
ACME ROAD MACHINERY CO.
TRADE MARK
ACME
REGIS-
TERED
Frankfort. N.Y.

CATALOGUE NO. 8

ACME ROAD MACHINERY COMPANY

FRANKFORT, N. Y.

GENERAL CATALOGUE

ROAD BUILDING MACHINERY, CONTRACTORS' AND TOWNSHIP SUPPLIES

TAR HEATING TANKS
CRUSHING PLANTS
WATER SPRINKLERS
WHEEL BARROWS
PUMPS

OIL SPRINKLERS
ROAD LEVELERS
DUMP WAGONS
ELEVATORS

STONE FORKS
ENGINES, BOILERS
SCARIFIERS
OIL

STREET SWEEPERS
SCRAPERS
SCREENS
TANKS
DRILLS

CATALOGUES FOR THE ASKING

Electric Cars From Utica and Herkimer
Postal or Western Union Telegraph Bell or Independent 'Phone
Cable address, "Acme," Frankfort, N. Y. Use W. U. Code.

BRANCH OFFICES:

141 Milk Street, Boston, Mass.
449 Equitable Building, Baltimore, Md.
120 Liberty Street, New York
Greensboro, N. C.
Louisville, Ky.

WALTER A. COOK, *President and General Manager*
DAVID B. COOK, *Secretary* JAMES W. JONES, *Treasurer*
STEELE & PRESCOTT, *General Counsel*

ANNOUNCEMENT

In the year 1900, we began to manufacture a Solid Steel Frame Stone Crusher. That was an innovation, for theretofore all crusher frames had been made of cast iron, or of sheet steel held together by bolts. We produced a frame that did away with two-fifths of the weight of the former, the lack of rigidity of the latter and placed on the market a machine combining lightness with a maximum of strength and efficiency. We have so demonstrated the superiority of this material over all others that the Acme has been everywhere adopted as the standard of excellence. We have many imitators but no competitors. We desire to extend our thanks to those who have given us their loyal support during the years gone by and we assure them that the policy that has made our goods the most reliable on the market will be continued in the future.

We promised to put on the market the strongest, most durable and best working machine ever made, and we have kept that promise. In the list of things entirely new we have produced and put into practical use, a folding elevator that will actually fold, and handily portable bins in capacity from 13 to 50 tons. The new adjustable screen with which all our portable bins are equipped supplies a formerly existing lack in the economy of breaking and handling stone. As the originator of these ideas we can safely tolerate imitations put on the market by our competitors.

We have kept continually improving our machinery by the introduction of changes calculated to strengthen it and increase its efficiency; thus we have kept it in the front rank and at the head of the class. The ACME Solid Steel Crusher has successfully reduced the hardest and toughest of rock. Pig iron incidentally, and steel sledges accidentally have had their turn in its powerful jaws, but the substance has yet to be found that will break a lever, jaw, eccentric, roll or frame.

The Acme crusher is designed to overcome tough propositions. If you have a stone hard to break let us know about it. All other departments of our business will receive the same careful attention that we give to our rock crushing department.

We also desire to call attention to our new and improved line of Road Graders, Oil Sprinklers, Tar Heating Kettles, Scarifiers, Steam Train Cars and Contractors' Wagons, herein described.

TO THE CUSTOMER

In order to facilitate the filling of orders for supply parts, and to guard against mistakes in ordering, the following suggestions are offered:

The letter on each part designates the size of machine, the numerals the particular part. To illustrate, E 12 is the "lever shaft bearing" for a number 7 crusher; while G 12 is the "lever shaft bearing" for a number 9 crusher. The letters designating the various machines are as follows: No. 7, E.; No. 8, F.; No. 8½, D.; No. 9, G.; No. 9½, M.; No. 10, H.; No. 10½, N.; No. 11, J.; No. 12, K.; No. 12½, W.

When ordering sprockets, give number of teeth and size of bore. We now make all sprockets in regular and extra heavy weights, and also of steel. Unless otherwise ordered, regular sprockets are always shipped.

When ordering Gears, give number of teeth, size of bore, width of face, and whether spur or bevel. When ordering pulleys, give diameter of pulley, size of bore and width of face.

In other cases when repair parts are ordered, refer to letter or number on piece.

In every case, if possible, give *the name and address of the original purchaser, and date of purchase.* We keep a complete record of each shipment, and with this information can fill your order correctly.

A SPECIALTY

We make a specialty of repair parts for all Road Machines and Stone Crushers.

We guarantee all repair parts furnished by us to be equal in quality with those furnished by the makers of the various machines. Try our Crushing Plates; a single trial will prove their superiority over all others.

SHIPMENTS, TERMS, ETC.

The Acme Road Machinery Company will not become responsible for delays occasioned by strikes, accidents, "Acts of God," or any agency beyond their control.

Unless otherwise specially arranged, terms are net cash.

Prices will be furnished on application. All quotations are subject to change without notice. In giving shipping directions with order, be careful to state route preferred, giving name of railroad, etc. Every care is given to securing for customers the lowest freight rates possible, and should claims for damages, loss or overcharge arise, while we do not guarantee a successful outcome, we will cheerfully lend our assistance toward collecting any just claim. All goods are delivered f. o. b. Cars, Frankfort, N. Y., unless otherwise specially arranged, and are properly boxed, crated or otherwise prepared for domestic shipment. For export, boxing and crating are extra at cost. The charge for boxing and freight to New York average 5 per cent. of the list price.

We reserve the right to alter, at any time, such details in the construction of our machines, as will, in our judgment, improve their appearance, convenience or general efficiency.

Above all, this company does not belong to, or is not in any way affiliated with any of the "Trusts" or "Combinations."

OUR FACTORY

Our Factory is located just where it always has been,—at Frankfort, N. Y., on the south bank of the Mohawk river, nine miles east of Utica and six miles west of Herkimer. With both of these cities Frankfort is connected by two steam and two electric railroads. Our office is equipped with both the Bell and Home telephones. Our shipping facilities are unsurpassed, for the great West Shore Rail Road, main line, runs through our yards. In April 1907 our shops were entirely destroyed by fire, yet within one month after the disaster we were shipping new goods built in temporary shacks erected on the ruins.

In less than a year after the fire, our new, fire-proof shops, built entirely of brick and reinforced concrete, bigger and better than ever before, and equipped with every modern sanitary, mechanical and labor saving device were ready for occupancy. We have the most modern and best equipped Road Machinery Factory in the country, and we extend a cordial invitation to our friends and customers to visit us and see for themselves.

How to Reach the Acme Works

Coming from the east, leave train at Herkimer and take North Frankfort trolley car to Acme Gate.

Coming from the west, leave train at Utica, take Little Falls trolley car, corner Genessee and Bleeker streets and leave car at Stop 16, Frankfort.

What "Open Hearth" Steel Is

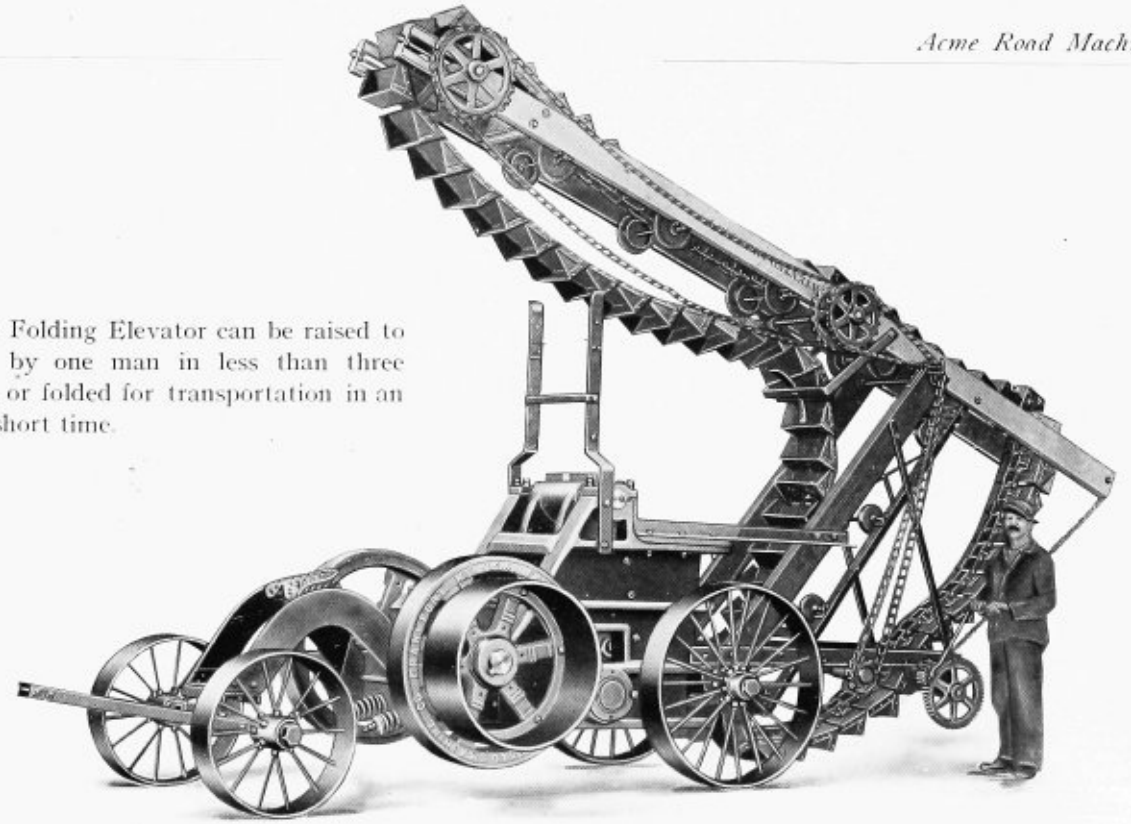
The term "Open Hearth Steel" applies to a special process in casting steel so as to produce a metal remarkable for strength and toughness. The frame, lever and jaw of all Acme Crushers are made of this material, a metal that shows a tensile strength of 70,000 lbs. to the inch, or more than two and one-half that of the best iron.

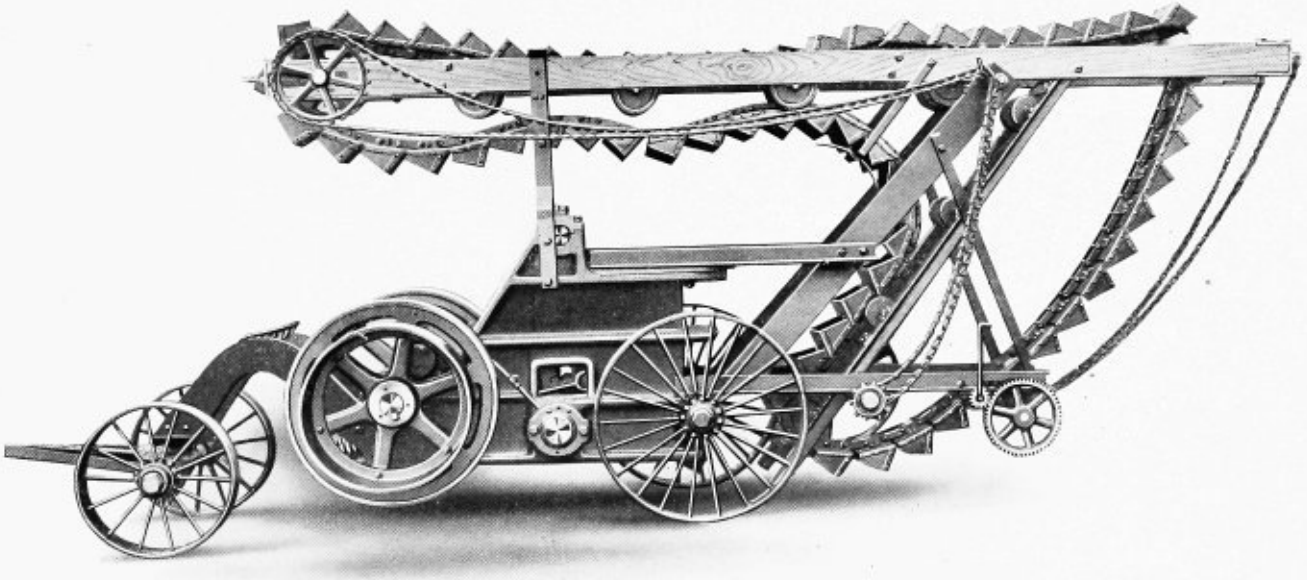
THE PORTABLE CRUSHING PLANT

In Contractors' and Township Work

There are few Townships where stone for road building is not available, and it seldom happens that all such material is located in one part of the town. Up to very recently, on account of a lack of portable crushing machinery or on account of the great weight of the old-fashioned crusher, men have located their crushing plants in some favorable spot, and from there distributed the crushed rock by wagon to all parts of the town. With the introduction of the ACME CRUSHER, the principal parts of which are made of open hearth steel casting, STRONGER THAN STEEL PLATES AND THREE TIMES AS STRONG AS CAST IRON, it was made possible to build crushers of large capacity, strong enough to withstand the strain of crushing the toughest and hardest rock, and yet of such weight as to be readily moved to the place where the work is to be done. It is a well known fact that the average cost of hauling a cubic yard of stone one mile is at least twenty-five cents. So, if the crusher can be moved to the always existing material near where the work is to be performed, the cost of hauling is reduced to a minimum and the cost of building highways or other construction work reduced accordingly. Thus, should there be no ledges available, stone walls, stone heaps and surface stone may be utilized, serving the double purpose of clearing up the land, beautifying the landscape and securing improved highways at small cost.

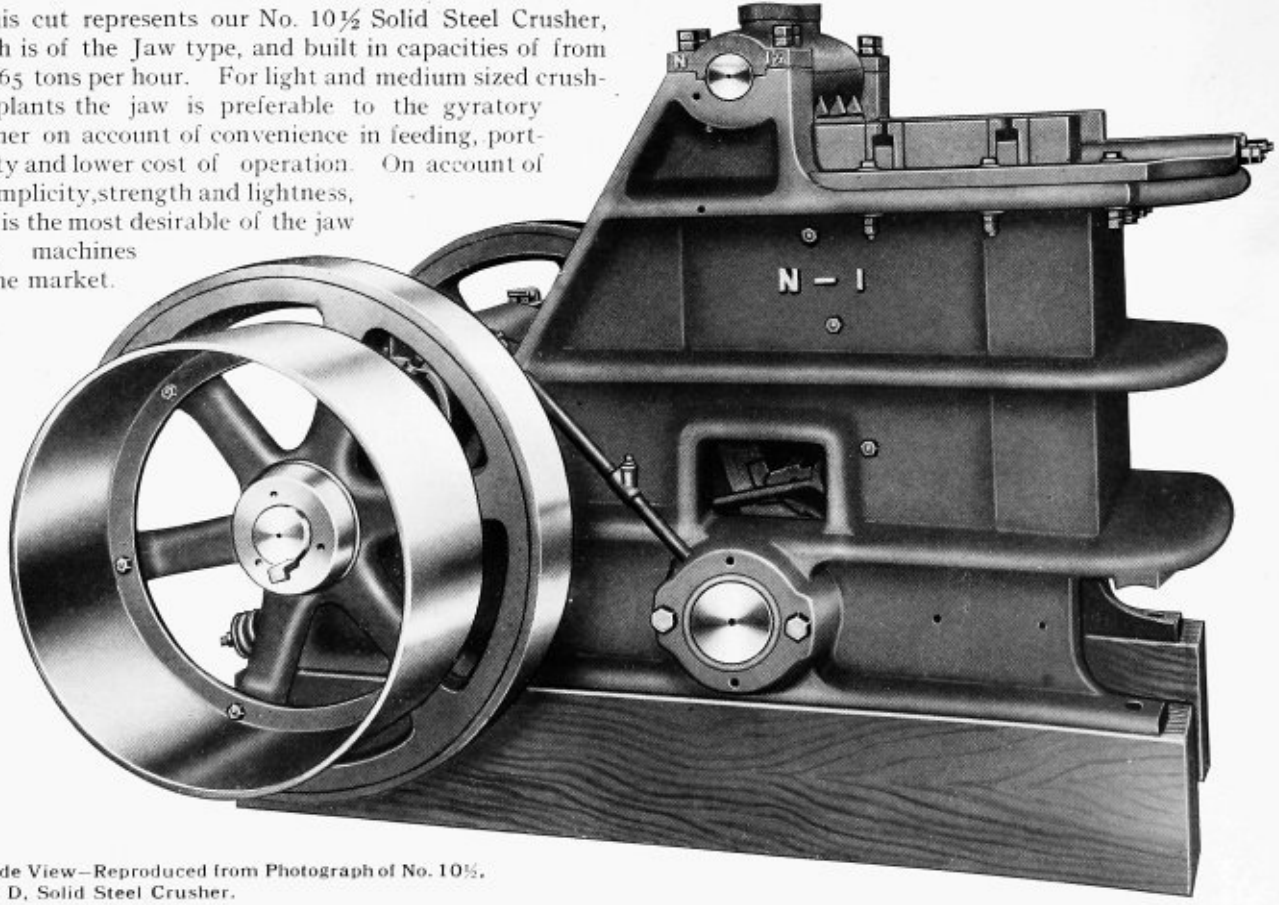
Our Folding Elevator can be raised to position by one man in less than three minutes, or folded for transportation in an equally short time.



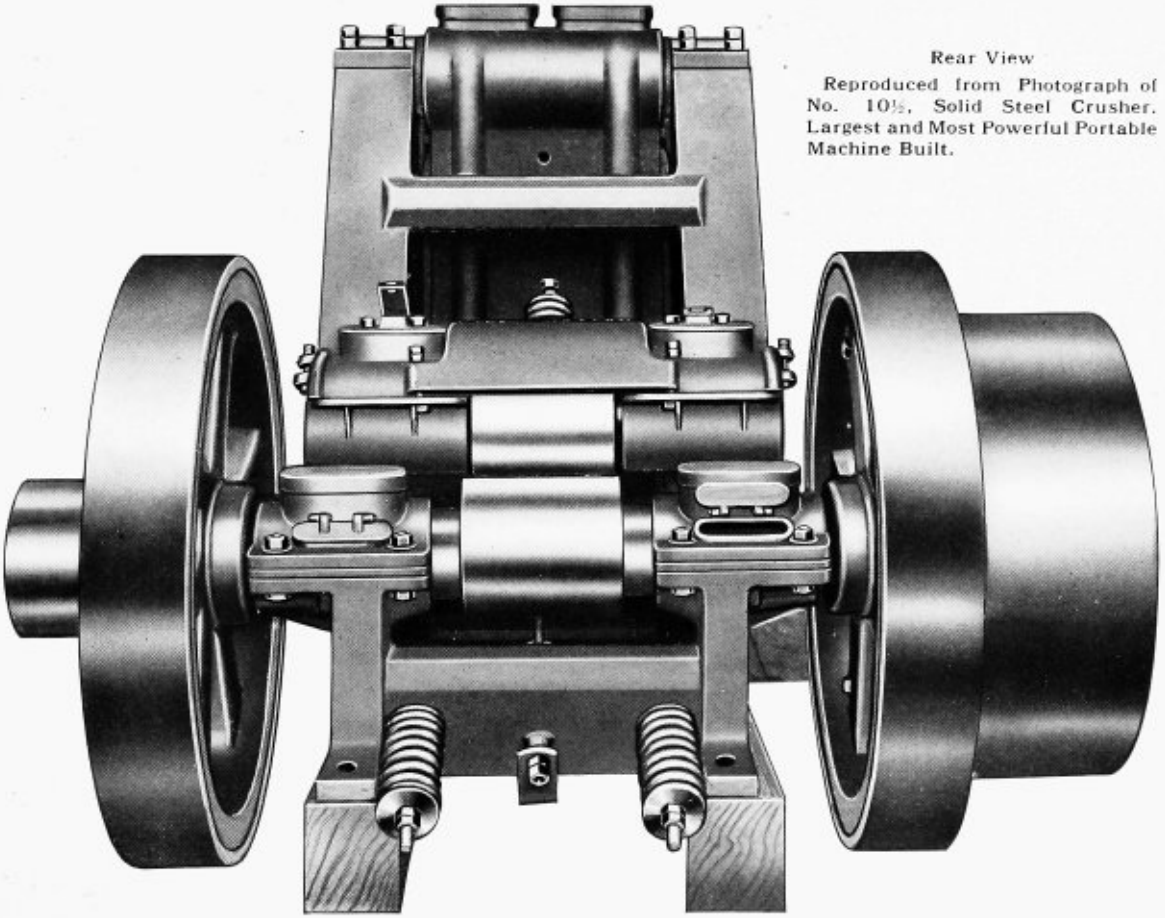


No. 10½, Style D Crusher Mounted on Four-wheeled Roller Bearing Steel Truck, with 24 Feet Centres, No. 10 Folding Elevator. Nos. 7, 8, 8½, 9, 9½, 10 and 10½ all Mounted in this Manner. Reproduced from Photograph.

This cut represents our No. 10½ Solid Steel Crusher, which is of the Jaw type, and built in capacities of from 8 to 65 tons per hour. For light and medium sized crushing plants the jaw is preferable to the gyratory crusher on account of convenience in feeding, portability and lower cost of operation. On account of its simplicity, strength and lightness, ours is the most desirable of the jaw type machines on the market.



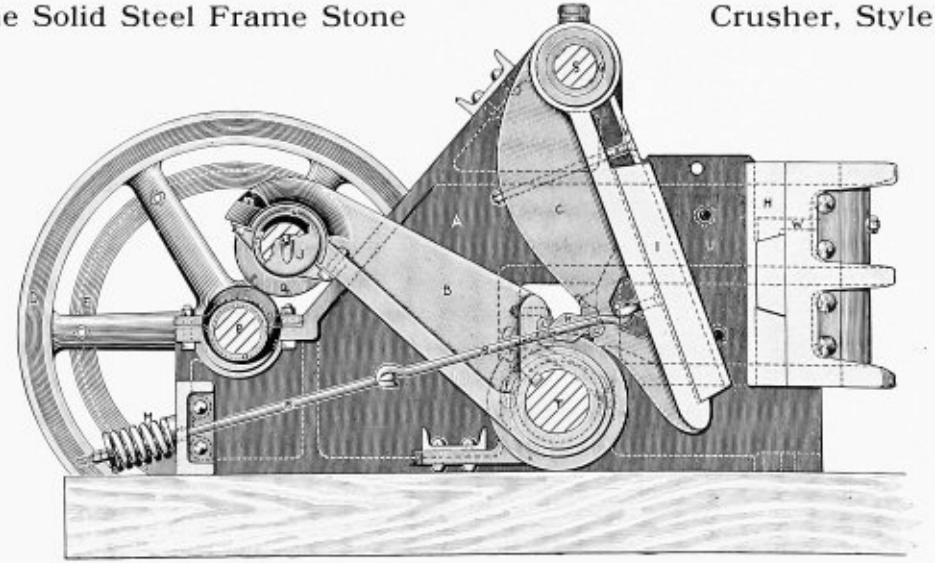
Side View—Reproduced from Photograph of No. 10½, Style D, Solid Steel Crusher.



Rear View

Reproduced from Photograph of No. 10½, Solid Steel Crusher. Largest and Most Powerful Portable Machine Built.

Acme Solid Steel Frame Stone Crusher, Style "A"



KEY TO SECTIONAL VIEW

A—Frame
B—Lever
C—Jaw
D—Balance wheel
E—Band wheel
F—Bushing for Lever Shaft
G—Bushing for Jaw Shaft
H—Stationary Crushing Plate
I—Movable Crushing Plate
J—Cap for Roller Journal
K—Adjusting Plate
LL—Seat for Adjusting Plate
M—Jaw Spring
N—Babbit Liner for Roll
O—Babbit Liner for Eccentric
P—Eccentric
Q—Roll
RR—Tension Rod
S—Jaw Shaft
T—Lever Shaft
U—Cheek Plate
V—Crushing Plate Wedge
W—Bolt for holding Stationary Crushing Plate
X—Bolt for holding movable Crushing Plate

The design is well illustrated in the sectional cut on page 12. Within a solid frame "A" is a jaw "C" pivoted on the shaft "S." This jaw is given a reciprocating movement by the adjusting plate "K," which in turn is moved by the lever "B" pivoted on the shaft "T" and raised and lowered by the single eccentric "P" running against the anti-friction roller "Q."

The Acme Crusher is built in styles "A" and "D," a sectional cut of Style "A" being shown on page 12. The same material is used in the construction of both machines, the same care and skill enters into the construction of both.

Style "A" is designed for portable or stationary work when it is desirable to keep the crusher low down for feeding; style "D" is designed to use when heighth is not so important a factor.

The Frame of every Acme crusher is put into a three-bar boring mill and bored out true for receiving the replaceable bearings, thus insuring the shaftings and bearings to be absolutely in line. The lever and jaw are bored out in the same manner.

All Acme Bearings are larger and the bushings thicker for the load they have to carry than in other machines of this type.

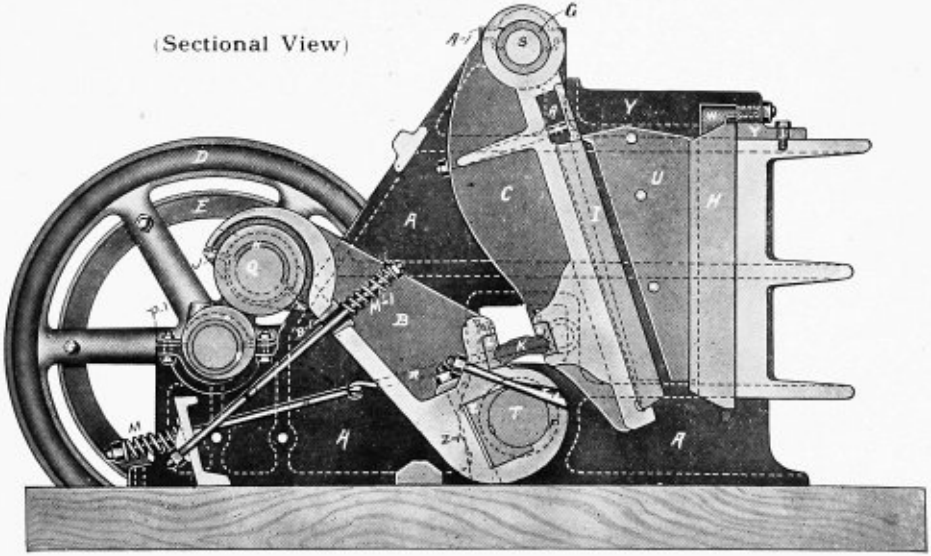
The Acme lever and jaw travel in line, thus eliminating the toggle movement of the adjusting plate, which allows the machine to be run at a higher rate of speed than any other machine of this type.

At a high speed stones are crushed more uniformly and a greater capacity is attained. In the Acme a greater strain is placed on the slow moving journals than on the fast ones.

All Acme Crushers are mounted on Roller Bearing Steel Trucks. No other manufacturer uses these bearings.

New Model Solid Steel Crusher, Style "D"

(Sectional View)



KEY TO SECTIONAL VIEW

A—Crusher Frame
A1—Cap for Jaw Bearing
B—Lever
B1—Tension Spring Casting
C—Jaw
D—Balance Wheel
E—Band Wheel
F—Bushing for Lever Shaft
G—Bushing for Jaw Shaft
H—Stationary Crushing Plate
I—Movable Crushing Plate
J—Cap for Roller Bearing
K—Adjusting Plate
L-L—Seat for Adjusting Plate
M—Jaw Spring
M1—Lever Spring
N—Babbitt Liner for Rolls
O—Babbitt Liner for Eccentric
P—Eccentric
P1—Eccentric Cap
Q—Roll
RR—Jaw Tension Rod
R1—Lever Tension Rod
S—Jaw Shaft
T—Lever Shaft
T1—Key Bolt for Lever
U—Cheek Plate
V—Crush. Plate Wedge
W—Bolt for Crushing Plate (Stationary)
X—Bolt for Crush. Plate Wedge
Y—Hopper Casting
Z—Lever Box
Z1—Key for Lever Shaft Bushing

The design of our Standard Steel Crusher, Style "D," is well illustrated in the sectional view on page 14. Within a solid steel frame (A) is a jaw (C) pivoted on a shaft (S). To this jaw a reciprocating movement is imparted by the adjusting plate (K), which in turn is moved by the lever (B) pivoted on the shaft (T) and raised and lowered by the single eccentric (P) running against the anti-friction roller (Q).

Particular attention is called to certain new features of the general design of this crusher which tend to place it far in advance of other crushers of the jaw type. First, may be noted, the tension rod (M-I) which, acting directly on the lever (B) insures perfect contact of the eccentric (P) and roll (Q) during each complete revolution, thus avoiding the pounding of these parts, common to the older machines of this type. Second: As the position of the toggle (K) will indicate, the motion imparted to the jaw (C) by the lever (B) is transmitted along a line coincident with the centre line of bearings (L-L) and toggle (K). From this it will readily be seen that the toggle (K) will travel to a point equally distant each side of the centre line, and that this motion permits of uniform wear on the seats (L-L) and tends to remove all danger from splitting of these parts due to the power being transmitted diagonally across them.

It will also be noted in this connection that this has still further advantages in that the power is applied nearer to the lower point of the jaw, and that by reversing the seats (L-L), and raising the toggle, the travel of the Jaw is increased, which increases the capacity of the machine on soft stone.

The adjustable bushing (Z) on shaft (T) and the split cap (A-I) on top of frame are new features of the general design that cannot fail to impress the observer with their importance. These pieces are of the same material as the frame casting (open hearth steel) and greatly simplify the removal of both lever and Jaw when repairs to these parts become necessary.

The Casting (Y) is a separate piece which is attached directly to the frame (A) and serves as a connection for the cast iron hoppers (which may be furnished with the machine) as well as to materially increase the depth of crushing hopper, and prevent wear of main frame. This hopper casting also furnishes a simple and effective means of holding the stationary plate in place.

Our Crushers are built in the following sizes:

Number and Style	Receiving Capacity	Tons per Hour with Jaws Set to Close to 2 Inches	Diameter and Face of Band Wheel	Floor Space Long	Floor Space Wide	Speed	Weight	Horse Power	Weight Mounted
7-a	7 x 14 in.	8 to 12	28 x 7 in.	6 ft.	4½ ft.	275	5500	10	6350
8-a	8 x 16 in.	9 to 14	30 x 9 in.	6½ ft.	5 ft.	275	7500	12	8578
8½-a	9 x 16 in.	10 to 15	30 x 9 in.	6½ ft.	5 ft.	300	7700	15	8778
8½-d	10 x 16 in.	17 to 18	30 x 9 in.	6½ ft.	5 ft.	300	8000	15	9078
9	10 x 18 in.	12 to 20	32 x 11 in.	7 ft.	6 ft.	300	9600	18	10700
9-a	10 x 20 in.	15 to 22	32 x 11 in.	7 ft. 4 in.	6 ft.	300	9800	20	10900
9½-d	11 x 18 in.	15 to 22	32 x 11 in.	7 ft. 4 in.	6 ft. 2 in.	300	10500	20	11850
10-a	10 x 22 in.	16 to 25	36 x 13 in.	8 ft. 2 in.	6 ft. 10 in.	300	14700	25	16860
10½-d	12 x 22 in.	20 to 30	36 x 13 in.	8 ft. 4 in.	6 ft. 10 in.	300	16000	30	18764
11-d	13 x 26 in.	22 to 40	40 x 15 in.	9 ft.	8 ft. 9 in.	325	20000	35	Not M't'd
12-a	12 x 32 in.	25 to 50	44 x 17 in.	10 ft. 8 in.	9 ft. 6 in.	325	30000	50	Not M't'd
12½-d	14 x 32 in.	27 to 65	44 x 17 in.	10 ft. 8 in.	9 ft. 6 in.	325	34000	55	Not M't'd

Supplied with each Crusher: One set drop forged wrenches, one 12 inch machinists' wrench, one quart copperized steel oiler, four adjusting plates, sample can oil, sample can grease.

Brakes are charged extra, as are additional adjusting plates, foundation timbers, or other fixtures or fittings.

Remember These Points:

1st. The Acme Crusher is built of Open Hearth Steel Castings, the lightest and strongest material available.

2nd. That it is provided with an elevator that can be folded over the crusher for transportation, or unfolded and erected for use by one man in three minutes.

