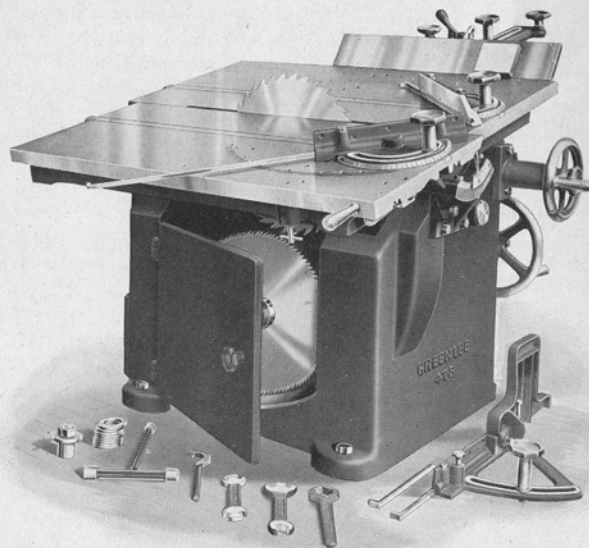


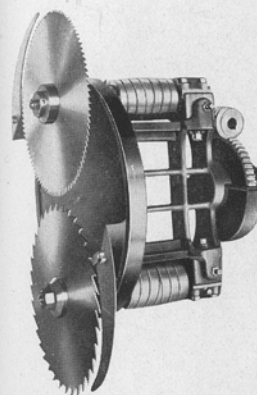


No. 478 Double Arbor Universal Saw Bench

THIS Universal Saw Bench provides a rip and a cross-cut saw so that either can be used in combination with the angling table which is provided with a full complement of slides and gauges. Its application is almost unlimited for variety sawing of an accurate character in all classes of shops.

The Frame is a heavy one piece casting with the necessary rigidity for precision work. A partition divides it into two sections so that the main working parts are protected from dust. The left hand section has a cast flange at the rear to receive an exhaust pipe or to serve as a clean-out.

The Table is 46 inches deep and 53 inches wide over the solid extension which is provided to support the ripping gauge at extreme positions. It will adjust 45 degrees to the left and 5 to the right by a hand wheel operating a worm gear protected from dust and with take-up for wear. The horizontal position is determined by a stop. The segments in which the table swings have gibbed and fitted surfaces, instead of the usual babbitted fit.



The Arbor Yoke

The Rolling Table is 19½ inches wide, is guided by accurately fitted ways and carried on rollers mounted in an adjustable frame. A rack and pinion side adjustment moves the table 5 inches to give access to the saws and to allow the use of a full wood section around a dado head.

The Gauges furnished include a universal ripping gauge which tilts to 45 degrees and can be used on either side of the table, a universal cut-off and mitre gauge, and two slide cut-off gauges graduated for angles and having extension stops. The adjustments are accurate and convenient and fully cover all requirements.

The Capacity is for two 18-inch saws or for a 20-inch saw used alone. It will cut 5-inch material with an 18-inch saw, rip 24 inches wide and cross cut 36-inch widths. Saw blades 14 inches in diameter are suitable for material up to 3 inches thick.

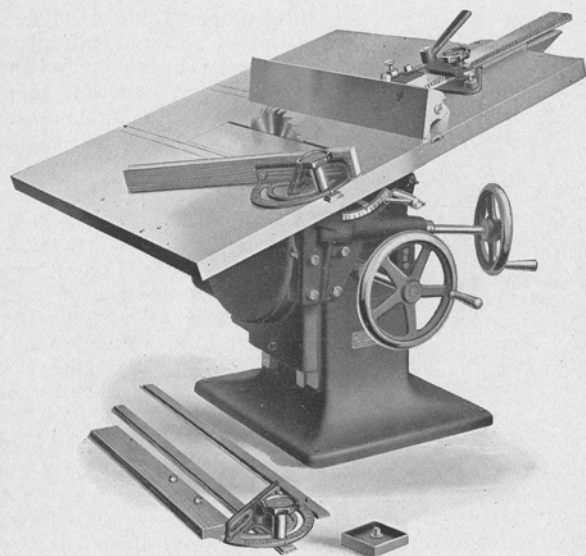
One Belt drives either arbor when revolved to the cutting position. It passes over weighted tightner pulleys in such a manner that proper tension is maintained at all times.

