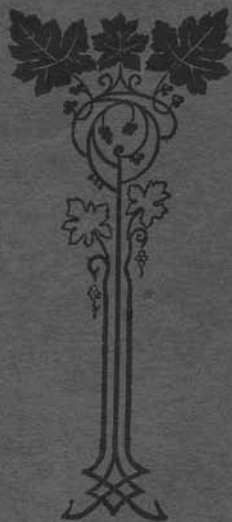


Whesand

"GREENWOOD"
STAVE, HEADING AND HOOP
MACHINERY



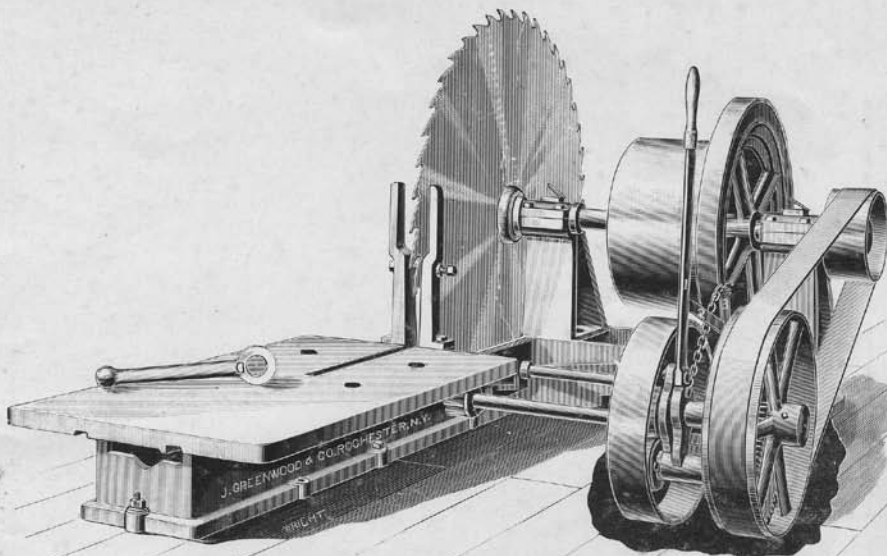
Rochester Barrel Machine Works
Successor to
John Greenwood — Rochester, N.Y.

Mr. J. H. Weaver, Elyton

Rochester Barrel Machine Works

Successor to

John Greenwood — Rochester, N.Y.



Right Hand Stave and Heading Bolter

Description—The capacity of this Bolter is much greater than that of the horizontal type and being self contained takes up very little floor space.

The bolts are placed on end and require no "dogging", the saw drawing the bolts tight up against the guards. On bolts of small diameter the operator usually steadies them with one hand and operates the feed lever with the other. On the feed shaft, which drives the table by pinion and rack, is mounted a large friction drum, and on the inside of this drum, fastened to the frame is a double rocking box carrying two friction rollers revolving in opposite directions and at different speeds; this rocking box is so connected with the feed lever that a slight movement forward or back brings one or the other of the rollers in contact with the inside surface of the drum, which rotating, drives the table. The return of the table is three times as fast as the forward motion.

An automatic device is used for stopping the table at the proper place on the return stroke, which disengages the friction roller and applies a brake to the outside surface of the drum, acting instantly and without shock to the gear teeth.

Pulley—The Saw arbor pulley 24" diam., 14" face, is carefully turned and balanced and weighs 525 lbs. Speed 700 rev. per min.

Saw—Disston, 60" diam., either solid or inserted teeth.

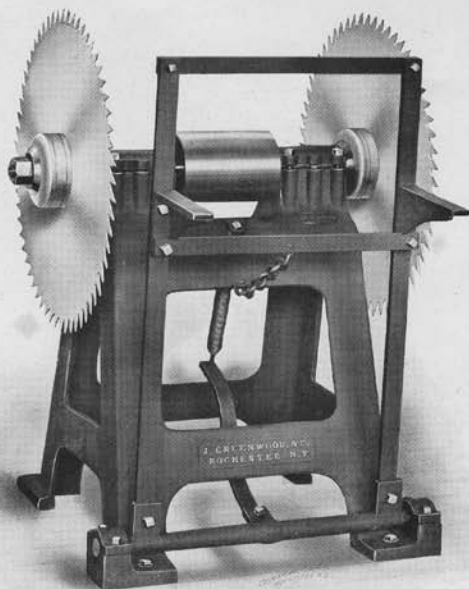
Weight—The shipping weight of machine is 3,600 lbs.

Left Hand Bolter

On this machine the feed lever is to the left and the saw and table to the right of the operator; in other respects it is similar in construction to the right hand bolter.

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Stave Bolt Equalizer

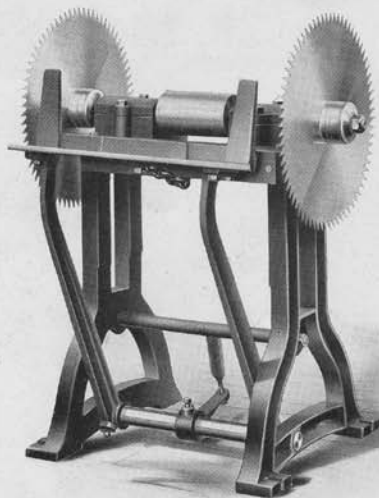
Description— This machine is used for equalizing the length of stave bolts. The bolt is placed on the angle rests so that the saws will cut a little off each end of the bolt. The carriage is held back by a spring and follows the bolt in its backward motion, keeping it in its original position and preventing it from cramping between the saws. The arbor is made of crucible steel and has self-oiling boxes. On each end of the arbor are mounted a number of collars of such widths that the distance between the saws can be varied to equalize bolts from $27\frac{1}{2}$ " to 34" long. Other sizes made to order.