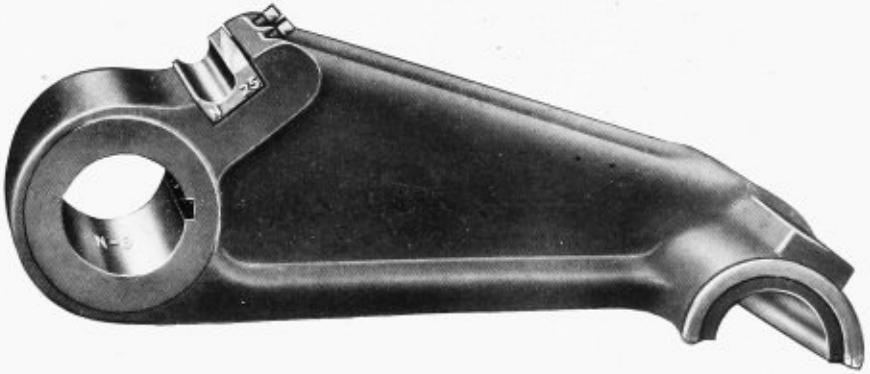
3rd. That the Acme Portable Bin is built in sizes from 13 to 50 tons inclusive, mounted on steel trucks, and that more than a two-horse team is seldom needed to transport the largest of these.

4th. That the screen is so adjusted that it can be lowered during transportation to a point just over the wheels and the top folded down, thus serving the double purpose of providing against the possibility of upsetting and the passage of the bin under low hanging branches, wires, etc.

5th. That it can be furnished with an Automatic Tailings Return Conveyor.

6th. That the cost of taking down and erecting in a new place is but trifling, both in time and money.

Oil — Good oil is indispensable in the operation of machinery. *We can furnish* that especially suited to the machinery we sell *at reasonable prices*. No charge for barrels. Half barrels and 10 gallon cans $1.00. Five gallon cans 75 cents.

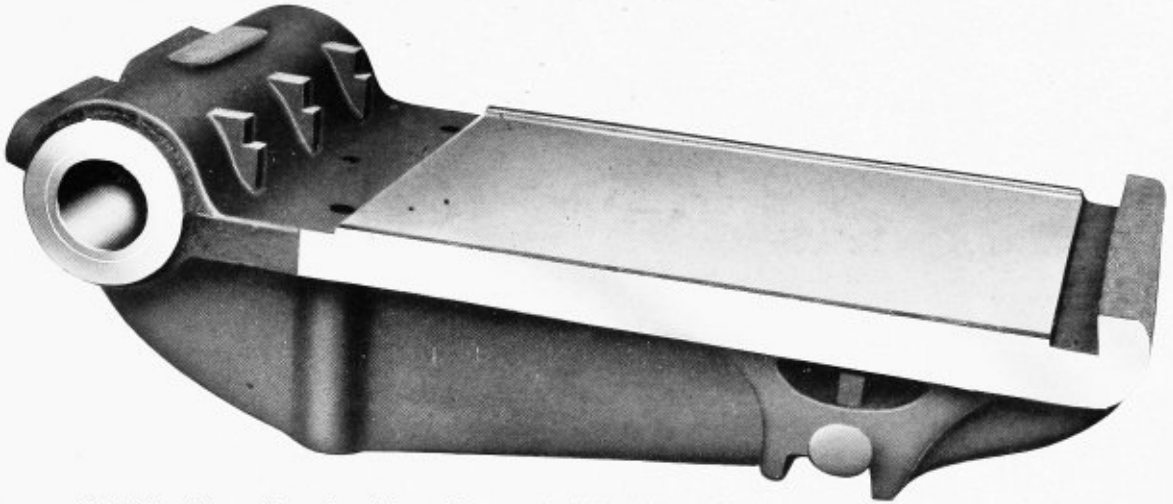


Solid Steel Lever. Reproduced from Photograph of No. 10½ Lever with Adjusting Plate Bushing in Place.

The FRAME is an Open Hearth casting, heavily ribbed. The bearings for the eccentric, lever shaft bushing and jaw shaft are all bored accurately and in line, the entire work being done at one "chucking."

Through the side is an oblong opening, to permit the adjusting plate to be quickly and easily changed.

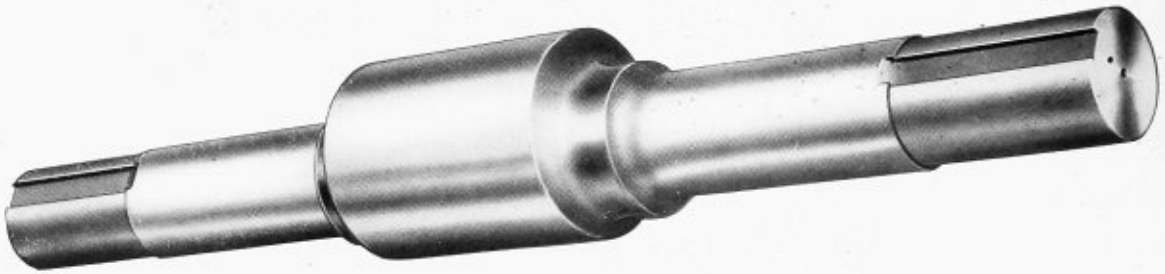
The LEVER is made from Open Hearth Steel, Bearings for the shaft and for the roller journal, are machined by a special tool, and both are bored at one chucking. Seat for the adjusting plate bushing (N-25) is planed as well as the bushing itself, thus insuring perfect seating of these parts.



Solid Steel Jaw. Reproduced from Photograph of No. 10½ Jaw with Bushing for Jaw Shaft in Place and Independent Jaw Oil Boxes Attached.

The JAW is also of Open Hearth Steel. Attention is called to the heavy ribbing of frame, lever and jaw. Great care has been taken to so design these parts as to avoid shrinking strains. The jaw is bored and bushed with gray iron bushing where it rocks on the jaw shaft.

The face is planed true to receive the movable crushing plate; at each edge is a slight ledge fitting a corresponding groove on the back of the movable crushing plate, which absolutely prevents this plate from travelling sidewise. The oil box on the top of the jaw is cast separately, and securely attached with tap bolts, the joint being well packed to prevent leakage of oil.

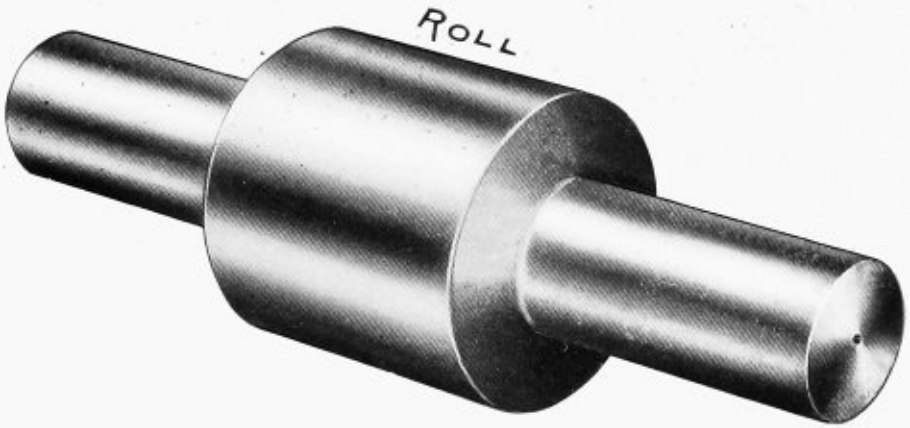


Eccentric. High Carbon Open Hearth Hammered Steel, Accurately Turned.

The ECCENTRIC is made of special carbon *Open Hearth Hammered* Steel running in long bearings. Machine work done to plug and ring insures absolute duplication of parts. This eccentric is a single cam giving one movement of the jaw to each revolution of the fly wheels.

The advantages of a single over a double cam eccentric are manifold. Fly wheels are driven at double velocity, thus utilizing the increased energy stored up in the fly wheels and to better advantage the power of the engine which is exerted while the jaw is receding, and also raising the roll over a more gradual incline, and greatly reducing friction at this point.

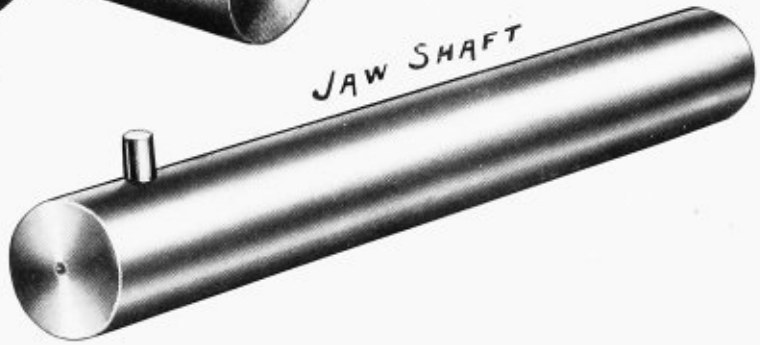
A new and desirable feature is the making of the shoulder for the fly wheel very slight, so that when it is necessary to remove the fly wheels the keys may be driven out with a straight drift.



Special Carbon Open Hearth Steel Roll. Reproduced from Photograph.

The ROLL is Open Hearth Hammered Steel carefully turned to size. Observe large bearings and ample proportions of all parts. Not one piece of cold-drawn or rolled shafting has ever been used in one of our crushers.

The LEVER AND JAW SHAFT are made of Open Hearth Hammered Steel. Held in place by a plug and the friction of the frame caps, doing away with the use of keys. Held in place and arranged to be easily removed when necessary. The shafting of an Acme crusher never has to be sawed out when new ones are needed.



Special Carbon Open Hearth Steel. Reproduced from Photograph.

Lever Shaft Bushing. Fits Either Side of Machine. No Rights or Lefts on Our Crushers. No Special Bolts or Set Screws; All are United States Standard.

Eccentric Liners. Cast in Moulds from Hard, Genuine Babbitt. Reproduced from Photograph.

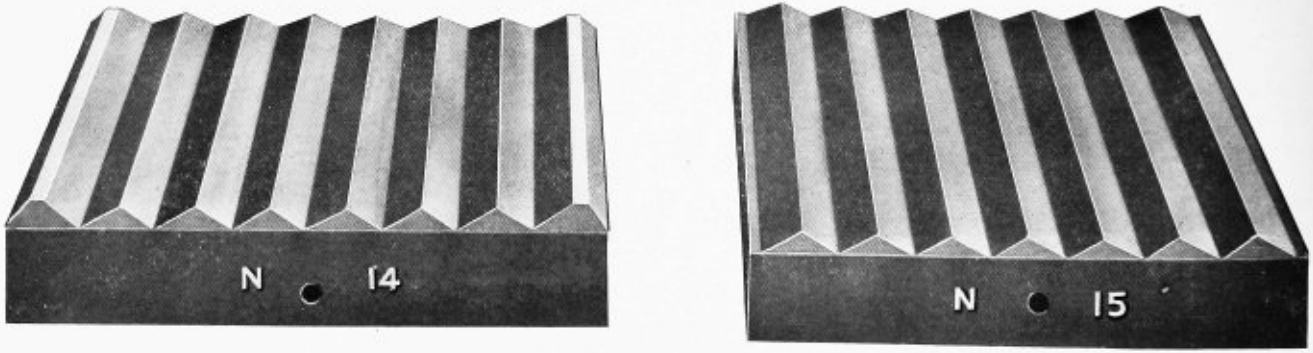
The BEARINGS are all made to template and easily replaceable. With reasonable care our crushers are never worn out. All that wears are the bearings, which can be replaced at small expense. The duplication is so perfect that repairs and renewals can be made in the most inaccessible places as well as they could be made in

Adjusting Plate Bushing. Made of Special Steel, Accurately Machined. Reproduced from Photograph.

Roller Babbitt Bearings. Cast in Molds from Hard, Genuine Babbitt. Reproduced from Photograph.

a machine shop. In every place where a particle of wear comes there is a replaceable bushing. Only the very best of anti-friction metals are used. We have never made our eccentric and roller liners of anything but hard, genuine Babbitt, guaranteed to contain nothing but tin, copper and antimony.

Where the pressure is heavy and motion slight, gray iron bushings are used.

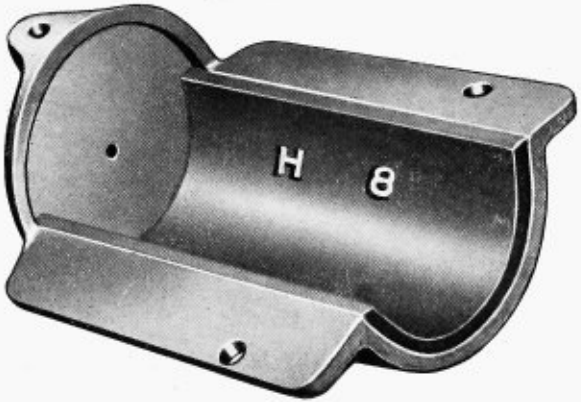


Crushing Plates. Surface of Hardest and Toughest Charcoal Iron; Back, Soft Machinery Iron, Accurately Planed.

CRUSHING PLATES. Surface of charcoal iron made from the celebrated "Salisbury" ores of Connecticut and Eastern New York. The hardest, toughest, and strongest iron in America. Backs are of soft iron and planed. The ends are beveled so as to support the ends of the corrugations and prevent the upper ends chipping.

Plates are reversible in all our machines.

CHEEK PLATES. Reversible, neither rights nor lefts. Extra thick and made of specially hardened steel giving more than double the wear of those in most crushers.



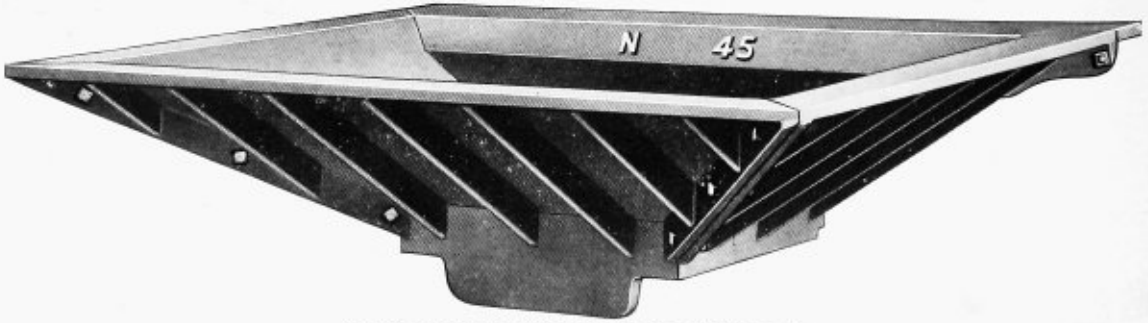
Roller Oil Box, Lined with Felt to Absorb Oil, and Ensures Perfect Lubrication.

Cap for Roller Oil Box. Large Oil Reservoir on Lever Fully Protected with this Cover and Self-Closing Lid.

Adjusting Plate. Chilled Wearing Edges. Made in All Widths Desired.

CHANGE OF PRODUCT is effected by the use of adjusting plates ("K" in sectional cut, page 12) of different widths, and the use of shims back of the seats for adjusting plates L. L. Four adjusting plates are furnished with each machine, which, with the use of the shims, gives twelve different sizes of product. Other sizes of adjusting plates will be furnished when specially ordered, and will be charged extra.

EASE OF FEEDING. Our Crusher is low to the ground, the frame is so constructed that the jaws are easily accessible, and the fly wheels are below the top of the frame. The casting (44) protects the frame from wear, makes a convenient method of holding the stationary crushing plate, and also allows the attachment of our hopper.



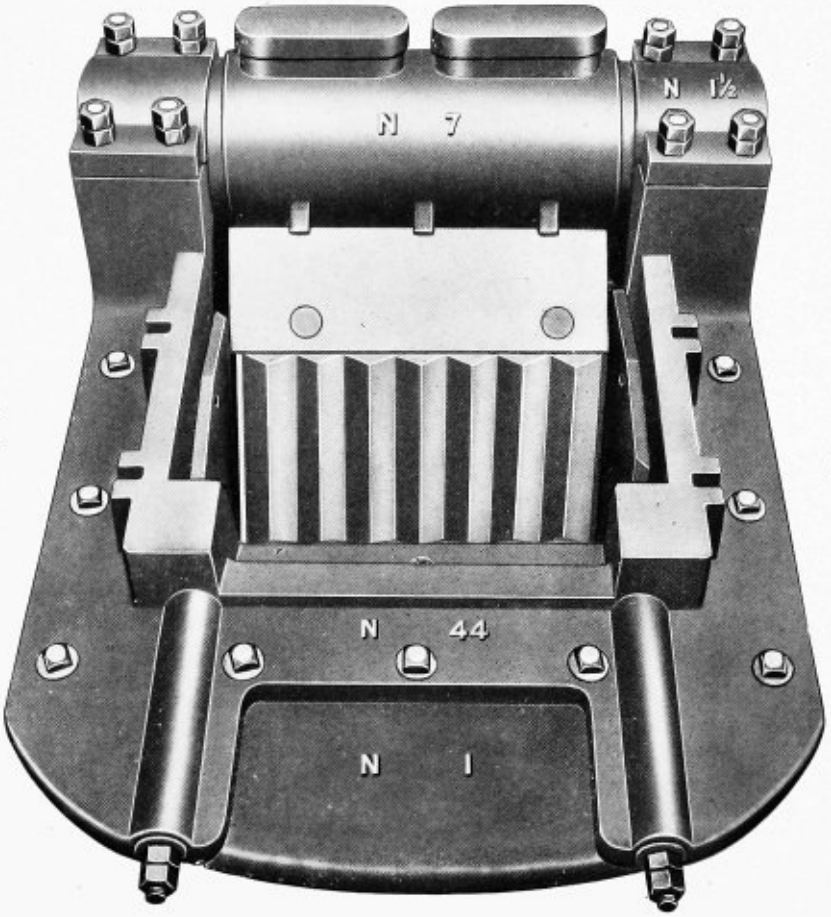
Crusher Hopper. Reproduced from Photograph.

HOPPER. Marked in illustration "N 45" is made of cast iron, well ribbed. It is in four sections bolted together, so that any worn out section can be replaced without sacrificing the other parts.

Hoppers are not included as part of the crusher, and are only furnished when specially ordered and at an extra price.

DETAILS. Every detail has been carefully studied, not only to secure efficiency, but also low cost of operation and repair. The oil boxes are made independent of the main parts of the machine, so that in case of accidental breakage, they may be easily and cheaply replaced. The roller oil box fits tightly around the roller journal, excluding the dust and serving as a receptacle to store the oil. At each revolution the shaft is automatically wiped and oiled by means of felt lining.

Mouth and top of Crusher. Reproduced from Photograph

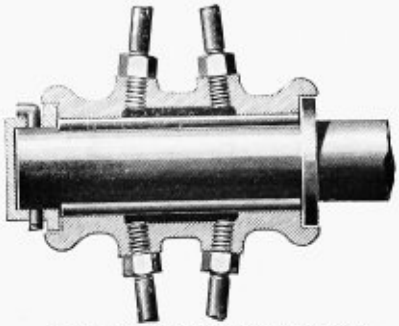


Shows Hopper Casting and Method of Holding Stationary Crushing Plate

Elevator Pulley

Special attention is called to the manner in which the elevator pulley is attached to the fly wheel. The illustration clearly shows the method of bolting, and the lugs on the balance wheel, in which the rim of the pulley rests. The pulley may be attached to either balance wheel, as may the main drive pulley. The bolts are easily accessible, a feature which will be appreciated by users of other crushers.

Mountings



Sectional View of Hub, Showing Roller Bearing.

Our regular method of mounting is shown in the illustration on page 9 Goose necks bent from steel bars of proper size, are attached to the eccentric end of the crusher, while the rear axle rests under the first or bottom rib of the frame. This method of mounting allows turning at right angles with the front wheels, the maximum clearance under the frame, with the minimum of height to the mouth of the crusher. Some customers, however, desire the machine so arranged that no excavation has to be made for the elevator. In such cases we furnish a special mounting, by either placing the rear axle under the bottom of frame and using a bolster in front, or by mounting on I beams. ROLLER BEARINGS FOR THE TRUCK WHEELS REDUCE the draft so that the heaviest of our mounted crushers can be as easily transported as our competitors' machines having half the capacity.

Wheels and Axles

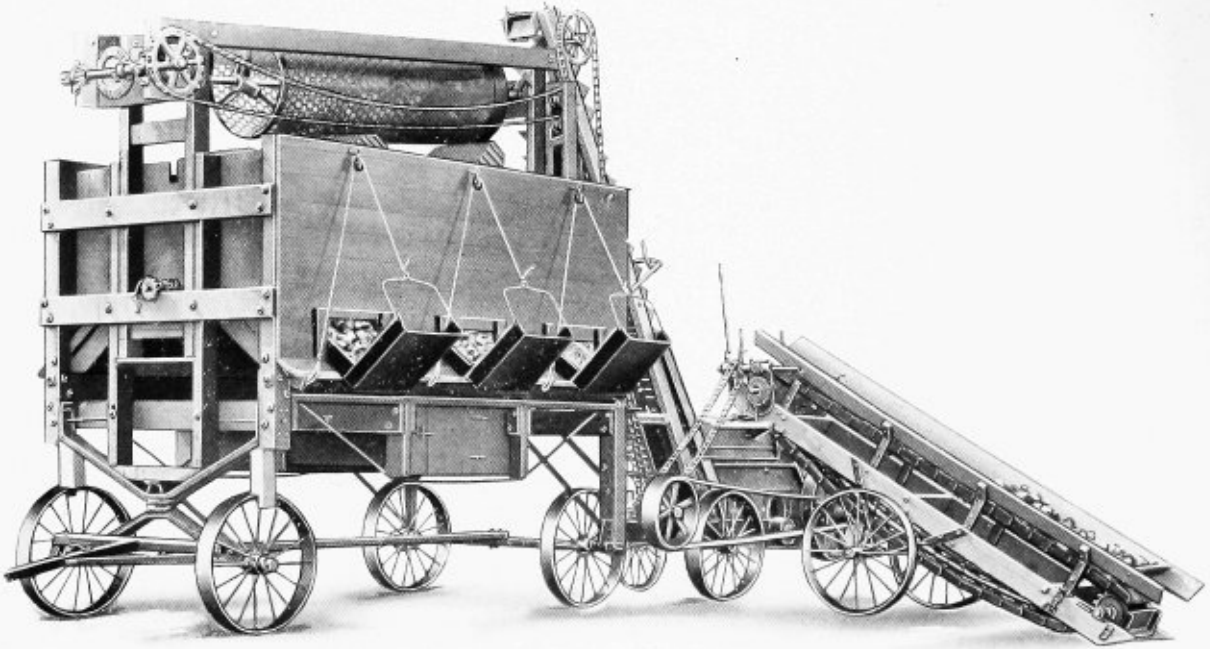
The wheels are all steel, built on the suspension principle. The tires for No. 7 machine are ½″ x 5″; for No. 8 and 8½, ½″ x 6″ front, and ⅝″ x 6″ rear; for No. 9 and 9½, ⅝″ x 6″ front, and ¾″ x 6 rear; No. 10 and 10½, ⅝″ x 8″ front, and ¾″ x 8″ rear. The spokes are in proportion to the tires, the hubs are well designed and are bored to fit the axles, which are turned, and have solid collars. The caps on the end of the axle are closely fitted.

Folding Elevators

The illustration on page 9 shows the elevator folded ready for transportation, while the cut on page 34 shows the elevator erected ready for work. To change the elevator from one position to the other will take one ordinary man from two to four minutes. Folding elevators may be made any length up to and including thirty feet. The lower frame section will be made of steel, and the top section of hard pine, unless otherwise specified. If customers desire steel frames throughout, they are furnished without additional charge. Our folding elevators are built of the same strength and weight as stationary elevators, and are provided with powerful and reliable take ups.

Feeding Conveyor

This conveyor is designed to carry stone from the ground and deliver them into the crusher hopper without the necessity of erecting a platform over the crusher. It is driven by a worm gear, sprocket chain and positive clutch, the power being supplied by the elevator counter shaft. A hopper is necessary with the conveyor. To the hopper is fastened a platform on which the operator stands. In front of him is a lever by the use of which he stops and starts the conveyor at will, whether light or loaded, thus insuring a uniform feeding of the crusher. This conveyor will increase the average crushing capacity 25% on account of the uniformity of feeding. The machine is substantially built, and mounted on a two wheeled truck which may be hitched behind the crusher for transportation. It can be set up ready for use in a very few minutes.



Steel Pan Conveyor for Feeding Crusher. Reproduced from Photograph. No. 8½, Style D, Crusher and 13 Ton Bin.
See additional cut page 60.

Bins on Wheels

The economical handling of stone demands not only crushers, elevators, and screens, but also storage bins, so that the entire handling of the material may be done without the use of manual labor, from the time the stone is fed into the crusher, until it is discharged into the wagon or cart. Where the source of stone supply is scattered, the portable bin is a money saver. It is cheaper to take the plant to the stone than to bring the stone to the plant. The expense of moving a No. 9½ crusher and elevator, 50-ton portable bin, and screen with power, and erecting, averages about $25.00.

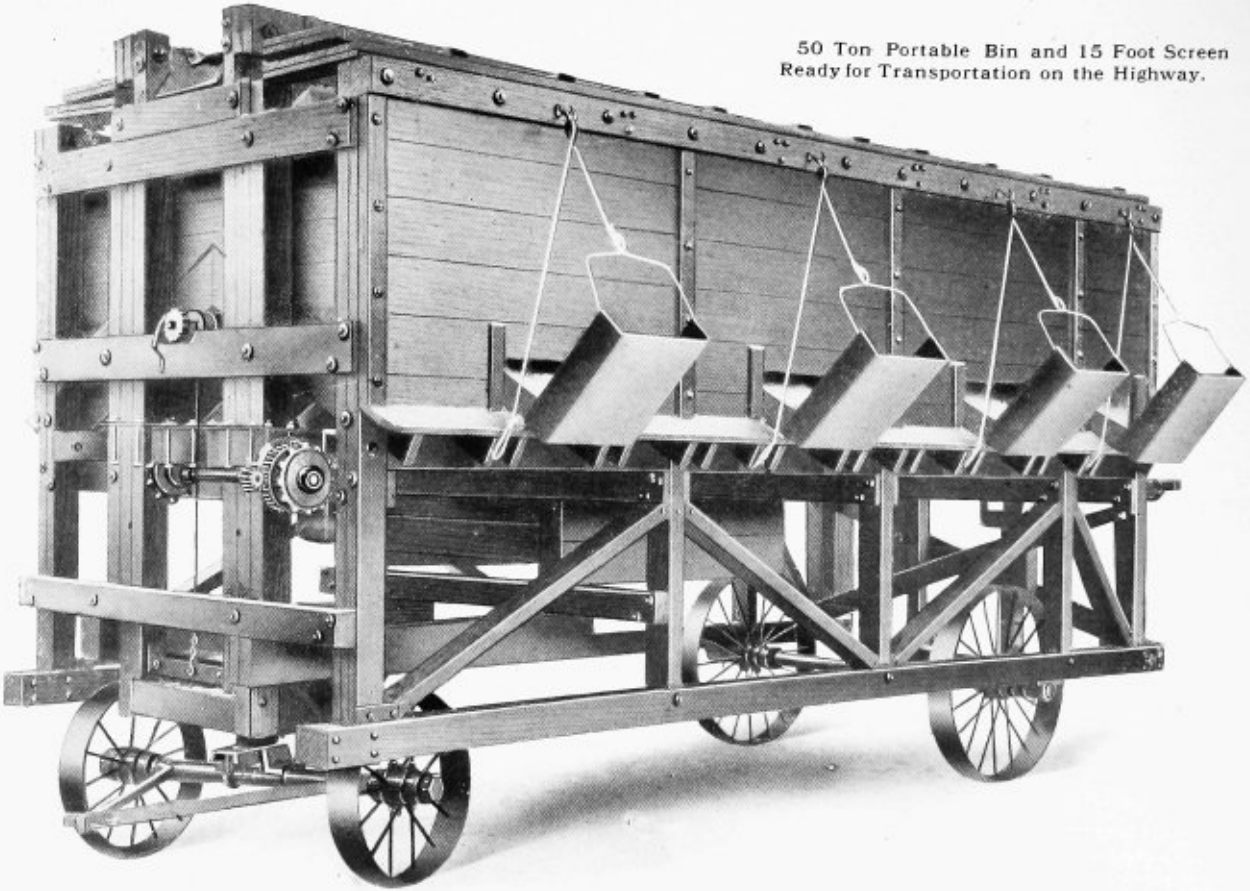
Sizes

We make these bins in 13, 20, 30, 40 and 50-ton sizes.

The following table gives the principal particulars:

Capacity	Length Over All	Width Over All	Height on Wheels Screen Lowered	Height on Wheels Screen Extended Over All	Height on Cars	Length of Elevator	Size of Screen	Weight Without Screen
13 tons	12 ft.	8 ft.	12 ft. 6 in.	14 ft. 5 in.	14 ft. 5 in.	17 ft.	7 ft. x 30 in	4454 lbs
20 tons	14 ft.	8 ft.	12 ft. 6 in.	15 ft. 6 in.	14 ft. 5 in.	19 ft.	9 ft. x 30 in.	4700 lbs.
30 tons	16 ft.	8 ft.	12 ft. 6 in.	18 ft. 10 in.	14 ft. 5 in.	21 ft.	9 ft. x 30 in. 12 ft. x 30 in.	6544 lbs.
40 tons	16 ft.	8 ft.	12 ft. 6 in.	19 ft. 10 in.	14 ft. 5 in.	22 ft.	12 ft. x 30 in.	6800 lbs.
50 tons	19 ft.	8 ft.	12 ft. 6 in.	20 ft. 10 in.	14 ft. 5 in.	24 ft.	15 ft. x 30 in. 15 ft. x 36 in.	7200 lbs.

The 30-ton, 40-ton and 50-ton bins may be fitted with roller screens in sizes given above.



50 Ton Portable Bin and 15 Foot Screen
Ready for Transportation on the Highway.

Material

Screens may be made in 3-foot, 4-foot, or 5-foot sections or any combinations of these lengths, which will give the length of screens specified in table, and are designed to carry dust jackets if required, except in case of 36-inch screen last specified.

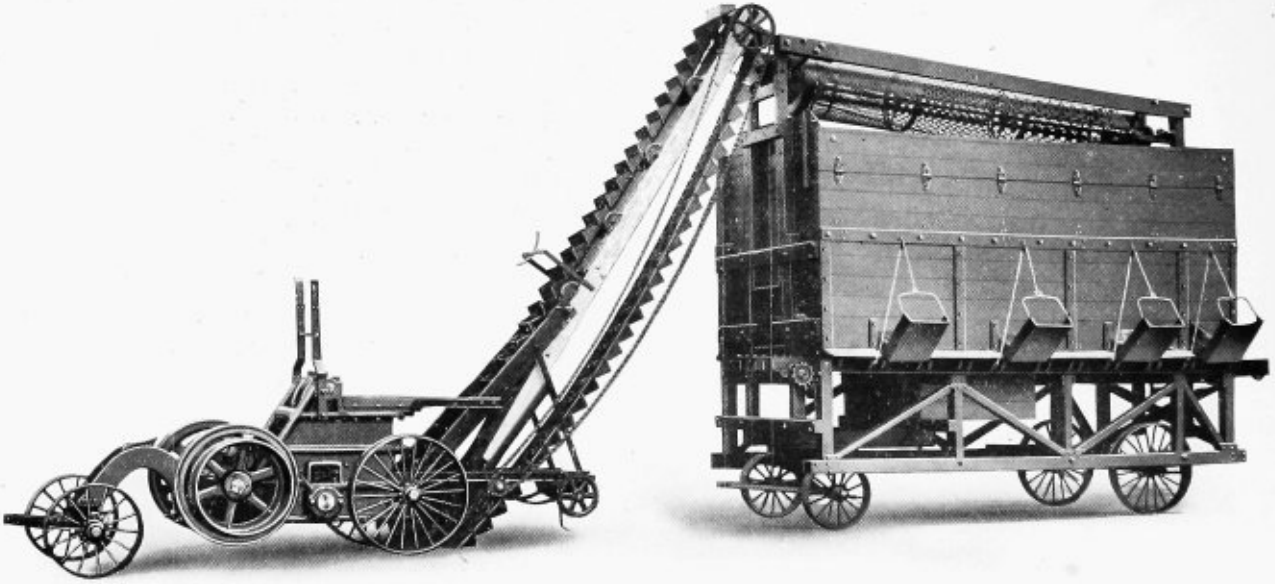
The wood work is made of air-dried spruce, the steel work is soft Bessemer bars, except the axles which are 20 carbon, the painting is done with Princess metallic and pure boiled linseed oil, two-coat work, with one coat of varnish on sides. The bottom is lined with sheet steel, the loading chutes are No. 10 steel, rope for controlling chutes, ½-inch MANILA. A tool box is placed under each bin.

