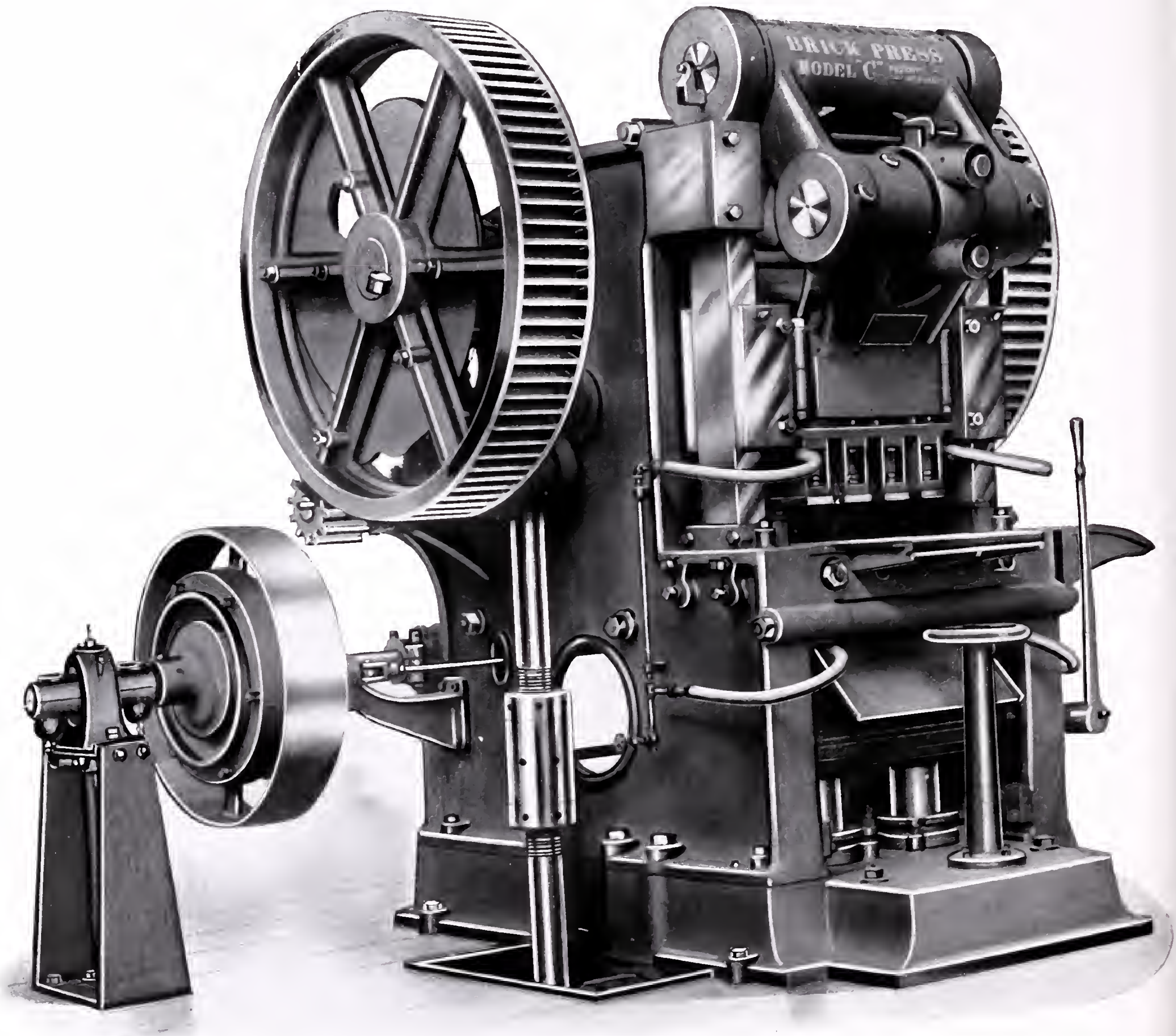
All gears are of ample proportions for the most severe duty. The master gears are made from our semi-steel gear metal, giving great durability and strength. The pinions are open hearth steel and both gears and pinions have machine cut teeth.

Toggles—

The toggle movement is composed of forged steel shafts and so arranged as to present almost the entire surface of the under side of the shafts to the line of pressure. Special attention is called to this point, as this arrangement is of great value, inasmuch as the toggles will have the maximum of surface and therefore will wear longer than any other possible combination of parts. Another advantage of this arrangement of the toggles is that the shafts always compress from their lowest side, thus assuring a most positive lubrication.

Side-Bars—

The side-bars are of forged steel, of sufficient sectional area to withstand a tensile strain of over 1,560 tons without danger of breaking. The bars are located in such a manner as



Four-Mold, Model "C" Sand-Lime Brick Press to serve as guides for the upper and lower cross-heads, thus assuring the perfect alignment of these parts and preventing any of the brick from being thicker at one end than at the other, and likewise providing an easy adjustment of the gibs on the cross-heads to compensate for wear.

Ejecting of Brick—

The method of ejecting the brick from the mold is very simple. The side-bars do not move upward with the brick, but only the lower cross-head, thus relieving the machine from the extra labor involved with such arrangement.

Mold Frame and Liners—

The construction of the mold frame is a great improvement over designs heretofore employed. By it the liners can be removed in a very few minutes' time, whenever it is necessary to change the size of the mold or to renew the liner plates. The adjustment of the liner plates is regulated entirely from the outside of the frame, the molds are easily accessible, and the entire design is of the most convenient and substantial character. The liners may be reground when worn without enlargement of the mold cavities.

Adjustments—

The adjustments for controlling the charger, for regulating the depth of material in the mold, and for maintaining the lower pressure plates level with the table, are of the most improved type, and are the result of long experience in designing presses of this character and in operating them in brick manufacturing establishments.

Charger—

The charger has an extra long throw, and is equally well adapted to the Roman size brick as to standard size. It is also arranged so as not to drag the material to the back end of the mold, but distributes it evenly, which insures equal density throughout the brick.

Pressure—

The press is constructed so that the upper plunger dwells on the brick under pressure the longest possible time, thus assuring a perfect bond. Another important feature that this press embodies is that it does not press the material simultaneously from the top and bottom, but alternately, which insures the expulsion of the atmosphere from the brick. It also moves the brick in the mold box under pressure, which not only insures a finer polish, but prevents any seam or weakness around the middle of the face of the brick.

Driving Pulley—

This press is equipped with an American friction-clutch driving pulley, 36 inches diameter, 8 inches face, with 22-inch clutch.

Speed—

Speed of driving pulley for a capacity of 1,600 brick per hour, 250 revolutions per minute.

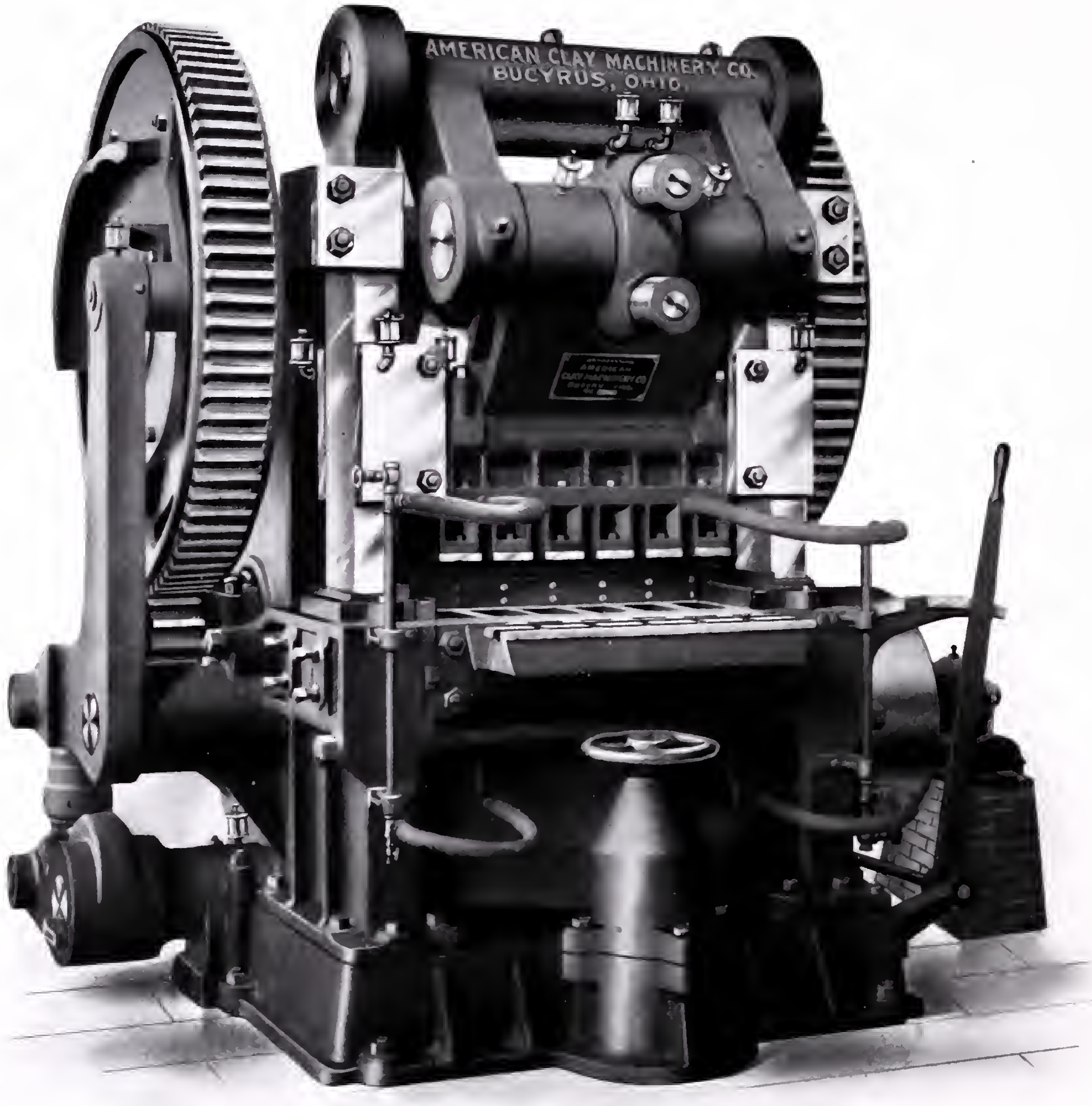
Power—

Power required, 15 to 25 horse-power.

Weight—30,060 pounds.

Dimensions

Floor space	9 ft. 6 in. wide by 8 ft. long
Extreme height above floor line	8 ft. 6 in.
Length of foundation	12 ft. 7 in.
Width of foundation	8 ft. 11½ in.
Depth of foundation	5 ft. 8 in.
Distance from center line of Machine to center line of Pulley	4 ft. 1½ in.



No. 599 Six-Mold Sand-Lime Brick Press

No. 599 Six-Mold Sand-Lime Brick Press

This machine is designed for the manufacture of dry press clay brick, fire brick and sand-lime brick, and can also be used for making a limited number of ornamental shapes.

Rated Capacity per Hour—

This machine, speeded at 200 R. P. M., gives eight pressures per minute and a capacity of 2,880 brick per hour. Capacity per hour is dependent upon the speed at which it is operated, as indicated above, and the usual range is from 2,300 to 3,600 brick per hour.

Specifications

Design Result of Long Experience—

This press is built in such a substantial manner that it will stand many years of hard service, at the same time turning out an excellent product. It is the result of a long period of practical experience in designing and operating machines of this type. It is constructed on the simplest possible lines, and all its parts are readily accessible and easily kept in repair.

Pressure on Brick—

The mechanical movements of the press are such that the full pressure is maintained upon the brick for a maximum interval. This result is accomplished, however, without loss of time or diminution of capacity. Thus brick are produced that are perfect in form, of uniform consistency, and without a flaw, seam or granulation in any part.

Starting and Driving Mechanism—

The machine is supplied with an American friction-clutch pulley, with clutch brake mounted on the same shaft, both being actuated by a single lever conveniently located at the right of the mold table. This enables the operator to start or stop the machine instantly, and gives him complete control over it at all times.

Stresses Not on Frame—

The stresses incident to the pressing of the brick are borne by two massive forged steel tension bars. These side-bars not only actuate the lower cross-head when the brick are being pressed, but they also serve as guides for both upper and lower cross-heads. The gibs on both cross-heads are of ample length, and, as both slide up and down on the same bars, it is evident that the plungers are kept in perfect alignment and in perfect register with the mold at all times.

Toggle Movement—

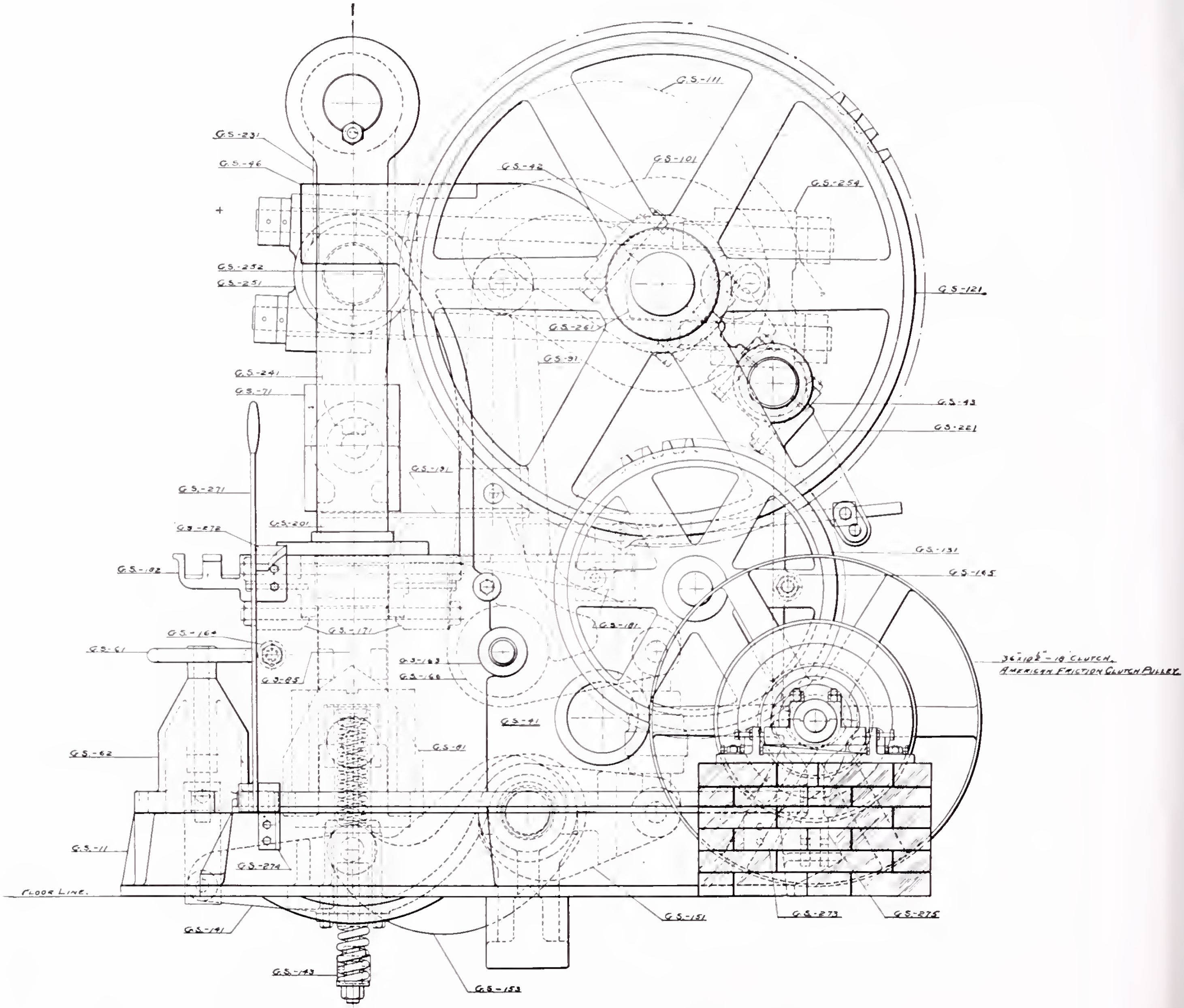
In this machine the pressure is applied by means of powerful toggles, accurately finished and of abundant strength. The mechanism is so arranged that the wear comes on the bottom of the three toggle shafts, thus making perfect lubrication possible.