The Countershaft has 10x6½-inch tight and self-oiling loose pulleys to run about 750 R. P. M. for 16-inch saws or 650 for 18-inch saws. It can be on or under the floor and has a belt shifter terminating in a foot treadle at the operator's position.

Motor Drive is usually arranged by mounting a motor in an edgewise position on an attached cast iron bracket and belting to the machine pulleys. The motor may, however, be set on the floor or attached to the ceiling below. The usual size is from 5 to 7½ H. P. and of any speed up to 1800 R. P. M.

The Equipment includes all gauges shown, one each 16-inch rip and cut-off saws, a dado head sleeve with 2-inch set of graduated collars, stops, filling strips, a clearance block, two splitters and a set of wrenches.

No.		Wt. in Lbs.	Code
478	with separate countershaft	2700	PARADER
478-X	without countershaft	2400	PARADISE
478-M	with attached motor bracket	2500	PARADIGM
	Safety Saw Guard supported from machine frame or floor, extra		
	Wire Mesh Guard for Motor drive belt, extra		



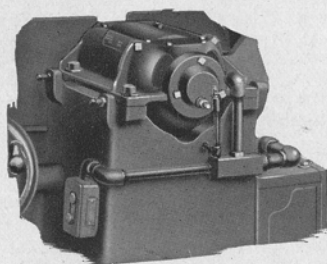
No. 493 Ball Bearing Variety Saw

With Built-in Motor or for Belt Drive

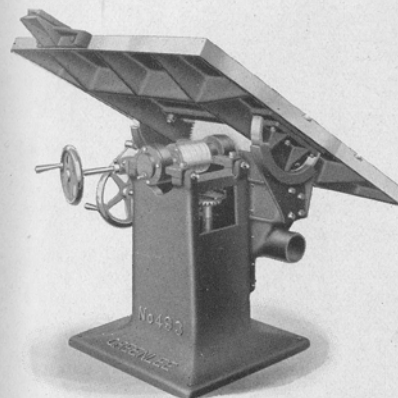
THIS Ball Bearing Variety Saw is built with a motor on the arbor, eliminating all belts, or with an arbor pulley for belt drive from a separate countershaft or motor on the floor. The yoke carrying the motor is interchangeable with that of the belt driven arbor, so that a machine can readily be motorized at any time.

The Saw Arbor runs in ball bearings and has a 5x5¼-inch pulley when belt driven. An adjustable arbor yoke on both machines permits accurate alignment, as well as the later application of a motor to a belt driven machine.

The Built-in Motor is furnished for 220 or 440 volt alternating current and its speed is 3600 R. P. M. It has an enclosed starter mounted on the machine frame and is wired entirely in conduit.



The Motor on the Arbor



Rear View of Belt Drive Machine
Showing Adjustable Arbor Yoke

The Table is 48x40 inches and is of strongly ribbed construction. It has a removable saw plate, slots for the cut-off gauges and is graduated for setting the ripping gauge. It is adjustable from 31 to 37 inches above the floor by a hand wheel operating a geared screw. Tilting adjustment of 45 degrees to the left is provided by another hand wheel operating a worm and segment gear with positive locking for all positions. A graduated arc and pointer indicate the angle.

The Bevel Ripping Gauge has quick rack and pinion adjustment for accu-

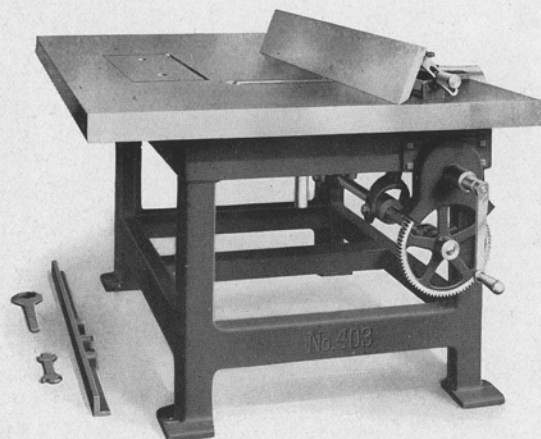
rate setting, also endwise movement, and can be used on either side of the saw. Its guide bracket provides rigid center support for the gauge and permits setting it at an angle with the line of the saw. The slide cut-off gauges adjust to 80 degrees in either direction and are supplied with hardwood extensions.

A Mortising and Boring Attachment can be added and is suitable for a moderate amount of light work.