Screens Adjustable

In all these bins the screens are adjustable vertically, and this arrangement is so carried out that the adjustment may be varied, and the inclination of the screen varied if desired. Screens may also be changed quickly to run in either direction.

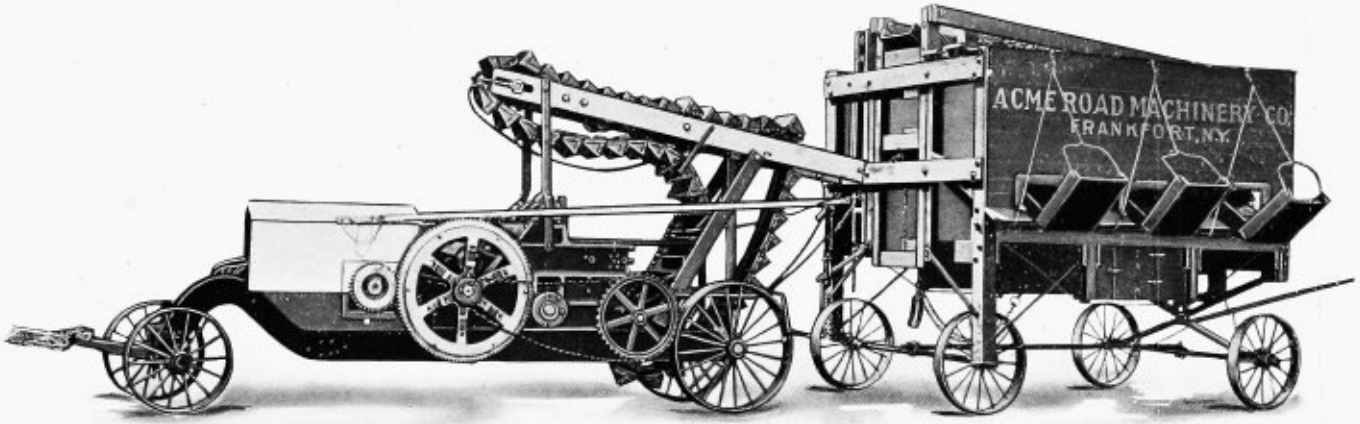
Conveyor

To our 13, 20, 30, 40 and 50 ton portable bins on wheels, may be attached belt conveyors for the purpose of bringing back to the crusher the pieces of stone that are too large to pass through the screen. We also build conveyors for other purposes. Our patterns cover all of the most modern appliances in this line, and our engineers are fully capable of laying out this class of machinery in a perfectly satisfactory manner.



No. 10½ Crusher with Roller Bearing Truck No. 10, Folding Elevator, 24 Feet Centre, 50 Ton Portable Bin on Wheels with 30 inch by 15 foot Screen, Connected Ready for Work. Reproduced from Photograph.

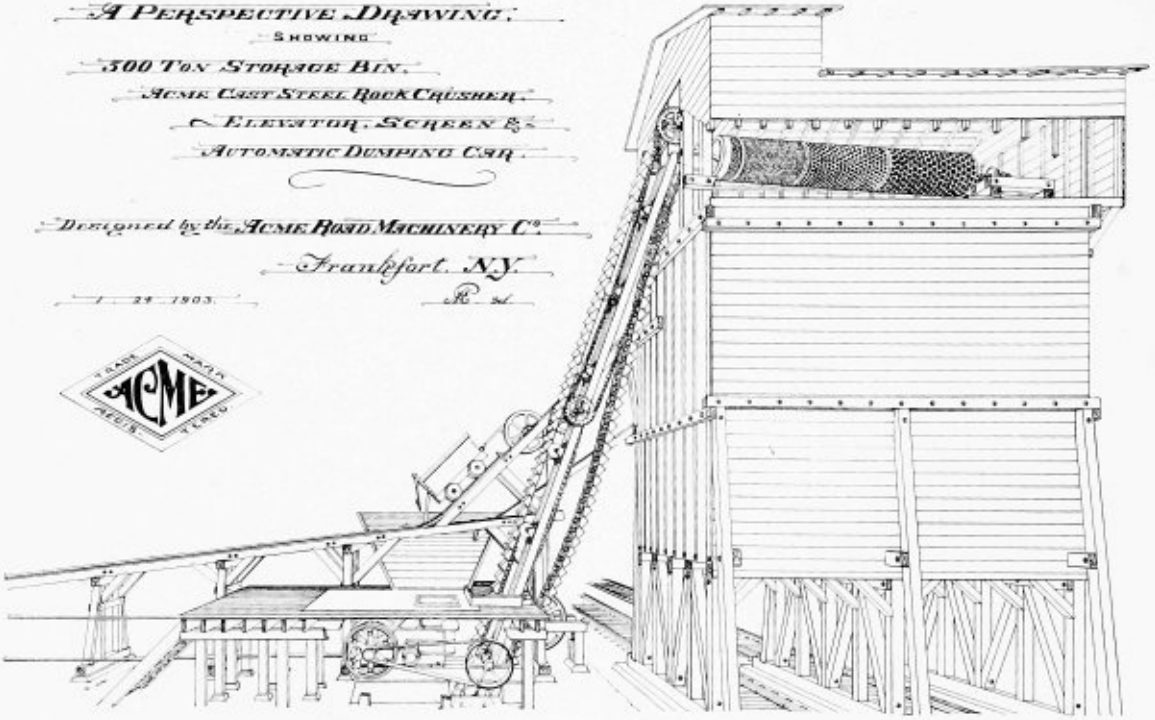
Motor-driven Direct-connected Crusher—13 Ton Portable Bin



It frequently occurs that street Railways or Contractors wish to use electric power for driving their crushers and desire to have the crusher and motor mounted on one truck. The illustration shows a No. 9½ crusher mounted in this manner. To place this outfit in operation it is only necessary to block the wheels, place the wire attached to the pole over the feed wire, and make the ground connection to trolley track or other suitable connection. For weights add the weight of motor to weight of mounted crushers given on page 16.

A Perspective Drawing
Showing
300 Ton Storage Bin,
Acme Cast Steel Rock Crusher,
Elevator, Screen &
Automatic Dumping Car.

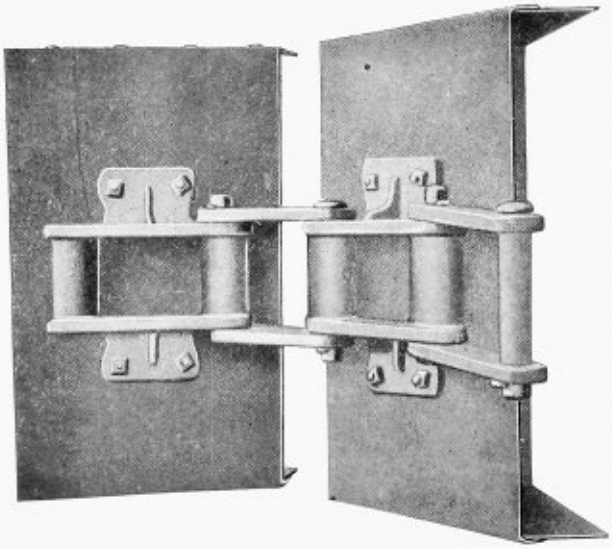
Designed by the Acme Road Machinery Co.
Frankfort. N.Y.
1 24 1903.



Complete Crushing Plants

Because our crushers are the best portable machines made, it does not follow that we are confined to portable work. On the contrary, our crushers and other machinery are equally well adapted to large stationary plants. We keep engineers constantly employed, who have had experience for years designing this class of work. In addition, we have a force of trained men for the erection of the work. We are, therefore, prepared to submit plans and take contracts for designing, equipping and erecting the largest crushing and screening plants; turning them over to the customer complete in every detail.

WHEN YOU LET THE CONTRACT FOR THE COMPLETE PLANT, you know what it is going to cost you. We can furnish the materials and do the work MUCH CHEAPER than it can be done where the plant is bought piecemeal. The purchaser is relieved of much responsibility, since our firm guarantees the economical and satisfactory working of the plant. Let us know what results you wish to accomplish, and we will tell you how to do it in the most economical manner, both as to cost of installation and operation.

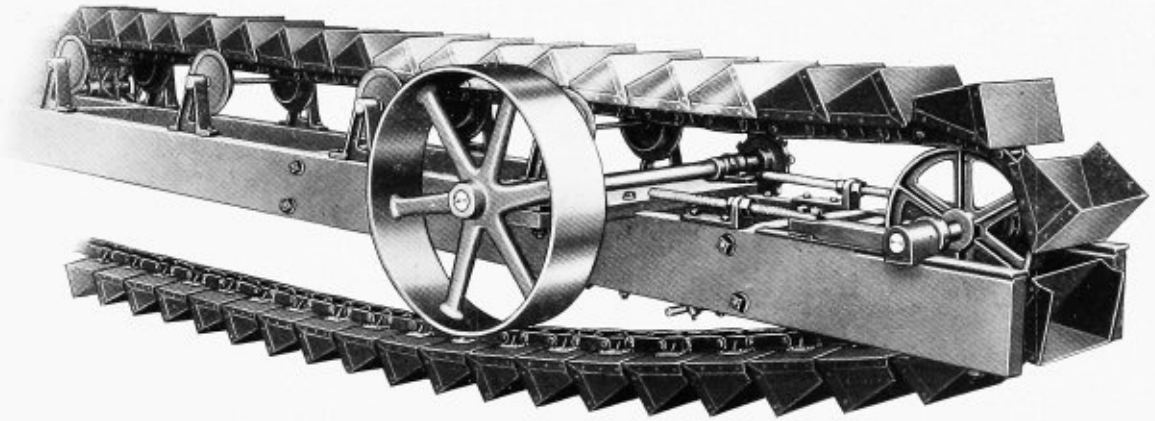


Acme Special Bucket Steel Chain

Elevator

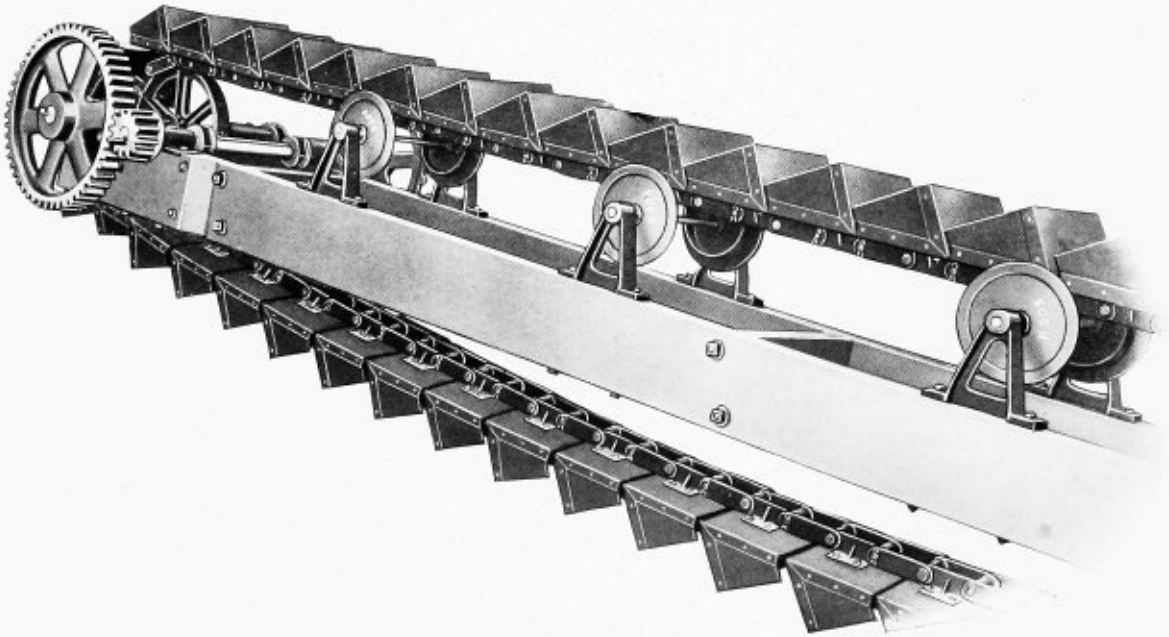
Our Elevators are all specially designed for the work which they are to perform, and always give the best satisfaction. The buckets are made of best annealed steel and vary in thickness from No. 10 gauge for the largest size to No. 14 for the smallest. These buckets are attached to either a malleable sprocket chain, steel sprocket chain, rubber or canvas belt, as preferred by the purchaser. For out-door work, chain elevators are far preferable to the belt type, provided the chain can be relied on not to break. Our special steel chain has been used for seven years, and we have yet to learn of the first broken link. It is suitable for elevators up to 100 feet in length and 300 tons per hour capacity. All the bearings on our elevators are supplied with efficient means of lubrication, and the boxes are lined with babbitt. Ordinarily the elevator is driven by means of a belt running from the eccentric shaft of the crusher (on which is placed a pulley for this purpose) to the countershaft of the elevator. This belt will generally slip, before any damage is done to the elevator, in case a slab of stone should catch at either top or bottom. Elevators can be set straightway, at right angles to crusher or screen, in fact, so as to convey the material in any direction.

The two illustrations give a good idea of a back geared Elevator. The photographs were made by taking both foot and head sections of a 60 foot No. 10 Elevator. The foot section shows the countershaft with driving



Foot End of No. 10 Elevator with Special Steel Bucket Chain, Showing Counter Shaft and Takeup.
Reproduced from Photograph.

pulley, and the take-up with two independent screws and locking nuts. On all stationary Elevators the take-up is at the bottom, whereas, on portable elevators it is necessary to put the take-up at the top. Double drives should be placed on all elevators over 24 feet in length, and on elevators of over 30 feet we recommend back gears.



Head End of No. 10 Elevator with Special Steel Bucket Chain, Showing Idlers, Head Shaft and Back Gear.

The following table gives the most important details in a condensed form:

Number of Elevator	Number of Special Steel Bucket Chain	Number of Malleable Bucket Chain if Used	Width of Belt if Used	Run of Bucket on Chain	Width of Bucket	Projection of Bucket	Gauge of Steel in Bucket	Wt. 10 foot Centre with Driving Connections (Estimated)	Wt. Each Additional Foot (Estimated)
1	100	85 or 88½	9 in.	8 in.	9 in.	4½ in.	14	700	15
2	100	85	12 in.	12 in.	12 in.	5⅝ in.	14	800	20
3	111	108	14 in.	14 in.	14 in.	7 11/16 in.	12	2000	60
8	100	85 or 88½	14 in.	8 in.	9 in.	4½ in.	14	1000	15
9	100 or 102	85	12 in.	8 in.	12 in.	5⅝ in.	14	1200	30
9½	102	85	14 in.	8 in.	14 in.	5½ in.	12	1675	40
10	111	108	15 in.	10 in.	15 in.	6½ in.	12	2000	60
12	132	....	18 in.	12 in.	19 in.	8⅛ in.	12	2600	80
13	132	....	20 in.	14 in.	21 in.	10¼ in.	10	2200	60
26	Sp.O.H.St.	....	26 in.	16 in.	26 in.	13¾ in.	10 Reinf'd	3000	150
30	Sp.O.H.St.	....	30 in.	16 in.	30 in.	13¾ in.	10 Reinf'd	3600	160
36	Sp.O.H.St.	....	36 in.	18 in.	36 in.	15 in.	8 Reinf'd	4000	200

The above are our standard sizes. We are prepared to build to order any other sizes of elevators desired. To avoid trouble, specify "Special Steel Bucket Chain." It has never yet broken or given trouble. More durable than belting, more reliable than any other bucket chain.

Screens

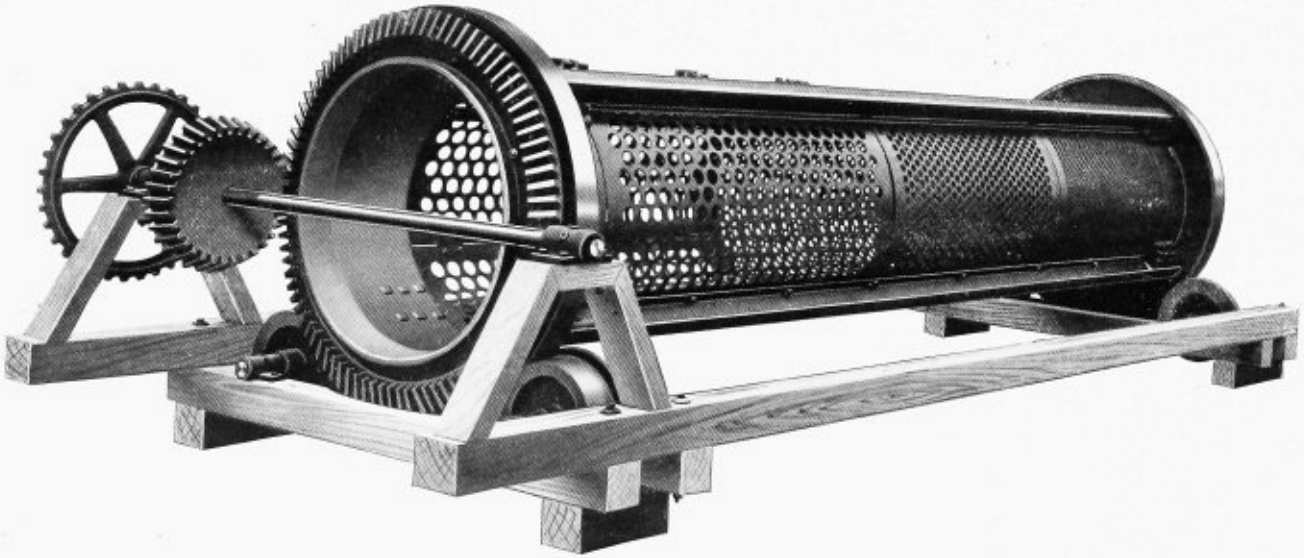
Revolving Shaft Screen, 30-in., 36-in., 42-in., 48-in. Diameter. Length to Suit Purchaser.

We make screens of all sizes and descriptions. Material may be wire cloth or perforated steel plates.

Where perforated plates are used, the holes may be of any shape specified by the purchaser. For ordinary crushed stone work, steel plate with circular holes make by far the best screen.

We carry constantly in stock plates for screens 30 in., 36 in. and 42 in. in diameter, and with ¼ in., ½ in., 1¼ in., 2 in., 2½ in., and 3 in. perforations. Other diameters of screens, and other sizes of perforations can be furnished promptly.

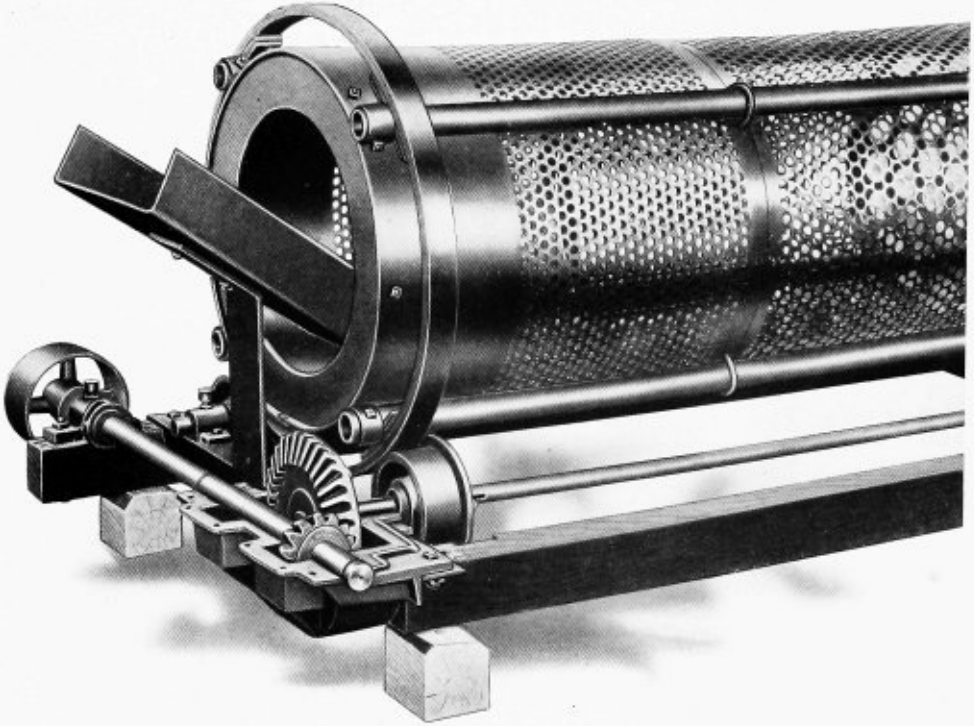
The length of screens are as ordered, ranging from 4 ft. to 30 ft. The screen sections are either 3 ft., 4 ft., or 5 ft. long. We make both shaft and roller screens, and recommend the former for sizes from 30 in. to 42 in. in diameter and up to 20 ft. in length. Above these dimensions, it is best to use the roller screen. Chute screens are furnished when desired.



Rear or Drive End of 42 inch Roller Screen.

Perforated Plates are Made in Sections and May be Removed Without Taking Off the I Beam Support. Reproduced from Photograph.
We Make Screens of this Type in 48, 54, 60, 72 and 84 Inches in Diameter.

Head Driven Roller Screen



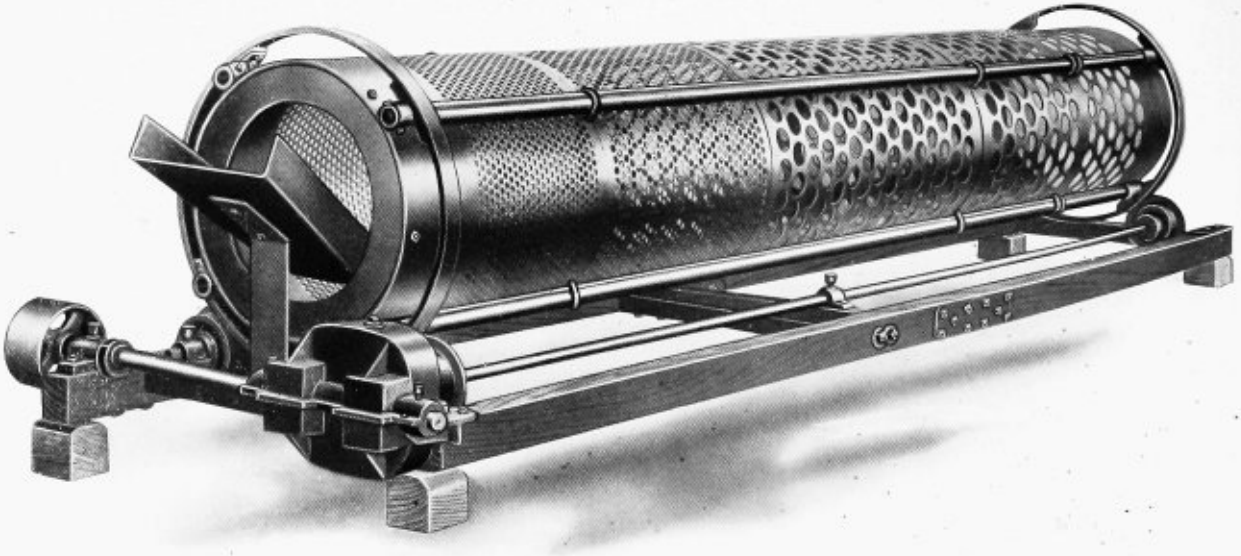
Head Driven Roller Screen

The screen here illustrated is a new departure in that the drive is at the head or initial load end, thus taking much of the torsonial strain off the screen. The support for the screen sections are heavy tubular bars, which give the maximum strength with the minimum weight and minimum obstructiom to the screening surface. The driving mechanism is a set of bevel gears enclosed in a dust proof case which is filled with grease, thus excluding all dust and securing perfect lubrication. These screens are adapted to 30, 40 and 50 ton portable bins and are built in 36″, 42″, 48″, 54″, 60″, 72″, and 84″ up to 36 ft. in length for stationary purposes.

Screens are made in lengths corresponding to multiples of three, although any odd lengths can be furnished if ordered. Size of perforations makes no difference in price. Screens of either the shaft or roller pattern furnished to suit the customer, and all driving connections go with the screen. Standard diameters are 30 in., 36 in., 42 in., 48 in., 54 in., 60 in., 72 in., and 84 in. although we are equipped to furnish greater diameters if desired. Standard thicknesses of plate are as follows: 30 inch screen, $\frac{3}{16}$ inch; 36 inch screen, $\frac{1}{4}$ inch; 42 inch screen, $\frac{3}{8}$ inch; 48 inch screen, $\frac{3}{8}$ inch; 54 inch, 60 inch, 72 inch and 84 inch screens, $\frac{1}{2}$ inch. Any other thickness of material will be furnished at proportionate prices.

All screens, either shaft or roller, are supplied with dust jackets if so ordered. All bearings on both elevators and screens are supplied with compression grease cups.

Head Driven Roller Screen

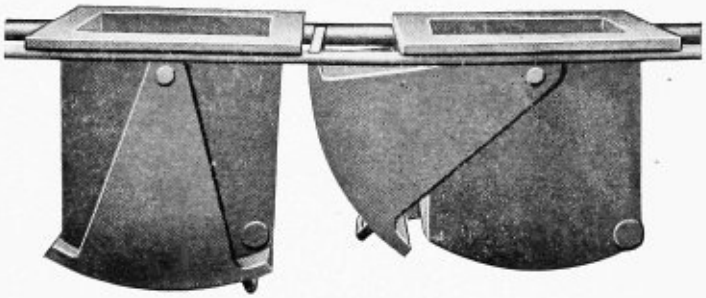


Showing Gear Case.

Screens — Table of Dimensions, Weights, Etc.

DIAMETER	LENGTH	SIZE OF SHAFT	GAUGE OF PLATE	TYPE OF SCREEN	WEIGHT	NUMBER OF SECTIONS
30 inches	6 feet	$1\frac{15}{16}$ inches	$\frac{3}{16}$ inch	Shaft	750	1 or 2
30 inches	7 feet	$2\frac{3}{16}$ inches	$\frac{3}{16}$ inch	Shaft	846	2
30 inches	9 feet	$2\frac{3}{16}$ inches	$\frac{3}{16}$ inch	Shaft	976	2 or 3
30 icnhes	12 feet	$2\frac{3}{16}$ inches	$\frac{3}{16}$ inch	Shaft	1172	3 or 4
30 inches	15 feet	$2\frac{7}{16}$ ins. if used	$\frac{3}{16}$ inch	Shaft or Roller	1467	3, 4 or 5
36 inches	9 feet	$2\frac{7}{16}$ ins. if used	$\frac{1}{4}$ inch	Shaft	1020	2 or 3
36 inches	12 feet	$2\frac{7}{16}$ ins. if used	$\frac{1}{4}$ inch	Shaft	1359	3 or 4
36 inches	15 feet	$2\frac{7}{16}$ ins. if used	$\frac{1}{4}$ inch	Shaft or Roller	2100	3, 4 or 5
42 inches	12 to 20 feet	$3\frac{13}{16}$ ins. if used	$\frac{3}{8}$ inch	Shaft or Roller	.....	3, 4 or 5
42 inches	12 feet	.....	$\frac{3}{8}$ inch	Roller	7788	3 sections Old style cast head
48 niches						
60 inches	.....	.....	$\frac{1}{2}$ inch	Roller	.....	.....
72 inches						
84 inches	.....	.....	.....	.....	.....	.....

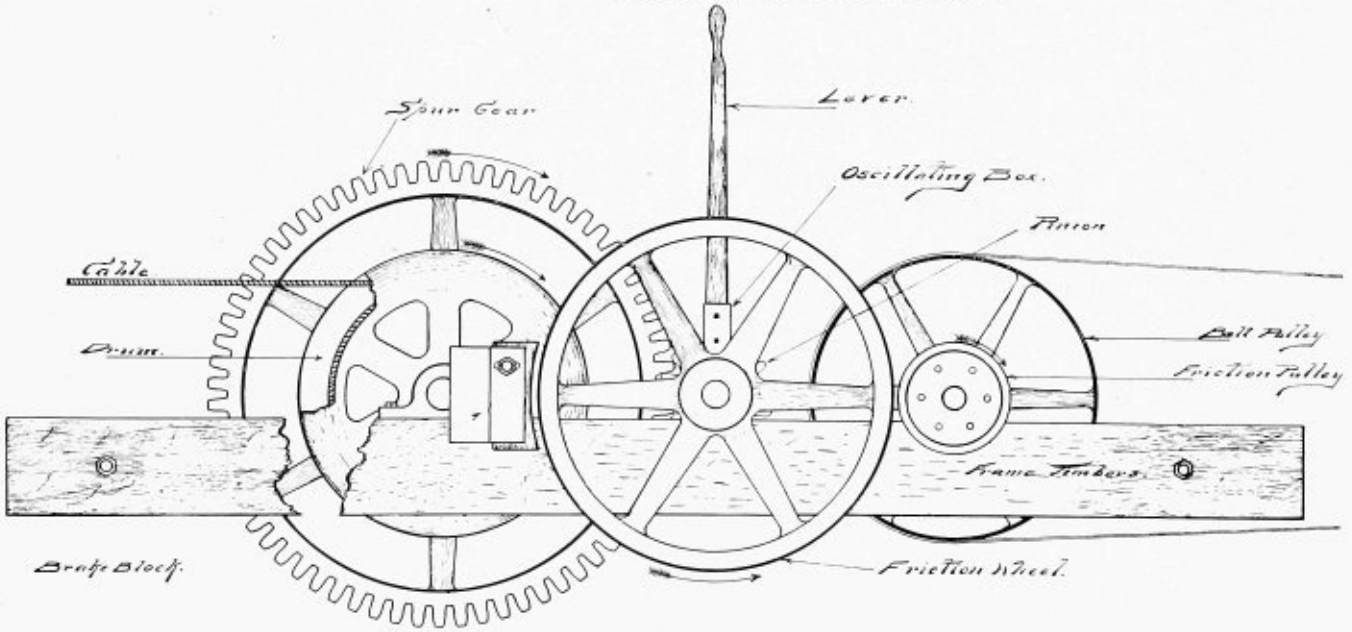
Information as to screens 48 inches to 84 inches will be furnished from office.



Patent Bottom Discharge Gates

The above cut illustrates our New Patent Bottom Discharge Gate, which is designed for drawing stone from the bottom of the Storage Bin. Cars or wagons are thus loaded with ease and rapidity. These gates are of heavy cast iron, simple in construction, easy to operate and cannot clog. Side discharge gates with loading chutes of similar design, are also furnished. Made in three sizes, 12 inches x 12 inches, 18 inches x 18 inches, and 24 inches x 24 inches.

Belt Hoist for Stationary Crushing Plants



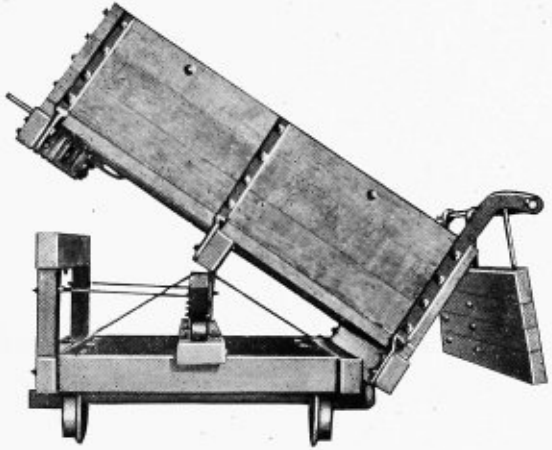
This Belt Hoist is especially adapted for use in stationary crushing plants, furnishing a quick and efficient means of delivery of stone to crusher, with the use of side or rear dump cars. It consists of a flanged drum driven by gear and pinion to which motion is imparted by means of a friction wheel and driver, the whole driven

by belt. The bearing for friction wheel shaft is of the oscillating type, permitting of the wheel being thrown against the friction pulley when hoisting, or reversed against the brake block when paying out cable. The whole is compactly mounted on heavy timbers and is built for heavy service. The speed ratio may be changed to permit of any reasonable rate of travel to cable.