Ejection of Brick—

The method of ejecting the brick from the mold is such that the side-bars, toggles and upper cross-head do not move upward with the brick, the lower cross-head only being lifted to bring the brick flush with the top of the mold.

Mold Charger—

The mold charger is arranged with separate side guides, which serve the double purpose of relieving the wearing action of the charger on the mold table and of preventing any chattering or vibrating while the bricks are being pushed out onto the mold table. This feature will be greatly appreciated by all experienced users of vertical presses. The charger is driven and timed by a cam mounted on the master gear. All parts actuating it are readily accessible from the rear of the machine, enabling the operator to remove the charger in a very few minutes should this at any time become necessary.



Outline Cut Showing Construction of No. 599 Press

Construction of Mold Box—

The mold box is so designed that the liners can be removed and renewed in the shortest possible time. The adjustment of the liners is regulated entirely from the outside of the frame, the work being easily and quickly done. This is a very valuable feature and one that will commend itself to all practical brick-makers. The mold liners may be reground and replaced without any enlargement of the mold cavities.

Adjustments—

The several adjustments of the press are easily made. The thickness of the brick can be changed in a few moments' time. The lower die plates can be made flush with the mold table by the simple operation of adjusting a right and left-hand nut located on the ejecting bar outside of the frame of the press and readily accessible. It will be noted therefore that these adjustments are peculiar to this machine, and are of great value to the practical operator.

Bearings and Gearing—

The bearings are long, of large diameter, and arranged so that the wear can be taken up in the most effective manner. The main gearing is massive and well adapted to driving the heavy steel crank shaft which is connected by a pitman to the toggle mechanism.

Frame and Bed Plate—

The press is self-contained, and provided with a heavy and substantial main bed plate on which the side-frames are mounted and securely bolted. The side-frames are so made that the operator can readily reach the rear of the cross-head to remove the upper pressure plates when necessary.

Driving Pulley—

The machine is equipped with 42-inch x 10½-inch American friction-clutch driving pulley with 18-inch clutch. Gear ratio, 25 to 1.

Speed—

Speed of driving pulley approximately 200 R. P. M., according to the capacity desired and the character of the work.

Power Required—

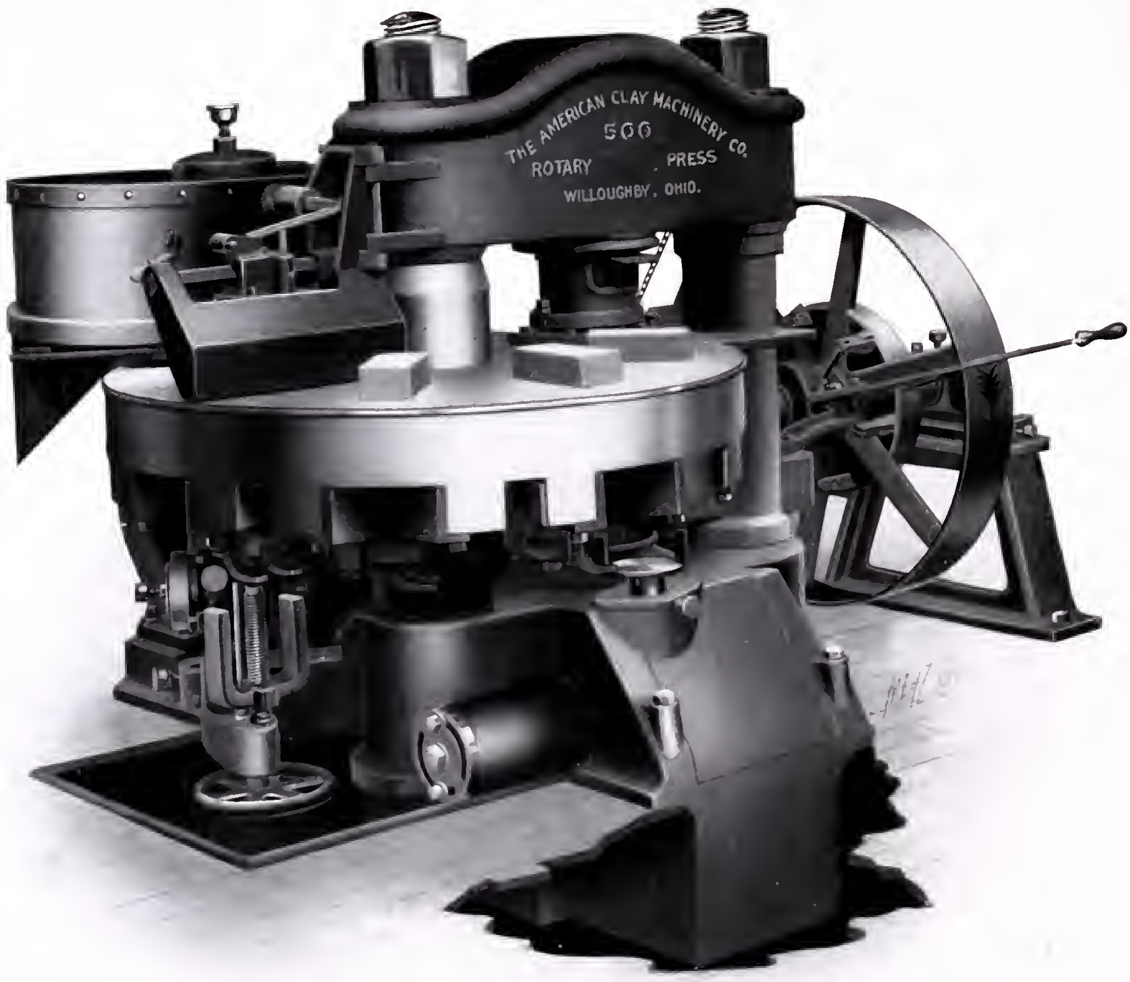
Power required to operate this machine is approximately 20 H. P. When operated at a higher speed than 200 R. P. M., the horse-power increases proportionately.

Weight—

26,428 pounds, including one standard mold.

Dimensions

Floor space	9 ft. 10 in. wide, 8 ft. long
Height over all above foundation	8 ft.
Projections below foundation	14 in.
Length of foundation over all	11 ft. 1 in.
Width of foundation over all	6 ft.
Depth of foundation	6 ft. 4 in.
Length from center of Driving Pulley to center of Machine	5 ft.
Length from center of Machine to center of Outboard Bearing	6 ft. 3 in.



No. 500 Eight-Mold Rotary Sand-Lime Brick Press

No. 500 Eight-Mold Rotary Sand-Lime Brick Press

This machine is especially designed for use in the manufacture of sand-lime brick, although it is well adapted to the making of brick from any semi-dry, granular or pulverized materials. The most thorough attention to detail has been given in the design and construction of this press to secure the greatest durability and efficiency of performance with the minimum of skilled supervision, adjustment and repair. After having had the press in use during a long period of the most severe service we confidently offer it to the trade as possessing many features of high excellence not found in other machines of the rotary type, and as being a machine that can be depended upon to produce its full capacity of high quality brick at the lowest cost.

The No. 500 Press is peculiarly adapted to the manufacture of sand-lime brick, owing to the fact that the brick when pressed and ejected from the mold are not pushed on the table mechanically, but are removed by the operator to the hardening car. In this manner the green brick, although very tender, may be placed upon the hardening car with all the edges in perfect condition. One brick is pressed at a time and the leverage is so proportioned as to easily exert the enormous pressure required for the production of high-class pressed brick. The amount of pressure is gauged by the pressure-relief device hereinafter described, and by means of which excessive strains are avoided.

The press consists essentially of a heavy reinforced base casting, revolving mold table containing eight steel-lined molds, a revolving steel cam for driving and locking the table, an automatic feeding hopper, a series of pressing levers, and a suitable train of gearing with steel pinion, all driven by an improved American clutch pulley.

The revolving mold table contains eight steel-lined molds, spaced equidistant. The mold table is made of gray iron, heavily ribbed and carefully machined to dimensions. It is faced with a nickel steel cover plate. This face plate is made especially for the purpose from a nickel composition that has been found to give the greatest resistance to the abrasion of sand. It is finished to interchangeable dimensions, that it may be readily replaced when worn, but our experience thus far with this material demonstrates that it possesses such great durability, even under the severe action of the sand, that renewals will rarely be required.

The molds are lined with interlocking steel liners of great hardness. They are secured in position in such a manner that they can be very readily and quickly removed and replaced when worn. The quality of the liners and the method of securing them in place are of much importance in presses which are used for working sand. The arrangement used in this press is the result of long experience, and is one that will appeal to all who have been engaged in making sand brick. The liners are of the interlocking type, are accurately fitted to a standard mold pocket, and when they are in position are quickly tightened in place by drawing in a wedge block behind the end liner. The face plate is then attached to the table, which effectively secures the liners in position.

The brick are pressed in the top of the mold flush with the face plate. The pressure is applied from the bottom by means of a plunger and a series of steel levers connected with the main crank shaft. The top thrust is received by a counter-pressure plate, which is attached to and cushioned by the relief plunger located under the center of the main cross-yoke. This counter-pressure plate is made of soft back steel with an intensely hard working surface.

A most effective and reliable relief device to take care of excessive pressure is provided in the form of a large punch and die located between the mold and the cross-yoke. A steel plate of suitable thickness is inserted between the punch and die, which serves as a cushion to the counter-pressure plate, so that in case excess material or any hard substance should accidentally enter the mold the pressure is relieved by the punch cutting through the relief plate. In this manner immunity from accidental breakage in consequence of undue strain on the pressing mechanism, however caused, is secured without material cost or loss of time in the operation of the press.

The mechanical action is intermittent, one brick being pressed at a time. While one brick is being pressed another is being ejected from the mold, the bottom pressure plate is dropping in another mold preparatory to receiving a charge of material; one mold is being filled and one stands charged ready for the pressure. The three remaining molds are in position for the operator to remove the brick which have been pressed and raised to the level of the table. This gives ample time for one operator to remove the brick and place them on the hardening cars. The several operations described are automatic and continuous, and the brick are delivered at the most convenient location for removal by the operator.

An excellent feature of this press, and one that will be fully appreciated by those familiar with this type of machine, is found in the method of driving and locking the mold table. This is accomplished by means of a double cam and driving arm attached to the vertical mixer shaft, and registering in a series of cam tracks and races located in the face of the revolving table. The mixer shaft describes one complete revolution for each mold filled, and as it revolves the friction roller, which is attached to the end of the driving arm, enters one of the eight steel-lined races in the edge of the mold table, causing the table to move forward through 45 degrees. The driving roller is then withdrawn from the race, and the cam at the opposite end of the arm enters the locking race, thereby securing the table firmly in position while the operation of pressing a brick is completed. The cam arm is so constructed that the moment the roller is withdrawn from the table the cam immediately locks it in position. The roller and pin are of hardened steel. The driving races are steel lined with renewable liners. This method of driving the table is positive, and entirely free from breakage, as well as the noise and vibration which have characterized the driving mechanism of the presses in which the tables are operated by sectional gears or snap levers, and on which unsightly brakes are often required to retard the movement of the table in an effort to prevent disastrous wrecks.

In this press the several movements of pressing brick, ejecting them from the molds, moving the table forward, and filling the molds, are perfectly timed, and there is no possibility of a failure of any of the parts to work in unison. The vertical shaft, to which are attached the arm and cam which both drive and lock the table, carries on the upper end in the feed hopper a cap to which are attached the feeder arms. The shaft is driven by a pair of miter gears, one of which is mounted on the main crank shaft. These miter gears are made of hardened steel, which insures the greatest durability. The lower end of the vertical mixer shaft is fitted with a large thrust bearing, immersed in oil, to receive the end thrust. The thrust plates are adjustable to take up wear.

The feeding hopper is located in the rear and over the line of the revolving molds, and is fitted with three steel blades so timed in their movement that all three pass over the mold cavity in filling each mold. They move in the same direction as the mold table, which causes the material to be charged well to the front edge of the mold, which in turn passes under the strike-off bar from front to back. This insures a very positive and uniform charging of the mold. The mixer blades are adjustable vertically to compensate for wear, and are readily renewed.

Another excellent feature of the machine is the method of ejecting brick from the mold. As soon as the brick is pressed the lift-out device raises the bottom pressure plate flush with the table, where it is automatically locked until the brick is removed by the operator or until it approaches the feed hopper, where trip rollers engage the spring jacks which sustain the plate and allow it to fall to the position for receiving a fresh charge of material. When the pressure plates fall they are cushioned by rubber-tired rollers, which give an action free from vibration or noise. The lift-out bar moves vertically, which obviates the side strain and wear on the hardened steel pressure plates and liners which have proved so objectionable in other methods.

The depth of the material in the mold is readily and accurately regulated by means of the threaded regulating stems, which can be quickly changed and securely clamped in position.

If, for any reason, the operator should fail to remove the brick from the table, they will be removed by the mold guard before the pressure plate falls into position for receiving a fresh charge of material.

The crank shaft, the main vertical shafts, the mixer shaft, the pressing levers and connections are steel forgings or open-hearth steel castings. All the bearings for the crank shaft, the pinion shaft, the mixer shaft and the main bearings in the center of the mold table are finished with bronze bushings, giving the most perfect construction for renewal and at the same time the greatest durability.

