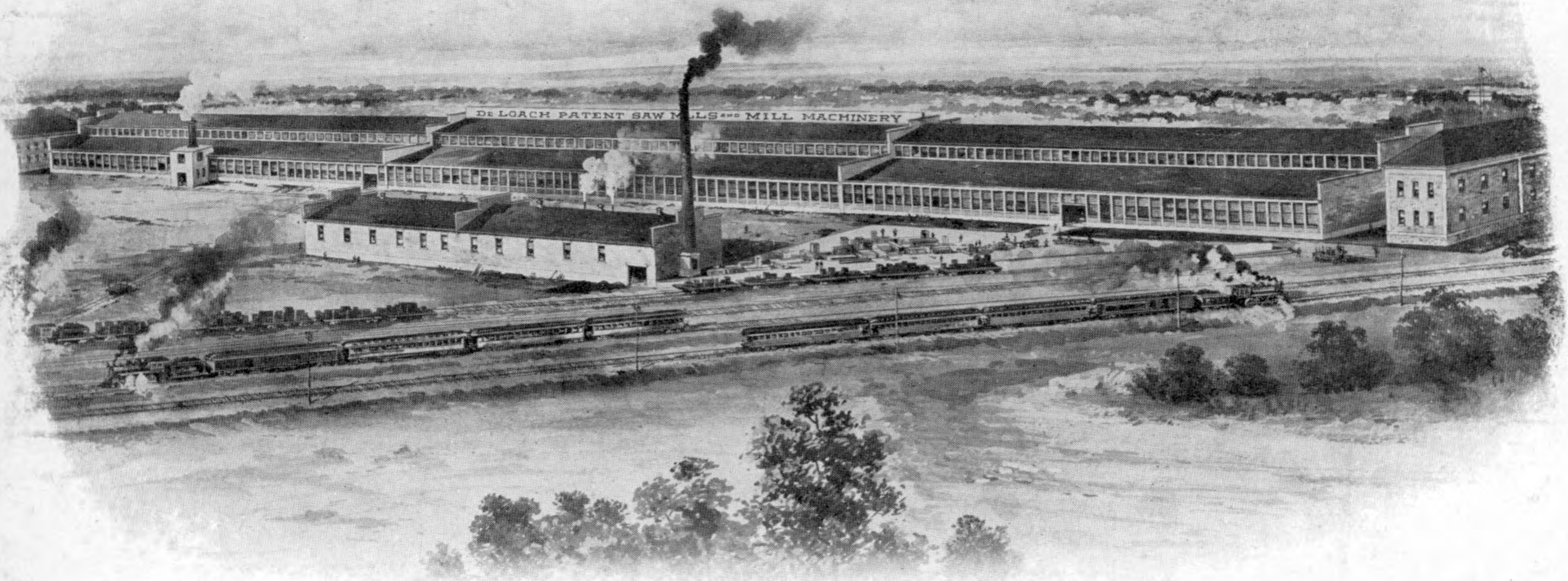


DELOACH PATENT SAW MILLS

**Illustrated
Catalog No. 103**

HIGH GRADE MILL MACHINERY

OUR NEW PLANT



THE LARGEST SAW MILL MANUFACTURING PLANT IN THE WORLD
NEW AND MODERN TOOLS ELECTRICALLY DRIVEN



WE BUILD SAW MILLS—and other things, too.

We build more Saw Mills than any other concern in the world—and build them better.

Our motto is “The Best is none too good”—this catalog illustrates our motto—we made the catalog.

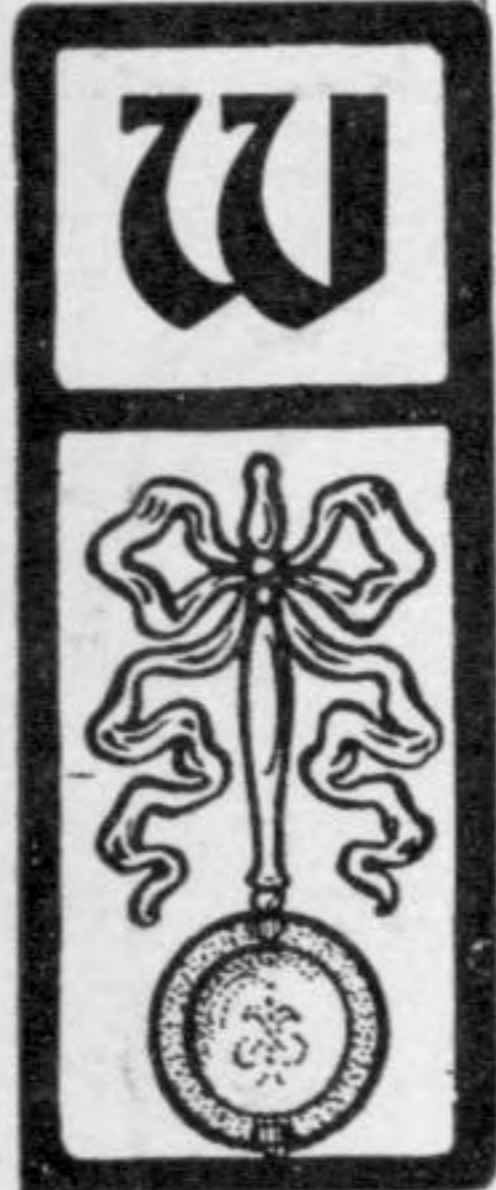
We want every customer to have exactly what he wants—we sell on the “satisfaction-or-no-pay” plan—been successfully working this out for a quarter of a century—and it’s a way that pays.

Fire tried to stop us in 1902—burned us to the ground on June 13th, and in September we shipped 45 per cent more than in September, 1901. Incidentally, we’re glad the fire happened—gave us a chance to build a modern plant equipped with modern tools.

Our experience didn’t burn, of course—we saved our patterns, too.

We build everything shown in this catalog. Lots of things we build are not shown—couldn’t crowd them all in—we expect you to ask for what you don’t see.

The DeLoach Saw Mill



WE'RE Pioneer Manufacturers of Variable Friction Drive in saw mills and kindred machines—introduced it in 1887—two years later we were shipping seventy-five mills a month.

Our competitors dubbed ours the “Novelty Feed” when it was first introduced—we’ve won several cases of patent infringement since and are fighting two flagrant violators now.

We warn intending purchasers against infringing mills—buy another mill if you will, but don’t blame us when it goes back on you.

We make the best and only saw mill that will run successfully with 4-horse power—it cuts 3,000 feet of inch boards in ten hours—hundreds of customers’ letters to prove it. We guarantee 2,000 feet.

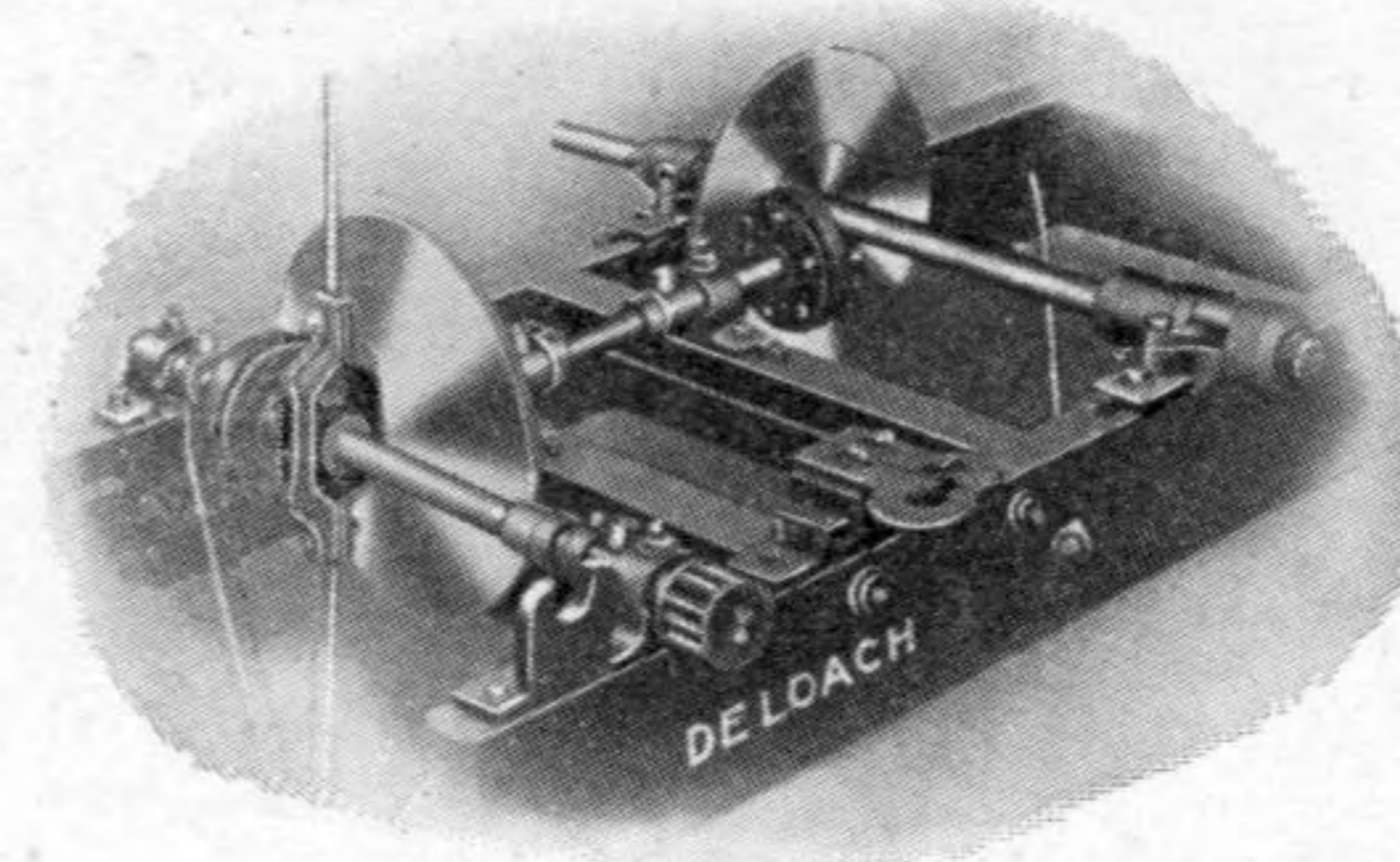
We make large mills too, of course—all sizes with Variable Friction Feed, up to 50-horse power. The little fellows are our specialty—that’s why we push them—more sold, too. For more power with long and heavy carriage, our Simplex Feed—guaranteed the equal of any steam feed.

Friction—That’s a problem we’ve dealt with successfully—made so it can be controlled and varied to suit the operator—that’s the Variable Friction Drive. It is the

only means to vary the speed to correspond with the load and grade—allowing it to run faster with decreased load or resistance and slower with the inverse ratio. Motive power develops its greatest and most economical power at maximum speed—thus giving the driver easy control and so regulating and using the power most economically.

Starting the saw in the small end of the log with a cut six inches deep—the cut often increases at the other end of the log to several times that depth—the Variable Friction Feed allows the decrease of the carriage speed as the cut deepens.

The motive power running at high speed all the while—a gain of from 25 to 40 per cent is had over the old style belt feed. We guarantee 25 per cent.



On our small mills the variation is from nothing to 6 inches to each revolution of the saw—the larger mills 12 inches.

Friction gearing is always the most satisfactory—with the Variable feature it is more so. Noiseless, durable and doesn’t break down like gear wheels or belts—a few of the good points.

We order paper-friction board in car load lots—about

five pounds required for each saw mill. The little paper wheel is made so hard and sound that it will last at least five years—longer if you keep it dry.

We've applied the Variable Friction Drive to automobiles—runs them any speed between two and fifty miles per hour. All done by a little paper wheel sliding but three inches—this shows the great adaptability of the Variable Friction Drive. It has been patented by our Mr. A. A. DeLoach here and in foreign countries—we're going to push it with a big company soon.

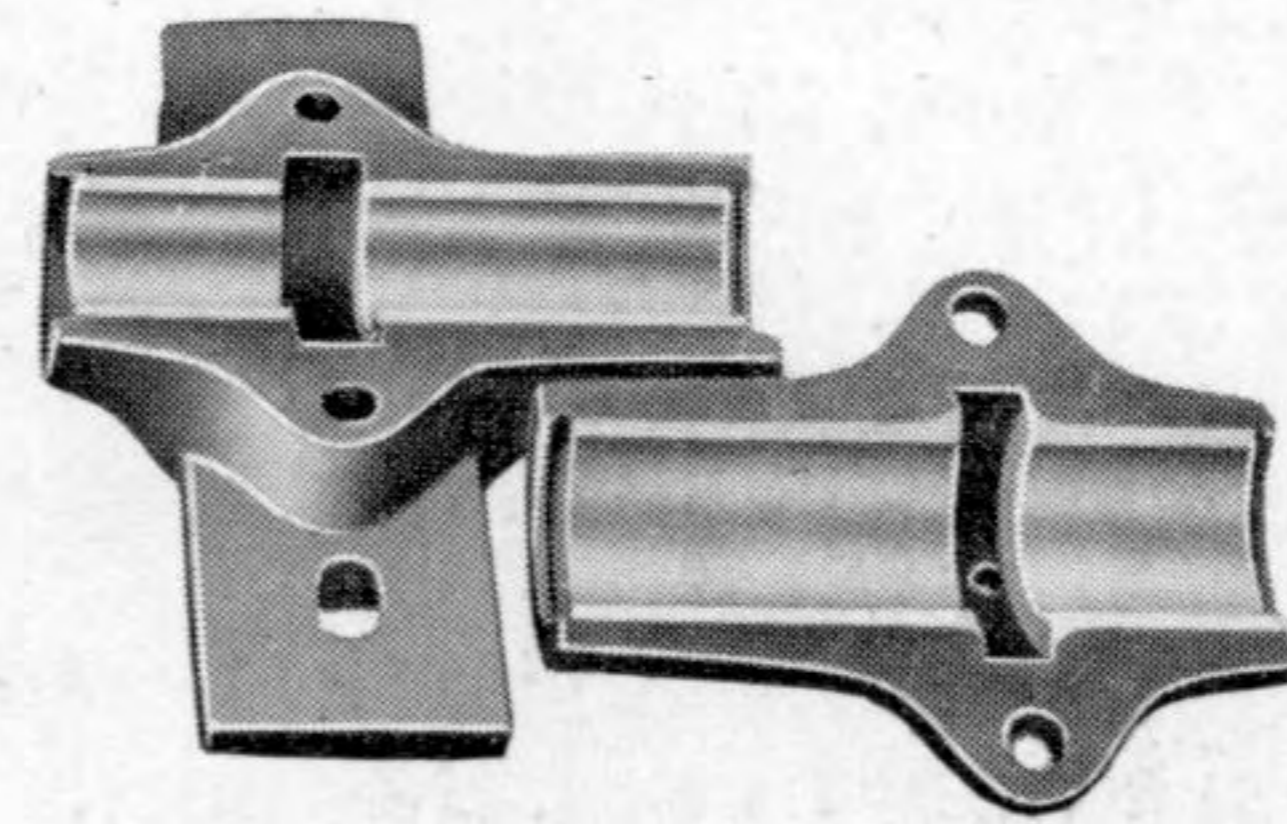
The Discs, they're the working powers—the friction applied to them gets the "made to order" results from any kind of power. This valuable feature, which is not possessed by any other mill, can't be fully appreciated until you see it in operation. The friction is near the center for low speed, and as the speed increases, the contact point travels toward the edge, thus increasing the speed to any degree desired—and all done instantly.

Ours is the only saw mill made by which the backward motion, called "Gig Back" can be varied as easily as the forward motion—when the front friction passes the center of the disc it reverses the motion of the carriage—both movements and the starting and stopping are controlled with one lever. The hub of the disc on the mandrel working against the mandrel box is not an objectionable feature because the pressure by the friction is very slight, and the oil from the mandrel box lubricates the joint between the hub of the disc and the box.

Some sawyers say a mandrel should have lateral play—they believe the carriage is to have more or less play in the trucks and the former is necessary to accommodate the latter. Both ideas are wrong—if a DeLoach mill is used.

Our lever control is very simple. Only one lever is necessary to control backward and forward motion—also starting and stopping. The extended parts are made of wrought iron—no breaking of castings.

The Mandrel Boxes are made extra long with



oil chamber and small chain running around the mandrel and lifting the oil over, making it impossible to heat. The oil then runs out through the box and into

a groove which returns it to the center chamber.

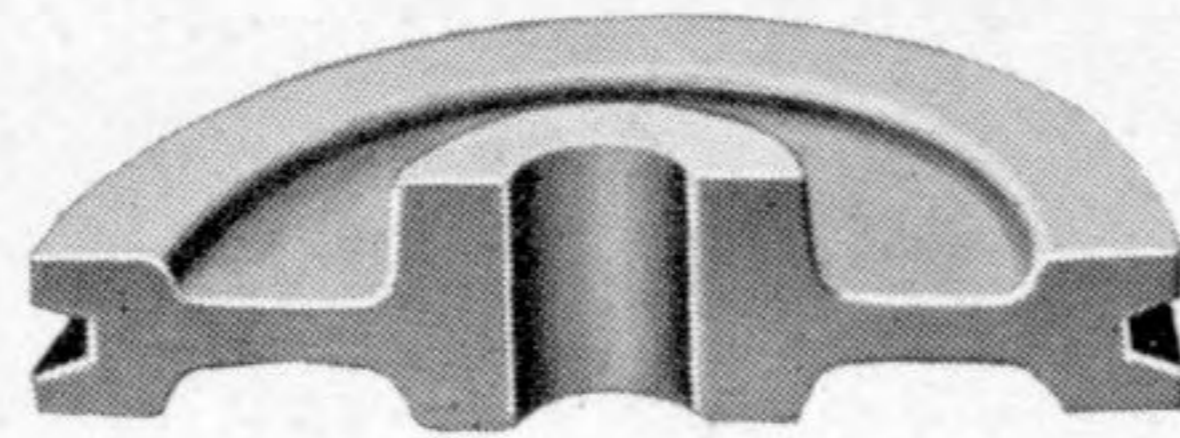
The Carriage is made of select Southern pine—solid and reliable. All the smaller mills are made with narrow carriage—compared with the head-block opening.

Some folks don't like the narrow carriage—but we've proved by experience that it's all right—especially desirable to make the portable mill light running and easy to handle. The narrow carriage allows lighter headblocks for a given strength—and it throws the weight of the log more equally between the front and back truck. A strip of band iron is fastened on inside of carriage to pro-

tect it from the head blocks. The carriage will handle logs for sawing boards as long as the short side of carriage and scantling same length as the rack beam.

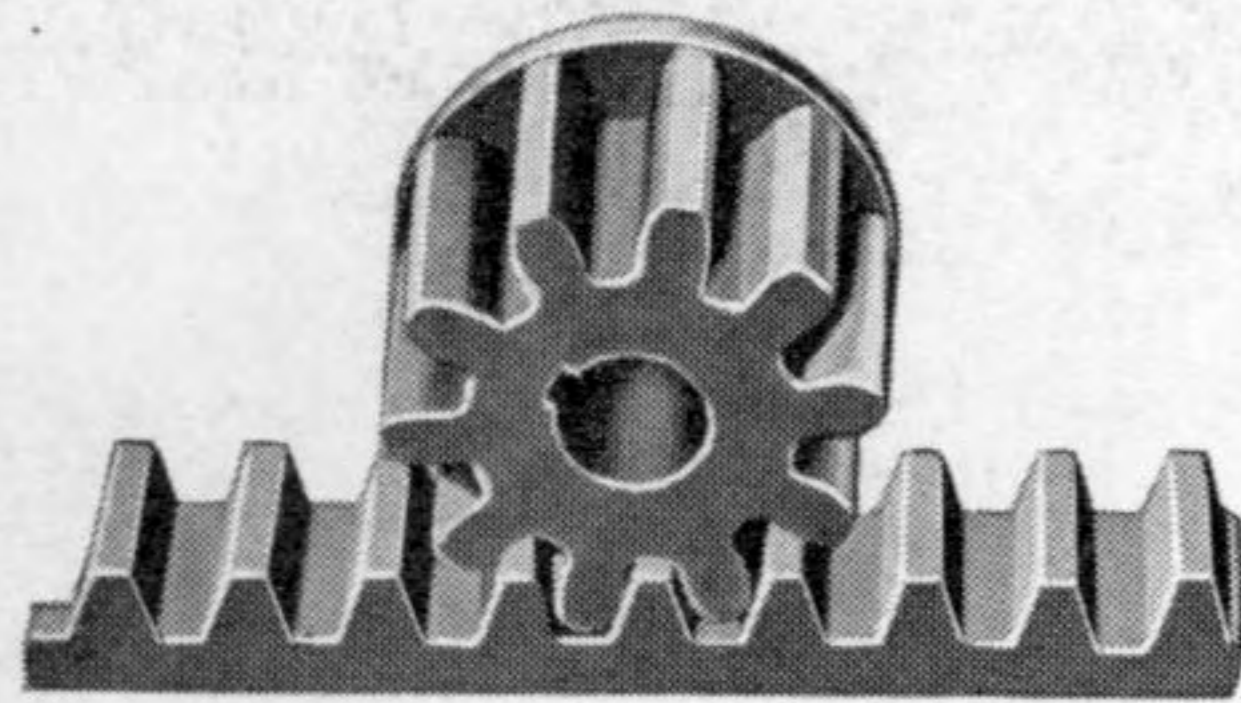
We make the broad carriage too—with set shaft on inside for No. 4 Mill and larger.

The Trucks are made extra heavy with long hub, and turned perfectly true—axles extending clear through the carriage and running in heavy rabbitted boxes with cups underneath for waste and oil.



A set collar next to the flat wheel takes all the lost motion out of the trucks and carriage.

The Rack Iron is about twice as heavy as is commonly used—coarse long cogs that prevent jumping and never break, fastened to the carriage with T headed bolts running clear through the timber—as it should be.



Haven't had a complaint about our rack iron in sixteen years—because we make it right.

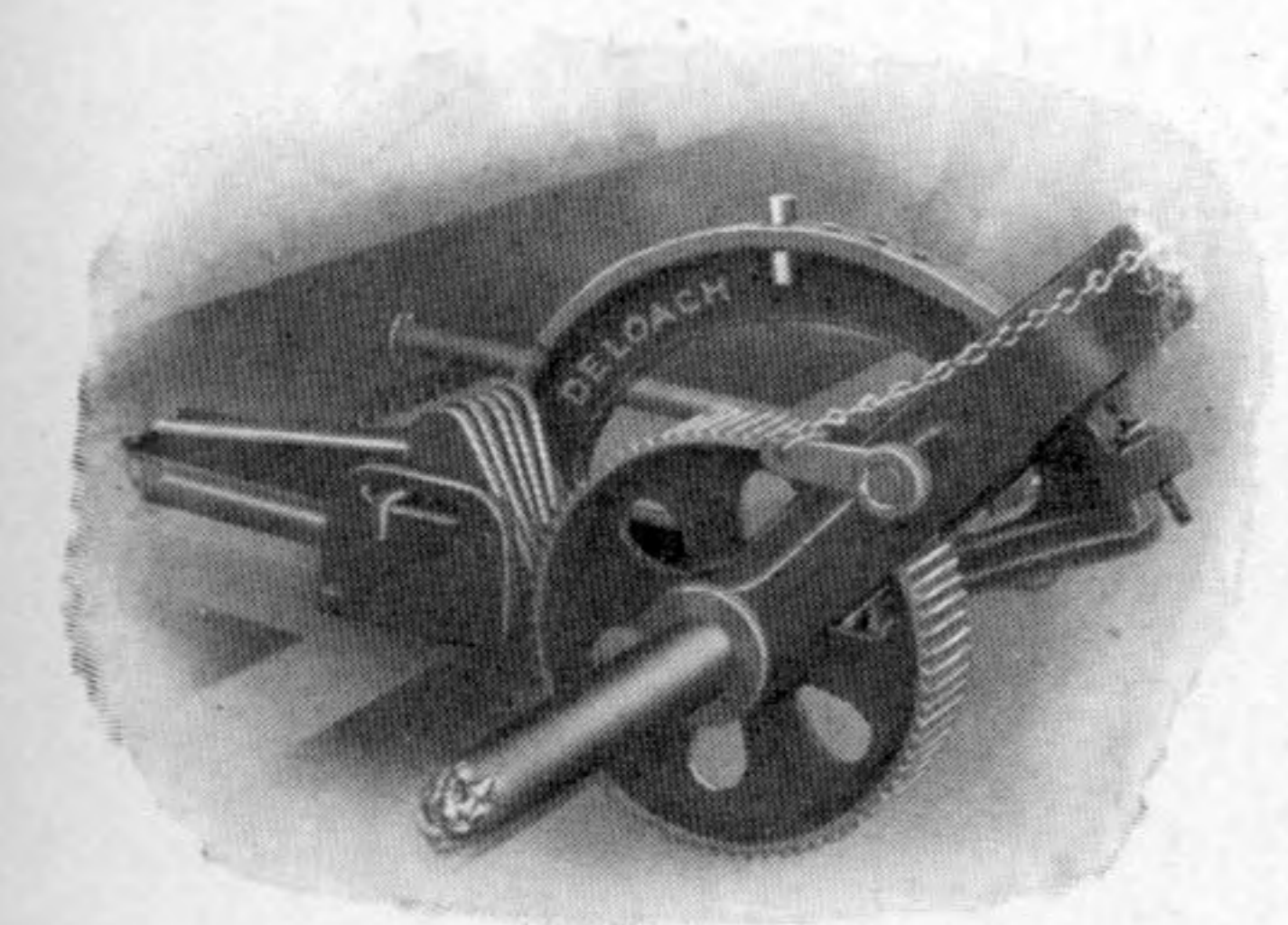
Head Blocks—Our headblocks are not as heavy as some, but they do the work and don't break. The front end has a double thickness of metal and our narrow carriage with set shaft on the outside admits using headblocks

50 per cent lighter than if the set shaft had to work on the inside of carriage. The headblock pinions are fitted with special care to prevent lost motion—bearings for set shaft have slotted holes, which admits of raising the shaft to keep the cogs deep in mesh to prevent lost motion. The set shaft is key seated full length, which admits of the blocks being placed within 4 feet of each other, or closer if desired. The figures do not get covered up with saw dust. They do not extend the full length of the block—they are only needed after the log is squared and the square cutting begins. We make steel headblocks as well as cast iron, to fit any requirements.

Our Champion Duplex Dog has no equal. It holds the round log to perfection and does not lose its grip either. When the log is squared the bottom dog grabs it, so that the last cuts are as perfect as the first, and in this way saves a great deal of lumber from being ruined, as is often the case with the single dog. The saving in this respect amounts to a great deal by using the DeLoach mill. When the handle is raised it pulls the top dog bit out of the log. The dog is quick, reliable and substantial. The headblock knee is slotted so that the bolts by which the dog rack is secured works up and down in this slot, having a play of 3-4-inch, and when the pressure is brought to bear on the top dog the beam is raised the limit of the 3-4-inch play, forcing the bottom dog into the timber. Our dog is also made for quarter sawing, as illustrated in this catalogue.

Our Saw Guides as recently improved, are made screw adjusting and we no longer send out the one shown on the standard mills illustrated in this catalog. This Guide is very simple and does not require a wrench to adjust it. The throat is very large and the wooden bearings for the saw are dovetailed in the Guide in a vertical position. We make other styles of Guides, as illustrated elsewhere in this catalog.

Our Ratchet Set Works are held in position by a heavy iron frame. Six chilled pawls are used on the small mills, closely fitted to an accurate steel shaft and put together with as much care in the smallest mill as for the largest. The pin holes for the setting are carefully and accurately drilled by template to set 1-4 inch ordinarily, though we make



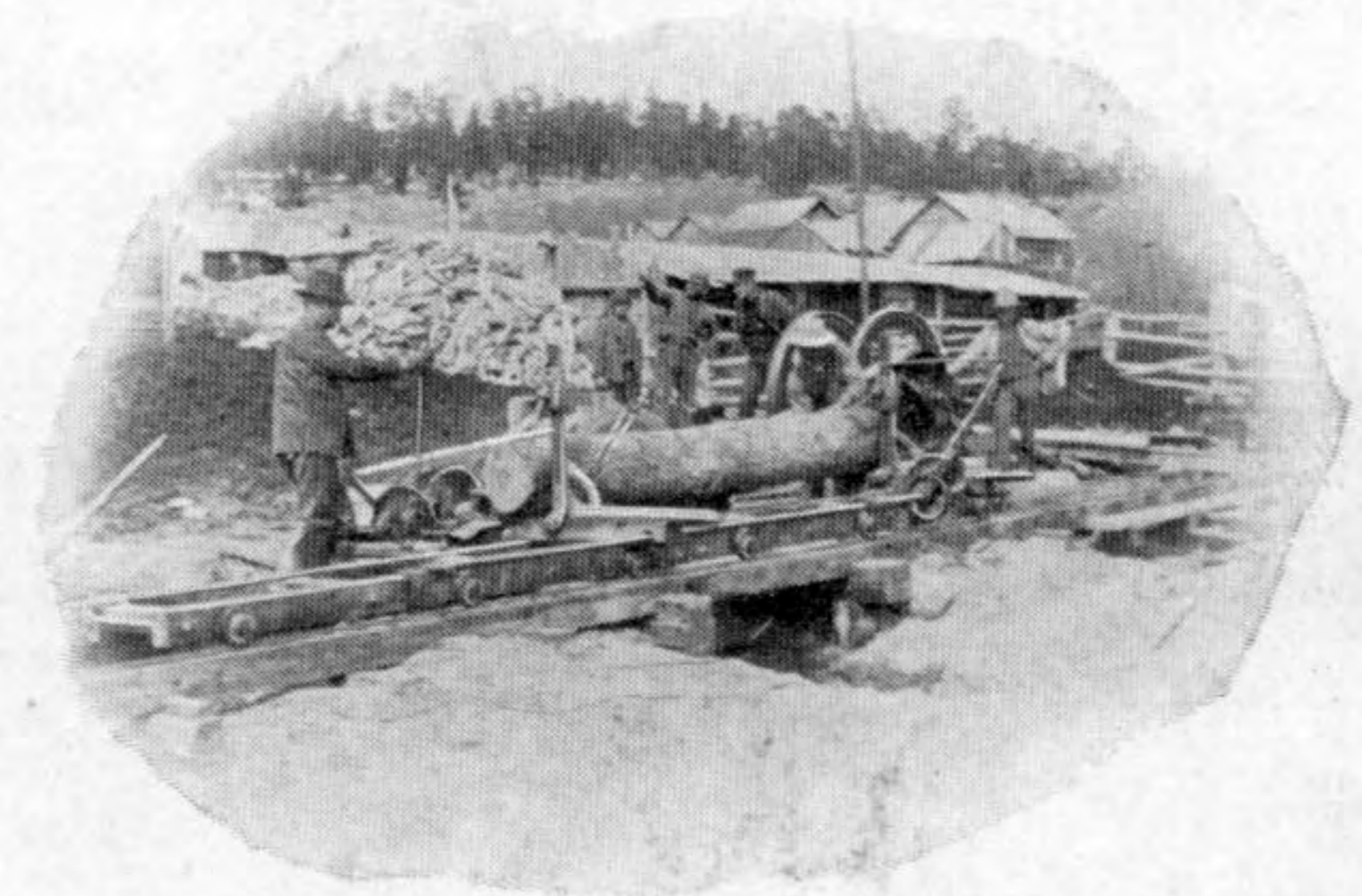
them to set 1-8 and 1-16 when desired. A set screw is arranged at the rear of the set lever, which is quickly adjusted forward or backward to make the cut full or scant. By this it is possible to make the cut as full or scant as may be desired up to within a fraction of 1-4-inch. By a twist of the hand lever the pawls are reversed to change the direction of the blocks and the receding is accomplished with the same lever as the setting. A small wrought iron push lever is conveniently arranged on top

the carriage to relieve the bottom pawls for reversing the direction of the headblocks.

Wire Rope Drive—For several years past the demand for wire rope drive has been constantly increasing until now every up-to-date operator of a medium or large saw mill considers wire rope drive a necessity. With it the carriage can be reversed very much quicker than with rack and pinion, for the reason that the latter will jump the cogs on a quick reverse and sometimes break if care is

not used, whereas with the rope drive the carriage can be instantly reversed. Another great advantage is in being able to run the carriage far out at either end to receive the log or deliver the lumber without having to stop the carriage at a given point every time. It will add 10 per cent. to the capacity of any mill. The life of the rope is from one to five years, and this can be very materially added to by a good coat of axle grease occasionally.

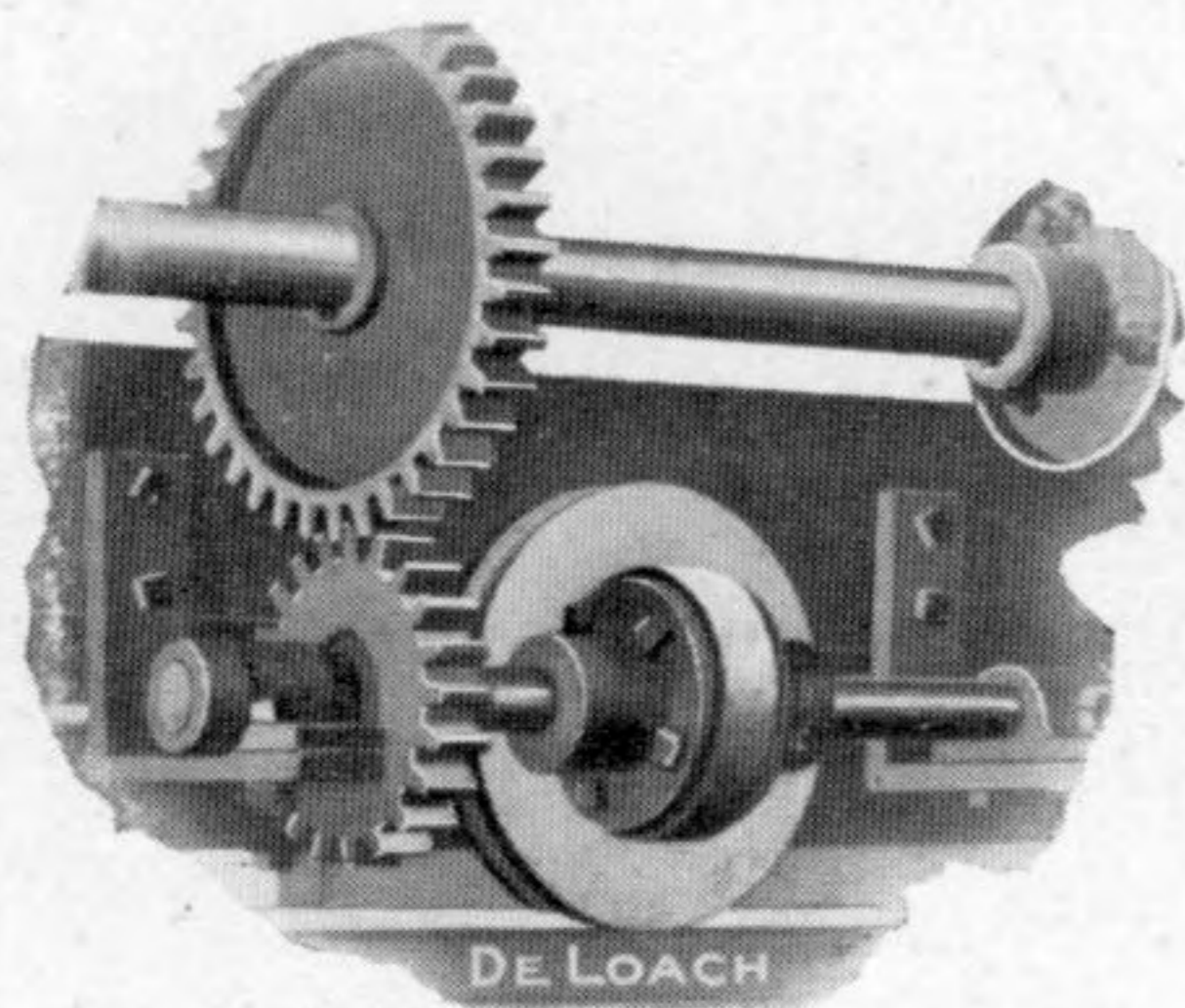
The Simplex Feed is warranted fully equal to any steam feed, and as illustrated in this catalog, is made with a large surplus of power and frictional surface to prevent heating, which would result if the frictions were



The DeLoach Mill in Colorado Operated By Gasoline Engine.

taxed to their capacity. It is really a wonderful feed and equal to all requirements—we think it has no equal for driving a heavy carriage.

Our Friction Receding Device for large mills is driven by one of the truck wheels on the back side of



the carriage. The side of the truck wheel is made in the form of a disc, and the friction working against this is easily thrown on and off by a lever in convenient reach of the operator. This arrangement admits of as quick or as slow

motion as may be desired, by placing the friction at different points on the wheel or disc.

Material and Workmanship—The frame work of all our mills is made of the best Southern yellow pine, well seasoned and sized true to 1-32 inch. The mandrel, friction shafts, truck shafts and set shaft are all made of steel—turned, ground and highly polished—true to one-thousandth part of an inch and the best that can be had.

The ordinary cold rolled shafting is considered good enough for ordinary purposes, but there is no comparison between it and the material we use. Our castings are made from No. 1 Alabama iron, which is known to be as good, if not better than can be had elsewhere. The

journals are all babbitted—are extra long, well fitted and provided with oil chamber and chain, or wick oilers, so that the shafts run in oil all the time. The discs are all ground perfectly true on a special grinding machine designed for this purpose, and each disc is finished on its own shaft so that it will be absolutely true. The discs are thoroughly balanced so that the mill in full speed has no vibration.

Specifications—We reserve the right to make any slight changes in the specifications given in our catalogue, which will not materially affect the value of the mills. We will change the specifications to any reasonable extent to conform to any special requirements.

All of our mills up to and including Number 3 are furnished with the Variable Friction Feed, except when belt feed is desired. Number 4 and larger mills are made exclusively with the Simplex Feed, also the Number 2 and Number 3 when desired.

About Weight—We get letters saying heavier mills than ours can be bought at the same price or less—we know it, but they're not DELOACH MILLS. We use brains to save metal and unproductive weight. It's not the cast iron that's expensive—it's the machine work that adds to the cost and value. Many small mills are made with mandrels as large as 3 inches, which, it is claimed, is a great selling point, whereas, as a matter of fact, it is a detriment to the mill. This size mandrel will stand 50 or 60 H. P., and one-half it's strength would answer better

for the average portable mill. We have many customers who have cut 4-ft. logs on No. 1 Mill, and others who have cut 15,000 feet per day with the same mill—every bit of the work done as it should be done—perfectly.

Summing up our Claims—A few saw mills we know of possess one or two good features. Ours have them all. We ship them in large numbers to all parts of the world. Think perhaps we know how to build them—large and small and for all kinds of people.

The Gold Medal awarded us at the Chicago World's Fair, 1893, is in line with the success of the DeLoach Variable Friction Feed saw mill from the beginning to the present time. We have taken first prize in every contest to date, and have arranged for a large exhibit at the St. Louis World's Fair next year.

In Ordering—Be sure to give amount of power to be used, the size and speed of your driving pulley and if right or left hand mill is wanted. State character of work, also length and size of logs to be cut and daily capacity desired.

We furnish any size pulley up to and including 24-inch, without extra charge, if ordered with the mill.

A right-hand mill is always shipped unless left-hand is especially ordered.

On a right-hand mill, with saw running toward the sawyer, the saw is to his right, and left hand, vice versa.

Practical Hints—Selecting and operating a saw mill should be a special study with the man who buys it—

especially the operating features of the mill considered. Here's the how—First, buy a "DeLoach" and the rest is easy, because the "DeLoach" is so simple to operate and so easy to understand. Never buy a mill because it's cheaper by \$25.00, \$50.00 or \$100.00. It won't do the work and you won't save the difference. The cheaper mill may not break down but you will lose enough time every month in the year to buy a "DeLoach." Any man who has bought a cheap mill knows that it will bankrupt its owner quicker than anything else. The modern saw mill of today is as superior to the styles of ten years ago as the electric car is ahead of the horse car. Our experience in selling mills all over the country justifies the statement that any man of ordinary intelligence can operate the "DeLoach" mill successfully. The best way to do this is to learn to operate the mill himself and be independent of the "forty years' experience."

How to set the DeLoach Mill—It's one of our sales conditions that every mill that goes out of our works be set and operated strictly in accordance with our instructions—then we'll be responsible for the results.

Our specifications for each size mill are given elsewhere.

When portable track stringers are not shipped with the mill, use good large sills—the larger the better—and crossties underneath, number and size in proportion to stringers.

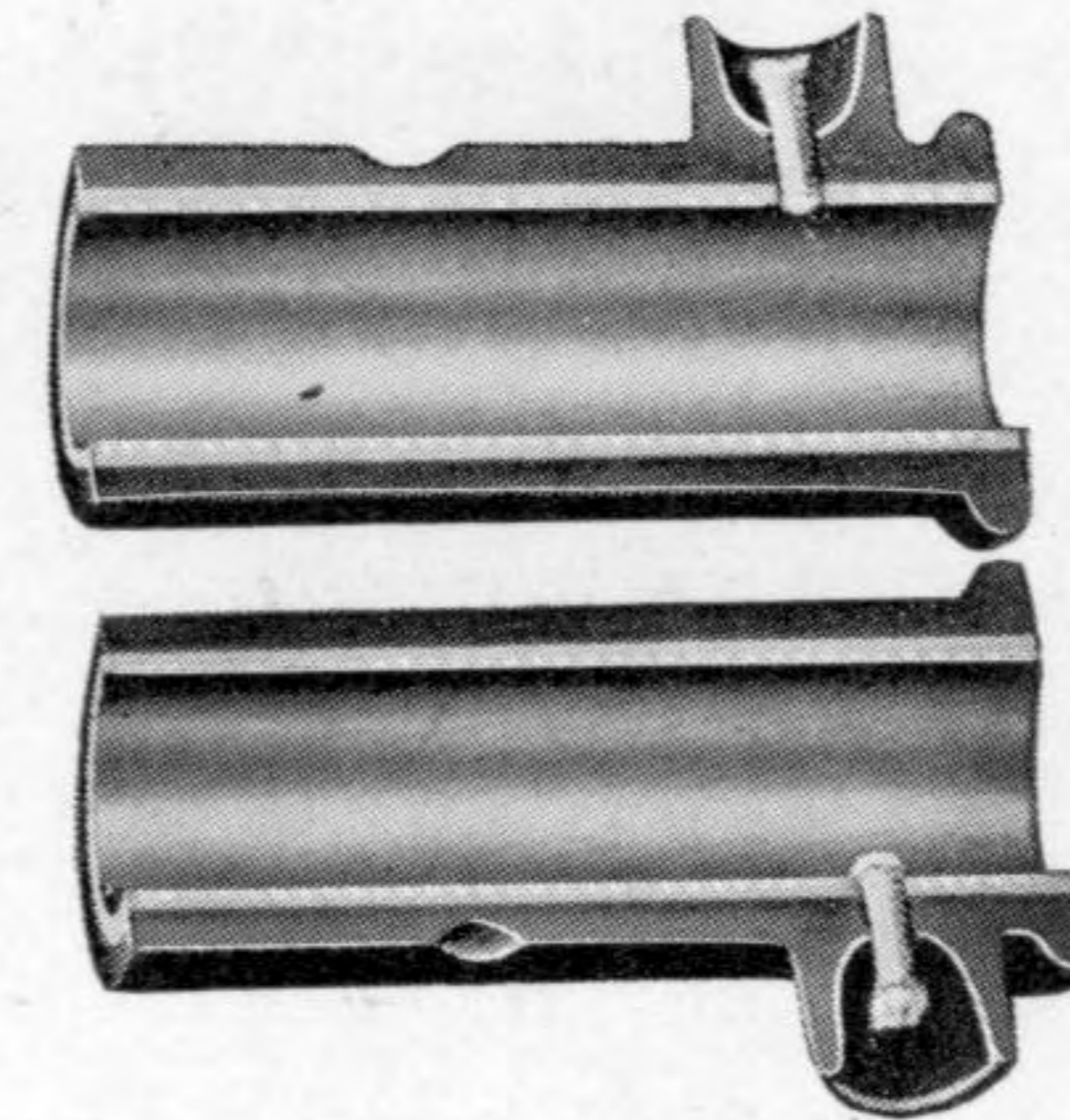
The stringers for small mills may be 6x6 if convenient,

and crossties three feet apart. If the stringers are as small as 4x4, the crossties should be eighteen inches apart.

Put flat track iron one inch from the outer edge of the front track stringer and cut the gain for the rack shaft bearing and pinion on the inside of this sill, to a thickness of three inches.

Operating the Mill—Every mill should have a tightening pulley. It saves a lot of time increases the capacity of the mill and makes the belt last longer. In starting the mill, go slowly and see that the bearings do not heat. Watch the adjustments and see that there is not too much pressure on the friction pulley next to the mandrel. It is better to run a little slack on the frictions until the mill has run for a few hours. Never press the paper pulley hard against the disc—especially while the disc is running and the paper pulley is stationary—it will grind a flat place on the face of the paper pulley and make it out of true. Both the discs and frictions have to be absolutely true in order to give proper results. Keep the frictions dry and do not allow anything put on them. The mill, and especially the paper pulleys, should be protected from the dampness. The rods in the husk frame and carriage should be kept well tightened. The husk frame should be kept square and the shafts at right angles with each other—a rod running diagonally across the husk frame answers this purpose.

Oiling—It is a big mistake to use a cheap oil. One gallon of good oil is worth three or four gallons of cheap



oil and will save lots of time. All the bearings in our mills are made wick or chain oiling, which makes them very economical in the use of oil, as well as more satisfactory in other particulars. One oiling a day is sufficient for our mills.

Be sure to take care of the small round wicks on the friction bearings. They save the oil, and the bearings from heating. The truck boxes have cups for waste and oil and they should have oil once every two or three days.

Cause of Trouble and the Remedy—In shipping 1,500 saw mills a year we assert it as a fact that in nearly every instance where parties experience any trouble in operating a saw mill it arises from the lack of a proper knowledge either of what kind of a saw to use, or how to take care of one. On one occasion we received a telegram from Louisiana saying our mill was a failure and to send a man at once. As the situation was a very unusual one, and in order to be certain to devise a sure remedy, instead of sending an ordinary machinist, one of our best men took the train immediately for the trip, about six hundred miles. On his arrival he found that the mill was all right in every particular, and the saw **merely needed swedging.**

Before he left the owner gave him a letter of recommendation of the mill, saying it was the best he ever saw, etc. In this case it cost nearly \$100 to teach this customer how to swedge his saw. If we appear tedious in our advice on these points, we trust our customers will appreciate the reason after such experiences as the above. Our mill needs no more, and we think less, explanation and care than any other mill. We would rather miss the sale of a mill any time than to sell it and know that it would not be operated successfully.

Don't Forget that there is always a remedy, and if your mill does not work *entirely* all right in every particular, be sure to advise us and you will find it to your advantage. We will appreciate it always to be shown this consideration.

Size of Saws—With the Variable Feed Mill, any size saw can be used according to the size of the logs—regardless of the amount of power used. With a large saw, a large pulley must be used on the mandrel to reduce the speed to correspond with the size of the saw and the power. The diameter of the saw should be about one and a half times the diameter of the log to be cut—a 36-inch log requires a 54-inch saw—a 40-inch log requires a 60-inch saw, and so on. 4-horse power can be made to run a 54-inch saw successfully by using a thin saw with few teeth and slow speed.

Speed of Saws—Speeding saws too high is a very common mistake—usually a serious and a foolish error of

judgement. Manufacturers, in their catalogues, give the maximum speeds at which their saws may be operated with safety and the basis that the highest power the saws are calculated to withstand. These speeds cannot properly be used as the basis of the highest power the saws will withstand—they're put there for selling purposes of the saw makers and to show what the saw will stand, not what it is supposed to do in practical work. While speed is power—it's easy to consume all the power in speed without doing any work. A 48-inch saw run by a 10-horse power engine should have a speed of 300 revolutions a minute—slower if the saw has the usual number of teeth. About twenty teeth are necessary to give the best results at 300 revolutions—the usual number is 300—and usually work satisfactorily.

Portable mills running with 20-horse power and under, should run the rim of the saw at a speed not exceeding 360 ft. per minute to each horse power. For example, multiply 360 by 10-horse power, and divide this by 12 ft., (circumference of the 48-inch saw) and you get 300 revolutions per minute. For smaller power the speed should be some higher in proportion, but the saw should have fewer teeth to make up for the higher speed. 20-horse power and the above should have less speed in proportion to the larger number of teeth. With this power the teeth should be 5 inches apart, which will give 30 teeth to the 48-inch saw. For a larger power, the teeth should be closer together until they reach the limit

of 3 inches apart, and then as the power is increased the speed of the saw is increased to correspond. A saw must be speeded right to give the best results.

To aid in the selection of a saw and to determine its proper speed, we give the following table, based on a saw 48 inches in diameter:

Power	Distance from Point to Point of Teeth	Number of Teeth	Speed of Saw
4	10 inches	15	250
6	9 "	17	250
8	8 "	19	275
10	7 "	21	300
12	6 "	24	350
15	5 "	30	375
20	5 "	30	400

To find the proper speed of larger or smaller saws, multiply the speed given of a 48-inch saw by 48 and divide the product by the size of the saw selected. A larger saw should have a greater number of teeth, and a smaller saw a lesser number, the distance apart remaining approximately the same.

In ordering a saw mill or saw, the amount of power used, size and speed of driving pulley should always be given so that a pulley of the proper size may be sent with the mill and a suitable saw selected.