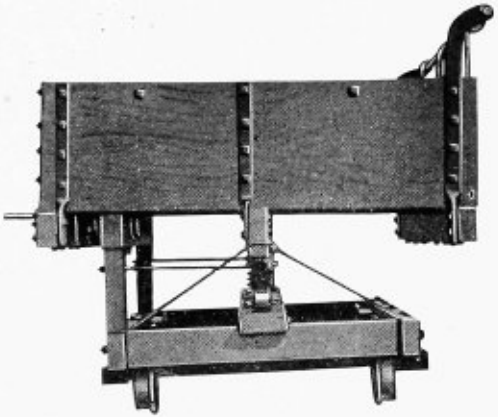
Table, Dimensions, Acme Belt Hoist

Drum, Diameter	18 inches	Friction Wheel, Diameter	9 inches
" Length	18 "	" " Length	9 "
Gear, Diameter	38 "	" Pulley, Diameter	26 "
" Face	4 "	" " Face	9 "
Pinion, Diameter	10 "	Weight of Hoist Complete	2100 pounds
" Face	4½ "		

OIL.—Good oil is indispensable in the operation of machinery. We can furnish that especially suited to the machinery we sell at reasonable prices. No charge for barrels. Half barrels and 10 gallon cans $1.00. Five gallon cans 75 cents.



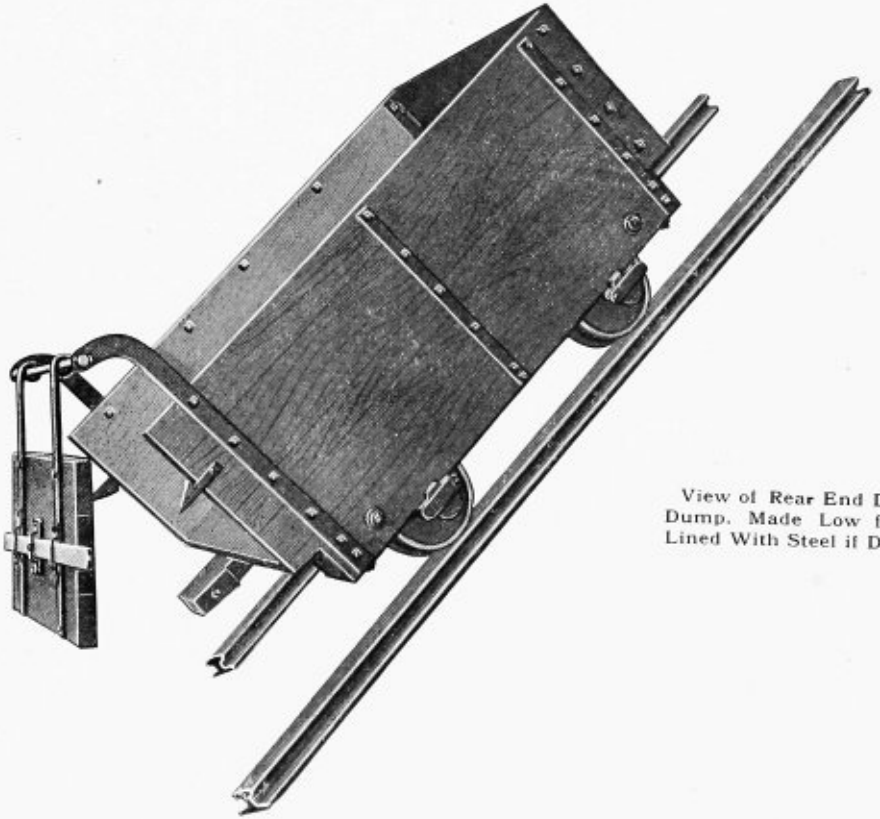
Acme Side Dump Cars. Capacity 1½ and 2 Yards. Build in the Most Substantial Manner.



Guage of Track Between 24 and 40 Inches to Suit Customer.

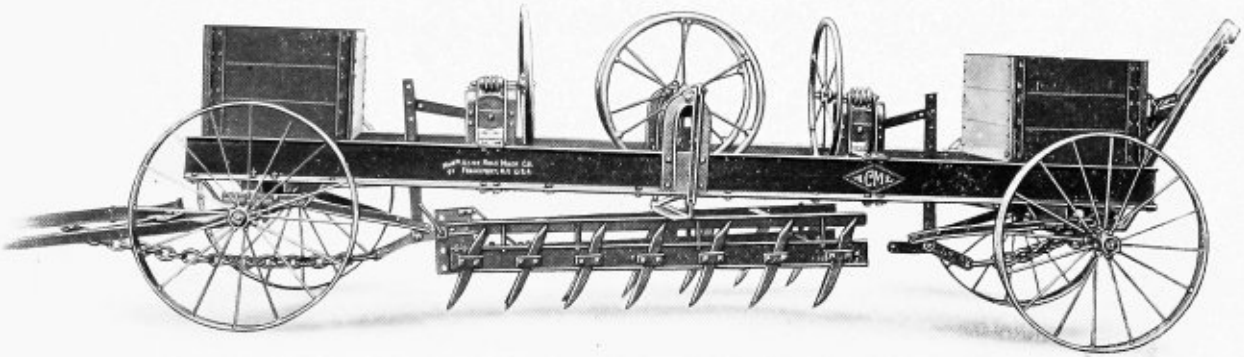
Acme Rear or Side Dumping Cars, 18 in. to 36 in. Guage

Size of Axle	2¼ inches	Length	6 feet
Height from Ground	30 "	Diameter of Wheels	12 inches
Width	4 feet		



View of Rear End Dump Car on the Dump. Made Low for Quarry Use. Lined With Steel if Desired.

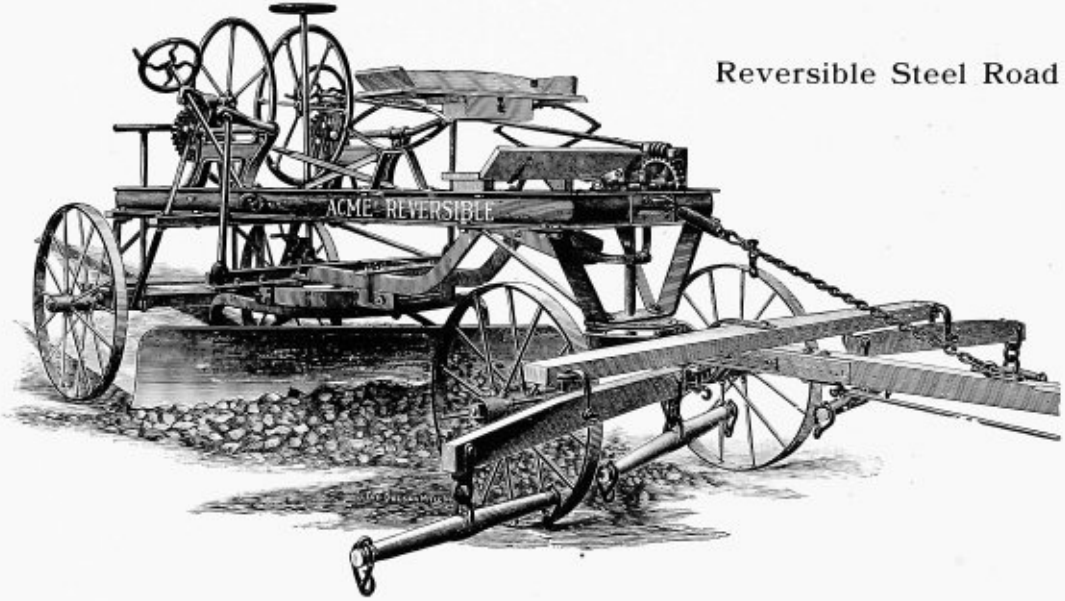
New Scarifier



This machine is the greatest money saver in the whole Acme line if properly used under proper conditions. For tearing up hard surfaces or macadam where pick axes are usually used, it will accomplish more than 100 men. It is absolutely under the control of the operator, is reversible, and is arranged for either steam or horse power. The teeth are made of tool steel double pointed. The machine is practically unbreakable. Weight 2900 lbs.

Number of Teeth, 13 ; Size of Teeth, 1 in. thick, 2 in. wide, 20 in. long ; Length of Teeth below frame, 9 in. ; Width of cut i. e. extreme width of the cutting frame, 4 ft. 8 in.; Width of tire, 4 in.; Diameter of wheels, 42 in. ; Length, axle to axle, 13 ft. 8½ in.

Reversible Steel Road Machine



Ever since the introduction of the 4 wheeled Road Machine or Grader, men have been striving for better things along this line. The first machines were veritable horse killers, clumsy of construction, heavy of draft and hard to operate. Most of these old monstrosities have passed away, but in some localities we still find men will-

ing to kill their horses and use themselves up by clinging to some antiquated combination of wood and metal, perhaps new so far as the age of the material used in its construction is concerned, but years behind the times in every device tending to ease of manipulation, lightness of draft and superior working qualities.

Twenty years experience in the Road Machinery business has taught us to know just what a perfect road grader should be, and in presenting to the public our new Acme Steel Reversible Road Machine we have no hesitation in saying that it is the best machine on the market. It is heavy enough for all practical purposes, yet strong enough to withstand the hardest usage on stony, clay or stumpy soil.

Our device for raising and lowering of the blade is simple yet effective, being a system of worm gears easy to operate. When the blade is placed in position for work it cannot be changed except at the will of the operator.

The side adjustment of our blade is a similar Worm Gear Movement, within easy reach of the operator who can, at will, move the blade to right or left while the machine is at work. To this feature we call special attention: it is not found on other machines.

Our EXTENSIBLE AXLE, for uneven roads, as well as delivering the furrow inside of wheels, is a valuable feature. The Axles act independently of each other, can be extended on either or both sides of the machine. This adjustment can be made by the operator while on the machine. The axles being enclosed in a malleable box, prevent dirt from accumulating in the cog rack, thereby saving annoyance to "operator."

The device used for Locking and Unlocking the Scraper is simple; the mere push of the toe will either lock or unlock, as the operator desires.

The Mould-Board and cutting edges used are of a high grade steel, tempered and polished especially for the work, which adapts them for working on hard roads, or in clay or gumbo soils.

One of the new features of our machine is "the vertical adjustment of the front end of the Draw Bars." By raising or lowering the front end of the Draw Bars, the Curvature of the Mould-Board can be changed to suit the conditions of the soil.

Our Steel Wheels are the best, having removable boxing. We can furnish Wooden Wheels, if desired. Our machines having been tested in all kinds of soil, have always proven satisfactory.

We claim our Steel Reversible Road Machine is the Best Road Machine on Earth for the following reasons:

1st. Because it is the simplest machine made.

2nd. Because the Draft is direct.

3rd. Because it is the easiest machine to operate.

4th. Because we use a system of worm gears, thus doing away with foot treadles, which are annoying and dangerous.

5th. Because our Mould-Boards cut smooth and evenly where others fail.

6th. Because the compression spring in forward end of Draw Bars relieves all sudden jars and protects the teams.

7th. Because the Axles can be extended on either side of the machine quickly.

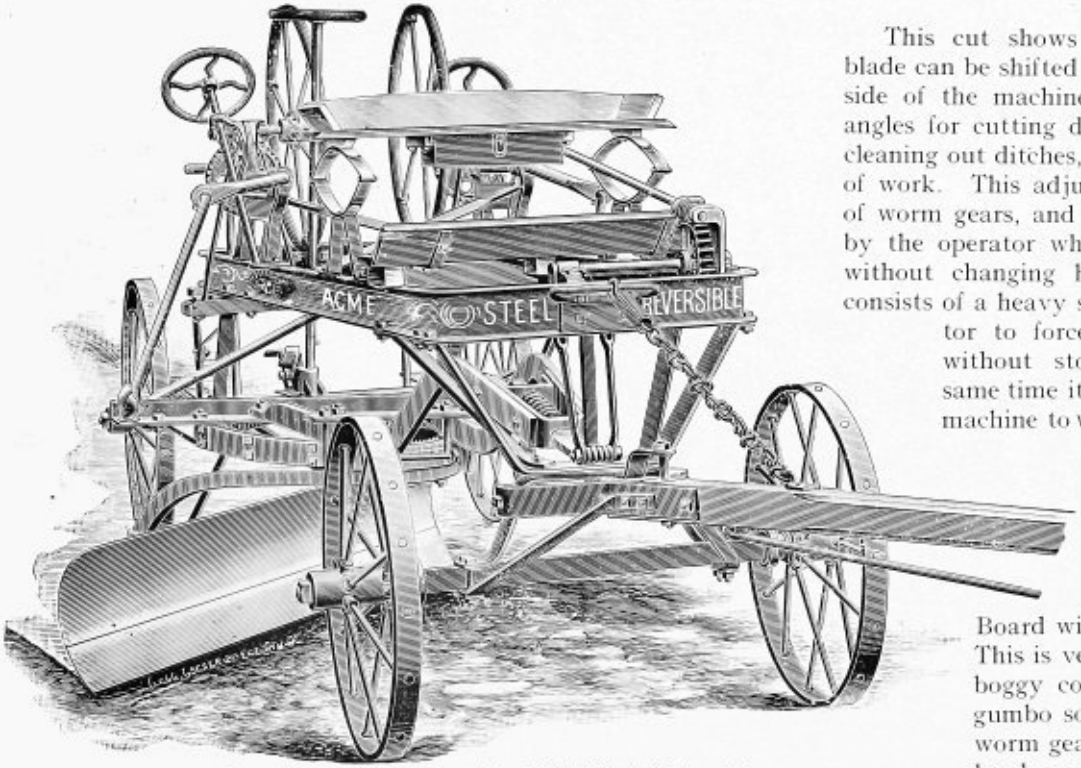
8th. Because we can change the Curvature of the Mould-Board when the machine is at work.

9th. Because the Circle is simple and so constructed that the Mould-Board can be reversed easily.

10th. Because it excels all other machines for Plowing and making Ditches.

11th. Because we use nothing but the best Iron, Steel and Malleables.

12th. That our machine will talk for itself if given an opportunity.

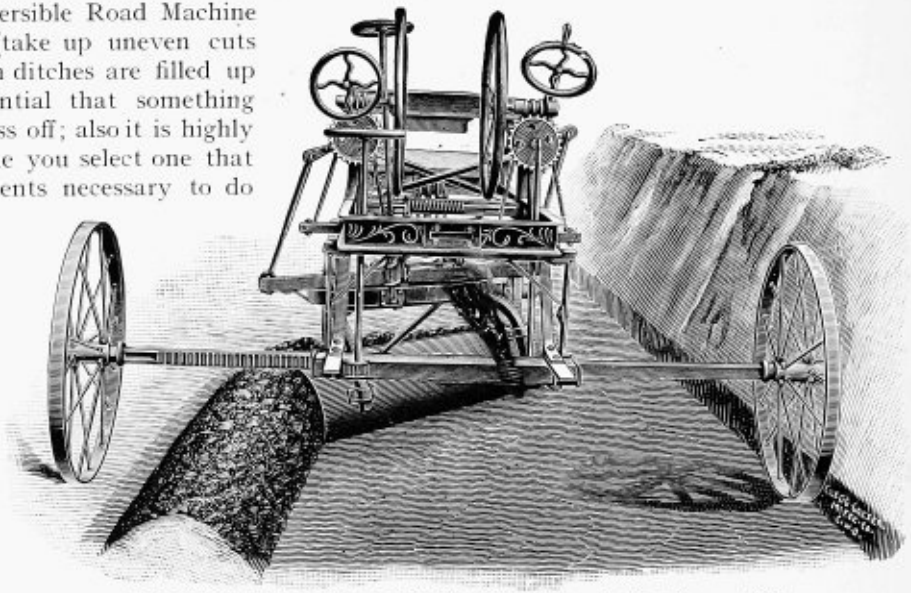


Front View of the Reversible, With Blade Extended

This cut shows the manner in which the blade can be shifted outside the wheels (on either side of the machine) and still retain its acute angles for cutting down banks, widening roads, cleaning out ditches, and a variety of other kinds of work. This adjustment consists of a system of worm gears, and can be quickly manipulated by the operator while the machine is at work, without changing his position. The stay rod consists of a heavy steel bar, enabling the operator to force the blade into the bank without stopping his machine, at the same time it being rigid, thus enabling the machine to work smoothly while if chains were used it would not be so. Our vertical adjustment of the front end of the draw bar enables the operator to change the curvature of the Mould-Board without stopping the machine. This is very essential, especially where boggy conditions exist, or in clay or gumbo soils. It is also a system of worm gears, and when once set, cannot be changed, except at will of operator.

The operator on an Acme Steel Reversible Road Machine can force the machine into a bank, or take up uneven cuts without moving out of position. When ditches are filled up and road centers low, it is highly essential that something should be done to allow the water to pass off; also it is highly essential that in buying a Road Machine you select one that has all the improvements and adjustments necessary to do this special work. You will find all of these features embodied in our Steel Reversible Machine. Drainage is the key-note to success in the construction of roads. Your road will never be a success unless it is properly drained.

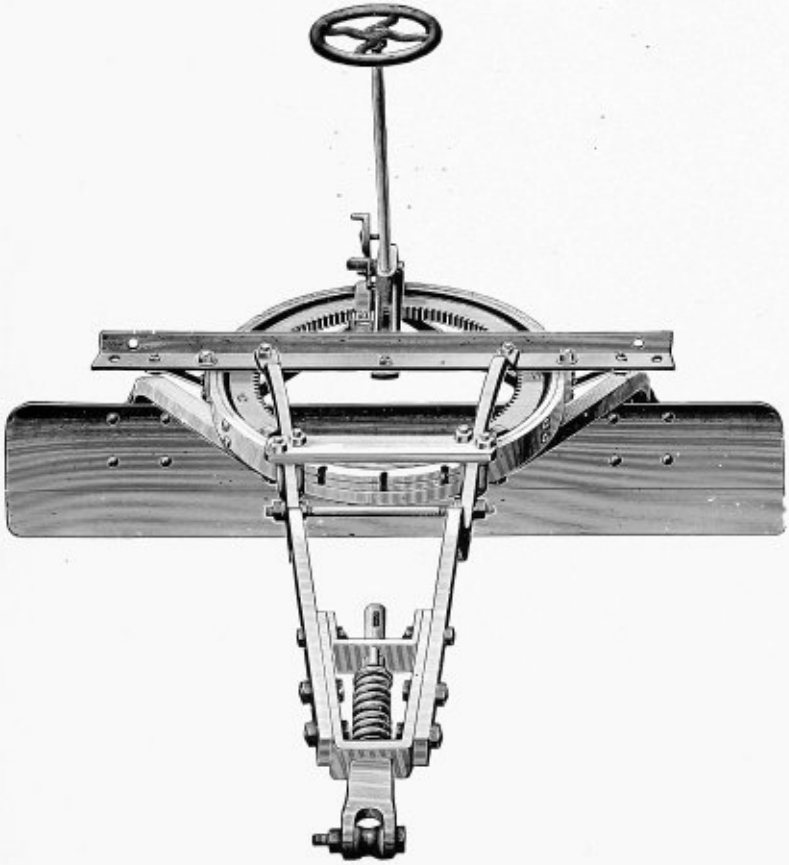
This illustration shows the Steel Reversible Road Machine taking a second cut from a ditch, moving it into the center of the road, with both axles extended, allowing the machine to run over a perfectly smooth surface. It may also be practicable to drift the loose earth to the center of the road and roll it down with a road roller This can be done without a road roller by the use of the Steel Reversible Road Machine, by simply reversing the blade.



Rear View of Steel Reversible Road Machine, Making Second Cut

We pride ourselves on a machine which, having more adjustments than any of our competitors' machines, is less complicated than any of them.

Machines shipped on trial orders, so you have an opportunity to thoroughly test the machine before making settlement. We shall be glad at any time to answer any and all questions you may ask us.



Improved Draw-bar Coupling

View of "Reversible Ring," with full cog circle which permits the Mould-Board to be completely reversed, should occasion require, for the pulverizing of large lumps of earth that are thrown up to the center.

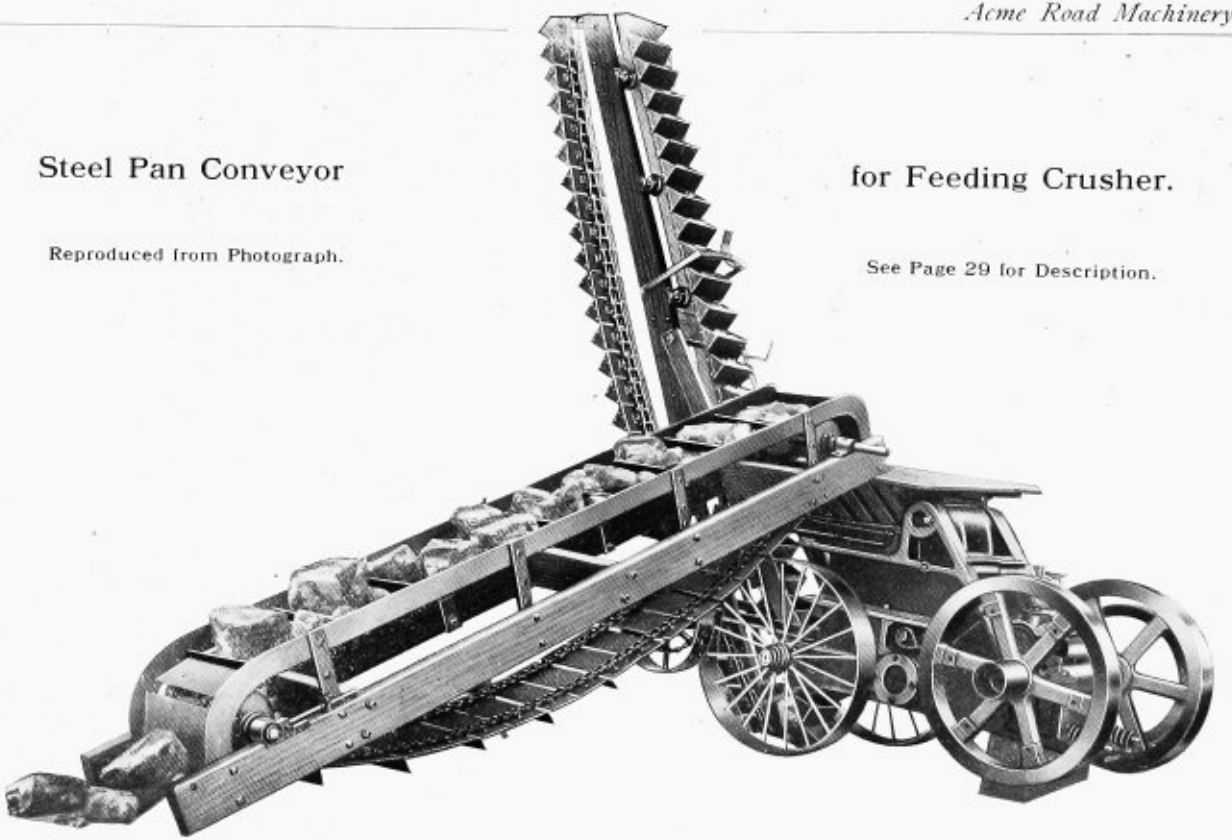
It also illustrates the Compression Spring, which acts independently of other parts of the machine.

The **Improved Compressed Spring** in the forward end of the draw bar, which takes the sudden jar off of the machine and the shoulders of the teams should the machine strike a fast stone or stump. Another feature is the spring for supporting the tongue, taking the weight off of the horses' necks whether the machine is at work or standing still. We also use a swivel draw-bar coupling; it is so constructed that no difference what position the Mould-Board is in, the draft is directly centered. We are the only company using this connection, and it has become quite popular with users of Road Graders.

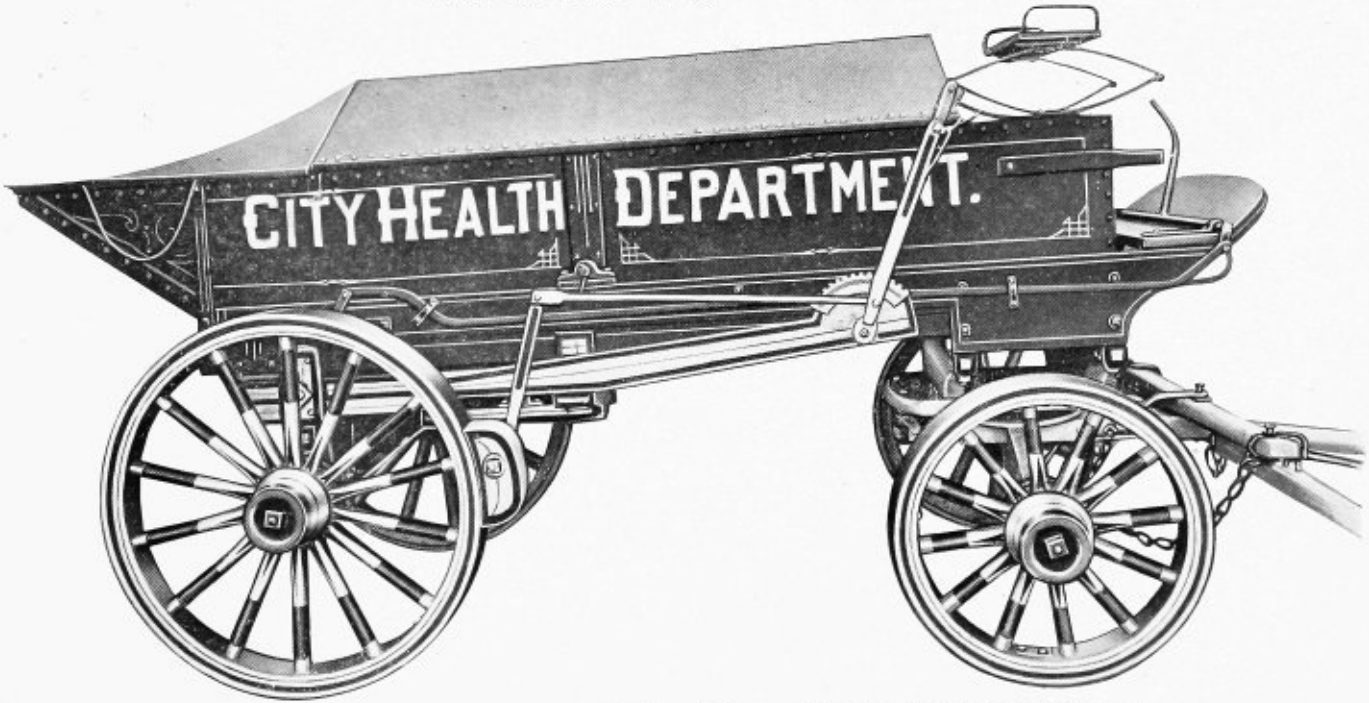
Steel Pan Conveyor for Feeding Crusher.

Reproduced from Photograph.

See Page 29 for Description.

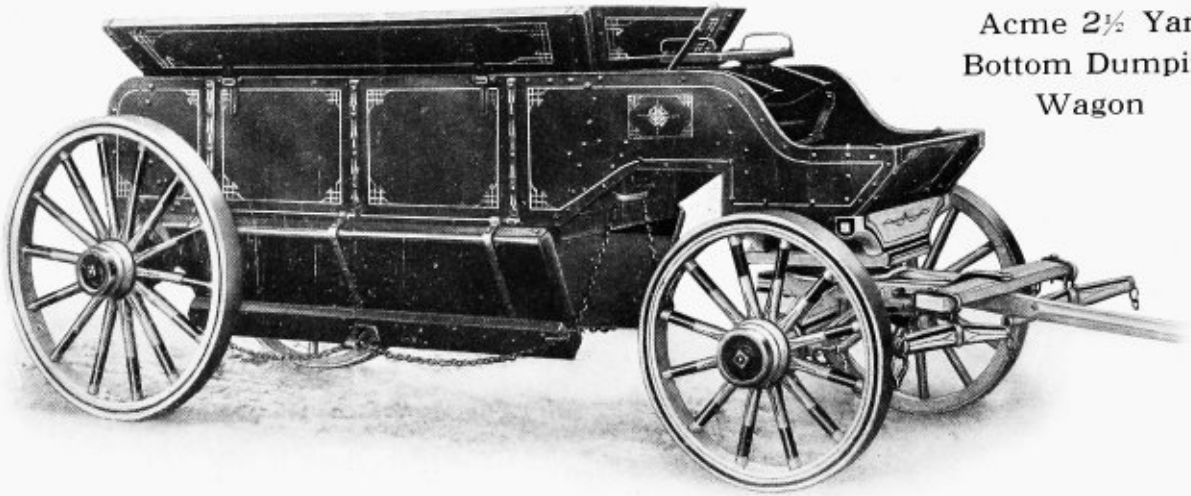


Wet Garbage Wagons in all Sizes.



Send for Catalogue describing our full line of Wagons for Contractors and Municipalities.

Acme 2½ Yard Bottom Dumping Wagon

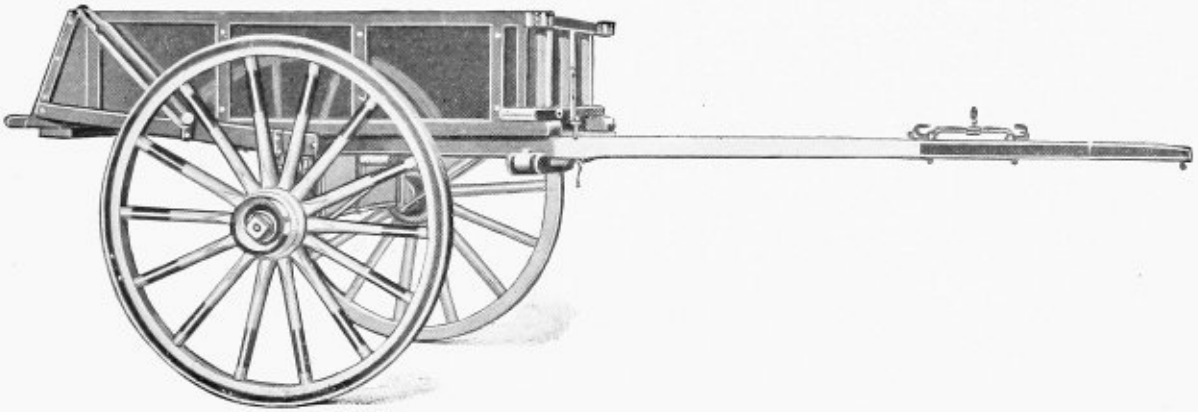


Main body holds - - 1½ yds.	Size of hubs, - - - 10 x 12 in.	Width of tire, 3 or 4 in. as ordered
Flaring top box holds - - 1 yd.	Size of spokes - - - - 3 in.	Diameter of front wheel - - 36 in.
Goose necks reinforced with steel.	Depth of rims - - - - 2 in.	Diameter of rear wheel, - 48 in.
Size of front axle - - - 2¼ in.	Width of rims, 3 or 4 in. as ordered	Weight - - - - 2000 pounds
Size of rear axle - - - 2¼ in.	Thickness of round edged steel tire, ½ in.	Warranted to carry seven tons.
Length of arm - - - - 10 in.	or heavier if ordered.	Carried in stock.