The Range is for cutting 4-inch thick stock with a 16-inch saw, although it has capacity for a 20-inch blade. The maximum ripping width is 20 inches to the right of the saw and 12 to the left with the bevel gauge, or 24 and 16 inches with a square gauge.

The Equipment includes the gauges shown, two filling strips, a clearance block for the ripping gauge, one 14-inch cut-off saw and a set of wrenches. A plain ripping gauge can be supplied extra or substituted for the bevel gauge, and a saw guard can be included if specified.

No.	Style	Code
493-M	With Built-in Motor	PATRIOT
493	With Arbor Pulley and Countershaft	PATROON
493-X	With Arbor Pulley but no Countershaft	PATTEN
Mortising and Boring Attachment, extra		PATTY
Top Safety Saw Guard, extra		



No. 403

Plain Rip Saw Benches—24 and 30-inch

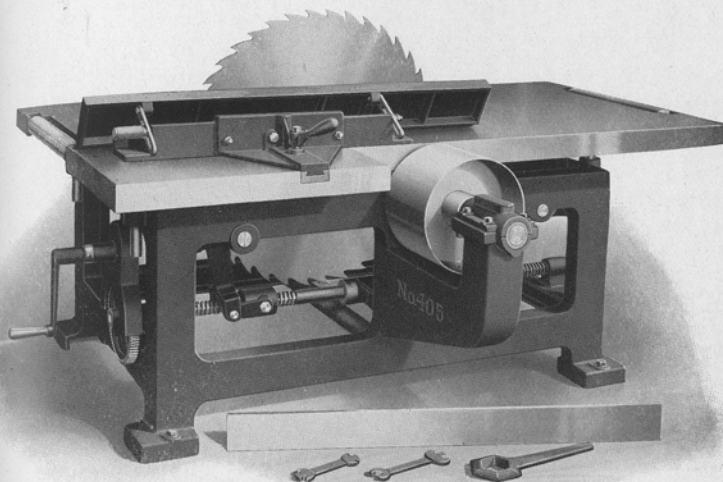
THESE All-iron Rip Saw Benches will appeal in character and price to every user who is interested in better and more efficient equipment. The frames are of heavy ribbed sections with planed joints securely bolted to provide a strong and rigid foundation. The saw arbors run in self-oiling bearings and the No. 404 has a third bearing outside the pulley.

The Iron Table is 44x66 inches for the No. 403 and 44x72 inches for the No. 404. Both have 6-inch vertical adjustment by geared screw parallel raising device and they rip 27 inches between the saw and the gauge. Saw projections of over 8 and 11 inches can be had with 24 and 30-inch blades.

Regular Equipment includes a bevel ripping gauge, 2-inch wide set of arbor collars, wrenches, and a 24-inch saw blade for the No. 403 or a 30-inch for the No. 404.

No.	Wt. in Lbs.	Code
403 without countershaft	1450	PANDERER
403 with countershaft	1775	PANELING
404 without countershaft	1650	PANACEA
404 with countershaft	2050	PANDEMON

Planed groove in table with adjustable slide cut-off gauge, extra
Top Safety Saw Guard, extra



No. 405 36-inch Heavy Rip Saw Bench

OUR Heavy Thirty-six Inch Saw Bench is designed with capacity for ripping heavy timbers as well as for cutting lighter stock and planking. It is rigidly constructed and is proportioned to best meet all conditions of hand feed sawing.

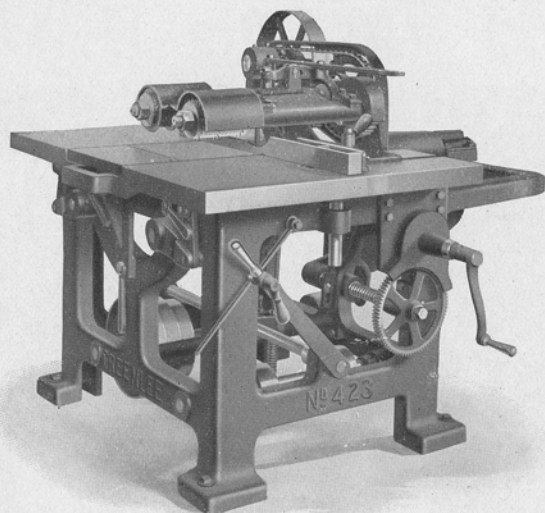
The Saw Arbor runs in three self-oiling bearings to properly distribute the belt and cutting strains. It has a 4-inch set of filling collars to permit the use of cutter heads and is regularly reduced to 1 5/8 inches for the saw.