Proper Gauge of Saws—It is almost a universal practice to use a thicker saw than is really necessary. For portable mills we advise always 8 x 9 gauge. For cutting valuable hard woods we recommend 9 x 10 gauge. The

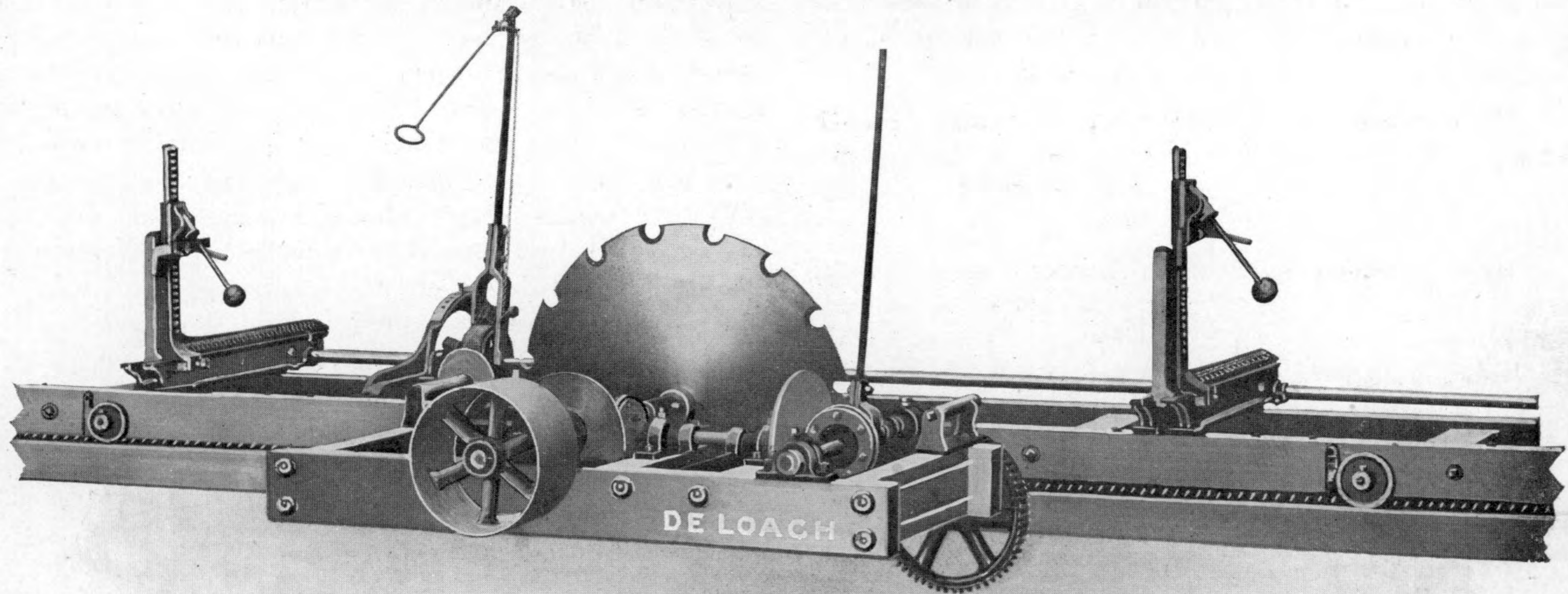
selection and keeping up of the saw is the most important feature about operating a saw mill.

Solid or Inserted Tooth Saw—Which to buy is an important question always. For portable mills where only one saw is used it is best, runs with less care and keeps in cutting order longer than the solid tooth. In case of an accident, breaking one or more teeth, they can be replaced, whereas the solid would stop the mill for some time. Again, the inserted tooth retains its original size and saves a good deal of time and trouble in gumming and keeping the teeth in proper shape. Altogether, the inserted tooth saw is more economical in the end, though more expensive in the beginning.

How to Hang and Line Saws.—It does not follow that because one saw will work well that another will do so on the same mandrel, or that two saws will hang alike on the same mandrel.

In hanging a new saw, after screwing it up between the collars examine carefully on the front or log side, and see if the front of the saw is flat. If it is found to be rounding on the log side, cut a ring of paper about half an inch wide, **the size of the collar on the outside**, oil it and stick it on the face of the fast collar around the outer edge. Then cut another ring of paper the same width, making the hole the same size as the hole in the loose collar; put this small ring between the loose collar and the saw, and screw up the collar. If the two rings are not enough, put in more until the saw comes flat and true.

The DeLoach No. 0 Pony Saw Mill



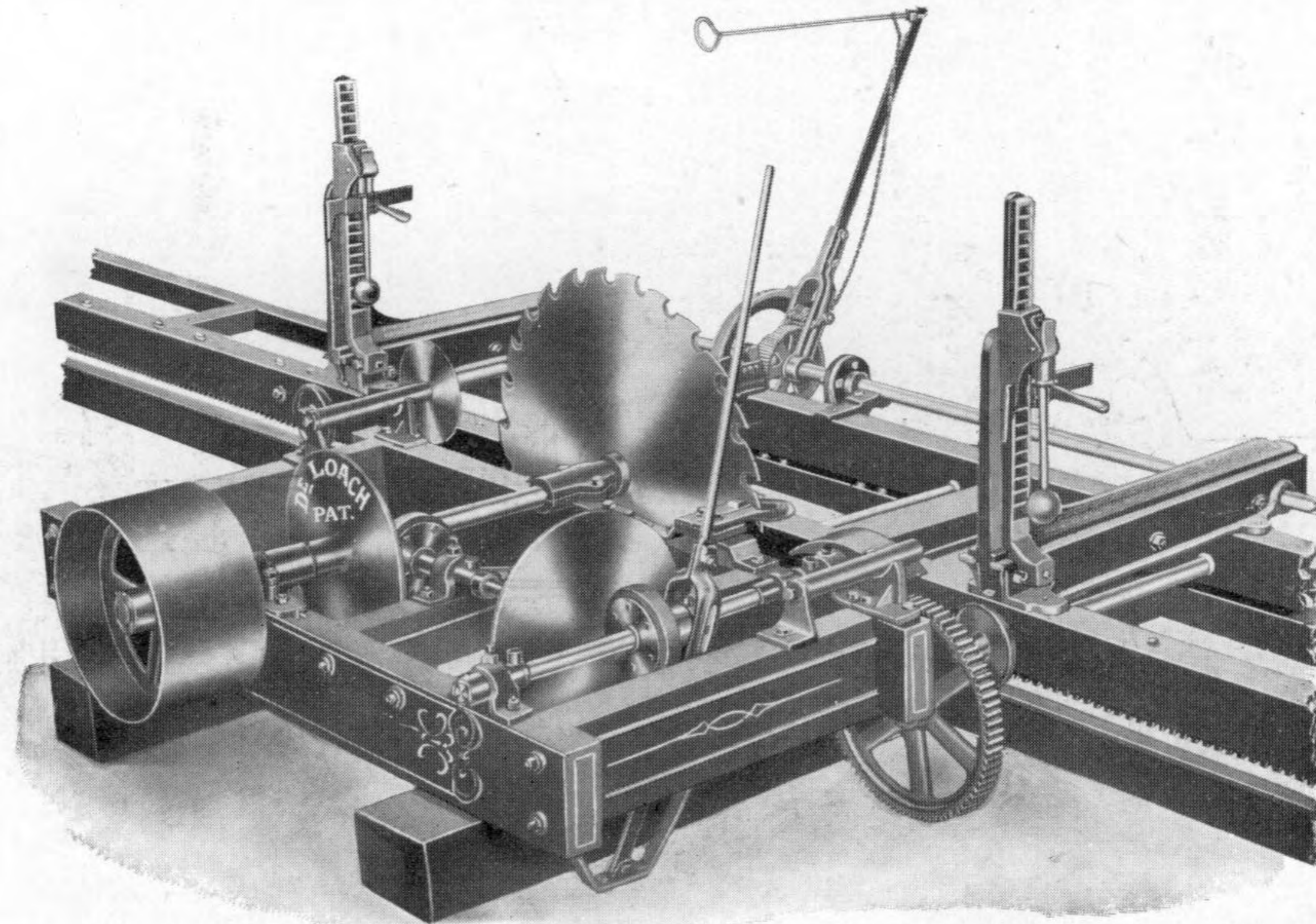
This Mill is Warranted to cut 2,000 to 2,500 feet of first-class board lumber per day with 4-h. p.; 3,000 feet with 6-h. p.; 4,000 with 8-h. p., etc., and is adapted to any kind or size power up to 15-h. p.

Specifications: Husk, 7' long, 2' 8" wide; Timbers, 3½ x 7½"; 2 3-16"-Steel Mandrel, 4' long, for saw with 2" eye and 5/8" pin holes 3" center to center; Adjustable Chain-Oiling Mandrel Boxes; Board Roller; Wheel Spreader; Double Adjustable Saw Guide; DeLoach Patent Variable Friction Feed; Mandrel Pulley, 20x10"; Carriage,

16' long in two 8' sections, 26" wide; Timbers, 4x6"; Rack Beam, 22' long; 4 sets 6" Trucks and 1½" Steel Axles with Set Collar in front of loose wheels to take up wear; Four Track Cleaners; 35' Track Iron; Two Head Blocks open 36" and take logs up to 3½', each fitted with "Champion" Duplex Dogs; Improved Ratchet Set Works; 15' 1 11-16" Steel Set Shaft, in two pieces, key-seated entire length, with Coupling fitted; Wrenches, Cant Hook and Oil Can. Will carry any size saw up to 54". Weight, 2,200 pounds.

The DeLoach No. 2 Pony Saw Mill

Cipher Name "GEORGIA"



We have designed this special mill for the accommodation of a large number of customers who have light power and heavy timber. We guarantee it to work successfully and in every way satisfactorily with from 4 to 20-horse power.

Specifications: The Husk Frame is the same as our regular No. 1, and the Carriage the same as our regular No. 2, except that it is shorter. The short side of Carriage is 18 feet long, and the Rack Beam 26 feet long; width of Carriage, 36 inches; Two No. 2 Head Blocks (open 43 1-2 inches) with "Champion" Duplex Dogs and 14 feet of 1 15-16-inch Set Shaft; Four Trucks, 8 inches diameter

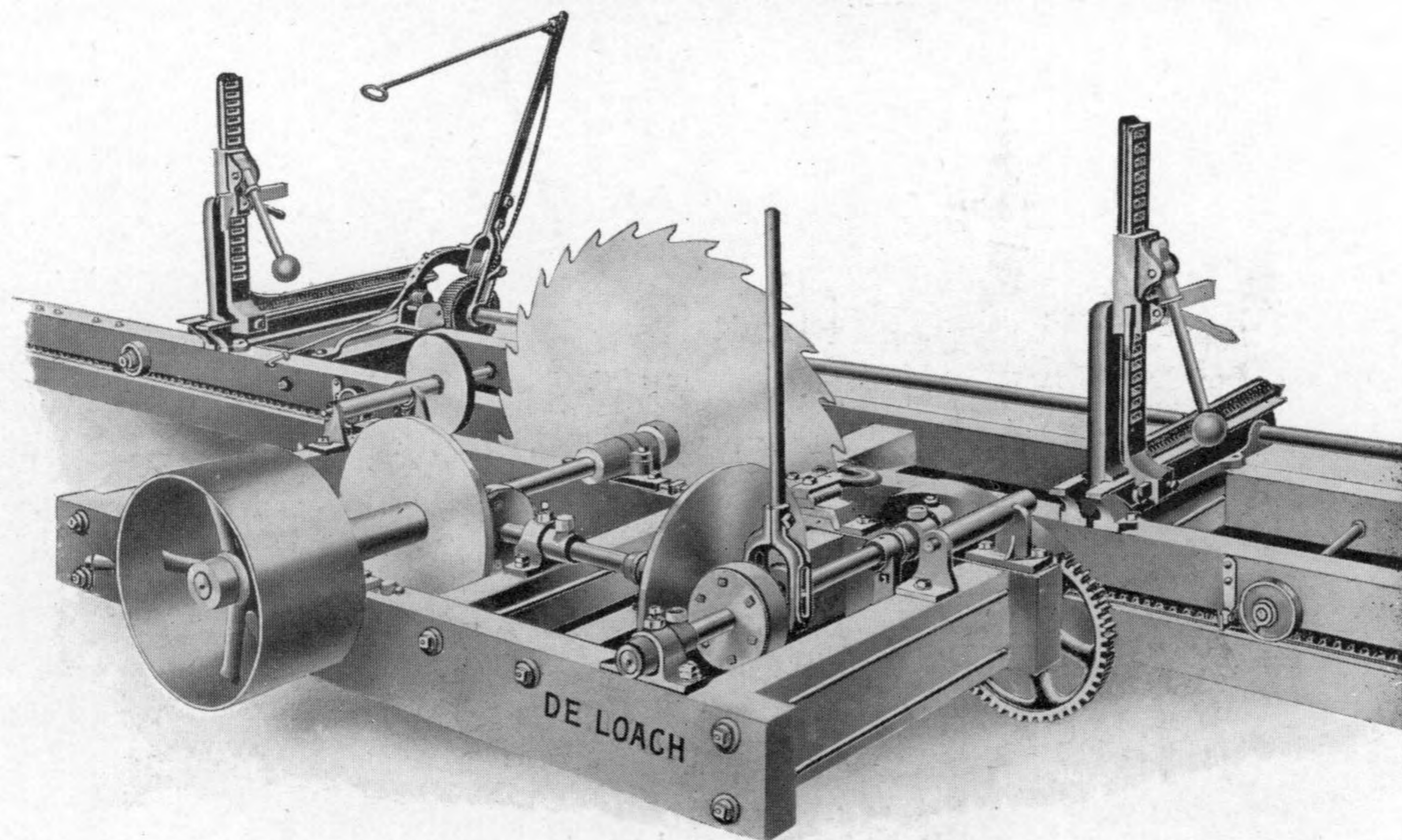
on 1 1-2 inch axles set in self-oiling babbitted bearings with cups for waste and oil; 45 feet of Track-Iron and screws for same; Four Track Cleaners for front side of carriage; Cant-Hook, Oil Can and wrenches.

Capacity, 2,000 to 10,000 feet per day, with 4 to 20-horse power, and will take up to 54" saw.

If desired, this mill can be furnished with Manilla or Wire Rope Drive in place of rack, with Carriage any length, with additional Head Blocks, wood-work for Track, Belt Tightener, Lumber Trucks, Saw and Belt.

The DeLoach No. 1 Saw Mill

Cipher Name "ATLANTA"



Specifications: Husk Frame, 7 1-2 feet long, 3 1-2 feet wide, timbers, 3 1-2x9 1-2"; Steel Mandrel, 2 3-16 inches, 5 feet long; Ring Oiling Adjustable Mandrel Boxes, 3 5-8 inches long; Board Roller; Wheel Spreader; Double Adjustable Saw Guide; DeLoach Patent Variable Friction Feed; Mandrel Pulley, 20x10 (larger pulley furnished if ordered with mill); Carriage 22 feet long, 2 feet 3 inches wide, timbers, 3 1-2x5 1-2; Rack-Beam, 27 feet long; six sets 6-inch Trucks, 1 1-8-inch steel axles, set in self-oiling babbitted bearings with cups for waste and oil; Set Collar in front of loose wheel to take up lost motion; Six Track Cleaners for front side of Carriage; forty-five feet Track Iron and screws for same, back side cast V and

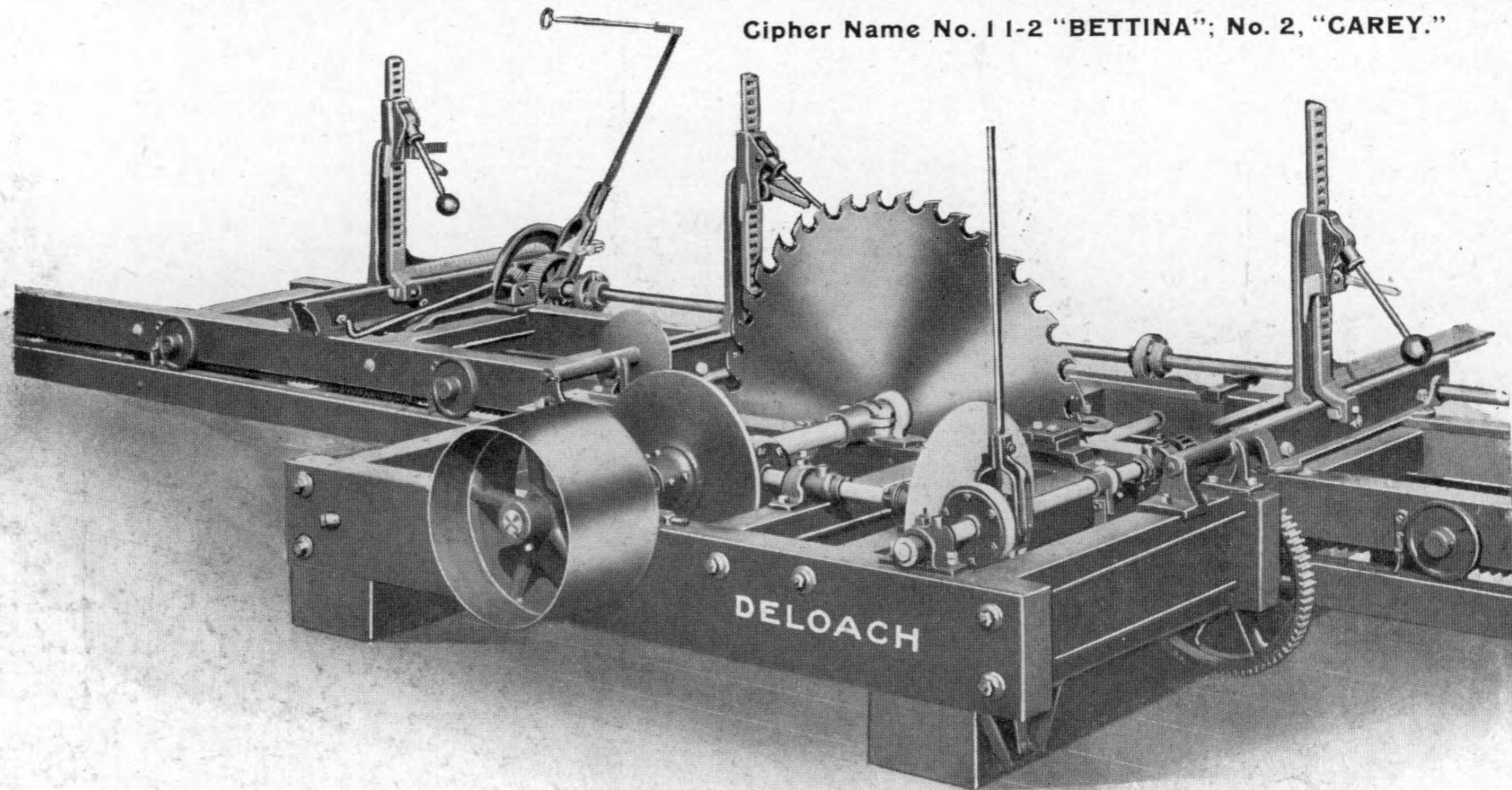
front side flat wrought iron; two simultaneous Ratchet Head Blocks, to open 36 inches and take log 40 inches in diameter, with "Champion" Duplex Dogs; 15 feet of 1 11-16 Set Shaft with flange coupling; Wrenches, Cant-Hook and Oil Can.

Capacity of No. 1 mill, 2,000 to 10,000 feet per day, with 4 to 20-horse power, and will take up to 54-inch Saw.

If desired, this mill can be furnished with Manilla or Wire Rope Drive in place of Rack, with Carriage any length, with additional Head Blocks, Wood-Work for Track, Belt Tightener, Lumber Trucks, Saw and Belt.

The DeLoach Nos. 1½ and 2 Saw Mills

Cipher Name No. 1 1-2 "BETTINA"; No. 2, "CAREY."



The Standard Mill has two Head Blocks—can be furnished with three, as shown above, or more.

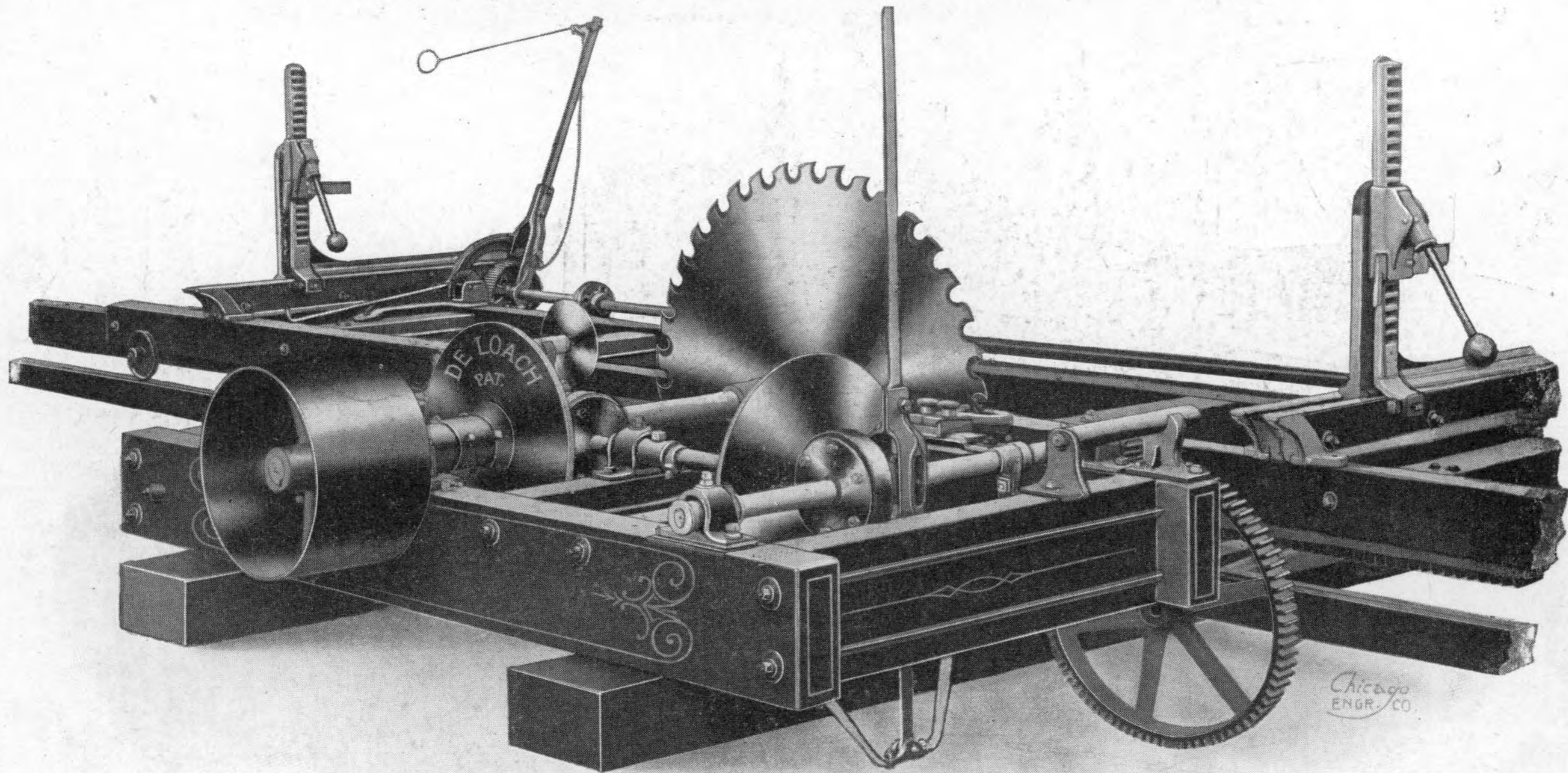
Specifications No. 1 1-2 Mill; Husk, 8' 4" x 4'; Timbers, 4 1-2 x 11 1-2"; Mandrel, 2 7-16" x 5 1-2'; Ring-Oiling Mandrel Boxes, 8 7-8" long; Board-Roller; Spreader; Adjustable Saw-Guide; DeLoach Patent Variable Friction Feed; Mandrel Pulley, 20 x 12"; Carriage, 24' long, 36" wide; Timbers, 4 1-4 x 6 1-4"; 32' Rack Beam; 6 sets 8" Trucks, 1 1-2" axles, self-oiling babbitted bearings and cups for waste and oil; Set Collar in front of loose wheel to take up lost motion; 6 Track Cleaners; 50 feet Track Iron and Screws for same; 2 Head Blocks, opening 43 1-2" with "Champion" Duplex Dogs; 18' of 1 15 16" Set Shaft with Flange Coupling; Wrenches, Cant-Hook and Oil Can.

Capacity, 2,000 to 15,000' per day, with from 4 to 25-horse power, and will take any size saw up to 60".

The No. 2 Mill is the same as No. 1½ shown and described above, except that the Husk is 9' long, 4' 6" wide, has Mandrel 2 11-16" x 6", and Feed works correspondingly heavier. Complete specifications on page 22.

If desired, these mills can be furnished with Manilla or Wire Rope Drive in place of Rack, with Carriage any length, with additional Head Blocks, Wood-Work for Track, Belt Tightener, Lumber Trucks, Saw and Belt.

No. 2 Special and No. 3 Saw Mills



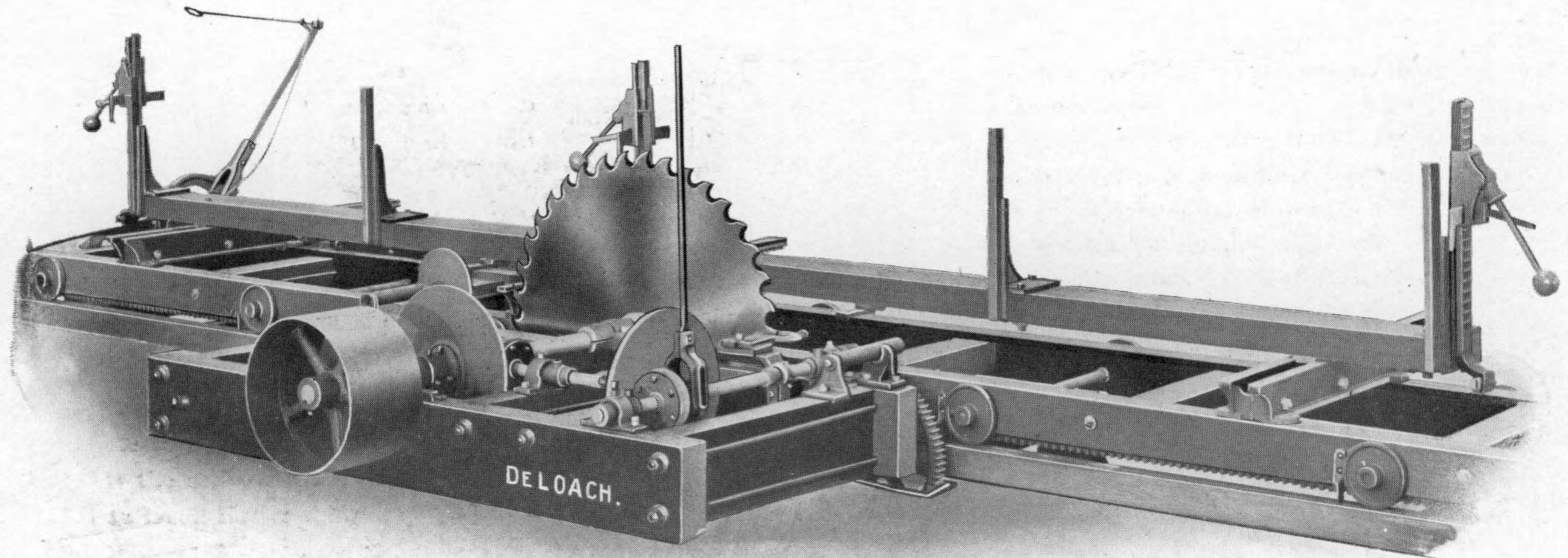
Our No. 2 Special is the same as our Standard No. 2, except that the carriage is 2 1-2" wider and has heavy rack beam near center of carriage instead of on side, and the head blocks open 48". It is especially adapted to large timber. Truck axle boxes are fastened to bottom of carriage and made extra heavy, with cups for

waste and oil. See page 22 for complete specifications.

Capacity, 10,000 to 20,000 feet per day with 20 to 30 H. P.

Our No. 3 Mill is the same, in appearance, as the No. 2 Special Mill shown above, except with different specifications; complete specifications will be found on page 22.

“Gem” Log Beam Saw Mill



The “Gem” Log Beam Mill shown in this cut, is built in all sizes from the smallest to the largest, and is a very popular mill for certain kinds of work. For cutting hard woods it is especially desirable. It is used either with or without guage roller. The regular rack and pinion headblocks are used with special pattern knee to receive the wooden beam and the cast iron knees bolted on top of the beam receive hard wood strips, as shown in the cut, against which the lumber rests. By using the wooden strips the headblocks can be run right up to the saw while in motion and trim off the strips until they are perfectly true from one end to the other. Another advantage is in having the wooden strips on the face in this

manner, as the possibility of running the saw into the iron Head-Blocks is prevented.

Our Champion Duplex Dogs are easily attached to this style mill, and parallel bars as well. The Log Beam is the same length as the short side of the carriage in regular specifications.

Specifications for all Gem Log Beam Mills are the same as the standard specifications, except that they include three headblocks, three dogs and five standards, or as many extra as desired.

The weight of the Gem Log Beam Mills is about 25 per cent more than mills of standard specifications.

If the saw hangs dishing on the log side, **reverse the rings of paper**; that is, put the small rings between the saw and the fast collar, and the large ring against the loose collar.

Should the saw run a little out of true on the rim, it may be made to run true by packing with writing paper between the saw and fast collar. It is necessary that the saw mandrel should be **perfectly level** so that the saw will hang **exactly plumb**.

Never attempt to run a saw **that is dishing** on the log side as it will be sure to draw towards the log. The carriage track **must** be straight and level, so that the carriage can run true.

How to file and keep in order Circular Saws.—It is not well to file all of the teeth of circular saws from the same side of the saw, especially if each alternate tooth is bent for the set, but file one-half of the teeth from each side of the saw, and of the teeth that are bent from you, so as to leave them on a slight bevel—leave the outer corners a little the longest.

A saw with teeth bent for the set is harder to run and keep in order than when teeth are swedged

Never file any saw to too sharp or acute angles under the teeth, but on circular lines, as all saws are liable to crack from sharp corners.

Keep your saw round, so that each tooth will do its proportional part of the work.

Saw teeth wear narrow at the extreme points; conse-

quently they must be kept spread so that they will be widest at the very points of the teeth; otherwise saws will not work successfully.

Teeth should be kept as near a uniform shape and distance apart as possible, in order to keep a circular saw in balance and condition for business.

Frosted steel is always brittle. No intelligent woodsman will use a good chopping axe on hard frozen timber until after he has taken the frost out of it, and no intelligent sawyer will attempt to set teeth of any saw without taking out the frost.

The greatest wear on the saw is on the under edges of the teeth. File nearly to an edge, (but not quite), leaving a short bevel of 1-32 of an inch wide on the under side of the point. **But in no instance file to a fine point and thin wire edge.**

Be sure that the saw hangs properly on the mandrel.

The saw must be in proper line with the carriage and the carriage run true.

The mandrel must be level and run freely in the boxes.

Do nearly all the filing on the under sides of the teeth, and see that they are **well spread** at the points; file square and have them project alike on both sides of the saw.

If the saw heats in the center when the mandrel runs cool in the boxes, cool it off and line it into the log a little.

If the saw heats on the rim and not in the center, cool it off and line it out of the log a little—and vice versa if it heats in the center. Every sawyer should have a side file to keep the teeth the same width.

Directions for Running Chisel Tooth Saws.—First the saw should be placed on the mandrel where it is to be run, observing directions for hanging circular saws.

Before commencing to insert the teeth, provide a cup of oil, which, together with the teeth, place conveniently near where you will stand, at the back of the saw. Take the wrench, place the pins in the holes in the shank, and turn it so that the hook projects sufficiently to receive the bit, pick up a tooth with the other hand and dip its grooved segment into the oil; then place in position and hold it firmly and even with the sides of the blade, while at the same time press the wrench downward until the shank fits into its place.

The chisel teeth are exact in width, and the spread uniformly good, and make smoother lumber than is made by the solid saw, even when not in the hands of first-class sawyers; but if extra nice work is desired, try a gauge on the side of each tooth, and if any are found to project a trifle too far, reduce them with a side file, being careful to preserve the same relief of the corner. No flat surface should be allowed on the sides of the teeth; they must be relieved from the very edge; then the saw will run straight, and with the least possible expenditure of power, and

make smooth lumber. Practical use of the chisel bits has proven conclusively that in order to get the most and best use of them, when a set has been inserted and properly adjusted, they should remain until they are worn out, and as often as may be required edge them up by applying a file to their face or under side; after being sharpened several times they should be relieved on the side, so as to keep their corners sharp. Should a shank become straight or compressed, by reason of the saw having been run on iron, so that it will not hold the bit firmly, lay it on an anvil and strike it with a hammer on the inner edge until expanded sufficiently to hold the bit.

Do not try the experiment of bending each alternate tooth for the set when using Inserted Tooth Saws.

File the teeth, holding so that the swedge will spread them at the points.

Use a light hammer in swedging, about 3-4 to 1 pound weight.

In Filing Solid-Tooth Circular Saws keep the throats or roots of the teeth **round**, or as the saws are when new. **Angles or square corners** filed at the roots of the teeth will almost invariably cause a saw to crack. The filing of such angles or square corners will cancel the warranty on any saw. **The back or top of the tooth leads or guides the saw** and should be filed square across. The under sides of the teeth may be filed a little beveled when they are bent alternately for the set, so as to leave the outer corner of the cutting edge longest.

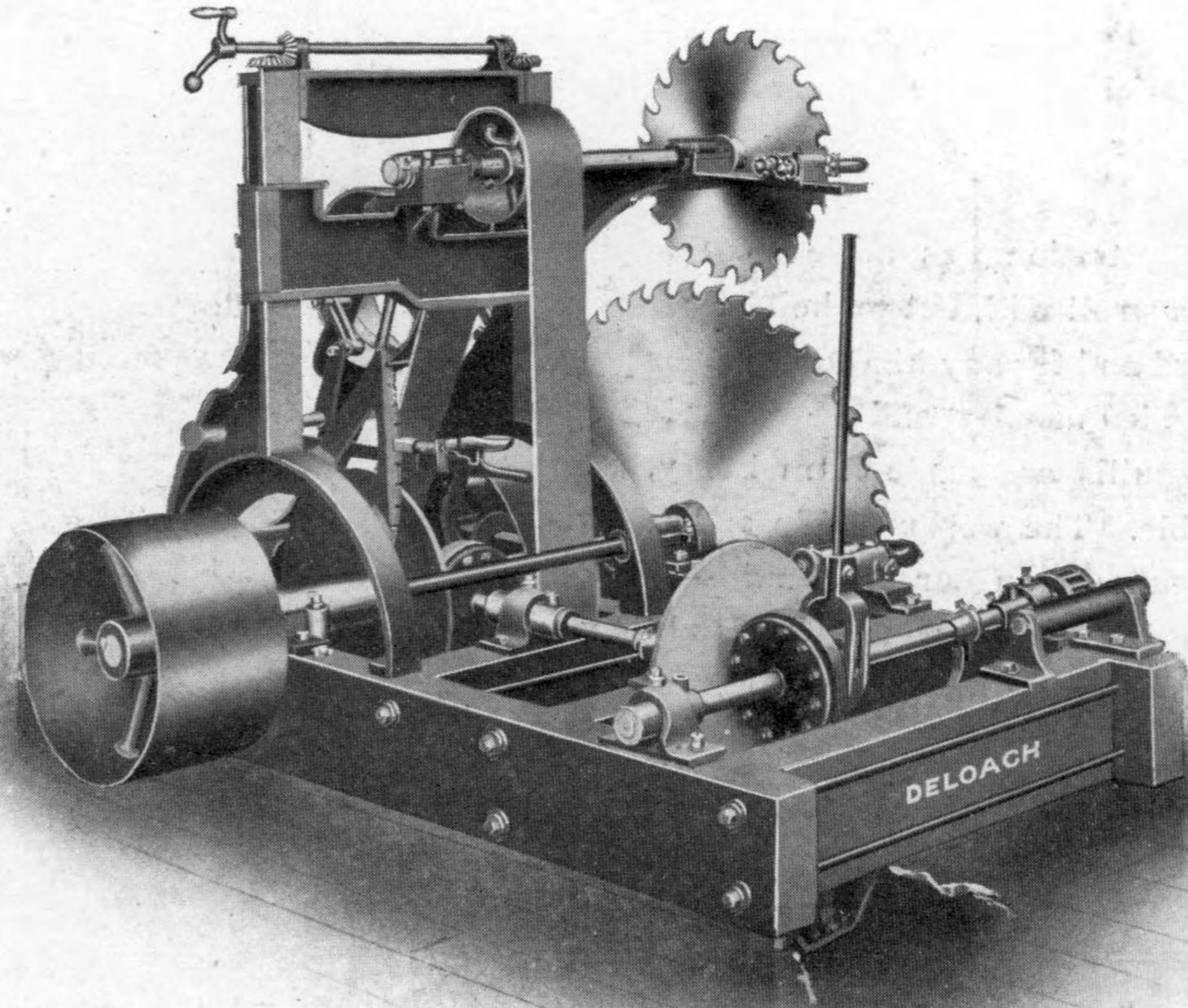
Our Double Saw Mills

Nos. 1 1-2, 2 and 3.

We make three sizes of these mills with Variable Feed, viz: No. 1½, No. 2 and No. 3, and four sizes with "Simplex" Feed, viz: Nos. 2, 3, 4 and 5.

The top saw frame is extra heavy, the metal is 1½ inches thick and 5 inches wide on the face of the vertical sides. The cross beam supporting the top saw mandrel is very deep, extra heavy and is fitted to the sides by heavy gibs running back of the frame. To this gib is bolted a nut through which runs a square thread screw for raising and lowering the cross arm. Two heavy cast iron braces, machine fitted, hold the lower part of the frame together and a heavy brace at the top connects the vertical sides, all machine fitted, which makes the whole of the frame very strong and rigid. The tightening pulley for the top saw belt is held by a long iron frame, which is hinged on the back end of the husk frame and is manipulated by a convenient lever and quadrant on the front of the mill, as shown in the cut. These frames are all made just the same except they vary in width and height, according to the size of the mill.

The mandrel boxes are extra long and heavy and made ring oiling. The top saw and mandrel are raised and lowered by means of bevel gears on the top of the frame, connecting with the screws which are operated by means of a convenient hand wheel on the outside. A neat screw-adjusting saw guide for top saw is mounted on a heavy extended arm. Weight of the top saw frame complete about 1,200 pounds.

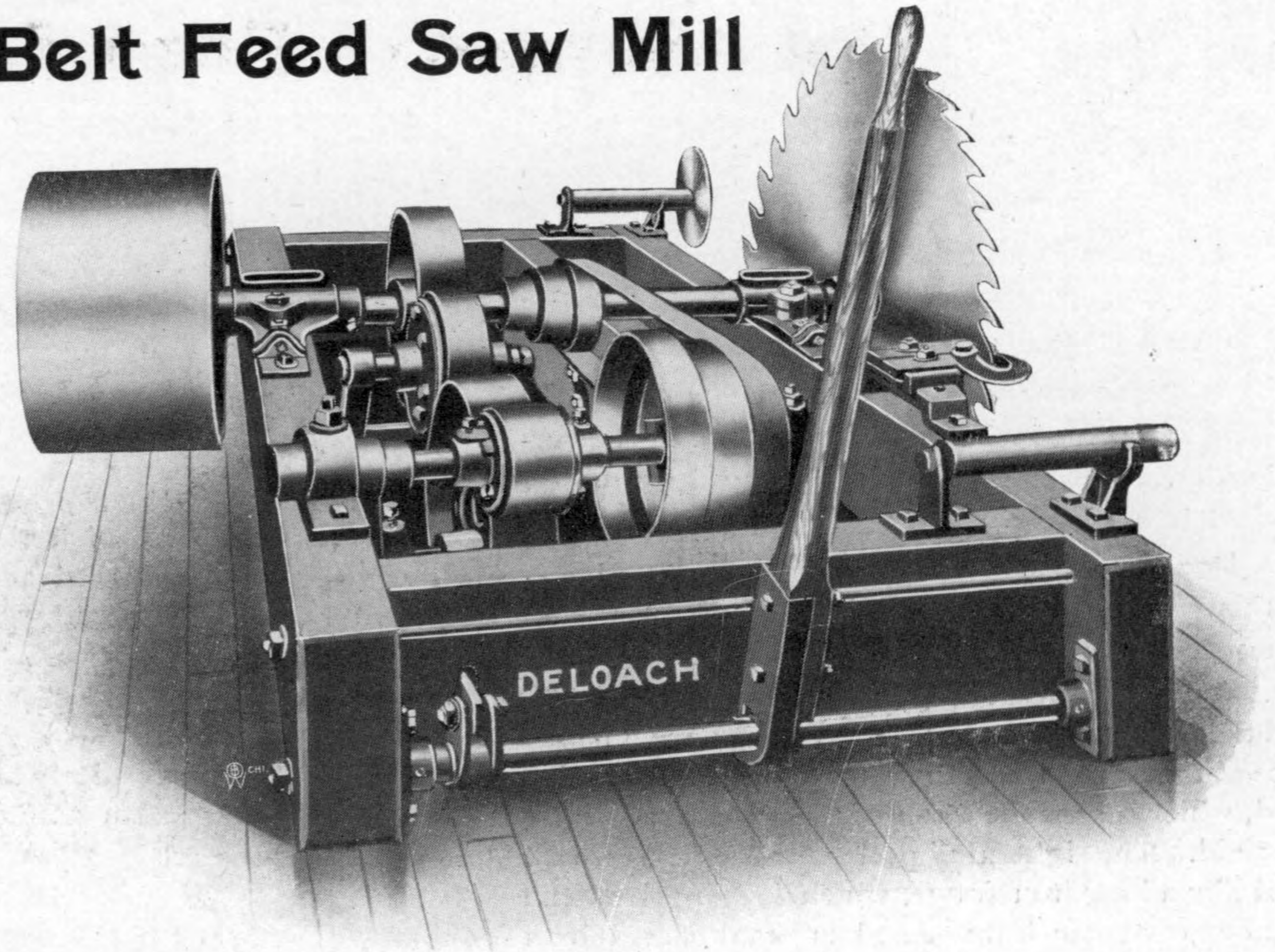


The Belt Feed Saw Mill

Not one man in a hundred will take the old style Belt Feed in preference to the more modern Variable Feed—but there are a few who will, and for these we build the mill shown above.

This illustration was made from a photograph of a small mill, but we build them of any size desired and for any kind of work or power, with extended mandrel and other bearings.

These mills are made extra heavy, strong and durable. The workmanship and materials are the same as on our other mills—the only difference is the style of the feed, and they are warranted to be all that could be expected of a Belt Feed Mill.

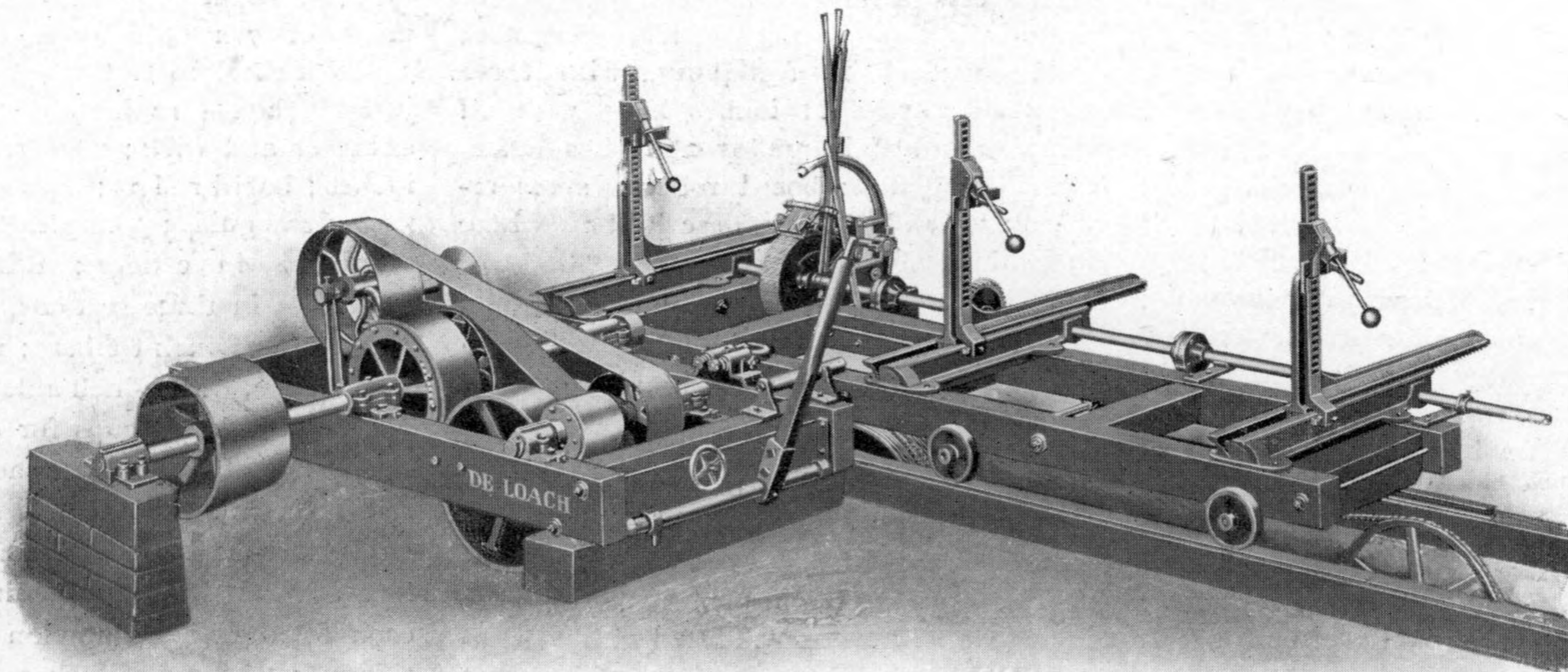


SPECIFICATIONS OF STANDARD VARIABLE FRICTION FEED SAW MILLS

Number of Mill	Cipher Name	Catalog Page	Diameter Mandrel	Length Husk	Width Husk	Husk Timbers	Mandrel Pulley	Diameter Paper Filler	Length Carriage	Width Carriage	Carriage Timbers	Length Rack B'm	Truck Axles	Trucks	Number Trucks	Set Shaft	Length Set Shaft	Length Track Iron	Head Blocks Open	Takes Logs	Takes Saw	Horse Power	Capacity Per 10 Hours	Weight
0 Pony	Hustler	15	2 3 16	7'	2'8"	3 1-2X 7 1-2	20X 8	8 1-2"	16'	26"	3 1-2X5 1-2	22'	1 1-8"	6"	4	1 11-16	15'	35'	36"	40"	54"	4 to 15	2 to 8 M	2,200
1	Atlanta	17	2 3-16	7'6"	3'6"	3 1-2X 9 1-2	20X10	8 1-4"	22'	26"	3 1-2X5 1 2	27'	1 1-8"	6"	6	1 11-16	15'	45'	36"	40"	54"	4 to 20	2 to 10 "	2,600
2 Pony	Georgia	16	2 3 16	7'6"	3'6"	3 1-2X 9 1-2	20X10	8 1-4"	18'	36"	4 1-2X6 1-2	26'	1 7-16"	8"	4	1 15-16	14'	45'	43 1-2"	48"	54"	4 to 20	2 to 10 "	3,200
1 1/2	Bettina	18	2 7-16	8'4"	4'	4 1-2X11 1-2	20X12	8 1-4"	24'	36"	4 1-2X6 1-2	32'	1 7-16"	8"	6	1 15-16	18'	50'	43 1-2"	48"	60"	4 to 25	2 to 12 "	3,400
2	Carey	18	2 11-16	9'	4'6"	4 1-2X11 1-2	20X12	10 1-2"	24'	36"	4 1-2X6 1-2	32'	1 7-16"	8"	6	1 15-16	18'	50'	43 1-2"	48"	60"	10 to 30	5 to 15 "	3,800
2 Special	Florida	19	2 11-16	9'	4'6"	4 1-2X11 1-2	20X12	10 1-2"	24'	38 1-2"	4 1-2X6 1-2	32'	1 7-16"	8"	6	1 15-16	18'	50'	48"	52"	60"	10 to 30	5 to 20 "	4,000
3	Daphne	19	2 15-16	9'6"	5'	5 1-2X11 1-2	24X14	12"	24'	40"	5 1-2X7 1-2	32'	1 11-16"	10"	6	2 3-16	18'	50'	49"	54"	66"	20 to 40	10 to 30 "	6,800

The "Simplex" Feed Saw Mills

Nos. 2, 3, and 4



This cut represents our "Simplex" Feed Saw Mill, which has been on the market for about ten years, and in that time has made a great reputation in the South-Atlantic and Gulf States.

Every part of the Feed is made extra heavy so as to withstand the severest usage. A large iron friction wheel (ground perfectly true) operates between two paper frictions, one on the Mandrel and the other on the front Shaft, both of which are constantly in motion, running in opposite directions. The forward motion of the Feed can be

varied by slacking the tension of the friction lever. This can only be secured, however, by providing a large surplus of frictional surface in the pulleys so they will not heat in slipping. The arrangement for pulleys to give the reverse motion also answers as a belt tightener, convenient to the sawyer.

By actual tests of mills in operation for ten years we have satisfied ourselves and our customers that there is nothing superior. With this type of mill, we recommend always wire rope drive. See specifications and weights on the following page.

Specifications of "Simplex" Mills

No. 2, Cipher Name "LOUISIANA"

Husk frame 9 feet long, 4 feet 6 inches wide, made of 5 x 12-inch timbers; steel mandrel 2 11-16 inches in diameter, 10 feet long, with three adjustable boxes 9 $\frac{3}{4}$ inches long, with oil chamber and wick; pulley 24 inches diameter, 12-inch face; improved saw guide; board rollers; spreader-wheel; "Simplex" feed, with pulleys 6-inch face; **Carriage** 36 feet long, in three sections, 36 inches wide; timbers 5 x 7 inches; nine sets of trucks 8 inches diameter, with 1 $\frac{1}{2}$ -inch axles, set in heavy babbitted boxes; collars in front of loose wheels to take up lost motion; 80 feet of track iron, back side of "T" rail dressed and front side flat wrought iron with screws and spikes; three simultaneous ratchet Head Blocks, opening 43 $\frac{1}{2}$ inches from the saw, each fitted with "Champion" Duplex dog; 30 feet of 1 15-16-inch set shafting, key seated entire length, with flange couplings and single-acting set works complete; wire rope outfit for carriage consisting of 18-inch drum, shaft and bearings; two 18-inch sheave pulleys, and sufficient $\frac{1}{2}$ -inch flexible steel wire rope to give carriage 40 feet of stroke each way.

When desired, this mill can be furnished with Top Saw, with additional Head Blocks, extra length Carriage, Parallel Bars on Head Blocks, Double Acting Set Works, and Coil Spring or Friction Receding Attachment.

No. 3, Cipher Name "KENTUCKY"

Husk frame 9 feet 6 inches long, made of 6 x 12-inch timbers 2 15-16 inches diameter; steel mandrel 10 feet long, with three adjustable boxes 11 inches long with oil chamber and wick; pulley 24 inches diameter, 14-inch face; board rollers; spreader-wheel; "Simplex" feed, described elsewhere in catalog; pulleys 8-inch face; **Carriage** 36 feet long, three sections, 40 inches wide, made of 6x8-inch timbers; nine sets of trucks, 10 inches diameter, 1 $\frac{3}{4}$ -inch axles, set in heavy babbitted boxes, with cups for waste and oil; collars in front of loose wheels to take up lost motion; 80 feet of track iron, back side of "T" rail dressed and front side flat wrought iron with screws and spikes; three simultaneous ratchet head blocks, opening 49 inches from the saw, each fitted with "Champion Duplex dog; 30 feet of 2 3-16-inch set shaft, key seated the entire length, with flanged couplings and single-acting set works complete; wire rope outfit for carriage, consisting of 30-inch drum, shaft and bearings, for drum, two 30-inch sheave pulley and sufficient $\frac{5}{8}$ -inch flexible steel wire rope to give carriage 40 feet of stroke each way.