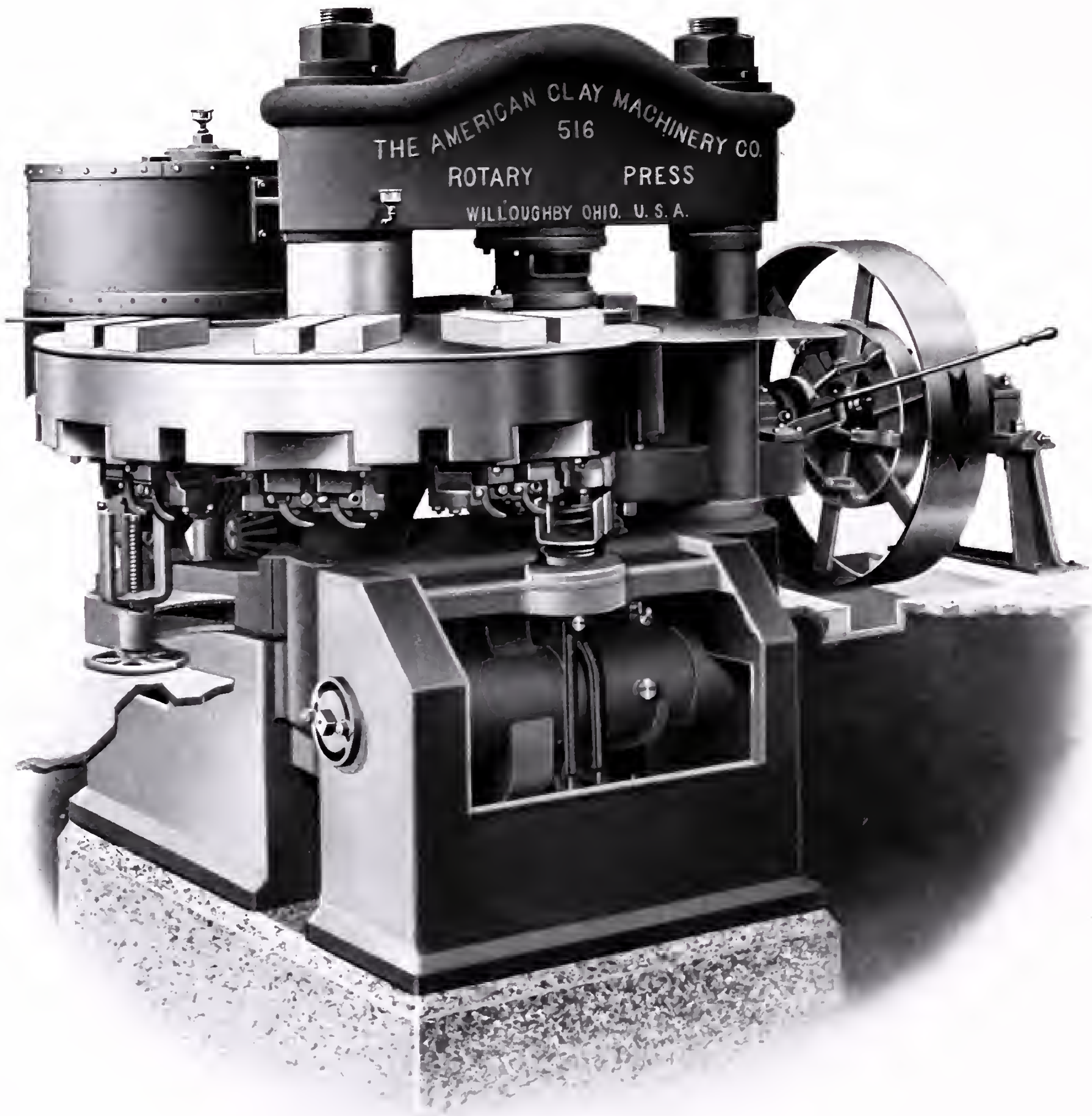
The gearing is in the ratio of 7 to 1, which gives a pulley-shaft speed of 168 revolutions per minute for 24 brick per minute. The master gear and steel spur pinion have machine-cut teeth.

The press is rated at a capacity of 1,200 brick per hour, and to secure this is speeded at 24 brick per minute, or a total actual working capacity of 1,440 brick per hour. It may be speeded at any rate below this to give whatever capacity may be desired.

The press is ordinarily fitted with a 42-inch diameter 6-inch face clutch driving pulley, provided with a 16-inch American friction-clutch. This is the standard construction, but when so ordered the press will be fitted with tight and loose driving pulleys. The outboard bearing for the pulley shaft is supplied with a suitable floor stand, as shown in the illustration.

The No. 500 Rotary Press is compact, and yet convenient and accessible in its working parts. The base stands about 12 inches below the floor line, as shown in the illustration. Covers are provided for the working parts to protect them as far as possible from sand and dust. Grease cups and oil cavities are provided for all bearings, and these bearings are thoroughly protected when placed in exposed positions, as is the case with the top bearing of the vertical shaft. Every provision has been made for convenience of operation, freedom from accidental breakage, and protection from excessive wear. The crank shaft is counter-balanced by weights on the master gear, thereby contributing to the smooth movement of the machine when operating at high speed.

Floor space, 10 feet 4 inches by 10 feet 1 inch. Height, 5 feet 4 inches above floor level. Horse power required, 8 to 10.



No. 516 Sixteen-Mold Rotary Sand-Lime Brick Press

No. 516 Rotary Sand-Lime Brick Press

This machine is designed to meet a growing demand for a large capacity sand-lime brick press of the rotary type. It possesses all of the many features of excellence found in the No. 500 rotary press. It is arranged with sixteen molds and two brick are made at each pressure. Thus it will be seen that during one complete revolution of the mold table eight pressures are applied and sixteen brick are made. The two brick made at each pressure are delivered side by side on the mold table, so that the operator has no difficulty in taking care of them.

In this press will be found a combination of strength, durability, convenience and capacity unequaled by any other rotary press on the market. Particular attention has been given to the design and construction of the press, so that it may be operated with the least possible adjustment and repair; and it is a machine that can be depended upon to produce the very highest quality of sand-lime brick at the lowest possible cost.

The pressing mechanism is so designed and proportioned as to exert an enormous pressure without danger of injury to the machine. It is further provided with a pressure-relief device, consisting of a steel plate of suitable thickness inserted between a punch and die, so that in case of excessive pressure the strain is relieved by the punch cutting through the relief plate.

The press is provided with a 48-inch by 10-inch by 22-inch American friction-clutch pulley, ordinarily speeded 160 revolutions per minute. At this speed of pulley the mold table revolves 2.85 times per minute. This gives a capacity of 45 brick per minute or 2,700 brick per hour.

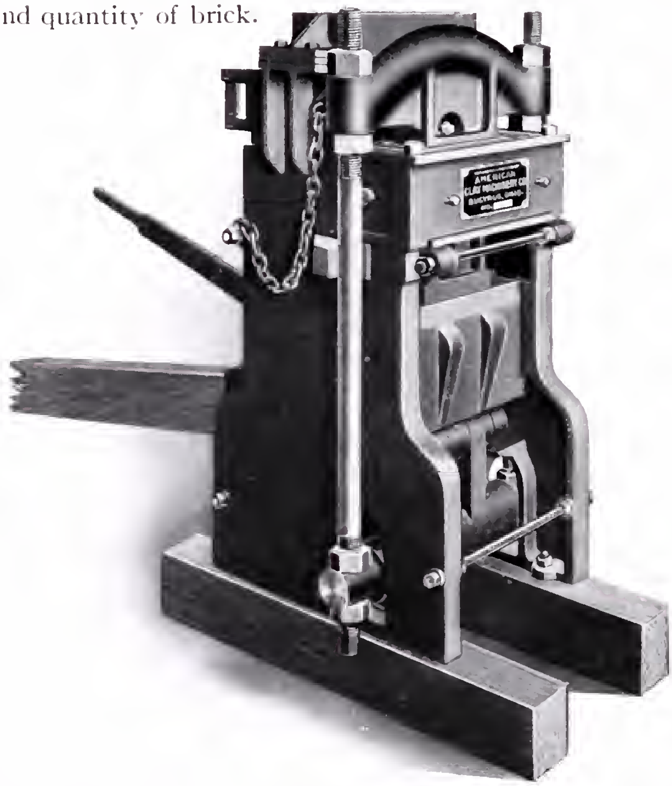
The master gear and steel spur pinion are machine cut. All the bearings for the crank shaft, pinion shaft, mixer shaft, and the main bearings in the center of the mold table are provided with bronze bushings, affording great durability, and making replacements possible with a minimum loss of time. Grease cups and oil cavities are provided for all bearings, and covers are furnished for the working parts to protect them as far as possible from sand and dust.

Floor space, 13 feet by 12 feet. Height above floor line, 6 feet 5 inches. Depth below floor level, 2 feet 6½ inches. Horse-power required, 15 to 20. Ratio of pulley to table speed, 56 to 1.

No. 605 Hand-Power Press

The No. 605 Hand-Power Press shown in the accompanying illustration was especially designed to meet the increasing demand for an inexpensive machine to make up small orders of ornamental or shaped brick, which, while required on nearly all contracts, are found very inconvenient and expensive to make on ordinary plant equipments. It is a machine that should be found in every modern brick plant in the country.

Among the many points of advantage in this hand-lever press are its simplicity of construction and ease of operation and adjustment. In order to operate it to the best advantage two men are required, one in front at the mold, the other at the lever and charger. The operators have no difficulty in becoming familiar with the movements of the press, and in producing a satisfactory quality and quantity of brick.



The brick are pressed in a single mold located near the center of the machine, the power being applied by means of a long wooden lever connected to the toggles as seen in the illustration. The brick are ejected from the mold by a downward stroke of the small hand lever.

The material is fed into the mold by means of a hopper and charger, the hopper receiving the charge as it falls from above, and the charger feeding it into the mold. The thickness of the brick is quickly regulated by adjusting the nuts that fasten the upper cross-head to the side-bars. In this way the laborious operation of shimming the plungers for thicker or thinner brick is eliminated.

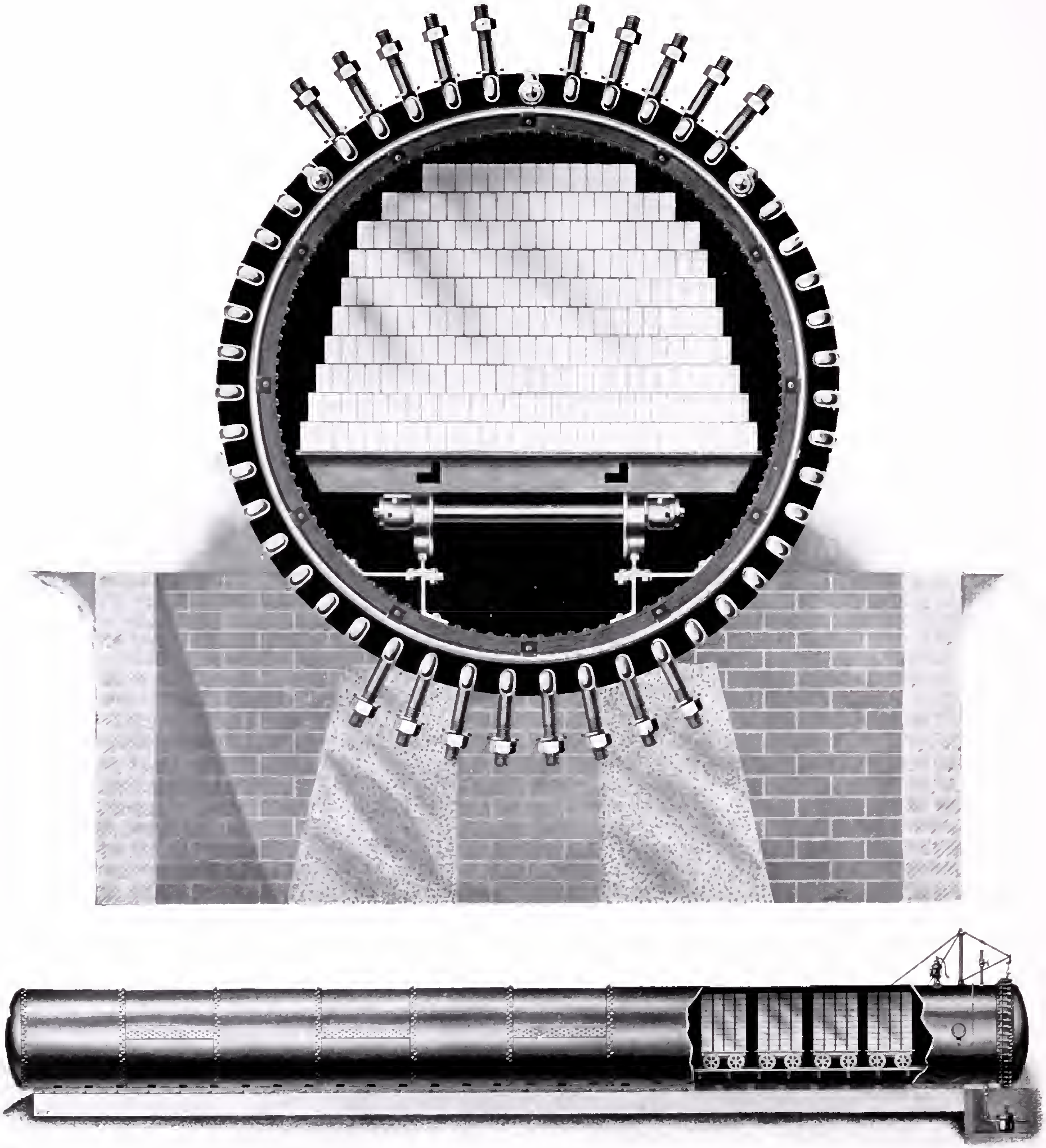
The mold is of simple construction, and so arranged that by making proper adjustments Norman and Roman brick as well as standard size brick can be made. The double toggle used in this press makes it possible to exert great pressure, and insures an excellent product. The upper cross-head is provided with guides which keep the pressing mechanism in perfect alignment, and eliminates any tendency to make the brick thicker on one side than the other.

Hardening Cylinder for Sand-Lime Brick

The hardening cylinder required for the manufacture of sand-lime brick is an important feature. To fully meet the requirements it must be made of the very best material and in a faultless manner. We have embodied in our cylinders the same quality that is given to high-pressure steam boiler construction, and have made ample allowance for safety factor. All our cylinders are most thoroughly inspected before they leave the factory, and are tested for a safe

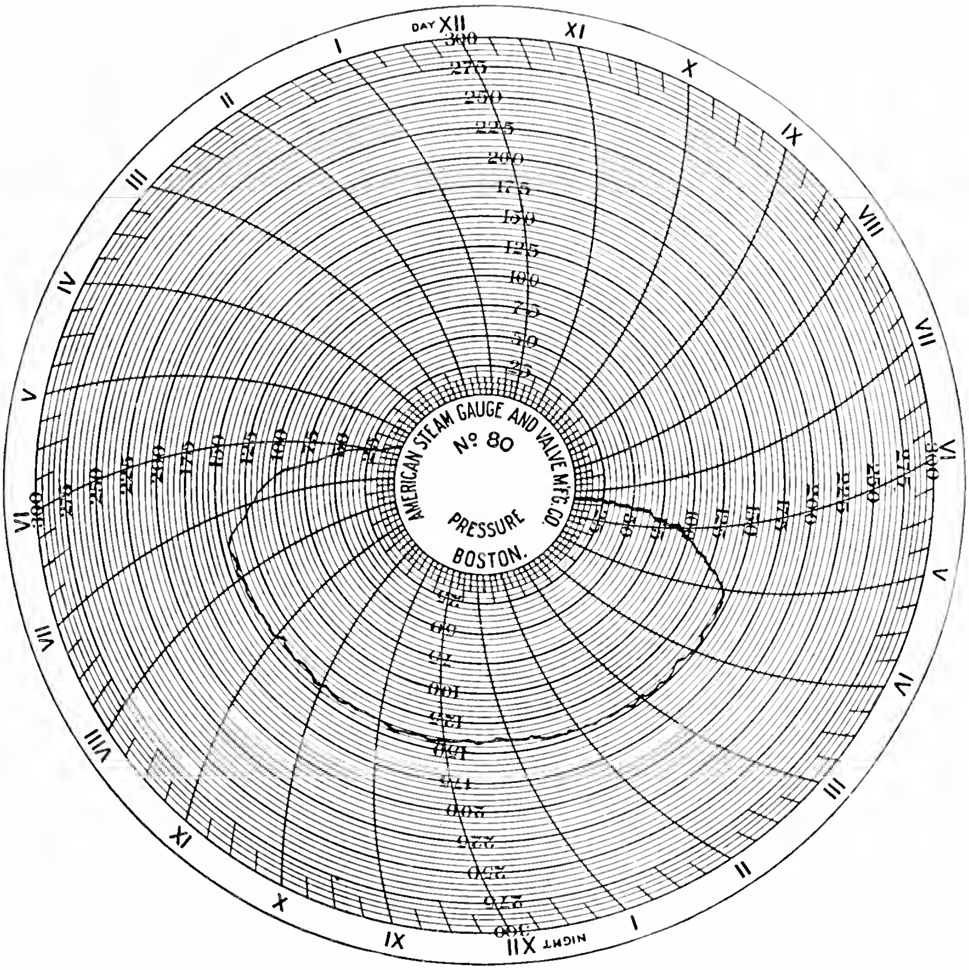
View of Hardening Cylinders at Destination Preparatory to Unloading

working pressure of 125, 135 or 150 pounds to the square inch. They are made with either one or two removable heads, as may be found most convenient in the particular installation to be used. A standard size cylinder is 72 inches in diameter and 62 feet long inside measure, the extreme length over all being 64 feet. We also build these cylinders in other convenient lengths and diameters when desired. With them are supplied the necessary fittings, including recording steam gauge, safety valve, steam trap, crane for handling heads, and bolts for attaching heads to cylinders.