The Iron Table is 52x82 inches and has 8-inch vertical adjustment by a geared screw parallel raising device. It will rip 24-inch widths between the saw and the gauge and cut 14-inch thick timbers with a 36-inch blade. A 28-inch saw projects about 2 inches with the table at its highest point.

The Equipment includes a bevel ripping gauge, a plain square gauge, a 36-inch or a smaller saw blade, 4-inch set of arbor collars and set of wrenches.

No.	Wt. in Lbs.	Code
405 without countershaft	2750	PARIS
405 with countershaft	3250	PARISIAN

Top Safety Saw Guard, extra
Attached Motor Bracket and flexible coupling, extra



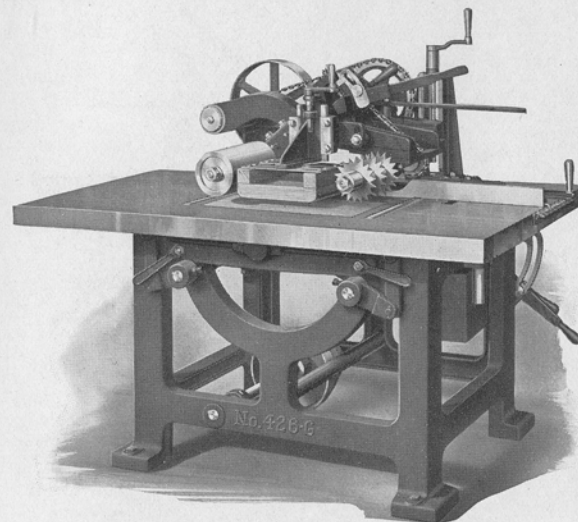
No. 423 Small Saw Gang Ripper

GANG Ripping of crating, box cleats, mouldings, furring strips and other light or medium material handled in quantity, is performed most economically with this improved machine. Very small diameter and thin gauge saw blades are used so that the least power is required and lumber waste is reduced to the minimum.

The Range is for 8, 10 or 12-inch saws used in gang up to 6-inch wide. 10-inch saws are regular and have 3-inch maximum projection. The table adjusts 4-inches vertically and the gauge will set back 4 inches from the fixed arbor collar. The arbor has a 6-inch set of graduated spacing collars and its pulley is 6-inch diameter by 10-inch face. A 3600 R. P. M. motor supported by an attached bracket may couple directly to the saw arbor.

The Feed Spindles are on close centers for handling extra short pieces and the control levers may be at the front or side of machine as specified. Three feeding speeds are provided and the feed mechanism is completely guarded.

No.	Wt. in Lbs.	Code
423 without countershaft	1800	PABULET
423 with countershaft	2200	PABULUM
Attached Motor Bracket and Coupling, extra		



No. 426-G Self Feed Gang Rip Saw

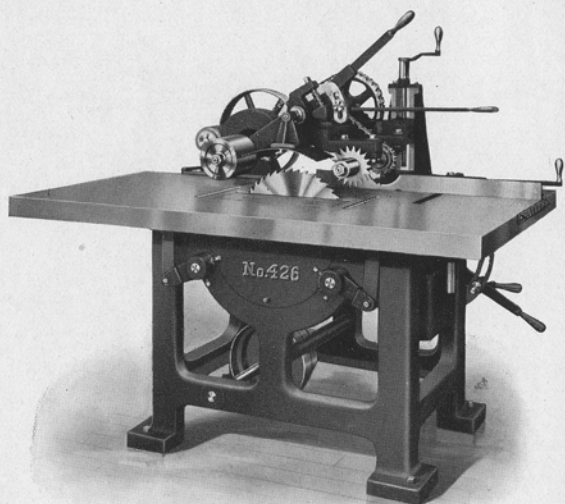
THIS Self Feed Saw is a general purpose machine for gang work or for use as a single rip saw. It is regularly built with geared screw table raising device but can be furnished with the lever adjustment as shown above if so specified.

The Feed Mechanism is carried entirely from the machine frame which eliminates a separate adjustment when the table is raised or lowered. Extra heavy chain drive is used and guards are provided for chains, sprockets and feed spurs. A pressure block hold-down attachment is furnished to permit the ripping of very short stock. It also eliminates all danger from kick-backs. Three speeds of feed are provided.