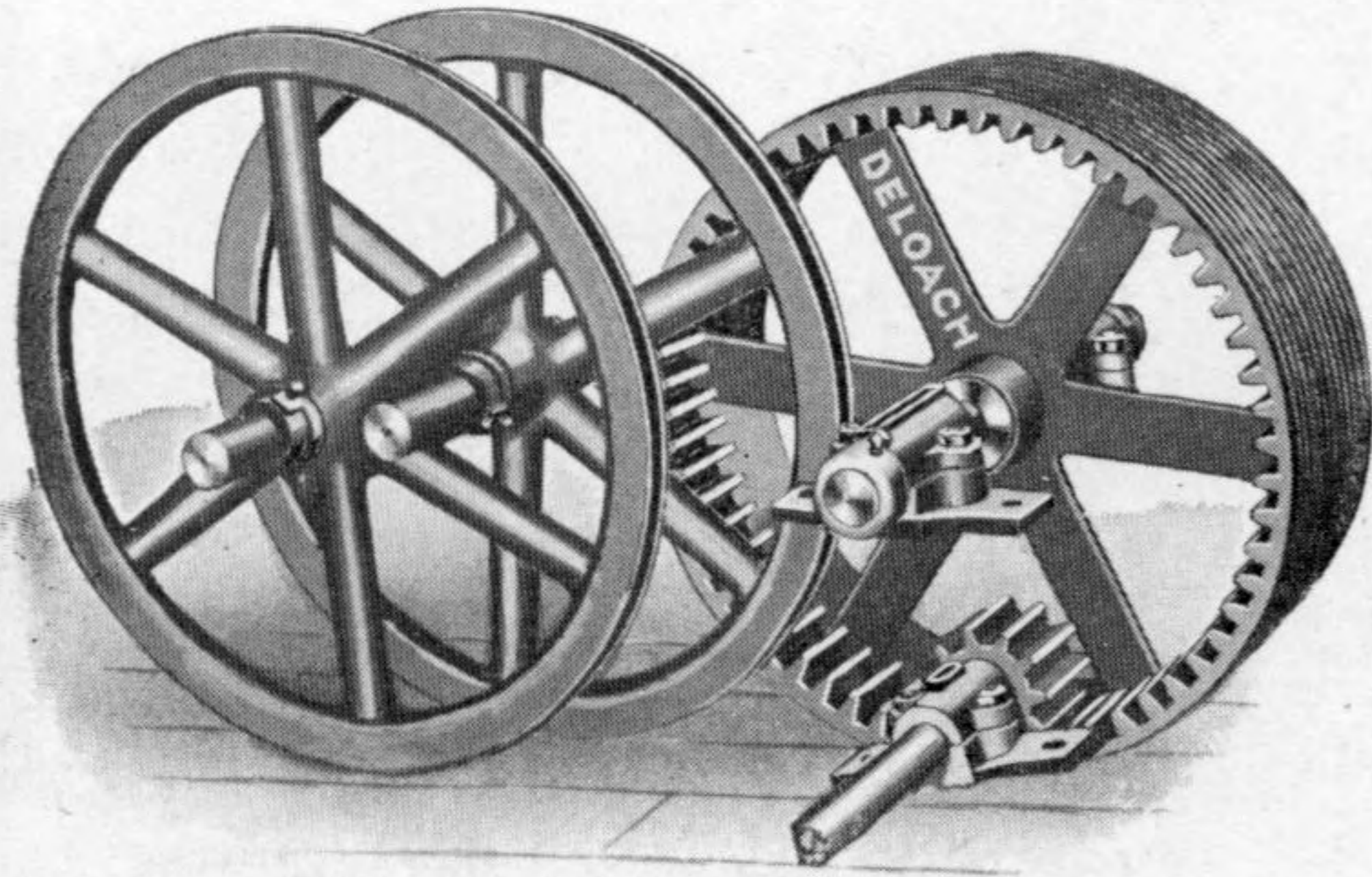
When desired, this mill can be furnished with Top Saw, with additional Head Blocks, extra length Carriage, Parallel Bars on Head Blocks, Double Acting Set Works and Coil Spring or Friction Receding Attachment.

No. 4, Cipher Name "INDIANA"

Husk frame 9 $\frac{1}{2}$ feet long, 5 feet wide, made of 7 x 14-inch timbers; mandrel 3 3-16 inches, 10 feet long, with three adjustable boxes 12 inches long, having oil chamber and wick; mandrel pulley 24 x 16 inches; board rollers; spreader wheel; improved saw guide; "Simplex" feed, described elsewhere in catalog; thirty-six feet of **Carriage** in three sections, 57 inches wide, made of 6 x 8-inch timbers; nine sets of 12-inch trucks, with 2-inch axles and babbitted boxes with large cups for oil and waste; eighty feet of track iron, back side of "T" rail dressed and the front side heavy flat wrought iron, with screws and spikes; three heavy head blocks, opening 50 inches, each fitted with "Champion Duplex" dog; thirty feet of 2 7-16-inch set shaft, flanged couplings and single-acting set works complete; wire rope feed for carriage, consisting of 30-inch grooved drum with shaft and boxes; two 30-inch sheave pulleys and axles, with sufficient $\frac{5}{8}$ -inch flexible steel wire rope to give carriage 40 feet stroke each way.

When desired, this mill can be furnished with Top Saw, with additional Head Blocks, extra length Carriage, Parallel Bars on Head Blocks, Double Acting Set Works and Coil Spring or Friction Receding Attachment.

Rope Drive for Saw Mill Carriages



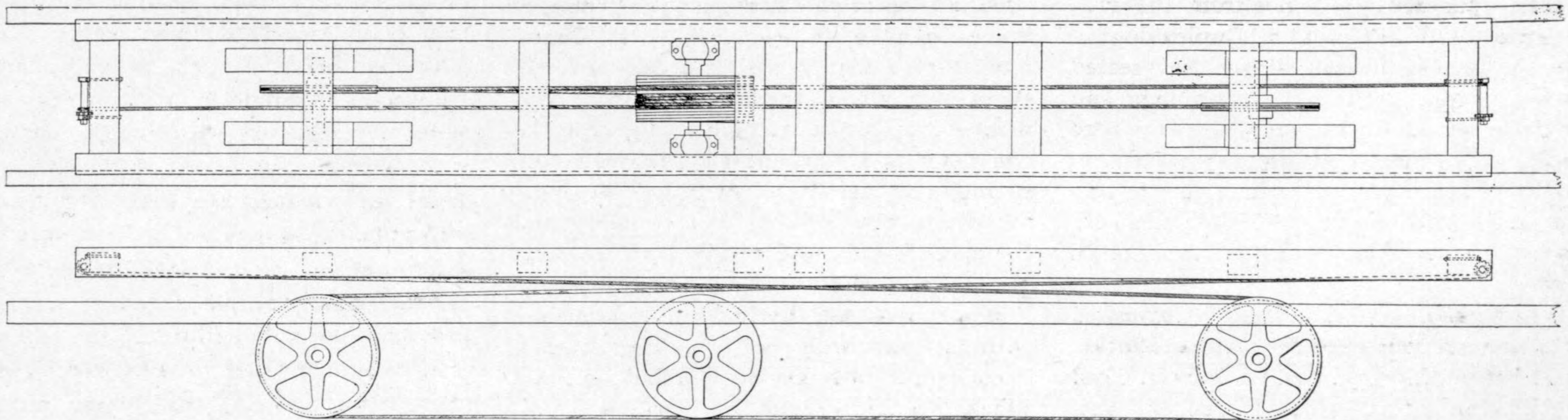
The cuts herewith illustrate our Wire Rope Drive, which we recommend as being superior to rack and pinion drive. For a saw mill operated for anything more than a mere neighborhood outfit, we would advise this by all means. It has many advantages. The Carriage can be stopped and reversed much quicker than by rack and pinion, without the danger to the machinery, and on account of the time saved in this way the mill will pay for the extra cost of the outfit easily within a week. The carriage can be run out any distance desired to receive the logs and to deliver the lumber, and in this way the logs do not require placing so carefully on the skids, as is necessary with rack and pinion. Another advantage is being able to use a short carriage for long work, saving the extra weight of the carriage. It is possible to cut timber 20 feet longer than the carriage.

The rope is very durable, and under ordinary circumstances will last five years.

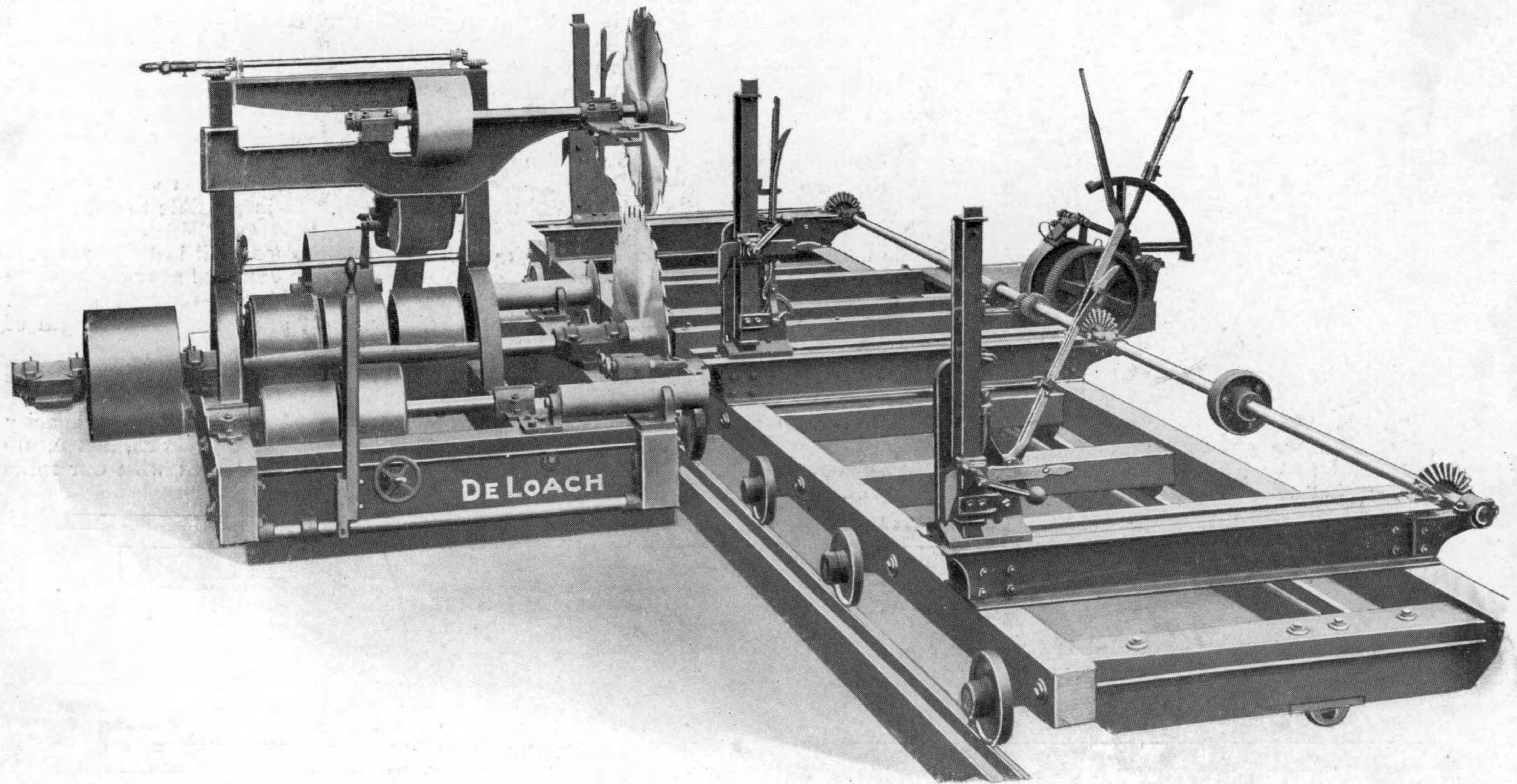
The internal gear in the drum is much stronger than external gear of the same weight for the reason that three or four of the cogs are always in mesh at one time. The arrangement of the drum as shown in diagram will answer for any length of carriage.

The rope is attached to the far end of carriage, and in this way any length of carriage can be added by simply increasing the length of the rope without changing the position of the sheave wheels.

The grooves in the drum and in the sheaves are turned on lathe and made to fit the rope perfectly, which gives the greatest capacity possible for the transmission of power and reduces the wear of the rope to the minimum. The sheaves revolve on the axles, hence, no boxes are required. The No. 1 outfit is recommended for all small mills running with 15 H. P., or less. When furnished with our mills we make a liberal reduction on the price of the wire rope outfit.



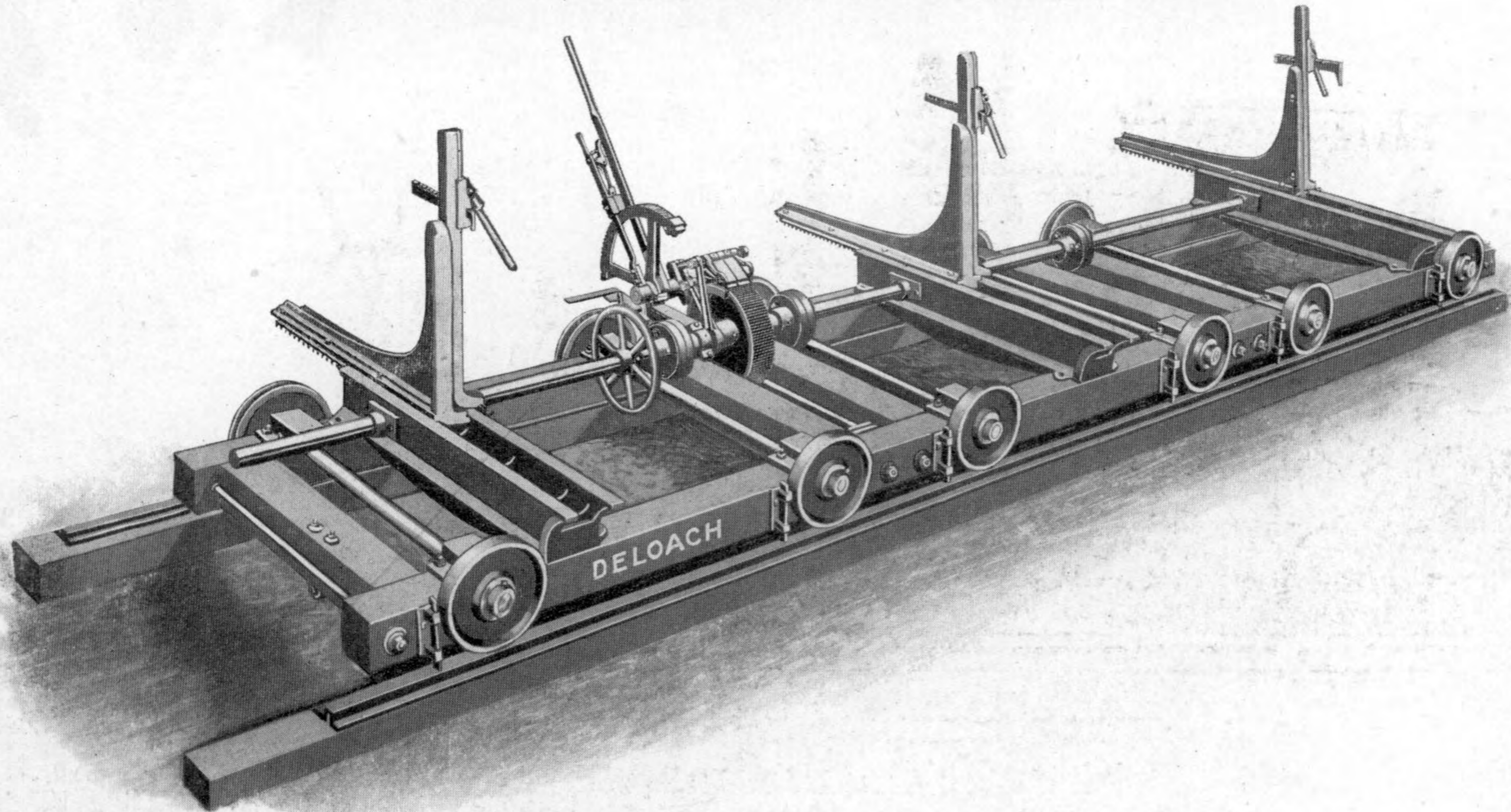
Pacific Coast Saw Mill



The above illustration shows a special "Simplex" Saw Mill, with top saw, built for very heavy work in Washington. The Mandrel is 4" diameter, with three 13-inch chain oiling bearings; Husk made of

7 x 14 timbers; 60" steel Head Blocks and Knight Dogs; Double-Acting Set Works; Friction receding device; 14" Trucks, 3" Steel Axles, etc. We build them of any size, for any work.

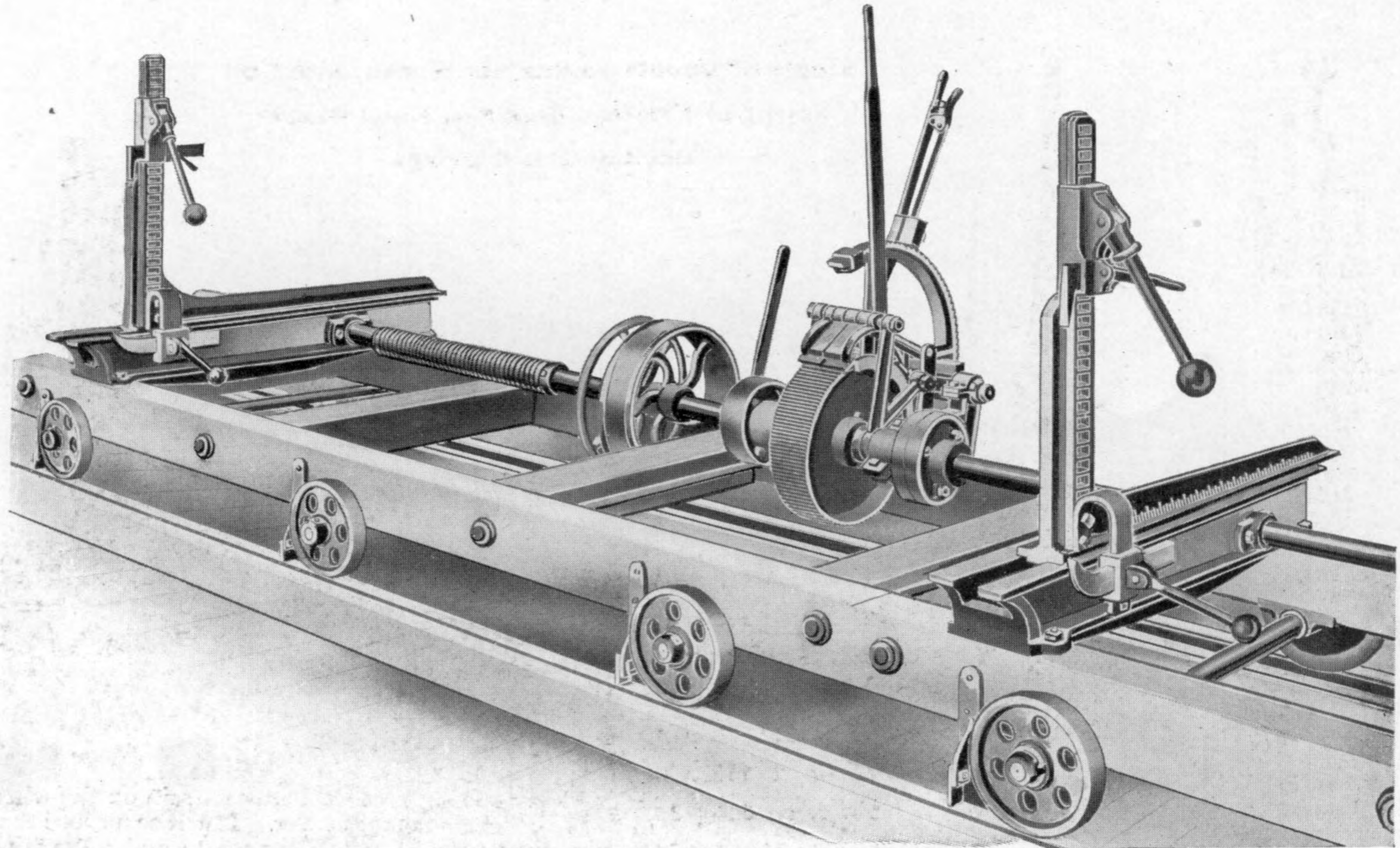
Suspended Saw Mill Carriage



We make this type of Carriage from No. 3 up to as large as desired. By the use of this style Carriage the wheels can be made very large, which makes the Carriage run light, and at the same time, avoids raising the Carriage so high as when mounted on top of Trucks. The top, or face of the Head-Block is made just a fraction above the top of the Truck Wheels, whereas the Carriage mounted on top of Trucks would set the blocks from 20 to 24 inches above the rail. Having a large Carriage and heavy blocks mounted on top of

the Trucks cause a great deal more strain on the wheels and track and the vibration is much greater. It will be noticed that our Trucks have very large boxes on top for waste and oil, which makes the oiling of the Trucks much more satisfactory in this style Carriage, and other advantages are very apparent. We build the Trucks with axles as large as 3 inches, and the Wheels and Head-Blocks any size desired. The grooved Wheels run on heavy T rail, planed to fit groove.

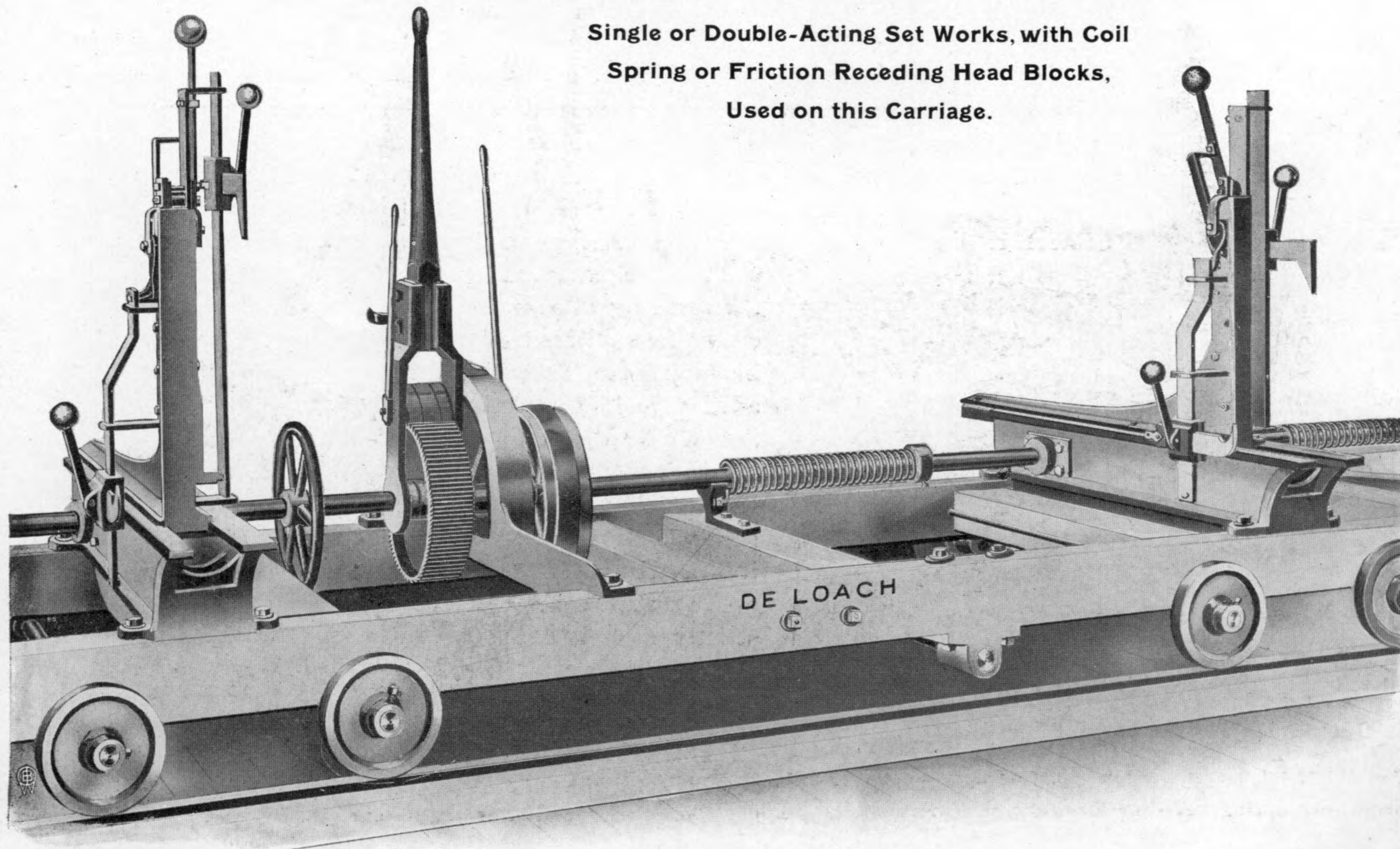
Special Saw Mill Carriages



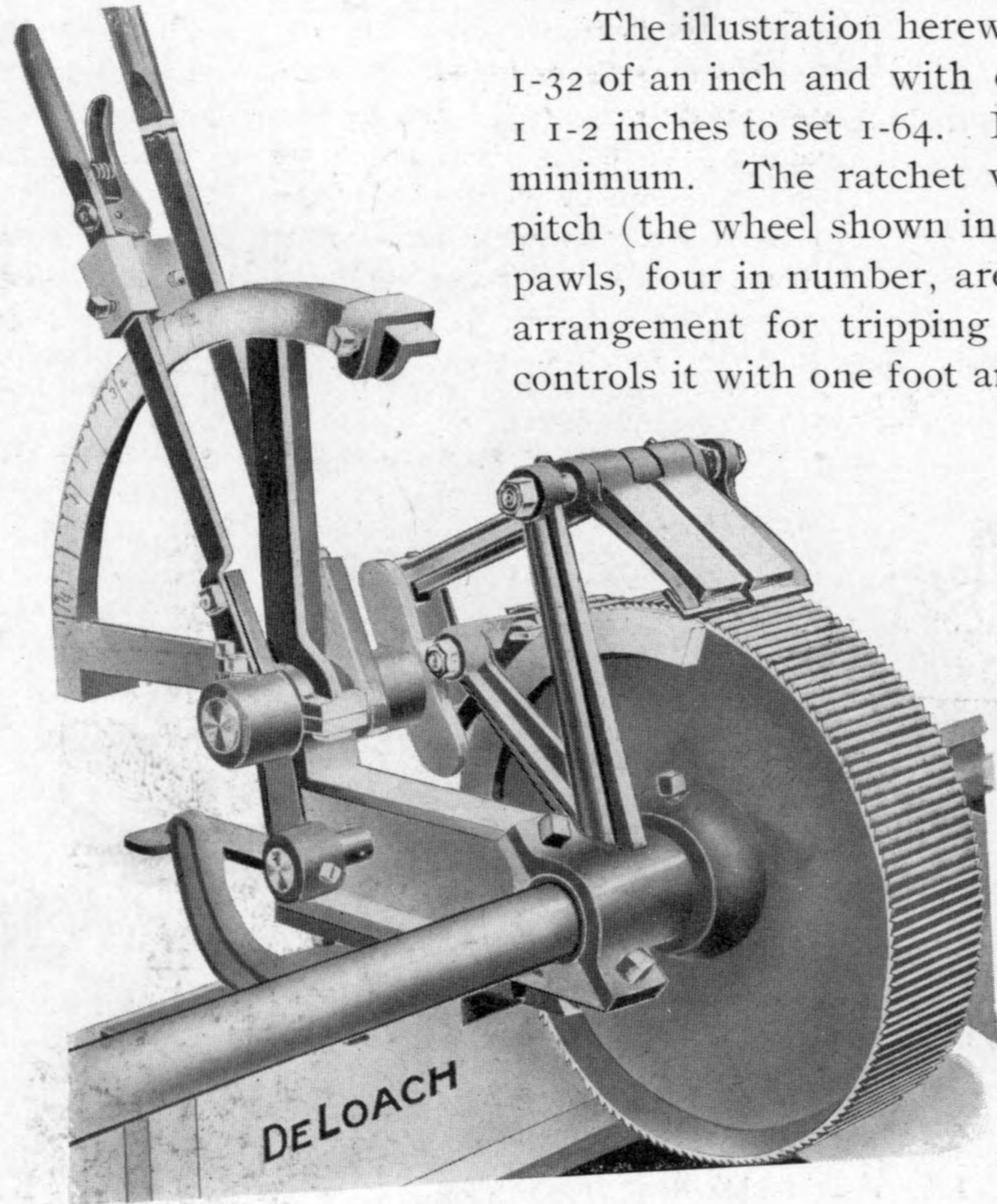
The above cut was made from a photograph of one of our Heavy Carriages with Spring-Receding Head Blocks, Quarter Sawing Dogs and Double-Acting Set Works. Built in any size to suit any power or timber. Estimates on special outfits furnished on application.

Heavy Carriage for Quarter Sawing

Single or Double-Acting Set Works, with Coil
Spring or Friction Receding Head Blocks,
Used on this Carriage.



Double Acting Set Works, Gauge Rollers, Etc.



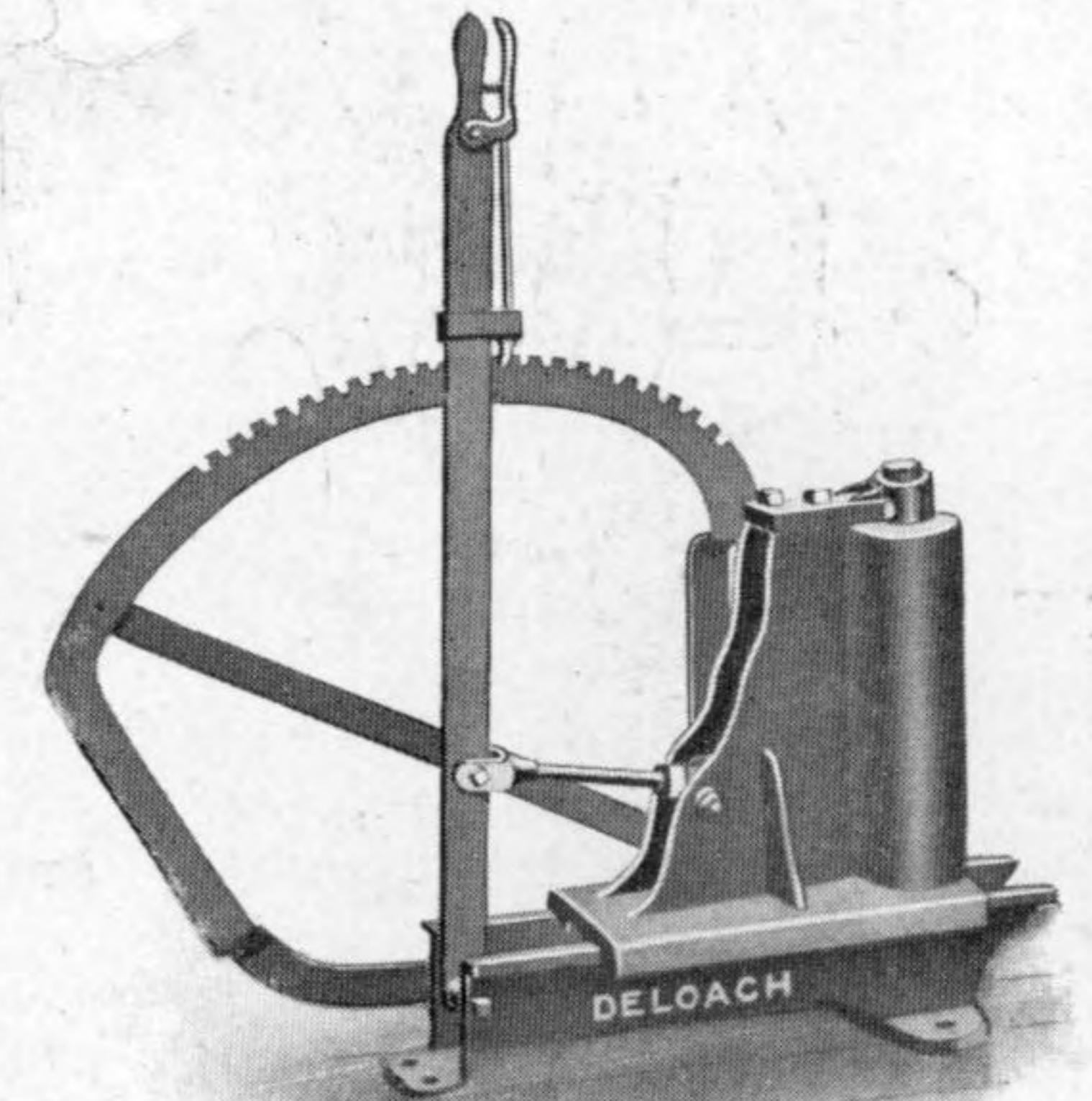
Now made in two sizes.

No. 1—For mills up to and including No. 2 and No. 2 Special. Weight 150 lbs.
No. 2—(See specifications above) for No. 3 and larger. Weight 500 lbs.

The illustration herewith represents our Double-Acting Set Works. It is made to set 1-32 of an inch and with ordinary Head Blocks requires 6-inch stroke to set 1-4 inch, and 1 1-2 inches to set 1-64. In this way the chances for variation in the set are reduced to the minimum. The ratchet wheel is 20 inches diameter 5-inch face, and the teeth 3-8 inch pitch (the wheel shown in cut was made 7-16 inch pitch) and cut absolutely accurate. The pawls, four in number, are made of tool steel with an independent spring on each. The arrangement for tripping the pawls to recede the blocks is so arranged that the operator controls it with one foot and when our friction receding attachment is used in connection he

can trip the pawls and operate the receding attachment with either foot without changing his position. There is great advantage in connecting the Set Works direct to the Set Shaft as shown in the cut, as it saves lost motion in the gear wheels necessary to gear it otherwise. The Set Works are warranted accurate and strictly first-class in every respect. When ordered to attach to mills not of our make we furnish a short piece of shaft.

GAUGE ROLLERS



Made in two sizes.

No. 1—For small mills, 10 to 30-horse power. Every mill should have one. Weight 150 lbs.

No. 2—For large mills, accurate and durable. Nothing so essential for making absolutely accurate lumber. Weight 310 lbs.

Head Blocks, Dogs and Set Works

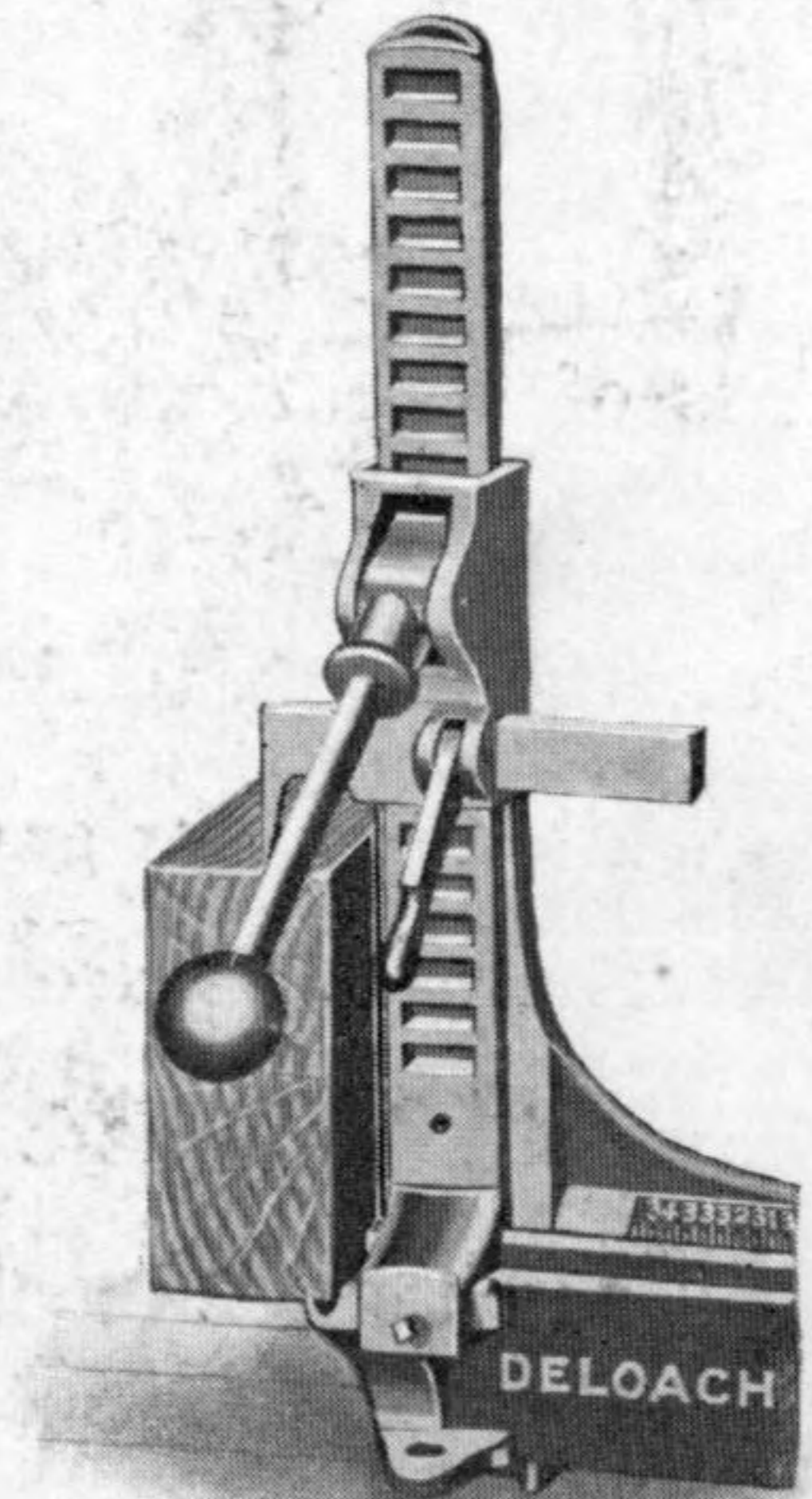
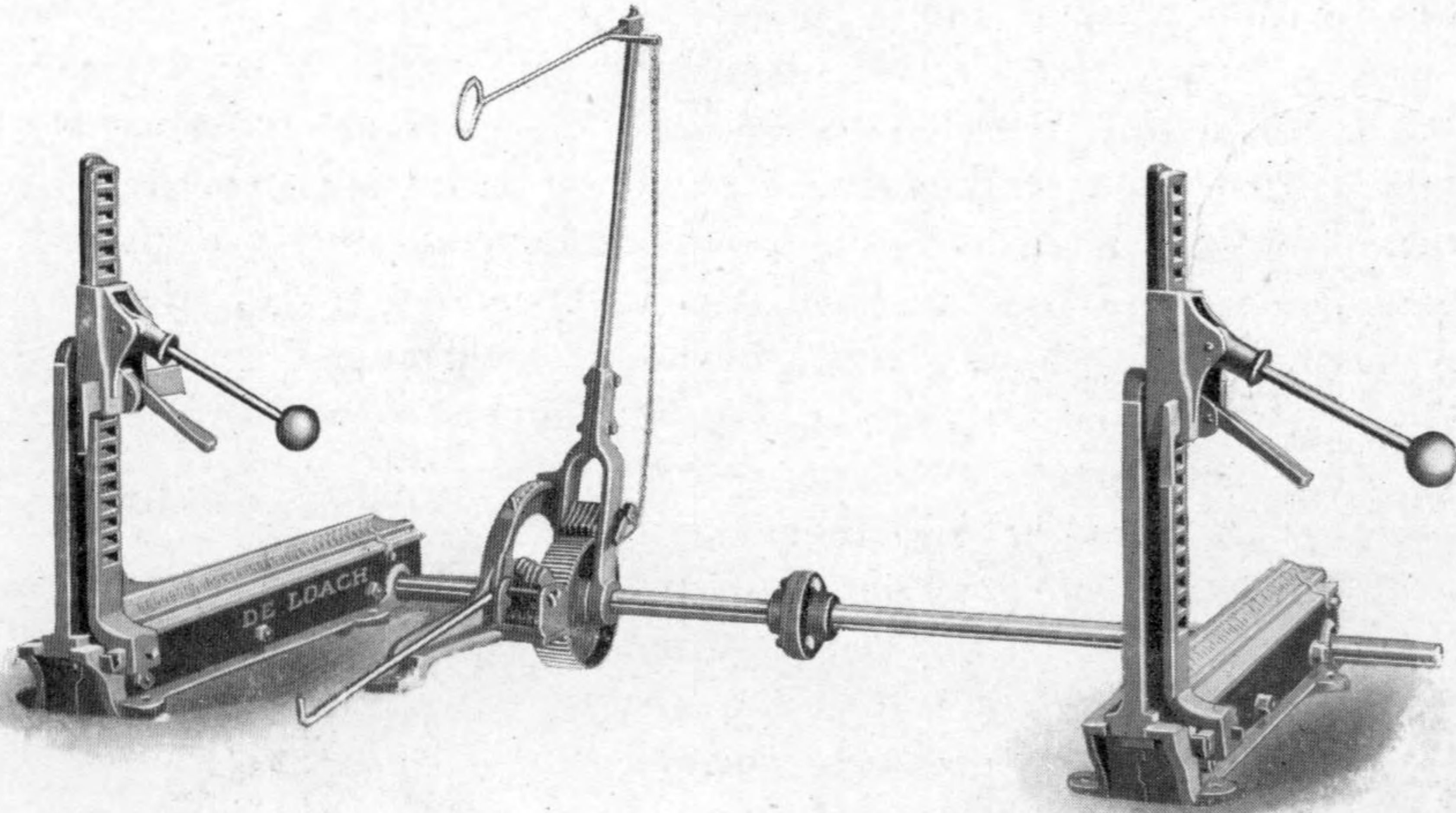
We furnish head blocks, set works and set shaft as per specifications of our standard mills, and also have many patterns for special sizes, almost anything that could be desired, and make to order any size wanted. All that is necessary is for us to know the inside and outside width of carriage.

As stated elsewhere in our catalog we furnish head blocks of steel eye beams when desired, also furnish the head blocks with or without the dogs, and while we think the "DeLoach" Champion Duplex dog is the best in the market, we will furnish any other dog that may be preferred.

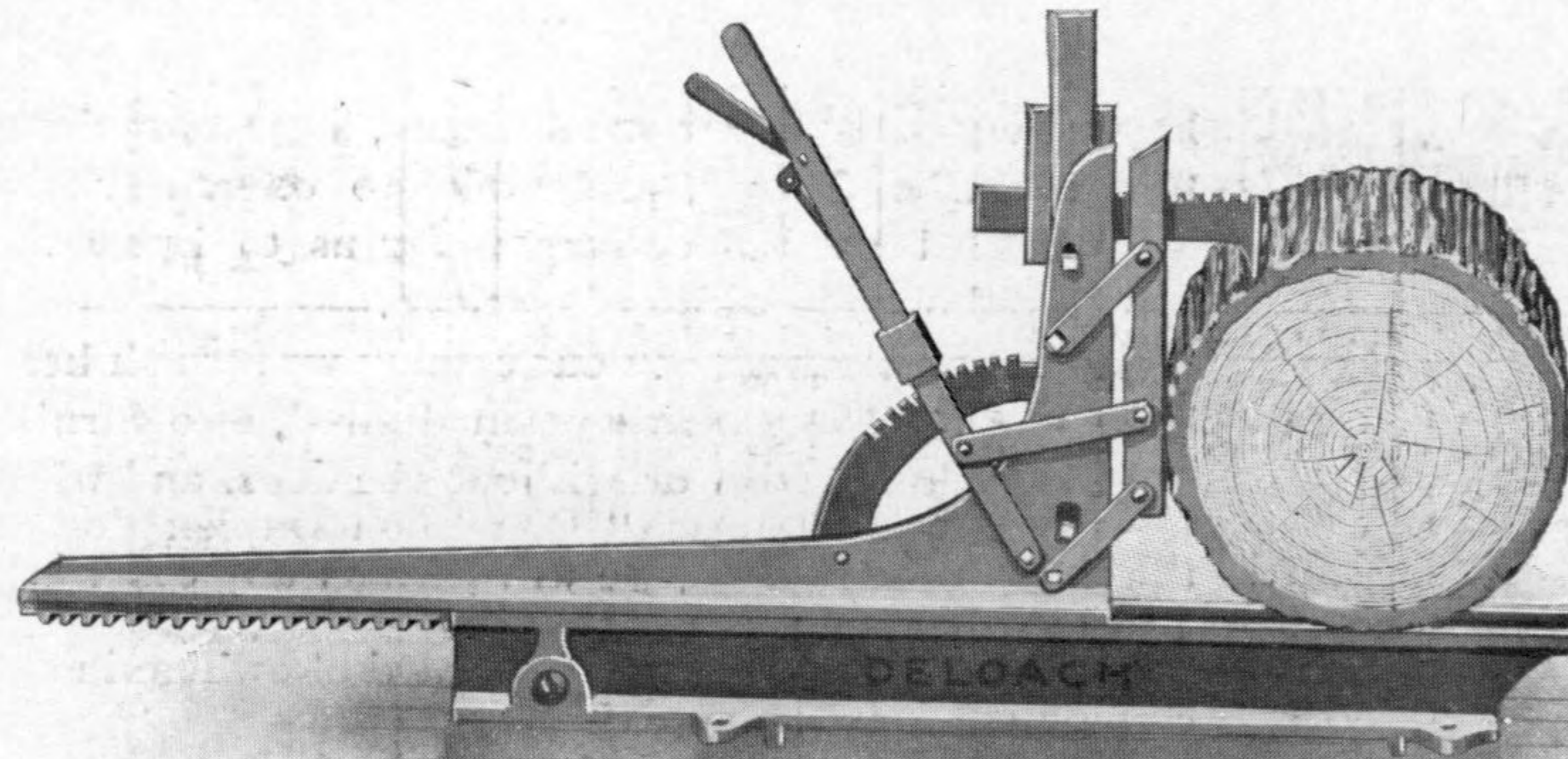
The subject of dogs is treated elsewhere in our catalog but it is one of so much importance we will be pardoned for discussing it fully. The top dog holds the round log perfectly, and when the log is squared both the top and bottom dog hold it snug up to the head block knee, as shown in the cut herewith. When the

handle is raised the bit pulls out of the log without having to be pried out. Many mill men fail to appreciate the value of a Duplex dog because they have never used a good one, and many others who know its value are content with a good top dog rather than bother with a complicated double one. The common sense features of our dog, we think, will appeal to any experienced mill man, in fact, to anybody of common sense. The rack beam is made of cast iron, as also the dog socket, but they are made very heavy and will withstand any reasonable strain. Nothing will break them except a log or very heavy slab thrown over against them. The rack beam is made of wrought iron when desired, at an extra cost.

For quarter sawing we make a wrought iron extension at the bottom of rack beam, on which is arranged a sliding dog, which does its work perfectly. Our dog can easily be attached to any make of mill, and all that is necessary is that we should know the height and width of knee and distance from side of head block knee to edge of the base, so as to know how much off-set to make in the beam. The holes in the head block knee must be elongated; regular size is $\frac{5}{8} \times 1\frac{1}{4}$ inches. In ordering head blocks, give dimensions of head block base.



Parallel Bars for Head Blocks



The cut herewith shows our "Champion" Duplex Dog holding the round log, also our Parallel Bar or False Knee, which is used to throw out the small end of log. This attachment is also used to advantage in cutting tapered timber.

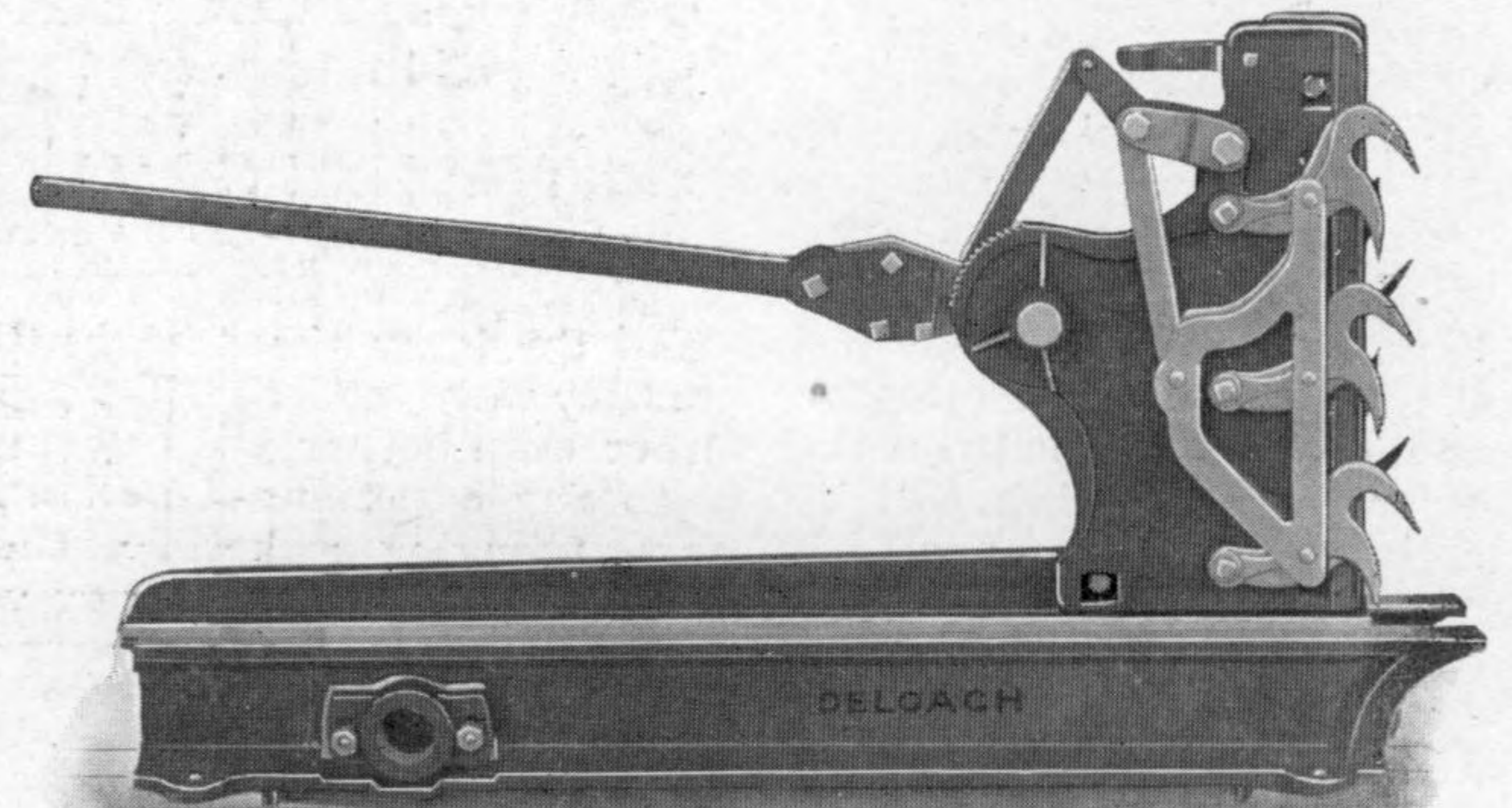
Our Parallel Bar has recently been improved, and will be found a valuable addition to any mill. They can be furnished with any of our mills at a small extra cost.