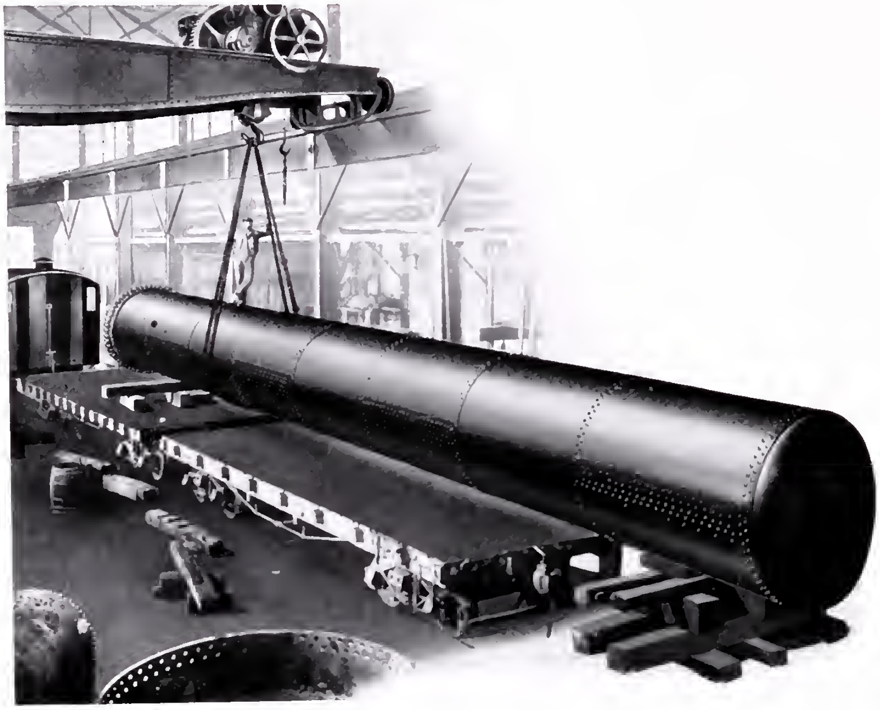
Views of Hardening Cylinder for Drying and Hardening Sand-Lime Brick

Recording Steam Gauge

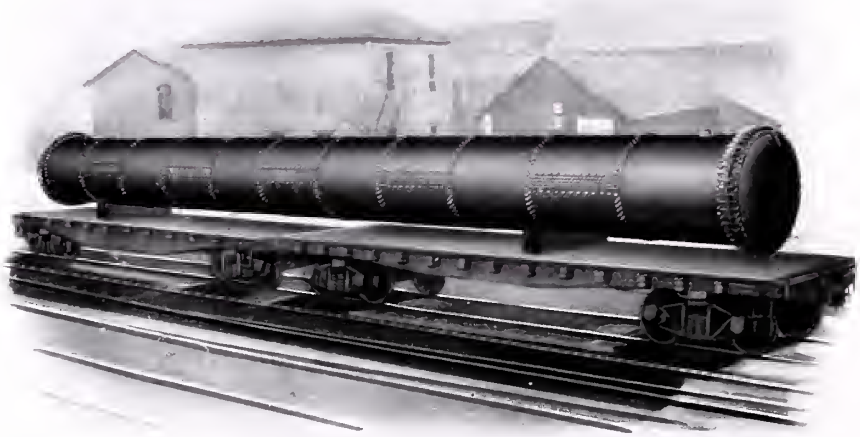


The accompanying cut illustrates the type of chart used in connection with recording steam gauge for registering the amount of steam pressure maintained in the hardening cylinder while the brick are being hardened. This gauge is graduated to record pressures from 5 pounds to 300 pounds, and the chart speed is one revolution for each twenty-four hours.

The results obtained by the use of these recording gauges are invaluable. They give an exact record of the steam pressure maintained during the entire period of hardening the brick, and serve as a check upon the night fireman or engineer, and as an assurance to the factory manager that the brick have been properly treated before the steam is turned off and the cylinder is opened. It is very important that the superintendent or manager should know exactly what pressure has been maintained, and this appliance gives reliable information.



Loading a Hardening Cylinder Direct from Factory to Cars

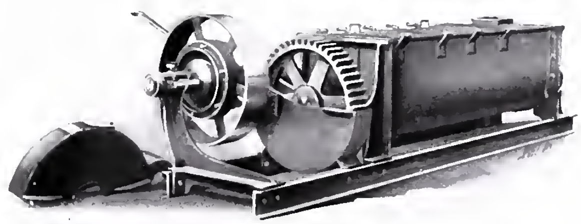


Hardening Cylinder Loaded Ready for Shipment

No. 521 Right-Hand, Spur-Geared, Single-Shaft, Combination Sand-Lime Mixer

This machine is the result of a series of careful experiments made for the purpose of evolving a sand-lime mixer that would combine durability and large capacity with thoroughness and efficiency in mixing. All of these features have been successfully incorporated in this mixer.

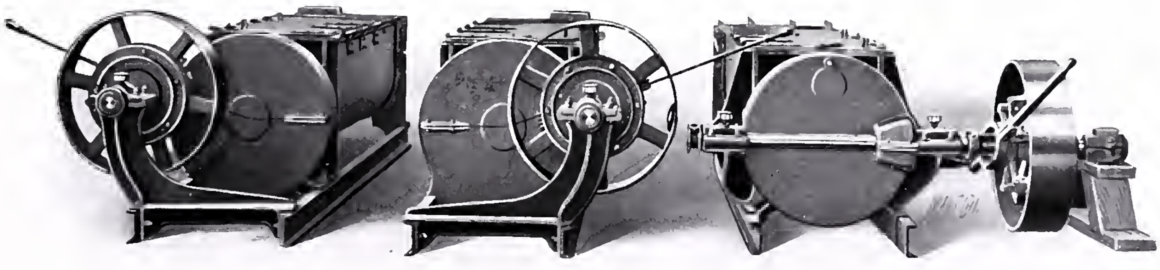
It may be used as either a dry or wet mixer, or as a combination of the two. When it is to be used for wet mixing it is equipped with suitable perforated water-supply pipes for adding the required amount of moisture to the sand and lime mixture during its passage through the machine.



No. 521 Right-Hand, Spur-Geared, Single-Shaft, Combination Sand-Lime Mixer

The machines shown in the accompanying illustrations were provided with special dust-proof covers, but ordinarily these covers are omitted excepting when the machines are used for dry mixing only. These mixers are substantially constructed of iron and steel throughout, and are provided with shafting and gearing of ample size and strength. The two end castings, the gear housing and the outboard pedestal bearing are all securely attached to a channel-iron frame, which not only secures a perfect alignment of all parts, but also renders the machine rigid, self-contained and easy of installation.

The shell in the machine illustrated is 8 feet long, 24 inches wide at the top, and 28 inches deep. It is made of $\frac{1}{4}$-inch steel plate, and is shaped to the circle of the mixing knives. The top edges of the shell are reinforced with 2 x 2-inch angles. These machines will be made to order with shells either 10 or 12 feet in length. The main shaft is forged steel, 4 inches in diameter at the gear end, and 3 inches square where the knife hubs are attached. The hubs to which the mixing blades are attached fit over the square part of the shaft. These hubs cover the entire surface of the shaft in the mixing chamber, and are made of round and smooth form externally to prevent the materials from sticking to them. Two chilled-iron blades are bolted to each hub. They are made with either right or left-hand lead, depending upon whether the machine is to discharge at the gear end or at the opposite end. These chilled blades stand the severe action of the sand very well, and when worn are cheaply and easily replaced. This replacement can be made without removing the main shaft or the hubs. The bearings for the main shaft are long, and are lubricated by means of compression grease cups. They are pro-



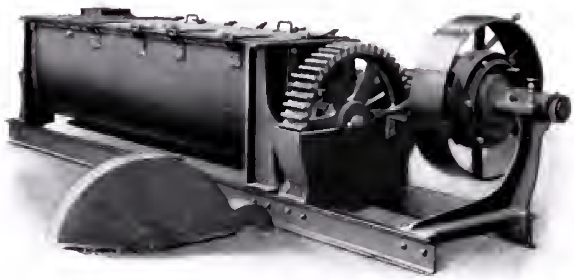
No. 521 Right-Hand Spur-Geared No. 522 Left-Hand Spur-Geared No. 524 Left-Hand Bevel-Geared

tected from the sand and dust in the mixing chamber by stuffing boxes on the inside of the chamber. The driving mechanism consists of a master gear and pinion of ample size and strength, and a 32 x 8-inch clutch pulley of our improved American type. The gearing is completely housed, so as to prevent accidents and to exclude sand and dirt. A convenient hand hole with cover, located in the top of the housing, is provided for inspecting and lubricating the gears. The gear housing is made in two pieces, and the upper half may be readily removed at the convenience of the operator.

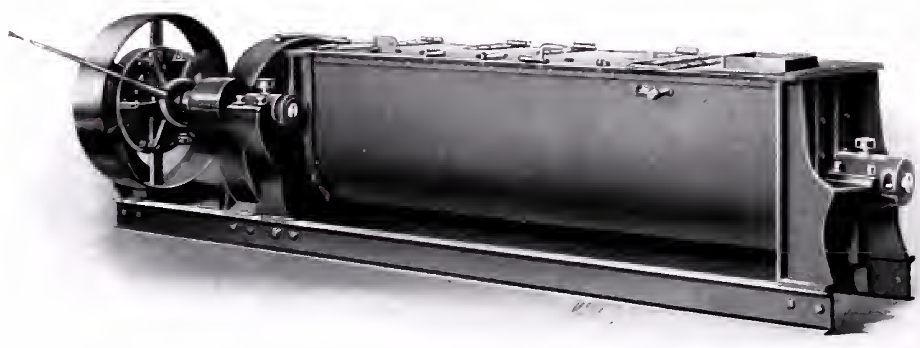
Floor space for 8-foot mill, 13 feet $6\frac{1}{8}$ inches by 4 feet 2 inches; speed of driving pulley, 195 revolutions per minute; height, 3 feet 6 inches; power required, approximately 10 horse. Capacity, from 2,500 to 4,000 brick per hour, dependent upon the speed at which operated.

No. 522 Left-Hand, Spur-Geared, Single-Shaft, Combination Sand-Lime Mixer

This machine is the same as the No. 521 Mixer except that it is left-hand



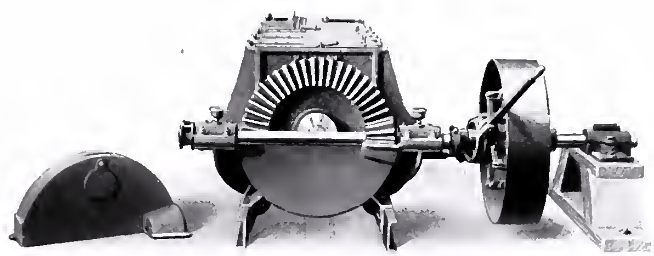
Rear View



Front View

No. 523 Right-Hand, Bevel-Geared, Single-Shaft, Combination Sand-Lime Mixer

This machine is the same as the No. 521 Mixer, except that it has the driving pulley on the opposite side. When used as a dry mixer both are equipped with steel cover, as shown, with openings to suit the special requirements where installed.

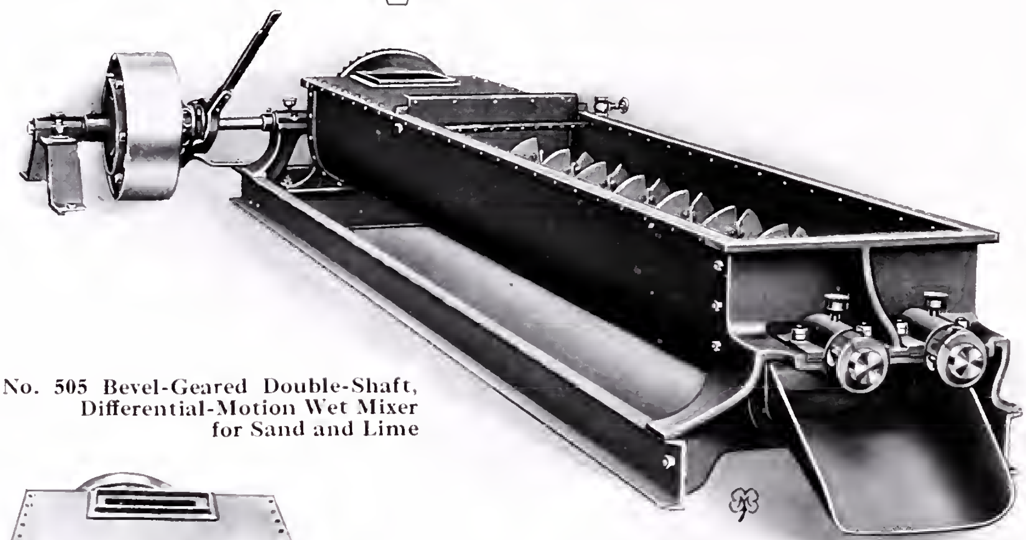


No. 523 Right-Hand, Bevel-Geared, Single-Shaft, Combination Sand-Lime Mixer

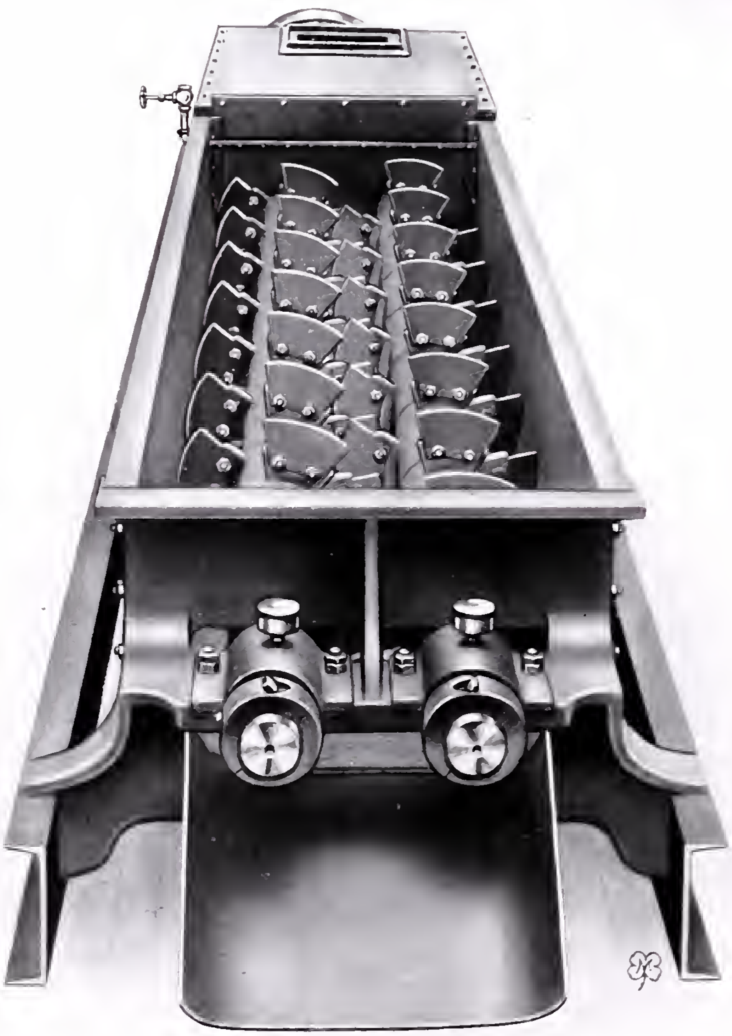
No. 524 Left-Hand, Bevel-Geared, Single-Shaft, Combination Sand-Lime Mixer

This machine is the same in the mixing portion as the No. 521 Mixer, but it differs from it in being bevel-geared, with driving pulley on left-hand side when standing opposite the gear end.