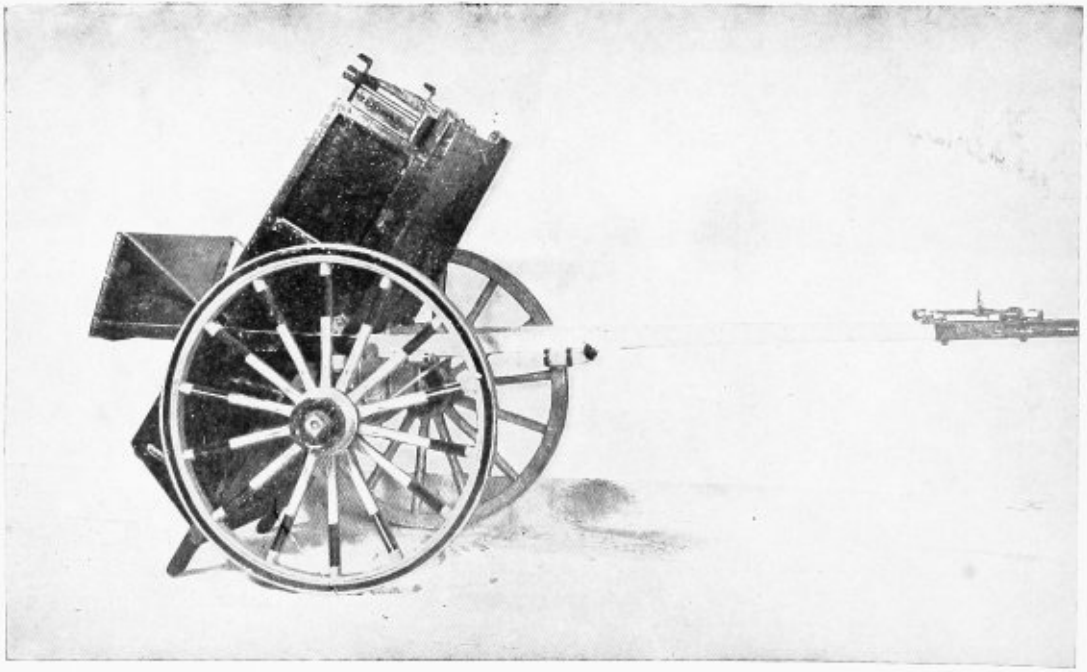
Main body, 1½ inches seasoned oak, held together by angle irons in corner. Reinforced by three half-inch rods at each end. Made with chain under or around box, as ordered. Can be finished as Asphalt wagon, with, or without springs.

Send for Special Wagon Catalogue describing our full line of Contractors' and Municipal Wagons.

Contractors' Dumping Cart



These carts are built to carry 22 cubic feet with an automatic end board. The bodies are built of Ash, Oak and Maple with four foot wheels. The axles are 2¼ x 2¼, hubs are 9 x 12 birch, spokes 2½ Oak second growth, rims 2 x 3 Oak, tires ½ x 3 round edge steel. These carts are built of the best material and are up-to-date in every respect. Their automatic end board, will save cost over other carts in six months' usage, as it saves two trips to the rear end of the cart for driver each time he dumps a load, and that means so much saved to the owner in time and money. Carried in stock. 4-inch tires can be furnished if desired.



Illustrates Automatic End Board.

Acme Steam Train Car or Wagon

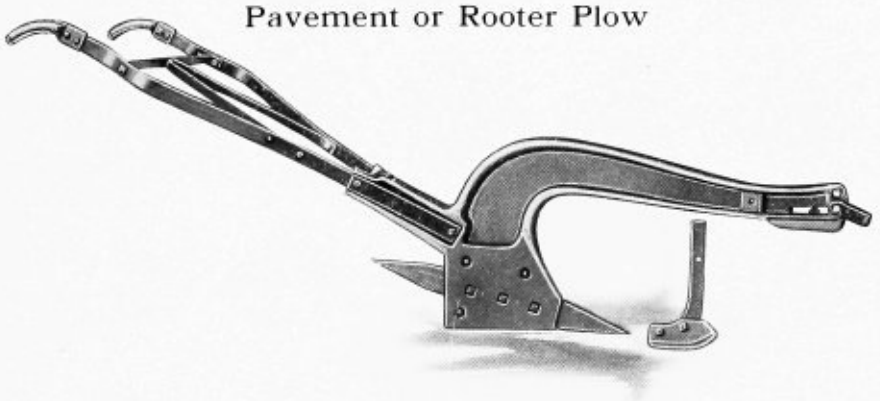
Acme Steam Train Car or Wagon

This car differs from all others built, for it has a stearing device so arranged that it may be drawn or backed in either direction. A man on the car farthest from the engine manages the whole train, pushing or pulling. In going around corners, the front wheels of any car will follow in the track of any car preceding it, and vice versa. The whole load may be dumped in one place or spread evenly, as the operator may desire.

Frames are made of 3 x 4 oak framed together and diagonal braces at the side form a truss for the side of the body. Inside of this frame is a plate of steel full length and depth of the body. Axles are of $3\frac{1}{2}$" steel bedded in 6 x 8 timbers. Wheels are of metal 48" high, with 8" tires, $\frac{3}{4}$" thick, and a $\frac{7}{8}$" removable spoke. Front wheels cut under.

The body is 12' long, slopes from each end of the center, and in the center of the bottom are two doors, opened and closed by means of a chain winding around a 3" pipe. It is the only car so equipped that a train composed of two or more *can be backed in a straight line or around a curve* by the hauling engine, thus saving the time and trouble of turning the train around. Weight of car with spreader, about 6,000 lbs. Capacity even full, 5 cubic yards. Rounded up, 6 cubic yards.

Pavement or Rooter Plow



Size, Four or Six Horse

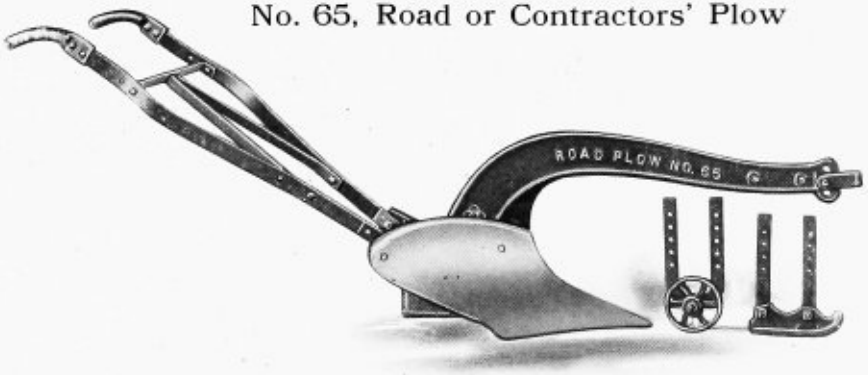
This plow is built for the heavy work of tearing up cobblestone and macadam pavements and is strengthened in accordance with the labor it is called upon to perform.

Its strong, heavy beam is made of the best charcoal iron, protected by a detachable shoe casting that can be easily replaced.

Its 32 inch point is one inch thick, made of forged steel, is reversible and can be forged or drawn by any blacksmith. Its handles are of steel, strongly braced, and give it a great advantage over the old-fashioned wooden handles that are so easily broken.

The shoe shown in the cut is not sent with the plow, but must be ordered extra.

No. 65, Road or Contractors' Plow

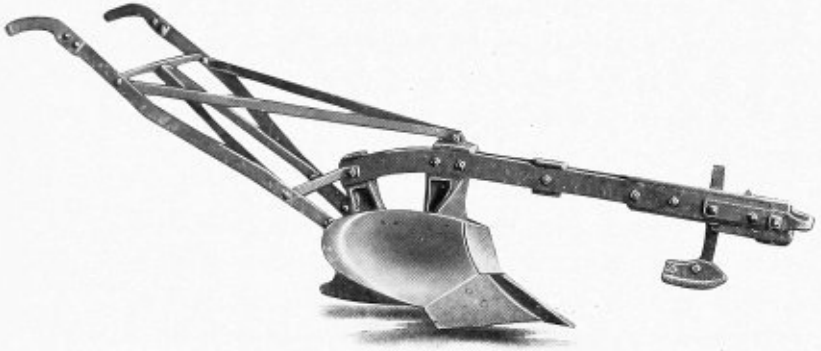


Right Hand

This plow is built especially for contractors' work in grading, excavating, deep ditching or leveling on any difficult place where great strength of material is necessary. The point and Mould-Board are especially designed for digging and loosening hard or rocky soils. The Beam is of extra heavy charcoal iron. The Handles are either made of steel as shown in the illustration, or wood, braced and strengthened by steel plates protected by loops or rub-irons. Points are made from the best charcoal iron, of Cast Steel or of Forged Crucible Steel that can be forged or drawn by a blacksmith. An extra cast point and wrench are furnished with each plow. In ordering state kind of point desired. Weight with clevis, 200 pounds.

Should a still heavier plow be desired, we recommend our No. 66, which is built on the same lines as No. 65, but made with extra heavy construction and reinforcements throughout and is intended for heavy contractors when great strength is necessary, and four or more horses are used. Weight No. 66, 250 lbs.

No. 68 (All Steel) Contractors' Plow



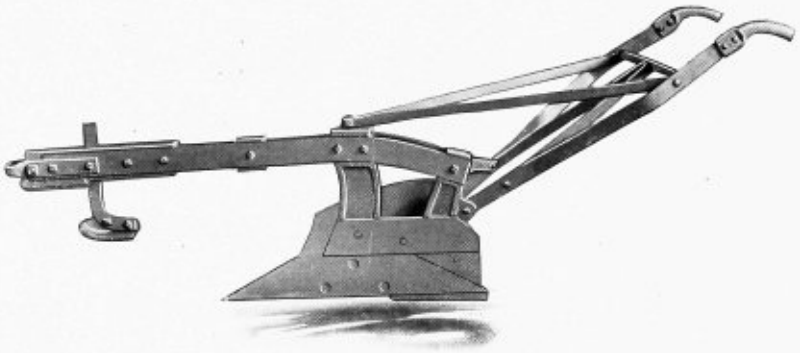
Weight, With Clevis, 325 Pounds

This Plow has been built to meet the demands of Contractors and Road Builders, where great strength and capacity is necessary, and we are satisfied it will meet the requirements and please the user. It can be used with four or more horses, or steam power, if required.

Made of Cast Steel, very heavy. The beam is of two-piece, trussed steel, well braced. Mold board, Solid Steel, extra heavy. All Steel Handles, strongly braced to beam, standard and mould board. Clevis is of Solid Steel, very strong. Shin piece extra heavy, easy to replace. Wing is of Forged Steel.

Point—A solid bar of Forged Steel, 1¼ inches thick, made so it can be reversed end for end, thus giving double wear, and it can be forged or drawn by a blacksmith. (See Landside View of Plow on next page.)

No. 68 (All Steel) Contractors' Plow

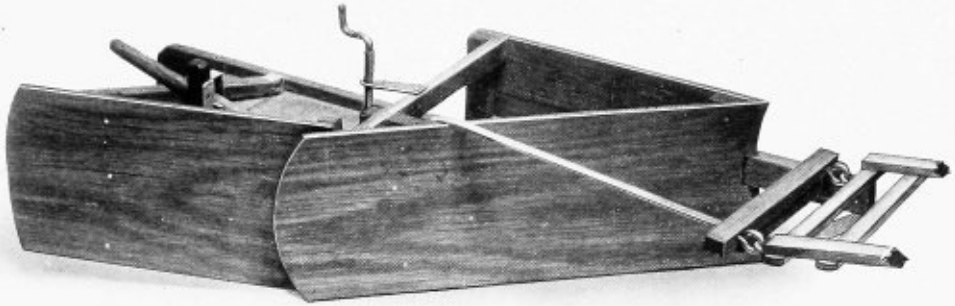


Landside View

The Beam has a shoe or buffer attached under the front end which can be replaced when worn at a slight expense. On other makes of plows, which do not have this attachment, *the beam* soon becomes worn at this point, and has to be replaced with a new one.

The Shoe, which is attached by the two steel uprights to the beam, as shown in cut, is not sent with plows unless ordered.

THE LATEST THING IN SNOW PLOWS



The Best Sidewalk Plow on the Market

By means of an adjustable wing it is adapted to both wide and narrow walks. Wing can be quickly thrown in or out in passing trees without stopping horse. So arranged that it can be raised to pass over rough walks or curbstones, or in turning. Wing side can be raised independent of land side, making it a good gutter plow. Two of these plows used together, one right, the other left hand make a complete job in breaking out streets. An improved ratchet used on this year's plow greatly improves its working. These plows are in use all over the country.

Width of regular size, wing closed 3 ft. 3 inches.
Width with wing thrown out 5 ft. 3 inches.

Can be built any width ordered.
Price, Regular Size, $60.00.

Contractors' Solid Pressed Steel Tray Barrows

For Handling Earth, Sand, Brick and Mortar. Also, Levee and Canal Work

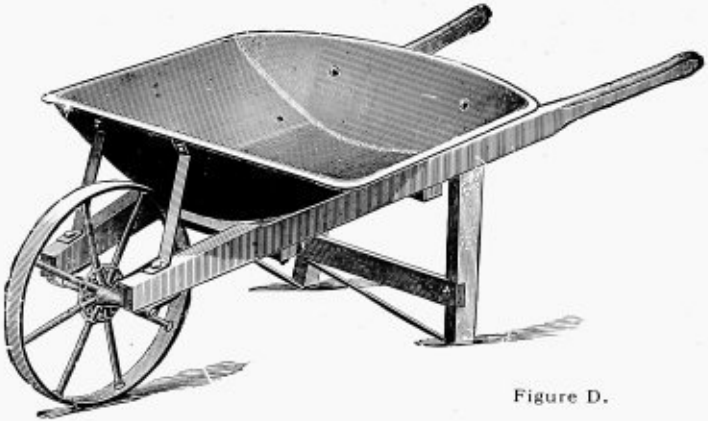


Figure D.

Tray is pressed steel 15 guage and mounted on wood frame with iron wheel. Frame is of selected lumber and well painted. Wheel is 17″ in diameter with eight $\frac{7}{16}$ in. bolts. shouldered and riveted, Tire, $1\frac{1}{2}$ x $\frac{3}{8}$ in. Axle, $\frac{9}{16}$ in. and runs in an iron bearing.

The tray is smooth, never splits, as wooden trays do thus avoiding breaks and delays at busy times.

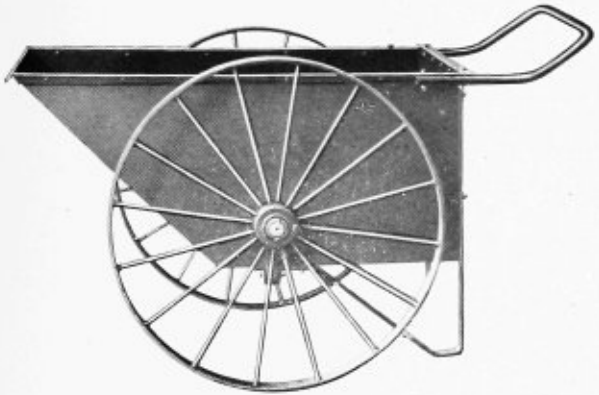
This barrow is well braced throughout.

The brace on the leg extends around the bottom, or base, and prevents splitting. A trial of this barrow is self-convincing of its worth. Made in one size and guage only. Weight, 50 lbs.

No. 9 "Ajax" Concrete Barrow

The most successfiul wet concrete barrow on the market. Wheels to its destination 3 cubic ft. sloppy concrete without losing a drop. Combination tubular and channel steel frame. 16 gauge steel tray. Roller bearing wheel. Weight 75 lbs.

All types and styles of wheel-barrows kept in stock.

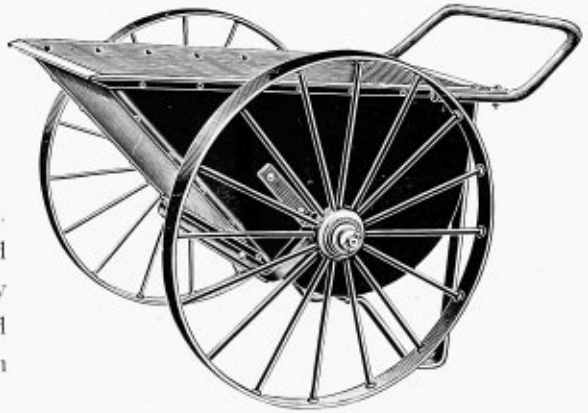


No. 3 Concrete Cart

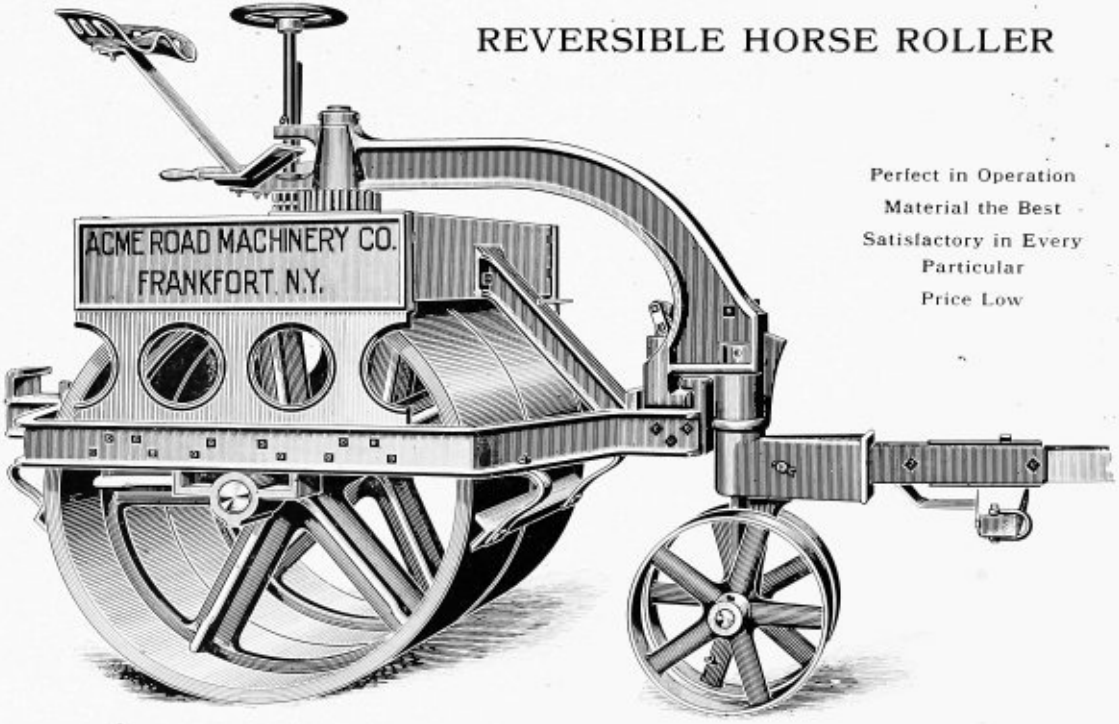
Capacity 6 cubic ft. thin, sloppy concrete. 7 cubic feet. dry material. Weight 200 lbs. Tray 14 guage steel, reinforced with angle iron entirely around top edge, forged corners. Heavy steel legs. Patent roller bearing wheels. 16½ in. staggered spokes in tension. 2 in tires, 30 in. diameter. Wrought iron hubs. 1¼ in. bent axles.

No. 1 Concrete Cart

Capacity 6½ cubic ft. thin sloppy concrete. 7½ cubic ft. dry material. Weight 200 lbs. Tray 14 gauge steel reinforced with angle iron entirely around top edge, forged corners. Heavy steel legs. Patent roller bearings wheels. 16½ in. staggered spokes in tension. 2 in. tires 30 in. diameter. Wrought iron hubs. 1¼ in. bent axles.



REVERSIBLE HORSE ROLLER



Perfect in Operation
Material the Best
Satisfactory in Every Particular
Price Low

The cut on page 74 shows our new Reversible Street Roller, which has all the advantages of other rollers, and many improvements not found in any other.

The front end of the frame is carried by a two-wheeled truck to which the tongue is attached. This makes it run steadily, prevents jarring of the team and side-switching of the tongue, avoids weight on the horse's neck when striking any obstructions, and gives the team perfect control to guide and turn the roller.

The main roll shaft is stationary on the steel frame, and the rolls in two sections, loose on the shaft, turn independently of each other. This allows the roller to move very easily when going around a curve or turning into a side street, whereas a roller that has the rolls stationary on the shaft, and bearings on the outside frame is stiff, and one side of the roll will have to slip, which will cause much friction and be difficult for horses to turn.

Another advantage we claim for our Roller, having both rolls loose on the shaft, is that it can be used as a non-reversible, if so desired, thus allowing the roller to move just the width of the lap in turning.

The roller is so constructed that the tongue and front truck permit of being turned at full right angles to main roll, and the team to walk right by the roller, thus turning very easily and quickly in a small space.

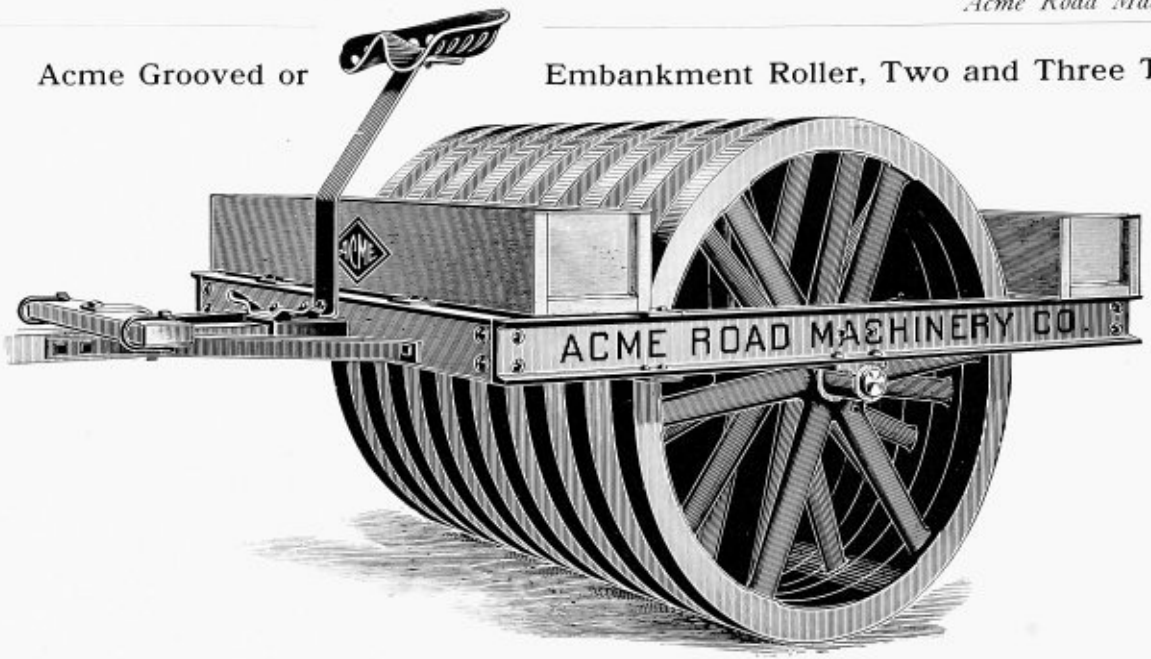
The brake is effective and operated with a hand wheel within easy reach of the driver.

The main frame is made of steel channels, and projects but three inches on the side of main rolls, thus permitting roller to work close to wire, pole, trees, curbing, etc.

All rollers are provided with weight boxes on top and may be safely loaded 1½ to 2 tons. We also furnish weights of 250 lbs. each, which may be attached between the spokes inside. Twenty-four of these weights can be used if desired, increasing the weight of each size a maximum of three tons.

Built in sizes, 2½, 3, 4, 5 and 6 tons. Dimensions: 3 ton, 54 in.; 4 ton, 56 in.; 5 ton, 58 in.; 6 ton, 60 in. diameter. All 54 inches wide.

Acme Grooved or Embankment Roller, Two and Three Ton

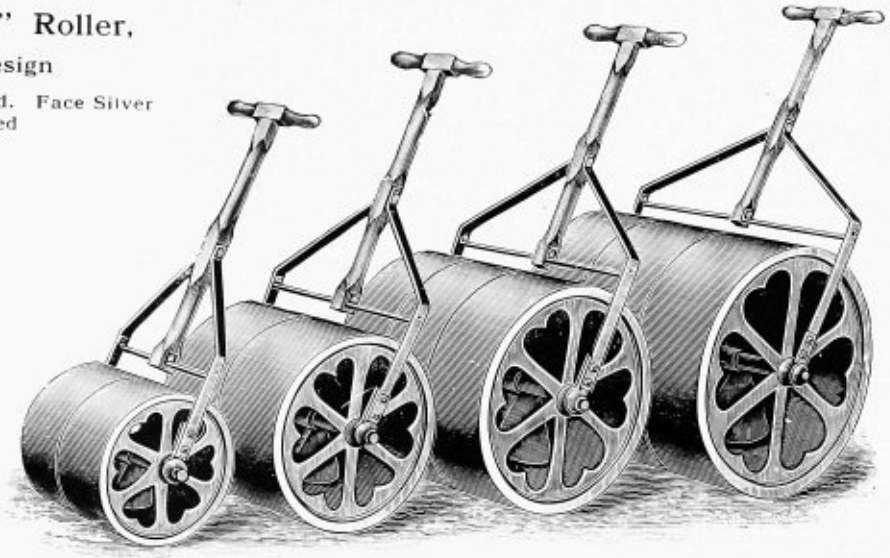


The above illustration shows one of our three-ton Grooved or Embankment Rollers. It is especially adapted for concrete work, puddling, and rolling embankments. The rolls are 37 and 31 inches in diameter, respectively, with 3½ inch face and 3½ inch groove and are independent of one another. The frame is channel steel and suitable weight boxes are provided, front and rear. We make 2 and 3 ton sizes respectively, 52 in. and 66 in. in width. Two ton contains 11 rolls — 3 ton, 15 rolls. Net prices on application.

The "Boss" Roller,

Heart Design

Outer Edges Beveled. Face Silver Finished



Everybody recognizes the necessity of rolling a lawn, especially after the frost has gone out in the spring, leaving the ground in a "heavy," uncertain condition. To overcome these conditions we are offering "The Boss" Lawn Roller, a strictly high grade roller at a moderate cost. Made with steel axles and in weights from 150 to 650 lbs. actual weight. We also manufacture and sell "Boss" Horse Rollers for Lawns, Golf Grounds and Land, in actual weights from 650 to 10,000 lbs.

SNOW ROLLER
MANUFACTURED BY
THE ACME ROAD MACHINERY. Co.
FRANKFORT. N.Y.

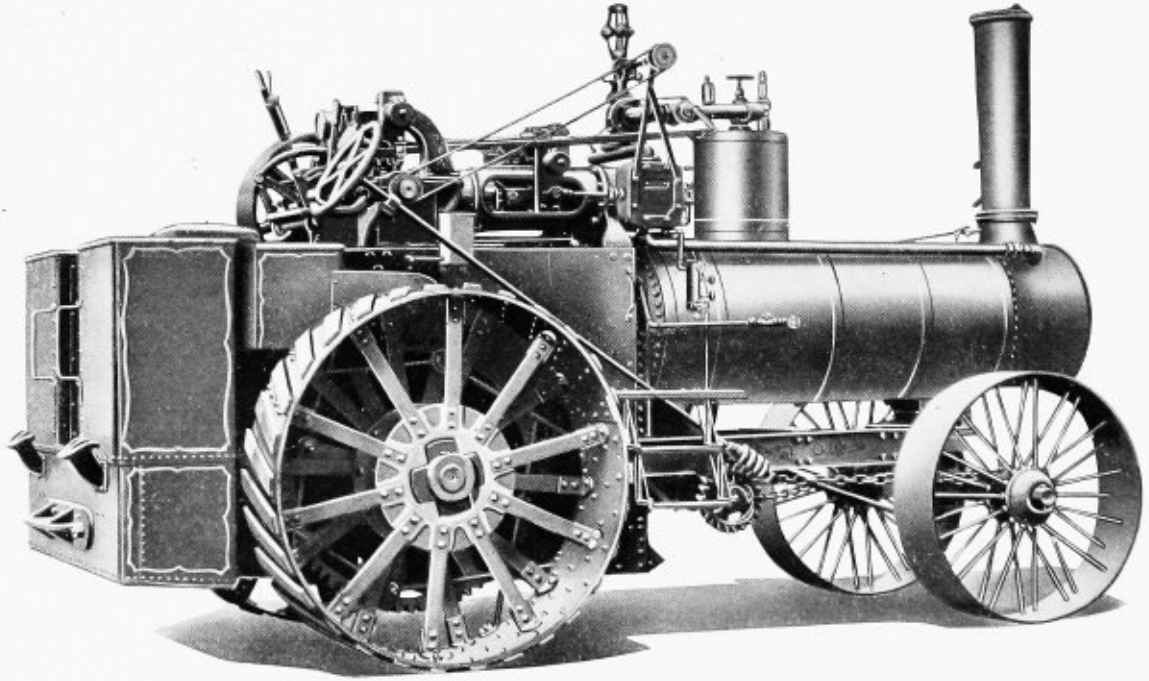
Acme Snow Roller

Designed similarly to the old-fashioned land roller. It has a wooden frame made of 3 x 4 hardwood timbers; there is a header framed in the center of *this* frame to which is attached a pole.

The rollers are 5 ft. in diameter, 5½ ft. long and are spaced 12 inches apart. The rolls should be made of spruce. The heads of the rolls are of hard wood and are bolted to a cast iron ring or flange to which the staves of the head are bolted. Two of these flanges are required to each roll. On the heads are 2 cast iron flanges or hubs through which passes a 3-inch pipe. On the frame work to the roll are fastened 3 U-shaped irons, the center one having two slots in it. The pipe or axle for the roller is made of two pieces, one for each roller, and through this pipe passes a ¾-inch bolt. This pipe works up and down in the U-shaped iron and the end of the bolt passes through the slots in the same. The outer end of the pipes are left loose on the U-shaped iron, thus allowing each shaft or pipe to play up and down independently, so that the rolls will conform to the irregularities of the snow. The roller is provided with a platform and a seat for the driver.

What we propose to furnish or sell is simply the iron work and the blue print for the construction of the roller. Patent applied for on flexible pipe or shaft.

Road Locomotive



Double Cylinder Road Locomotive, Style "L." Operator's side, showing steer-wheel, reverse lever, throttle, etc.

Double Cylinder Road Locomotive, Style "L"

By using a traction engine, provided you get an engine that will stand up and do the work without breakdowns and delays, YOU CAN SAVE 50 PER CENT. ON THE COST OF YOUR HAULING.

The Special Double Cylinder Engine will fulfil all the requirements named above. We ask you to compare this engine with any other made and note the difference.

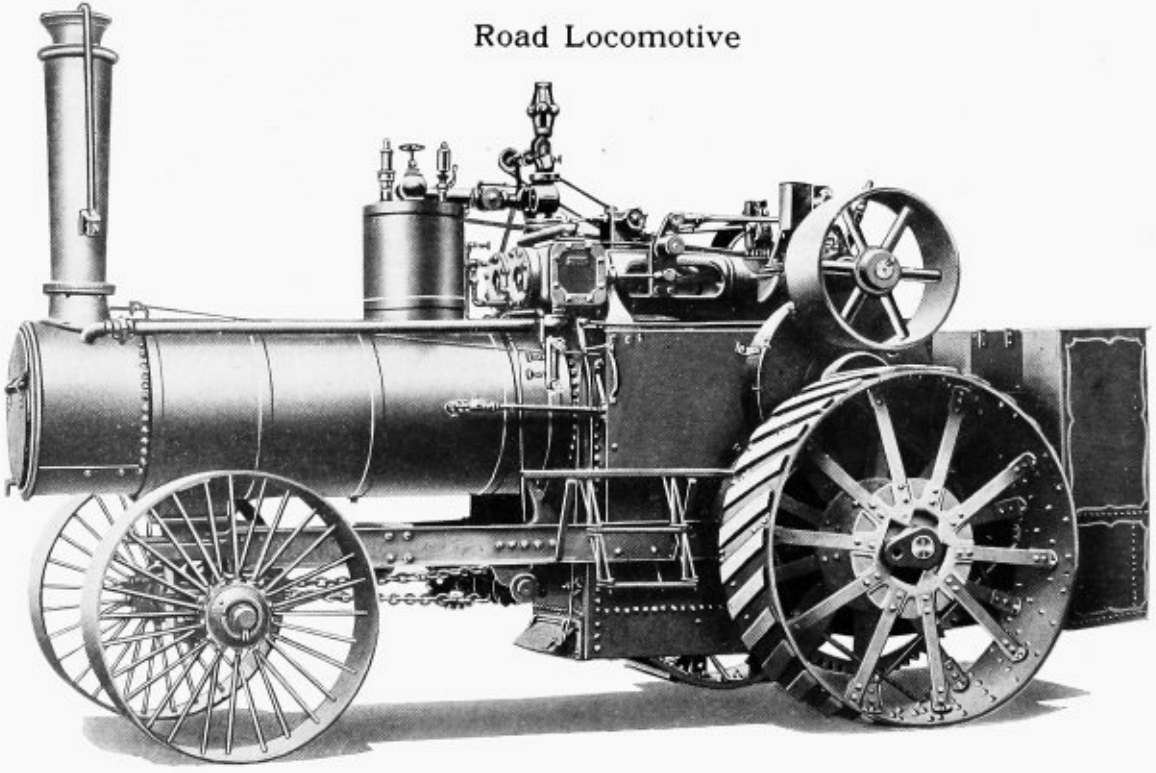
We think you will agree that a STRAIGHT LINE DRIVE, from crank shaft to main axle (doing away with one and two intermediate or idler gears) is a great advantage; that an INDEPENDENT MOUNTED traction engine on heavy steel channels and side plates entirely independent from the boiler is far ahead of a traction where the engine and gearing are all bolted to the boiler, and supported and carried by the same, plus the pulling strain. THIS ENGINE HAS THESE ADVANTAGES.