The Reliance Dog

The Reliance Dog is a favorite among a certain

class of operators of Band and large Circular Saw Mills, on account of being so quick of action. The teeth, so shaped as to draw the log up to the Block, are double-acting, one set going up while the other goes down.

These Dogs are made either right or left hand—this cut shows the left hand. On a right hand mill a left hand Dog is used on the rear Block—a right hand on the front Block. On a left hand mill a right hand Dog is used on the rear Block—a left hand on the front Block.



Price List of Saw Mill Repairs

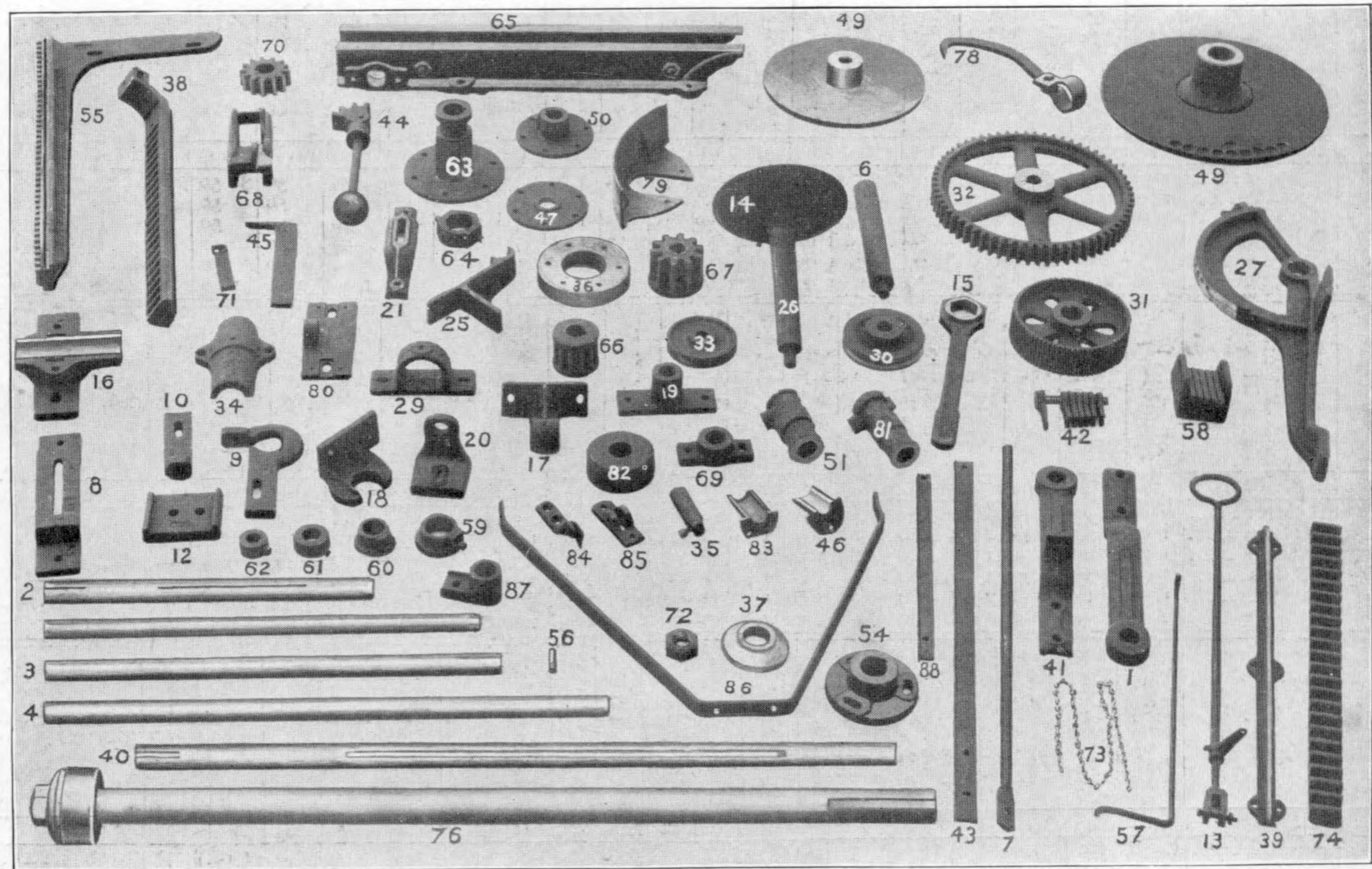
To Save Trouble and Delay we call attention to the fact that in shipping mills as we do, all over the world, we have had to make it a rule to require Cash with Order for all repairs.

The cut of repairs herewith was made from No. 1 Mill, and, of course, the larger sizes differ some in shape as well as in size.

Caution--Be sure not to get the numbers on this list mixed with the shop numbers on the castings. For instance, old shop number, A-10, is the same thing as Atlanta, 23, of this list. C-10, is same as Carey 23, of this list, etc.

Cipher Code--Parties who have no regular account with us, and who are in a hurry, may telegraph us for repairs, using the following cipher code and be sure to give the cipher name of the mill. For illustration, "Cedar, Atlanta, No. 9," which interpreted, is as follows: "Cedar" means ship without delay by express, funds forwarded today; "Atlanta" means No. 1 mill; "No. 9" means saw guide elbow.

"Cherry" means ship without delay by freight, funds forwarded today.



In ordering, be sure to say about when the mill was made. Important changes were made in the dog August 1, 1893, and June 8, 1899.

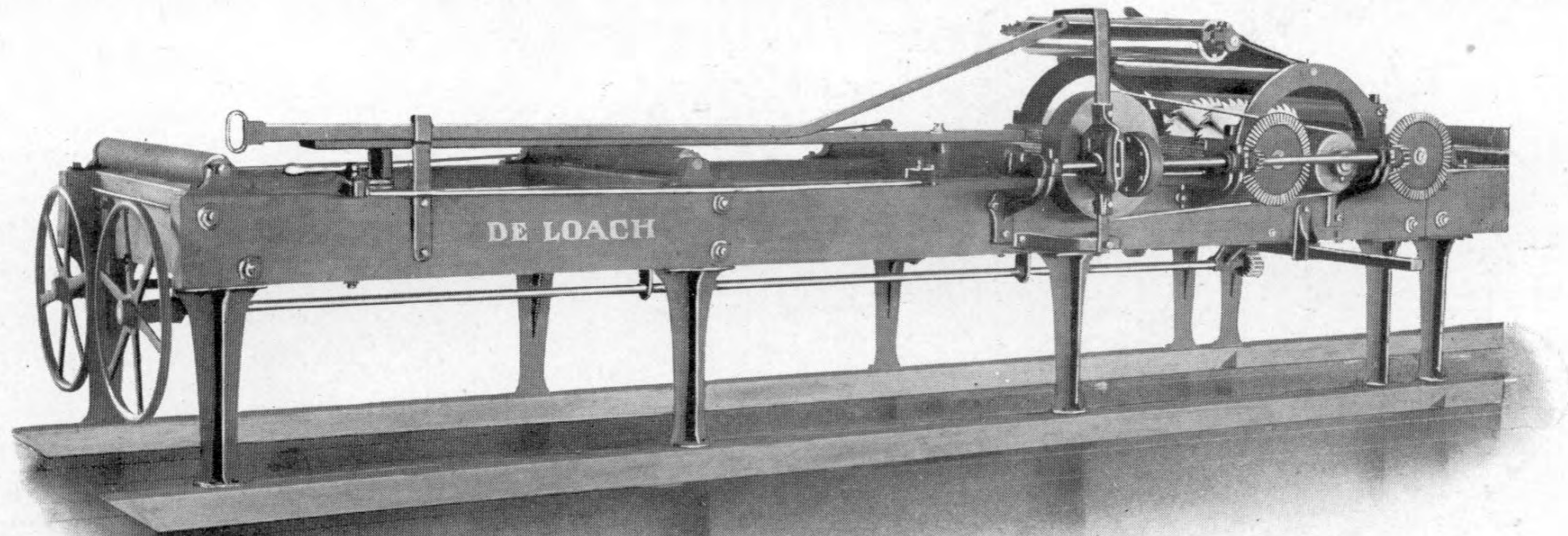
Price List of Saw Mill Repairs

Size of Mill.	Cipher Name of Mill	No. of Parts																											
		1	2	3	4	6	7	8	9	10	12	13	14	15	16	17	18	19	20	21	25	26	27	29	30	31	32	33	
0	Hustler	\$1 50	\$2 00	\$1 50	\$1 00	\$1 25	\$ 75	\$1 00	\$1 00	\$ 50	\$ 50	\$ 75	\$1 25	\$ 75	\$2 00	\$ 60	\$ 50	\$ 50	\$ 50	\$ 50	\$ 50	\$1 50	\$4 00	\$ 75	\$1 00	\$2 00	\$3 50	\$ 80	
1	Atlanta	1 50	2 00	1 50	1 00	1 50	75	1 00	1 00	50	50	75	1 50	75	2 00	60	50	50	50	50	50	1 75	4 00	75	1 00	2 00	3 50	80	
2 Pony	Georgia	1 50	2 00	1 50	1 50	1 50	75	1 00	1 00	50	50	75	1 50	75	2 00	60	50	50	50	50	60	1 75	4 00	75	1 25	2 00	4 50	1 00	
1 1/2	Bettina	1 50	2 00	1 50	1 50	1 50	75	1 00	1 00	50	50	75	1 50	75	2 25	60	50	50	50	50	60	1 75	4 00	75	1 25	2 00	4 50	1 00	
2	Carey	1 50	2 00	2 50	1 50	2 00	75	1 00	1 00	50	50	75	1 50	75	2 50	60	50	50	50	50	60	2 00	4 00	80	1 25	2 00	4 50	1 00	
3	Daphne	2 00	2 50	3 50	2 00	2 50	1 00	1 50	1 50	1 00	3 50	75	2 00	75	3 00	2 00	1 00	2 00	1 00	75	75	2 50	6 00	1 00	2 00	3 00	7 00	1 50	

Size of Mill	Cipher Name of Mill	No. of Parts																											
		34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	54	55	56	57	58	59	60	61	62	
0	Hustler	\$1 00	\$ 20	\$1 50	\$1 50	\$3 50	\$ 10	\$3 00	\$1 50	\$2 00	\$ 75	\$ 75	\$ 75	\$ 50	\$ 50	\$6 50	\$7 00	\$1 00	\$1 00	\$1 50	\$6 00	\$ 25	\$ 20	\$1 00	\$ 75	\$ 60	\$ 50	\$ 40	
1	Atlanta	1 00	20	1 50	1 50	4 00	10	3 50	1 50	2 00	75	1 00	1 00	50	50	7 50	7 50	1 00	1 00	1 50	6 00	25	20	1 00	75	60	50	40	
2 Pony	Georgia	1 00	20	1 50	1 50	4 00	10	3 50	1 50	2 00	75	1 00	1 00	60	50	7 50	7 50	1 00	1 00	1 75	8 00	25	20	1 00	75	65	50	40	
1 1/2	Bettina	1 25	20	1 50	1 50	4 00	10	4 00	1 50	2 00	75	1 00	1 00	60	50	7 50	7 50	1 00	1 00	1 75	8 00	25	20	1 00	90	65	50	50	
2	Carey	1 50	20	2 00	2 00	4 00	10	6 00	1 50	2 00	75	1 00	1 00	60	60	10 00	10 00	1 20	1 25	1 75	8 00	25	20	1 00	1 00	65	60	50	
3	Daphne	2 00	20	3 00	2 00	5 00	20	7 50	2 00	3 00	1 00	1 00	1 00	1 00	1 00	15 00	10 00	1 50	1 50	2 50	10 00	25	20	1 50	1 15	75	65	65	

Size of Mill	Cipher Name of Mill	No. of Parts																											
		63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	
0	Hustler	\$2 50	\$1 00	\$ 9 00	\$1 25	\$1 25	\$2 00	\$ 75	\$1 25	\$ 50	\$ 50	\$ 20	\$ 25	\$1 55	\$ 8 00	\$4 00	\$1 00	\$1 00	\$ 75	\$1 00	\$ ---	\$ 40	\$ 25	\$ 50	\$1 25	\$ 50	\$ 50	\$ 25	
1	Atlanta	2 50	1 00	9 00	1 25	1 25	2 50	75	1 25	50	50	20	25	55	10 00	4 50	1 00	1 00	75	1 00	---	40	25	50	1 25	50	50	25	
2 Pony	Georgia	2 50	1 00	12 00	1 25	1 25	2 50	75	1 25	50	50	20	25	65	10 00	4 50	1 00	1 00	75	1 00	---	40	25	50	1 50	50	50	25	
1 1/2	Bettina	2 50	1 00	12 00	1 25	1 25	2 50	75	1 25	50	50	20	25	65	12 50	5 25	1 00	1 25	75	1 00	---	50	25	50	1 50	50	50	25	
2	Carey	3 00	1 00	12 00	1 25	1 25	2 50	75	1 25	50	50	30	25	65	15 00	5 25	1 00	1 25	75	1 00	---	50	25	50	1 50	50	50	25	
3	Daphne	3 50	1 50	15 00	2 00	2 50	2 50	1 00	1 50	50	50	30	40	75	20 00	8 00	1 00	1 50	1 00	---	75	50	50	60	2 00	75	60	25	

DeLoach Variable Friction Feed Gang Edger

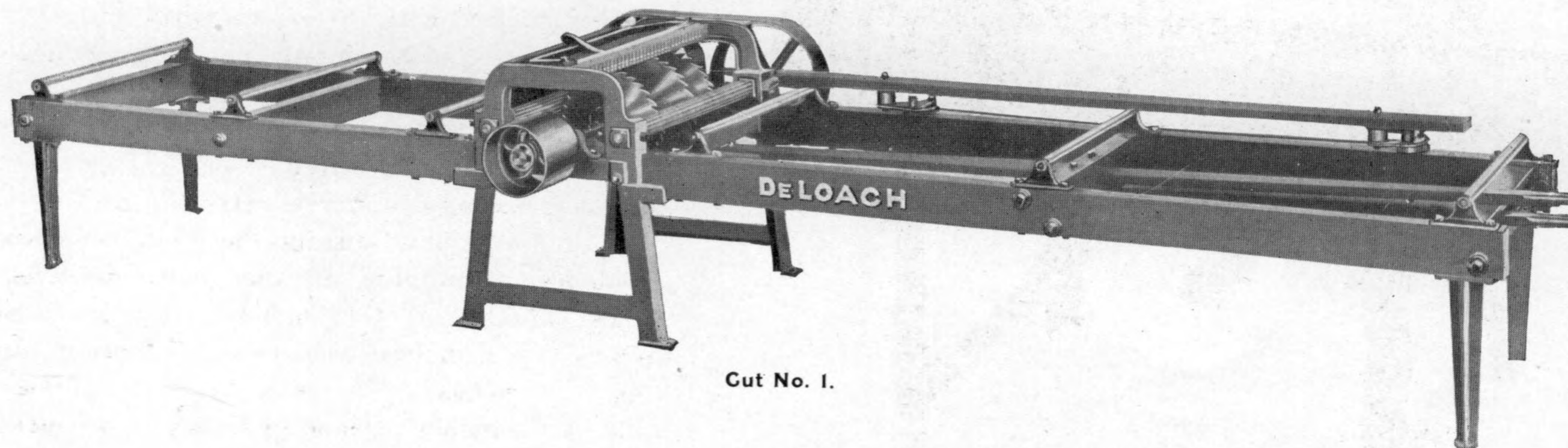


This is a Machine of special merit. To obtain the best results in a Gang Edger, as in a Saw Mill, or any similar machine, the Variable Friction Feed is a necessity. With it the capacity of the machine is increased fully 50 per cent. over machines with a fixed feed. In ripping thin boards they can be rushed through at a very rapid rate, two or three times as fast as on heavy cuts, and it is equally advantageous to be able to run slow on heavy cuts, allowing the saws to run their full speed, when they do their best work.

The Feed can be varied or reversed at will, and can be started, stopped or varied from slow to fast in less than one second. The top feed rolls are 5" diameter, very heavy, and contained in heavy iron frame.

Specifications: The frame is 47" wide and 23' long, made in two sections, 15 and 8' respectively. The frame timbers are 3 1-2x9 1-2". The machinery is all fitted to the 15' section, which has four 3" wrought iron rolls and four pairs of heavy cast iron legs. The short section has two pairs of legs and three rolls. The machine will rip 31" wide, 4" thick; extreme width inside, 38". The Bottom or Driven Feed Rolls are 4" diameter, grooved and corrugated; Mandrel, 2 7-16" steel, and has three long babbitted bearings, chain oiling with oil chamber. The Guide for the back edge of the lumber is adjustable, so that the fixed saw can be blinded when ripping stuff with square edge. Saws are adjusted by the large hand wheels shown in cut, and give any desired width. All adjustments are within easy reach of the operator, including the lever for starting and stopping the feed, which is placed at the left hand side and near the front end of the machine. The Indicator is in plain view, attached to top roll frame. Size of Pulley 10x10". Three 16" Solid Saws, two movable and one stationary, are furnished with each machine, and the machine can be built with four or five saws when desired. Inserted Tooth Saws are furnished when desired, at an extra cost. Proper speed of Mandrel, 1,800. Weight, 4,000 pounds.

The DeLoach Medium Gang Edger



Cut No. 1.

The accompanying cut shows the DeLoach Medium Gang Edger, which is not only the handsomest, but one of the most perfectly constructed light Gang Edgers made today. It has not the advantage of a Variable Feed, but answers every purpose for mills cutting up to 25,000 feet per day. In the past twelve months the sales of this machine have more than doubled and every customer is highly pleased.

The Husk is a cast iron frame mounted on iron legs, and all the working parts are contained in the frame. To attach the tables it is only necessary to put in the bolts and connect the shift levers.

The Feed Rolls are adjustable to regulate the

lead, and, being both corrugated and grooved, the feed is made very positive and reliable.

The Indicator is placed just in front of and above the saws, in plain view of the operator — a most valuable feature and one which the operator appreciates.

The Lumber Guide, as recently improved, is quick adjusting, more convenient and more reliable than any other guide on the market. The cut above shows the machine complete and the arrangement of the Guide.

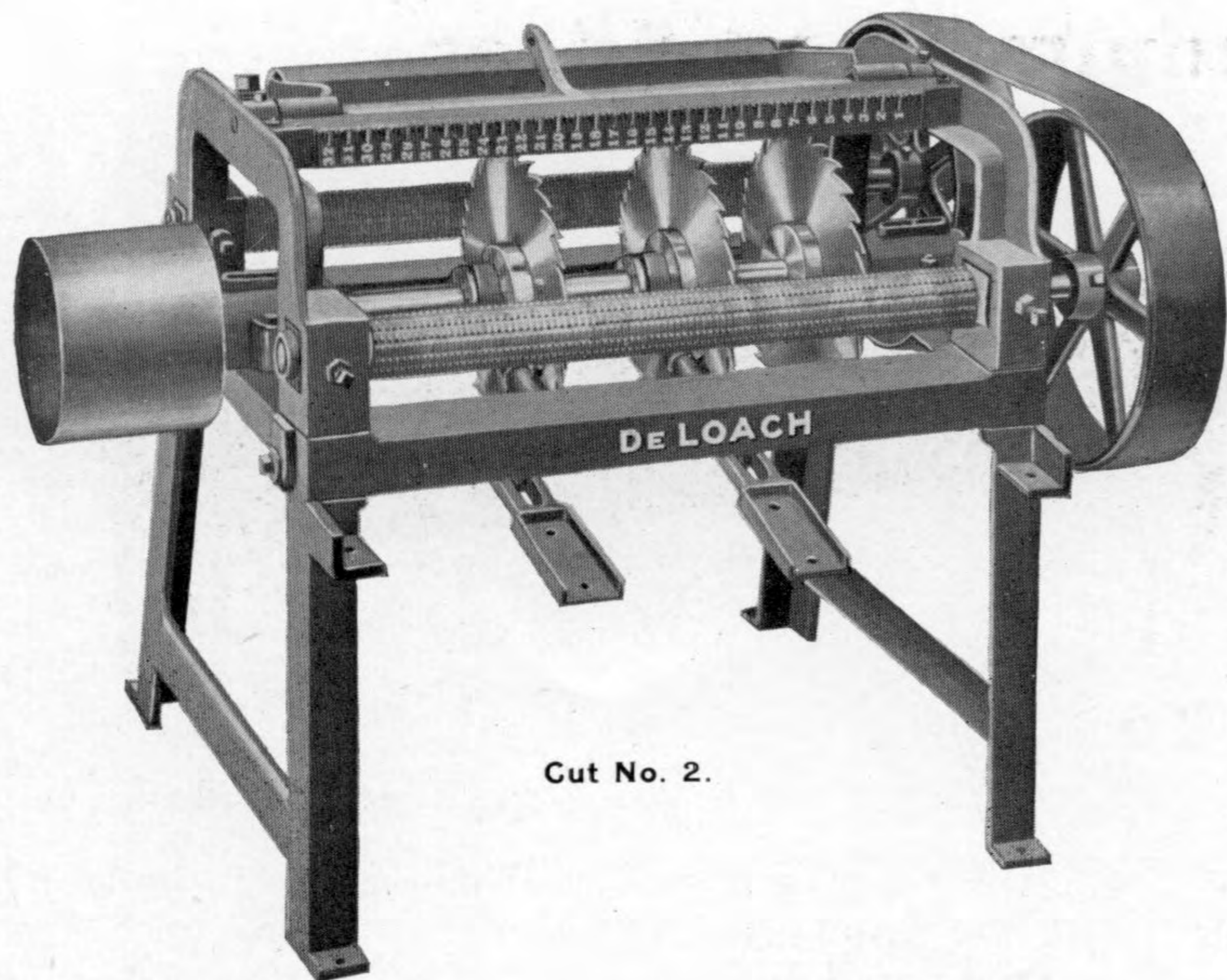
The Shifting Device is simple and convenient. The yokes connecting with the hubs of saw collars are babbitted, and are adjustable so as to take up all wear and lost motion.

The DeLoach Medium Gang Edger

(Continued)

Furnished regularly with two 16-inch solid saws; can be furnished with three saws when desired. If preferred, inserted tooth saws can be fitted instead of solid saws.

Specifications: Extreme length of Machine, 18 feet, 6 inches; Extreme width (inside), 32 inches; Maximum distance between outside saws, 21 inches; Maximum distance between inside saws, 18 inches; Minimum distance between saws, 2 inches; Mandrel, 1 15-16 inches; Diameter of Saw Collars, 5 3-4 inches; Diameter of Bottom Feed Rolls, 3 inches; Diameter of Top Pressure Rolls, 5 1-2 inches; Mandrel Pulley, 10x8 inches; Feed Pulleys (2), 18 x 4 inches; Table Timbers, 3 1-2 x 6 inches. Speed of saws, 1,500 revolutions per minute. Weight of Machine, complete, 1,400 pounds.

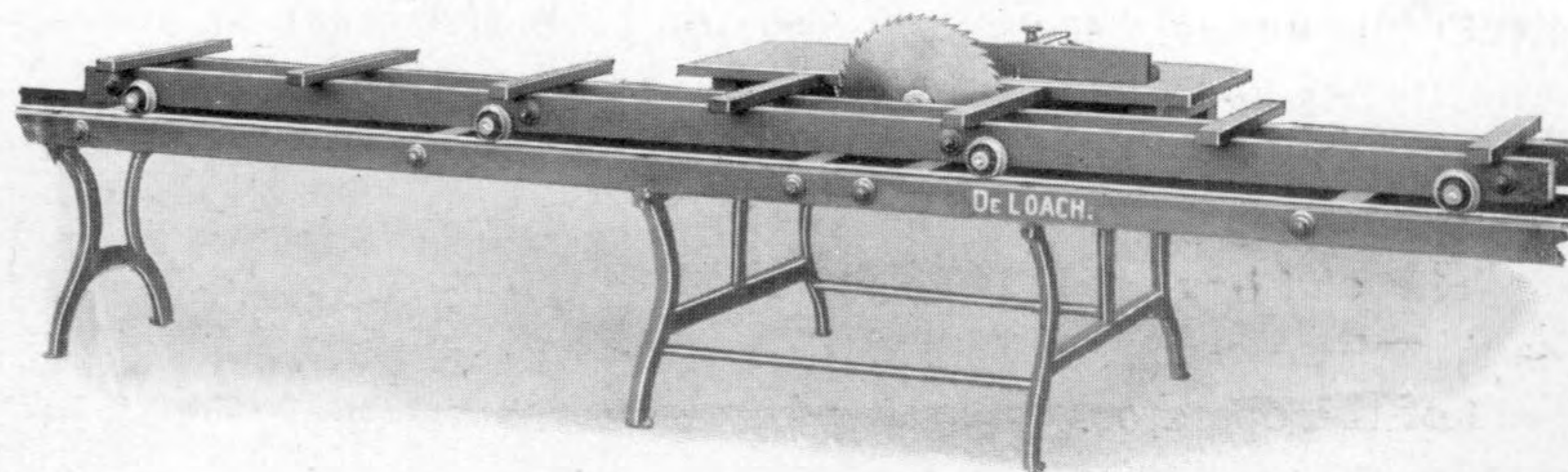


Cut No. 2.

Our Single Saw Hand Edger

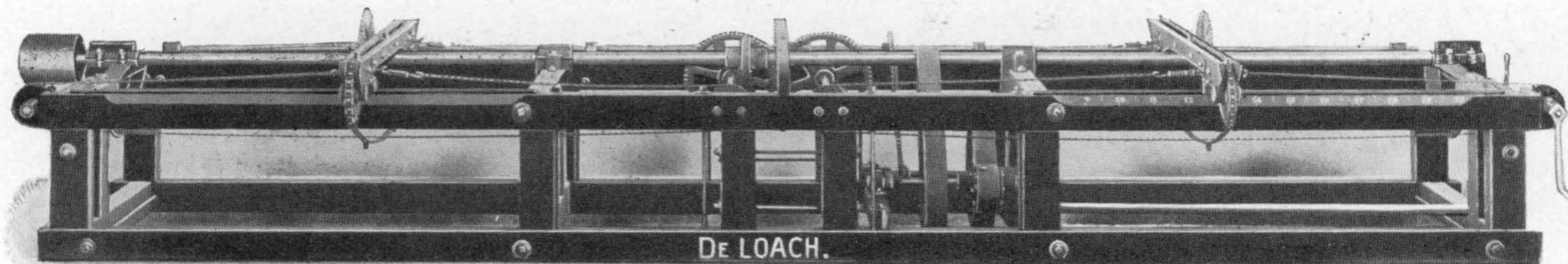
This Machine has wooden Husk, Track and Carriage, mounted on cast iron legs. The Husk timbers are 3 1-2x5 1-2; Mandrel, 1 7-16 inches, with pulley 6 x 6 inches; Track Stringers, 3 1-2 x 3 1-2, 32 feet long with flat wrought track iron; Carriage timbers, 1 3-4 x 3 3-4, 14 feet long with four sets of 4 1-2-inch flanged Trucks.

The table is provided with a convenient guide adjustable for ripping boards and slats. Weight of machine complete, 840 pounds. The machine is furnished always with one 16-inch solid saw, unless otherwise ordered.



The DeLoach Two-Saw Trimmer

Made in Two Sizes



This cut shows an up-to-date Trimmer—the DeLoach—and one which is fully warranted to be equal in every way to any similar machine on the market.

The workmanship and finish is of the best, and every machine is tested thoroughly before shipping out. Nothing but the best materials are used—the frame is made of select yellow pine.

Our Trimmer is fitted with three blocks, as shown in cut, two movable and one center block, which is stationary.

The end boxes can be easily and quickly removed for changing the saws, and all adjustments are within easy reach of the operator.

The Mandrel is large and has four long bearings,

which makes it much stronger and more rigid than any Trimmer now on the market.

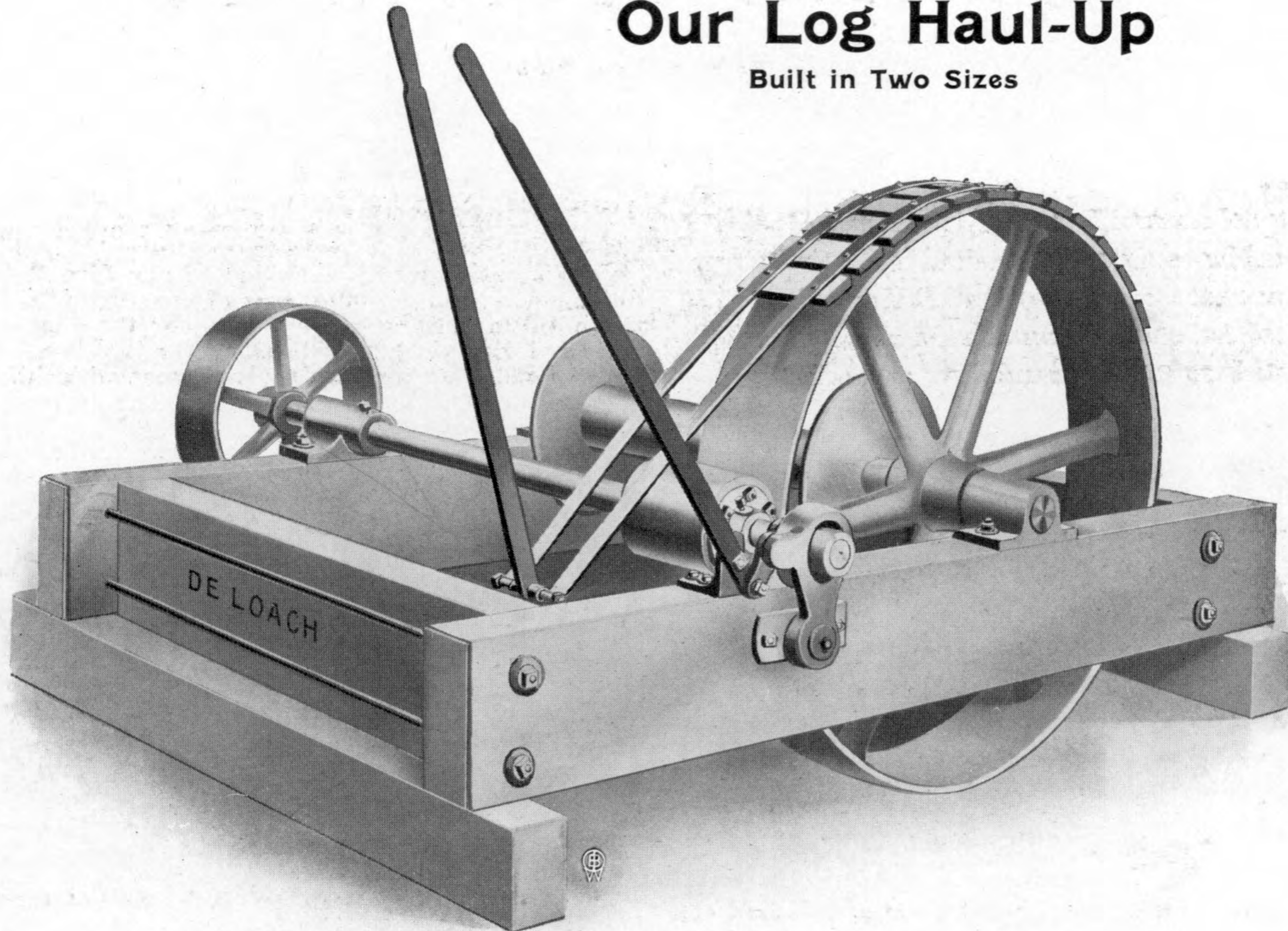
Two 16-inch solid saws are fitted and furnished with each machine. Inserted Tooth Saws can be furnished, when preferred, at an extra cost.

Specifications of No. 1 Trimmer:—Size of Mandrel, 2 3-16 inches; length of Trimmer over all, 18 ft. 8 1-2 inches; width over all, 5 ft. 8 inches; will trim from 8 to 16 feet long; weight, complete, 2,500 pounds.

Specifications of No. 2 Trimmer:—Size of Mandrel, 2 7-16 inches; length of Trimmer over all, 22 ft. 8 inches; width over all, 5 ft. 8 inches; will trim from 10 to 20 feet long; weight, complete, 3,400 pounds.

Our Log Haul-Up

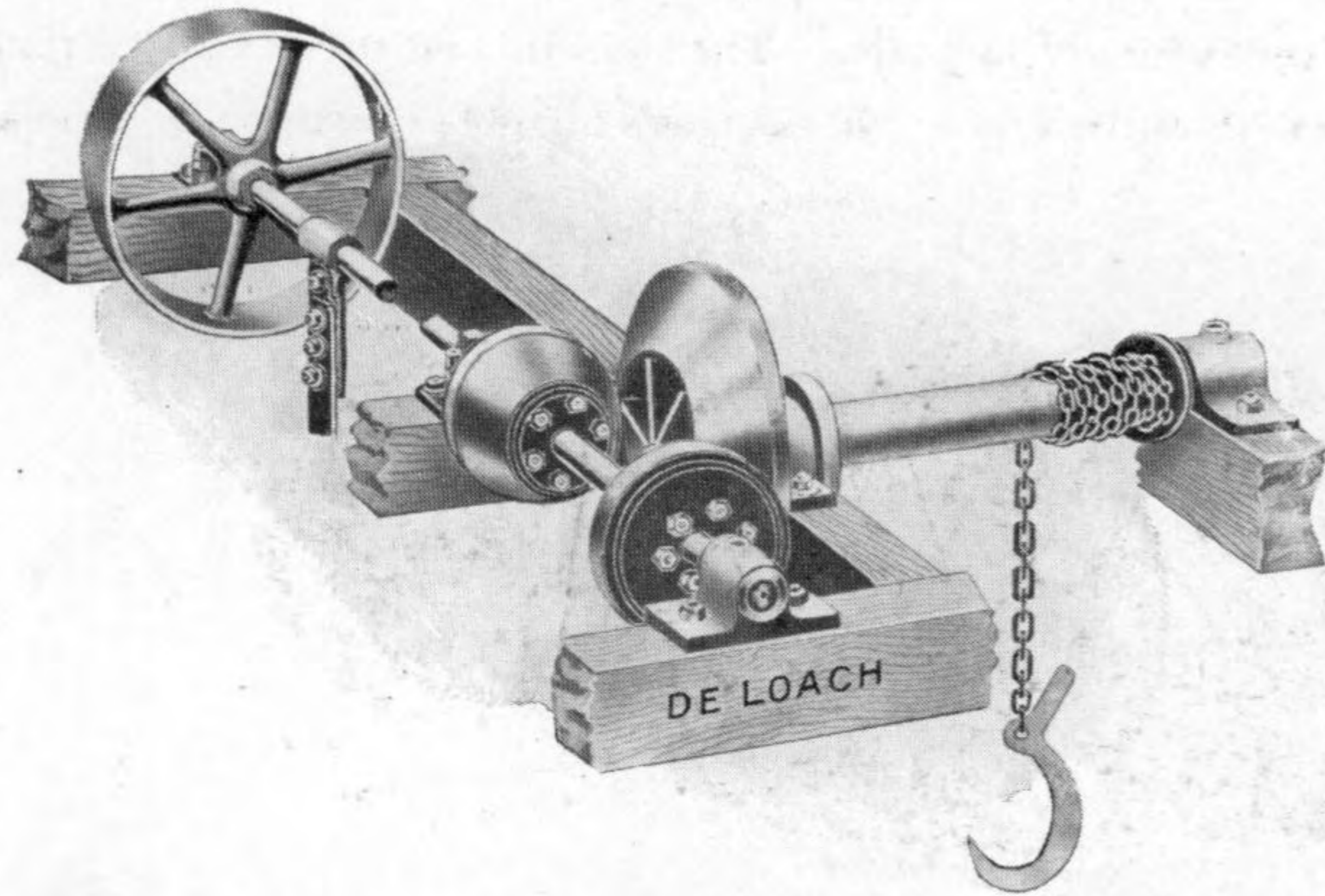
Built in Two Sizes



Specifications: No. 1—Bull Wheel, 30 x 8"; Driving Pulley, 16 x 10"; Drum, 6 x 24"; Drum Shaft, 2 7-16"; Friction 6 x 8"; Friction Shaft, 1 15-16"; weight, 1,000 pounds.

No. 2—Bull Wheel, 48 x 10"; Driving Pulley, 20 x 10"; Drum, 6 x 36"; Drum Shaft, 2 15-16"; Friction, 10 x 10"; Friction Shaft, 2 3-16"; weight, 1,800 pounds.

Friction Log Turners, Live Rolls, Etc.



The above cut represents our Improved Friction Log Turner, which is amply strong for the heaviest work; is quick to operate and absolutely reliable. It is placed over the carriage, the drum running parallel with carriage, which is the best position for the logs.

The lever which operates the machine hangs near the sawyer, and is connected directly to the pulley shaft. The raising and lowering of chain-hook is done by bevel frictions, one iron and two paper, which, being placed alternately in contact, give the forward and reverse motion to the chain.

Specifications of No. 1: Drive pulley, 36 x 6 inches; drive shaft, 2 3-16 inch; bevel paper friction, 9-inch diameter, 6-inch face; bevel iron friction, 30-inch diameter, 6-inch face; drum, 6-inch diameter, with 10-inch flanges; adjustable boxes; bolts furnished if lengths specified in order. No chains. Speed about 225 revolutions per minute.

Specifications of No. 2: Drive pulley, 36 x 8 inches; drive

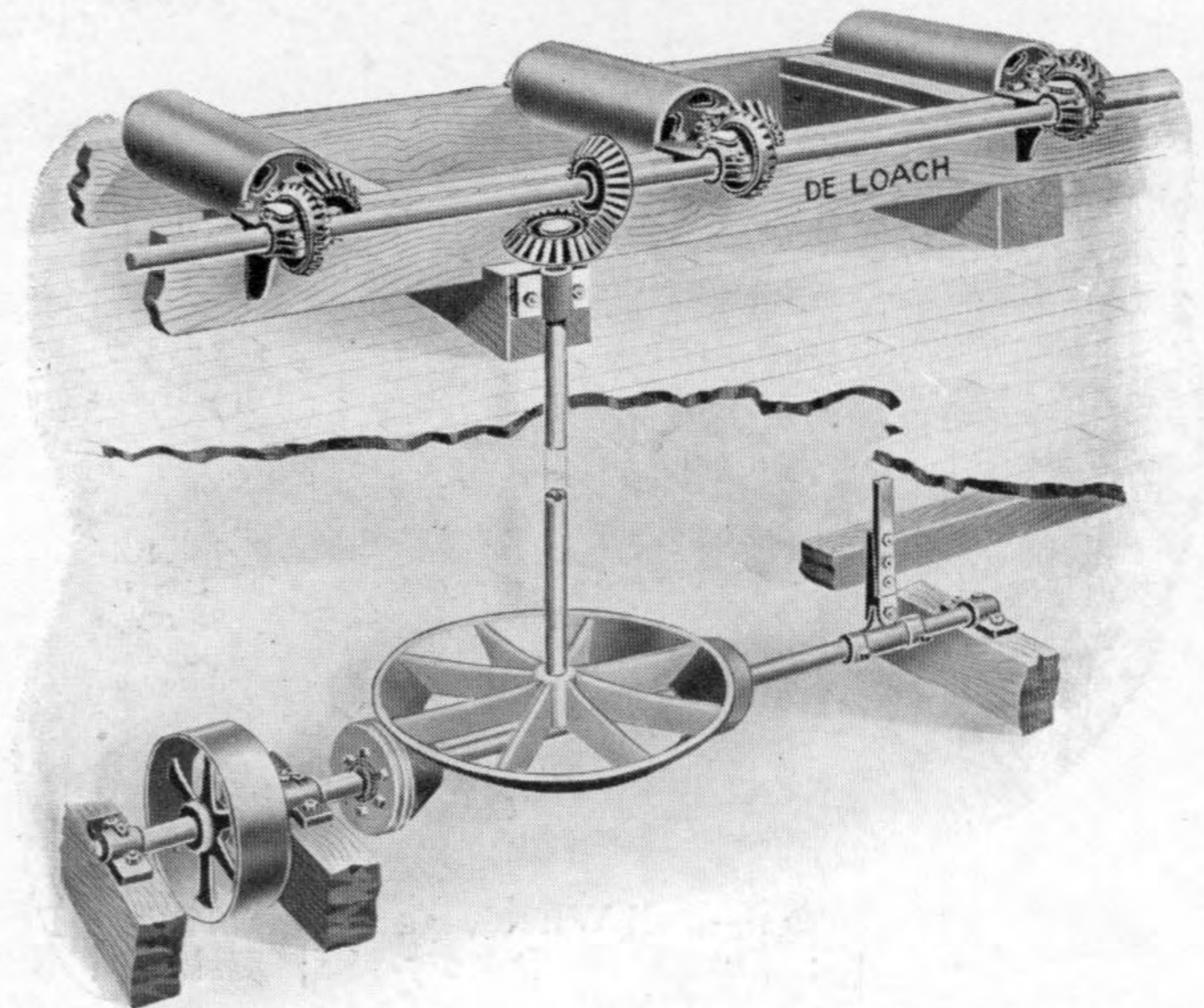
shaft, 2 7-16 inch; bevel paper frictions, 12-inch diameter, 8-inch face; bevel iron friction, 36-inch diameter, 8-inch face; drum, 6-inch diameter, with 10-inch flanges; adjustable boxes; bolts furnished if lengths specified in order. No chains. Speed about 200 revolutions per minute,

LIVE ROLLS

This cut illustrates a section of our Live Rolls, with double driving gear, and shows manner of erecting in the mill. We make these Rolls in two sizes, 6 and 10-inch; the 6-inch being 18 inches long and the 10-inch 24 inches long.

Set of Rolls, complete, ready to erect, with shifting device and single or double friction drive gear, including ten rolls and 45 feet of shaft for same.

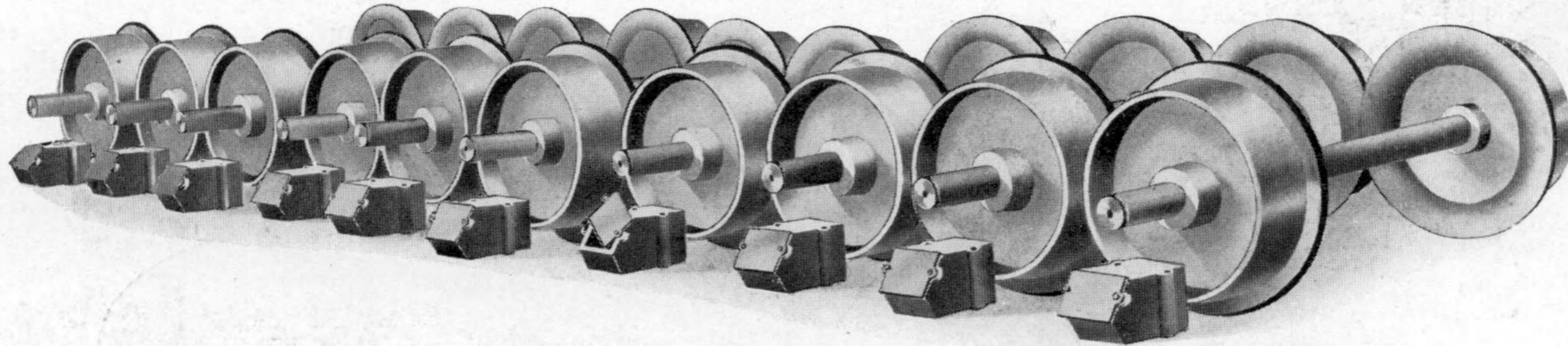
Can be furnished for right or left-hand Mill.



Log and Lumber Trucks

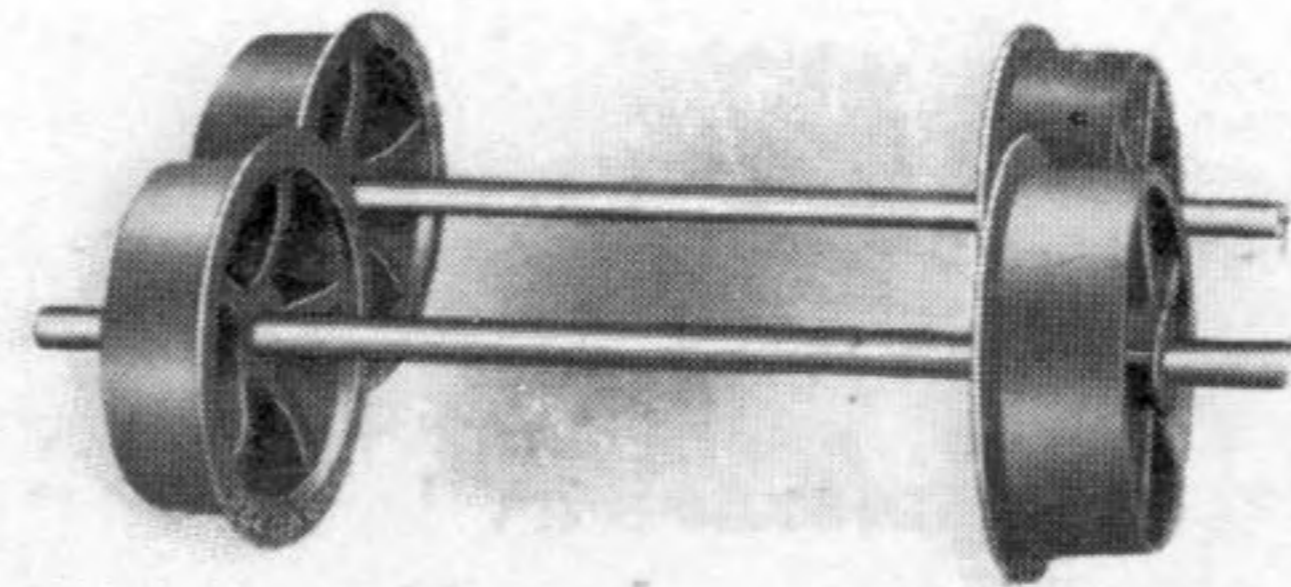
The cut below was made from a photograph of 24-in. Car Trucks, with 4-in. axles, showing the boxes for the bearings. We make all

sizes of Trucks for all purposes. The 24x8-in. and the 32x9-in. Trucks are made with chilled face. No bearings furnished with 12-in. Trucks.



Diameter	Face	Diameter of Axle	Gauge	Kind of Bearings
12	3	1½	26½ in.	For Wood
16	5½	1¾	26½ in.	Babbitt
16	5½	2	26½ in.	Babbitt
18	6	2	30 in.	Babbitt
18	6	2¼	30 in.	Babbitt
24	6	2½	4 ft. 8½ in.	Brass with Grease Cases
24	6	3	4 ft. 8½ in.	"
24	8	3	4 ft. 8½ in.	"
24	8	4	4 ft. 8½ in.	"
30	5	2½	4 ft. 8½ in.	"
30	5	3	4 ft. 8½ in.	"
32	9	3½	4 ft. 8½ in.	"
32	9	4	4 ft. 8½ in.	"

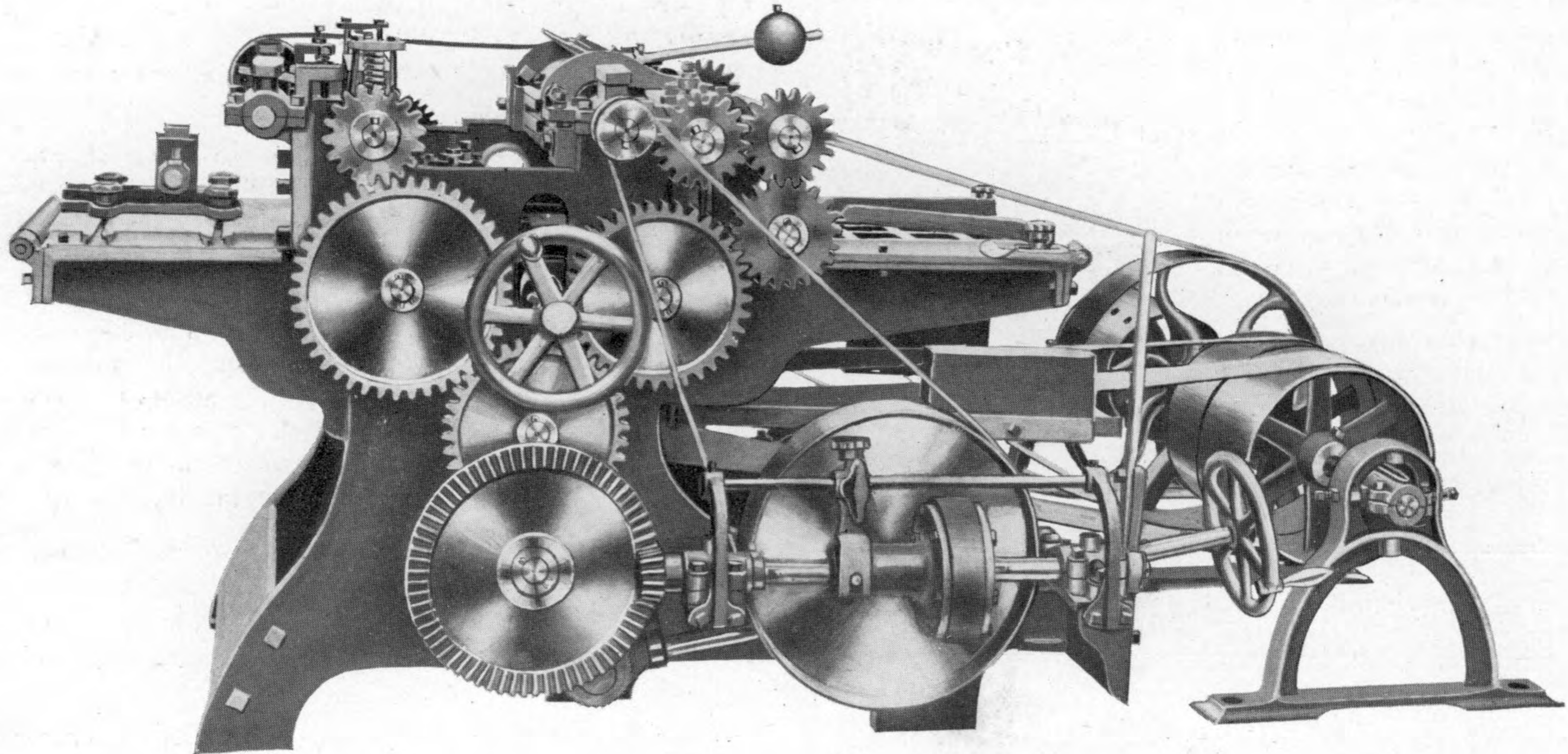
LUMBER TRUCKS



Our Lumber Trucks are made to be used in wood frame, without boxes. Three sizes, 10, 12 and 16-inch, with 2½-inch face. The 10 and 12-inch Trucks have 1½-inch axles, and the 16-inch have 1¾-inch. Gauge 26½ ins.