Saws—Saws are 30" diam., and run 1,200 rev. per min. Pulley 7" diam., $9\frac{1}{2}$ " face. Horse Power required, 5.

Weight— The shipping weight is 650 lbs.

Countershaft— The countershaft has two 16" diam., $10\frac{1}{2}$ " face, tight and loose pulleys and one 24" diam., 9" face, driving pulley. Weight, 450 lbs.

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Stave Equalizer

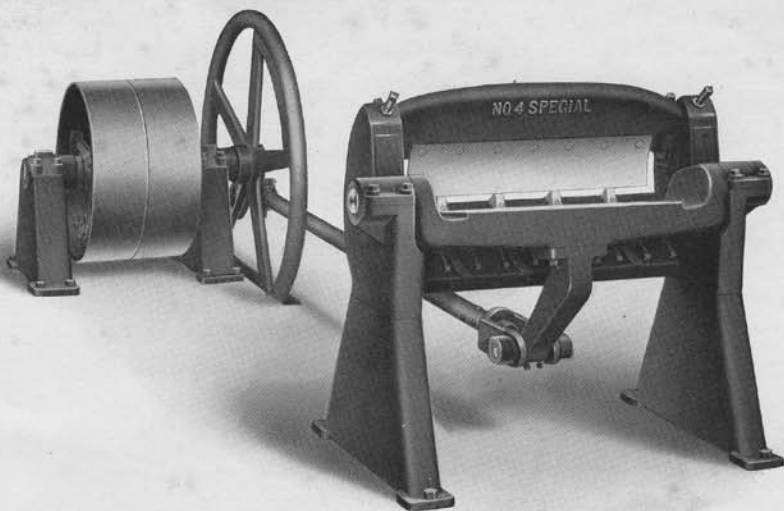
Description — Instead of equalizing the stave bolts this machine was formerly used to equalize the staves after being cut, but it is now used almost universally for cull staves that will work up into shorter lengths. The size ordinarily furnished has a range from 23½" to 30", but can be made to order in any size desired. The arbor is made of crucible steel and has self-oiling boxes.

Saws — The saws are 20" diam., and run 1,800 rev. per min. Pulley 4" diam., 7" face. Horse power required, 4.

Weight — The shipping weight is 350 lbs.

Countershaft — The countershaft has two 10" diam., 6" face, tight and loose pulleys and one 19" diam., 7" face, driving pulley. Weight, 225 lbs.

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No. 4 Special Stave Cutter

Description— The No. 4 SPECIAL STAVE CUTTER is a new design machine having all of the best features of our famous No. 4 STAVE CUTTER and besides other improvements is stronger and heavier.

A 34" x 7" knife ground on a 20" circle is furnished as regular equipment, but either a 32" or 36" knife can be used on the same head.

The rib gauge or "concave" is in one casting with the tumbler boxes and being solid and non-adjustable is always in the correct circle in relation to the center line of the tumbler bearings. Four ribs with hardened steel facings 1¼" wide, all of the same length are used in place of the five ribs with 1" facings as formerly and the tumbler bearings have been increased in size from 2½" to 3" diam.

Wood blocking is inserted in the slot of the tumbler to receive the edge of the knife and is raised for redressing by set screws. The knife head is adjustable for different thicknesses of staves and to allow for wear of the knife.

All parts are made interchangeable and can be furnished completely machined ready for use.

Capacity—50000 staves per day of eight hours.

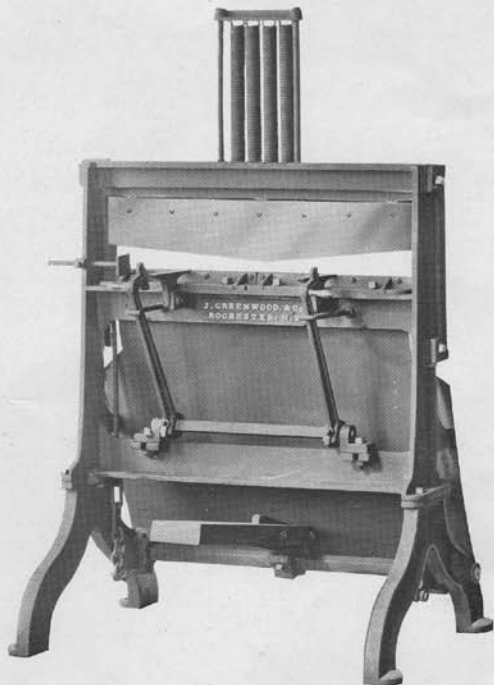
Weight—The shipping weight complete is 3150 lbs. or without Intermediate Shaft and Pitman, 1850 lbs.

Intermediate Shaft—The Intermediate or Balance Wheel Shaft that drives the Cutter with Pitman has two 30" diam. 9" face pressed steel pulleys, the loose pulley having a removable bushing that can be replaced in case of wear. The shaft boxes are of the floor stand type of very rigid construction, the box next to the balance wheel being 10" long and the other one 8". In place of these floor stands we can furnish boxes of the flat or pillow block type if desired. Pitman connection to the tumbler arm by wrist pin and brass boxes similar to those at the balance wheel end can be furnished in place of the clevis connection shown. The Pitman is made of steel pipe securely riveted to the end connections. Speed of shaft from 150 to 175 R. P. M. Shipping weight of Intermediate Shaft without Pitman, 1200 lbs.