The GEARING IS ALL STEEL, made from accurate cut gear patterns, smooth-running, durable and quiet.

Two Cylinders 8 x 10. Steam pressure 150 lbs. Engine speed 250 R. P. M. Road speed 2 3–10 miles per hour. Rear Drivers 64″ x 20″. Front wheels 48″ x 14″.

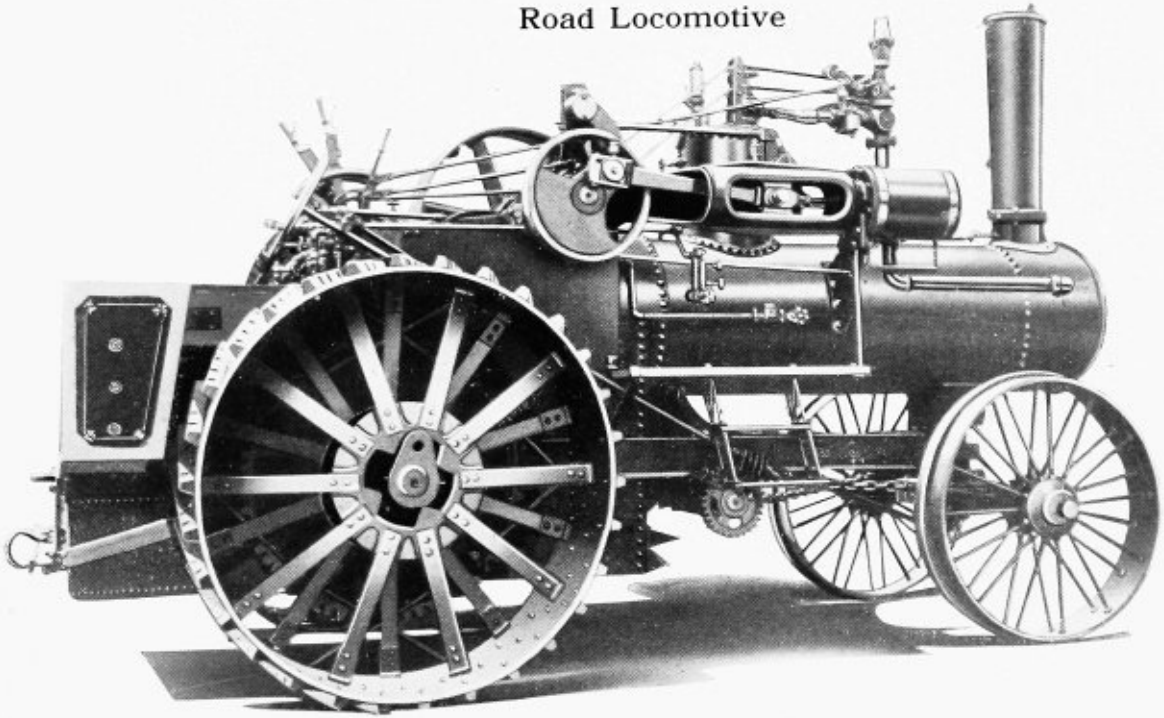
The DOUBLE CYLINDER ROAD ENGINE is not an experiment, but a proven success. ASK ANY USER.

Road Locomotive



Double Cylinder Road Locomotive, Style "L." Fly-wheel side, showing straight line drive.

Road Locomotive



Style "K" Traction Engine. 15 to 20 Horse Power

Style "K" Contractors' Traction Engine, 15 and 20 Horse Power

Our style "K" traction engine has been on the market for about five years. Its efficiency has been thoroughly demonstrated to the trade. It has gained friends in every section where introduced, on account of its splendid pulling qualities and all-around service. For general work, such as threshing, sawing, running rock crushers, etc., the regular style "K" has no equal.

For contractors work, hauling on the road, plowing, or any other heavy duty of that kind, we recommend style "K" contractors engine.

The special equipment on this engine consists of open-hearth steel cast gearing, made from accurate cut gear patterns, quiet, smooth running, and durable. Steel cannon box in one solid piece (no caps on the counter shaft) with brass-bushed bearings, both for the main axle and counter shaft. Special rear hitch, lower than the regular hitch, with three hitching connections.

For strictly hauling propositions we recommend the double cylinder road engine on account of its superior handling qualities. This single cylinder contractors' engine, however, will stand heavy work just as well, and in proportion is just as good a puller as the double cylinder. Specifications given in table below.

Principal Dimensions, Style "K" Traction Engines

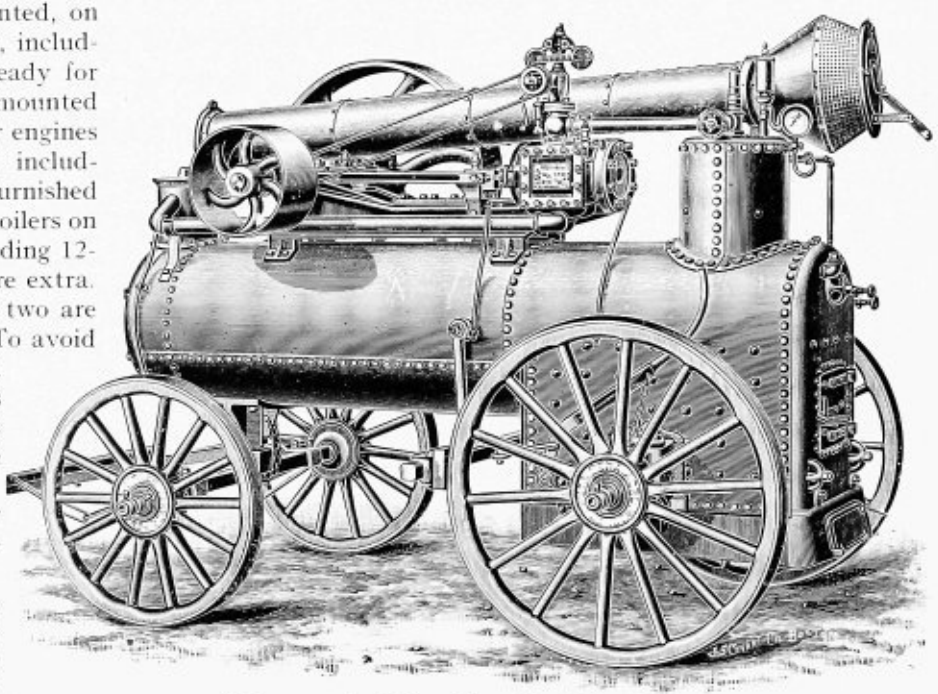
Number	ENGINE			BOILER						TRACTION								
	Size of Clyinder	Size of Fly-Wheel	Regular Speed	Working Steam Pressure	Waist Diameter	Fire Box Length, Width, Height	Tubes Number, Diameter Length	Dome Diameter Height	Length Stack	Main Drivers Diameter and Face	Front Wheels Diameter and Face	Diameter Rear Axle	Front Axle Square	Face of Gearing	Size of Channels, inches	Greatest Width, feet	Capacity Water Tank Gallons	Approximate Weight
K 10	7½x10	40x10	250	130	28½	36x24 x34	32–2x 70	16x18	3½	60x16	42x 6	4	2¾	4½	5	7	100	15500
K 12	8½x10	40x10	250	130	28½	36x24 x34	38–2x 75	16x18	3½	60x16	42x 6	4	2¾	4½	5	7	100	16500
K 15	9 x11	40x12	250	130	30	40x25½x38	41–2x 84	16x22	4	64x20	48x10	5	3¼	5	7	8	126	19000
K 20	10x11	40x12	250	130	30	50x25½x38	48–2x102	16x22	4	64x20	48x10	5	3¼	5	7	8	126	22400

Locomotive Engine and Boiler on Wheels

This cut is of centre crank engine mounted, on the boiler with boiler on sills or wagon, including all fixtures and fittings complete, ready for firing up. Ash pans are put under all mounted engines on locomotive boilers, and under engines on locomotive boilers on sills up to and including 30-horse power. Smoke stacks are furnished on all mounted engines or locomotive boilers on sills, and spark arresters up to and including 12-horse power; over 12 horse power they are extra. Engines are furnished with injector. If two are wanted an extra charge will be made. To avoid possible failure, of water supply, it is often a good plan to use two injectors. It is better to use iron pipe for the *suction* where practicable. Rubber hose is more costly and liable to get out of order.

Always buy an engine of ample size for your work. Overloaded machinery, like overworked men, will soon wear out.

Beware of cheap boilers. The best is always the cheapest. None of our boilers have ever exploded. We furnish any other style of engine or boiler promptly. Prices and particulars on application.



All Locomotive Boilers Have Steel Fire Boxes

Improved Center Crank Engines on Locomotive Boilers—On Sills or Wagons

(See Cut on Page 85)

Telegraph Code.	Horse Power	Cylinder: Bore and Length of Stroke	Boilers: Diameter	Boilers: Length of Fire-box in inches	Boilers: Width of Fire-box in inches.	Boilers: Height of Fire-box in inches	Boilers: Number and Size of Tubes	Boilers: Length of Tubes in inches	Stack: Diameter of Stack in inches.	Stack: Length in feet on Sills	Stack: Length in feet on Wagon	Fly Wheel: Diameter in inches	Fly Wheel: Width of Face in inches	Small Pulley: Diameter in inches.	Small Pulley: Width of Face in inches	Revolutions per Minute	On Sills: Estimated Weight.	On Wagon: Estimated Weight.
Augusta	4	4⅜ x 6	24	29	20	26	20-2 in.	44	8	12	8	30	5	16	6	225	2500	3500
Concord	5	5 x 6	24	29	20	26	22-2 in.	50	8	12	8	33	5	16	6	215	2800	3800
Boston	6	5½ x 8	26	29	22	29	24-2 in.	52	10	14	8	36	6	16	6	200	3300	4400
Hartford	8	6¼ x 8	26	31	22	29	28-2 in.	55	10	14	8	36	6	16	8	200	3600	4700
Brooklyn	10	7 x10	26	37	22	29	32-2 in.	63	10	14	9	40	7	18	8	190	3800	4900
Albany	12	7⅞x10	30	41	25	30	36-2 in.	68	12	16	9	44	8	18	8	180	5200	6600
Buffalo	15	8½x11	33	41	28	34	28-3 in.	76	15	18	10	48	10	30	8	175	6500	8000
Syracuse	18	9 x11	33	41	28	34	32-3 in.	76	15	20	10	48	12	30	8	170	7500	9000
Rochester	20	9¼x12	36	49	31	36	32-3 in.	90	18	20	16	60	12	36	10	150	8200	9900
Corning	25	10 x12	36	49	31	36	35-3 in.	99	18	20	18	60	13	48	10	150	9500	11100
Elmira	30	10 x15	39	52	34	40	40-3 in.	102	20	22	18	72	14	48	12	130	10300	12500
Utica	35	11 x15	39	52	34	40	40-3 in.	120	20	22	18	72	15	48	12	130	11400	13000
Rome	40	12 x15	42	58	36	44	50-3 in.	108	22	24	24	72	16	54	12	125	12500	13500
Dunkirk	50	13 x16	48	58	42	50	64-3 in.	114	26	30	30	84	16	54	12	120	14000	15500

Our prices are for Ajax Center Crank Engines mounted on Locomotive Boilers on wheels and sills. The prices are with fittings and fixtures complete ready to fire up, including smoke stack with guy wires, fly wheel and pulley, class A Pickering Governor with Automatic Safety Stop, governor belt, throttle valve and all necessary oilers, including cylinder oiler, one injector attached to boiler with fifteen ft. of suction pipe, short piece of hose and [strainer, grate bars, water gauge, steam gauge, safety valve, gauge cocks, blow-off valve, whistle, tin funnel, filling plug, oil can, combination wrench, flue cleaner, blower and poker.

Rigs on wheels are furnished with tongue, breast chains, whiffle trees, hand brake and ash pan. Spark arresters furnished up to and including 18 H. P., over 18 H. P. spark arresters are only furnished to special order at extra charge.

These rigs on sill are furnished with ash pan up to and including 30 H. P., over 30 H. P. ash pans are only sent to special order at extra charge.

If two injectors are ordered attached to boiler, extra will be charged for the second one.

Slide Valve Stationary Engine

MATERIAL—The material and workmanship throughout are guaranteed first-class in every respect; the crank shaft, pins and piston rod are hammered steel, the connecting rod is a solid steel forging, the main bearings are lined with first-class babbitt and scraped to a true fit. The cross-head is of the Corliss type, and has babbitt lined adjusting shoes top and bottom.

TESTING—Each engine, before shipment, is tested under steam with brake and indicator, to get the valve correctly set and the bearings properly adjusted, and no engine is allowed to leave the factory until it is in perfect running condition.

FACILITIES—In conclusion we wish to say that our shop is equipped with the latest improved and special machinery, which, together with special appliances of our own manufacture, jigs, templates, etc., enables us to produce the highest grade of work at competitive prices. Every part of this engine is made to templet and is strictly interchangeable.

Prospective purchasers of engines will do well to confer with us before placing their order.

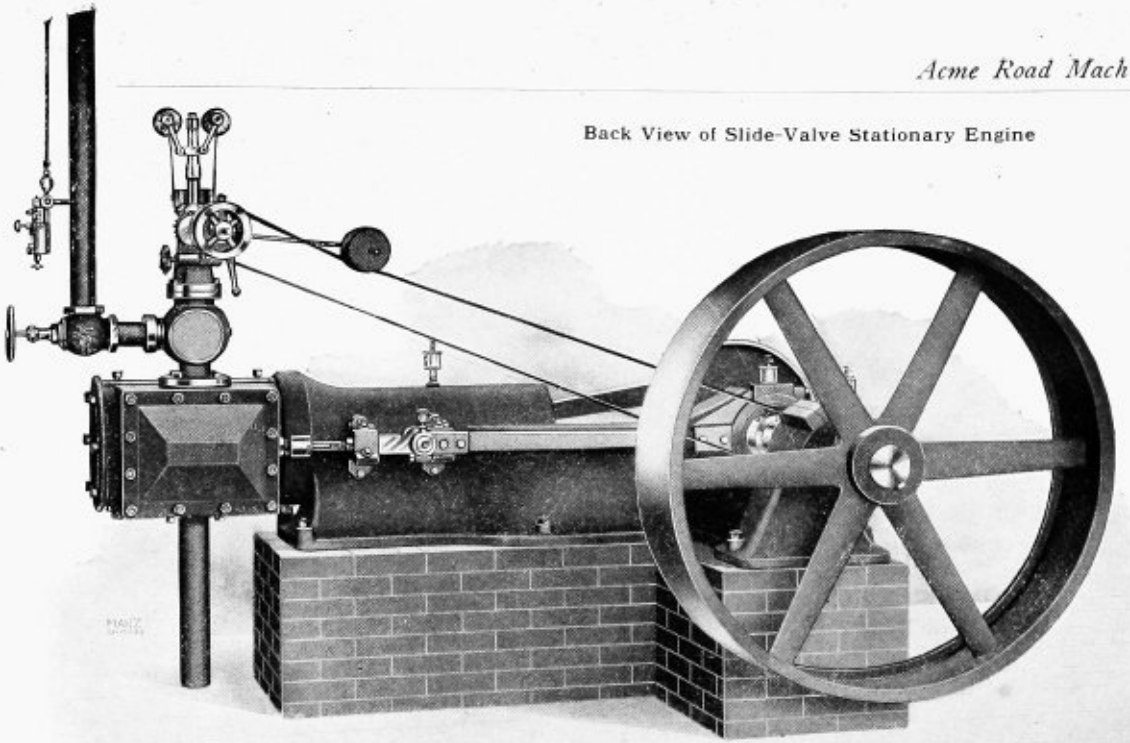
Regular Fittings

With each slide valve engine ordered "complete" we furnish:

Throttling Governor with Automatic Stop.
Throttle Valve with Short Nipple.
Sight Feed Cylinder Lubricator.
Full Set of Sight Feed Oil Cups.
Centrifugal Oiler for Crank Pin.
Cylinder Drip Valves.
Blue Print for Foundation Setting Plan.
Set of Wrenches (3 Wrenches).

Note.—Steam and water connections, foundation bolts and plates, and governor belt are extras, and an additional charge will be made for them.

Back View of Slide-Valve Stationary Engine



Slide Valve Engine

Table of Sizes and Dimensions — All Dimensions are in Inches

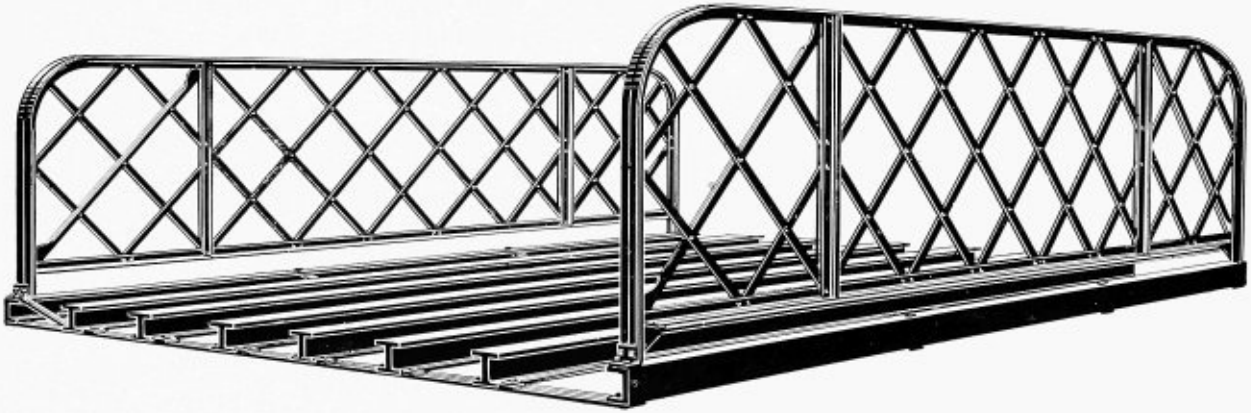
CYLINDER.		PIPES.		WHEEL.		SHAFT.		FLOOR SPACE.		FOUNDATION.	
DIAMETER.	STROKE.	STEAM.	EXHAUST.	DIAMETER	FACE.	DIAMETER	LENGTH.	LENGTH.	WIDTH.	BRICK.	CUBIC FT.
7	10	1½	2½	40	8½	3 7-16	40	85	50	2444	116
8	10	1½	2½	40	8½	3 7-16	40	85	50	2444	116
9	12	2	3	48	10½	4 7-16	48	100	60	3650	174
10	12	2	3	48	10½	4 7-16	48	100	60	3650	174
11	14	2½	3½	60	12½	5 7-16	62	116	72	6400	305
12	14	2½	3½	60	12½	5 7-16	62	116	72	6400	305
13	16	3	4	72	14½	6 7-16	70	140	82	7500	372
14	16	3	4	72	14½	6 7-16	70	140	82	7500	372
15	20	3½	4½	84	16½	7 7-16	79	162	96	9500	452
16	20	3½	4½	84	16½	7 7-16	79	162	96	9500	452

Table of Indicated Horse Power — Standard Rating in Heavy Face Type

Revolutions per minute	150		175		200		225		250		275		300		325	
M. E. P.	30	35	30	35	30	35	30	35	30	35	30	35	30	35	30	35
7 x 10							11	14	13	16	15	**18**	17	20	19	22
8 x 10							15	19	17	21	19	**23**	21	27	24	29
9 x 12					23	27	26	30	29	**33**	32	37	35	40		
10 x 12					28	33	32	37	35	**41**	39	46	42	50		
11 x 14			35	41	40	47	45	**52**	50	58	55	64				
12 x 14			42	49	48	55	54	**62**	60	70	65	76				
13 x 16	48	56	56	66	64	**75**	72	85	80	94						
14 x 16	56	65	66	76	75	**86**	84	97	94	110						
15 x 20	73	84	85	**98**	95	112	108	125								
16 x 20	82	95	96	**111**	110	130	122	142								

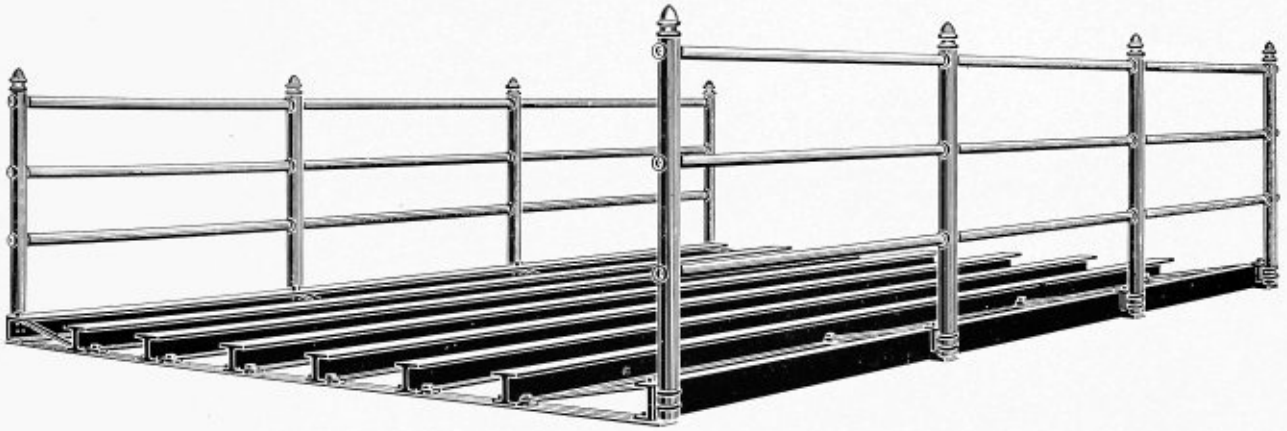
NOTE.—30 lbs. M. E. P. corresponds to 80 lbs. boiler pressure. 35 lbs. M. E. P. corresponds to 95 lbs. boiler pressure.

Acme Steel Bridge, Lattice Rail



Capacity Four to Twenty Tons.

Acme Steel Bridge With Gas Pipe Rail



Capacity Four to Twenty Tons

On pages 90 and 91 will be found cuts of our Girder bridges with two different styles of railing. These bridges are made of any desired strength and of the width and length ordered. Any style of railing will be built to order. For bridges over thirty feet in length, plate girders or trusses are best used, and for this class of work we are prepared to submit plans, specifications and price.

Acme Patent Improved Sprinkling Wagon, Platform Gear

Acme Patent Improved Sprinkling Wagon, Platform Gear

Perfect Devise for Controlling Width of Spray

Unequalled Width and Evenness of Spray.

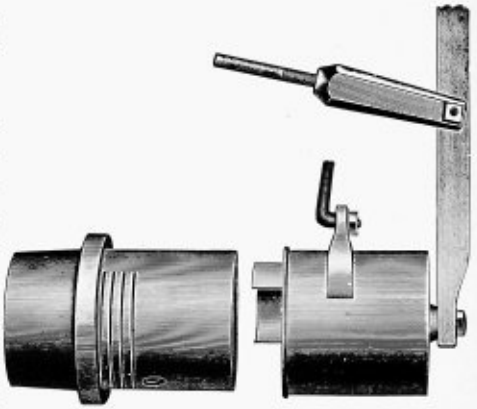
Attachments can also be placed between the front and rear wheels.

Capacity 500 to 1000 gallons.

The operator, by moving the lever at the seat, turns the outer sleeve of valve, thereby causing the brass disc, which is fastened to it, to cover the slots in the inner cylinder, thus reducing the width of spray to any desired distance, without in the least affecting the volume of remaining spray. This feature is desirable when passing carriages, in crowded thoroughfares or on narrow streets where the full width of spray is not required to cover them. The valve can also be adjusted to throw all the water outside the wheels.

PLATFORM GEAR—In the construction of our Platform Gear we use only the best selected hickory and white oak. They are ironed in the best possible manner and we guarantee them to sustain several times the weight they are intended to carry.

RACE TRACK AND BOULEVARD SPRINKLERS—We are prepared to furnish Race Track and Boulevard Sprinklers with extra wide tires and with rear axles extended so that the rear wheels overlap the front ones, combining a serviceable Road Roller and Sprinkling Wagon. Highway Sprinklers are equipped with either one or two Sprinkling Valves as desired. Furnished with either platform or reach-gear wagon.

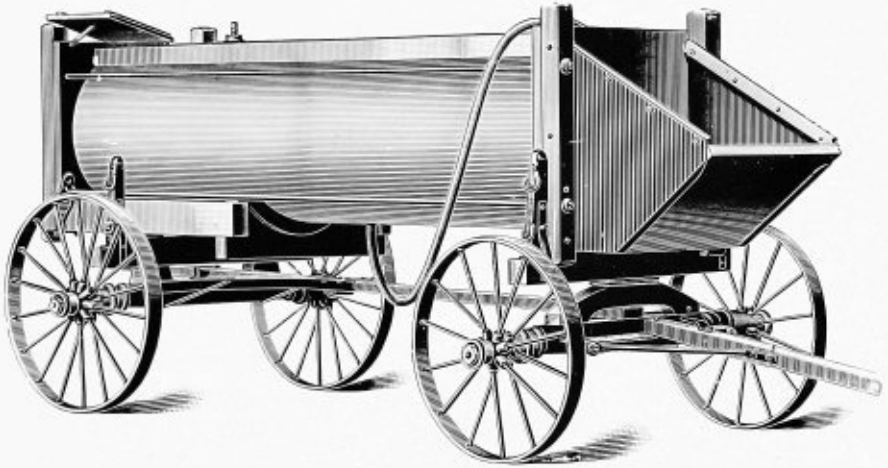


OPERATION OF VALVE—The Vertical Spray Sprinkling Valve made entirely of brass, is the latest improved and simplest device for sprinkling purposes. There are two valves, one for each side of wagon, which work independently of each other. As the driver releases the lever from the first ratchet in the foot board, which ratchet locks the valve shut, the pressure causes the outer sleeve to move backward, thus exposing the openings in the inner cylinder, the desired volume of water being discharged as more or less of the openings are exposed. By this means the lightest spray may be thrown for use in connection with street sweepers, or on asphalt pavement, to the heaviest stream which will wash the street, or any intermediate quantity that may be desired. By releasing the sleeve the open end of cylinder is exposed, thus liberating any trash that can pass through the 4-inch conducting hose—the levers can be set at any ratchet on the foot-board, thus avoiding the tiresome method of holding them with the feet.

STEEL OR WOOD TANK—A Steel Frame that will not rot. Our tanks are in cylindrical form of Galvanized Steel of heavy guage with riveted seams, or of the best seasoned wood available for the purpose. While many users claim superior lightness and greater durability for the steel tank, the wood tank has excellent points, and we are prepared to furnish either at the option of the purchaser, Sprinklers are also furnished with either "downward" or "horizontal" spraying attachment.

SPRINGS—We use ribbon springs of the best quality of steel, the number and width of leaves to correspond to the capacity of wagon. These springs are thoroughly tested by power pressure and are warranted against imperfections.

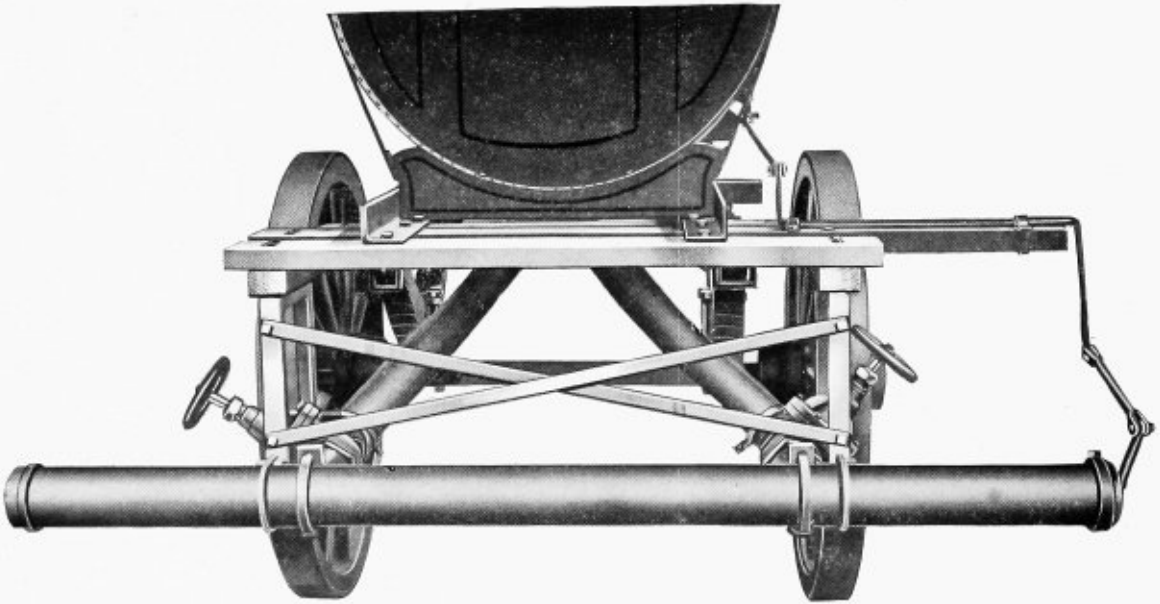
Ideal Steel Thresher Tank



Patented December 32nd, 1896

Our Tanks are built of Galvanized Steel of heavy guage. The sheets are rolled especially for us to extra width, and tanks have but one seam which is closely riveted, no solder being used. The tank is provided with detachable steel coal box, and with partitions inside to prevent water rushing back and forth. Made to fit wagons with any width of bolster. The shape of the tank allows front wheels to cut under to the reach. Above cut shows No. 7 size mounted with accommodation rear bolster. Sold with or without trucks or coal box. Any capacity desired, and for all purposes. Tank pumps and suction hose. Prices on application.

Acme Oil Sprinkler



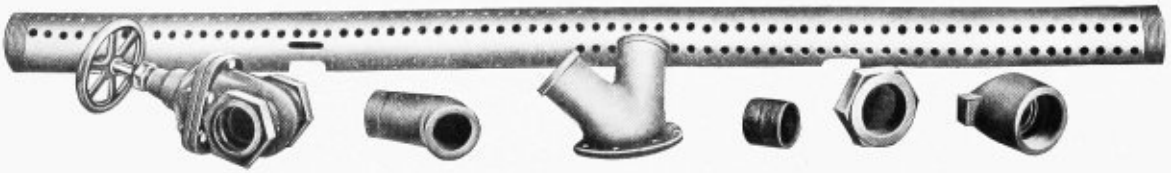
Rear View, Showing Method of Attaching to Tank

The Acme Oil Sprinkler

The Acme Oil Sprinkler consists of an ordinary sprinkling tank to which is attached the device for delivering oil to the road surface. This is made up of pipes, one fitting inside the other, both being drilled and slotted. From the bottom of the tank oil is supplied at two points along the entire length, each feed pipe having an independent valve central. The flow of oil is farther controlled from the drivers' seat, *one man being all that is necessary to operate the machine.*

Built in two lengths, 7 and 9 feet respectively, and constructed to deliver oil at varying heights from the roadway. Unless otherwise ordered attachments will be 8 feet in length and at a height of 8 inches above ground.

The sprinkling device can be easily and speedily removed, thus permitting use of tank for original purposes. It may be attached to any standard water sprinkler, and is furnished singly or with tank. Weight of attachment 400 lbs.



Miscellaneous Parts – Oil Sprinkler – Unassembled

Acme Tar Heating Tank

The Acme Tar Heating Tank is designed to assist in the laying of tar or bituminous macadam roads.