The "Monitor" Variable Friction Feed Planer

With Matching and Moulding Attachments



The success of our "Paragon" Planer induced us to design a heavier machine of the same order.

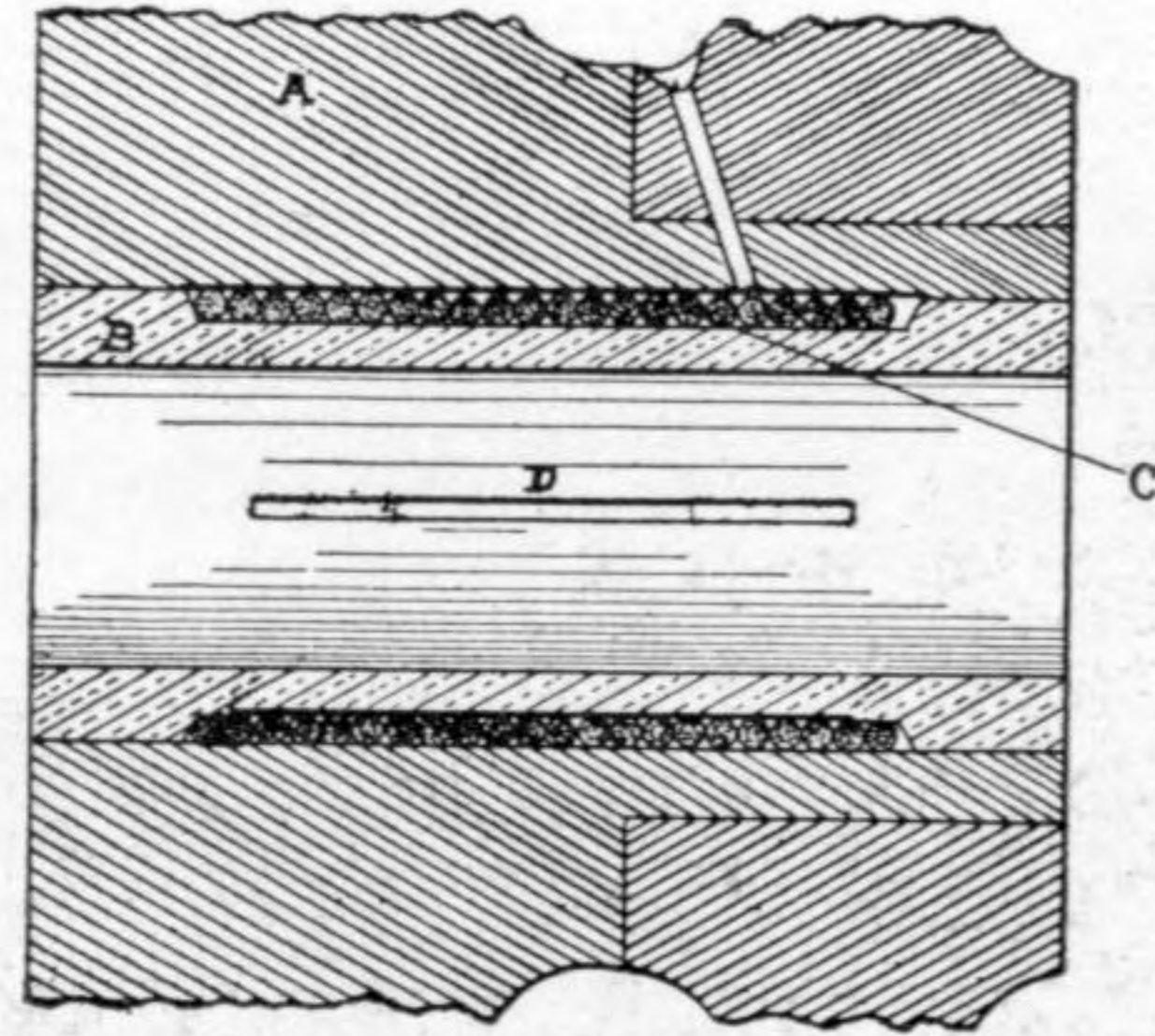
The "Monitor" has not been on the market as long as the "Paragon" but it has come to stay. It's a wonderfully compact machine and it is a genuine pleasure to see it work. It is built about on the same order as the "Paragon," differing mainly in

weight and scope. The matcher heads operate between the back and front rolls, which is a great advantage. The machine will take 24-in. wide, 6-in. thick, and is driven with two belts, one on each end of the cylinder. It has four 4-in. rolls, with 1 7-16-in. shaft and 5-in. bearings.

The feeding-out top roll has a cover in the form of a scraper,

supplied with oil and waste to prevent the accumulation of pitch or trash of any kind.

The top feeding-in roll is fluted. The gears are made very heavy and run noiselessly. The links supporting the trains of gears and all the gears working on studs are fitted with heavy brass bushes, making them very durable and when worn can be replaced at slight expense and no inconvenience. The recess is turned in the bush and this is wrapped with wick which holds the oil and this makes the gears run for several days without attention. The machine matches 10 in. wide.



The Variable Friction Feed is the more important feature. By its use the operator can speed the feed rolls as desired, slow or fast.

The feed is reversible and in case of a hitch the lumber can be backed out, which is a very desirable feature.

The friction disc is 16 in. in diameter, with 1 7-16 in. shaft and end thrust bearing for same. On light narrow work (nine-tenths of all matching is narrow), this machine will do a hundred per cent. more work than other machines of its weight. On ordinary work the capacity of this machine is fully 50 per cent. more than other machines of its weight.

After eight years' successful sale of this machine some people refuse to believe in the Variable Feed, by refusing to think. Just so in other good things—some people refuse to ride on an electric car—but they are all coming—and coming our way.

The Bed is 6 ft. 4 in. long, 24 in. wide, cast in one solid piece, and fitted between long heavy guides on the frame, making it very strong.

The bed with matcher heads only, is raised and lowered.

The Cylinder has 1 11-16 in. journals running in babbitted boxes 9 in. long and carries three knives 3 1-4 x 24 in. The babbit is hammered down thoroughly and reamed out to a perfect fit. Heavy chip breaker with self adjusting weight guards the cylinder. A pressure bar just in front of the cylinder is adjustable and all vibration can be taken out of the lumber, insuring perfectly smooth work.

Matcher Spindles are 1 7-16 in., and run in independent frames with 5-in. self-oiling boxes and screw adjustments to take up lost motion. The heads are adjustable and have chip breakers which prevent splitting out in cross grained or knotty lumber. The heads can be entirely removed and spindles dropped out of the way for wide surfacing.

The Moulding Head is 6 in. long, run on independent spindle 1 7-16 in., just behind the feeding-out rolls and runs in boxes 7 in. long; it is driven with belt running on top of one of the cylinder belts. The head is adjustable the entire width of bed, and cutters of any width up to 6 inches wide may be used. The head has two sides slotted, and entire moulding attachment can be adjusted vertically.

The Counter Shaft is 1 11-16 in. diameter; runs in three 7-in. bearings supported by heavy floor stands.

Pulleys, for cylinder, two 5 x 6; tight and loose 12 x 8; moulding spindle, 6 x 6; matcher spindles, 3 x 8; for driving cylinder, two 24 x 6; to drive variable feed, 8 x 4.

Belts, for cylinder, two 6 in. wide, 15 1-2 ft. long; for moulder 4 in. wide, 19 ft. 8 in. long; feed belt 4 in. wide, 8 ft. long; matcher belts 3 in. wide, 15 1-2 ft. long, each.

We furnish with the machine three 24-in. knives, one set each of matching and edging bits, one set each of moulding and beading bits, and full set of belts.

Weight of machine complete **4,500 pounds.**

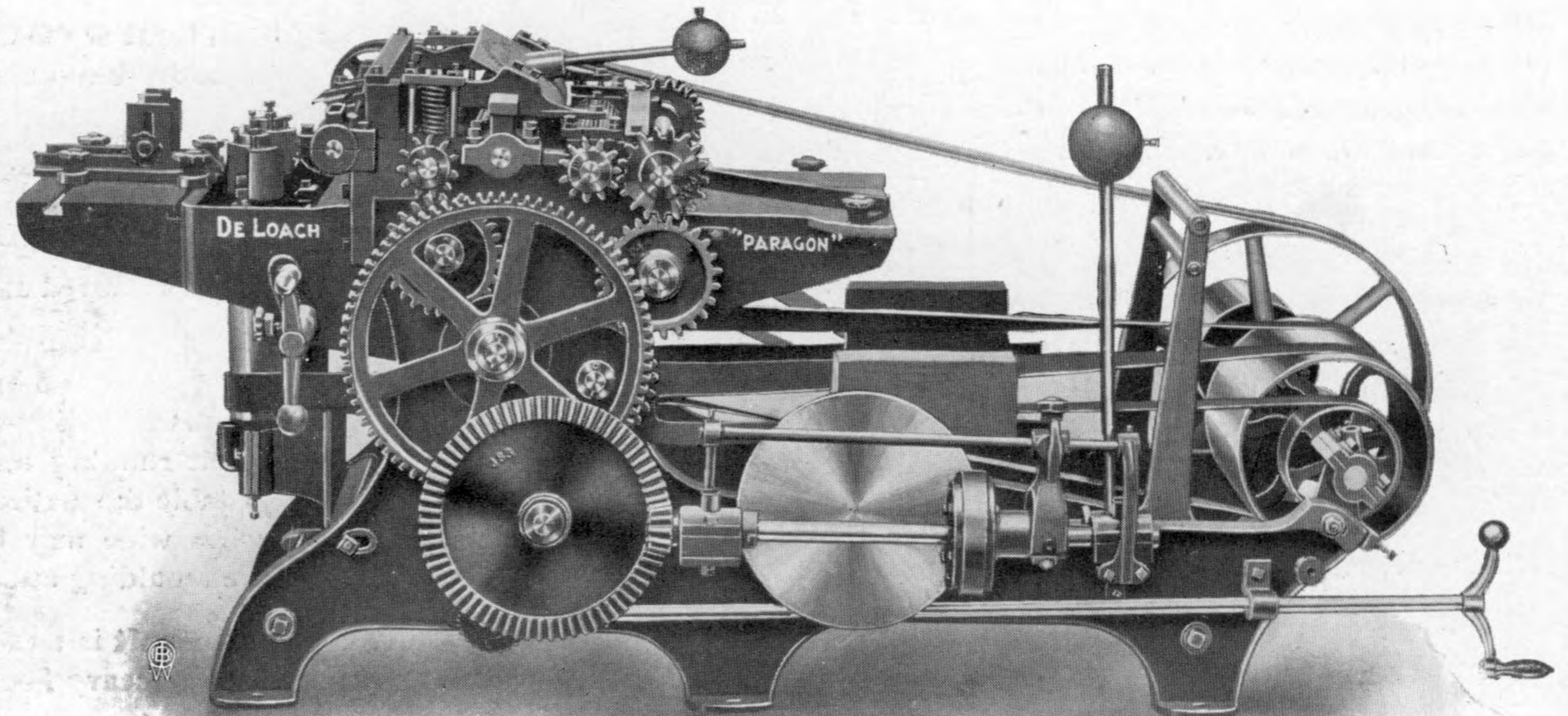
Our Improved "Paragon" Planer

With Variable Friction Feed and Matching and Moulding Attachments

With any man who can appreciate such a machine as illustrated herewith it is a pleasure to discuss its merits. It has several points of especial value, the principal one being the Variable Friction Feed. It is compactly built and yet there is ample room for getting at all the different parts of the machine. The sides of the frame and the bed are heavy and very strong. The bearings are all extra long and made wick oiling. The babbitt is hammered down and reamed out to a perfect fit, the journals ground absolutely round and true. The links supporting the train of gears are bushed with brass, which makes them very durable and when worn they can be replaced at slight expense and no inconvenience. Gears running on studs are fitted with heavy brass bushings, and a recess is turned in the bush, which is wrapped with wick. This retains the oil so that the gears will run for several days without attention—a valuable feature.

On account of the Variable Friction Feed the capacity of the machine is fully 50 per cent more than other machines of its weight, and in working flooring and ceiling, and all narrow stuff, the capacity is fully 100 per cent greater.

The Variable Feed is equally valuable for heavy work. On wide, heavy cuts the feed can be decreased to correspond, doing smoother work than is possible to turn out where the feed has to be stopped occasionally for the machine to regain its normal speed. In other words, a planer without a Variable Friction Feed is out of date.



The Bed is 5' long and 20" wide, cast in one solid piece and fitted to the sides between long, heavy gibs, making it very rigid. The bed, with the matcher heads, is raised and lowered simultaneously with hand wheel, as shown in cut. The indicator is attached to the frame on the left side in plain view of the operator.

The Cylinder carries two knives $3\frac{1}{2} \times 20''$, all perfectly balanced. The journals are 11-16" and run in wick-oiling boxes, 6" long, lined with genuine babbitt, hammered down and reamed out to a perfect fit. A large chip breaker with adjustable ball weight, guards the cylinder, and is self-adjusting to the different thicknesses of lumber.

The Matcher Spindles are $1\frac{1}{8}$ " diameter, ground perfectly round and true; they run in independent frames with 5-inch wick-oiling boxes, with screw adjustment at the bottom to take up the wear.

The Matcher Heads are $4\frac{5}{8}$ " diameter, slotted to take $3\frac{1}{2} \times 2\frac{1}{4}$ " bits, $\frac{3}{8}$ " thick. They are adjustable, accurately balanced, carefully fitted and supplied with chip breakers. The heads may be entirely removed from the spindles for surfacing wide lumber. The spring which holds the lumber to the guide is adjustable and can be easily removed to allow surfacing full width of machine.

The Moulding Head is 6" long, 2 sides slotted, takes bits up to 6" wide and $\frac{3}{8}$ " thick. Shaft, 1 5-16" diameter, boxes $5\frac{1}{2}$ " long. The head is adjustable the entire width of the bed, also vertically, to cut from $\frac{1}{8}$ to 7-16" deep.

The Variable Friction Feed has 16" disc, driven from countershaft, and gives a variation from 0 to 80 lineal ft. per minute; shaft is 1 7-16" with $4\frac{1}{2}$ " bearings, and end thrust bearing.

Feed Rolls are 4 in number, $3\frac{1}{2}$ " diameter, with 1 7-16" steel spindles, running the entire length with bearings 3" long. The top feeding-in roll is fluted. The two front and top back rolls are geared. The gears throughout are made very heavy and noiseless.

Countershaft is 1 11-16" diameter, two 6" bearings attached to main frame and a third bearing attached to the floor stand. All the bearings are swivelled to provide adjustment for taking up the stretch in belts. The speed of countershaft is 900.

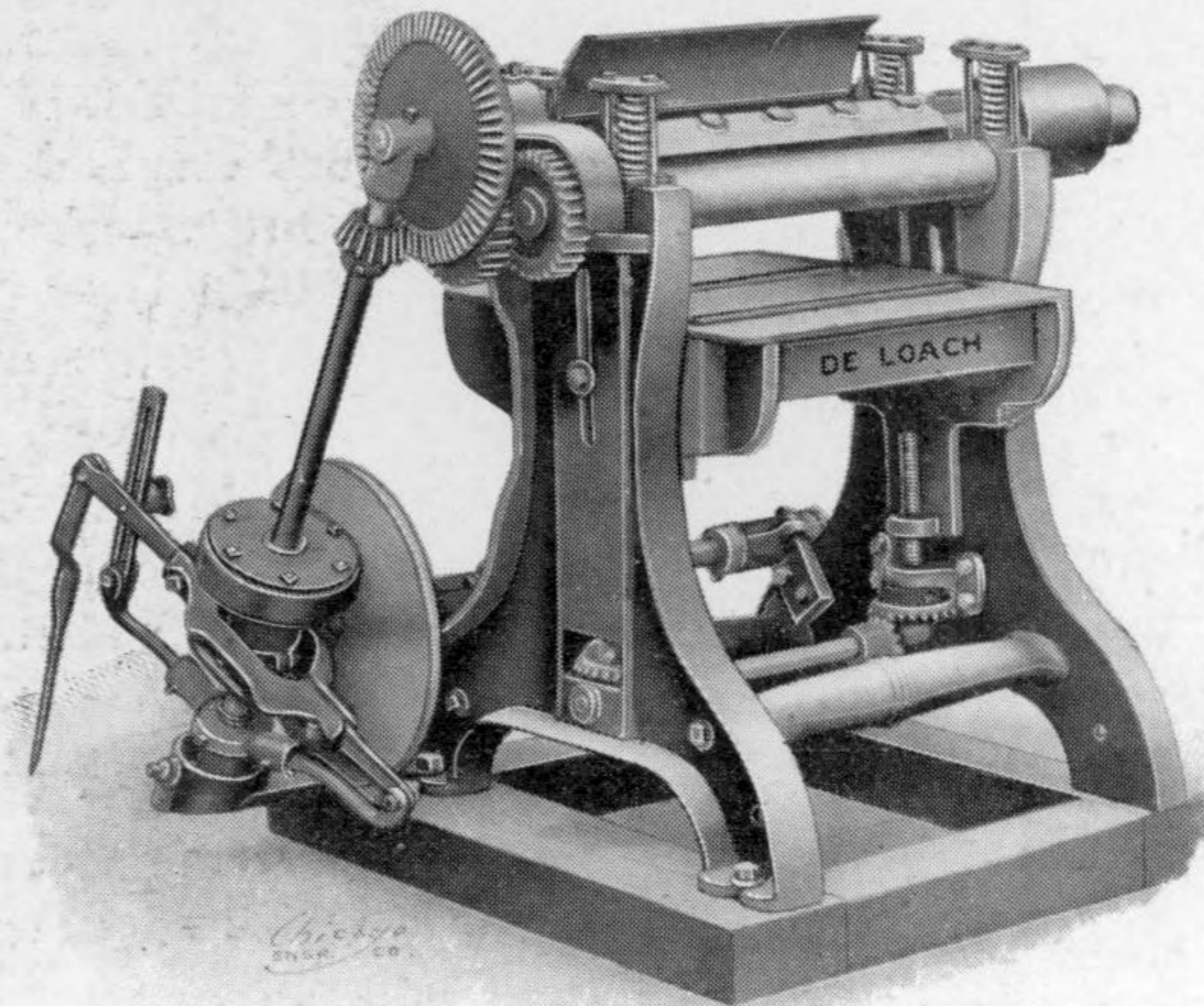
Pulleys for cylinder, 6x6"; moulder, 6x4"; matchers, $3\frac{1}{2} \times 8$ "; pulley to drive cylinder, 24x6"; matchers, 14x16"; tight and loose, 10x6".

Belting for cylinder, 6" wide, 15' long; for moulder, 3" wide, 16' 8" long; for matchers, $2\frac{1}{2}$ " wide, 15' 1" long, each; for feed, $2\frac{1}{2}$ " wide, 9' 3" long.

The machine is priced ordinarily with matching and moulding attachments, one full set of bits, including two 20-inch knives, four matcher bits, one set beading tools, one set O. G. moulding bits, and complete set of belts, as above.

Weight of machine complete, as above 3,000 pounds.

Our Improved Pony Surfacer With Variable Friction Feed



Our Pony Surfacer takes lumber 20 inches wide, 6" thick. The two top feed rolls are 3 inches diameter and driven, the front one fluted. The two bottom rolls or idlers, 2 7-16 inches diameter. The machine has Variable Friction Feed. Countershaft is furnished when desired, at extra cost. The machine is regularly fitted with two 20-inch knives. Floor space required, without Countershaft, $3\frac{1}{2} \times 4$ feet; with Countershaft, 4x6 feet; weight with Countershaft, 1,250 pounds; without Countershaft, 1,000 pounds.

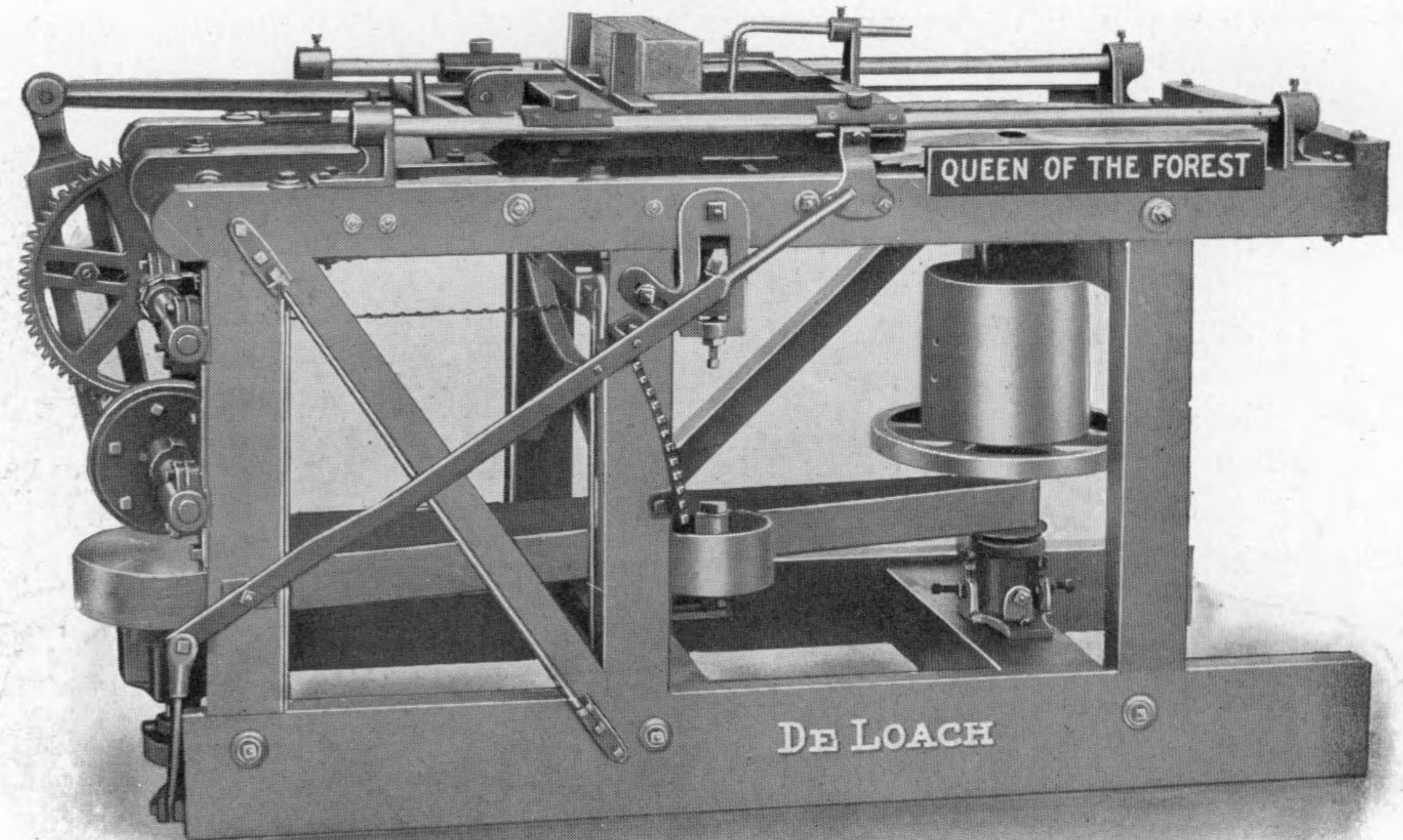
“Queen of the Forest” Shingle Mill

The First “Queen of the Forest” Mill was shipped to Jno. A. Thompson, Embar, Wyo., July 13, 1897. After the machine had been in operation a few months, Mr. Thompson wrote back in the most enthusiastic manner, saying the mill was such a success that his customers had named it the “Klondyke of the West.”

The Variable Feed is just as much a necessity for a shingle mill as for any other machine. By it the number of strokes can be varied from 25 to 75 per minute, and by this means the capacity of the machine is fully 25 per cent. greater than machines with a fixed stroke.

The Machine is Warranted to run successfully with from 8 to 20-horse power. Speed, from 1,200 to 1,500. Capacity, 20,000 to 30,000 shingles per day, cutting single blocks, which is considerably more than any other automatic machine of nearly twice its cost. It will cut one, two or three shingles per stroke.

The “Queen” has been a success from the beginning, and is fully warranted to work just as represented. Every part is made by template so that duplicate parts can be procured promptly. When the saw becomes dull the feed can be changed to reduce the number of strokes per minute so as to avoid stopping to put saw in order. By the use of a clutch on the sprocket which operates the tilt tables, the cut can be changed so as to get as many butts or points at one end of the block as may be necessary to even it up, then throw it into gear again and cut alternate butts and points. It can also be thrown out of gear to cut straight boards instead of shingles. The regular machine is made for blocks 18 in. long and will take three blocks 4 3/4 in. thick; can be changed to take 14 to 20 in. long; 24-in. blocks can be cut by using 42-in. saw. It will make shingles of any taper, sawing blocks to last half inch, and can be quickly adjusted to make an unexcelled box board machine.



Specifications—The Frame is made of Southern pine; Mandrel, 1 1/2-1 3/4 in. steel, with adjustable step and screws to regulate position of the saw, and bottom end runs in oil. The upper bearing of Mandrel has oil cup, which feeds oil to the Mandrel by wick. The saw is securely fastened by countersunk screws to a 24-in. collar perfectly balanced, and this collar is fitted with three large countersunk screws to smaller collar, which is shrunk on the Mandrel. Size of Pulley, 12 in. diameter, 12 in. face; Balance Wheel, 20 in. Feed Belt, Tightening Pulley for same and 38-in. Saw are furnished. Floor space, 37 1/2 in. x 7 ft. Weight, 1,600 pounds.

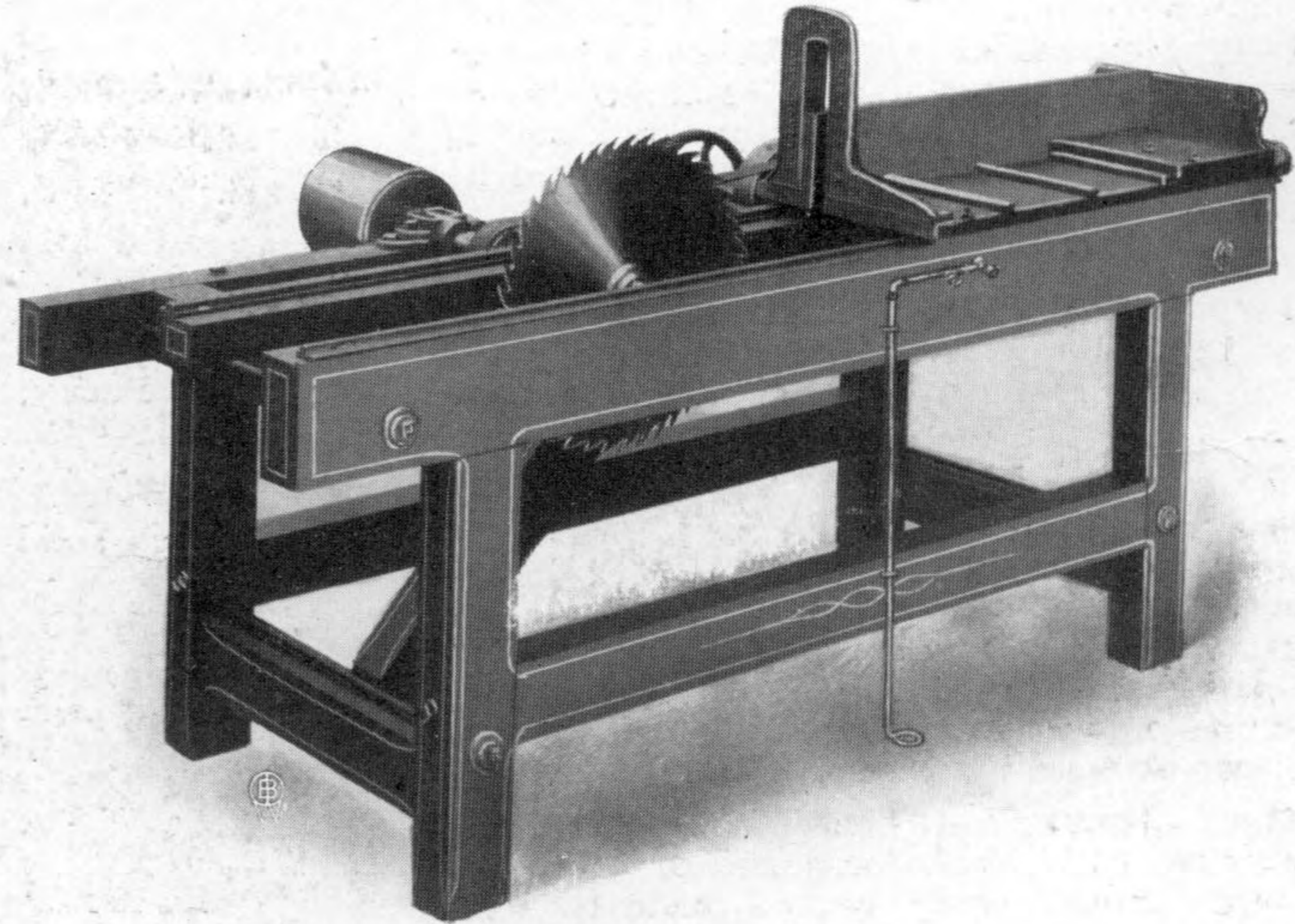
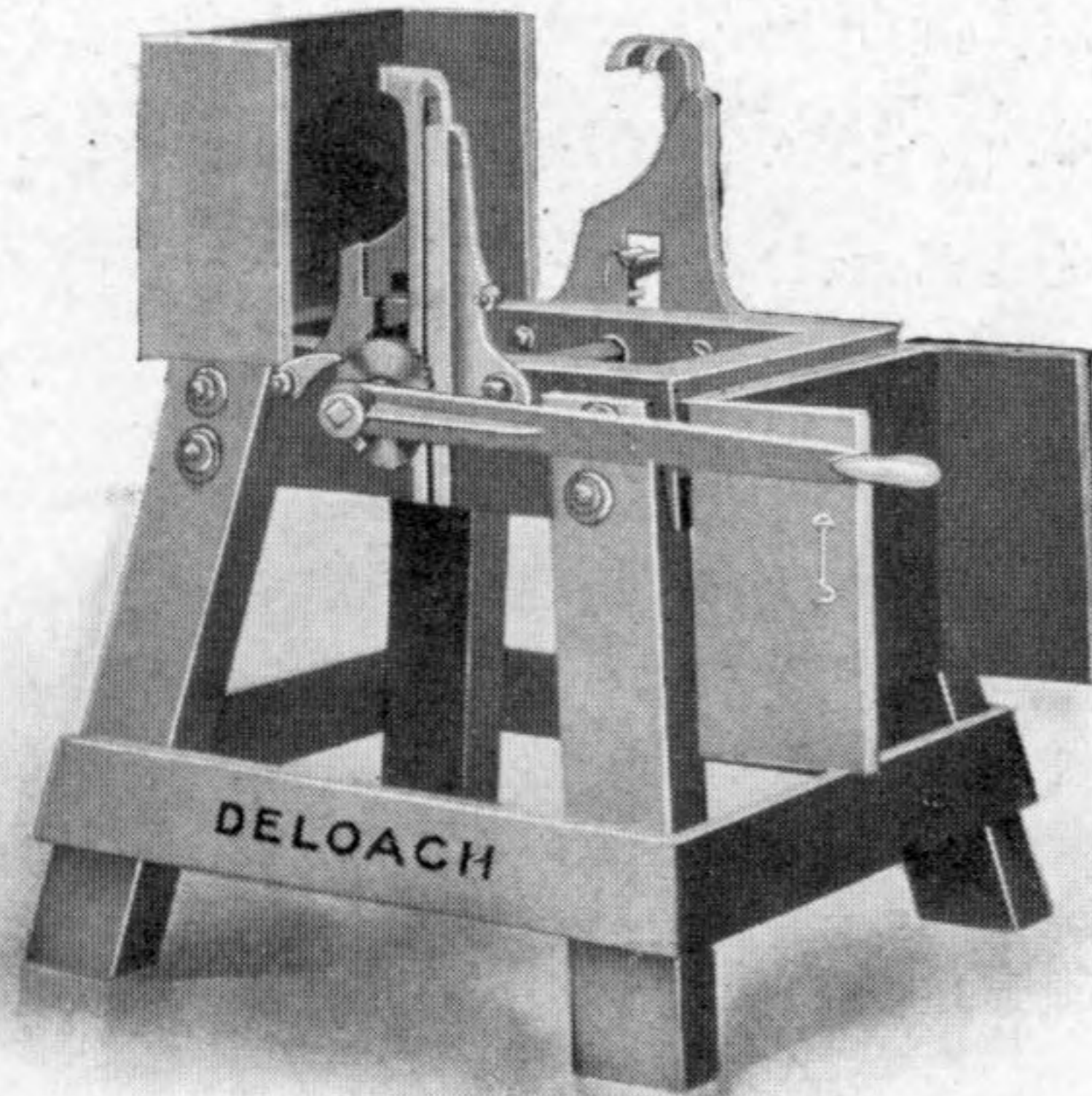
“Jack-The-Ripper” Shingle Machine

We Recommend the “Jack-the-Ripper” Shingle Machine as being a real money-maker for farmers, millmen and others who have small power. Cutting shingles for home use or for the neighborhood, this machine will pay for itself in a few days.

This is a Self-Feed Machine, and all that is required of the operator is to rock the block on the carriage, while he controls the feed with one foot.

The Carriage is well made, and with the iron yoke shown in cut, makes a very substantial rig. It has four gibs attached to the under side, planed to fit the track on top and bottom to allow the table to slip thereon and firmly hold it to the ways. These gibs are slotted to provide for ample adjustment in cutting thick or thin shingles.

SHINGLE PACKER



It Will Square riven blocks, and is guaranteed to cut perfect shingles. An extra table and saw for bolting can be furnished when desired. The regular shingle carriage can be instantly removed and the bolting table substituted for bolting up shingle stock.

A Self-Acting Trip is provided, which disengages the feed the instant the cut is made. The mandrel has pulley 8 x 8 inches, and should make 1,200 revolutions per minute for general work. Feed belt, wrench and one 20-inch saw are furnished with each machine. Larger saw can be furnished if desired. Capacity, 8,000 to 15,000 shingles per day. Power required, 4 to 6-horse power. Weight 540 pounds.

The DeLoach Improved Bolters

Knee Feed Shingle Bolter

This cut sufficiently describes this simple machine. It was designed for squaring up shingle bolts from the round stock as it comes from the Drag Saw. By its use a great saving of timber is effected and in addition the bolt is squared ready for the shingle mill, saving both time and timber. We make it throughout in the best manner and of the best material.

It will bolt 6,000 to 10,000 feet of logs per day.

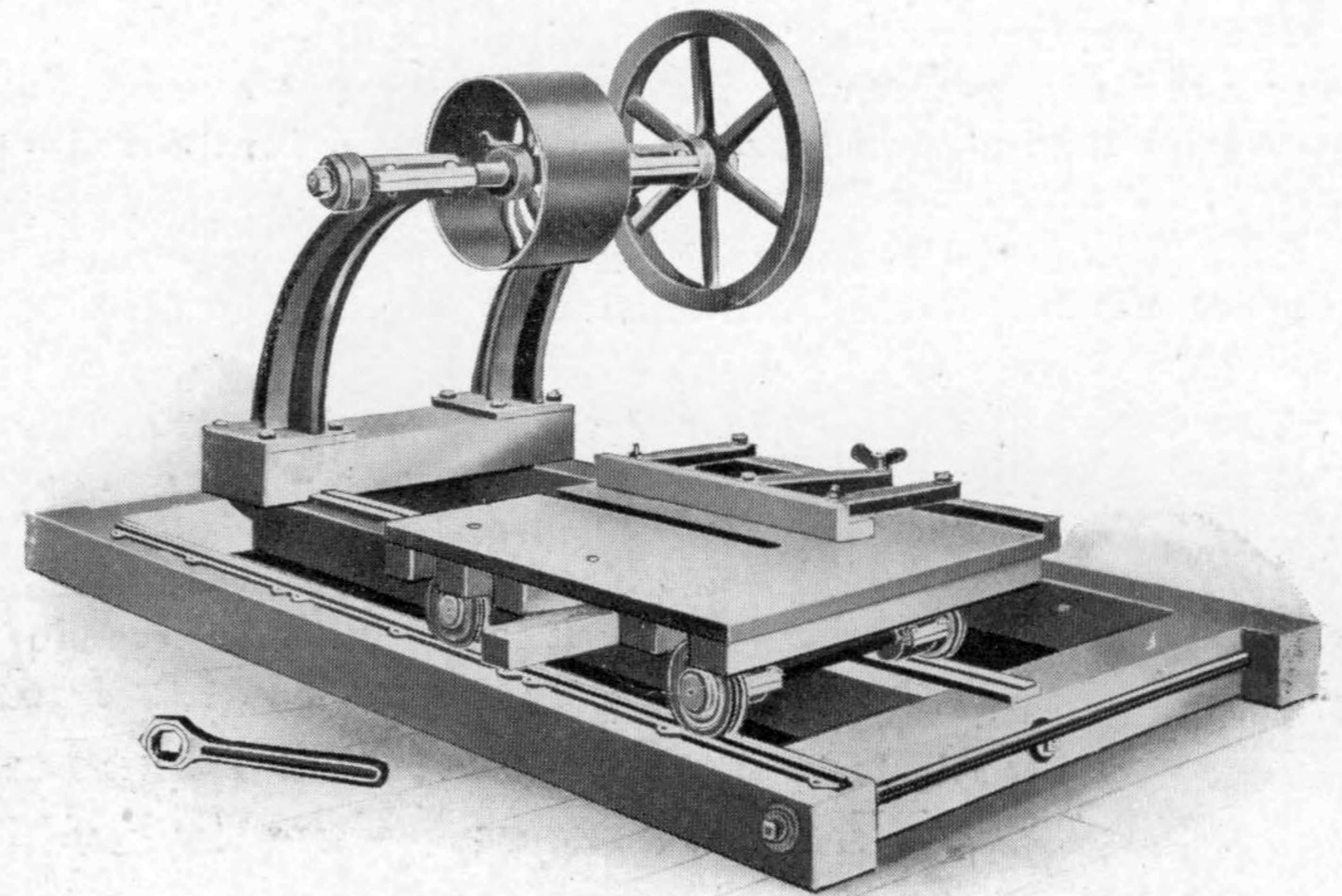
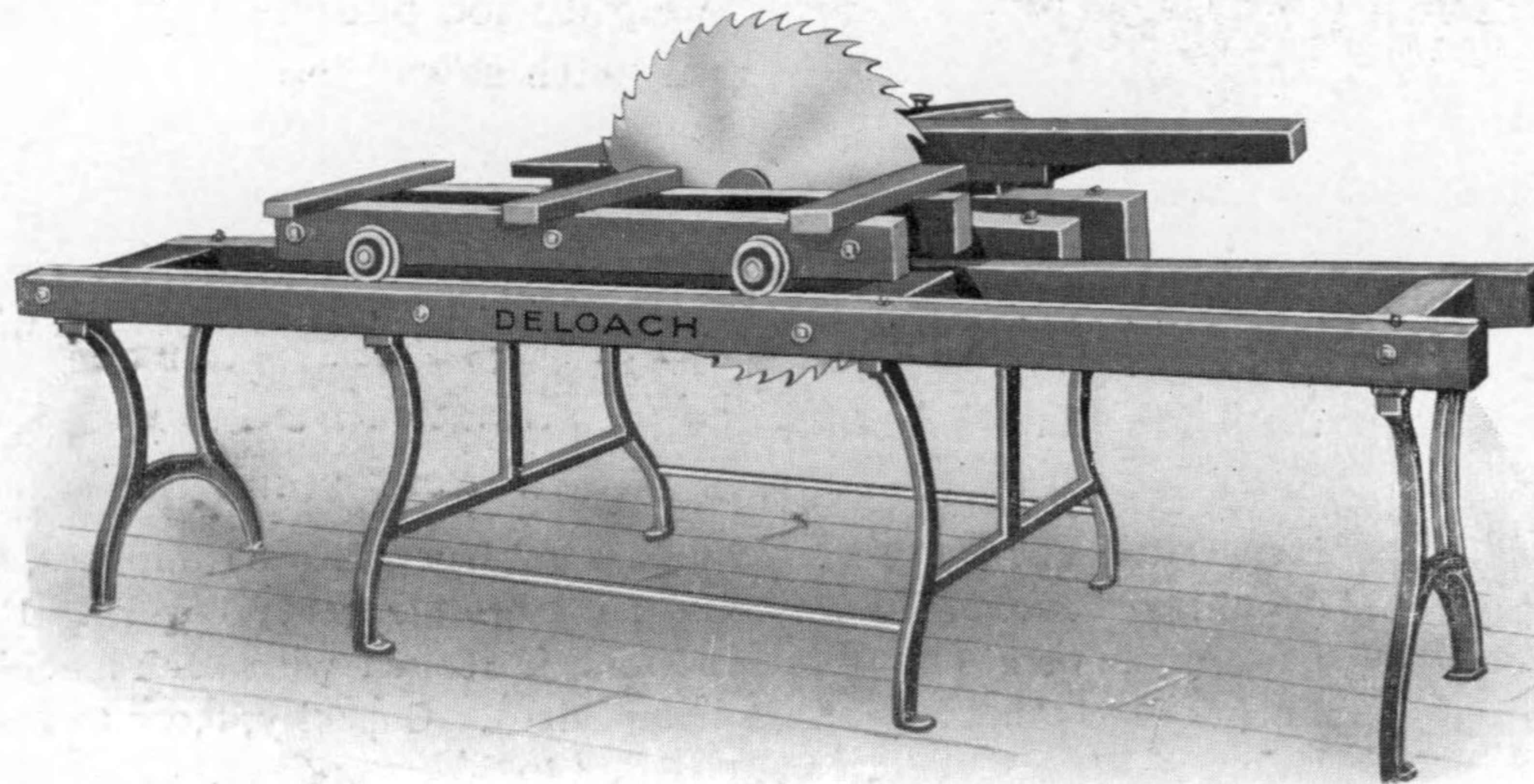
Mandrel, 2 3-16"; Balance Wheel, 30" diameter; Size of Pulley, 16" diameter, 10" face.

Speed, 500 to 600 per minute.

Weight, without saw, 1,360 pounds; weight, with 48-inch solid saw, 1,480 pounds.

The DeLoach Hand-Feed Bolter

This machine is intended to meet the demand for a low price



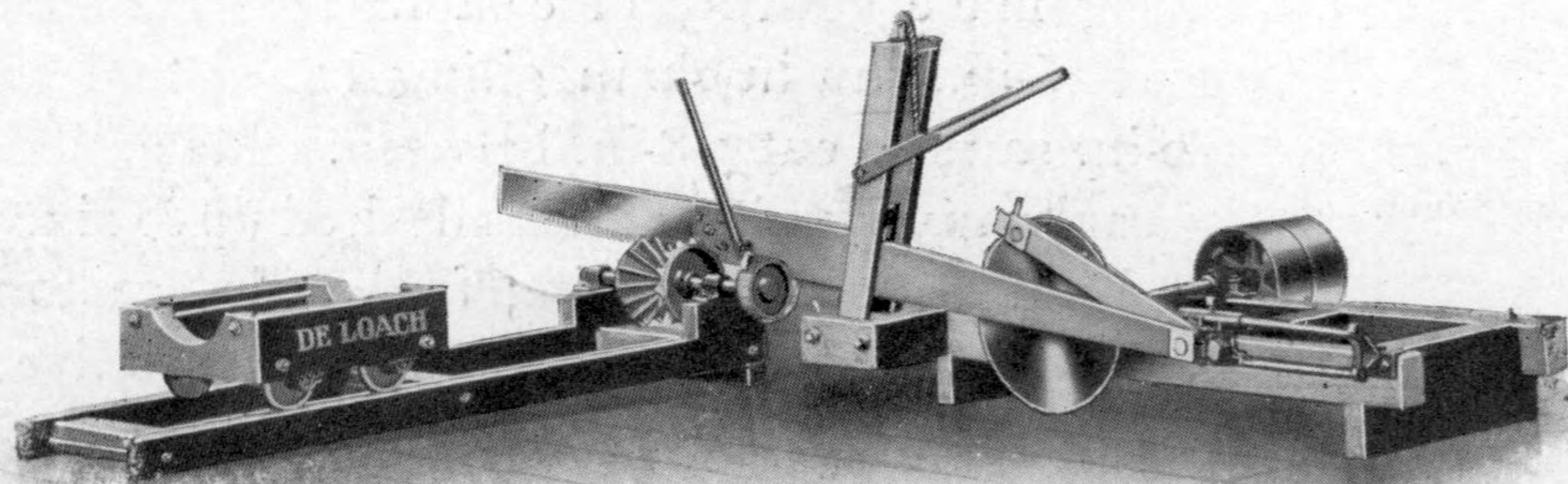
machine for bolting shingle stock, sawing short logs into box boards, pickets, staves, spool, bobbin or handle stock.

Carriage, 12" wide, 4' long, timbers, 2 x 4; 3-4" steel axles and 4" flanged trucks; Track timbers, 3 1-2 x 3 1-2, 10' long; 1 7-16" Steel Mandrel, 33" long with 6 x 6 Pulley. Floor space required 5x10 feet; weight, 700 pounds. Longer or shorter Carriage can be furnished, and fitted with power feed at small cost.

Will take any size saw up to 36".

The DeLoach Improved Drag Saw

This cut illustrates our Improved Drag Saw, which is very simple and highly recommended for doing the work for which such a machine is intended, such as cutting stock from the log for shingle and lath mills, furniture and wagon stock, general farm work, etc.



The frame is made of heavy, select yellow pine timber; track is 24 feet long, in two sections; size of timbers, 3 1-2 x 5 1-2, securely braced with heavy cross pieces and secured by iron rods; stroke of saw 28 inches; tight and loose pulleys 20 x 10 inches. Connecting rod and cross head are fitted with split boxes and wrought iron straps with taper keys; guide rods are 1 7-16-inch steel; cross-head is babbitted. Weight, 1,865 pounds.

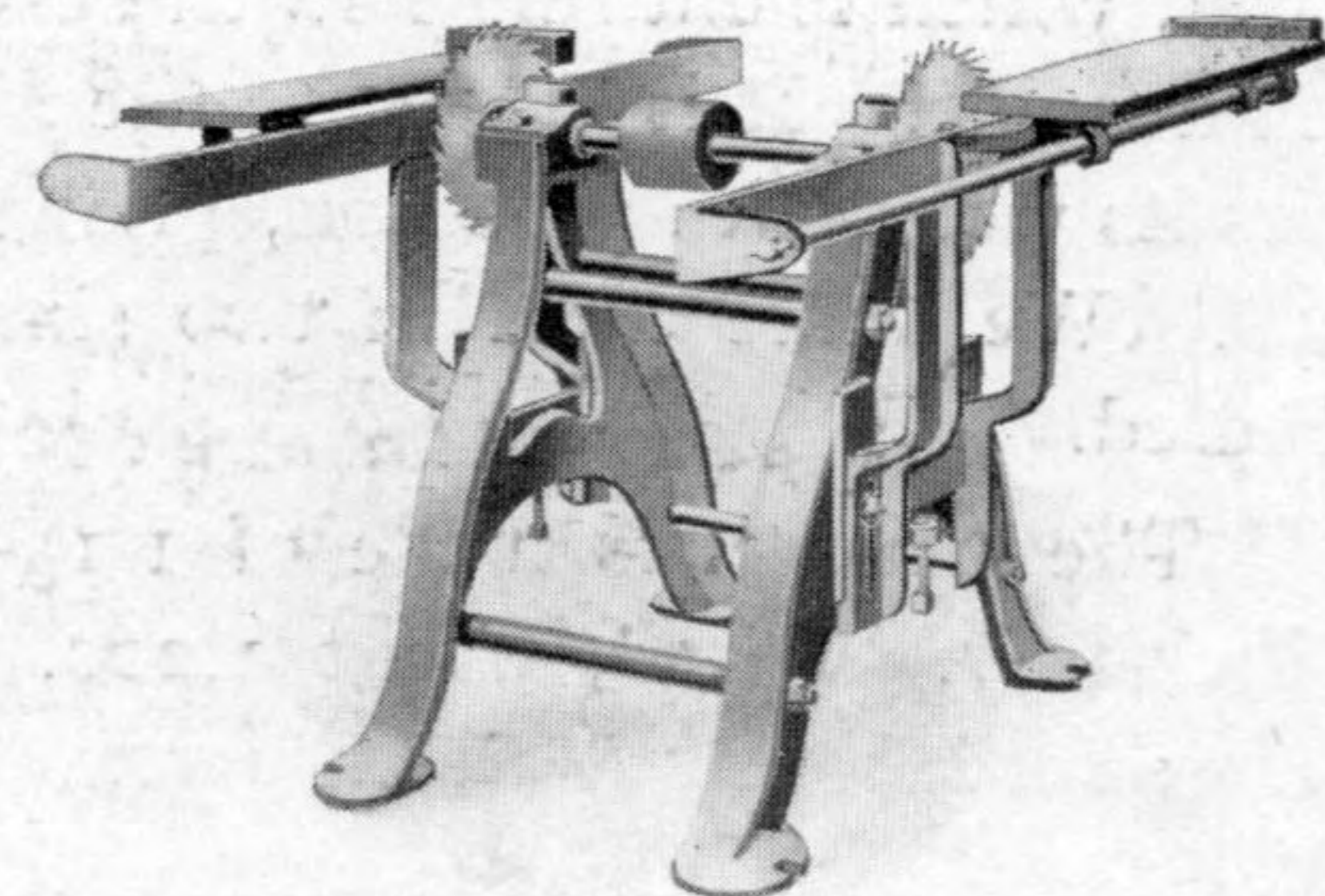
We are now building a lighter Drag Saw. Further particulars and prices will be furnished on application.