No. 524 Left-Hand, Bevel-Geared, Single-Shaft, Combination Sand-Lime Mixer



No. 505 Bevel-Geared Double-Shaft, Differential-Motion Wet Mixer for Sand and Lime



No. 504 Double-Shaft, Differential-Motion Wet Mixer for Sand and Lime

Double-Shaft Wet Mixers

Nos. 504, 505, 506 and 507

One of the most important points in the manufacture of sand-lime brick is the thorough mixing of the sand and lime and the introduction of the proper amount of moisture.

Our double-shaft, differential-motion wet mixers were designed especially for this purpose, and are unequaled in efficiency, capacity and durability. These machines are made of iron and steel throughout, with gears of ample size and strength, and with bodies made of heavy steel plate. They are constructed with shells either 8 feet, 10 feet, 12 feet or 14 feet long. The mixing shells are 24 inches wide, 18 inches depth, and are shaped to the circle of the mixing blades. The shafts are driven at differential speed of two to one. The knives work toward each other from the under side, and at the same time move the contents of the mill forward from the feed to the discharge end.

The mixing shafts of these machines are 3 inches square steel, and upon them are placed the hubs, to which tempered nickel steel mixing blades are bolted. These blades possess excellent wearing qualities, and can be readily renewed without removing the shafts or hubs.

The bearings for the shafts are of ample proportions, are well protected from the sand by an open space between the head casting and the bearings, and by packing glands around the shafts.

As shown in the cuts, the receiving end of the mixing chamber is enclosed to confine the dust. Ample provision is made for admission of water to properly temper the materials in their passage through the mill, the supply being fully under control of the operator.

We can make these machines in four styles, with either spur or bevel gear, with discharge through bottom or end, to suit the particular installation which a customer may require.

No. 504. Spur-Geared, Double-Shaft, Differential-Motion Wet Mixer, arranged with inlet opening in top of cover at gear end, and with discharge opening at opposite end through a spout in the end casting.

No. 505. Same as No. 504, except that it is bevel-geared.

No. 506. This mixer is spur-geared, and arranged for bottom discharge at gear end with top inlet at opposite end.

No. 507. Same as No. 506, except that it is bevel-geared.

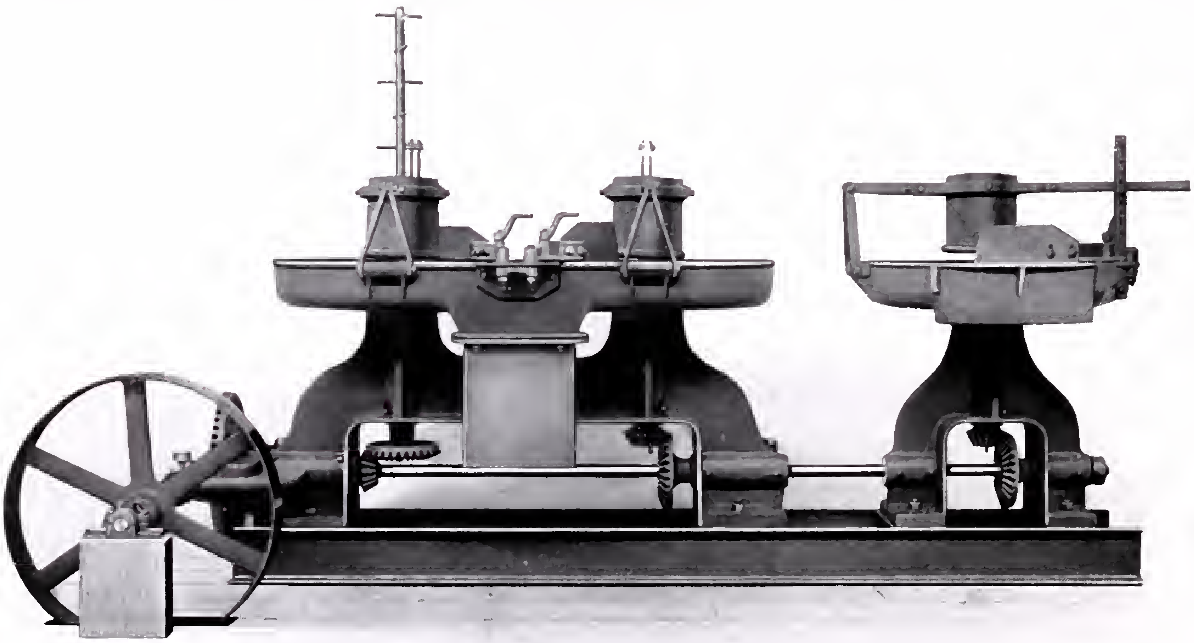
These machines are fitted with 24 x 8-inch clutch pulleys of our improved American type, and, being substantially mounted on channel-iron frames, are self-contained.

The capacity is regulated by the speed of driving pulley. A speed of 100 revolutions per minute gives material for 25,000 brick per day.

Floor space for mixer with 12-foot tub, 6 feet 7 inches by 16 feet 6 inches; height, 28 inches. Power required, 10 horse.

No. 533 Triple-Proportioning Machine and Feeder

If all the sand-lime brick produced in any factory are to be of uniform composition and strength, it is obvious that the proportion of sand and lime must not vary to any appreciable extent, as otherwise some of the brick will not be of standard quality, while others will contain more lime than is necessary, thereby causing a waste of the more costly ingredient. It is therefore evident that one of the most important points in the manufacture of sand-lime brick is the correct proportioning of the sand, the lime, and any other ingredient, such as cement or coloring matter, that may be used. Ever since this industry originated there has been an increasing demand for a durable and inexpensive machine capable of proportioning materials automatically, continuously, accurately and rapidly. Various devices for this purpose have been recommended. None of them, however, is as simple in construction, as easy of adjustment and as admirably adapted to this special work as is our newly designed No. 533 Disc Feeder.



No. 533 Triple-Proportioning Machine and Feeder

This feeder is constructed as a single, double, or triple-proportioning machine. The latter is shown in the illustration. The device illustrated consists of one double horizontal disc feeder and one single feeder, both connected to the same driving shaft and both attached to the same channel-iron frame. Either one of these two units may be installed as an independent machine, if desired.

The single horizontal disc feeder is shown at the right in the illustration. It consists of an adjustable telescoping feed spout, with operating levers, a horizontal revolving feeder disc attached to a vertical shaft, a feeder bowl with discharge opening, and a feeder stand which contains the bearings for the shafts and housings for the gears. The telescoping spout is a vertical cast-iron cylinder and is supplied in 8, 10 or 12-inch diameters to suit the materials to be handled. That illustrated is 10 inches in diameter. It is located immediately over the center of the revolving feeder disc, and its function is to control the flow of material from the bin above. It is provided with a suitable shifting lever with fulcrum bracket and graduated bar, by means of which it may be adjusted vertically. By raising or lowering the shifting lever the operator can immediately increase or diminish the speed of material on the feeder table.

The material which escapes on the revolving table from the telescope spout is in turn removed from the table by a steel blade which is rapidly adjustable toward the center of the disc. The two adjustments of the feed spout and the steel blade afford a ready means of securing a wide range of capacities for this feeder. At the same time very uniform proportions can be maintained from two or more of these feeders. The process of measuring by these machines is continuous, and the flow of material is not interrupted from the time it leaves the storage bins until it is discharged into the mixer, and when the elements are brought together in the hopper they fall so intimately that the preliminary mixing is a valuable feature of this process.

Wherever the continuous process of handling materials is employed these feeders are invaluable. The single feeders may be installed in connection with a storage bin or a mixer; or where sand and lime alone are used and stored in adjacent bins, a double machine may be installed. In the machine illustrated the double-disc feeder is speeded for measuring sand and lime, the disc which receives the lime being driven at a much slower speed than that which receives the sand. This difference in speed, together with the adjustments of the feed spout and the scraper blade, affords the means of perfectly proportioning these two materials, notwithstanding they differ much in bulk and weight in the final mixture. The lime feeding table is fitted with a vertical agitating shaft varying in construction to suit the particular installation. The object of this shaft is to maintain a continuous flow of lime to the table, and to prevent bridging over on the feed spout. Other agitators are usually placed in the storage bin, as a steady flow of lime to the feeder is of the greatest importance.

These proportioning machines are substantially constructed of iron and steel throughout, with framework, gears and shafting of ample size and strength. The double and triple machines are mounted as shown, which renders the machine self-contained and easy of installation.

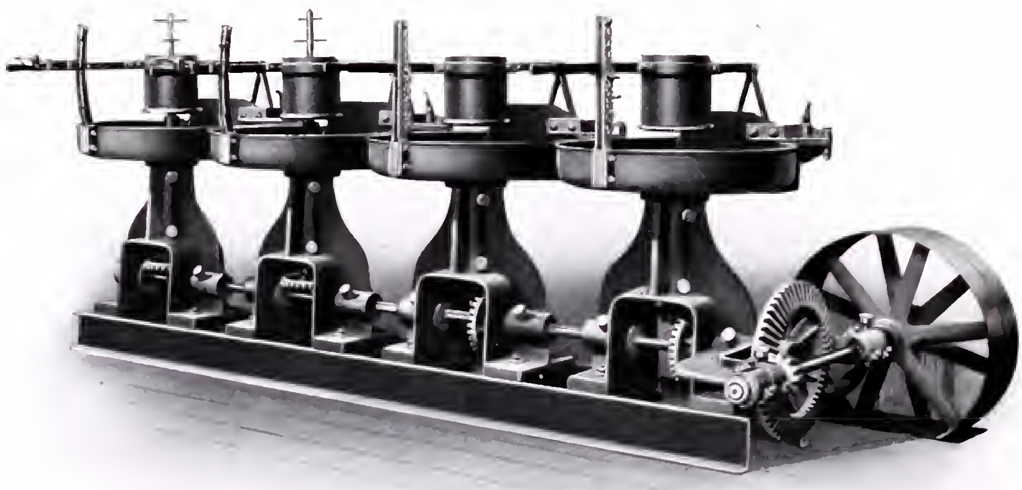
Driving pulley, 36 inches by 6 inches; speed of driving pulley, 20 revolutions per minute; floor space of triple machine, 13 feet 6 inches by 5 feet 8 inches; height, 5 feet 7 inches; speed of sand table, 10 revolutions per minute; speed of lime table, 2½ revolutions per minute; diameter of feeder disc, 36 inches; power required, 2 horse; capacity, ample for a two-press plant.

No. 625 Quadruple-Proportioning Machine

The proportioning machines are made as single, double, triple, or in any multiple of single machines. The No. 625 quadruple machine is similar to the No. 533 triple-proportioning machine already described except that it comprises four single machines mounted on the same channels and all driven from the same shaft. The two shown at the left-hand side in the cut were designed for handling lime and cement, and are provided with short agitating shafts, and graduated quadrants with spring latches, so that the position of the telescope can be very accurately adjusted. By the same means the telescoping spout may be quickly lowered to the revolving disc. This arrangement is used where lime or other fine materials that must be carefully proportioned are to be handled. Where sands, gravels, crushed stone, cement, clinkers, or any materials which flow regularly and uniformly from the storage bin, are being proportioned, the construction shown in the two right hand units is used.

In addition to the parts shown in the cut there is furnished with each unit the cast iron section of the stationary feed spout, which forms the discharge opening from the bin. This section fits into the telescope spout, and is provided with a steel slide, by means of which the flow of material may be cut off from the proportioning machine.

This machine is mounted on channel irons, which make it rigid, self-contained, and of proper alignment. By mounting all four units on one shaft and frame the uniform relative speed of



No. 625 Quadruple-Proportioning Machine

the discs is maintained at all times. This in turn maintains the proportion of the materials discharged from the discs. If it is not convenient to bring the materials as close together as is shown in this cut, the units can be spaced at any convenient distance apart by lengthening out the channels and main shafts.

Driving pulleys, 36 inches by 6 inches, tight and loose.

Speed of pulleys, 20 revolutions per minute.

Length of channels, 13 feet 1½ inches.

Width over all, 5 feet 5 inches.

Height from bottom of channels to top of feed table, 4 feet.

Wet and Dry Grinding Mills

The accompanying cuts illustrate our special Sand-Lime 9-Foot Wet and Dry Grinding Mill which we have developed for use in the sand-lime brick trade. The mill is made in two sizes, 8 feet and 9 feet, which designate the diameter of the grinding pan. Where more than one mill is required to obtain the desired capacity, the mills can be furnished either in a duplex setting, where both are joined together, or in single independent setting as shown in cut.

Valuable Features

Many features in the construction of these mills are the direct outgrowth of our long experience in grinding silica sands, crushed rock and similar substances, and more particularly in mixing and grinding sand and lime in their preparation for the manufacture of sand-lime brick. The use of these mills enables the manufacturer to combine the several operations of moistening, mixing and grinding into one, thus greatly simplifying and improving the method of sand-lime brick making. The mills possess the further advantage of so grinding the sand that it is given the sharp and gritty consistency which is essential in obtaining a perfect bond between the sand and lime, and this is necessary to secure a high grade product. The abrasive action of the mullers, by virtue of which the sand is broken up into sharp angular particles instead of a fine and granular powder, explains the high efficiency of the machine. By the use of these wet and dry grinding mills the highest quality of brick yet made in the United States has been produced, and factories throughout the country are being rebuilt and rearranged, so that the advantages of these special machines may be utilized.