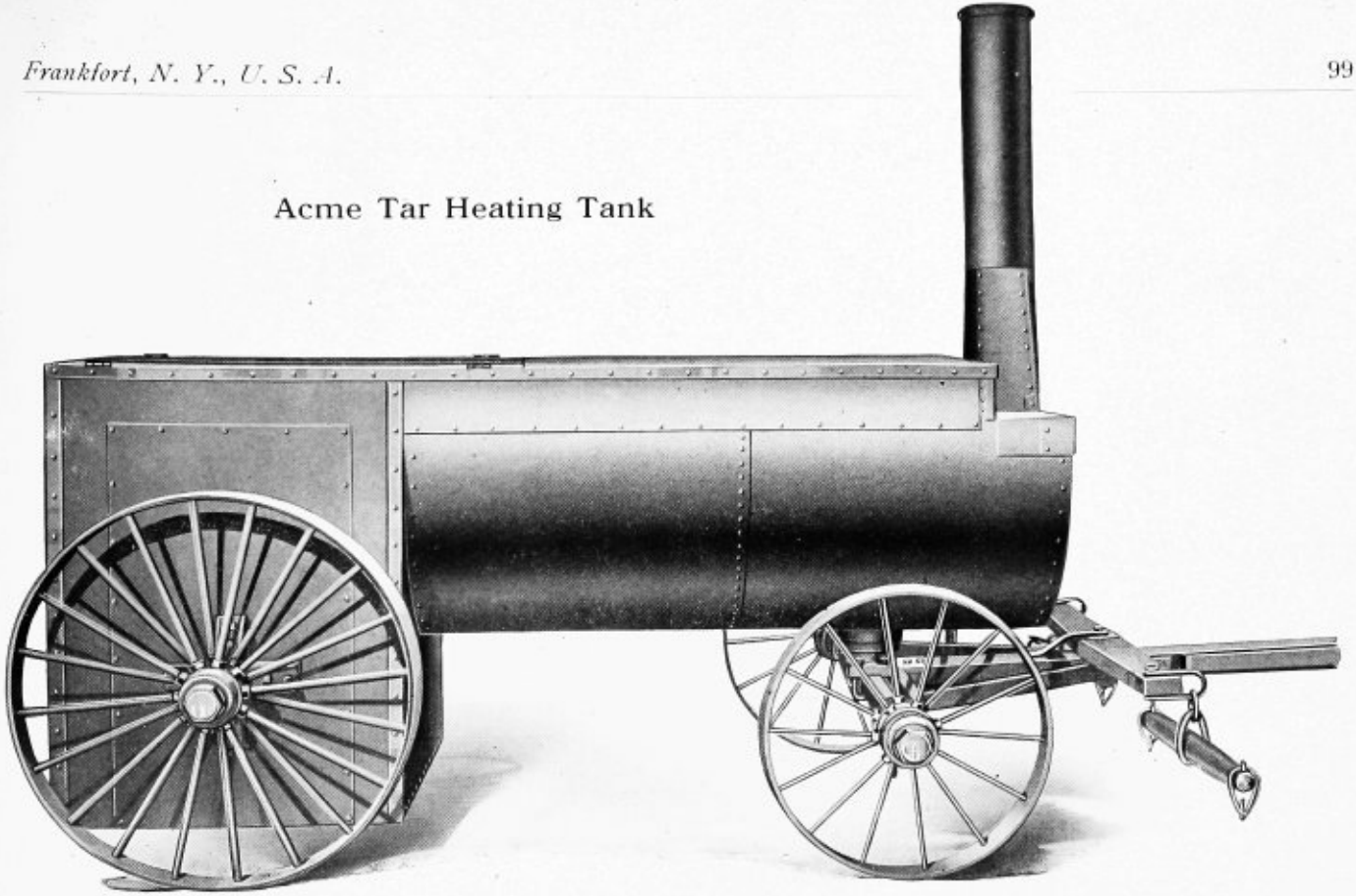
It consists of a rolled sheet steel jacket covering an inside tank suspended over a firebox and fitted with cover, the whole mounted on four wheeled truck. Inner and outer tanks are of No. 10 steel rolled to shape and securely riveted together. The firebox is of quarter inch steel plate, lined with cast pla tes. The tank has a capacity of seven barrels and is directly exposed to the heat along the entire length. Grates are of cast iron bars, provided with ash pan, and either coal or wood and may be used for fuel.

The draw-off pipe is connected with lowest point of tank and is within the firebox this insuring a constant flow of hot material where most essential.

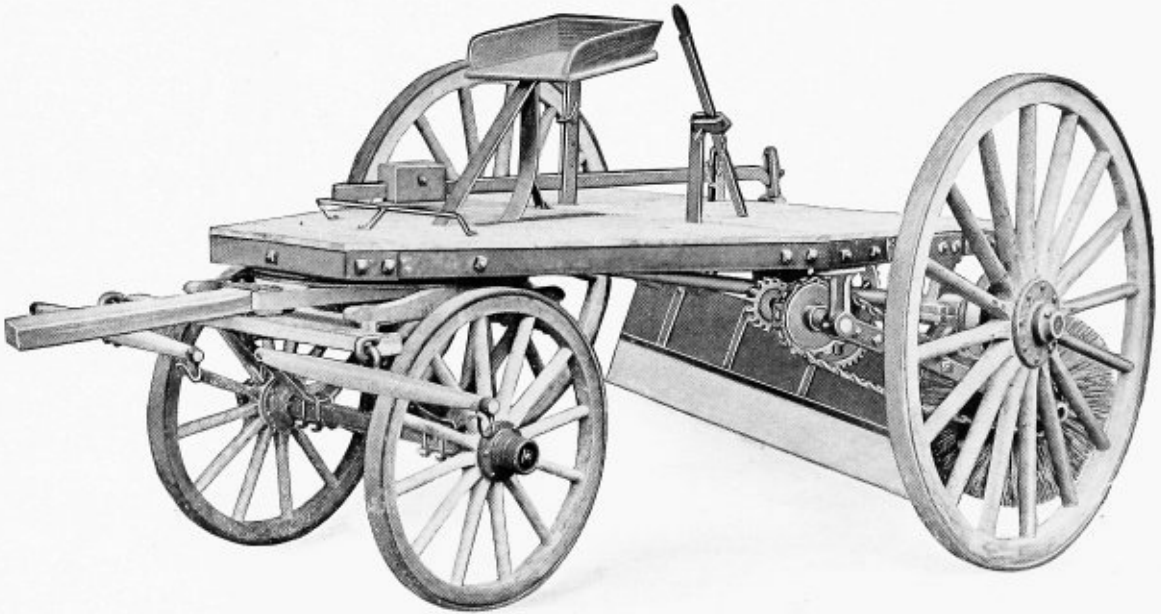
The tank complete, fitted with four-wheeled truck and pole, weighs 3000 lbs.

Send for special circular.

Acme Tar Heating Tank



Iron Frame Sweeper



Two Horse, Four Wheel

Street Sweepers

The cut on page 100 shows a view of one of our two-horse, iron frame Street Sweepers, especially designed for the city of New York. The advantages of this machine are briefly these:

1st. It is the simplest machine made.

2nd. The draft is fully 35% below that of any other sweeper on account of less friction due to more direct gearing.

3rd. The broom is hung in such a manner that it bears evenly and does the full work required without unnecessary wear.

4th. The driver from his seat can raise or lower the broom with his foot and stop it from revolving. The broom can also be easily adjusted for light or heavy sweeping.

5th. This machine does not throw any dirt on the sidewalks or on the working parts of the machine itself.

We also build this machine with a wood frame and in one-horse size.

Brooms for two-horse machine are 8 feet 4 inches long and for one-horse 6 feet 4 inches; each is 28 inches in diameter.

Description of Patented Sanitary Horse Sweeping Machines

This machine is the lightest and most efficient Horse Sweeping Machine on the market, consisting of a steel frame supported on four wooden wheels as shown in the illustrations. The front wheels are so constructed that the machine will turn in its own length. The revolving broom is contained in a galvanized iron compartment where the sweepings are delivered into the dust pan. When the dust pan is nearly full the driver, by means of a lever, discharges the contents into the two cans and the dust pan is returned to its former position.

The dirt is deposited equally into each can from the dust pan, and as this is entirely closed until it reaches the dumping position, it is impossible for any of the sweepings to be deposited outside the cans. This operation may be performed when the machine is either in motion or at rest.

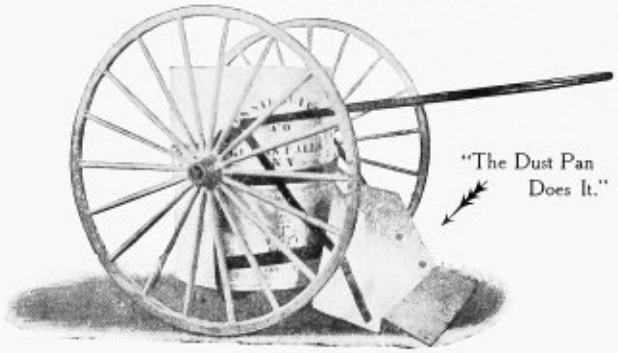
When the cans are full they may be removed by the operator, as they do not require lifting, but are slid out of the frame.

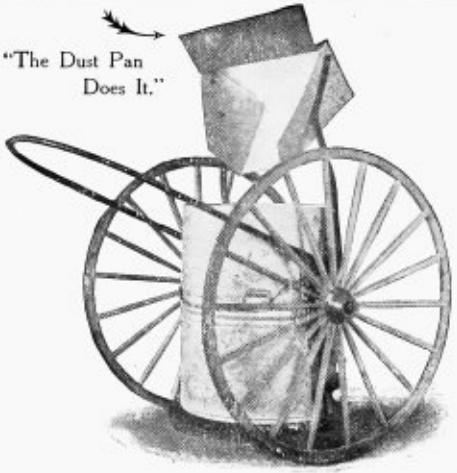
Patented Sanitary Horse Sweeping Machine

"The Dust Pan Does It."

Dust Pan Discharging Sweepings Into Can

Patented Sanitary Street Cleaning Machine

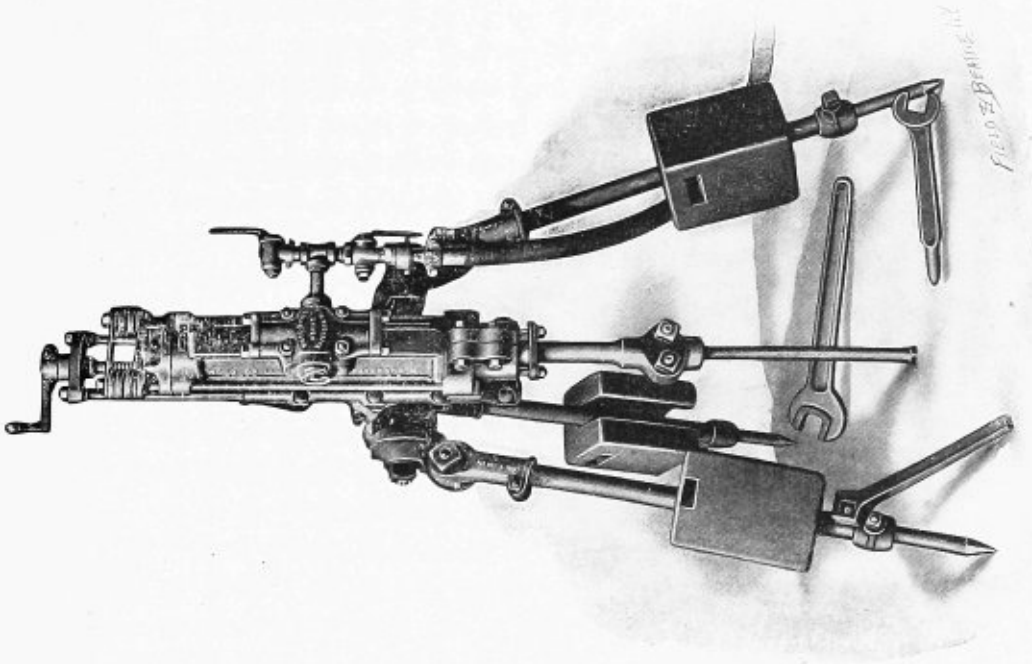




This hand cleaning machine consists of a two-wheeled cart, strongly built of iron and steel throughout, and castings of malleable iron. The DUST PAN is made of galvanized iron, the blade being made of spring steel, 28 inches long and 6 inches wide. The machine, without cans, weighs about 80 pounds.

MODE OF OPERATION—Push the machine to the part of the pavement that is to be cleaned. With the dust pan lowered to rest upon the pavement, stop the machine a short distance beyond the dirt to be gathered up, or the portion of the pavement to be cleaned. With the ordinary street broom sweep the dirt over the blade into the dust pan with the last push of the broom leave the broom on the dust pan and push the machine to an other place. When the machine is again stopped the broom is in position for use. Much time will be saved if this detail is observed.

Complete Wood Drill Outfit



The Wood Rock Drill

FRONT HEAD—Is made of Malleable Iron held in place by four bolts instead of two. A Malleable Iron washer is fitted into the sleeve, which prevents the nuts from unscrewing and falling off.

THE PACKING SLEEVE—Is made of hard bronze and can be cheaply replaced when worn out.

THE AIR HEAD—Is the most perfect applied to drills, and will prevent leakage until the packing is entirely worn out.

THE ROTATING DEVICE—Is of steel; the Spiral Bar and Pawl Holder are each made of one solid forging. Pawls are drop forged from tool steel.

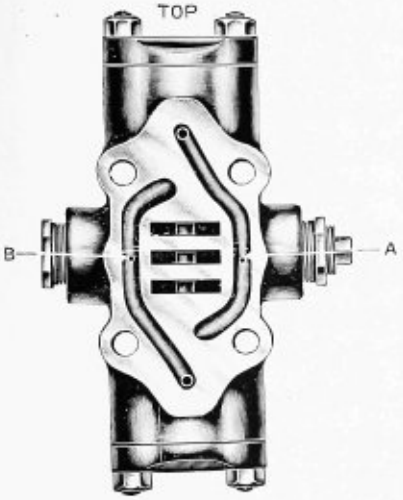
THE SHELL—Is of Malleable Iron and bored at back to receive Solid Forged Steel Standards. Coil Spring rests on the wrought iron cross piece to receive the shock from the piston. The Valve is of tool steel, moves automatically, and has no mechanical connection with the piston. This type of valve never freezes when operated by compressed air.

THE TOP HEAD—Is of Malleable Iron and cored at the back to receive the feed nut. The Piston is one solid forging made of the best of piston steel.

PISTON RINGS—Are made of steel forgings, and will stand the wear and shock better than any other material.

The Piston Bushing

Is made of steel and hardened on *one side only*. A slot is milled on the side where the chuck key fits. By using a cape chisel it can be sheared down the slot and easily forced out. This is a feature only found in our drills.



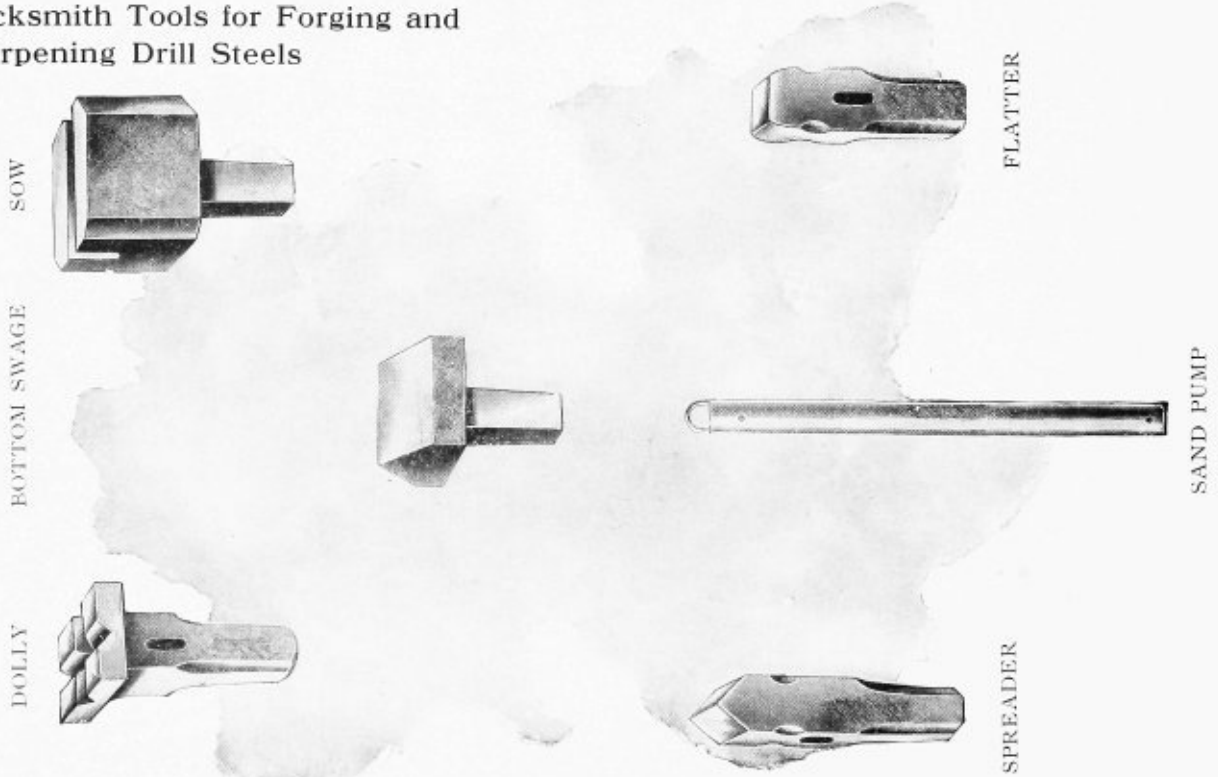
Chest is bushed one size larger than supply pipe. When bushing is worn out, a new one can be put in the chest, thus preserving the threads in the chest. (Not necessary to take chest off to put in new piston rings.)

The action of this drill is governed by the small holes A and B. If, after long use, the piston refuses to lift properly, close the hole A a little by using a flat-ended punch. If the piston should strike the back head from any cause, close the hole B in the same way.

CHUCK KEY is drop forged from tool steel and hardened.

CHUCK BOLT made of steel. Extra deep nuts case hardened.

Blacksmith Tools for Forging and Sharpening Drill Steels



IT IS NECESSARY, in the economical use of a power rock drill, to have the suitable tools for properly dressing the steel drills, such as are shown on page 108. The + bit is the most used for power drills; sometimes an X bit is wanted; if not stated, we always send the + dolly.

Price of Blacksmiths' Tools for 2 1-2 to 3 5-8 Drills

Dolly	$3 00
Sow	2 75
Swage	1 25
Spreader	1 50
Flatter	1 25
	$9 75

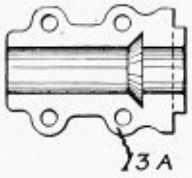
Special Dolly and Sow to fit No. 2 Drills	$2.50 each	Set of Tools	$9.00 each
¾ Top Swage for Drill Shanks	1.50 "	Bottom Swage	1.90 "
1, 1⅛ and 1¼ Top Swage for Drill Shanks	1.75 "	Bottom Swage	2.00 "

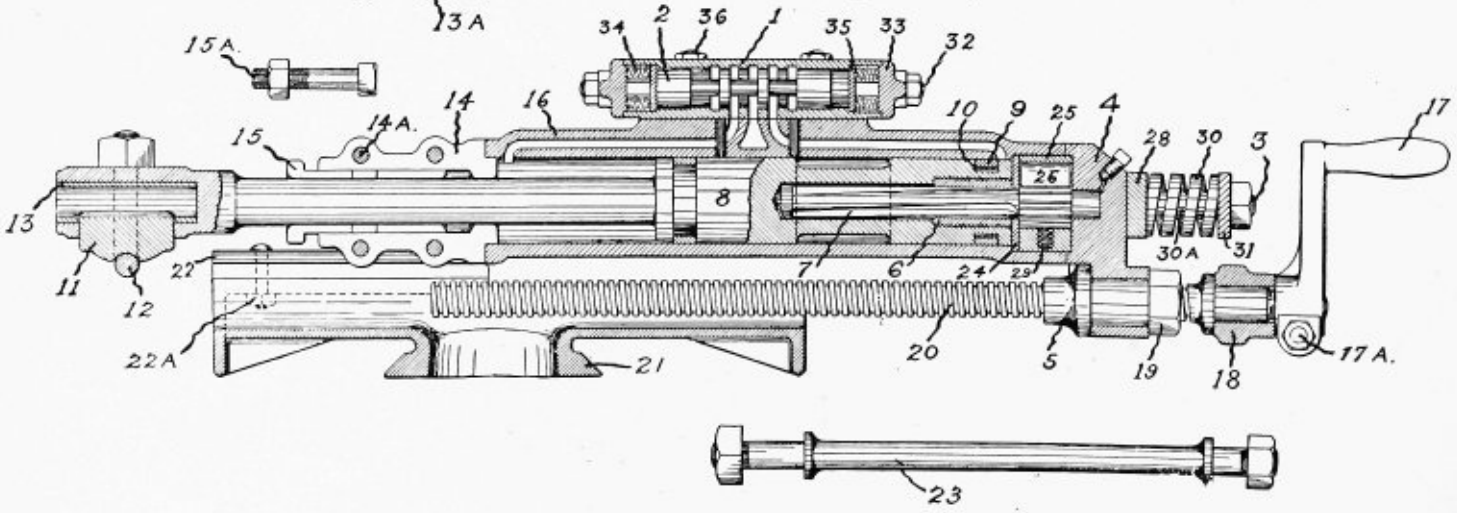
SAND PUMP, as shown on page 108, is for pumping mud from drilled holes, A rod or chain and ring is attached to the top of pump suitable for depth of holes drilled. *Not furnished unless ordered*, and is not included in price of pump.

Pumps for Drills No. 2	$0 90
All other sizes Sand Pumps	1 30

LIST OF DUPLICATE PARTS OF DRILL

1. Steam Chest (bare)
2. Valve
3. Side Rod
4. Top Head
5. Feed Nut
6. Spiral Nut
7. Spiral Bar
8. Piston (bare)
9. Piston Ring
10. Piston Ring Spring
11. Chuck Key
12. Chuck Bolt and Nuts
13. Piston Bushing
13A. Front Head (air)
14. Front Head (steam)
14A. Front Head Bolt
15. Packing Gland
15A. Packing Gland Bolt
16. Cylinder (bare)
17. Crank
17A. Crank Bolt
18. Feed-Screw Bearing
19. Feed-Nut Nut
20. Feed Screw
21. Shell (bare)
22. Shell Cap
22A. Shell Cap Bolt
23. Standard
24. Rotation Washer
25. Pawl Holder
26. Pawl
28. Top Head Cross Piece
29. Pawl Spring
30. Top Head Spring
30A. Spring Rubber
31. Spring Plate
32. Steam Chest Cover Stud
33. Steam Chest Cover
34. Valve Buffer
35. Valve Washer
36. Cylinder Stud





CYLINDER—Is made of hard iron for long wear; has an exhaust on either side. By changing the plug it can be made to exhaust right or left. Sometimes this is very desirable, especially in mines or deep cuts; we are the originators of this. The cylinder also has a bearing for the side rod to rest on, which is placed at the side of the cylinder under the exhaust pipe, which prevents the side rods from being bent if the drill is thrown down carelessly.

After carefully reading the description of these drills, the buyer will know just what he is buying, and will know he is not getting a heavy, clumsy machine, made of cast-iron, and not to be depended on, but a light, strong, neat looking drill, that will give satisfaction in every way. All drills and mountings are made interchangeable, and any part can be readily duplicated. A full supply of duplicate parts is always kept in stock.

	No. 2	No. 2¼	No. 2½	No. 2¾	No. 3	No. 3¼	No. 3⅝
Diameter of Cylinder	2 inches	2¼ inches	2½ inches	2¾ inches	3 inches	3¼ inches	3⅝ inches
Length of Feed	12 inches	20 inches	20 inches	24 inches	24 inches	24 inches	24 & 30 in.
Length of Stroke	4½ inches	4½ inches	5 inches	6½ inches	6½ inches	7 inches	7½ inches
Depth of hole drilled	4 feet	6 to 8 feet	10 feet	10 to 12 feet	10 to 14 feet	14 feet	20 to 25 feet
Diameter of Drilled Steel	¾ inch	1 inch	1 inch	1⅛ inches	1⅛ inches	1⅛ & 1¼ in.	1¾ & 1⅜ in
Size of Boiler for Steam Supply	5 H. P.	6 H. P.	8 H. P.	8 H. P.	8 H. P.	10 H. P.	12 H. P.
Diameter of Supply Inlet	½ inch	½ or ¾ in.	¾ inch	¾ or 1 in.	1 inch	1 inch	1 inch
Weight of Drill (unmounted)	85 lbs.	125 lbs.	168 lbs.	198 lbs.	227 lbs.	273 lbs.	390 lbs.
Weight of Drill (boxed)	120 lbs.	165 lbs.	210 lbs.	245 lbs.	275 lbs.	320 lbs.	445 lbs.
Size of box (outside measurements)	36x9x6 in.	44x8x10 in.	48x11x8 in.	50x9x13 in.	50x9x13 in.	54x10x15 in.	58x12x17 in.
Price of Drill (unmounted)	$150.00	$160.00	$170.00	$180.00	$195.00	$205.00	$220.00
Weight of Tripod (without weights)	68 lbs.	156 lbs.	156 lbs.	156 lbs.	156 lbs.	212 lbs.	267 lbs.
" " boxed "	95 lbs.	196 lbs.	196 lbs.	196 lbs.	196 lbs.	260 lbs.	307 lbs.
Size of box (outside measurements)	30x6x8 in.	40x13x11 in.	40x13x11 in.	40x13x11 in.	40x13x11 in.	40x13x12 in.	44x12x14 in.
Price of Tripod (complete)	$22.00	$35.00	$35.00	$36.00	$36.00	$40.00	$45.00
Weight of 3 Weights	150 lbs.	195 lbs.	195 lbs.	225 lbs.	225 lbs.	300 lbs.	450 lbs.

Specifications of Drill Steels

For No. 2 DRILL.—¾ in. x 4½ in. Shanks. Feed 12 in.
Bit { Starter / Finish

Length of Steel.	Size of Steel.	Size of Bit.	Weight.	Price Single.	Price Set.
1 ft.	¾ in.	1⅜ in.	3 lbs.	$1.40	.....
2 "	¾ "	1¼ "	5 "	1.60	$3.00
3 "	¾ "	1⅜ "	6 "	1.70	4.70
4 "	¾ "	1 "	7 "	1.80	6.50

For Nos. 2¼ and 2½ DRILL—1 in. x 5 in. Shanks. Feed 20 in.

1 ft. 8 in.	1 in.	1⅞ in.	8 lbs.	$1.90	.....
3 " 4 "	1 "	1¾ "	15 "	2.40	$4.30
5 "	1 "	1⅝ "	21 "	3.20	7.50
6 " 8 "	1 "	1½ "	27 "	3.40	10.90
8 " 4 "	⅞ "	1⅜ "	33 "	3.67	14.57
10 "	1 "	1¼ "	37 "	4.17	18.74

For Nos. 2¾ and 3 DRILLS—1⅛ x 5 in. Shank. Feed 24 in.

2 ft.	1⅛ in.	2 in.	10 lbs.	$2.10	.....
4 "	1⅛ "	1⅞ "	18 "	2.88	$4.98
6 "	1⅛ "	1¾ "	27 "	3.08	8.06
8 "	1⅛ "	1⅝ "	36 "	3.48	11.54
10 "	1⅛ "	1½ "	43 "	4.27	15.81
12 "	1⅛ "	1⅜ "	49 "	4.57	20.38

For Nos. 3⅛ and 3¼ DRILLS.
A.—1⅛ in. or 1¼ x 5½ in. Shanks Feed 24 in.

Length of Steel.	Size of Steel.	Size of Bit.	Weight.	Price Single.	Price Set.
2 ft.	1¼ in.	2¼ in.	11 lbs.	$2.19	.....
4 "	1¼ "	2⅛ "	21 "	3.20	$5.39
6 "	1¼ "	2 "	24 "	3.48	8.87
8 "	1¼ "	1⅞ "	31 "	4.17	13.04
10 "	1⅛ "	1¾ "	38 "	4.86	17.90
12 "	1⅛ "	1⅝ "	46 "	5.65	23.55
14 "	1⅛ "	1½ "	54 "	6.45	30.00
16 "	1⅛ "	1⅜ "	62 "	7.24	37.24

For No. 3⅝ DRILL—1¼ x 5½ in. Shanks. *Feed 24 in.

2 ft.	1⅜ in.	2⅝ in.	14 lbs.	$2.49	.....
4 "	1⅜ "	2½ "	25 "	3.58	$6.07
6 "	1¼ "	2⅜ "	30 "	4.07	10.14
8 "	1¼ "	2¼ "	39 "	4.96	15.10
10 "	1¼ "	2⅛ "	48 "	5.85	20.95
12 "	1¼ "	2 "	57 "	6.74	27.69
14 "	1¼ "	1⅞ "	66 "	7.63	35.32
16 "	1¼ "	1¾ "	75 "	8.53	43.85
18 "	1¼ "	1⅝ "	84 "	9.42	53.27
20 "	1¼ "	1½ "	93 "	10.31	63.58
B { 22 "	1¼ "		108 "	11.79	75.37
{ 24 "	1¼ "		122 "	13.18	88.55

* **Note.**—We make this drill to feed 30 inches, **when ordered,** otherwise we send 24 inch feed, and steels to correspond
A.—Specify whether 1⅛ or 1¼ is wanted. B.—Made to order.

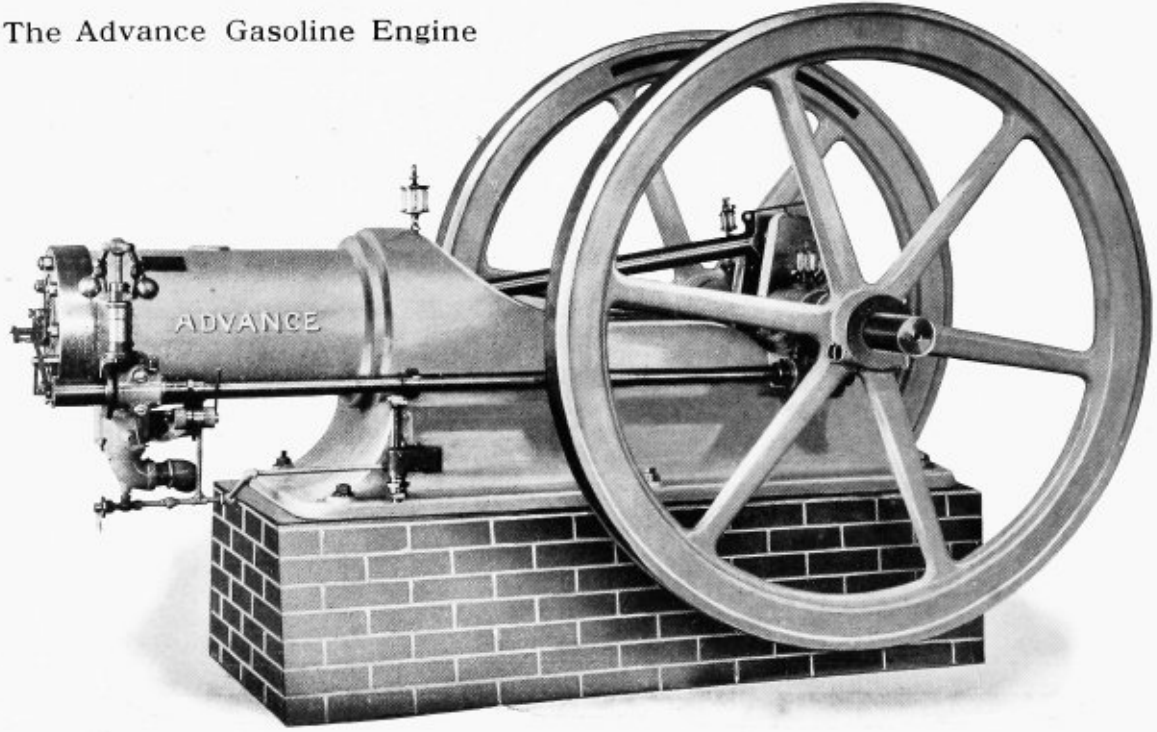
Advance Gas and Gasoline Engines

The Gas or Gasoline Engine is one in which the power is generated by an explosion of a mixture of gas and air inside the cylinder. For certain kinds of work the Gas Engine is the most reliable, economical and durable engine made, and as is usually the case, we are prepared to furnish the very best on the market in this line. In the construction of the Advance Engine nothing but the best of iron, steel and phosphor bronze is used, and wherever in use is giving the best of satisfaction. It is simple and positive in its action, does not require priming, and no manipulation after the engine is started. It combines in one valve the gas and the air, thus balancing the pressure so that no check valves are necessary. The governor regulates the pressure in the cylinder in proportion to the work to be done, maintaining a perfect ratio of gas to air, and the speed can be changed while the engine is running. There are but two valves, an inlet and an exhaust, both plain and simple, producing no friction, requiring no oiling and not subject to side wear.