Iron Frame Double Saw Jointer

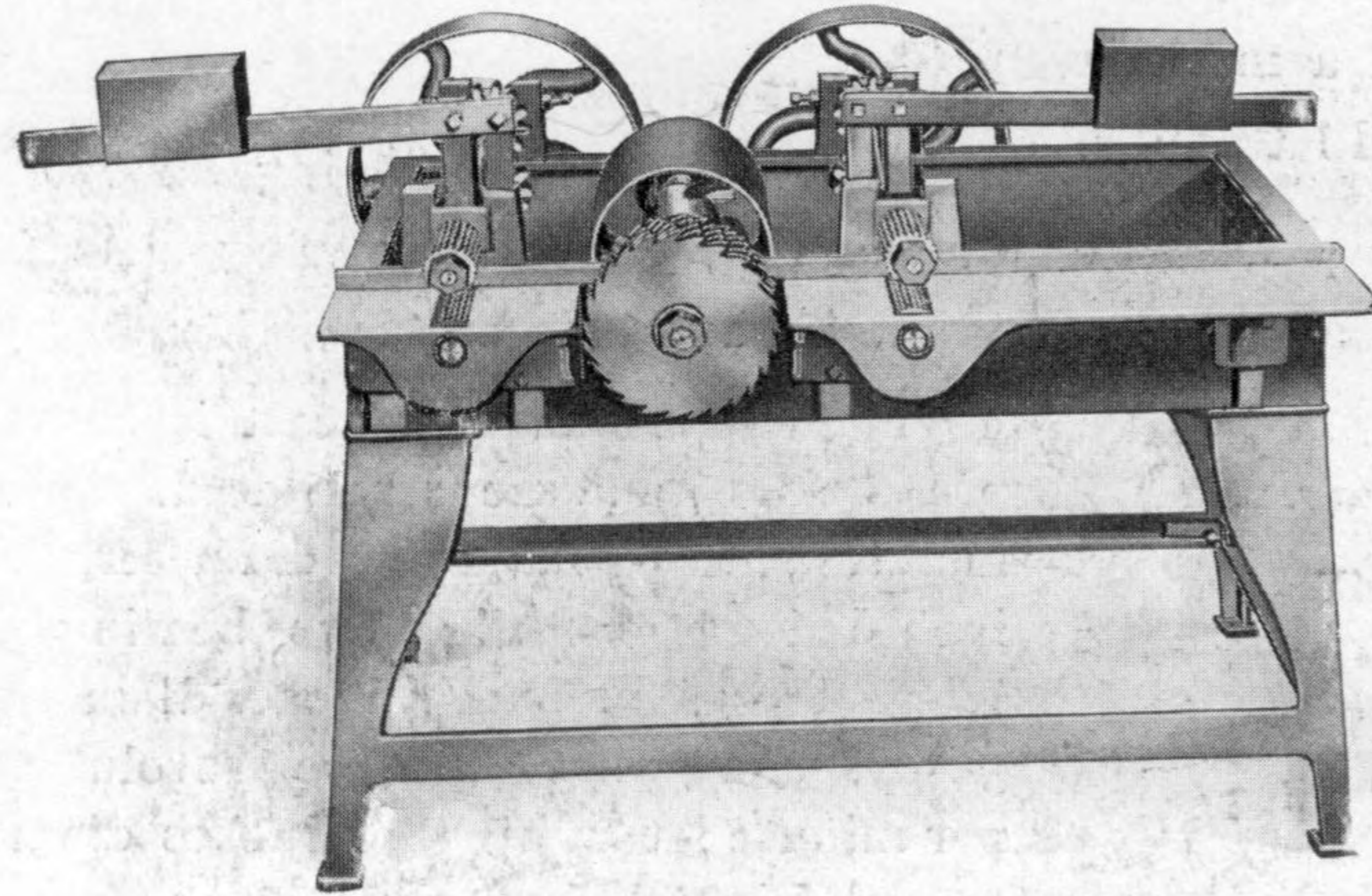
This machine is designed for edging or jointing shingles, ripping knots out of shingles, etc., and sawing slats for vegetable and fruit crates.

The frame is made of cast iron, well proportioned and securely braced. Steel mandrel, 1 7-16 inches diameter, 26 inches long overall; two bearings 6 inches long; pulley, 4 inches diameter, 3-inch face; speed, 2,000 revolutions per minute; two saws, 8 inches diameter. Weight, 360 pounds.

Price, with saws, \$60.



The DeLoach Iron Frame Lath Mill



One of our customers, writing us about the DeLoach Lath Mill, said :

“There is only one objection to this machine, and that is, it takes too many men to remove the lath fast enough.”

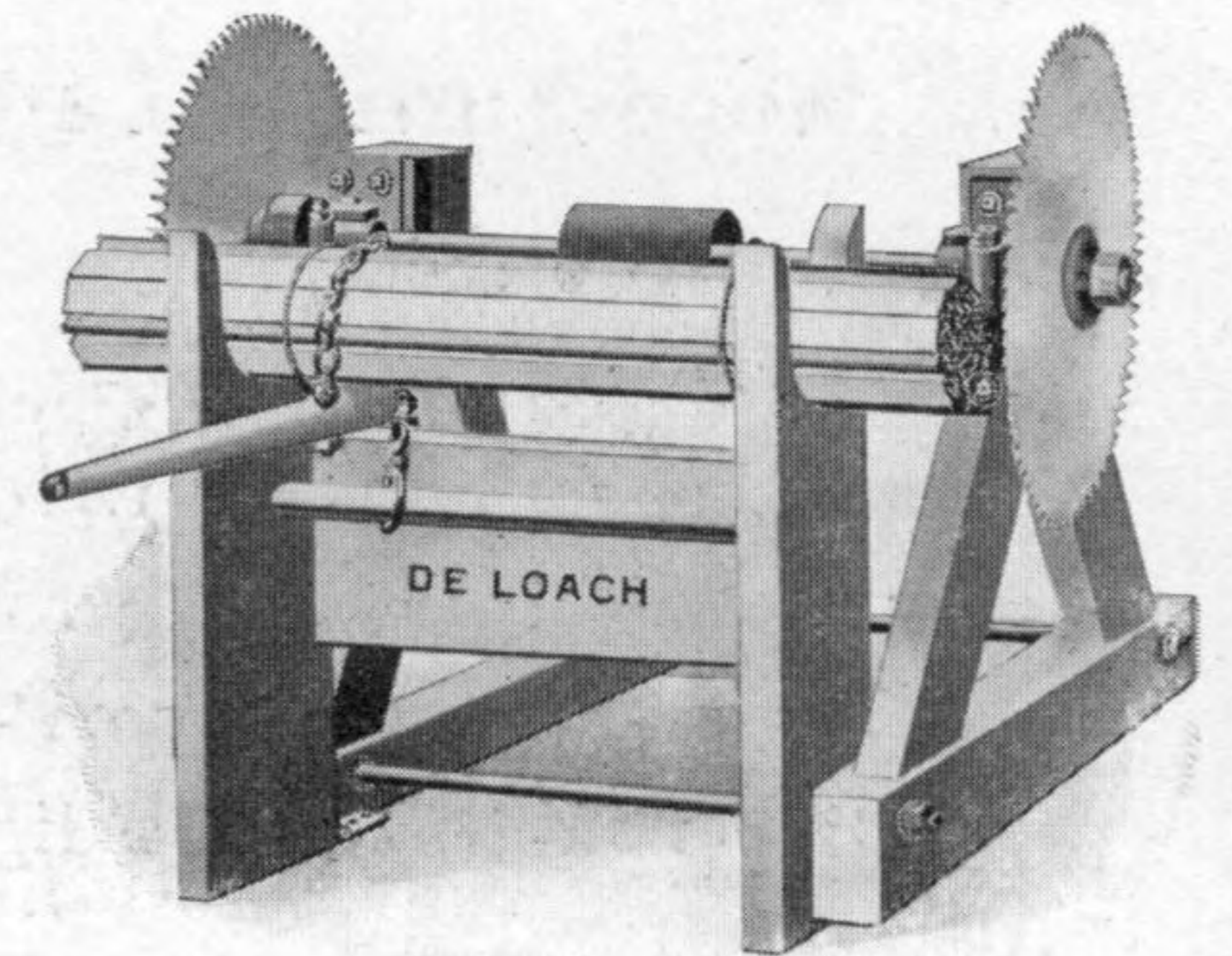
This is a very substantial machine, the frame being made entirely of cast iron ; steel mandrel, 1 11-16-in., run in chain oiling boxes, and has six 10-in. saws to cut 3-8-in. between. Machine made to carry any number of saws desired up to six. The feed pulleys are 20 x 4-in.; feed rolls are corrugated and chased, which gives a very positive feed. Mandrel pulley 10 x 10-in. Weight 840 pounds.

Combined Lath Binder and Trimmer

The opposite cut represents our Improved Lath Binder and Trimmer combined, which is entirely new in design, and is very simple in construction, strong and durable. It is hinged to the floor so as to tilt the lath back to the saws, and does its work with precision, giving a nice appearance to ends of each bundle of lath. We make them in two sizes, for bundles of 50 or 100 lath, as may be ordered.

The mandrel is made of 1 15-16-inch steel, with pulley 6 inches diameter, 9-inch-face. Speed, about 1,200. For bundles of 50 lath we furnish 24-inch saws ; for larger bundles the saws are 30 inches, and of suitable gauge.

When desired, we can furnish the Lath Binder alone, without Trimmer.



The "Clipper" Stave Machine

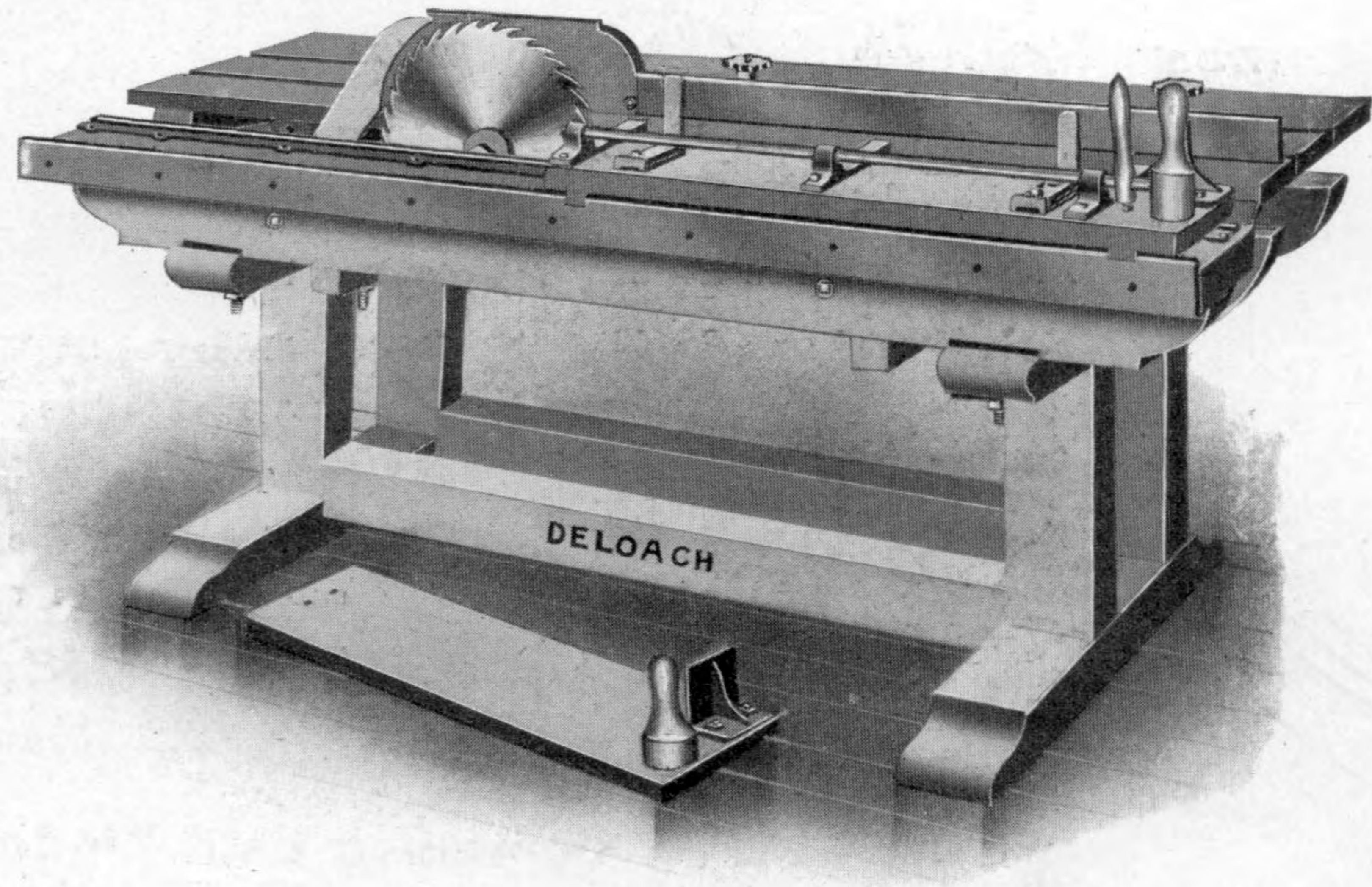
The frame of this machine is built in a very substantial manner, of yellow pine, and firmly bolted together. The track is seven feet long and attached to one heavy piece of timber, which can be entirely removed by loosening two bolts.

A knife spreader is provided just back of the saw, which also prevents accidents by throwing the staves over. The table-leaf turns back on hinges to allow easy adjustment of mandrel, etc., and carries an adjustable guide, by which the machine is adapted to cutting fence pickets and similar work.

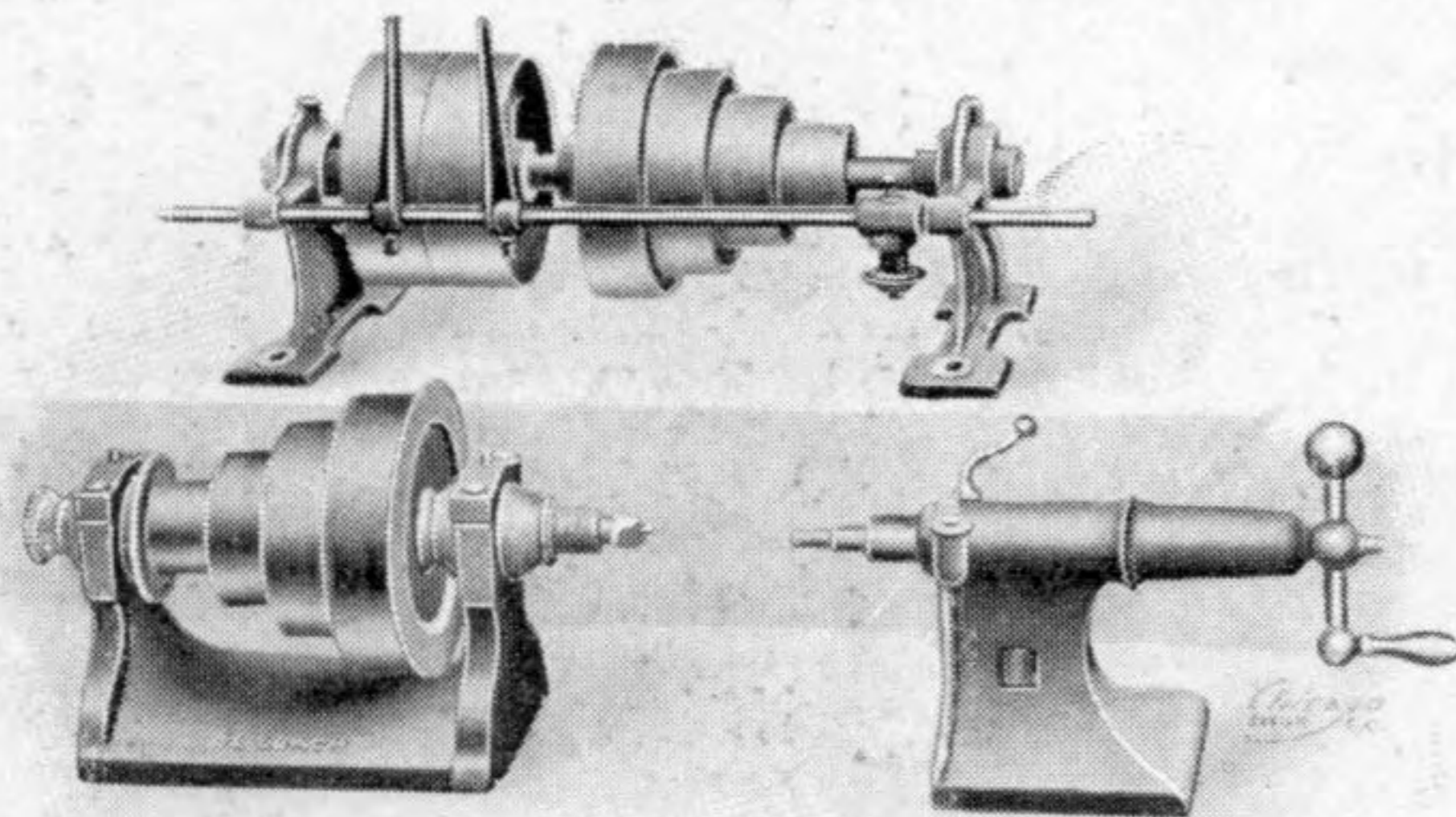
Two carriages are furnished with each machine; one with bearings planed to work on straight track to rip up boards, and the other with curved track, which does tapering and beveling. When the machine is wanted to do work of different sizes, we furnish extra track-iron and castings to match, at a small extra cost.

The machine cuts staves 3 feet long and 4 inches wide, and can be adjusted so as to vary size slightly. The mandrel is 1 1/16 x 20 inches, with 3 1/2-inch collar; pulley 6x6 inches, and saw 18 inches.

Weight, 540 pounds.



Wood-Turning Lathes



We build the complete set of irons for Wood-Turning Lathe as shown herewith, in one size only—16-inch swing, and is adapted to all kinds of wood-turning usually done in the mill and shop.

The spindle in tail-stock is operated by hand wheel and screw, which admits of the stock being placed or removed instantly.

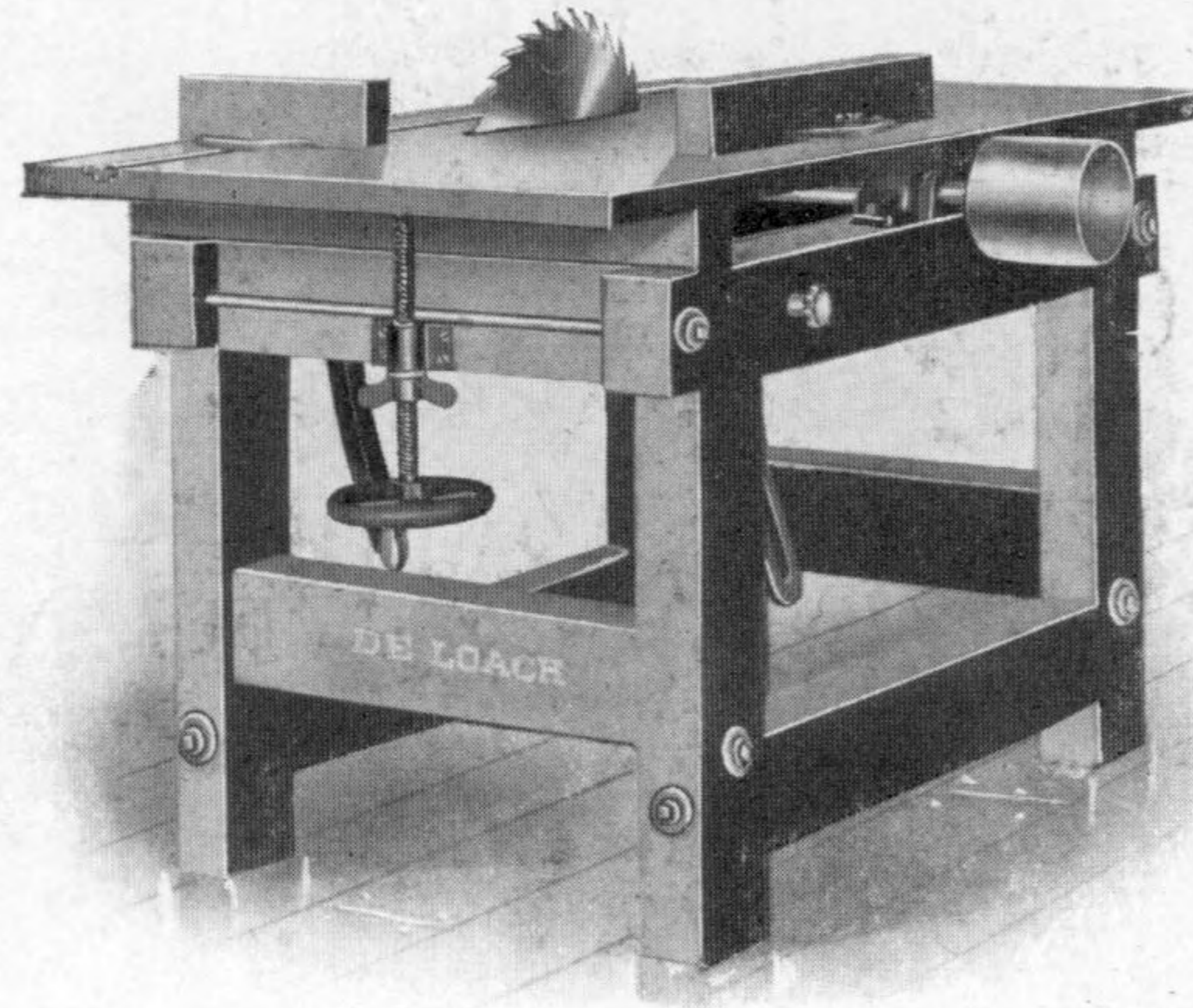
This Lathe is made to be used on wood or iron frame, either of which we furnish when desired. When furnished for iron frame, it is necessary to plane the bottom of head and tail stock so they will fit the shears.

Furnished with one long and two short rests, face plate, one pair of centers, countershaft, hangers, pulleys, belt shifter, wrench, hand wheels and bolts for fastening head and tail stocks to bed, etc.

This Lathe has four speeds, and takes 2-inch belt. The tight and loose pulleys on countershaft are 8-inch diameter and 3-inch face. Countershaft is 1 7/16-inch diameter, and should run 650 revolutions per minute.

Rip and Cut-Off Tables

Combination Rip and Cut-Off Saw



Our Wood Frame Rip Saw Table is made of well-seasoned yellow pine, nicely finished, framed together and thoroughly braced with iron rods, which makes it very strong and durable.

The top is hinged to the rear end of the frame, is adjusted by a screw and hand wheel, and is held in position by clamps wherever placed.

It is provided with adjustable ripping and cutting-off gauges when so ordered.

Steel mandrel, 1 7-16-inch diameter, with pulley 6 inches diameter by 6-inch face, and 16-inch rip saw.

Larger or smaller saw can be furnished when desired; also, an extra saw for cutting off,

Weight of Machine complete, 375 pounds.

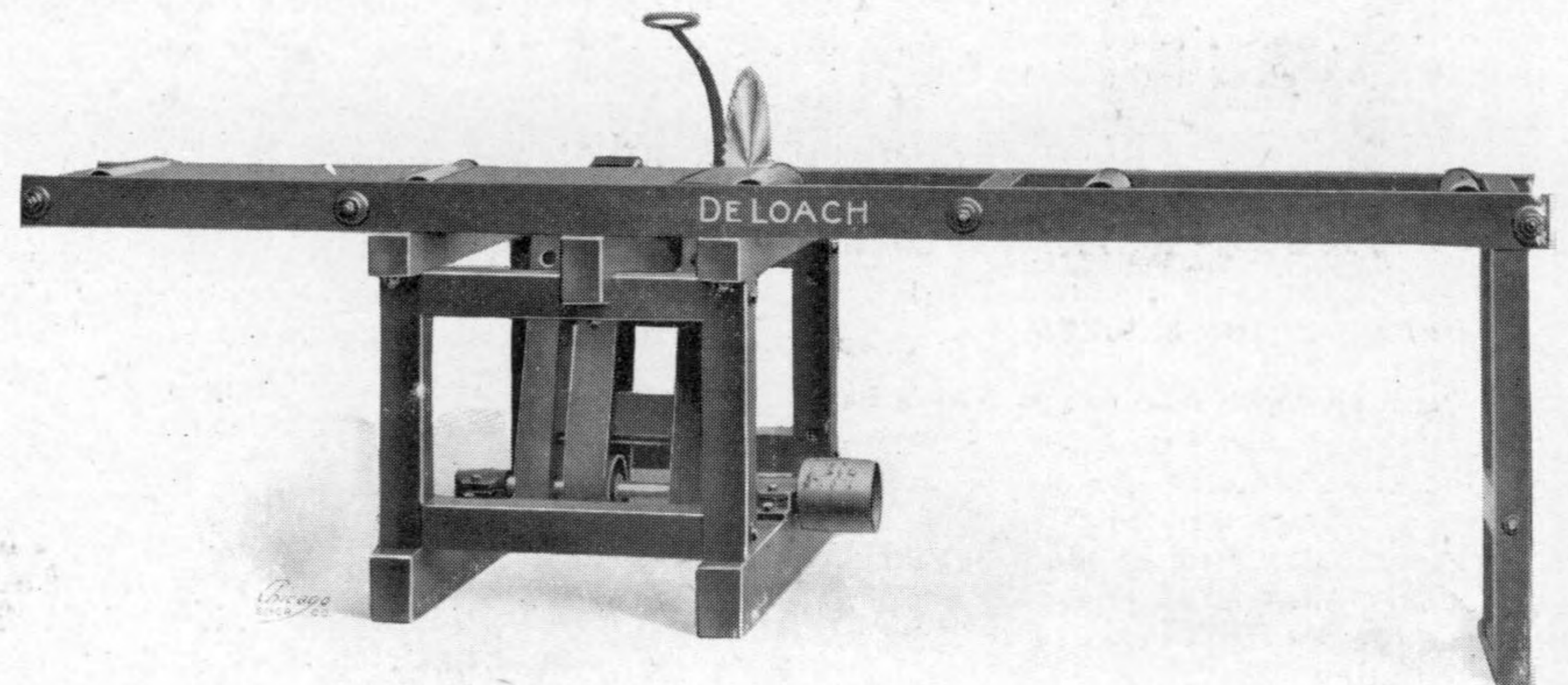
The Ideal Cut-Off Machine

For Saw Mills, Shops, Etc.

There is a growing demand for a good light, cheap Cut-Off Machine for general mill work, and we designed the machine shown here to meet this demand.

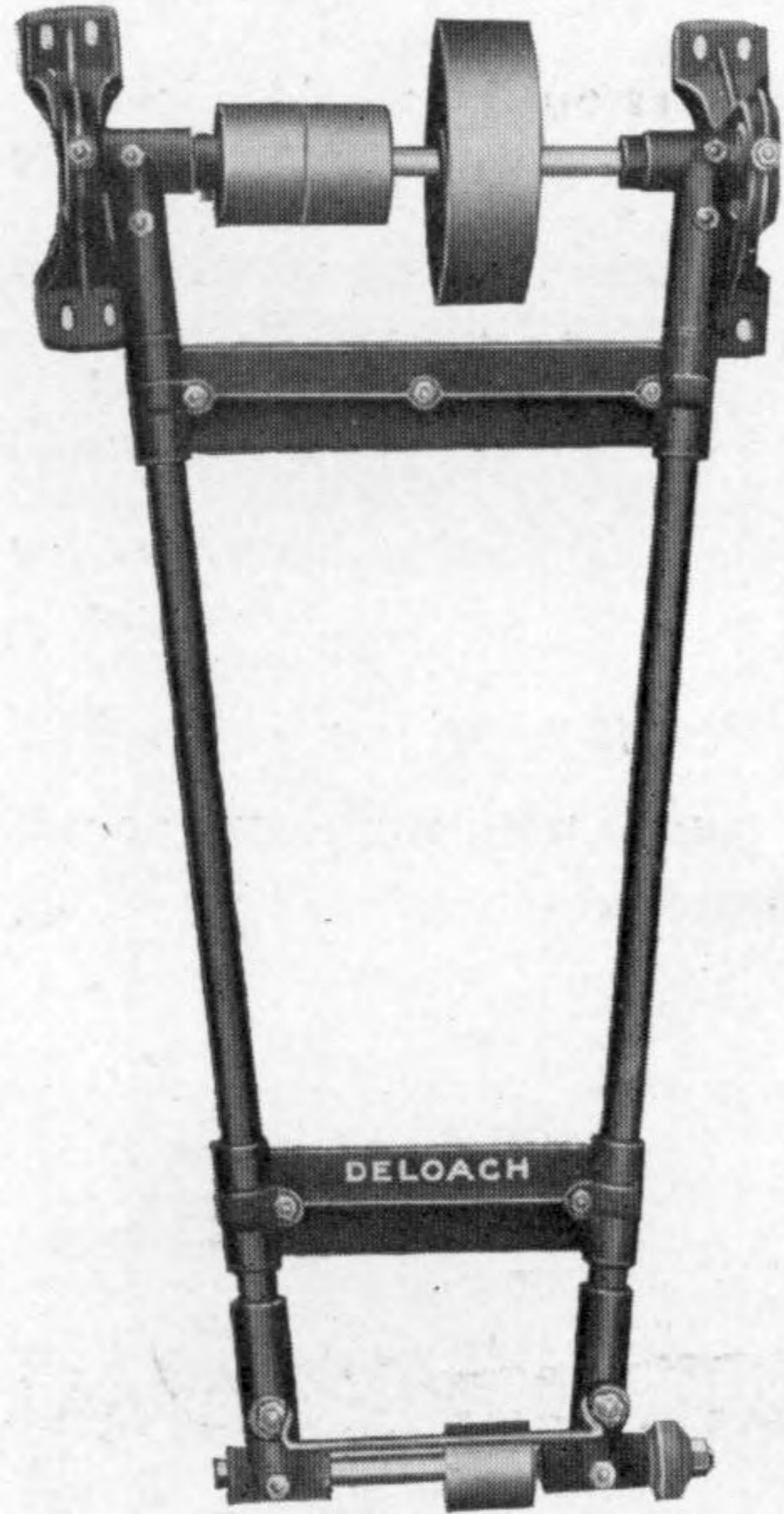
It is thoroughly well made in every particular, of the best materials, and warranted to give perfect satisfaction.

The frame is made of 3 1-2 x 3 1-2 timbers; track made of 2 x 4 timbers, 10 feet long, with five 3-inch idle rollers; mandrel, 1 7-16" x 20", fitted with 20-inch cut-off saw with 1 1-4-inch hole; pulley, 4 x 4; counter shaft, 1 7-16", 34" long; pulley to drive saw, 6 x 4; receiving pulley, 6 x 6.



Weight of machine complete, as shown above, 380 pounds.

Iron Frame Swing Cut-Off Saw



MADE IN THREE SIZES

Circular Saw Mandrels

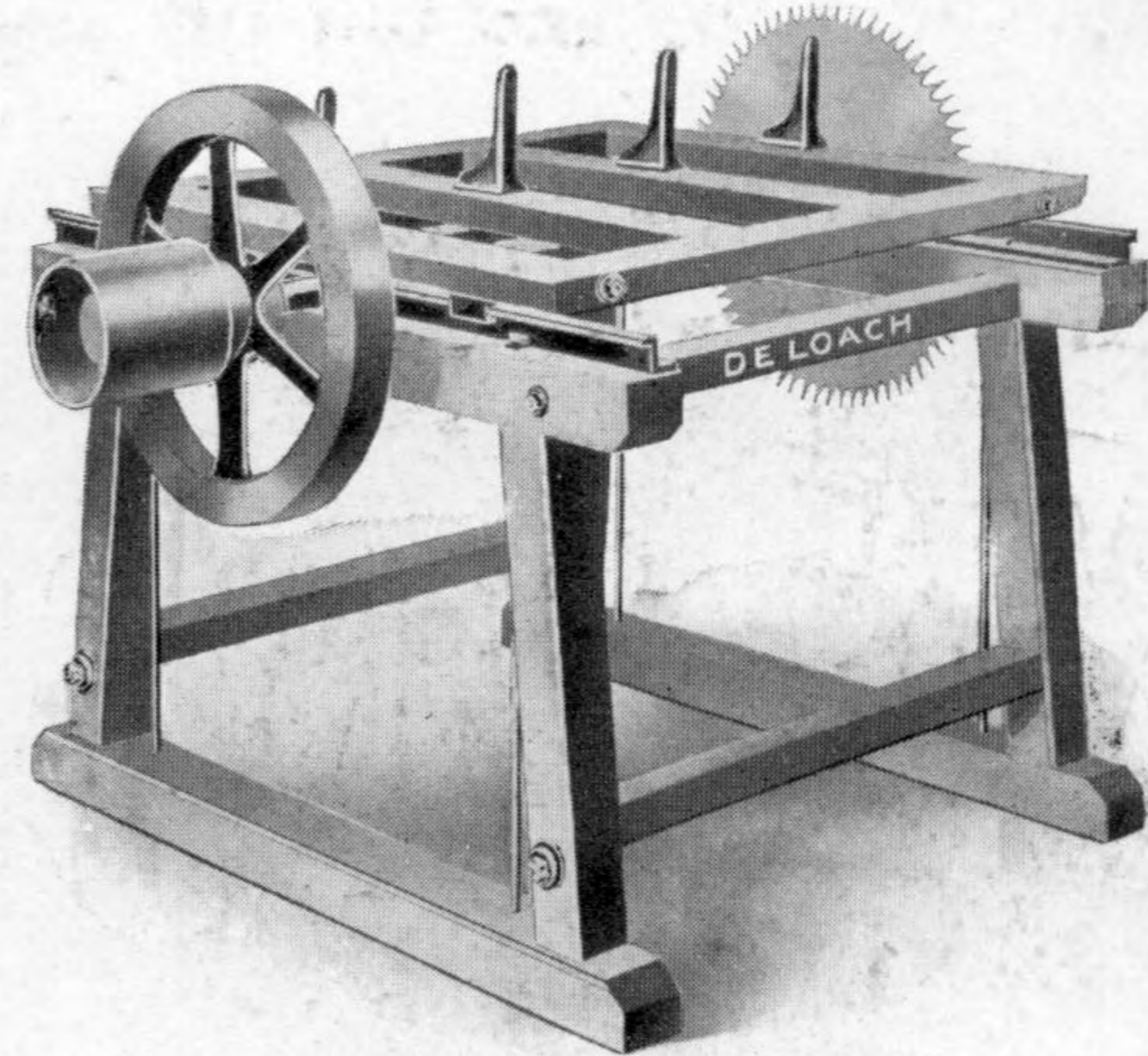
Number	Extreme Length Inches	Diameter of Arbor. Inches	Diameter Pulley Inches	Face of Pulley Inches	Diameter Collars Inches	Size Hole in Saw Inches	Size of Saw Inches
1	16½	1	1-16	3	3	1	9 to 12
2	19	1	1-16	3	3½	1	16 to 18
3	21½	1	3-16	3	4	1½	24 to 24
4	24	1	3-16	3½	4½	1½	26 to 28
5	26	1	5-16	4	5	1¾	30 to 32
6	28	1	5-16	4½	5½	1¾	34 to 36
7	30½	1	7-16	5	6	1¾	36
8	33½	1	7-16	5½	6½	1¾	36
9	36	1	11-16	6	6	1¾	40
10	36	1	15-16	8	8	1¾	42
11	36	2	3-16	10	10	2	48

When ordering saw mandrels, send sketch and give distance from saw to end of mandrel if the pulley is between the bearings. If pulley is on the end of mandrel, state distance from saw to inside edge of pulley, and whether pulley is on right or left side of mandrel when saw is running toward you.

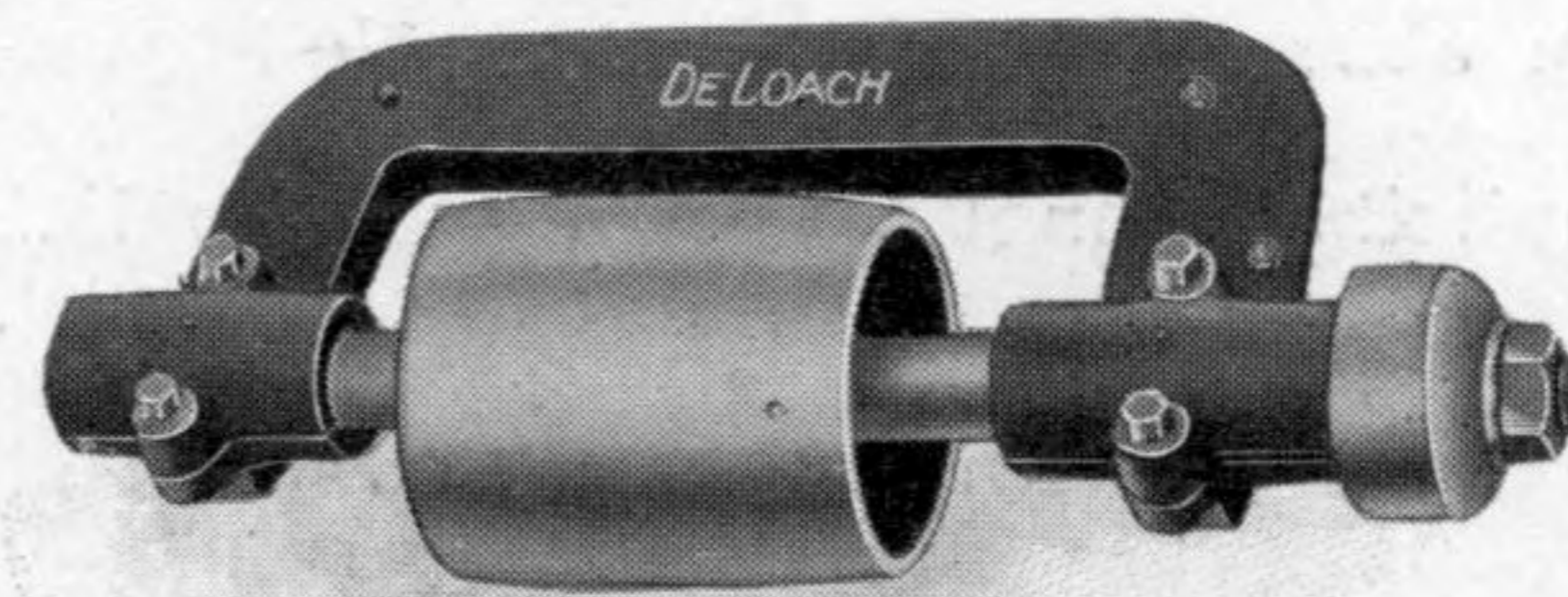
Specifications Iron Frame Swing Saw	No. 1	No. 2	No. 3
Size of Tubing in Frame	1¾	2¼	3½
Diameter of Mandrel	1 5-16	1 7-16	1 15-16
Diameter of Counter Shaft	1 7-16	1 11-16	2 3-16
Length cen. Mandrel to cen. Counter Shaft	5'3"	6'3"	7'
Mandrel Pulley	5x4	6x6	10x8
Tight and Loose Pulleys	6x4	10x6	12x8
Drive Pulley	14x4	18x6	24x8
Will take Saw up to	20"	30"	48"
Weight	300	500	975

The Slide Table Cord-Wood Machine

This machine is constructed of the best materials and in the most substantial manner. Frame is seasoned pine, securely bolted together. Steel mandrel, 1 11-16" diameter,



5' long; made to take any size saw from 20" to 30", with 1¼" or 1¾" eye (20, 22, 24 or 26" saws have 1¼" eye; 28 and 30" have 1¾" eye). Babbitted boxes, 4½" long; drive pulley 6x6"; balance wheel 20" diameter; track iron has extra wide face, planed top and bottom; guides under table are arranged so that they can not leave the track. Furnished with or without saw, as desired.

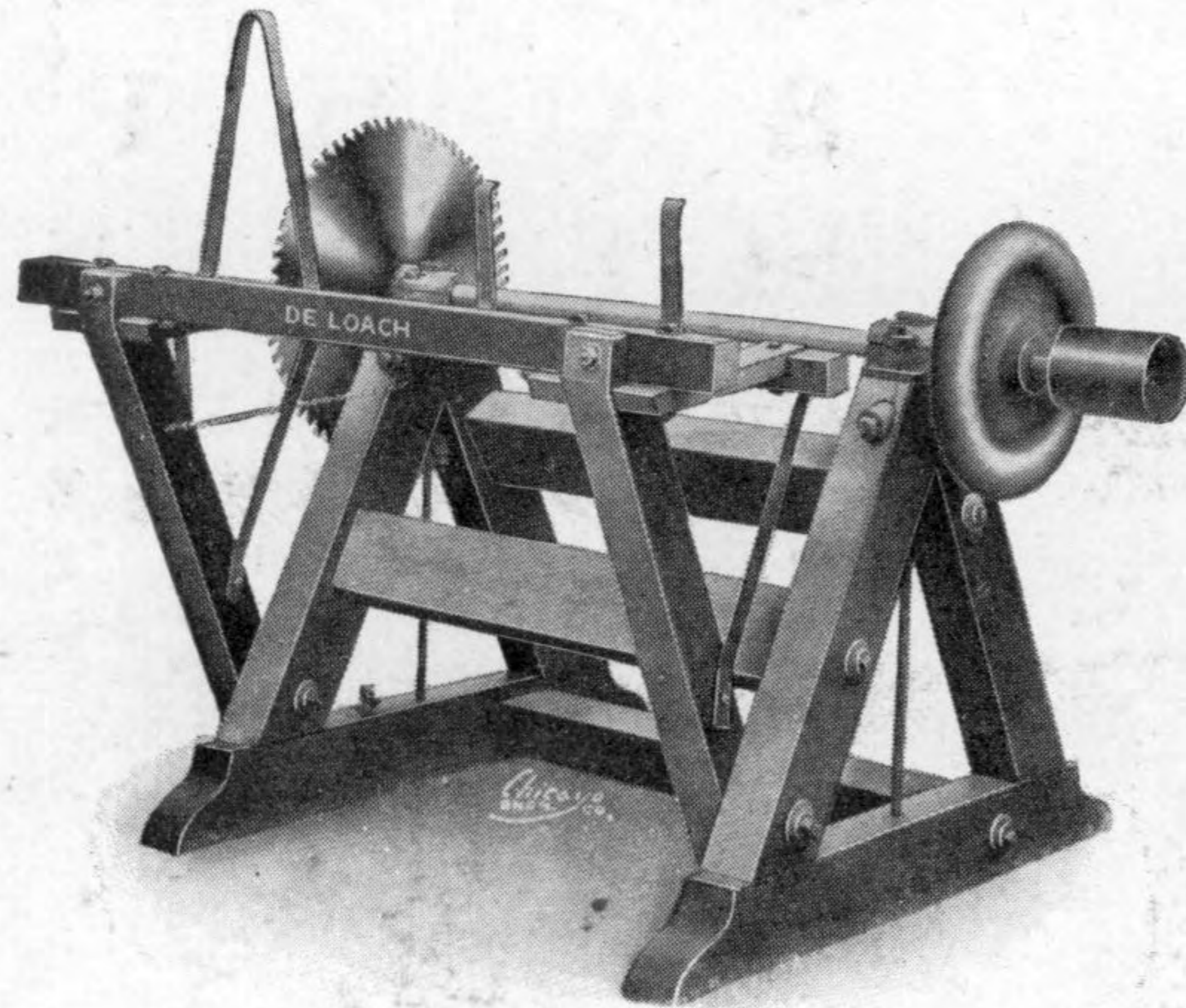


Yoke Mandrels

We make Yoke Mandrels like one shown herewith, in all sizes, from No. 1 to No. 10, at a slight advance in price.

Combination Cord-Wood Saw

For Sawing Cord-Wood, Slabs, Poles, Etc.



Cut No. 1

Cut No. 1 shows the machine ready for cutting cord-wood and all short stuff.

Cut No. 2 shows the same machine arranged for cutting poles, slabs or other long stuff.

A strong chain is attached to the tilting table and secured to the main frame, as shown above, which holds the table in position when back from the saw.

For capacity, simplicity, strength, durability and reliability, this machine cannot be equaled. It is up-to-date in every way, and warranted to give perfect satisfaction.

The machine is furnished regularly without saw, but we can furnish it with saw when desired.

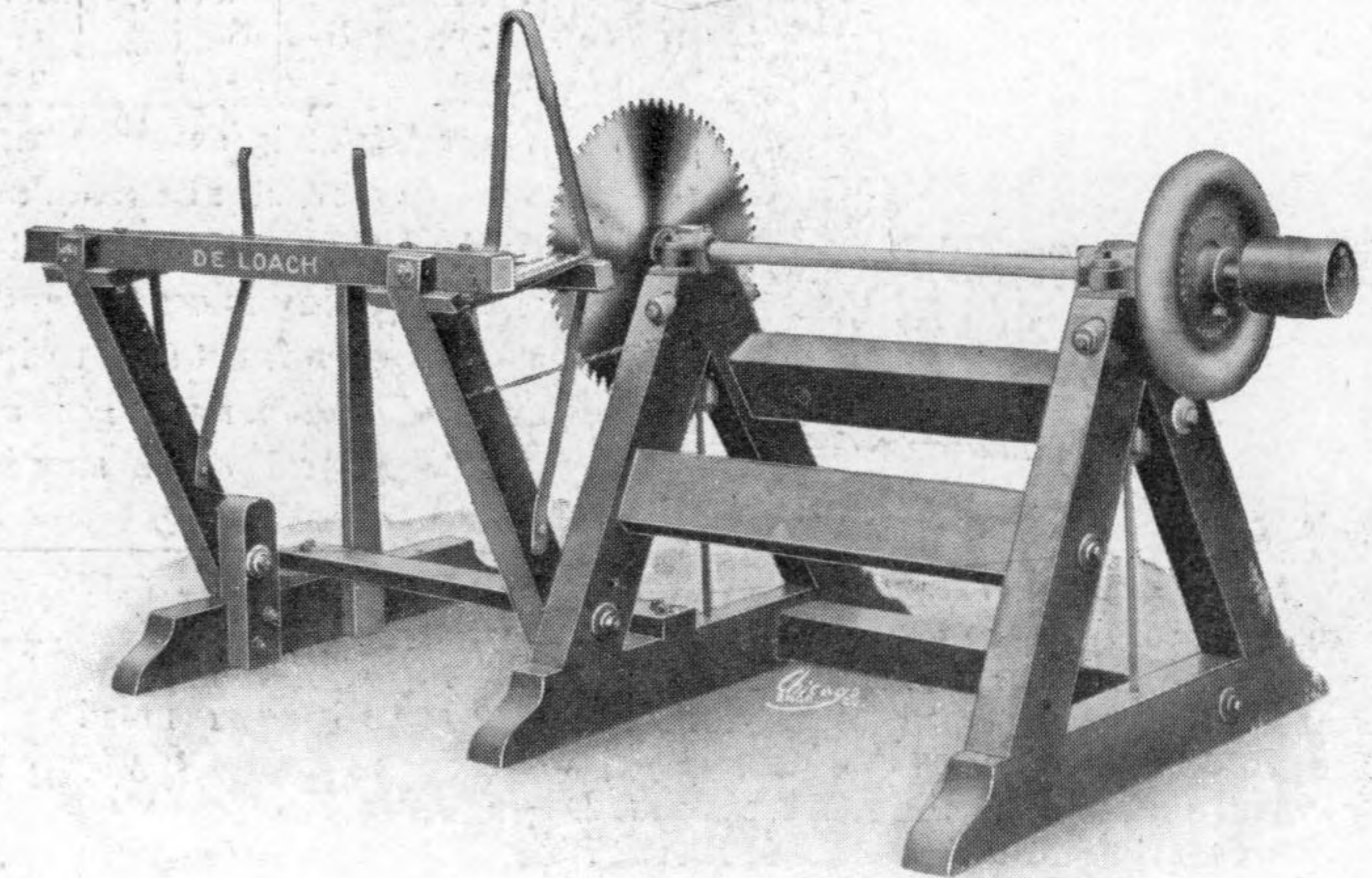
Weight, complete except saw, 315 pounds; weight, knocked down, 350 pounds.

There are many kinds of Cord-Wood Sawing Machines on the market, but the "DeLoach," as illustrated herewith, combines all the best features that go to make up an ideal machine of this kind.

The frame is made of select yellow pine, mortised and securely braced with iron rods. The mandrel is made of 1 11-16" cold rolled steel, ground and polished; is 5' long, fitted with 5-inch saw collar, to take saw from 20 to 30-inch, with 1 1/4 or 1 3/8-inch eye (20, 22, 24 and 26-inch saws have 1 1/4-inch eye; 28 and 30-inch have 1 3/8-inch); balance wheel 20 inches diameter. The mandrel boxes are self-oiling, are extra long, babbitted with the best metal, and fitted with the utmost care. The mandrel pulley is 6 inches diameter and 6 inches face.

By the use of iron braces the tilting table is made very stiff and strong enough to stand ordinarily rough use for a life-time. It is hinged to the main frame by heavy iron socket hinges.

As shown by the illustrations herewith, the machine can be used for cutting cord-wood, or the table can readily be removed and attached on left side of main frame for cutting long stuff, such as slabs, poles, etc. This change can be made in three minutes.