Construction —

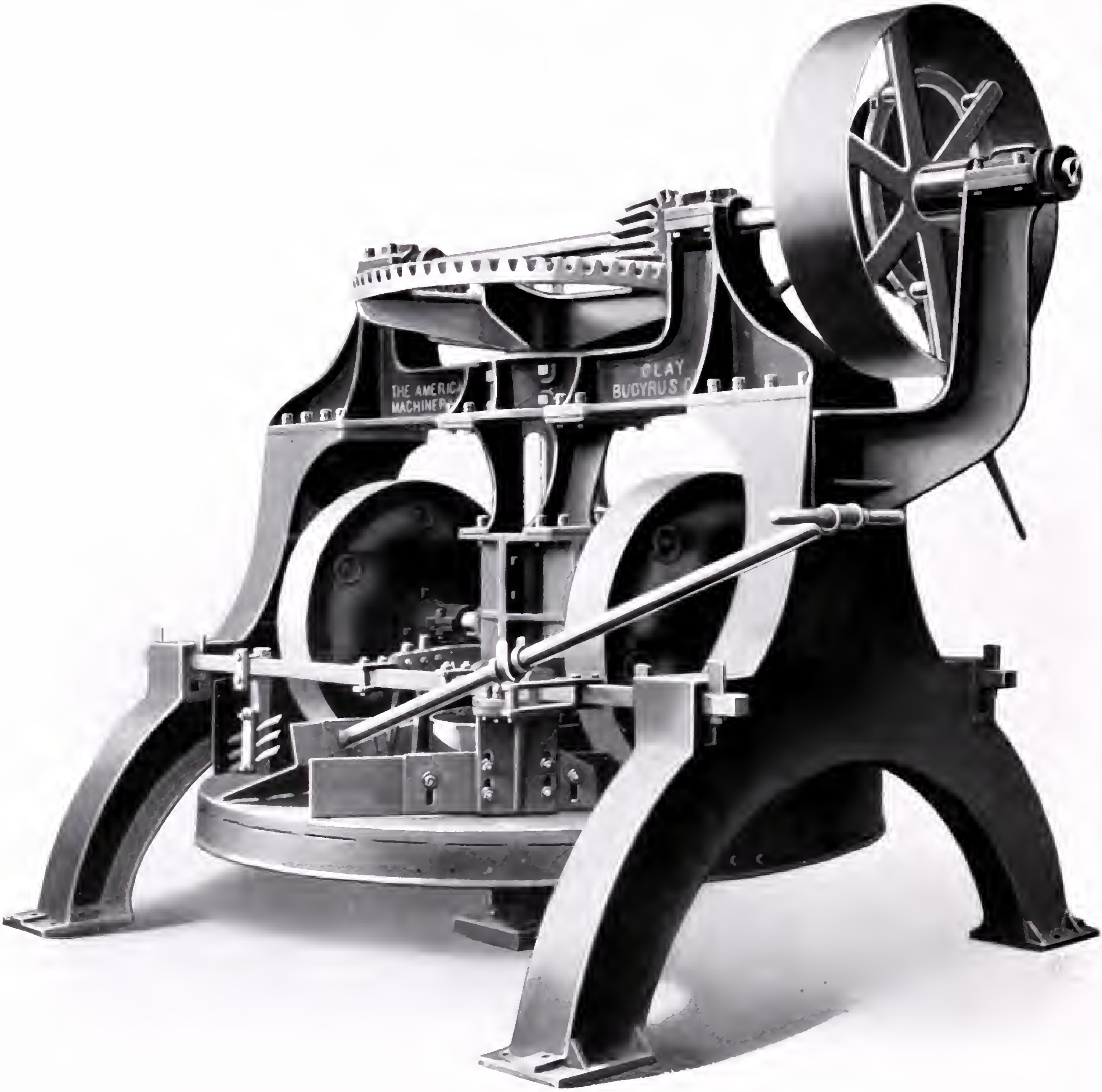
We have put into the design and construction of the mills every feature of excellence which our long experience in this line has brought to our attention. We know them to be superior in quality of material, in workmanship and in efficiency. The heavy side frames are firmly united at the top by the cross-beam and in the center by tie-bars, and in mounting are securely anchored to concrete or brick foundations.

Grinding Pan —

The grinding pan consists of a bottom casting which is keyed to a forged steel vertical main shaft and which is machine-finished on the circumference to receive the steel plate rim. The rim is very heavy and reinforced at the top. It is also made very deep, which gives a large holding capacity. The wearing surface in the bottom of the pan is faced with renewable plates covering the entire surface. A row of muller track plates made of special metal is placed immediately under the tread of the mullers. As these plates are subjected to the greatest wear, they are made only of a width sufficient to form a track for the mullers, and consequently the renewals, when necessary, are inexpensively made. The pan bottom is practically water-tight. The plows and scrapers are hung from the steel tie-bars, which are located close to the rim of the pan.

Mullers —

The mullers illustrated are of the bulged or weighted type. The increased weight greatly enhances their efficiency in crushing and grinding hard sands. They are removable and adjustable.



Nine-Foot Wet and Dry Grinding Mill
Rim Removed, Showing Sand Rakes, Plows and Shovels

Scrapers and Plows —

One of the most admirable features of these mills is the effective arrangement of plows and of cleaning mechanism, inside the pan. The pan is equipped with four scrapers or plows with adjustable hard metal wearing plates, a set of rim scrapers for preventing the sand from adhering to the inside of the rim, and a set of sand rakes for loosening the material from the center to the outside of the pan. There it comes in contact with the second plow, which throws it back underneath the muller. At each revolution of the pan the material comes in contact with the set of sand rakes, which loosen it from the bottom of the pan, when it is again thrown under the mullers by the action of the third and fourth plows. By this arrangement the mixture passes beneath the mullers twice at each revolution of the pan and thus is rapidly pulverized and very thoroughly mixed. The scrapers or plows are fitted with white metal wearing surfaces, which are inexpensive in repair cost and have been found to be the most durable material for resisting the action of sharp silica sands.

Unloading Shovel —

The mill is unloaded by means of the steel shovel, which is hung in a convenient position for the operator to handle, as shown in the illustration. The full contents of a 9-foot mill can in this manner be emptied into an elevator boot in less than thirty seconds. The shovel is fitted with a replaceable steel wearing tip, by the renewal of which the shovel can be kept intact indefinitely.

Renewable Parts —

The muller tires and track plates are made of a special mixture of hard metal that possesses excellent wearing qualities. They can be readily renewed when necessary.

Frame of Machine —

The careful design and heavy proportions of these machines, together with the excellence of the material and workmanship, insure the most satisfactory service. The large base and generous proportions of the frame and the method of securing the several parts of the frame together, all combine to make an unusually rigid and substantial machine.

Bearings —

The cross-frame which unites the two side frames at the top is of very heavy section. The bearing surfaces on the top of the side frames to which the cross-frame is bolted are of large area and accurately machine fitted. The frames are substantially bolted together and the bolts fitted with lock nuts. The two bearings for the pinion shaft and that for the upper one of the vertical main shaft are a part of this cross-frame, always insuring perfect alignment of these important bearings. They are babbitted with an excellent grade of babbitt metal and carefully hand fitted. Provision for lubrication is good.

Cross-Bars —

The frame of the mill is further strengthened by heavy steel cross-bars of square section, which pass through the side frames at the front and back just above the rim of the pan. These bars are slotted at the point where they pass through the side frames and are fitted with keys, which are driven snug one on each side of each frame. This makes a strong and durable construction.

Shafting —

All shafting is of steel and of large diameter. The outer end of the driving shaft is supported by a substantial bracket bearing which is securely bolted to the side frame. The vertical shaft is forged from a solid billet in our own shops. The upper bearing of this shaft has a removable cap which makes it possible to remove the shaft and pan without disturbing the balance of the mill.

Step-Bearing —

The step-bearing, which sustains the vertical shaft and pan, is of an improved type, which has given the best service in our mills for many years.

Muller Shafts —

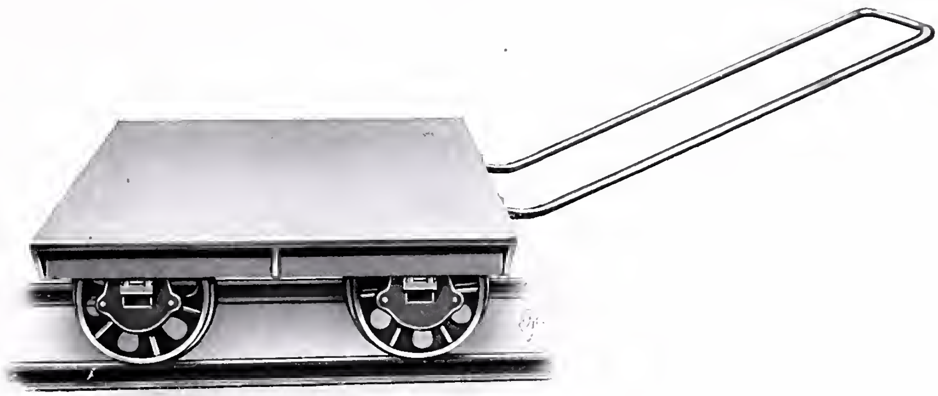
The mullers are supported on steel shafts, each being independent of the other. The ends of the muller shafts are cushioned by compression springs and are provided with shoes which have a vertical movement in guides located in the side frames and in the shrouds encircling the vertical shaft. The guides allow the mullers to rise as the materials are drawn under them when the pan revolves. The independent action of the mullers makes either muller removable without disturbing the other, and increases the capacity of the pan, as the raising of one muller does not affect the other, and it continues its work undisturbed, the full surface of the muller face coming in contact with the sand that is being worked.

Method of Operation —

By communicating power to the pinion shaft of the mill the vertical main shaft and pan are caused to revolve, and these in turn communicate motion to the crushing rollers. These rolls revolve on the cross-shafts which hold them in position, but do not travel around the pan. As the material is charged into the revolving pan the centrifugal motion carries it to the periphery of the pan where it encounters the scrapers, or plows, which carry it back under the revolving rollers. This operation is repeated until the material is mixed and ground sufficiently, when the operator removes the charge by means of the shovel. The gears are of excellent design and made of our special gear mixture. They are provided with a special device to take up the wear and keep the gearing in mesh. The driving pulley is of the friction-clutch type, and for the 9-foot mill it is 48 inches in diameter, 12-inch face, speed 125 revolutions per minute. The entire design and construction of these machines is such as to give the best service. Floor space of 9-foot mill, 10 feet by 14 feet; height, 9 feet 6 inches.

No. 501 Cast Iron Hardening Car

The accompanying cut shows our No. 501 Cast Iron Hardening Car. It is easily the most perfect car ever placed on the market, and is the outgrowth of the demand for a rigid, strong car, with perfectly smooth deck, to replace the light steel cars originally furnished to the sand-lime brick trade. Nothing has been spared in its design or finish to make it a perfect car for the business.



No. 501 Cast Iron Sand-Lime Brick Car

The top, 5 feet 4 inches by 3 feet 2 inches, is made of one solid casting, reinforced by deep ribs running both crossways and lengthways, giving absolute rigidity to the loading surface. The top, on which the green brick are placed, is machined to a dead smooth surface on a planer, and consequently the most perfect pressed brick are not damaged by contact.

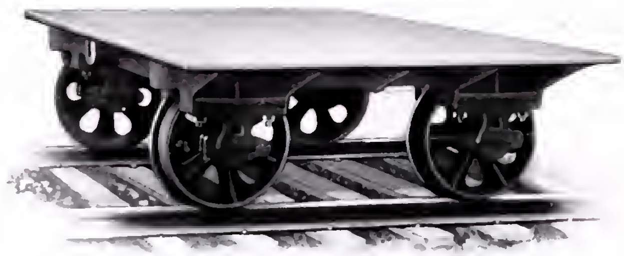
Another distinguishing feature of this car is the large cage-roller bearings of patented design which we employ in its construction. By their use the friction is reduced to the minimum. The car runs smoothly without jar, and when under full load is very easily started. It is also equipped with our car-moving device. Owing to the special design and expensive finish of this car it must not be compared either in cost or efficiency with the rough cast iron or steel cars which have been offered to the trade. It is in a class by itself. Diameter of wheels, 12 inches. Diameter of axles, 2 inches. Track gauge, 28 inches. Height of deck above track, $14\frac{1}{4}$ inches.

No. 558 Cast Iron Hardening Car

The accompanying cut shows our No. 558 Cast Iron Hardening Car, which is arranged with 39-inch gauge and independent axles so that the lime-hydrating boxes may be placed in the hardening cylinder beneath the cars and between the two rails. It is one of the most perfect cars ever placed on the market, and is the outgrowth of the demand for a rigid, strong car with perfectly smooth deck, to replace the light steel cars originally furnished to the sand-lime brick trade. Nothing has been spared in design or finish to make it a perfect car for the business.

The top, 5 feet 4 inches by 3 feet 2 inches, is made of one solid casting, reinforced by deep ribs running both crossways and lengthways, giving absolute rigidity to the loading surface. The top, on which the green brick are placed, is machined to a dead smooth surface on a planer, and consequently the most perfect pressed brick are not damaged by contact.

This car is arranged with four independent axles of $1\frac{1}{2}$-inch steel. Each axle revolves in two cage-roller bearings of patented design, which are held in place by two-piece cast iron boxes. The upper part of the box is securely bolted to the body of the car, while the lower part is hinged and arranged so that by loosening a bolt at one end the cages and axles can readily be removed. By the use of the cage-roller bearings the friction is reduced to a minimum, the car runs smoothly without jar, and when under full load is very easily started.



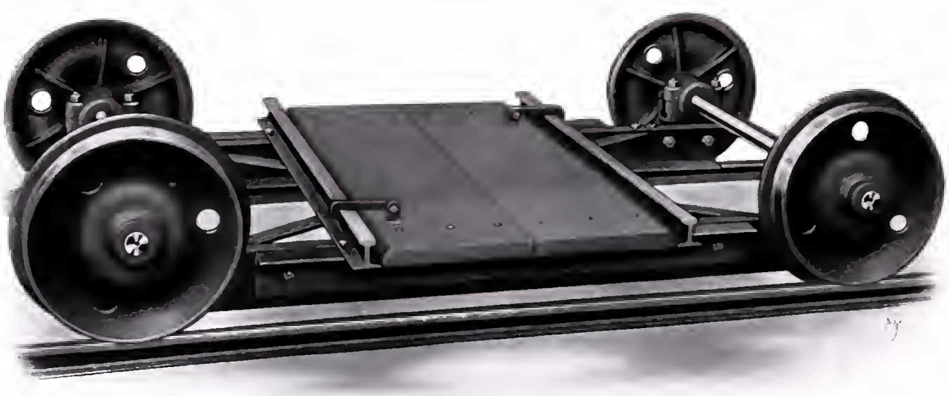
No. 558 Cast Iron Hardening Car

Convenient dustless oilers are provided for lubricating the roller bearings. A high fire test oil, like a good cylinder oil, should be used for lubrication, as otherwise it will not withstand the influence of the steam in the hardening cylinder.

Owing to the special design and expensive finish of this car, it must not be compared with the rough cast iron or steel cars which are offered to the trade. It is in a class by itself, and is one of the most valuable units in this equipment.

The diameter of wheels is $11\frac{1}{2}$ inches; diameter of axles, $1\frac{1}{2}$ inches; track gauge, 39 inches; height of deck above track, $13\frac{3}{4}$ inches; weight, 860 pounds.

No. 79 Transfer Car



Special Car for Sand-Lime Brick Factories

This car has been designed especially for the sand-lime brick trade. Its particular construction has been found necessary in handling the heavily loaded hardening cars containing green brick. The frame is made very heavy, being built up of channels reinforced with angles so that it sustains the great weight of the loaded hardening cars without springing. To this frame are attached the anti-friction pin-bearing boxes, the wooden platform and the 20-pound "T" rails forming the track for the hardening cars.

The bearings are so constructed that they can be removed from the axles without removing the wheels. The wheels are 17 inches in diameter, 3-inch tread, and are pressed on large axles to a 40-inch track gauge. They are placed outside of the side rails, which effectively prevents the tilting of the car when it receives the weight of the hardening car. The rails on top of the car are set 28 inches track gauge. The height of car from rail to rail is 8 inches; wheel base, 5 feet 6 inches; length of rails on top of car, 4 feet.