The Engine is started in the same manner as a steam engine, by simply opening a valve and turning on the air. A water jacket keeps the cylinder cool and the water can be used over and over again.

Every Engine is tested before it leaves the factory and is ready to be set up and operated.

The Advance Gasoline Engine



3 to 30 Horse Power.

The Advance Portable Gasoline Engine

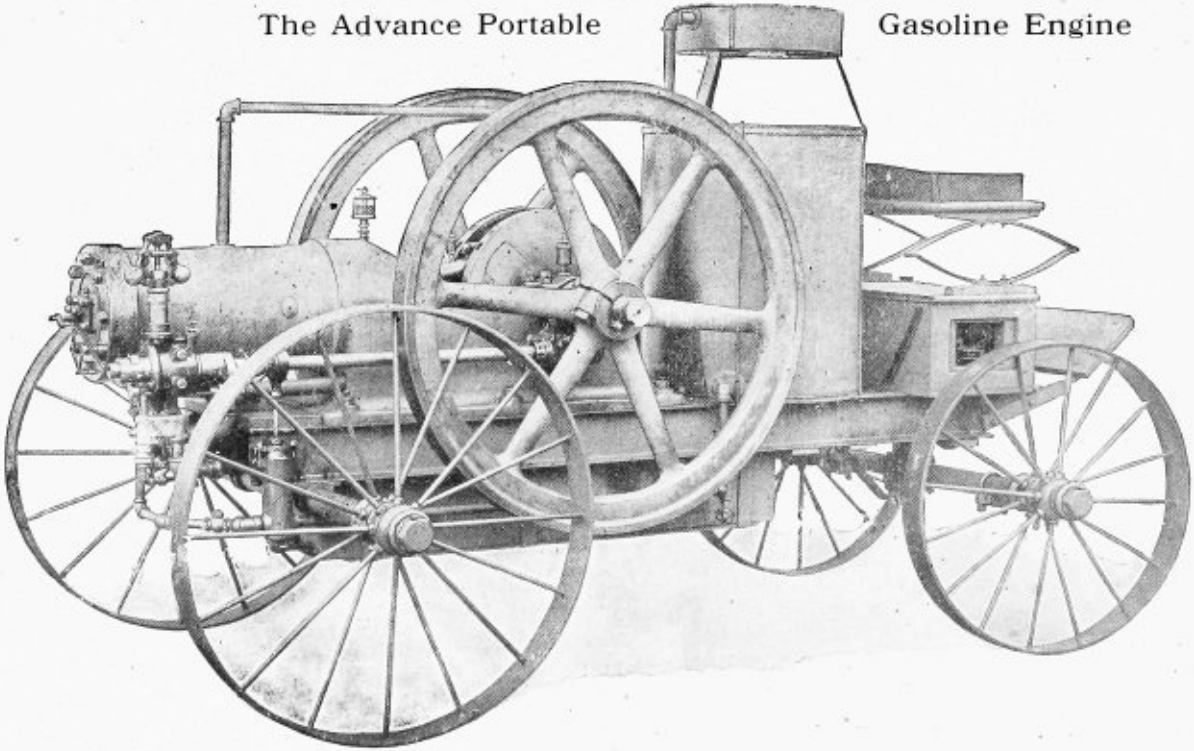
Always Ready ! No Danger of Explosion ! No Coal or Water to Haul !

No Sparks Setting Fire to Barn !

This engine is built for the use of contractors, threshermen, farmers or anyone needing an engine to move from place to place. In this outfit we are offering to the public a machine that is thoroughly reliable, easily understood and managed, and is one of the most practical machines for portable purposes there is on the market to-day. The portable gasoline engine has many advantages over a steam engine, inasmuch as it requires no engineer, neither does it require a man and team for hauling water, thereby saving the expense of two men and a team. In many localities at certain seasons of the year water is very scarce and farmers object greatly to their wells and cisterns being drained by the use of the engine for water. With the gasoline engine you are ready to start instantly. It takes comparatively little time to set the engine, as no leveling endwise is necessary. There is no danger from fires. It is just as safe to drive into a barn and do threshing as it is to have the engine out doors, and in many instances on rainy days or in large barns the engine is set entirely in the barn and is absolutely safe from fires.

There are no complications about the engine and any man of ordinary intelligence can readily learn to run one and be very successful indeed.

The Advance Portable Gasoline Engine



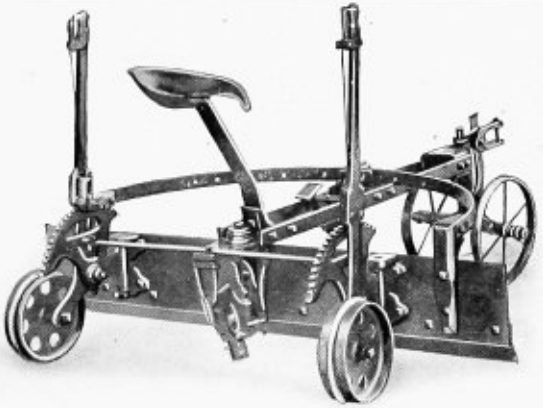
Sizes and Dimensions of Upright Engines

Actual H. P.	Floor Space (Approximate).	Diameter and Face of Pulley.	Weight Pounds.
3	40 inches x 46 inches	12 inches x 6 inches	1,200
4	40 inches x 46 inches	16 inches x 6 inches	1,500
6	42 inches x 44 inches	18 inches x 6 inches	2,000
8	42 inches x 44 inches	20 inches x 8 inches	2,200

Sizes and Dimensions of Horizontal Engines

Actual H. P.	Floor Space (Approximate).	Diameter and Face of Pulley.	Weight Pounds.
3	3 feet 4 inches x 4 feet 6 inches	16 inches x 4 inches	1,200
4	3 feet 4 inches x 4 feet 8 inches	18 inches x 6 inches	1,500
6	3 feet 8 inches x 5 feet 10 inches	18 inches x 6 inches	1,800
8	3 feet 8 inches x 6 feet	20 inches x 8 inches	2,200
10	4 feet 6 inches x 6 feet 8 inches	20 inches x 10 inches	3,000
12	4 feet 6 inches x 7 feet	24 inches x 10 inches	3,500
15	5 feet x 8 feet 3 inches	36 inches x 12 inches	5,300
20	5 feet 5 inches x 9 feet 5 inches	40 inches x 12 inches	6,300
25	5 feet 8 inches x 10 feet	52 inches x 12 inches	7,800
30	5 feet 10 inches x 10 feet 6 inches	60 inches x 12 inches	8,600

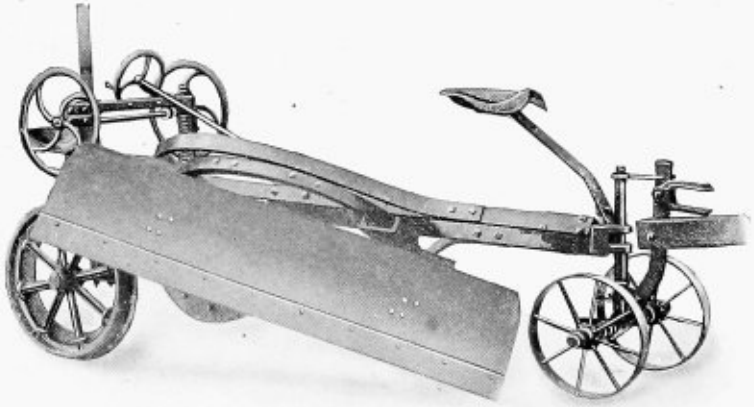
On account of the high-grade of materials used in their construction, the cost of repair parts is practically nothing. For oiling cylinder and bearings we would advise the use of regular Gas Engine Oil, a stock of which we keep constantly on hand. These engines can be used for any purpose where power can be applied.



The "Junior" Humane Tongueless Road Grader

Simplest Grader made, yet complete in every detail. Can be reversed by operator putting foot on lever and turning team as desired.

Rear wheels work on pivots, giving direct draft at all times. All steel and iron. Length of mold board 6 feet, width 12 inches; diameter front wheels 16 inches, rear wheels 12 inches, weight 535 lbs.



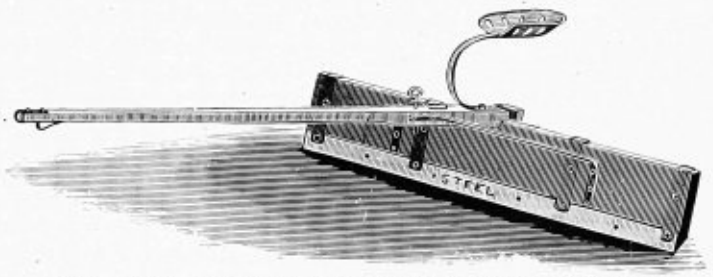
The "Senior" Humane Road Grader

A machine in a class by itself. For opening ditches, grading and leveling. Has all the advantages of the large machine with the new features of raising, lowering and tilting the whole frame with the blade, keeping the weight and strength where you need it, and allowing the blade to be tilted to a great degree in digging or cleaning a deep, narrow ditch.

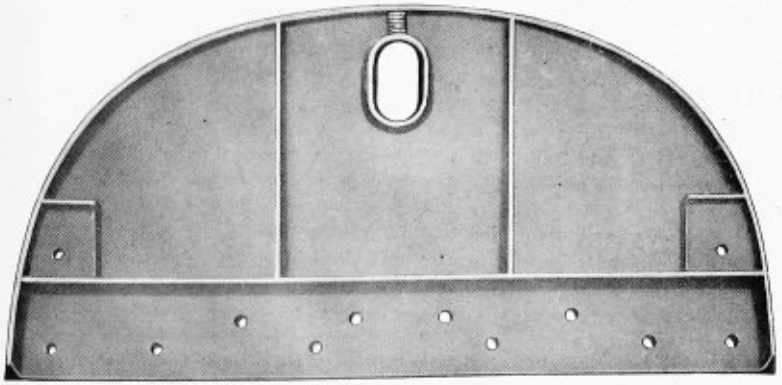
All steel and iron except tongue. Front truck has caster and pivot action allowing a very short turn. Draft is low and direct. Mold board 13 in. wide, 6 ft. long. Cutting edge 6 ft. long, 6 in. wide, weight 1050 lbs.

Road Leveler

For smoothing rough roads of any kind, dirt or gravel. Unsurpassed for use on turnpikes. It is largely used in the spring, when the frost is first out of the ground, and before the regular road work is done. By merely driving once or twice over the roughest roads, the ridges are cut down, the ruts filled up, and the road-bed put in temporary good order. It will pay for its cost in one day's use. Weight 150 lbs.



Steel Blade, ¼ inch. Thick by 4 x 72 inches, and Stamped Steel Seat

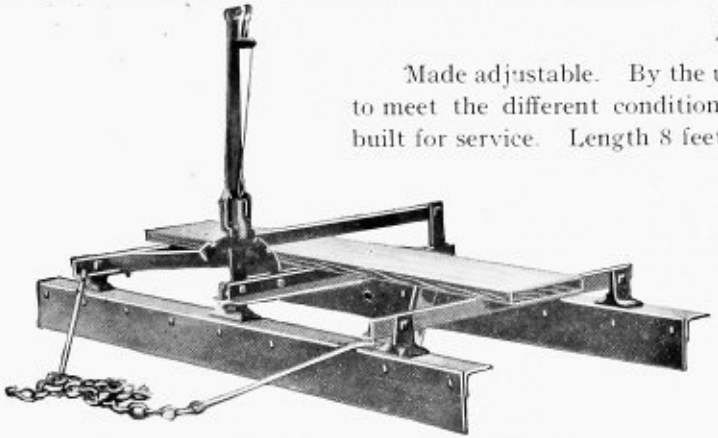


Acme Stone Boat Head

The Acme Stone Boat Head is made of the very best grade of cast iron and is a very valuable article to any one having use for a stone boat.

This iron head has a shoulder for fitting the ends of the boards or plank against. Ten holes are drilled to receive the bolts.

Will last a life time. Weight 70 pounds.



Acme Road Drag

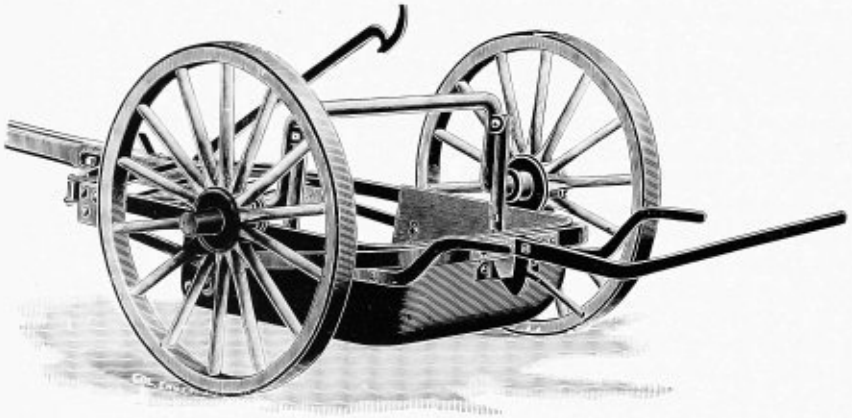
Made adjustable. By the use of the lever the blades can be tilted in an instant to meet the different conditions of the road. All iron and steel, well braced and built for service. Length 8 feet. Weight 300 pounds. Detachable blades.

Acme Improved Lifting Jacks

The Jacks are made of Air-refined Malleable Iron, with exception of bolts, which are made of steel. They are generally used for lifting heavy boilers and machinery and for handling safes and monumental work. They are absolutely indispensable for Truckmen, Builders, Steam and Electric Railways, Track Work, etc., and the price is within the reach of all.

HEIGHT, BAR DOWN	RISE OF BAR	CAPACITY	WEIGHT	PRICE
No. 2—16 inches	10 in.	2 tons	23 lbs.	$5.00
No. 3—21 inches	10 in.	4 tons	35 lbs.	8.00
No. 4—30 inches	20 in.	6 tons	69 lbs.	10.00
No. 5—30 inches	20 in.	10 tons	85 lbs.	12.00

The New Improved Pressed Bowl Wheel Scraper



Improved Sand-Proof Hub-Wheels

(Patented November 4, 1879; September 8, 1885; October 5, 1886; and March 24, 1896)

The only perfect Wheel Scraper. The best, strongest and easiest working Wheel Scraper ever put on the market. The bowl is stamped from one solid plate of wrought steel, three-sixteenths of an inch thick, without joint, seam or rivet, and owing to the fact that they are pressed hot, we are able to use much harder and stiffer steel than is possible in the old-style square box wheelers, which are cut and bent up cold.

THE BOWLS ARE BEST STEEL PLATES, THREE-SIXTEENTH INCH THICK
THE BOTTOM OF ALL PRESSED BOWL SCRAPERS ARE OIL TEMPERED
ALL METAL WORKING PARTS OF BEST SOFT STEEL

The largest size Scraper, capacity 17 cubic feet, is easily operated by one man. No strain on horses' necks.

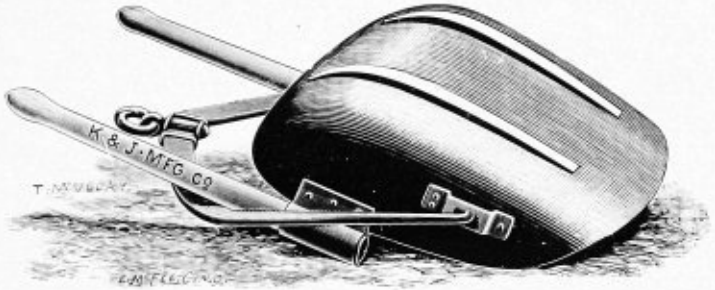
No. 2. Capacity, 13 cubic feet; wheels, 40 inches in diameter; tire, 3 x ¼ inches. Size of bowl: Length, 36 inches; width, 38 inches; depth, 13½ inches—all inside measurement. Tracks, 4 feet, 7 inches. Weight, 600 pounds.

No. 3. Capacity, 17 cubic feet; wheels, 46 inches in diameter; tire, 3 x ¼ inches. Size of bowl: Length, 42 inches; width, 42 inches; depth, 16 inches—all inside measurement. Tracks, 5 feet, 2 inches. Weight, 744 pounds.

No. 3 has a draft-rod. No. 2 sent with draft-rod only when specially ordered.

The improved Wood Wheels, with hardened cast hubs, used on these scrapers are much superior to the old-style wooden hub wheels, with which other wheel scrapers are made, being more durable and running easier.

Whiffletrees and neck-yokes are never furnished with Wheel Scrapers, unless specially ordered, and are always charged extra.



(Patented November 4, 1879, and March 24, 1885)

Cut of Nos. 1 and 2 Scraper, With Runners

WE SHIP ALWAYS WITHOUT RUNNERS, UNLESS OTHERWISE DIRECTED

No. 1. Carries 7 feet of earth. Used for long haul or down grade. Size of bowl: Top of back to cutting edge, 33½ inches; width, 32 inches; depth, 11½ inches; weight, 102 pounds.

No. 2. Carries 5 feet of earth. For all ordinary grading, farm, road or township work. Size of bowl: Top of back to cutting edge, 31½ inches; width, 29 inches; depth, 11½ inches; weight, 94 pounds.

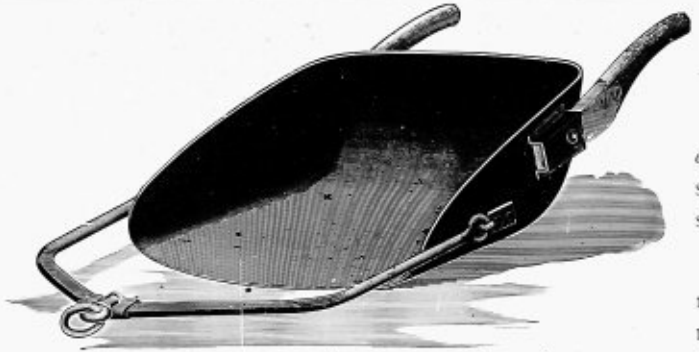
WITH RUNNERS, weight, 8 pounds, extra per Scraper.

WITH DOUBLE BOTTOMS, weight, 8 pounds, extra per Scraper.

The *most economical* tool made for making and mending roads. Awarded first premium everywhere over all competitors.

In ordering these Scrapers, give name "COLUMBUS," to distinguish from other drag Scrapers made by us.

We can also forward cheaper scrapers when desired.



Cut of Nos. 1 and 2 Scraper

Without Runners

(Patented November 14, 1879, and March 24, 1885)

Improved in that we now make the Scraper *longer and deeper*, so that while it *carries more earth*, at the same time it *runs much easier* and has more wearing surface.

The Perfect Scraper

made of a *single sheet of steel*, pressed into the best and most practicable shape for working.

It is made with *one continuous curve* from the center up the sides and back, giving it *greater strength and capacity* than can be obtained in any other way.

It is without *joint* or *seam*, and there is not a sharp corner, angle, bolt, brace, or stay-rod about the scraper.

It *will work in any kind of soil*, whether plowed or not, and enters the ground as readily as a plow.

We guarantee it to fill easier and clean better than any other scraper, and it will scour where no other scraper will.

It is not injured by exposure to the weather, and there is *nothing about it to get out of repair*. Suits any climate.

The handles will commend themselves to every one, as they can, if broken, be easily replaced anywhere.

Bails of steel, and of improved pattern, with *strong* and *perfect working swivels*. The best bails ever put on scrapers.

The entire bowl of the Scraper is made of *one sheet of heavy steel, and is the only one so made*. *All other* Scrapers represented as made of one sheet of steel have the old wood back, with sharp corners, and stay-rods, bolts and braces, which are constantly getting out of repair, or *riveted backs, which are worse*.

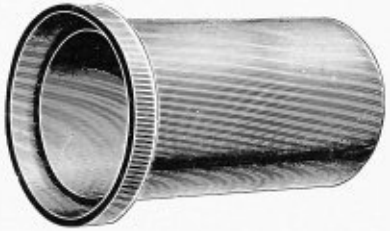
It is the lightest, strongest, and most durable, and will displace all others wherever it is known.

Two Man Road Rake

The Two Man Rake is a heavy steel tool having the usual handle, only longer and stronger, and another, (detachable) handle working in the opposite direction. Thus two men can work this rake back and forth in spreading, leveling and smoothing crushed stone or gravel on the road bed to greater advantage than can two men, each using a single rake.

Acme Nine-Tined Special Stone Fork

The use of a fork for handling broken stone and similar products has become common, and the choice of a suitable simplement for the purpose is an important item in a contractor's outfit. Realizing the fact that forks with too many tines are apt to be heavy and cumbersome, and that those which have not enough tines err in the opposite direction, we have designed and are the sole proprietors of the Acme Nine-Tined Special Stone Fork. This fork is of excellent design, and constructed of the very best material, both in wood and steel. Try our Nine-Tined Special before purchasing elsewhere. Any other pattern of fork furnished promptly.



Tile

We have made arrangements with one of the largest Clay Manufacturing Companies of the country for the handling of their products, and are therefore in a position to make the most favorable quotations for either large or small quantities of *Vitrified Salt Glazed Sewer Pipe*. Being made from the celebrated "Akron" shale and clay, the quality of our pipe cannot be excelled. This tile is not only a necessity for sewer work, but it is by far the best material for culverts and drains, as well as more economical than plank for the same purpose. A sample order will convince the most skeptical of its durability.

IRON CULVERT PIPE is sometimes an economical investment where the duty is too severe for vitrified pipe. Our facilities for furnishing Iron Culvert Pipe are of the best, and our prices will always conform to market conditions.

Price List of Vitrified Salt Glazed Sewer Pipe

Adopted by the Eastern Manufacturers, May 2, 1910

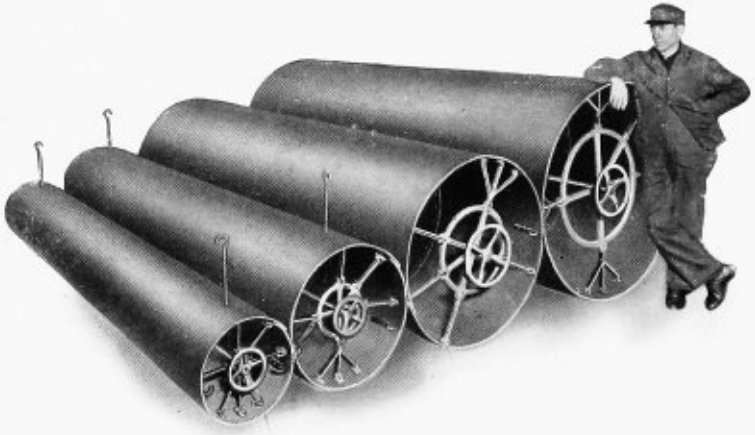
Calibre of Pipe	Price per Foot	Elbows and Curves each	Slants 1 ft. or less per ft. long side	Increasers and Reducers each	R. P. S. and Single H. H. Traps each	Two Piece Traps Per Pair	Well Traps each	Grease Traps with Bottom and Cover each	Chanel Pipe per Foot	Approximate Weight per ft. Standard Pipe	Number Feet in Carload of 30,000 pounds
3 in.	$ .20	$ .60	$ .60	$ .80	$1.60	.....	.....	.....	$0.12	7 lbs.	3750
4 "	.25	.75	.75	1.00	2.00	.....	.....	.....	.15	9 lbs.	3000
5 "	.30	.90	.90	1.20	2.40	.....	.....	.....	.18	12 lbs.	2143
6 "	.40	1.20	1.20	1.60	3.20	$4.20	$2.40	.....	.24	15 lbs.	1875
8 "	.55	1.65	1.65	2.20	5.50	6.60	3.30	$6.60	.33	23 lbs.	1304
9 "	.65	1.95	1.95	2.60	6.50	7.15	3.90	7.80	.39	28 lbs.	1071
10 "	.80	2.40	2.40	3.20	8.00	8.30	4.80	9.60	.48	35 lbs.	857
12 "	1.00	3.00	3.00	4.00	15.00	12.75	.....	12.00	.60	45 lbs.	698
15 "	1.35	4.05	4.05	5.40	.....	18.75	.....	16.20	.81	60 lbs.	500
18 "	1.90	5.70	5.70	7.60	.....	.....	.....	20.40	1.14	85 lbs.	384
20 "	2.25	6.75	6.75	9.00	.....	.....	.....	.....	1.35	100 lbs.	316
21 "	2.70	8.10	8.10	10.80	.....	.....	.....	.....	1.62	120 lbs.	273
22 "	3.00	9.00	9.00	12.00	.....	.....	.....	.....	1.80	130 lbs.	259
24 "	3.25	9.75	9.75	13.00	.....	.....	.....	.....	1.95	150 lbs.	231
27 "	4.50	13.50	13.50	18.00	.....	.....	.....	.....	2.70	224 lbs.	.....
30 "	5.50	16.50	16.50	22.00	.....	.....	.....	.....	3.30	252 lbs.	.....
33 "	6.25	18.75	18.75	25.00	.....	.....	.....	.....	3.75	310 lbs.	.....
36 "	7.00	21.00	21.00	28.00	.....	.....	.....	.....	4.20	350 lbs.	.....

Standard Sewer Pipe 3 inches to 36 inches in diameter. **Double Strength Sewer Pipe** 15 inches to 36 inches in diameter. **Increasers** are pipe with sockets on small end. **Reducers** are pipe with sockets on large end. For traps with more than one hand hole add price of 1 ft. pipe, same size for each additional hole. **No slant** is to be charged at less than one foot. Excess over one foot at proportionate rate, **Minimum Car Load** 24,000 pounds.

Terms and Discounts furnished upon application, every shipment at the risk of the purchaser, and no allowance for breakage.

Acme Collapsible Steel Culvert Forms

Road builders, save your Money! Build no more wooden culverts to rot, or cast iron to rust away in a few years; neither put in any more vitrified pipe to gather water in winter and be broken by freezing. Use Concrete that will last *forever*.



Use Acme Collapsible Steel Culvert Forms, which permit the building of a heavy wall of indestructable concrete. It's very simple. Dig your trench, put in your concrete bottom, lay in your form and tamp concrete around it, to the desired height and thickness; then collapse the form by turning wheel at end and draw out forms.

Furnished in any diameter up to 4 feet, and in any length from 6 to 16 feet. In making any length culvert it is best to use two forms, withdrawing one from each end.

Forms are well and substantially made and sell at a low price. You cannot afford not to use them.

Relative Cost of Different Kinds of Culverts

In comparing the different kinds of culverts, the basis chosen is a culvert 3 feet in diameter and 20 feet long.

A lumber culvert would require 800 feet board measure, at $20 a thousand, and $4 for erection.

Metal and clay culverts are figured at the average cost throughout the country.

Masonry is figured at $9 a thousand for brick.

Concrete is figured at 30 cents per cubic foot.

A timber culvert has to be rebuilt every five years. Thus we have an investment on the first building of $20 for 60 years; another on the second of $20 for 55 years; another for the third of 50 years, and so on. Where the material may last the 60 years out, and where it is sure to last, it is given the full life of 60 years. With first-class work, the life of masonry or concrete is indeterminate. At the end of the 60-year period a culvert made from some of the materials would be gone and must be renewed, while if made of concrete the structure is as good or better than the first year. Note that at the end of the 60 years the timber has cost nearly six times the cost of a concrete culvert.

Relative Cost of Different Kinds of Culverts

Material	Life in Years	Cost of Construction	Total Cost at 5% Interest		
			20 Years	40 Years	60 Years
Timber	5	$20.00	$150.00	$360.00	$650.00
Steel	20	70.00	140.00	350.00	630.00
Corrugated	20	45.00	100.00	235.00	435.00
Clay	50	80.00	160.00	240.00	400.00
Brick	60	90.00	180.00	270.00	360.00
Cast Iron	60	85.00	170.00	255.00	340.00
Concrete	60	30.00	60.00	90.00	120.00

Corrugated iron will last from two to twenty years, according to the quality, and the quality cannot be determined when buying. Moral: Build Concrete Culverts by use of Acme Collapsible Forms and save money.

Belting

Belting of the best grades—Leather, Rubber and Canvass—constantly on hand at reasonable prices. Endless belts for threshers a specialty.

Small Tools and Appliances

We keep constantly on hand and ready for immediate shipment all Small Tools and Appliances commonly used by contractors and corporate officials in building and repairing roads and streets, together with tools used by quarrymen and makers of concrete, such as picks, grub hoes, mattocks, square and round pointed shovels, telegraph scoops and spoons, coal scoops, stone sledges, mason and stone cutters' hammers, stone and asphalt rakes and hooks, crowbars, drill steel, mortar hoes of special design, concrete pounders, pumps, shovel, pick and sledge handles, etc., etc.

It will pay you to place your orders for small tools with us for the quality of our goods is of the best and our prices are right.

Some Good Things to Know

To make concrete, use one part loose Portland Cement, two and one-half parts sand or fine screenings from the stone crusher, and five parts broken stone or clean gravel not exceeding one inch in size. Mix sand and cement dry. Add enough water to make thin mortar, dampen stone and mix with mortar until all stone are covered with mortar. Good concrete should flatten and quake in the barrow, but should not be fluid.

Do not make concrete in freezing weather, unless you have a way of keeping out the frost. All highways approaching an improved road should be graveled for a distance of from 150 to 200 feet, to prevent the mud from the earth roads being carried onto the macadam.

A pair of horses can, with the same effort, draw

1,600 lbs. on a 5 per cent grade, or one foot rise in 20 ft.
2,160 lbs. on a 4 per cent grade, or one foot rise in 25 ft.
2,880 lbs. on a 2½ per cent grade, or one foot rise in 40 ft.
3,200 lbs. on a 2 per cent grade, or one foot rise in 50 ft.
3,600 lbs. on a 1 per cent grade, or one foot rise in 100 ft.
4,000 lbs. on a level road.

A Concrete Culvert should have at least 3 inches fall to every 20 feet in length.

A Culvert 2 x 2 x 20 ft. will contain 7.6 yds. of concrete.
A Culvert 2 x 3 x 20 ft. will contain 8.9 yds. of concrete.
A Culvert 3 x 3 x 20 ft. will contain 12.8 yds. of concrete.

For each additional foot in length, add to the above quantities:

For 2 x 2 = .31 cubic yards.
For 2 x 3 = .37 cubic yards.
For 3 x 3 = .49 cubic yards.

A Partial List of Articles Sold by Us

Belt Hoists
Belting
Bins
Bridges
Brooms, Hand
Can and Bag Carriers
Cars, Dump
Cars, Spreading
Carts, Horse and Hand
Contractors' Supplies
Contractors' Engines
Conveyors
Combined Traction Grader and Loader
Crushers, Stationary and Portable
Crushing Plants
Crushing Plates for all Crushers
Drills, Steam
Dump Cars
Dump Wagons (Ask for Special Catalogue)
Elevating Graders
Elevators, Stone, Sand and Coal
Engines, Contractors
Engines, Gasoline
Engines, Steam, Portable
Engines, Steam, Stationary
Engines, Traction
Excavators
Forks, Stone
Gasoline Engines
Gates, Bottom and Side Discharge
Jacks, Lifting
Lantern Holders and Guard Rail Holders
Oil
Plows
Portable Crushers
Portable Steam Engines
Pumps, Hand
Road Levelers
Road Machines, Reversible
Road Machines, Two Horse
Road Rollers, Reversible, Horse
Road Rollers, Grooved, Horse
Road Rollers, Steam, General Purposes
Scarifiers
Scrapers, Asphalt
Scrapers, Wheel
Scrapers, Hand
Screens
Stationary Steam Engines
Spreading Wagons or Cars
Sprinklers
Steam Train Wagons
Street Sweepers
Stone Forks
Surface Graders
Supplies, Contractors, Township
Tanks
Tile
Tools, Picks, Shovels, etc.
Wagons (Send for Special Catalogue)
Water Tanks
Winches, Crabs and Windlasses
Wheelbarrows