Crozed and Chamfered Staves

There is a rapidly increasing demand for crozed and chamfered hardwood staves and with a few changes the No. 4 SPECIAL STAVE CUTTER can be adapted for this work, the staves being cut, crozed, chamfered and equalized with the one operation. The process, however, and the special knives used are patented and arrangements must be made with the patentee for the manufacture of these staves. We will be pleased to give further information upon request.

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The "Widdowson" Top Spring Stave Jointer

Description—The famous "Widdowson" Top Spring Stave Jointer shown above is so well known that it is universally accepted as the standard machine for jointing slack cut staves. We have sold thousands of these stave jointers and there is hardly a Stave Mill in the country not equipped with them.

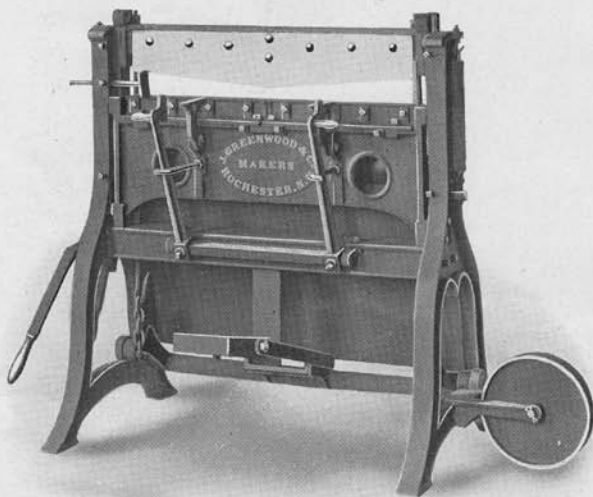
This jointer now has adjustable stop screws for the knife piece to strike against to allow for variations in the width of knives as they wear narrower.

Set screws behind the knife are used to aid in adjusting knife to different bilges.

Sizes—These jointers are made in sizes to carry 26, 32 and 36" knives.

Weight—The shipping weight of the 32" Jointer is 385 lbs.

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The "Greenwood" Side Spring Stave Jointer

Description—The "Greenwood" Jointer shown above is practically as popular as the "Widdowson," and especially so for use in Cooper Shops, as the side springs do not interfere when splitting wide staves. The wheel and handle attachment is also very convenient for moving about.

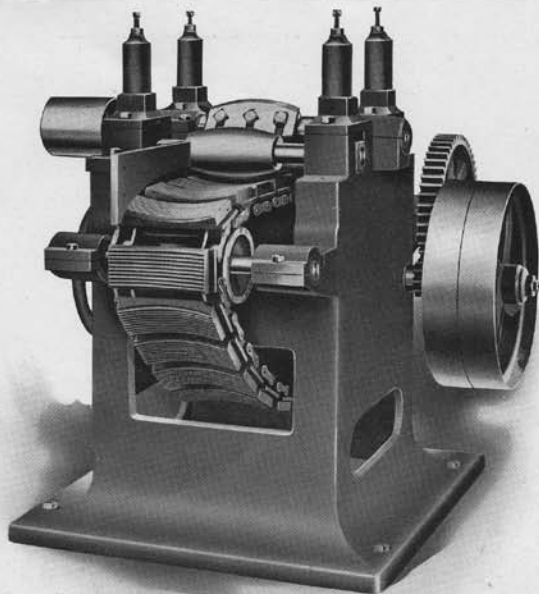
The knife piece and slides are now made in one solid casting similar to that of the "Widdowson", which obviates the danger of the knife springing over on the bed piece, a common source of annoyance with other jointers.

Sizes—These jointers are made in sizes to carry 32 and 38" knives.

Weight—The shipping weight of the 32" Jointer is 450 lbs.

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Stave Planer

Description — This machine is designed for planing the inside of sawed staves. We also make a similar machine for planing the outside of the staves. When desired we can furnish an extra traveling bed, cylinder and rollers to convert the inside to the outside planer or vice versa. As can be seen from the cut the construction is very strong and rigid, the frame being in one solid casting. This planer has given excellent satisfaction and is in use in nearly all of the tight stave plants in this country.

Traveling Bed — The traveling, endless bed carries the staves in a straight line through the machine without slipping or stopping, avoiding thin edge staves, a common trouble with other planers. Under the traveling bed is a bed plate raised or lowered by hand wheel to adjust the thickness of the staves. No gibs with locking screws are used and the bed is always firm and solid. A grease cup with pipe leading to the sliding surfaces of the bed and bed plate supplies proper lubrication.

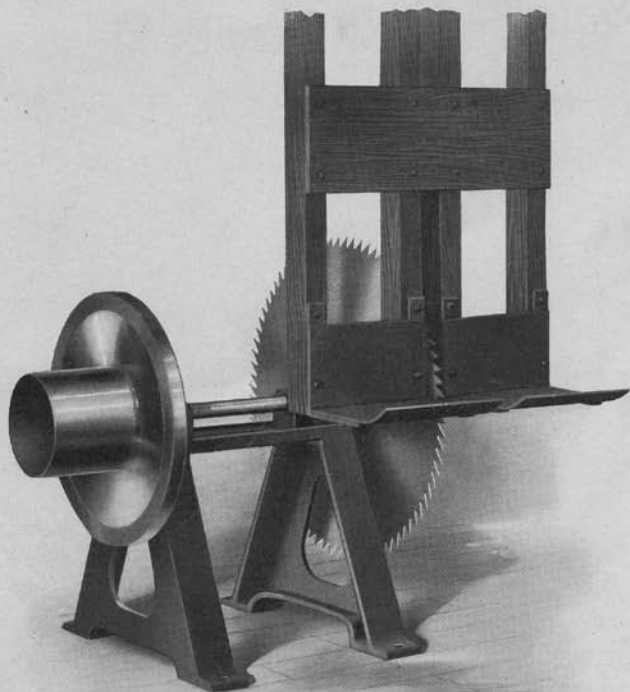
Cylinder — The cylinder or knife head is made of steel faced with hardened steel jaws. Bearings are 1-7/16" diam., 8" long, running in self-oiling boxes. Cylinder pulley is 6" diam., 6" face. Knives on inside planer 8" long, on outside planer 10".