Style "A" Turntable

This turntable was especially designed for handling cars used in the manufacture of sand-lime brick. It is extra strong and light running. The tracks and rollers are turned true. An intermediate independent roller frame is used to hold the rollers in position. This frame has a hole in the center through which the center plate passes. The plate and lower track form a part of the base, which is provided with a rim to prevent timber or brickwork pressing against the edge of the turntable. The turntable is well braced with radial ribs. The car track rails are 16-pound rails, 28-inch track gauge. Diameter of turntable, 4 feet 4 inches.

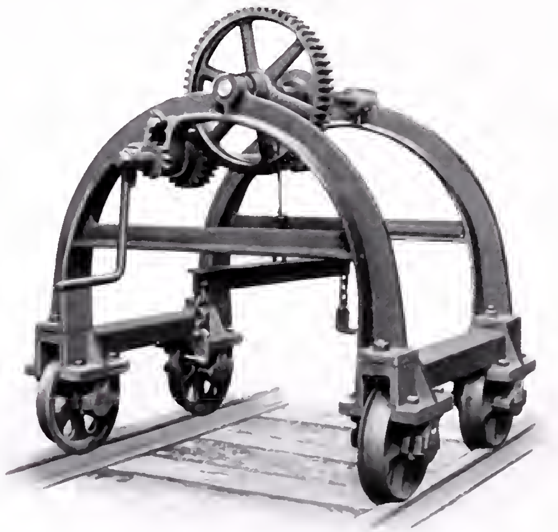
Style "A" Turntable Closed

No. 547 Portable Hoist for Handling Lime-Hydrating Boxes

The Portable Hoist illustrated in the accompanying cut is designed for use in handling lime-hydrating boxes to and from the hardening cylinder. The hydrating boxes are filled with caustic lime in the storage room. They are then lifted by the hoist and transferred to the hardening cylinder, where they are placed between the tracks underneath the hardening cars. The process of hydration is completed while the brick are being hardened, so that when the cars are removed the lime boxes are at the same time taken out of the cylinder with this hoist and transferred to the storage room, where the contents are dumped into a screen or core extractor.

The hoist is substantially made of cast iron and steel. It is mounted on four flanged wheels, which are fitted with independent axles running in cage-roller bearings. The wheels are machined on the tread. This construction makes the hoist run very easily when loaded.

The diameter of the wheels is 11½ inches; diameter of axles, 1½ inches; track gauge, 39 inches; wheel base, 24 inches.



No. 547 Portable Hoist for Handling Lime-Hydrating Boxes

No. 547 "A" Lime-Hydrating Box

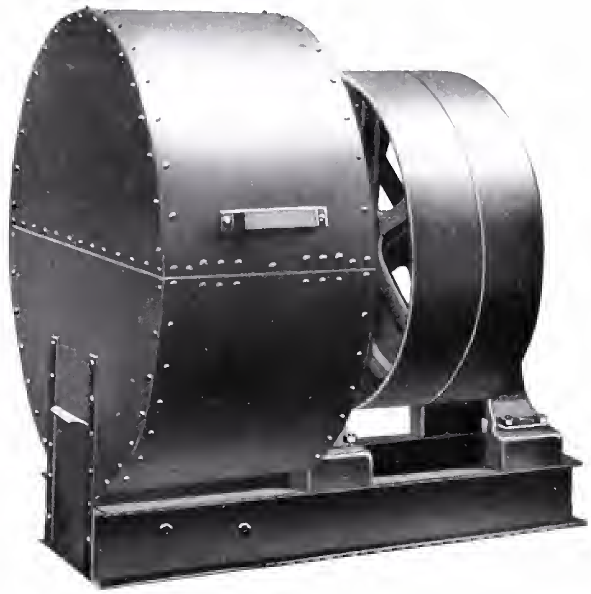
This box was designed for use in connection with the No. 547 Portable Hoist already described. After being filled with caustic lime in the lime storage room it is conveyed by the hoist into the hardening cylinder, and deposited between the tracks at the bottom of the cylinder. When the lime is completely hydrated the boxes are transferred to the storage and emptied. The length of the box corresponds to the length of the No. 558 Hardening Car, which is 38 inches over all. The inside dimensions of the boxes are 34½ inches long, 30 inches wide, 21 inches deep. It is intended that one lime-hydrating box will be placed under each hardening car.

No. 547 "A" Lime-Hydrating Box

These boxes are substantially constructed of heavy steel plate, the end plates being of flange steel and the bottom plates being rolled to correspond with the radius of the inside of the cylinder. The end and bottom plates are riveted and calked to render the box water tight. The rim and openings are strongly reinforced, and handles are provided on the ends of the box to facilitate dumping the contents. The use of this system of lime hydration has been found very economical and satisfactory in sand-lime plants.

Fixed Charge Tube Mill for Laboratory Use

The Fixed Charge Tube Mill is an appliance that can be used to the very best advantage in every sand-lime brick factory in connection with a hand press for doing experimental work in testing out sands and limes, and in making special shapes, small orders of color brick, etc. This machine is substantially constructed, as shown in the accompanying illustration, being supported by cast iron bearing stands attached to a steel channel frame, and the mill body being mounted on a steel shaft. It is driven by 30 by 6-inch tight and loose iron driving pulleys placed between the bearing stands. The power required to operate it is trifling, as it can be belted to any convenient shaft about the factory.



Fixed Charge Tube Mill for Laboratory Use

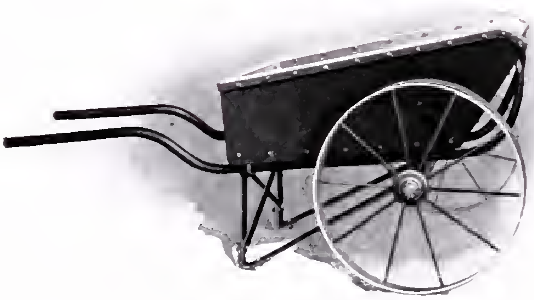
The mill body is 36 inches in diameter, 14 inches deep, one end and the rim being made in a solid casting, which gives a very strong construction. The hub is placed on the inside of the body so as not to interfere with the bearings, and in order that the shaft may be fastened securely. The cover or head is secured to the body by capscrews. It is fitted with a small handhole located near the circumference for convenience in inspecting the contents of the mill, or for introducing additional steel balls or flint pebbles. The circumference of the shell is provided with a rectangular discharge opening 8 by 14 inches. The opening is covered first with a perforated metal screen and then with a tight steel cover. The screen is placed flush with the surface of the shell. When the material in the mill is sufficiently pulverized the outer cover can be removed so the contents will be discharged through the screen into the bin at the bottom of the casing without the steel balls or flint pebbles escaping from the mill. The machine is provided with a light steel dust casing, made in two sections. The casing is divided in the middle, with the top hinged so that it can be turned back when it is desired to fill or inspect the mill, or to remove the contents. The lower section is made in the form of a bin into which the pulverized material can fall and from which it can be readily removed. With each mill is included a charge of 100 pounds of imported Norway flint pebbles for use in mixing and fine grinding, and 100 pounds of assorted steel balls for pulverizing coarser material. If so desired we can furnish these mills with vitrified tile or porcelain linings. Such linings are desirable when the materials to be pulverized are of pure white or such delicate colors that contact with the metal would discolor them. The tile lining consists of porcelain tiles approximately $\frac{5}{8}$ by $1\frac{1}{2}$ by 6 inches, securely cemented in place, forming a complete lining for the interior of the mill.

Fixed Charge Tube Mill for Laboratory Use

Fixed Charge Tube Mill for Laboratory Use

No. 76 Steel Charging Barrow

For measuring and transferring charges of sand or lime from the storage bins to the wet and dry grinding mill, the No. 76 steel charging barrow is found to be very convenient. It is substantially made of iron and steel, with handles of heavy tubing. The axle is placed well back under the tray, thereby throwing the weight onto the wheels, and enabling the operator to carry the load with little effort. The fact that the center of gravity is very close to the wheel center renders the operation of dumping easy and readily accomplished.

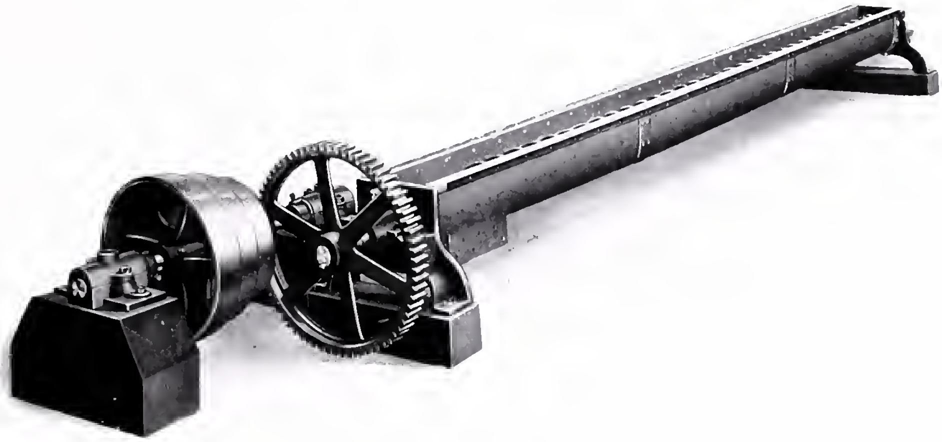


No. 76 Steel Charging Barrow

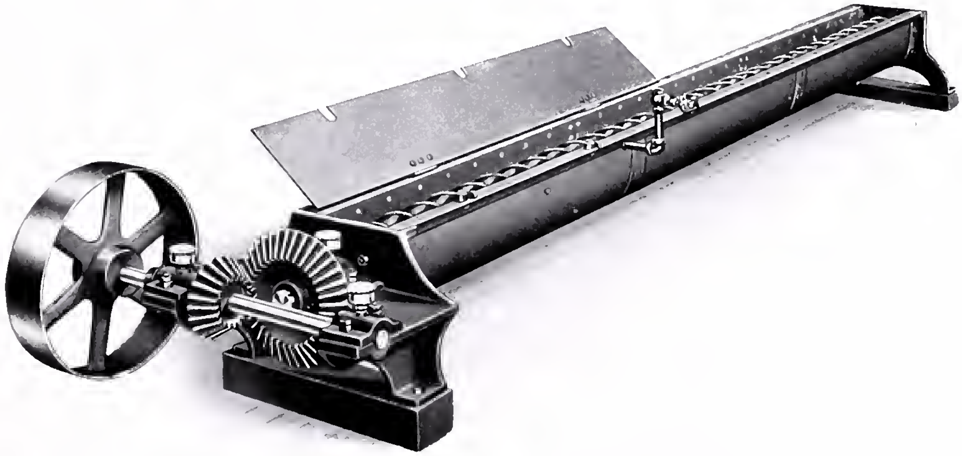
While the wet and dry-grinding mill is in operation these charging barrows can be filled with a charge and placed beside the pan. As soon as the pan is emptied by the operator another charge can be promptly dumped into it and the operation completed without loss of time and with a minimum of labor.

Capacity, 6 cubic feet; size of tray, 28 inches by 37 inches; sides of No. 12 gauge steel; bottom, No. 10 gauge steel; wheels, 22 inches diameter; weight, 240 pounds.

Nos. 508, 509, 517 and 518 Spiral-Screw Conveyors and Feeders



Spiral-Screw Conveyor for Sand-Lime Brick

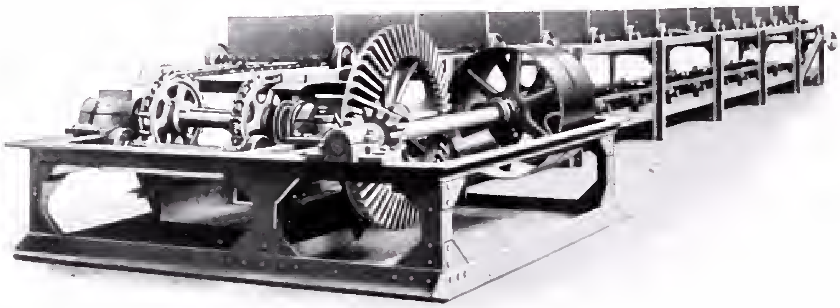


Spiral-Screw Conveyor, Bevel-Gear, for Sand-Lime Brick

We build a line of spiral-screw conveyors and feeders, of the types illustrated in the accompanying cuts, for use in sand-lime brick plants. They are especially valuable for receiving the dry sand and lime mixture from the storage bins and delivering it to the wet mixer, but are also used wherever it is found advisable to install a short horizontal conveyor.

They can be made either spur or bevel geared, according to the requirements of the particular installation, and when used as feeders they are equipped with variable speed cone pulley drive, so that the amount of material handled is under the control of the operator.

American No. 514 Distributing Drag Conveyor



The No. 514 Distributing Drag Conveyor illustrated is typical of our line of this type of conveyors. We can furnish conveyors in a variety of sizes and lengths, and with either steel or wood frame as may be preferred. When wood frames are used the purchaser generally makes the frame, the drawings of which we supply, and we furnish the steel work. This type of conveyor is especially adapted to handling hard and abrasive materials, such as sand, crushed stone, coal, ore, clay, salts, etc. It is very convenient for use where materials are to be deposited in a series of bins, or where a long storage bin is to be filled.

In the equipment of sand-lime brick factories we use this conveyor for filling the storage bin, and especially for receiving the mixture of sand and lime from either the elevator or the wet mixer, and distributing it uniformly in the silo.

The conveyor illustrated is made throughout of iron and steel, and is constructed in a very substantial manner of angles, channels and plates securely riveted together and properly braced. The steel frame, when exceeding 40 feet in length, may be made in sections ready for riveting together at destination.

In the steel-frame conveyors the frame is designed to be self-contained, including the driving gears, shaft, bearings and pulleys. This makes the conveyor very easy of installation. The conveyors will be constructed with either spur-gear or bevel-gear drive, and with the driving pulleys located to suit the demands of the installation. The cut illustrates a right-hand bevel-gear-drive conveyor with 6½x18x12-inch flights, the conveyor being 32 feet long. The driving pulleys are 18 inches in diameter, 4-inch face, tight and loose.

The conveying mechanism consists of a series of steel flights spaced equidistant, securely riveted to 1-inch square axles, the axles being turned at the end to form gudgeons for the carrying wheels, which are 4½x1¼-inch. These wheels carry the flights and chains, so that very little power is required to operate this conveyor. Steel angles form the tracks for the wheels, giving a very smooth and easy movement to the flights.

In the 18-inch conveyor, the endless chains are employed for driving and spacing the flights. In the smaller sizes a single chain and sprocket drive is employed.

The materials are spouted into one end of the conveyor and carried forward by the flights, which pass along the steel trough in the bottom of the frame. This trough is fitted with discharge openings at intervals, which are covered with steel slides. One of these slides is open at the point where it is desired to discharge the material. By this arrangement any bin of a series underneath the conveyor may be filled at will, or any portion of a long bin may be filled while the balance of the bin is being emptied. It will be seen that this style of conveyor lends itself particularly to the filling of sand-lime brick silo.

The end of the frame opposite the gear is provided with adjustable take-up bearings to give the required tension on the chains to compensate for wear. These take-ups are of heavy pattern and of sufficient length to provide ample adjustment.

The width of the 18-inch conveyor, bevel geared, over all, is 59 inches; height, 24 inches; length to suit the installation. The weight of the 18-inch conveyor with steel frame in the first 15-foot section, measured center to center of sprocket wheels, is 2,120 pounds; each additional foot, 70 pounds. Power required in lengths under 100 feet, from 2 to 5 horse. Ratio of gearing, 4 to 1.