The Table is 40x63 inches and has 4-inch vertical adjustment. It has friction rolls and a quick acting gauge with index.

The Range is for ripping boards or plank with an 8-inch wide gang of saws usually 14 to 18-inch diameter, and to work 15-inch widths to the inner or 23-inch to the outer saw position. A 20-inch saw can be used alone and has a 6-inch projection.

No.	Wt. in Lbs.	Code
426-G without countershaft	2150	PAGEHOOD
426-G with countershaft	2500	PAGERY



No. 426 with Guards Removed

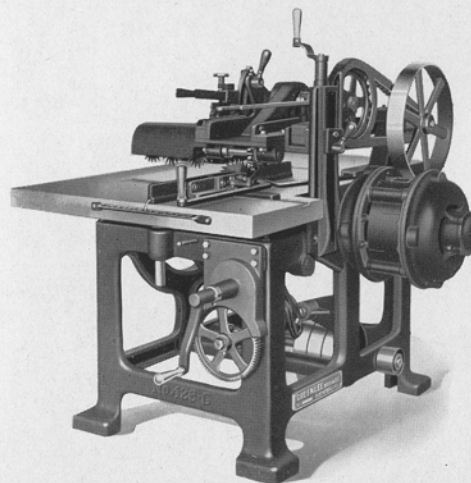
No. 426 Self Feed Rip Saw

THE Rip Saw shown above is our general purpose millwork machine for stock up to 2 or 3 inches in thickness, although it will handle 6-inch material with a 20-inch blade. It has a fast and powerful feed mechanism which can be thrown back to permit hand ripping, and all its parts are fully guarded.

The Iron Table is 40x63 inches overall and has a removable plate at the saw opening for using heads or a gang of saws. Friction rolls are inserted in front and rear of this opening and a quick adjusting lever gauge with an index is furnished. Vertical adjustment of 4 inches is had by our lever raising device which locks rigidly in any position.

The Drive can be from our separate countershaft or direct to the arbor pulley from a motor. When the motor speed is correct for the saw size, an attached bracket and coupling for direct connection can be furnished, and we can also provide built-in motor drive as shown on the following page.

No.	Wt. in Lbs.	Code
426 without countershaft	2125	PAGINAL
426 with countershaft	2500	PAGODA
Adjustable Pressure Block Hold-down Attachment, extra		



No. 426-GM with Guards in Position

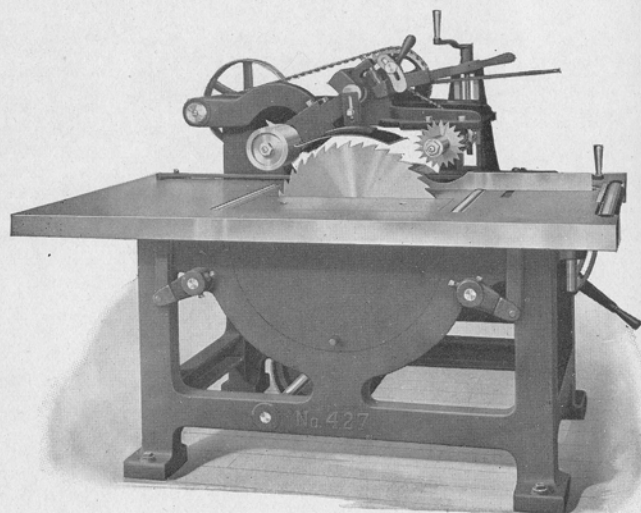
**Nos. 426-M and 426-GM Self Feed Rip Saws
With Built-in Motor on the Arbor**

ON pages 101 and 102 we illustrate our Standard No. 426 Single Blade Rip Saw and No. 426-G Gang Machine. In the past these have been motor driven either by belting to the arbor pulley or by fitting the frame with a motor bracket and the arbor with a flexible coupling for direct connected drive. When preferred, we can supply the built-in motor arrangement shown above, which provides a very compact unit, requiring less floor space.