Rollers — The two pressure rollers have bearings 1-7/16" diam., 4 1/2" long, running in bab-bitted boxes held down by adjustable, enclosed steel springs.

Weight — The shipping weight without countershaft is 1,500 lbs.

Countershaft — The countershaft has tight and loose pulleys 10" diam., 6" face, driving pulley 24" diam., 5" face and feed pulley 3" diam., 7" face. Boxes are of the self-oiling, adjustable type, and can be removed without disturbing pulleys or hangers. Speed of countershaft 1,150 rev. per min. Weight, 250 lbs.

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Cross Cut Bolting Saw Machine

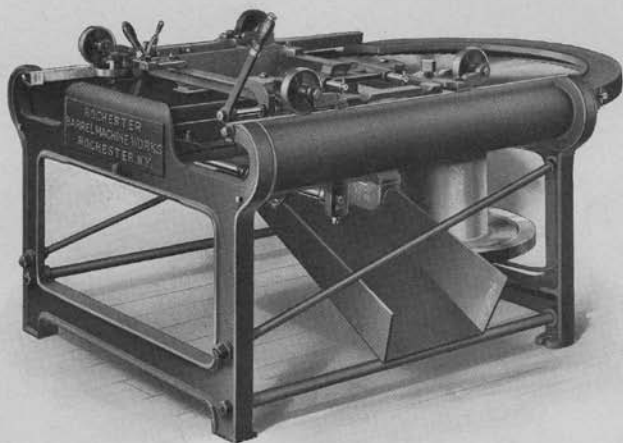
Description—This machine is used for cross-cutting heading and shingle bolts. It consists of a heavy rigid frame carrying the saw and arbor and a long swing carriage supported from above. The divided table for the bolts is made of heavy steel plates. The arbor is made of crucible steel and is $2\frac{3}{8}$ " diam. Boxes are self-oiling.

Saw—A 40" saw is generally used.

Pulley—The pulley combined with balance wheel is 12" diam., 10" face.

Weight—The shipping weight complete with carriage is 1000 lbs.

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Horizontal Heading and Shingle Sawing Machine

Description—Although the horizontal type of heading sawing machine is not used to the same extent as the upright or pendulous type for sawing heading, it is still preferred by some manufacturers. We have made a large number of these machines, and due to our long experience have eliminated all the faults common to other makes of similar machines.

The carriage moves very easily, being supported on four wheels running on the tracks with two side wheels to neutralize the side pressure of the saw against the bolt.

The saw can be removed and replaced by another in a few minutes, a considerable saving of time over other makes.

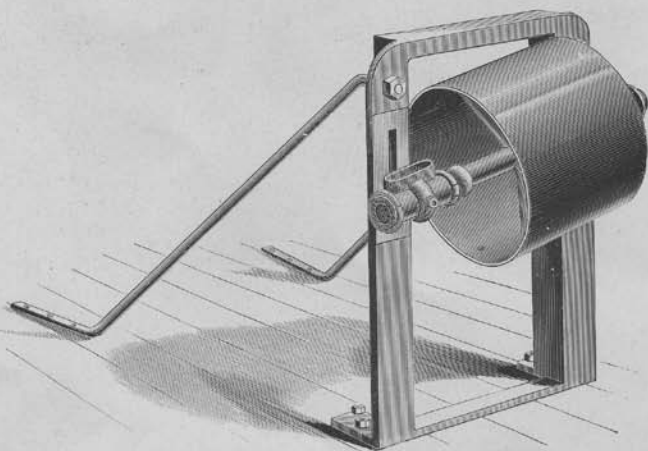
This machine is made in two sizes, the smaller carrying saws from 40 to 42" diam., and taking bolts from 12 to 26" long. The larger machine carries saws from 44 to 48" diam. and takes bolts from 12 to 30" long.

Pulley—The pulley on the small machine is 12" diam., 10" face and on the large machine 16" diam., 10" face. For speeds of different size saws see table given in description of the Pendulous Heading Sawing Machine.

Weight—The shipping weight of the 42" machine is 1,300 lbs. and the 48" machine 1,500 lbs.

Countershaft—The countershaft has tight and loose pulleys 16" diam., 9" face, and one driving pulley 24" diam., 9" face. Weight, 450 lbs.