Additional Equipment

In addition to the several units of machinery and appliances which we have illustrated and described in this department of the catalogue, there are a number of other standard machines and appliances regularly used in the equipment of a sand-lime brick plant which are fully illustrated and described in other departments of the catalogue, some of the more common of which we are for convenience listing herein.

No. 57 Heavy-Duty, 9-Foot, Dry-Grinding Mill. There are some materials that are used in the manufacture of sand-lime brick, such as crushed stone, sand that contains coarse gravel, furnace slag, etc., which should be passed through a grinding or pulverizing mill before being manufactured into brick. For such work we recommend our No. 57 Heavy-Duty, 9-Foot Dry-Grinding Mill, as illustrated and described on pages 130, 131, 133 of this catalogue.

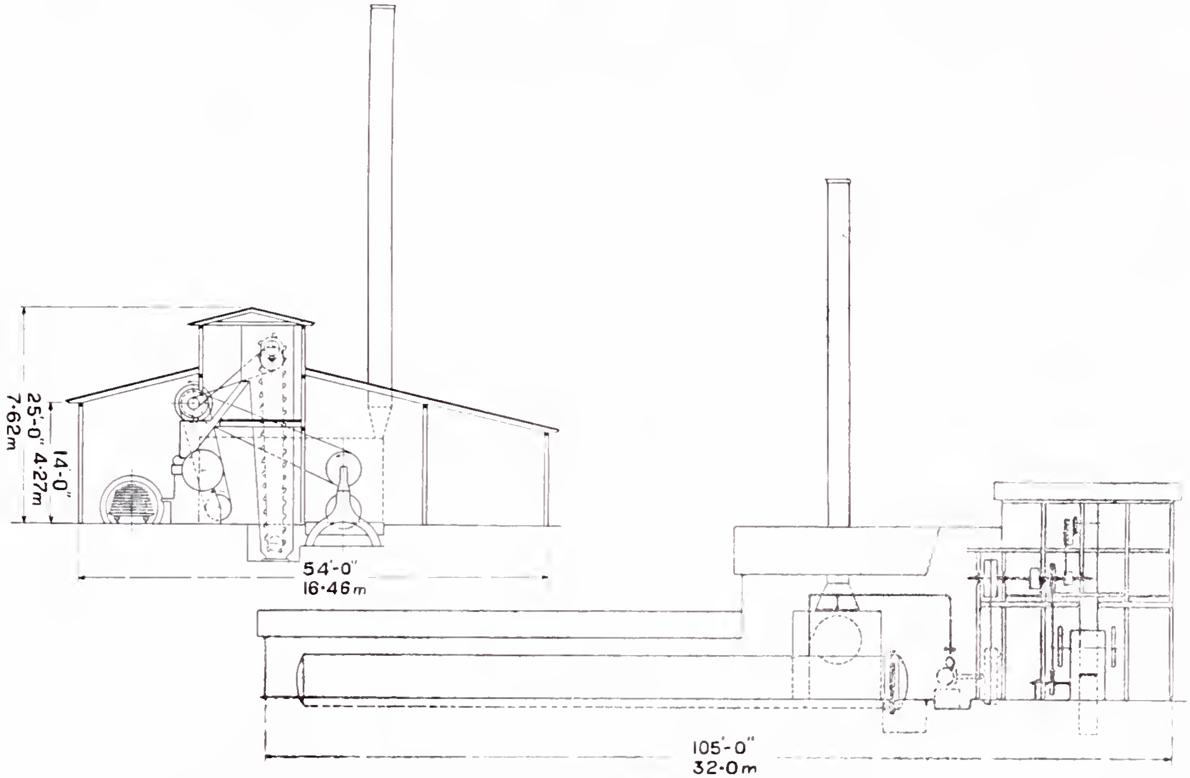
Sand Dryers. We manufacture a complete line of Rotary Direct-Heat Dryers, which are especially adapted to the rapid and economical drying of sand or other materials used in the manufacture of sand-lime brick. For illustrations and descriptions of these dryers, see pages 379 to 387 of this catalogue.

Conveyors. In addition to the spiral-screw conveyors and steel drag distributing conveyor herein described, we manufacture an extensive line of steel frame belt conveyors, and concentrating conveyors; illustrations and descriptions of which will be found on the following pages:

Bucket Elevators. We manufacture a full line of Bucket elevators arranged for using either traction chain, sprocket chains or belts for carrying the buckets. All usual sizes of buckets, types of boots and styles of driving heads are included. See pages 159 to 163 of this catalogue.

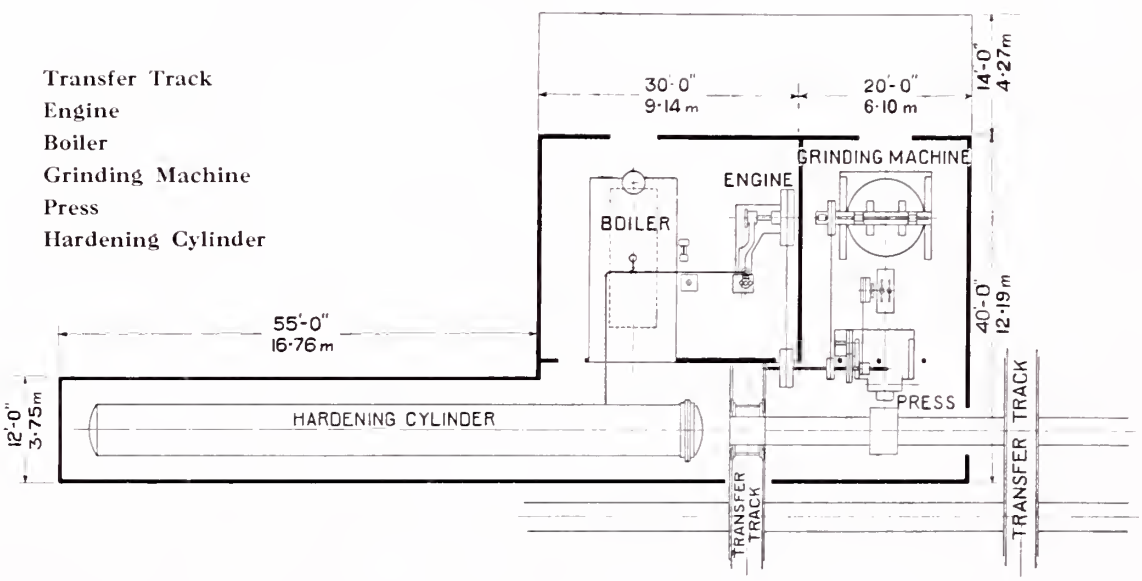
Hoists or Winding Drums. For a complete description of the various winding drums we are prepared to furnish for any desired capacity, see pages 185 to 190 of this catalogue.

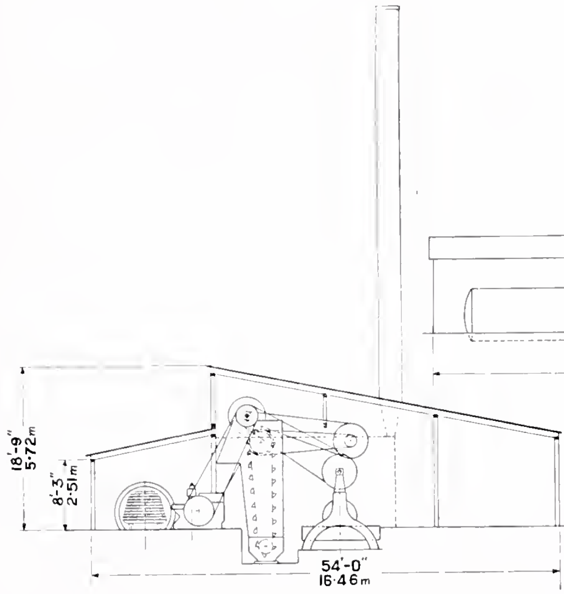
Dump Cars. We build an extensive line of dump cars, both of wood and steel construction. Just the type and capacity of car you will require in your equipment, you will find described on pages 191 to 200 of this catalogue.

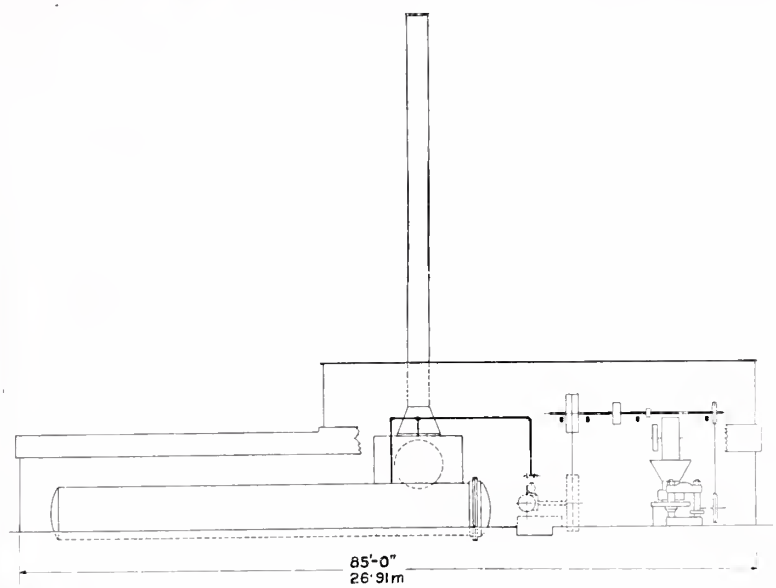


Spanish-American Model Plant
Capacity 16,000 Brick per Day

Transfer Track
Engine
Boiler
Grinding Machine
Press
Hardening Cylinder

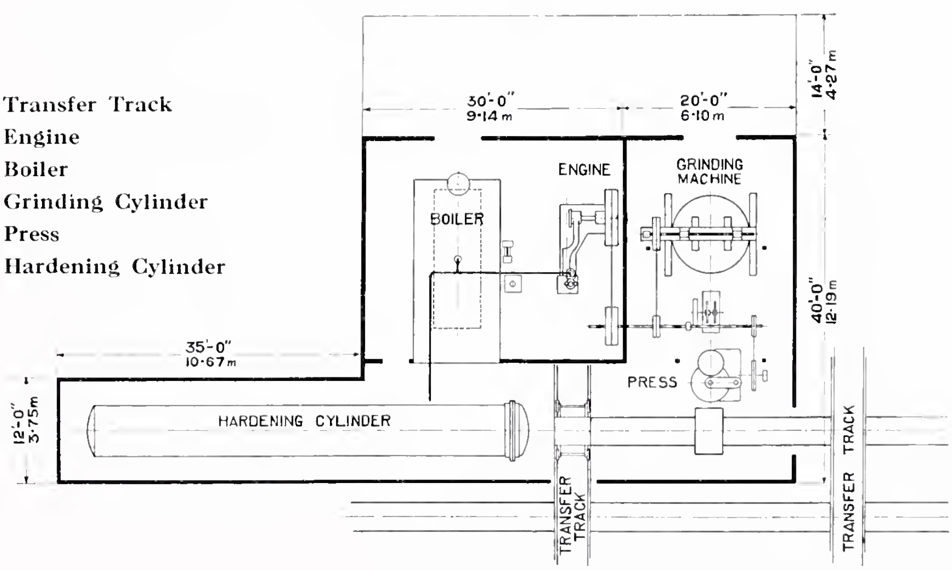






Spanish-American Model Plant
Capacity 12,000 Brick per Day

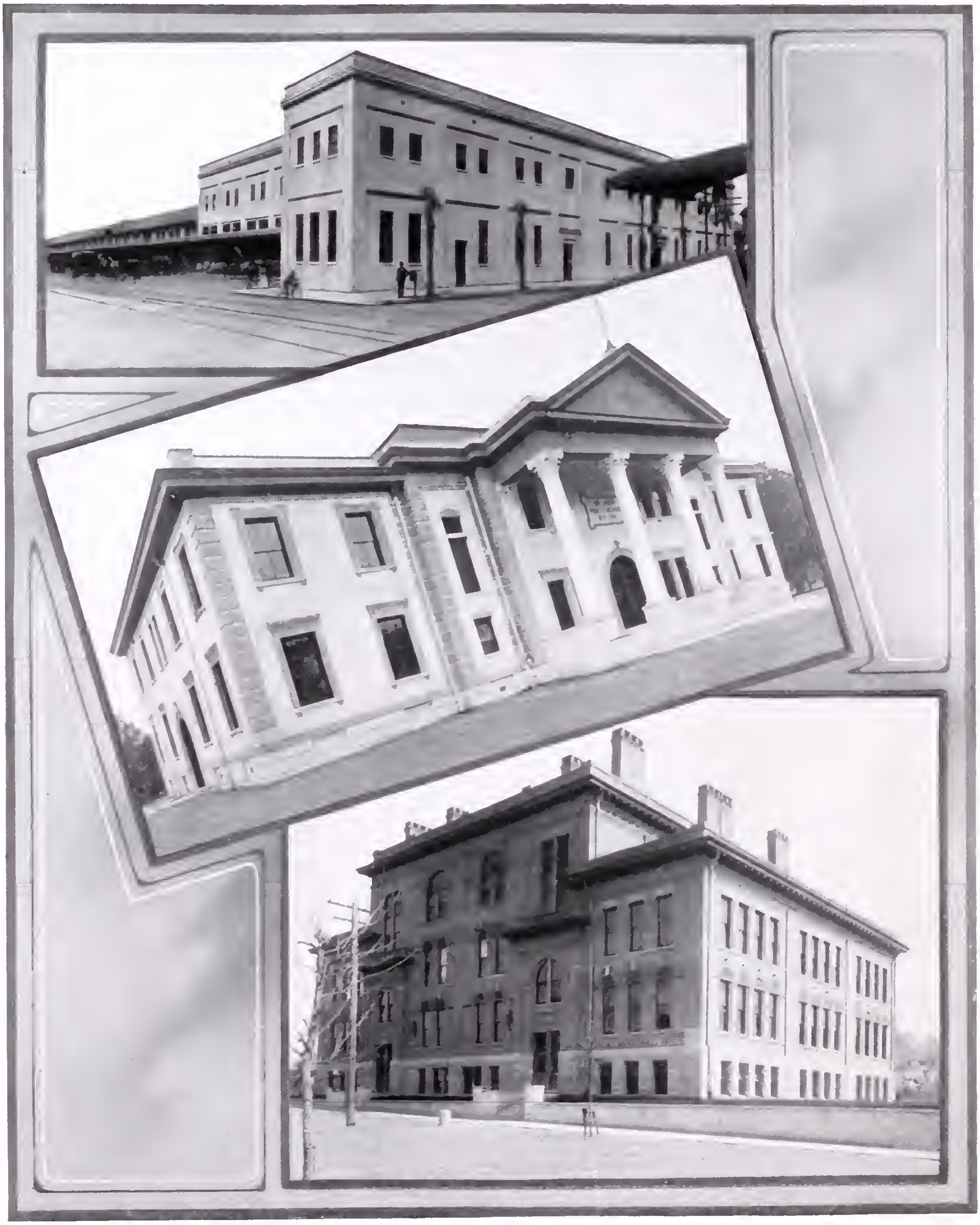
Transfer Track
Engine
Boiler
Grinding Cylinder
Press
Hardening Cylinder



Factory Building at Clinton, Iowa, Built of Sand-Lime Brick

Sand-Lime Brick Made in Old Mexico on Our Machinery

View of Sand-Lime Brick Flants



Buildings Built of Sand-Lime Brick

Buildings Built of Sand-Lime Brick

INDEX TO DEPARTMENTS

GENERAL INDEX

BUILT RIGHT RUN RIGHT

BUILT RIGHT RUN RIGHT