Cut No. 2

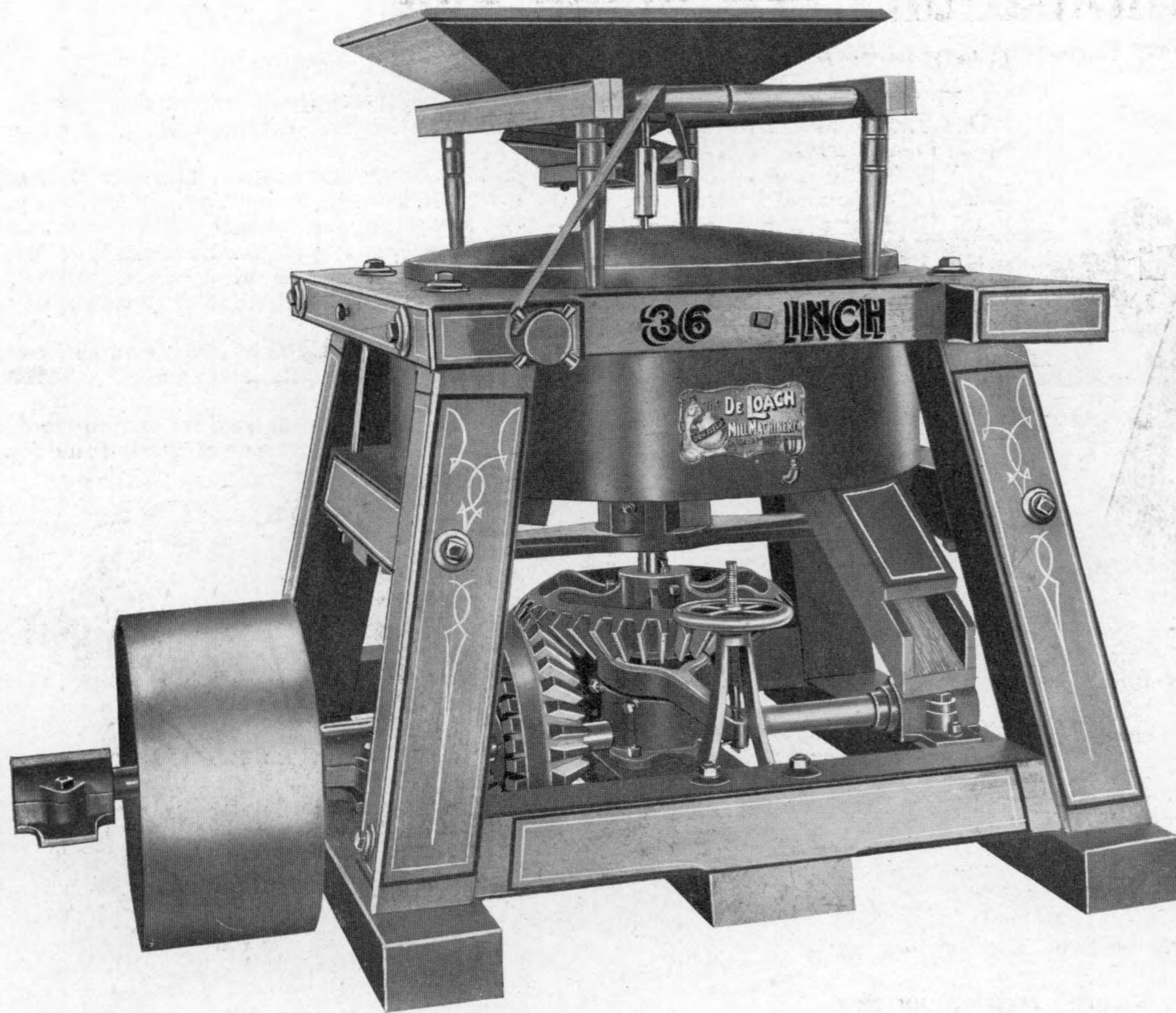
DeLOACH
CORN and
BUHR
MILLS

TWENTY-FIVE
YEARS ON THE
MARKET

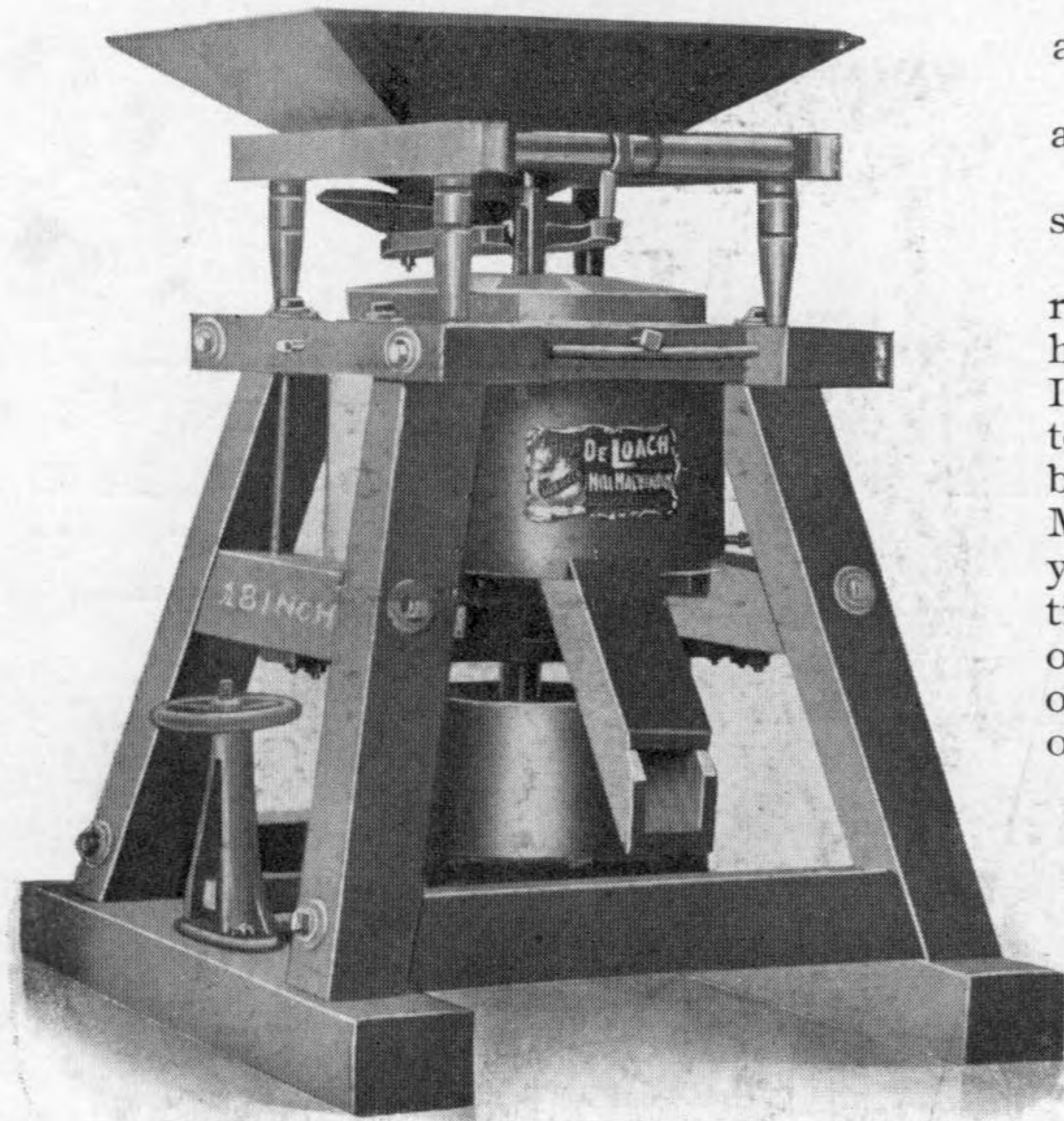


BUILT IN FOUR
STYLES AND
TEN SIZES

WORKMANSHIP
AND FINISH
UNSURPASSED



The DeLoach Portable Corn and Buhr Mills



Specifications of Under-Runner Mills

Diameter of Stone	Horse Power	Capacity Bushels Per Hour	Speed Revolutions Per Minute	Size Pulley Diameter	Size Pulley Face	Weight Pulley Mill	Weight Geared Mill
18"	2 to 6	4 to 8	450	12"	8"	780	950
20"	4 to 6	6 to 10	450	14"	8"	850	1000
24"	6 to 10	10 to 15	400	18"	8"	1000	1200
30"	10 to 15	15 to 25	350	20"	10"	1600	2000
36"	15 to 30	25 to 40	325	24"	10"	2000	2400

We Build a Full Line of portable and stationary Grinding Mills for all purposes, and make a specialty of Corn Mills for grinding table meal.

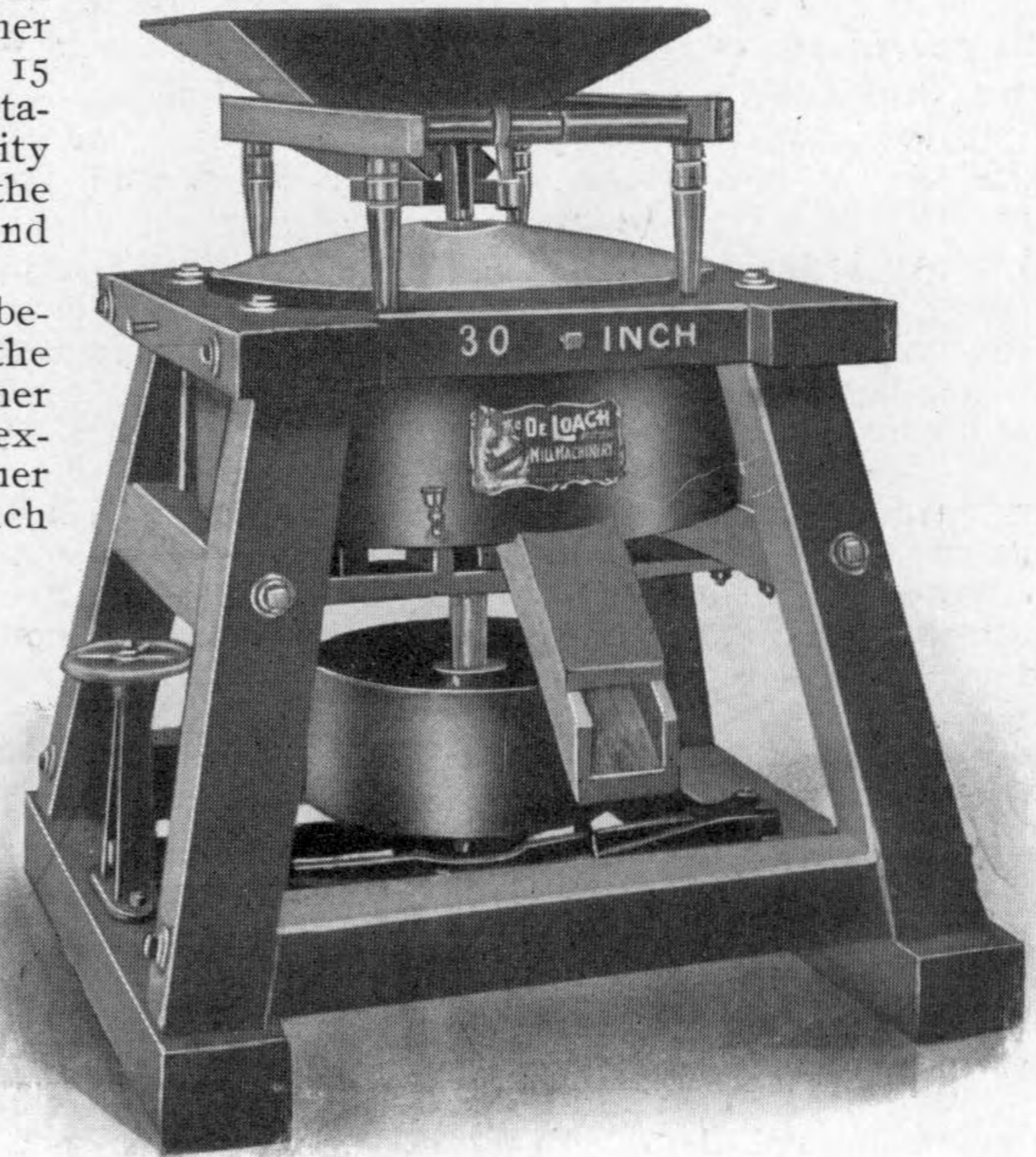
Our small Under-Runner Buhr Mills are used extensively for grinding stock feed and family meal.

For Grinding Stock Feed, phosphate, talc, paint, limestone and other hard substances, we recommend the French Buhr Stone.

For Making Corn Meal for table use, we use the Esopus or Virginia Stone, and recommend the latter as being superior to anything we have ever known. It is very hard and tough, and holds the dress twice as long as the Esopus or other native stones. It will suit the high speed of the Under-Runner Mills, and holds the dress almost equal to the Buhr Stone. We have been building the small Under-Runner Mills with this stone for over 15 years, and have made a reputation for making a superior quality of corn meal. In fact, we are the only manufacturers of this kind of mill.

There is no Difference between the quality of the work of an Under-Runner and Top-Runner Mill, except that the Under-Runner being capable of much higher speed, it is possible to heat the meal in this way, but with ordinary speed and the furrows kept open they will make just as good meal as the Top-Runner Mill. We make an absolute guarantee to this effect.

Our Mills are all well proportioned and well made throughout. The



Top-Runner Pulley Mills

bush has babbitt bearings with screw adjustment, oil fountain connected, so that there is no danger of ever running dry, the step at the bottom has screw adjustment and the spindle runs in oil. The runner stone is thoroughly balanced with lead and driven with forged steel driver, perfectly fitted.

All Our Mills are Tested in actual operation and ground down with coarse, sharp sand, which gives the stones the perfectly true face, and then they are dressed before sending out. In this way the mills will make just as good meal for the first bushel as if they had been in operation for months. These mills have steel spindles with cast steel, case-hardened inserted points, with forged steel driver and center lift step, which is adjustable with screws.

The Pulley Mill when operated from a horizontal shaft, has to be run with quarter twist belt, which is, in some cases, more desirable than to be run otherwise. This is especially true of the smaller mills, 30 and 36 inches.

Our Mills are Noted for the superior quality of table meal, and have a large capacity for the amount of power used. It is a frequent occurrence for us to receive letters from customers using the 36 inch Top-Runner Mill, saying they grind ten, twelve and as high as fifteen bushels of first-class table meal per hour. We guarantee ten. We use no patented dress to get these remarkable results, but a common sense dress, which consists in using a larger number of furrows than is usually employed, making them narrow cut, about half of the entire surface of the stone. This increases the cutting edges and reduces the surface of the stone, which would otherwise tend to heat the meal, especially when grinding fine meal.

The Depth of Furrows should be about $\frac{1}{4}$ inch on the deep side, and the width about $1\frac{1}{2}$ inch.

For General Custom Work, the 36 and 42-inch Top-Runner Mills are favorites. We often receive orders for the 48-inch and larger mills to grind eight and ten bushels per hour, which is a mistake. The 42-inch mill has been accepted as the best possible standard for making a high grade table meal, and will easily average twelve to fifteen bushels per hour when kept in proper order. We, of course, build the 48-inch and even larger mills for those who will have them. At the same time, the 42-inch is better.



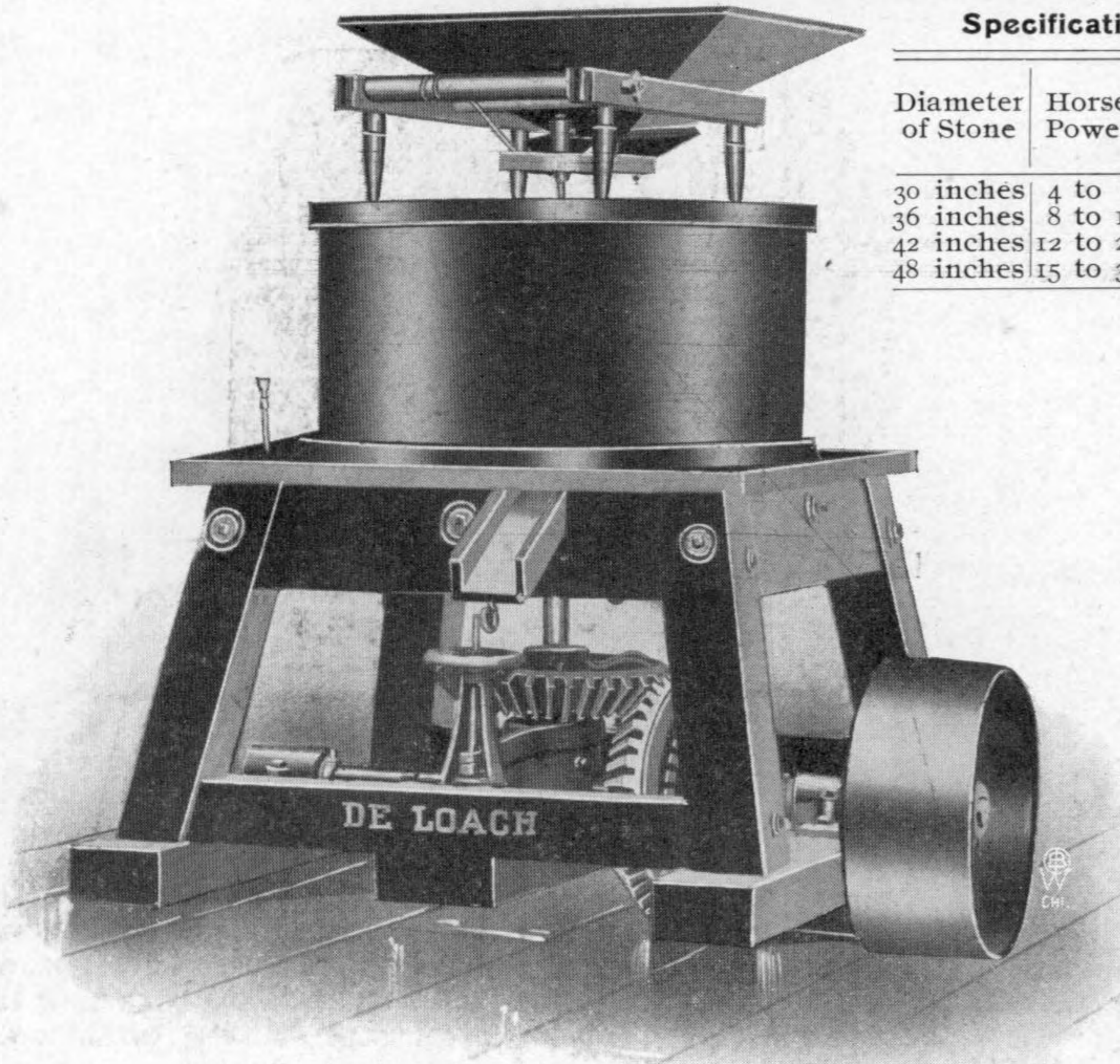
The Top-Runner Pulley Mill

(We keep in stock the 48-inch stones.) It not only gives a larger capacity of good meal for the size of the mill, but will do it with considerably less power than the larger mills.

Top-Runner Geared Mills

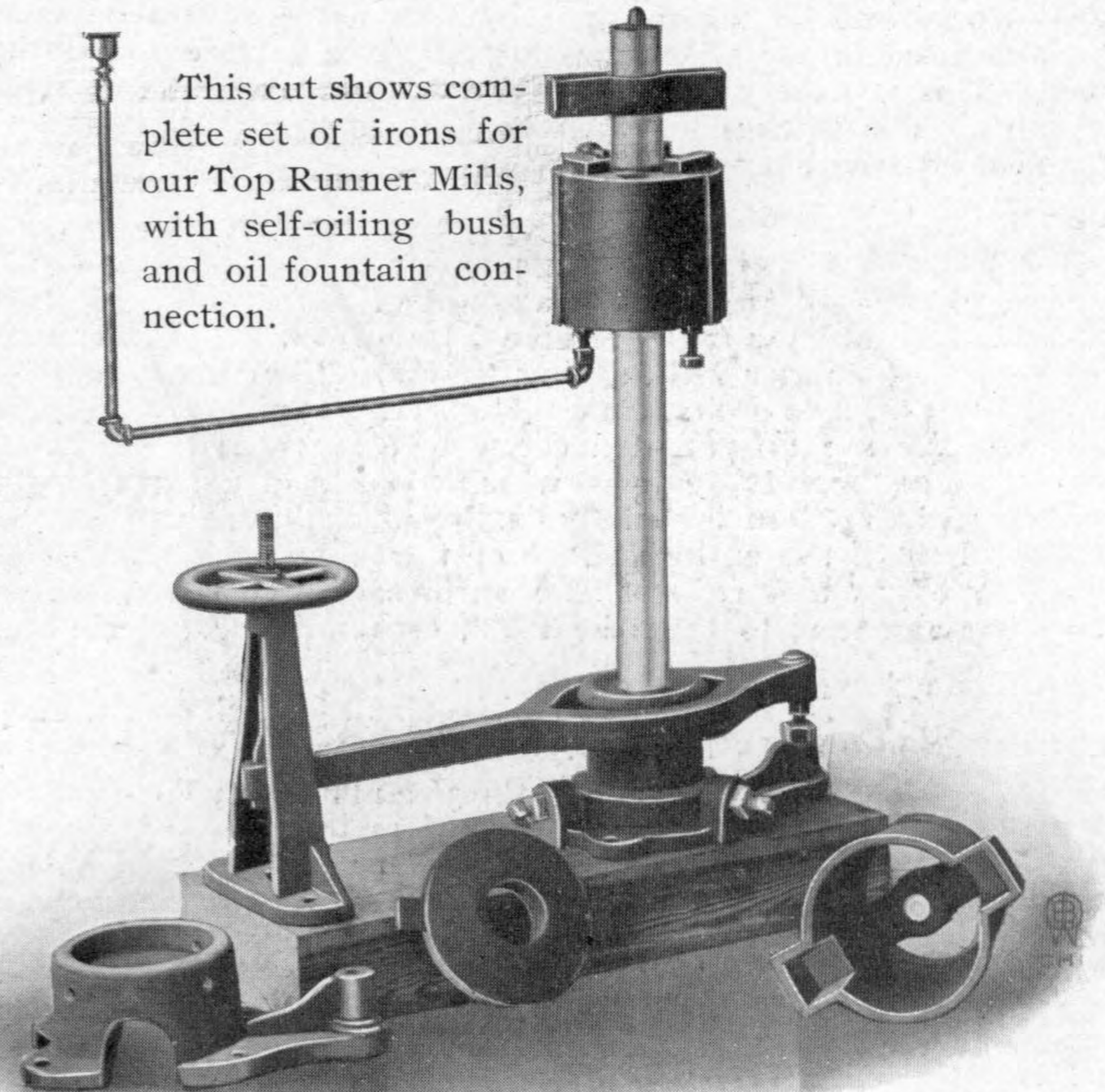
Specifications of Top Runner Pulley and Geared Mills Shown on Pages 57 and 58.

Diameter of Stone	Horse Power	Capacity Bushels Good Meal Per Hour	Revolutions Per Minute	Size of Pulleys		Size Mitre Gears on Geared Mills		Weight Pulley Mill	Weight Geared Mill
				Diameter	Face	Diameter	Face		
30 inches	4 to 8	4 to 6	200 to 250	20 inch	8 inch	16 inch	3½ inch	2,580 lbs	2,950 lbs
36 inches	8 to 12	8 to 10	150 to 200	24 inch	10 inch	20 inch	4 inch	3,500 lbs	3,850 lbs
42 inches	12 to 20	10 to 16	150 to 190	30 inch	12 inch	24 inch	5 inch	5,200 lbs	5,700 lbs
48 inches	15 to 30	15 to 25	140 to 180	36 inch	12 inch	24 inch	5 inch	6,500 lbs	7,200 lbs



SPINDLES AND IRONS FOR TOP-RUNNER MILLS

This cut shows complete set of irons for our Top Runner Mills, with self-oiling bush and oil fountain connection.

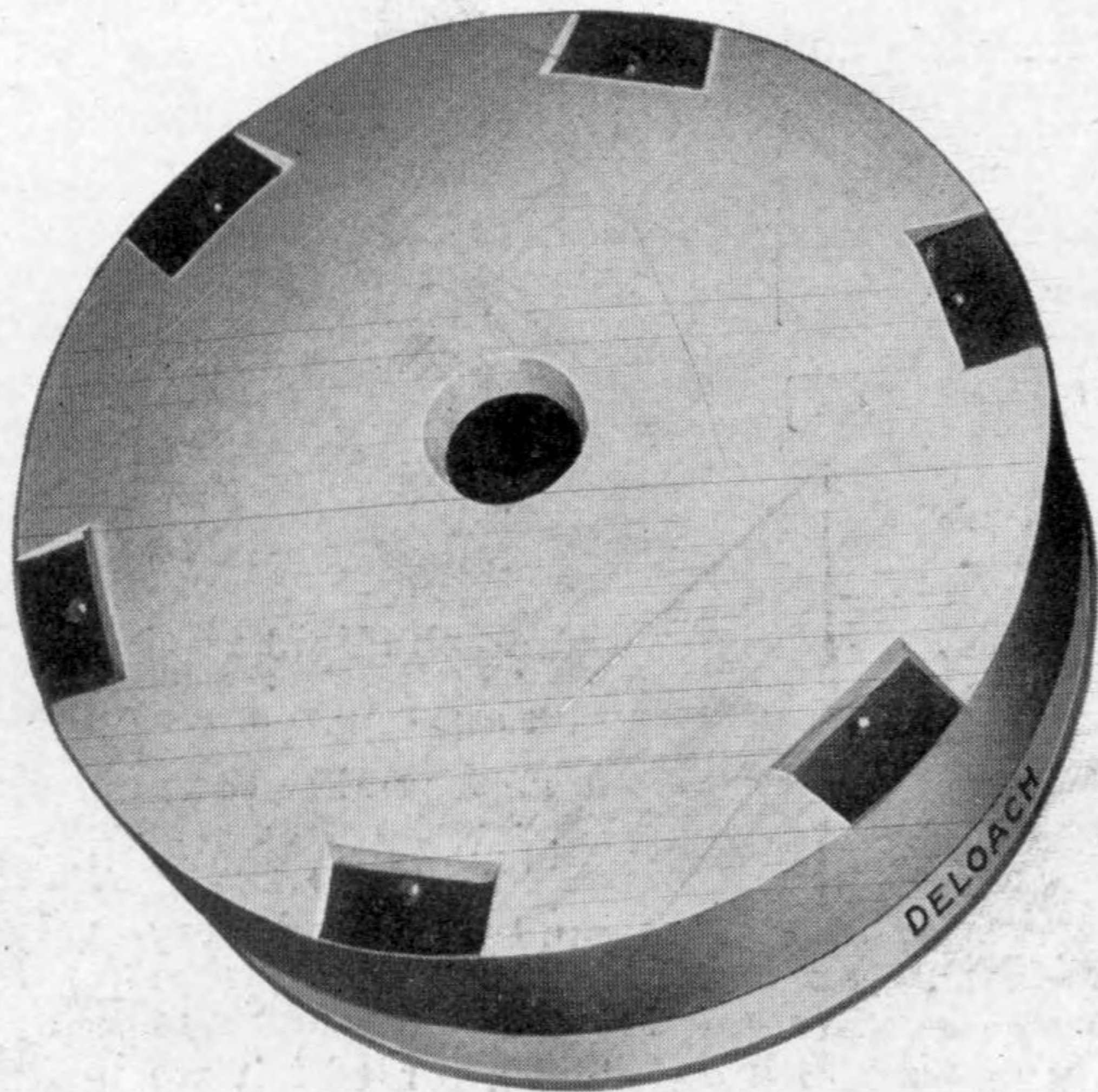


One of the Mitre Gears in Our Geared Mills is filled with maple cogs, and the whole of the work is executed in the best possible manner. The gears for 30-inch mills are 16-inch diameter and 3½-inch face; for the 36-inch, 20 x 4-inch, and the 42 and 48-inch have 24 x 5-inch. The pillow block boxes are made ring oiling, so that they will run for days without any attention and be perfectly lubricated. The bush has babbitted bearings, screw-adjustment and oil fountain as shown.

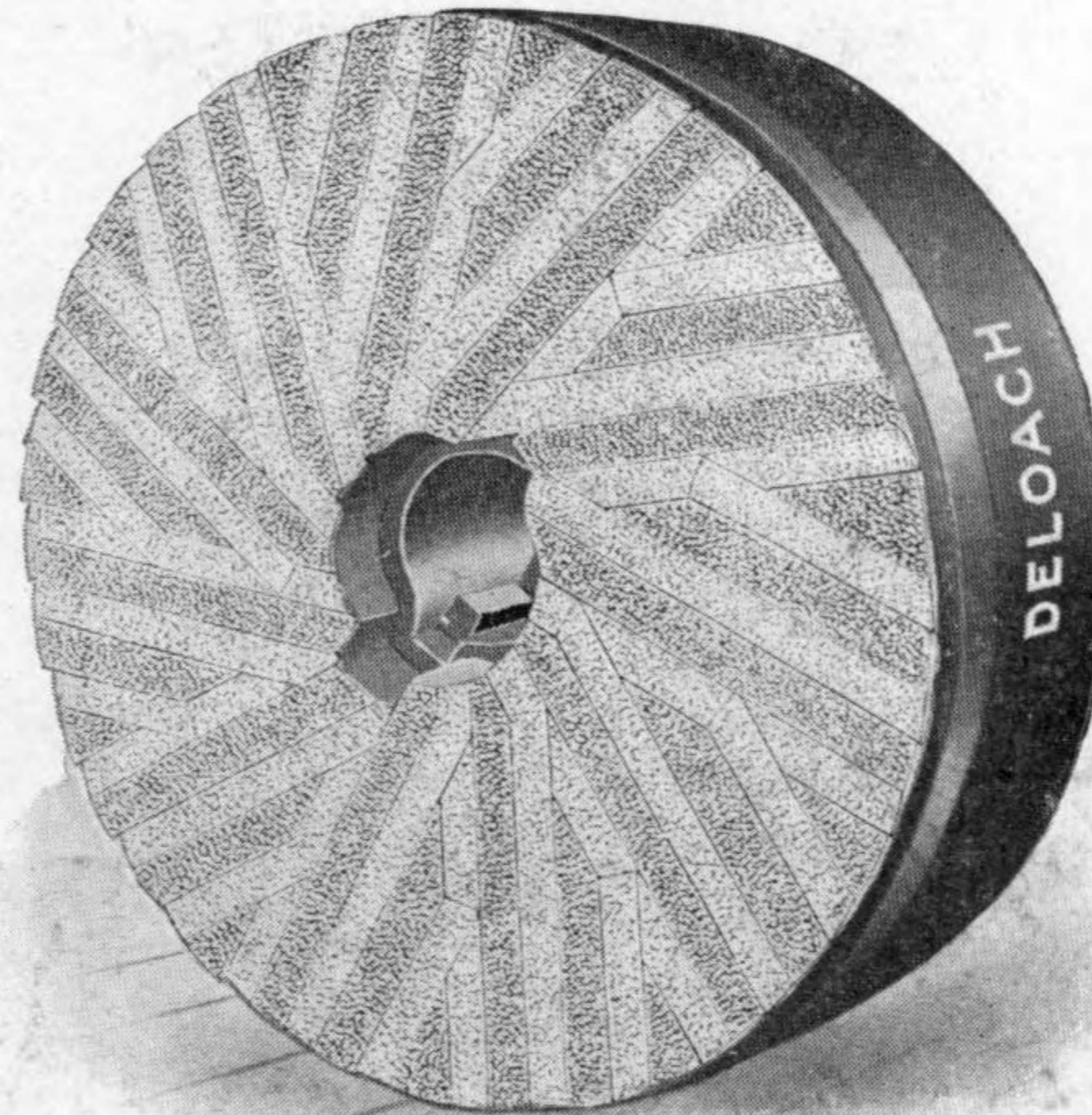
Mill Stones for Corn and Wheat Grinding

We keep a large stock of Virginia, Esopus and French Buhr Stones to be worked up on short notice for any kind of mill desired. Our improved methods and increased facilities for doing this work give us special advantages, and everything in this department is finished in the best style possible. With a quarter of a century's experience in this line, we claim to do as good work as can be done, and take a special pride in every job.

In the Runner Stone is fitted a heavy cast iron eye with cast steel case-hardened concave to fit the top of the spindle. The top of the stone is plastered with glue mixed in the plaster, thus giving a hard, glossy and lasting finish. Four to six cast iron Balance Boxes are fitted in top of runner, which gives a perfect running balance. This is a very important feature and one every miller appreciates. The thickness of runner stone is about half its diameter, unless otherwise ordered.



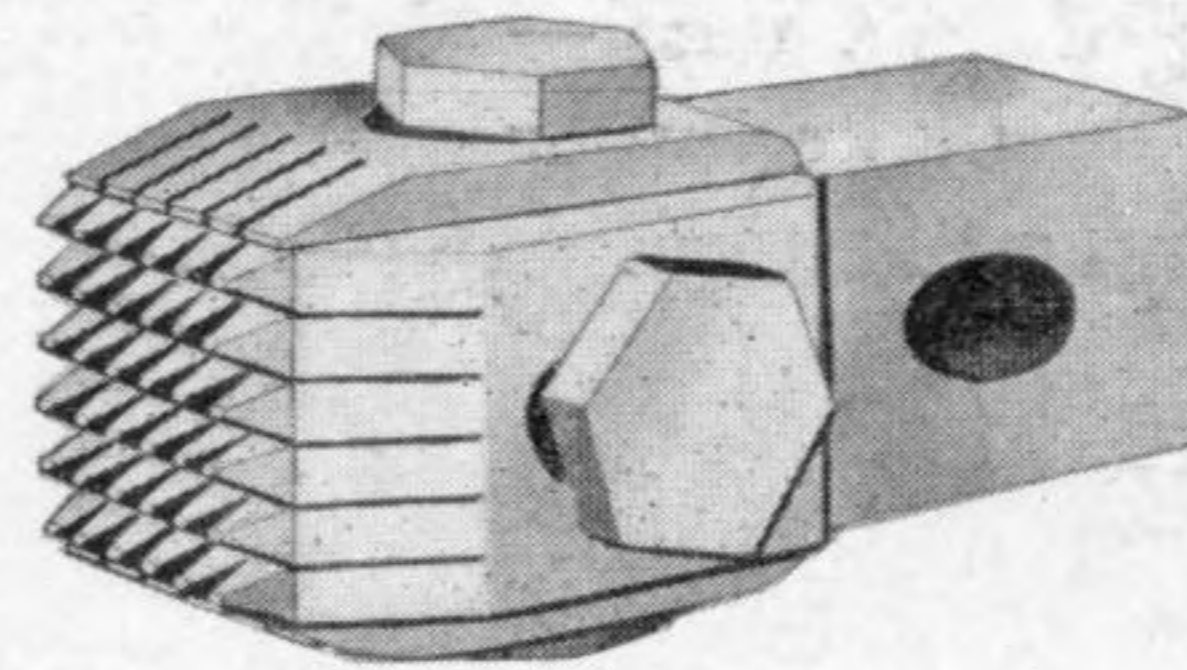
Top of Runner Stone

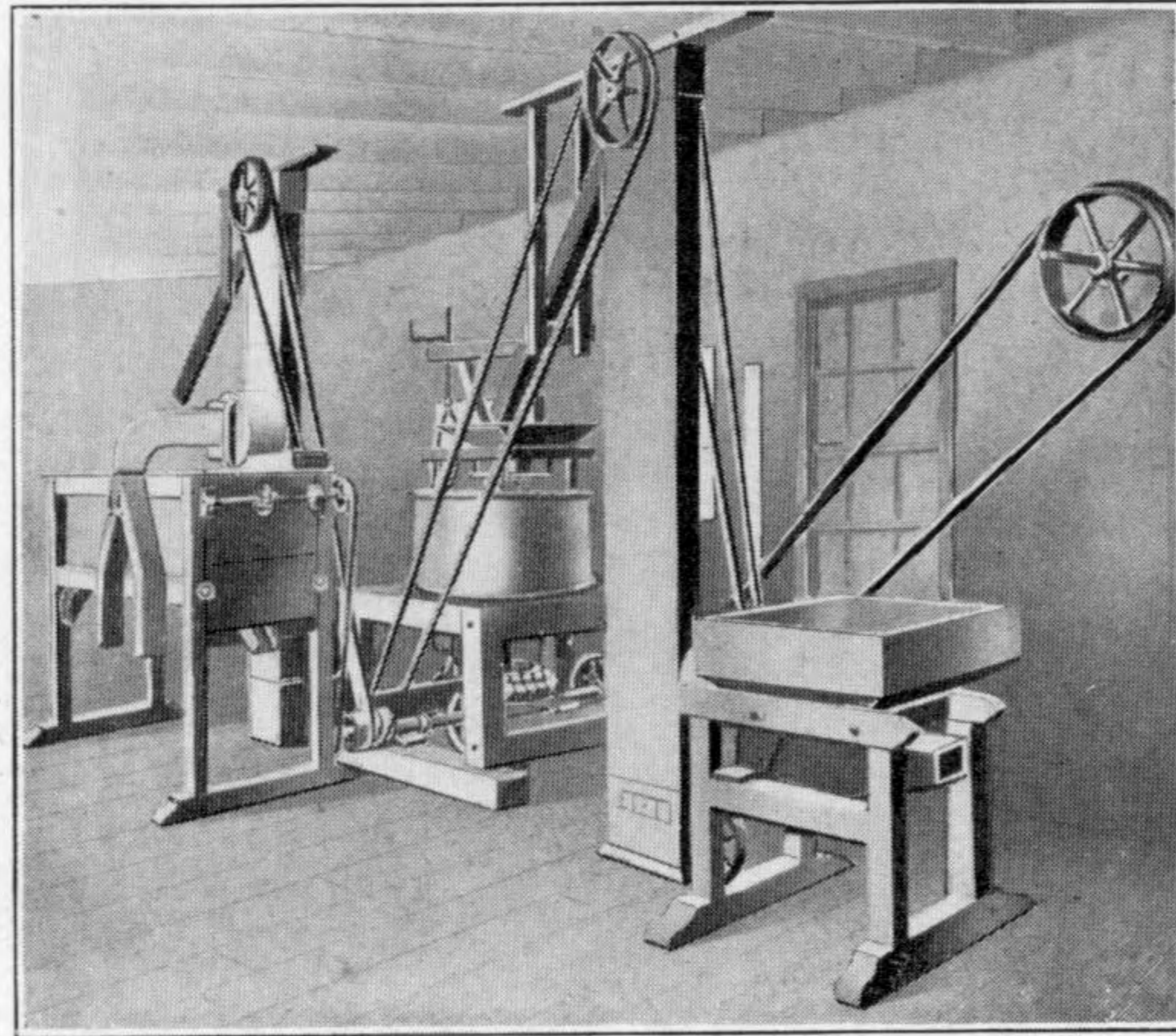


Face of Runner Stone

DELOACH LIGHTNING CORN MILLSTONE DRESSER

This is a tool of great merit, and is adapted exclusively to corn millstones, except for furrowing out wheatstones, and will do more and better work than six men with picks. A cornstone with a rough dress grinds faster and makes better meal, and when dressed with our dresser will last four times as long as when dressed with picks. This tool is made of solid $1\frac{1}{2}$ inch square steel with 36 inserted points, perfectly tempered, and one set of points will last several years for ordinary work. When dull the points may be sharpened on an ordinary grindstone. Weight, $3\frac{1}{2}$ pounds.





A Modern Corn Mill Outfit

This cut represents one of our 36-inch Top-Runner Portable Corn Mills with Corn Cleaner, Elevators, and Bolting Machine in operation. It makes table meal of the finest quality and two grades of grits and is a **Modern Corn Mill** in every way. Its simplicity and low price, we think, should commend it to the public. The capacity of this outfit is ten bushels of best meal—has been run up to fifteen—per hour. We make larger sizes, and will cheerfully quote prices on application.

Small Flour Mill Outfits

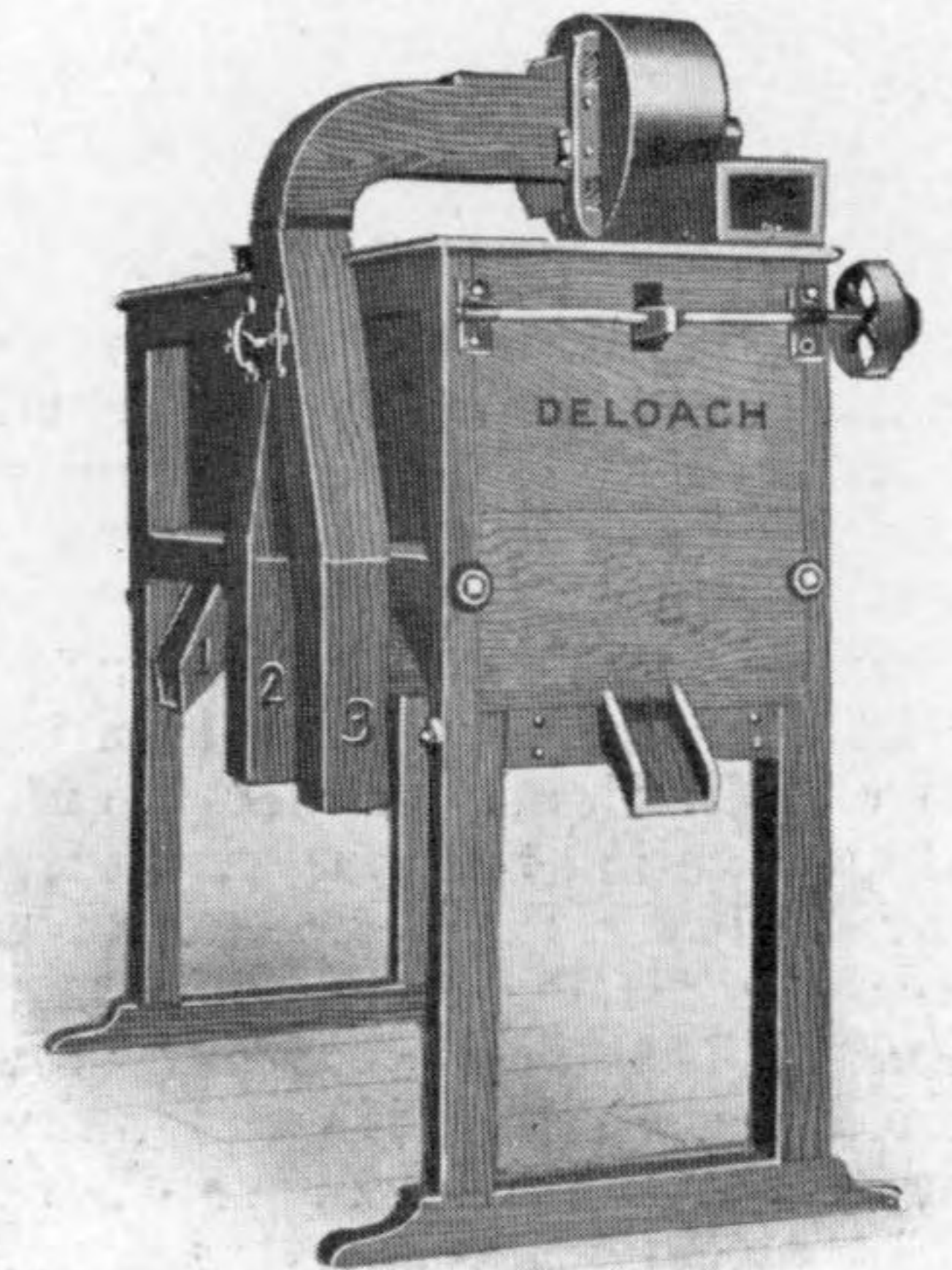
We fit Flour Mills in same manner with very little more machinery; have it all set on one floor, which saves considerable expense in building the house, and equally as much in the cost of machinery to operate it.

Improved Bolting Machine

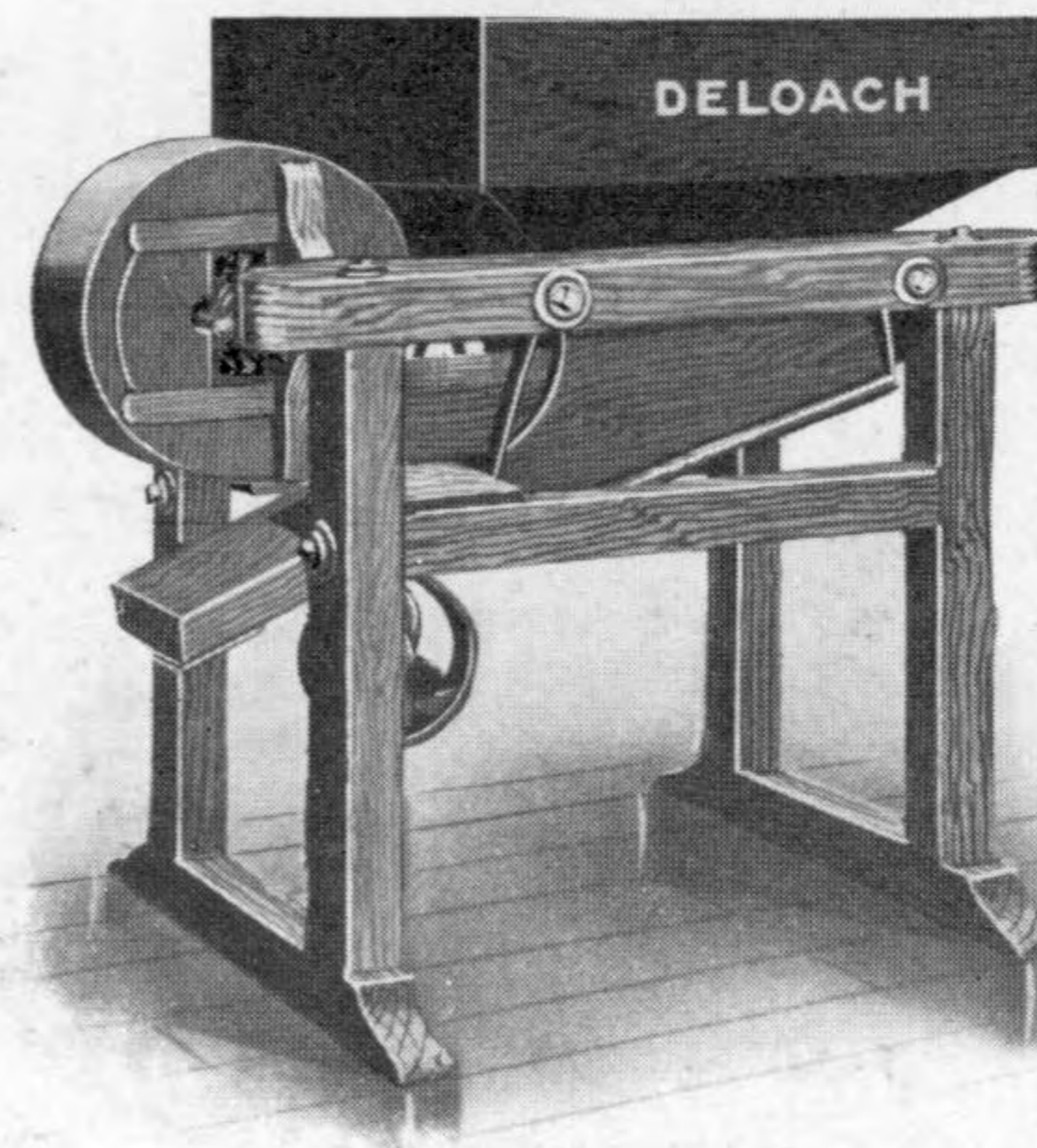
This cut represents our Bolting Machine for making meal and two grades of grits. It can be used for making meal only, and when making grits it makes four separations at one time—meal, fine grits, common grits and bran. It is a good machine and performs perfectly the work for which it is intended.

We also manufacture just the plain Bolt for making meal only, and build to order Flour Bolts of any size and capacity, Conveyors, all our own improved patterns, and we claim that this department of our work is unexcelled.

We make iron shafts for reels and steel conveyors.



Bolting Machine



Corn Cleaner

Corn Cleaner

This is a machine of special merit and very simple in construction. It thoroughly cleans the corn, blowing out all the light trash, and has a long wire sieve to remove all heavier substances smaller than a grain of corn. It is made, as shown in the cut, to run by power, is very easily attached, and can also be arranged to run by hand, for which we make no additional charge.

Turbine Water Wheels

In the equipment of our new plant special provision was made for the manufacture of water wheels. We make two styles, the No. 2 and Register Gate. The No. 2, as will be noticed, is used for

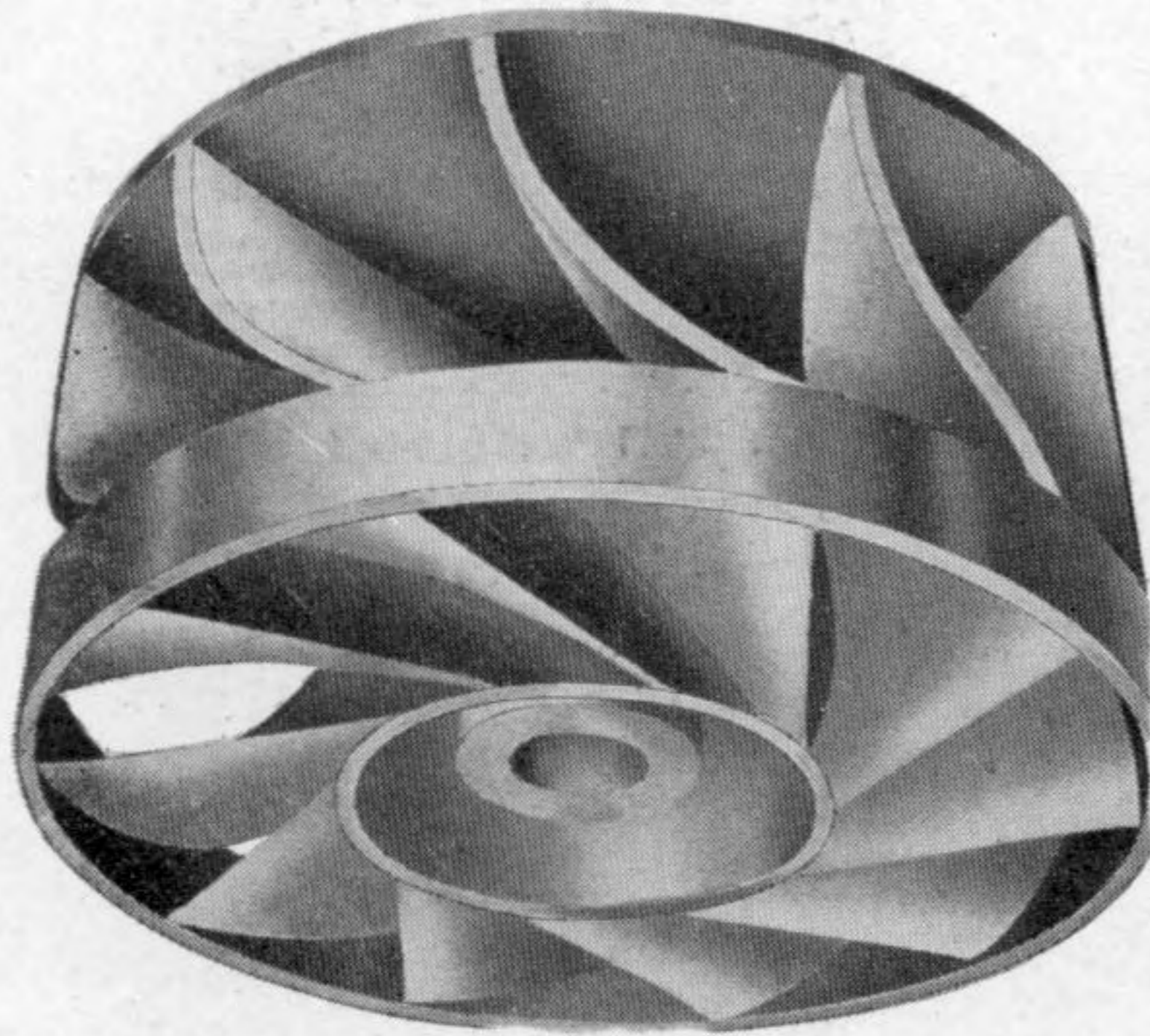


Figure 1

both wood and iron casing and in either case can be set either inside or outside the water house. For ordinary mill work it is very adaptable, and there is nothing superior to it. It will be noticed that the buckets are well shaped with good, large openings between them, and on this account the wheel does not choke up so easily as where the space between the buckets is so small, as in most turbines of this character. We guarantee 80 per cent. available power under ordinary conditions. We make wheels of all sizes

from 9-inch up to 72-inch, of both patterns.