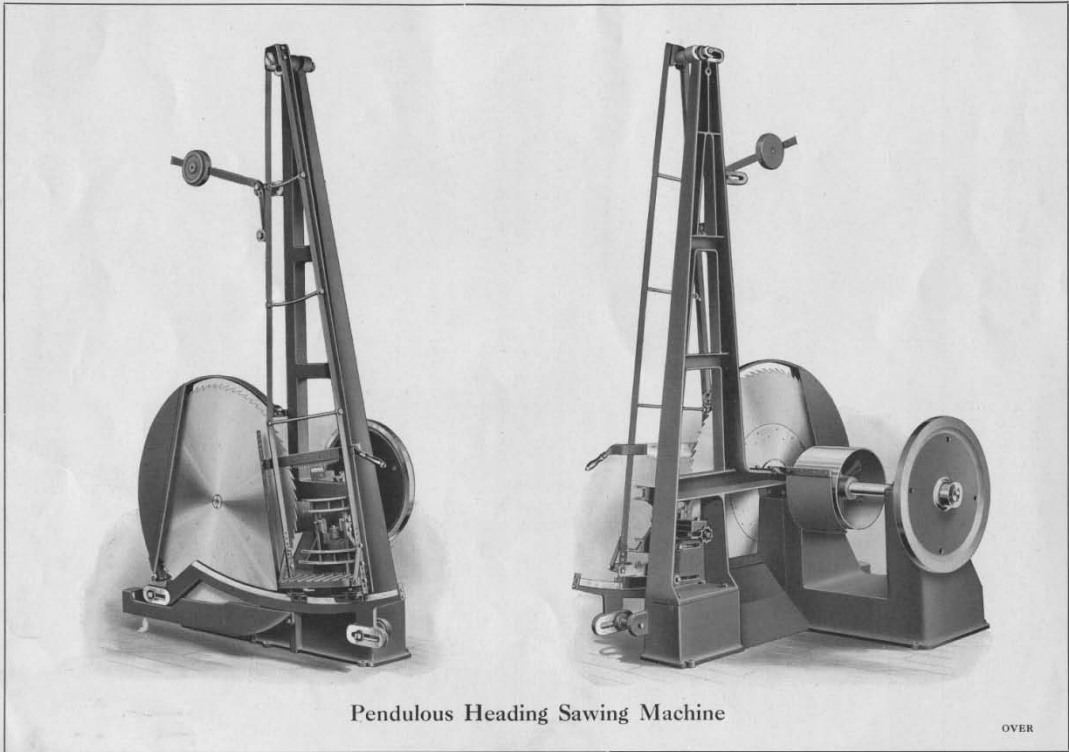
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Guide Pulley or Idler

Description— This guide pulley and stand are used in connection with the Horizontal Heading Sawing Machine for the purpose of depressing the upper strand of the belt as it leaves the countershaft and carry it in a line at right angles to the upright pulley on the saw arbor. This arrangement is a necessity where quarter turn belts are run horizontally, to relieve the strain on the edge of the belt. The pulley is 14" diam., 12" face.

Weight—The shipping weight is 185 lbs.



Pendulous Heading Sawing Machine

OVER

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Pendulous Heading Sawing Machine

Description—This machine is in extensive use for sawing heading, and has many good features not found in other makes.

On most machines of this type the heading bolt rests on the ribs of the table, and is very easily crowded away from the gauge by the inclination of the saw to follow the grain, resulting in unevenly sawed heading. We overcome this fault by using a serrated "dog" at both the bottom and top of the heading bolt, connected in such a way that they work in opposite directions, and when one strikes the top of the bolt the other enters the bottom, holding it firmly between the two rows of sharp steel teeth. When the handle is raised the lower teeth drop below the ribs and the bolt slides easily up to the gauge.

Frame—The frame consists of two heavy castings, the base and the upright standard, firmly fastened together. The arbor boxes are part of the base casting, and cannot be sprung out of line as often happens on built up frames; this makes a very strong and rigid construction.

Carriage—The swing carriage is made of angle steel, well braced, and on account of its lightness and length moves very easily. The slide block fastened to the bottom of the carriage is separate from the table and is made of malleable iron. The table, made of steel, has a vertical adjustment of five inches, which in connection with the six inch horizontal adjustment of the carriage, allows for different length bolts and sizes of saws.

Saw Collar—The saw collar is attached to the fixed collar on the arbor by a round nut countersunk flush with the face of the saw, allowing the heading bolt to swing past the center.

Gauge—The gauge that determines the thickness of the heading is very quickly set, and has both a horizontal and vertical adjustment.

Saw Guard—The saw guard gives perfect protection, which is an important feature; it is hinged at the bottom and fastened with a thumb screw at the top, and can be detached and swung back in a few seconds for filing or removing the saw.

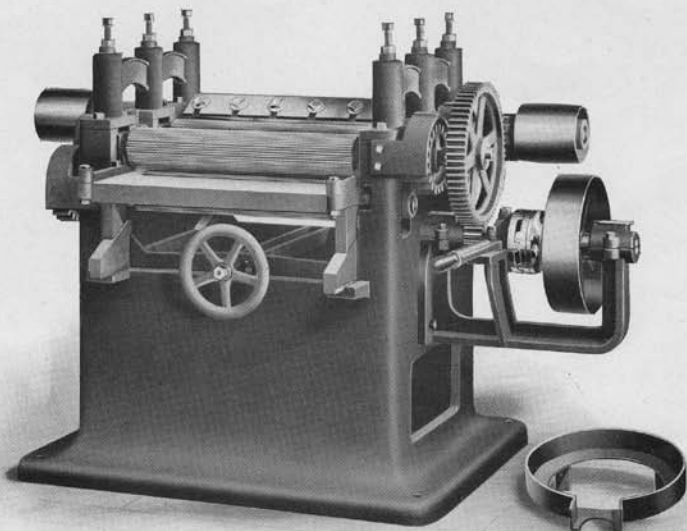
Arbor—The saw arbor is 2 7-16" diameter, made of the highest grade of crucible steel.

Sizes—These machines are made to carry saws from 40" to 50" diameter.