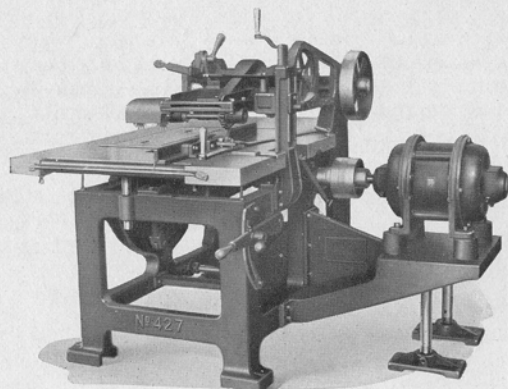
The Arbor Yoke is a one-piece casting which also carries the ball bearings and forms the back end shield to which the balance of the built-in motor housing is securely bolted. This construction is absolutely rigid and eliminates all possibility of misalignment or vibration.

The Built-in Motor has its rotor mounted directly on the ball bearing arbor. It is regularly furnished for 220 or 440 volt alternating current and of proper size for the work to be handled. The speed is 3600 R. P. M.

No.	Arbor Collars	Code
426-M with Built-in Motor	8" Set	PACKET
426-GM with Built-in Motor	8" Set	PACKMAN



No. 427 Rip Saw with Guards Removed

No. 427 with Direct Connected Motor
and with Guards in Position**No. 427 Self Feed Rip Saw**

THE general design of this machine closely follows that of the No. 426, but it has capacity for a 24-inch saw and is intended for heavier requirements. Every useful detail is embodied in the design and its rigid construction and fast and powerful feed adapts it to all classes of work within its range.

The **Feed Mechanism** is carried from the machine frame so that no adjustment is necessary when the table is raised or lowered for different thicknesses of stock. It can also be swung back to permit hand ripping. The spindle bearings are adjustable to take up slack in the steel chains and a convenient lever controls a clutch for instantly starting or stopping the feed. Three-step cone pulleys give feeding speeds ranging from 65 to 160 feet per minute with the saw arbor running 1750 R. P. M. All parts are fully guarded as shown by the cut of the motor driven machine.

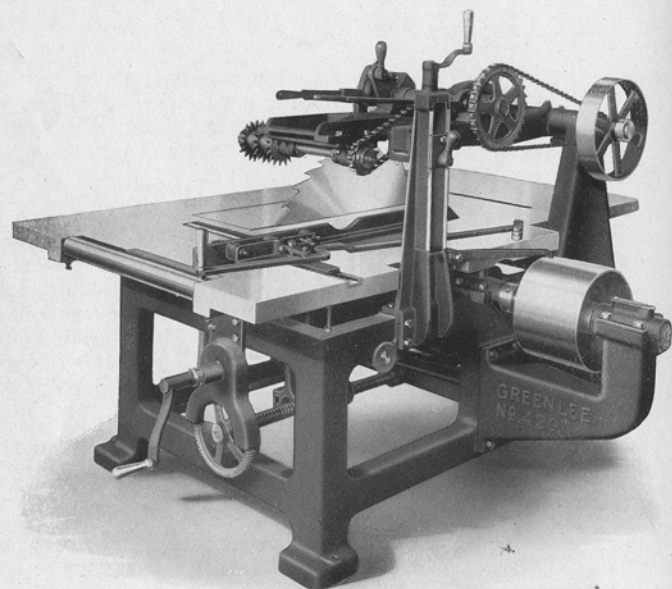
The **Iron Table** is 44x69 inches overall and has a removable plate at the saw opening for using heads or a gang of saws. Friction rolls are inserted in front and rear of this opening and a quick adjusting lever gauge with an index is furnished. Vertical adjustment of 4 inches is had by our lever raising device which locks rigidly in any position.

The **Range** is for a 24-inch saw, ripping stock up to 7 or 8 inches thick and working 16 inches between the saw at the fixed arbor collar or 20 inches when outside the regular 4-inch set of filling collars. A 6-inch long arbor can be furnished extra.

The **Equipment** includes one feed spur, smooth outfeed roll having spring pressure, 4-inch set of arbor spacing collars and feed spindle collars to correspond, wrenches and guards. Corrugated or sectional rolls with a spreader disc will be furnished in place of smooth outfeed roll if specified. Saw blades are extra.

When **Belt Driven**, a separate countershaft is furnished having 26x8½-inch driving and 12x8½-inch tight and loose pulleys. Motor drive can be had by belting direct to the 8-inch diameter arbor pulley, but when the speed is suitable, we can furnish an attached motor bracket and flexible coupling for direct connection. A 15 or 20 H. P. motor is usual for average requirements.