We believe we are the only manufacturers of turbines made to set in either iron or wood case. For low heads of water, under 10 feet, just as good results can be had by the use of wooden case as the iron, and the saving of the cost of the iron case is often an important feature. The wheel proper will last a life time, and longer, and the casing can be renewed every eight or ten years, making the outfit as good as new. We send drawings for making wooden case when the wheels are ordered that way. The ordinary slide gate is used both for wood and iron case for the No. 2 wheel. See page 63.

The Register Gate Wheel is especially adapted to factories and machinery requiring a part gate wheel.

The DeLoach No. 2 Turbine

This wheel is designed for general milling, yielding wonderful capacity and good percentage of power. It is made with wood or iron casing, and to set either inside or outside of the water-house, to

suit any location, which is quite a convenience, and admits of the cheapest possible manner of improving a power.

The DeLoach wheel, possessed of such a combination of advantages as to location, etc., as well as cheapness, capacity and durability, is justly titled the "Revolutionizer of Turbine Wheels."

Figure 1 represents the runner of our No. 2 wheel for wood or iron casing. We build this wheel also for wood shaft, so in many cases where wood shaft has been used, and has irons to suit, it can be made without cast web and hub; shaft is then turned to fit the circle and wedged tightly from below.

Figure 2 represents single chute wooden case for No. 2 wheel, with top removed to show application of the water, which can be used for heads up to 15 feet, and all sizes up to and including 42-inch wheels. It can set either inside or outside of water-house, using wooden slide gate to work vertically inside of water-house in both cases. When preferable to set inside of water-house, the chute is stopped off at edge of casing, where the slide gate is arranged.

Figure 3 represents single chute iron case for No. 2 wheel, which comes next in usefulness and favor to the case just described, and is adapted to high heads as well as low. This slide-gate works admirably under as high as 40 feet head, and is guaranteed not to leak.

Figure 4 represents single chute wooden case, made with staves and plank instead of solid blocks, which is the cheapest for wheels larger than 24 ins.

Figure 5 represents double chute wooden case for large No. 2 wheels under low heads, which can only set inside of water-house, and gates work vertically, as in the single chute.

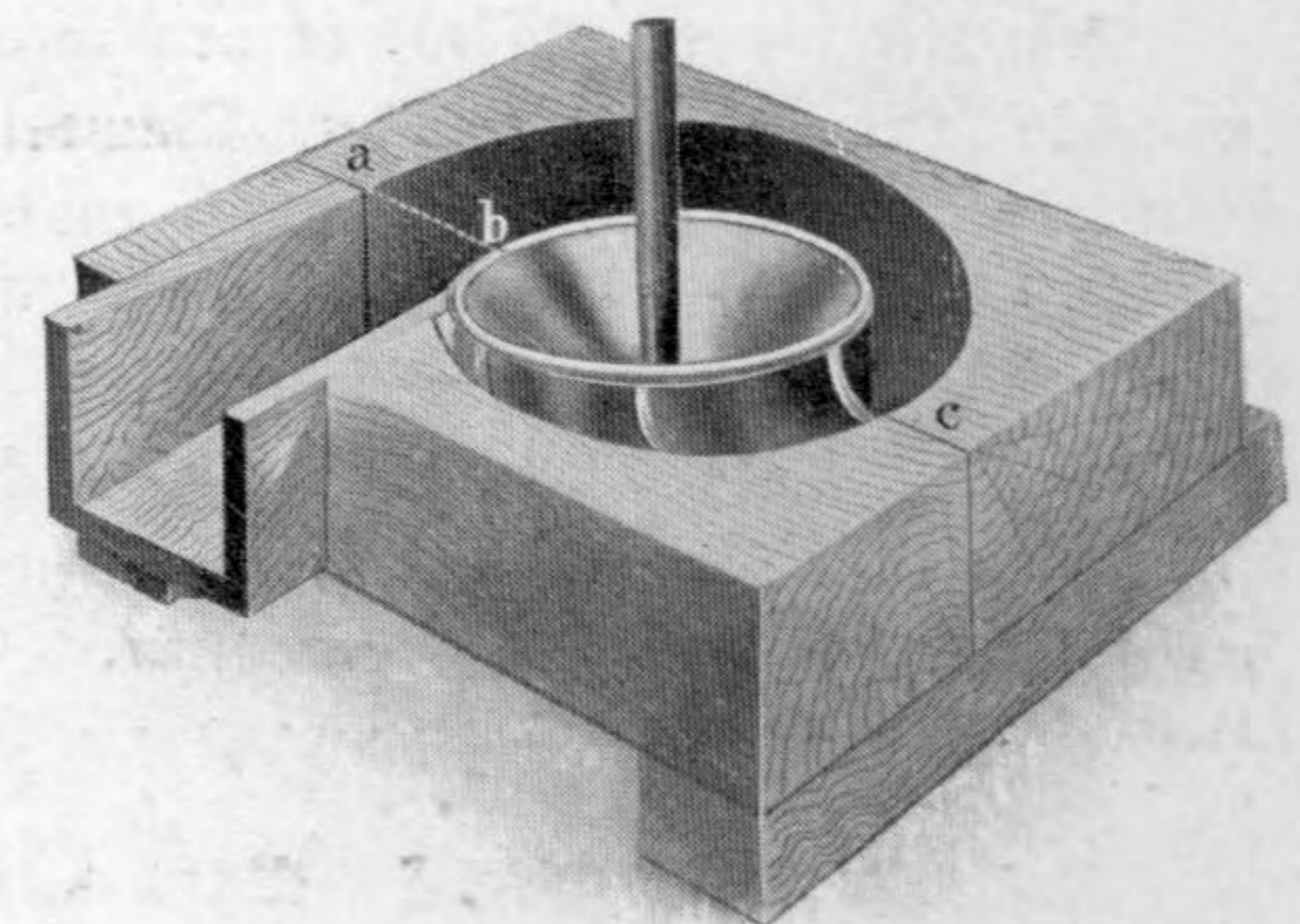


Figure 2

Specifications For Wood Casing

To make the wood casing for No. 2 wheel, the lumber must be of good solid timber (heart pine preferable) in two, three or more pieces, in length equal to two and a half times the wheel's diameter; in depth equal to one-half the wheel's diameter, minus two inches; in width equal to one and two-thirds the wheel's diameter; this is for the single flume, and the front or movable half is, in width, equal to the wheel's diameter; the stationary half two-thirds the wheel's diameter. For the double flume the timbers are the same, except in length and width, being twice the wheel's diameter in length, and one and one-third the wheel's diameter in width. After these pieces are securely doweled together in two parts, back and front, they are then loosely doweled together so they can be easily separated, and a center is taken from the center of the wheel opening, which is found in the single flume, by measuring off three-fifths the wheel's diameter for width of mouth of flume, and three-tenths the wheel's diameter on opposite side; this will give the remainder to be divided in the two ends. After having found the center, a round block, one-seventh the wheel's diameter, is set centrally over this center, and the circle for the cutting out of the single flume is drawn with a string fastened to the block and passing round with a pencil, starting at *a* in Fig. 2, and winding up the string on the block until it ends the flume or scroll at *b* opposite the starting point *a*. This work is laid off and cut out from bottom of the casing, which is planked afterward with $\frac{1}{2}$ -inch plank and circled out to a close fit for the wheel, but not to bind. To get this just right, the circle should be laid off the exact size of bottom rim of wheel, so when it is cut out properly it will fit the wheel perfectly, and not allow the water to escape except through the wheel. The water-gap, or beginning of scroll, is, in width, three-

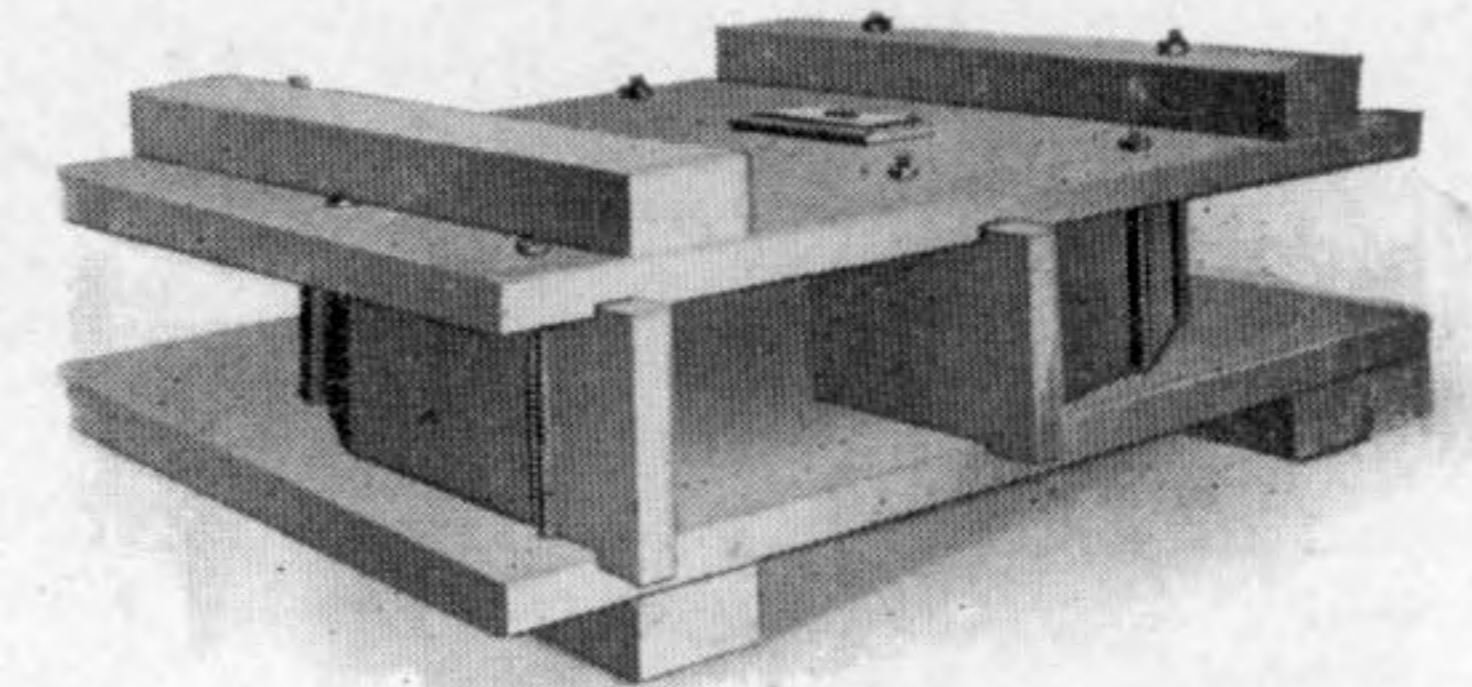


Figure 4

fifths the wheel's diameter opposite center of wheel on line of *a* and *b* and tapering or inside of chute points to *e*, which sets in from edge of wheel one-tenth the diameter of wheel. The double chute is cut out in same manner, except from two sides, as shown in Fig. 5, and all the measurements are just half the proportions above described. The depth of flume is the same as depth of buckets in the wheel, which is three-eighths of wheel's diameter. A bill of the necessary lumber for casing is given with each wheel sent out, and also additional information, drawings, etc., so that there can be no mistake in getting the wheel properly set.

SPECIAL NOTICE — Parties writing for information will please bear in mind that before we can make an estimate it is necessary for us to have the following information: depth of the water from surface of tail water to surface of head water; what kind and how much machinery is to be operated with the wheels; amount of work per day, or per hour. It is also advisable to give in a general way the amount of water. Give full information, and it is better to make a sketch of how the machinery is to be arranged. If shafting is wanted, give length of vertical and horizontal, also state whether right or left hand wheel is needed.

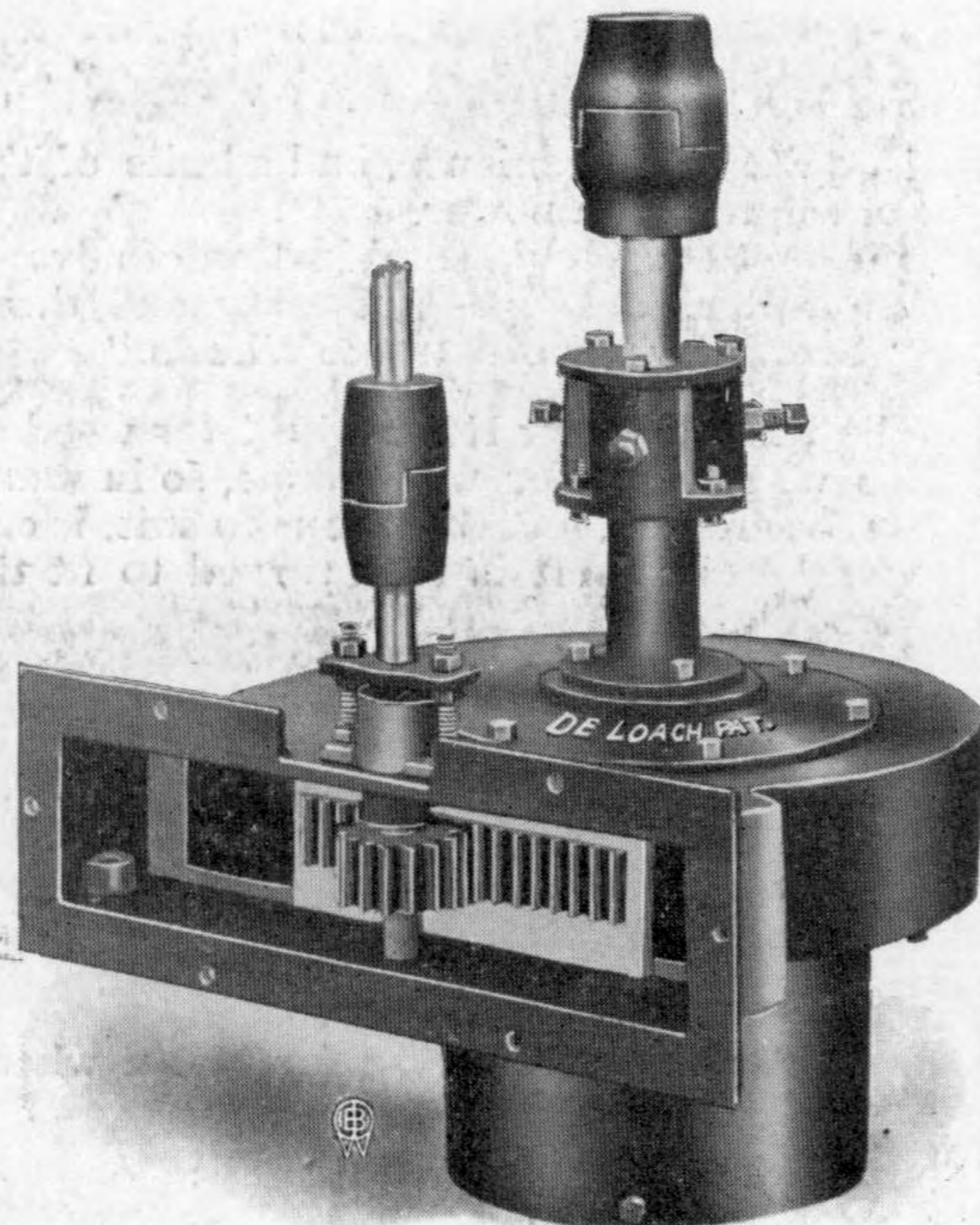


Figure 3

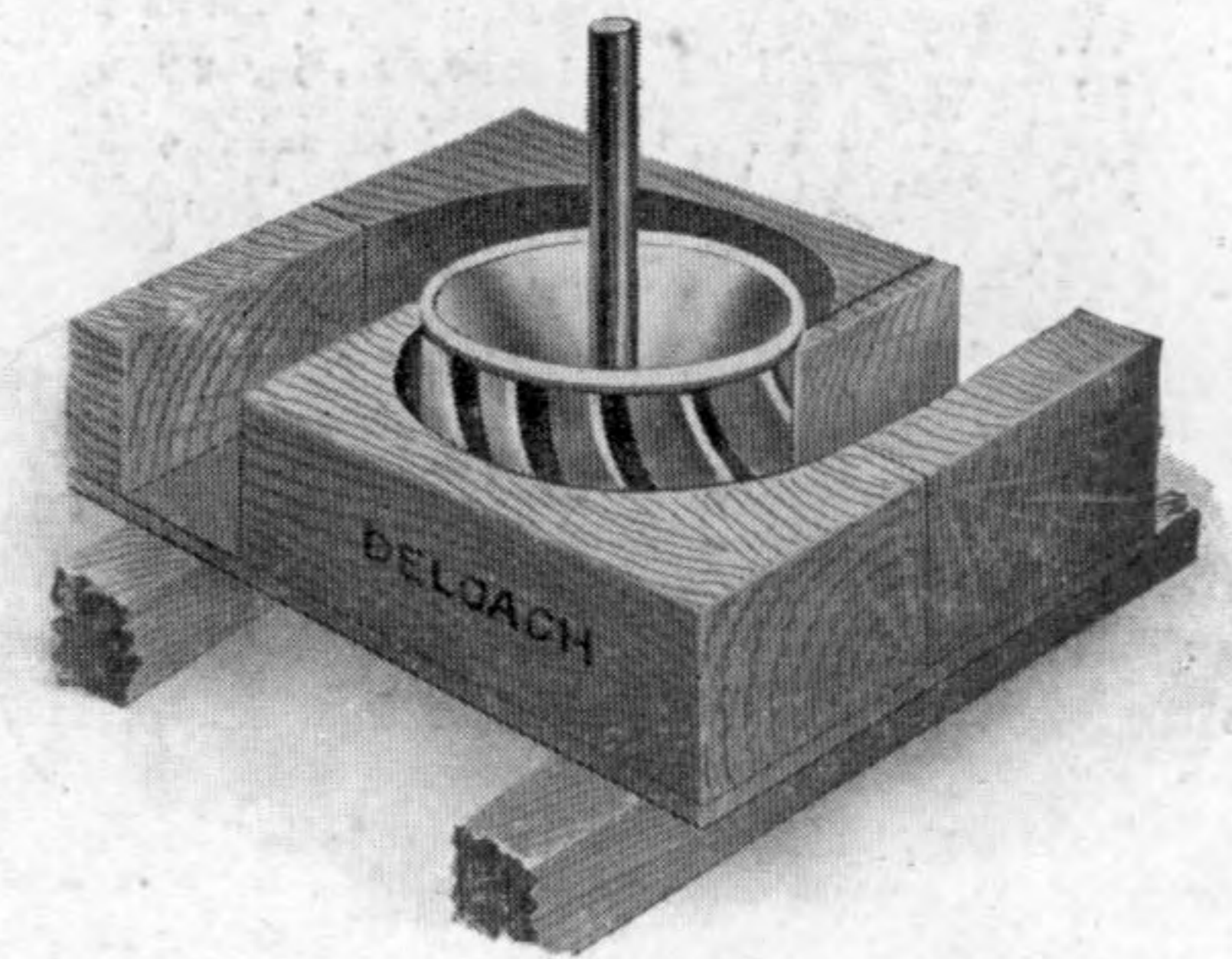
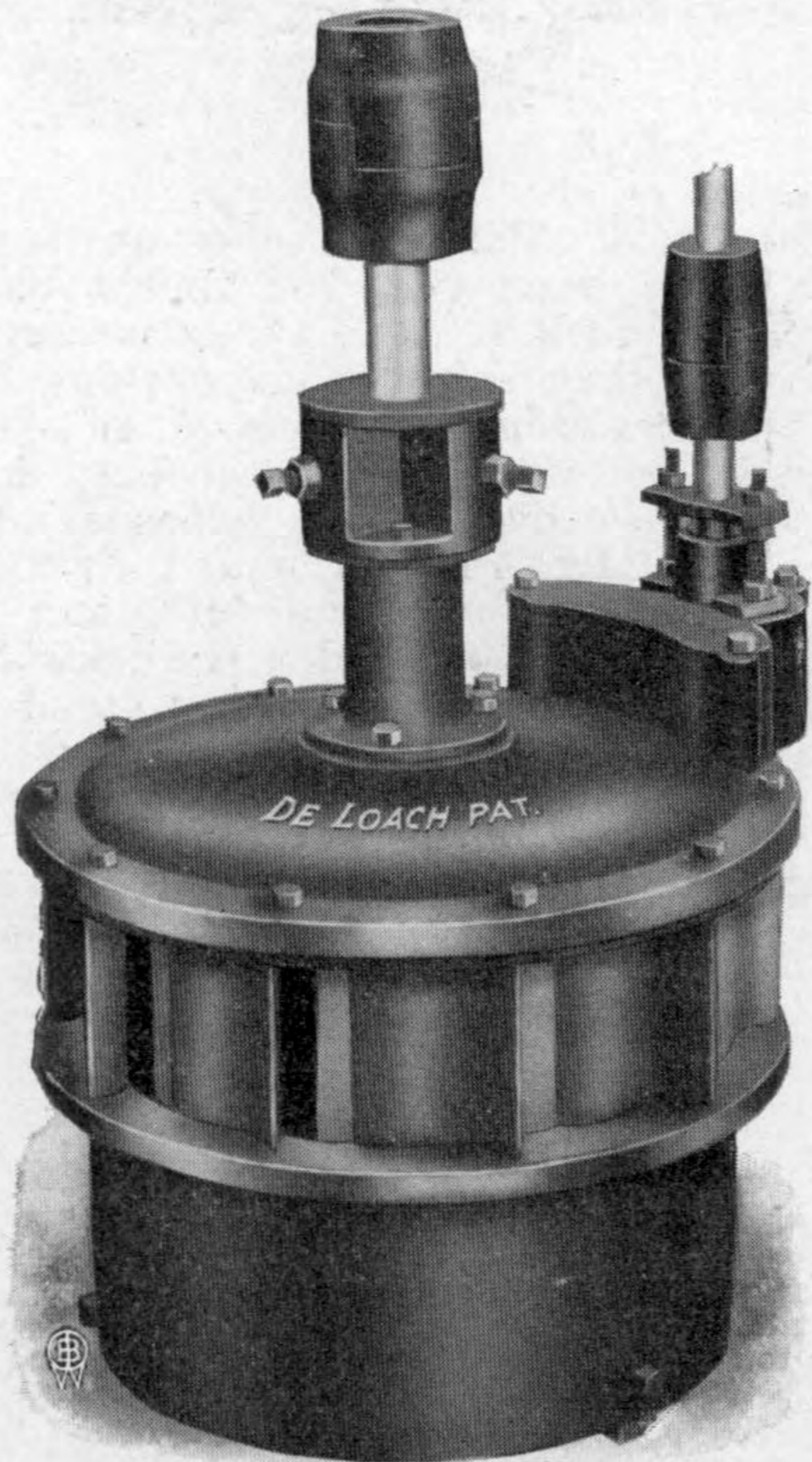


Figure 5

THE REGISTER GATE WHEEL

This wheel, as shown in the cut, is very simple and substantial. It meets all requirements for any machinery requiring a wheel with perfectly balanced gate. The register gate works as freely under 100 ft. head as un-

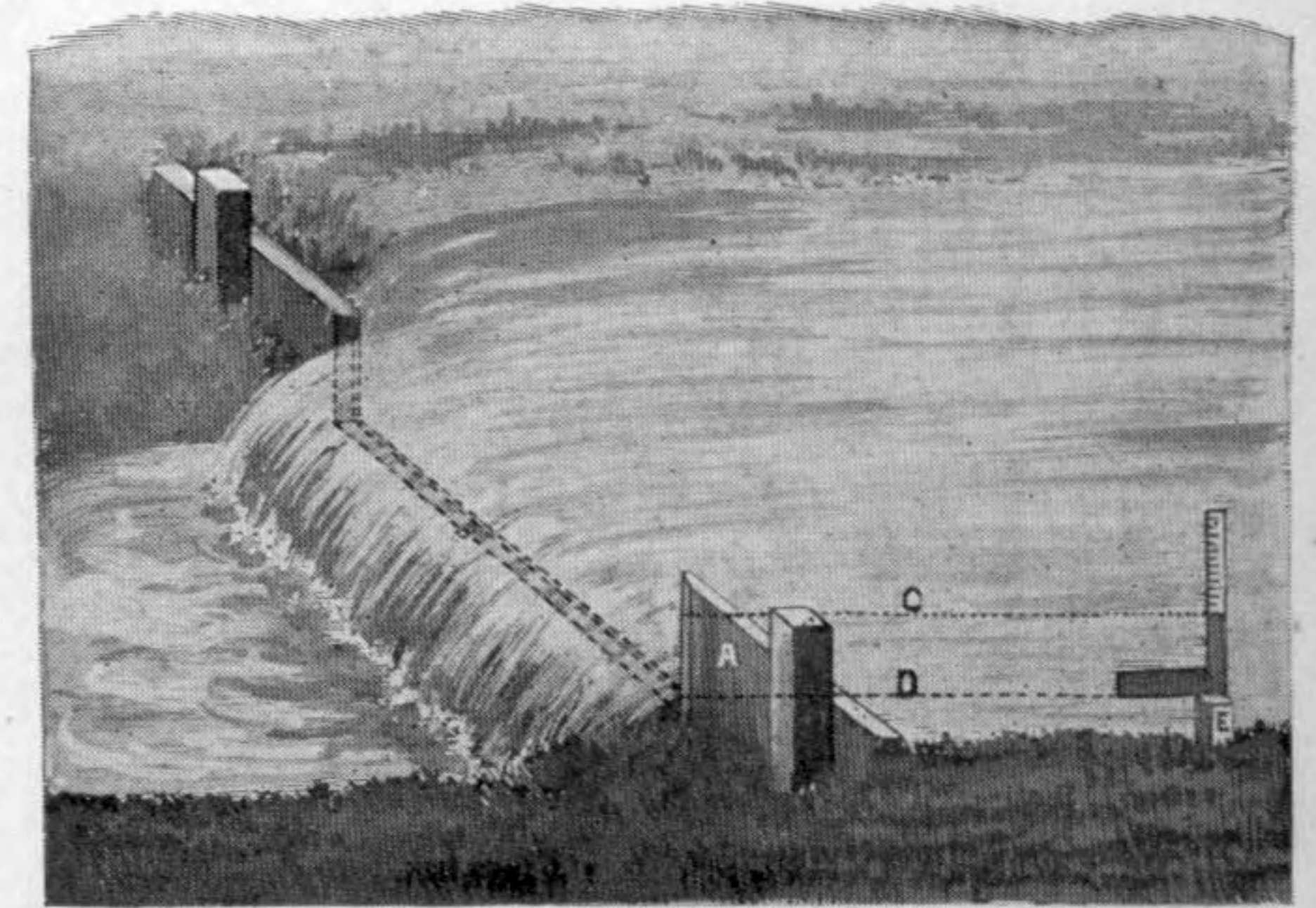


der 10 ft. The runner is made very much on the order of the No. 2 wheel.

It will be noticed from the tables on pages 67 and 68 that the wheel has a very large capacity, and we guarantee it to give perfect satisfaction in every particular.

How to Measure Small Streams: This cut represents a weir board for measuring small streams, which is done by using a board long enough to reach across the stream, resting in the bank at each side; cut a notch large enough to pass all the water through, tapering the lower edges of the notch up within $\frac{1}{8}$ " of upper edge of board, then drive a small stake in bed of stream about 3' above the board until the water covers its top just as it begins to pour over the bottom of notch in the board. This puts them on a level, and when all the water is passing through, measure the depth from bottom of notch or top of stake to the surface of the water. Reference, then, to the following table will give the cubic feet per minute, and when this is found, take the head of water to be used and run it through the tables of power of the different wheels until you come to a wheel that comes nearest using just the amount afforded, and just opposite you will find the amount of power that can be relied on with proper allowance made for leakage, friction, etc.

How to Measure Large Streams: First, get the velocity by floating a green leaf on the surface of the stream, and rating the time in passing a given distance. Then get the depth at a number of points, at equal distance apart, in a line across the stream. This, together with the head of water to be used, we can tell very near what the stream will do. Also state comparative stage of water in winter and in summer



WEIR TABLE FROM 1-16 INCH TO 24 INCHES DEPTH.

In.		1-16	1-8	3-16	1-4	5-16	3-8	7-16	1-2	9-16	5-8	11-16	3-4	13-16	7-8	15-16		In.
		.006	.01	.03	.05	.07	.09	.11	.14	.17	.20	.23	.26	.30	.33	.36		
1	.40	.43	.47	.51	.55	.60	.65	.70	.74	.78	.83	.87	.93	.98	1.03	1.08	.40	1
2	1.14	1.19	1.24	1.30	1.36	1.41	1.47	1.52	1.59	1.65	1.71	1.77	1.83	1.89	1.96	2.02	1.14	2
3	2.09	2.16	2.23	2.29	2.36	2.43	2.50	2.57	2.63	2.71	2.78	2.85	2.92	2.99	3.07	3.14	2.09	3
4	3.22	3.29	3.37	3.44	3.52	3.60	3.68	3.75	3.83	3.91	3.99	4.07	4.16	4.24	4.32	4.41	3.22	4
5	4.50	4.58	4.67	4.75	4.84	4.92	5.01	5.10	5.18	5.27	5.36	5.45	5.54	5.63	5.72	5.81	4.50	5
6	5.90	6.00	6.09	6.18	6.28	6.37	6.47	6.56	6.65	6.75	6.85	6.95	7.05	7.15	7.25	7.35	5.90	6
7	7.44	7.54	7.64	7.74	7.84	7.94	8.05	8.15	8.25	8.35	8.45	8.55	8.66	8.76	8.86	8.97	7.44	7
8	9.10	9.20	9.31	9.42	9.52	9.63	9.74	9.85	9.99	10.07	10.18	10.29	10.40	10.51	10.62	10.73	9.10	8
9	10.86	10.97	11.08	11.19	11.31	11.42	11.54	11.65	11.77	11.88	12.00	12.12	12.23	12.35	12.47	12.59	10.86	9
10	12.71	12.83	13.95	13.07	13.19	13.30	13.43	13.55	13.67	13.80	13.93	14.04	14.16	14.30	14.42	14.55	12.71	10
11	14.67	14.79	14.92	15.05	15.18	15.30	15.43	15.56	15.67	15.81	15.96	16.08	16.20	16.34	16.46	16.59	14.67	11
12	16.73	16.86	16.99	17.12	17.26	17.30	17.52	17.65	17.78	17.91	18.05	18.18	18.32	18.45	18.59	18.72	16.73	12
13	18.87	19.01	19.14	19.28	19.42	19.55	19.69	19.83	19.97	20.10	20.24	20.38	20.52	20.66	20.80	20.94	18.87	13
14	21.09	21.23	21.37	21.48	21.65	21.79	21.94	22.08	22.22	22.35	22.51	22.65	22.79	22.94	23.08	23.23	21.09	14
15	23.38	23.53	23.67	23.82	23.97	24.11	24.26	24.41	24.56	24.71	24.86	25.01	25.16	25.31	25.46	25.61	23.38	15
16	25.76	25.91	26.06	26.21	26.36	26.51	26.66	26.81	26.97	27.12	27.27	27.43	27.58	27.73	27.89	28.04	25.76	16
17	28.20	28.35	28.51	28.66	28.82	28.98	29.14	29.29	29.45	29.60	29.76	29.92	30.08	30.23	30.39	30.55	28.20	17
18	30.70	30.86	31.02	31.18	31.34	31.50	31.66	31.81	31.98	32.15	32.31	32.47	32.63	32.80	32.96	33.13	30.70	18
19	33.20	33.45	33.61	33.78	33.94	34.11	34.27	34.44	34.60	34.77	34.94	35.10	35.27	35.44	35.60	35.77	33.20	19
20	35.94	36.10	36.27	36.46	36.60	37.87	36.94	37.11	37.28	37.45	37.63	37.79	37.96	38.14	38.31	38.48	35.94	20
21	38.65	38.82	39.00	39.17	39.34	39.52	39.69	39.86	40.04	40.21	40.39	40.56	40.73	40.91	41.09	41.26	38.65	21
22	41.43	41.60	41.78	41.96	42.13	42.31	42.49	42.67	42.84	43.02	43.20	43.38	43.56	43.74	43.92	44.10	41.43	22
23	44.28	44.46	44.64	44.82	45.00	45.18	45.38	45.53	45.71	45.90	46.08	46.26	46.43	46.63	46.81	47.00	44.28	23
24	47.18	47.36	47.55	47.72	47.91	48.09	48.28	48.46	48.65	48.83	49.02	49.20	49.39	49.58	49.76	49.93	47.18	24

NOTE.—The right and left-hand columns in this table represent whole inches depth of water over weir; top line of fractions shows parts of an inch depth over weir; second line quantity of water flowing over weir for each fractional part of an inch depth under which the figures may be found; third line gives quantity for one inch and a fraction of an inch depth, and so on. All these measurements are made for one inch width of spill.

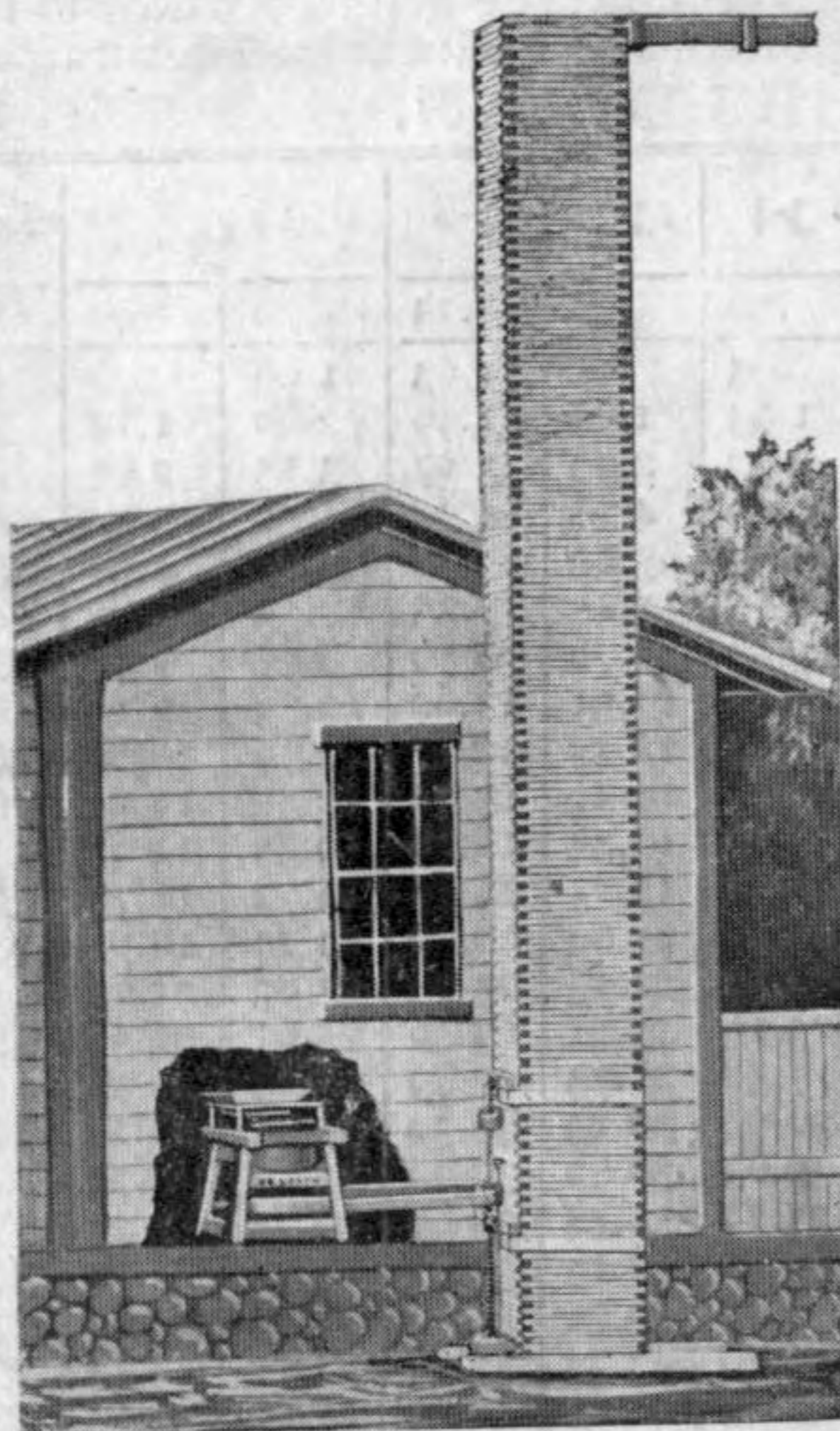
Directions For Setting Water Wheels

Our wheels are so very simple and easy to set that only a few general directions are necessary. Any millwright, after examining the preceding cuts and explanations will readily understand the construction of our wheels and their relation to the wathouse and machinery. Our No. 2 wheel is made to set either inside or outside to suit the present location. Our register gate wheel sets inside the waterhouse.

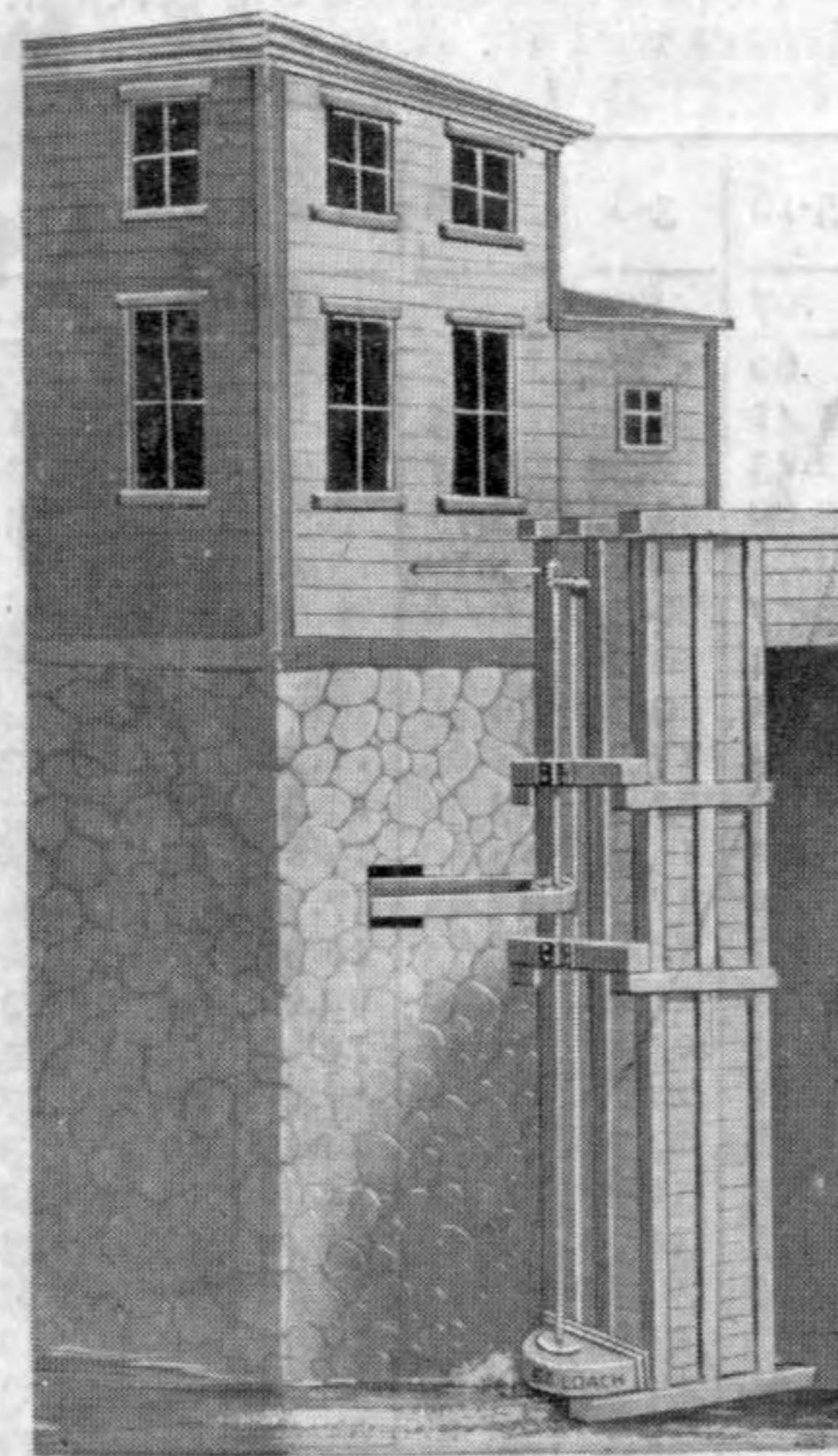
We send dimensions for preparing the location and casing for wheels when desired.

The Wheel Pit The importance of having a sufficiently deep wheel pit cannot be too forcibly impressed. As a rule, for small wheels, the pit should be at least twenty inches deep. For wheels thirty six inches and upward, the pit should be in depth equal to the diameter of the wheel, especially should this be closely observed under low heads, from the fact that where the pit is of an insufficient depth, a part of the head is lost in forcing out the discharging water. Too free a discharge cannot be made. But always set wheel within 12 or 15 inches of bottom rather than loose the head by placing it high in order to get discharge as directed above.

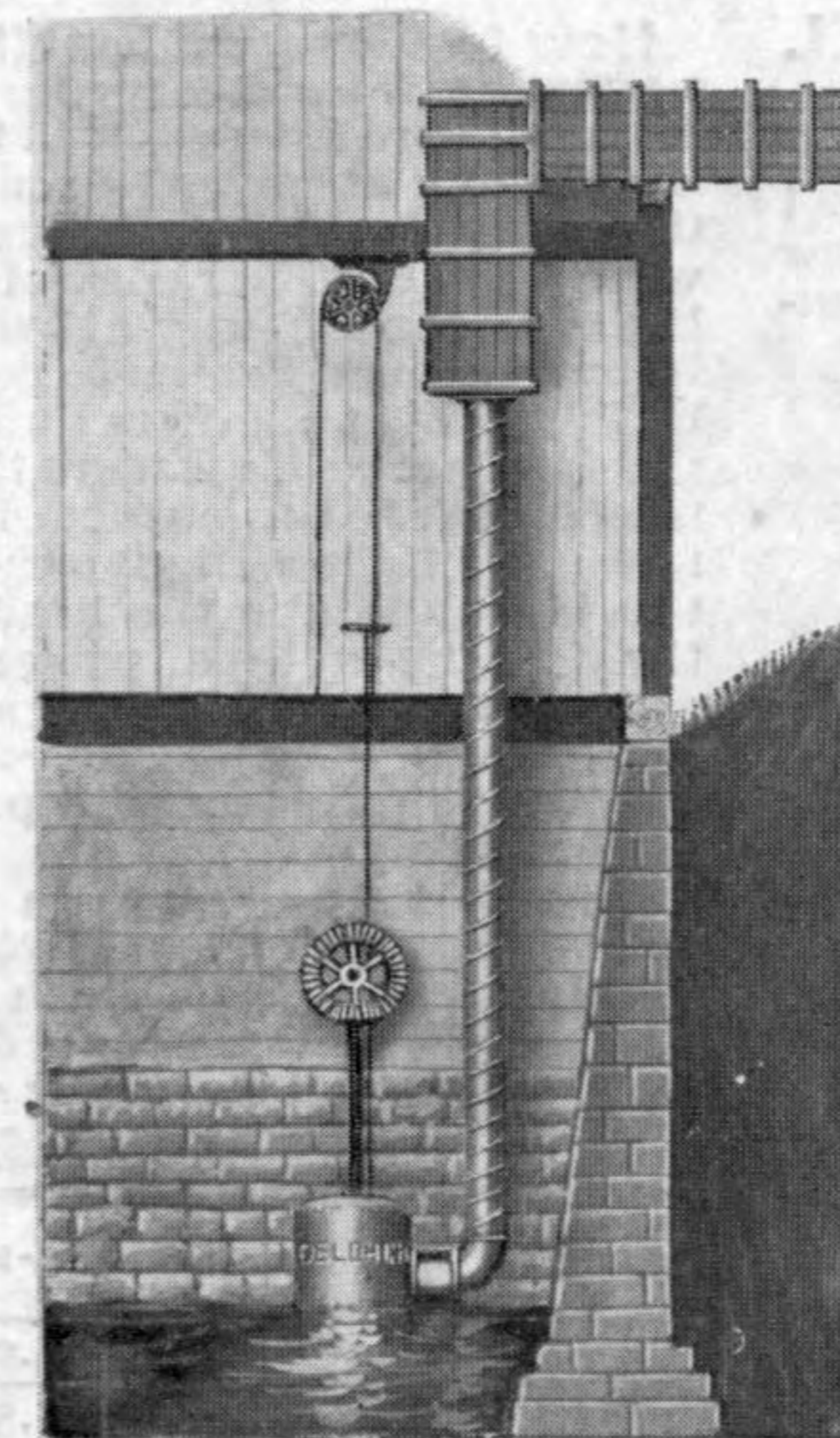
Pen Stocks should in every case be made fully twice the diameter of



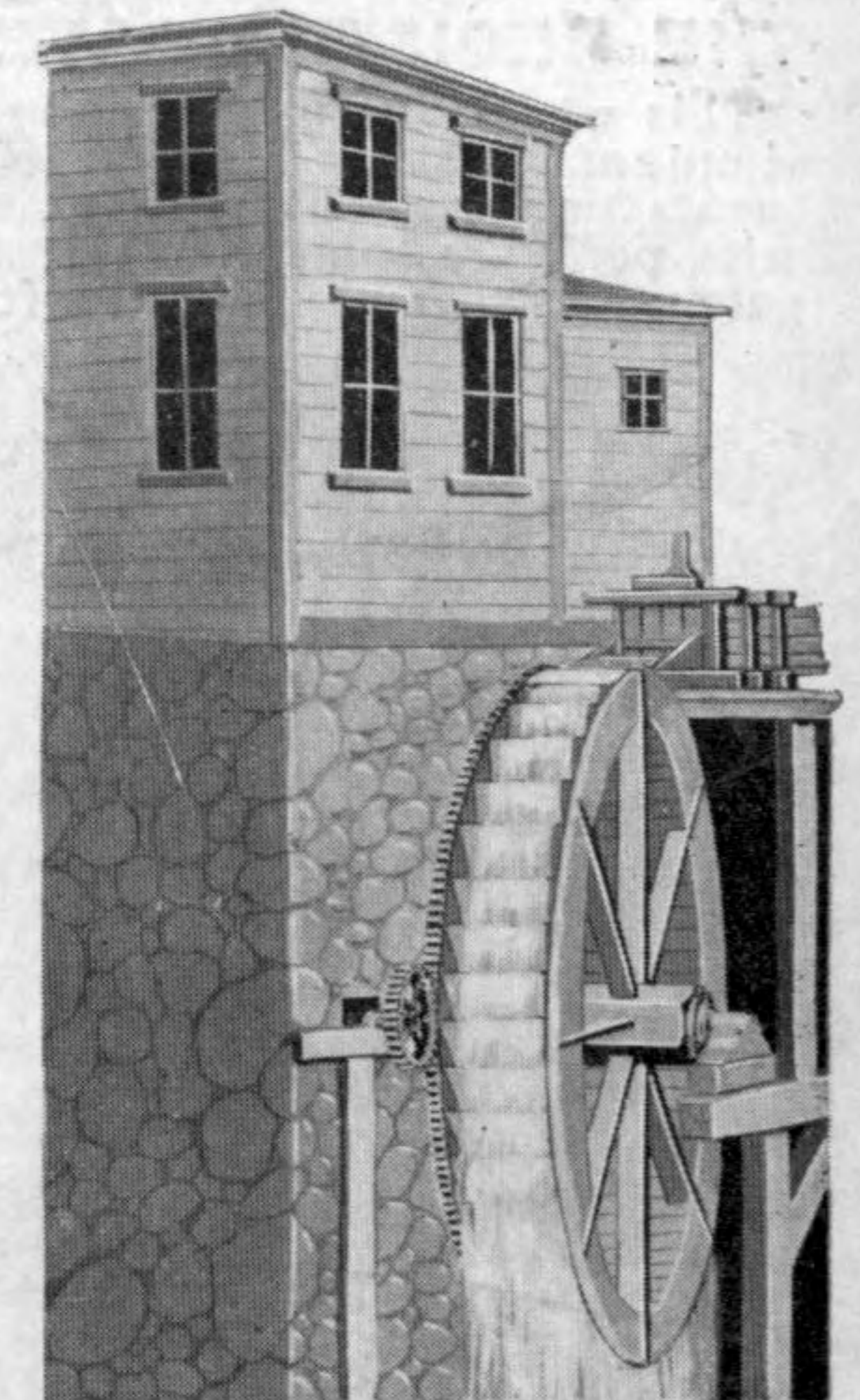
9" No. 2 DeLoach Water Wheel
Under 44 Ft. Head.



12" No. 2 DeLoach Water Wheel
Under 20 Ft. Head.



18" Register Gate Water Wheel
Under 40 Ft. Head.



We Make Irons for Overshot and
Other Kinds of Wheels.

wheel to be used. The larger the better.

Racks. A prudent mill-owner will never fail to have this all important protection to his wheel and machinery. It is much better to spare a few hours in building a good rack than to be constantly stopping to take obstructions out, even if they can be taken out of the DeLoach wheel in five minutes. It is advisable to have a coarse rack at upper end of race and a fine one down near the wheel.

Gearing. Millwrights, in gearing any turbine to the machinery, will remember that in order to give the wheel justice it must be properly geared and not speed the machinery too high. Very often a water wheel is condemned simply because the power of wheel is taken up in speed. Speed is power, but if machinery is speeded too high for the power of the wheel there is a great loss of power, and the wheel consequently gives dissatisfaction. Many good wheels are condemned for want of proper arrangement of the machinery and connections. We recommend the use of belting rather than gears in every instance possible. In making pulleys for grist and wheat mills they should be, in diameter, at least two thirds the diameter of stones, and if they are made full size of stones it is only the better; the belt will run slacker and give less trouble in keeping the belt laced.