Weight—The shipping weight of the 48" machine is 2,400 pounds.

Dia. of Saw	Speed of Saw	Dia. of Pulley	Face of Pulley	Dia. of Saw Collar
40"	1,650	12"	11"	21"
42"	1,600	12"	11"	21"
44"	1,550	12"	11"	21"
46"	1,500	16"	12"	25"
48"	1,450	16"	12"	25"
50"	1,350	16"	12"	25"

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NOTE—Tight and Loose Pulleys now used in place of the Clutch Pulley shown.

No. 6 Heading Planer

This planer is extremely strong and rigid, and having spared no expense in material and workmanship we can guarantee it to have a higher capacity with less upkeep expense than any other heading planer on the market.

Frame—The frame is in one solid, massive casting with no small parts projecting and as it is impossible to spring the boxes out of line no especial care in leveling up is necessary.

Table—The method of adjusting the height of the table is an old one, but the most simple and best ever devised where the range in the vertical movement of the table is small as on a heading planer. As can be readily seen from the cut, there is a slide under the table that is moved forward and back on the frame by means of a hand wheel and screw. The table rests on the four corners of the slide, and the bearing surfaces being inclined, the horizontal movement of the slide raises or lowers the table. No gears or adjusting gibs with locking screws are used and the table is always as firm and rigid as the frame itself.

Knife Head—The knife head or cylinder is a solid steel forging with bearings $1\frac{1}{4}$ " diam., 9" long, running in self-oiling babbitted boxes. The cylinder pulleys, one at each end, are 6" diam., 6" face.

Gears—The gears are of coarse pitch and wide face, of accurate design and are well protected by guards. The only high speed gears, the feed pinion and gear with which it meshes, have *cut* teeth, the pinion being made of steel keyed to the shaft. The feed shaft runs in adjustable babbitted boxes, tight and loose pulleys now being used.

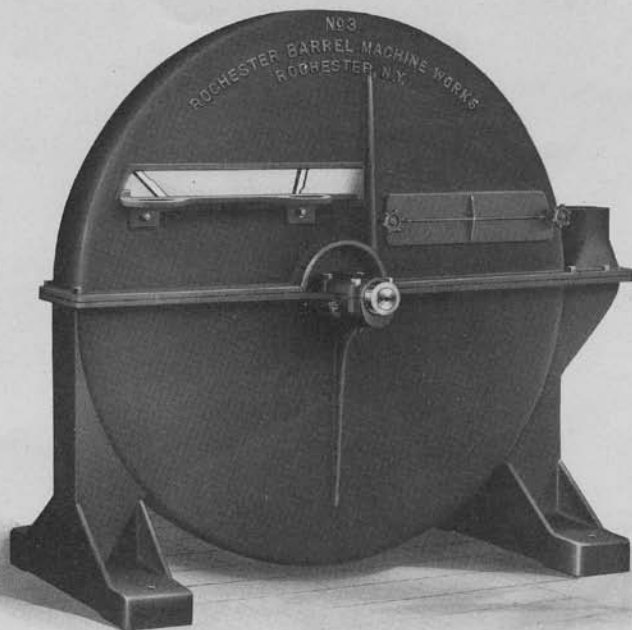
Size — This planer is made in one-size, 24", and will plane from $\frac{1}{4}$ " to 2" thick.

Weight—The shipping weight of the 24" planer without countershaft is 2,000 lbs.

Countershaft—The countershaft has tight and loose pulleys 10" diam., 6" face, two driving pulleys 24" diam., 6" face, and one feed pulley $4\frac{1}{2}$ " diam., 4" face. Boxes are of the self-oiling, adjustable type and can be removed without disturbing the pulleys or hangers. Speed of countershaft, 1,200 rev. per min. Weight, 375 lbs.

Rollers—There are three corrugated feed rollers and one smooth pressure roller. The two top feed rollers and the smooth roller are held down by heavy enclosed springs, which can be quickly adjusted by the set screws on top of the bracket. The roller bearings are $1\frac{1}{8}$ " diam., 4" long, and run in babbitted boxes.

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No. 3 Heading Jointer

Description—This machine is designed for jointing slack and tight heading. It consists of a combined frame and case within which rotates a wheel carrying knives fastened in radial slots. The heading is placed on the table and the edges jointed by bringing in contact with the face of the wheel. The shavings and dust are discharged through the outlet shown, to which is connected the pipe from the exhaust fan. Heading up to 28" long can be jointed.

Smoother joints can be obtained on cross grained hardwood heading by using caps on the knives, but they are not furnished unless specified.

Frame—The frame or case is in two parts, the lower half carrying the wheel and shaft. The boxes are of the self-oiling type and being close together, with the weight of the wheel equally distributed between them, makes a very solid construction and eliminates vibration. The upper half of the case supports the table at the opening for the heading; there are two other openings used for changing knives, which are covered with quickly removable plates.

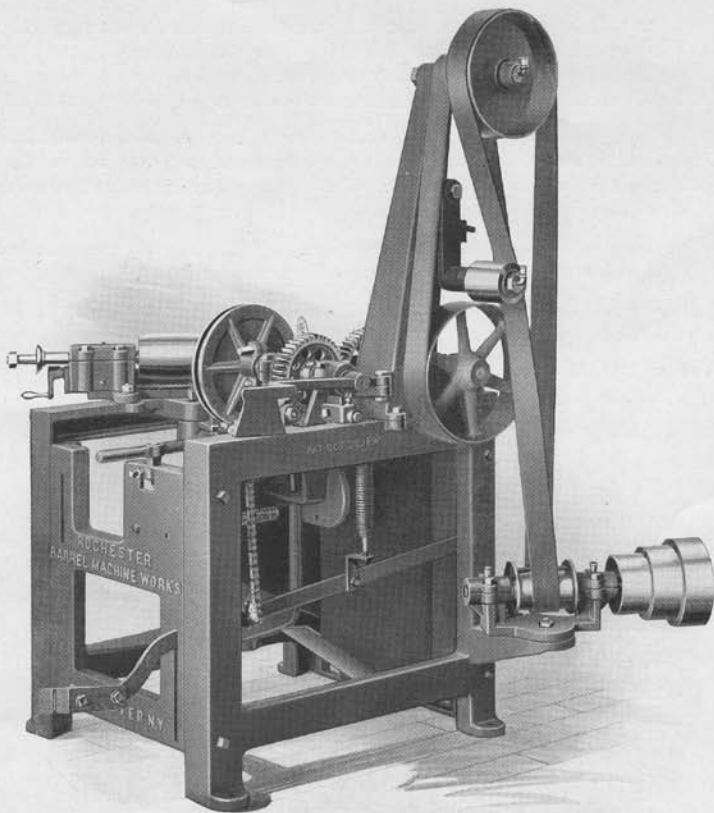
Wheel—The wheel is 61" diam., with an electrically welded steel band shrunk on the rim. The shaft is made of crucible steel and has bearings $2\frac{3}{4}$ " diam., 8" long. Every wheel is carefully balanced and tested at full speed.

Knives—Six knives 21" long are used. A gauge for setting all the knives exactly the same is furnished with each machine.

Pulleys—The tight and loose pulleys are 19" diam., 6" face. Speed, 650 rev. per min.

Weight—The shipping weight is 3,000 lbs.

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No. 5 Slack Heading Turner

THIS machine is the result of more than forty years' experience in the manufacture of heading turners. During that time we have made and sold at least 75% of the entire output of such machines, this fact alone being a guarantee of our ability to produce a heading turner of unquestionable merit.

As is well known, the cost of upkeep of high-speed woodworking machinery is usually greater than that of any other kinds, and with this in mind we have spared no expense on materials or workmanship to reduce this upkeep expense to a minimum. We believe a careful investigation of the design and mechanical construction of the No. 5 Heading Turner will bear out this statement.

Description—No. 5 Heading Turner is designed and adapted for circling barrel, keg and small pail heading, butter tub bottoms, and all kinds of *bevel* edge heading from $\frac{1}{4}$ " to $\frac{5}{8}$ " thick and from 8" to 24" diameter; also square edge butter tub and cheese box covers from $\frac{1}{4}$ " to $\frac{5}{8}$ " thick and from 10" to 24" diameter and rabbet edge candy, lard and tobacco pail covers from 11" to 24" diameter.

The design and principle is similar to that of our "Improved" and "Combined" Turners, all of the good points of these machines and many improvements being incorporated in our latest production.

As shown in the cut, the machine consists of a frame on which is mounted an adjustable saw arbor carrying the concave and chamfering saws; a swing frame or carriage carrying the clamps between which the heading boards or blanks are placed, and a feeding arrangement by means of which the clamps are revolved and the finished heading automatically discharged.

Feed—The clamp shaft is revolved by means of three spur gears and a combination of belts and pulleys. The feed shaft is swiveled so that it can always be placed in a position parallel to the saw arbor and is driven by belt from the countershaft. This arrangement eliminates the worm and worm wheel and the pair of bevel gears formerly used.

Gears—The gears are made of steel of correct design, with accurately cut teeth and are keyed to the shafts. Gear covers are provided for protection from chips and dust.

Thrust Bearings—There are two sets of ball thrust bearings to take the thrust resulting from clamping the heads. These bearings are practically frictionless.

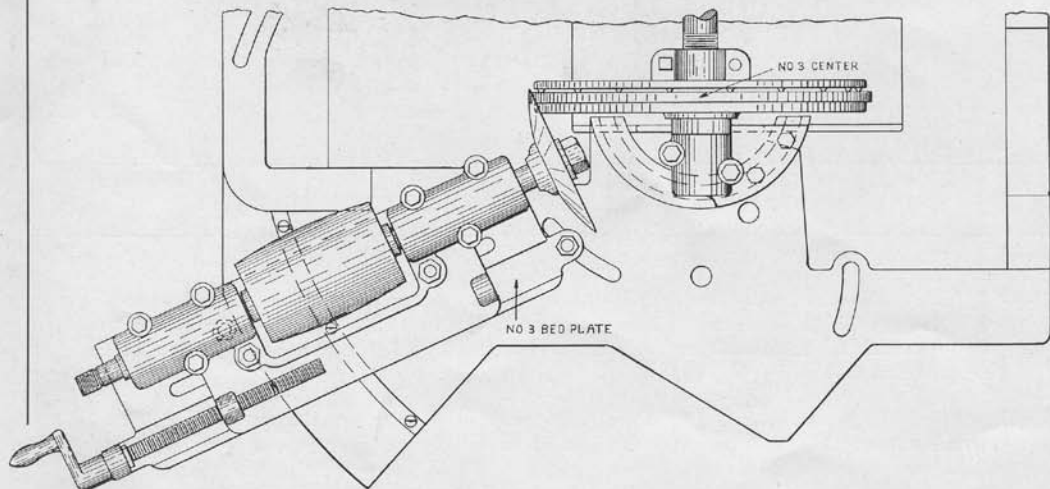
Saw Arbor—The saw arbor is made of crucible steel, and has bearings of ample size running in dust-proof, self-oiling boxes. Pulley is $4\frac{1}{2}$ " diameter, 7" face.

Interchangeability of Parts—By the use of jigs and special fixtures, all parts are made interchangeable, and in nearly every case we can furnish parts completely finished and guaranteed to fit.

Capacity—The capacity is from 3,000 to 3,500 sets of barrel heading per day of ten hours, and from 4,000 to 6,000 sets of keg heading, depending to quite an extent upon the skill of the operator.

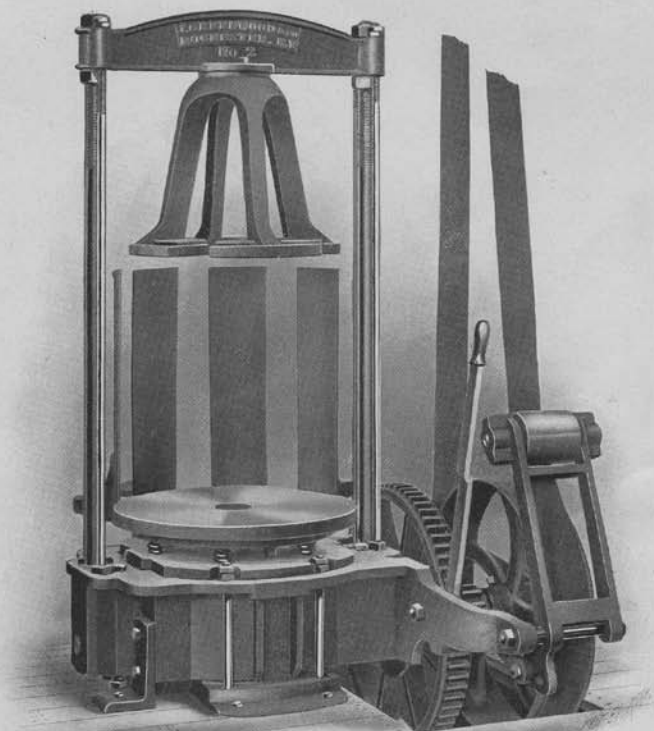
Countershaft—Countershaft has tight and loose pulleys 10" diam. 6" face, and a driving pulley of 24" diam. 6" face. Speed, 1,000 rev. per min. Boxes are of the self-oiling, adjustable type, and can be removed without disturbing pulleys or hangers. Weight, 350 lbs.

Weight—The shipping weight of the No. 5 Turner, without countershaft, is 1,300 lbs.



No. 5 Heading Turner set up on center No. 3 for Circling Square Edge Covers

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Heading Baling Press

Description— This machine is designed for baling heading in bundles for shipment.

The table on which the heading is placed is separated from the main table by heavy springs that serve to relieve the machine from any undue strains caused by variations in the heights of the bundles. The table is raised and lowered by cams inside the frame, of such a shape that the upward motion is slow to the maximum height, at which point the table remains stationary long enough for the operator to release the lever and stop the machine. After the wires are in place a slight pull on the lever causes the table to drop quickly to the lowest point where the lever is again released, the machine now being ready for the next bundle.

The upright guides are adjustable for a number of different diameters of heading, but where the variation is great another set of guides must be used.

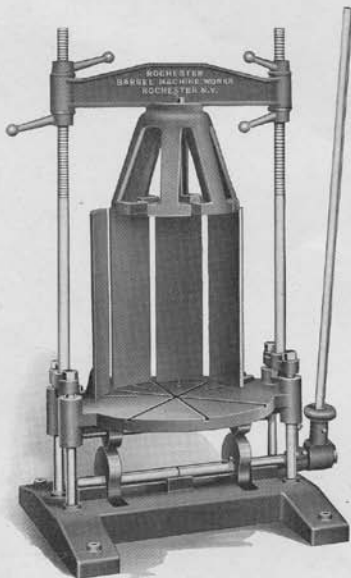
The stationary spider casting supported by the uprights is adjustable for different heights of bundles and can be used on heading of a size $\frac{1}{2}$ " larger than its own diameter to about 5" larger.

The wires are laid in slots in the table at right angles to each other (not shown in cut) and not being pressed into the bottom head can be adjusted to bring the loops in the proper position for fastening. The press is ordinarily furnished for baling with two wires, but can be made for using three wires, which is advisable on large diameter heading and often required on bundles for the export trade.

Pulley—The driving pulley is 24" diam., 5" face. Speed, 40 rev. per min.

Weight—The shipping weight is 1,600 lbs.

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Hand Power Heading Baling Press

Description—This machine is designed for baling heading from 10" to 24" diameter in bundles containing from 15 to 25 sets.

The table is raised by means of two cams in contact with hardened steel rollers under the table, the cams being revolved by the hand lever shown. The cams are of such a form that the table rises quickly at first when no great pressure is required and slowly when approaching its highest position with a corresponding increase in the leverage and pressure obtained. The extreme range of the table movement is 3", but this can be varied to 2" by the adjustable stop on the cam shaft that controls the backward movement of the hand lever. To obtain the full movement of 3" the lever is moved from a horizontal position behind the machine to a horizontal position in front, where it will stay without being fastened.

One spider casting and one set of upright guide plates will answer for a number of different sizes of heading, but where the variation is great, different diameter spiders and widths of guide plates must be used. Small diameter spiders have four arms for using two tie wires, but the larger spiders for 16" diameter and larger heading have six arms arranged for using either two or three tie wires.

Weight—The shipping weight is 750 pounds.