No.	Wt. in Lbs.	Code
427 without countershaft	2950	PAINTING
427 with countershaft	3350	PAINTPOT
Adjustable Pressure Block Hold-down Attachment, extra		
Attached Motor Bracket and Flexible Coupling, extra		



No. 429 Heavy Self Feed Rip Saw

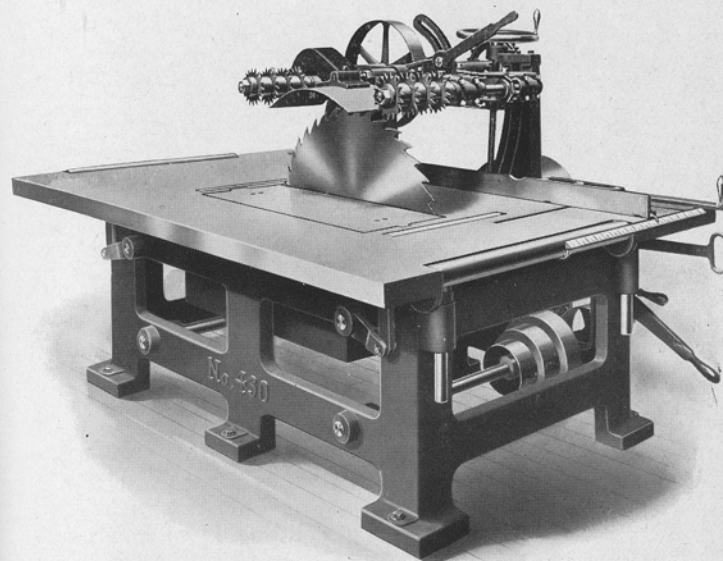
THIS type is recommended for Railway Car Shops as a general purpose Rip Saw. It has the required capacity for heavy timbers and is also well suited to the lighter miscellaneous ripping work handled. Less labor is required, faster ripping is done and the accidents usual with hand feed machines are avoided.

The Feed Works is carried from the main frame and can be thrown back to permit hand ripping. A lever instantly starts or stops the feed and all parts are fully guarded.

The Table is 48x81 inches and adjusts 8 inches vertically. A 32-inch saw is ordinarily used and has 12-inch cutting range. A 36-inch saw projects 14 inches. The gauge adjusts for 24-inch widths. The arbor is 1 $\frac{1}{8}$ -inch and has a 12x8 $\frac{1}{2}$ -inch pulley. Belted motor drive is usual but motor can be coupled direct.

No.	Wt. in Lbs.	Code
429 without countershaft	3500	PALLID
429 with countershaft	3950	PALLIATE

Attached Motor Bracket and flexible coupling, extra



No. 430 Extra Heavy Self Feed Rip Saw

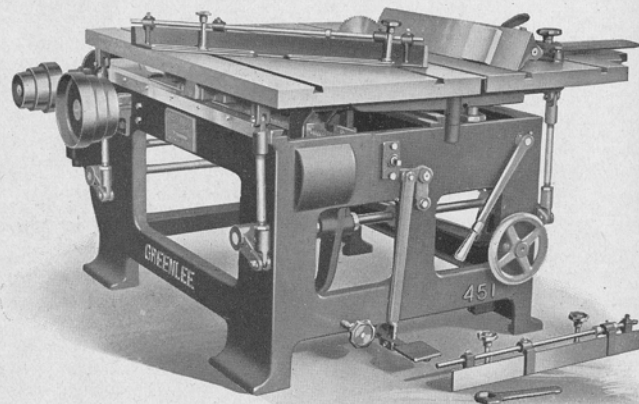
OUR largest standard Self Feed Rip Saw here shown is a type unequalled for heavy timber ripping. It operates 36-inch saws cutting 14-inch timbers under the usual power feed and its details are proportioned suitably for this severe service. Geared screw table adjustment is now regularly furnished instead of the lever device shown, and metal covers guard the feed works.

The Feed Spindles are driven by heavy sprocket chains whose tension is maintained by adjustable bearings. Three feeding speeds are provided and a convenient lever instantly stops the feed in an emergency.

The Table is 53x84 inches overall and has 8-inch vertical adjustment. The quick acting gauge adjusts for 24-inch widths. The arbor is 1 $\frac{1}{8}$ -inch diameter and has a 14x10 $\frac{1}{2}$ -inch pulley.

No.	Wt. in Lbs.	Code
430 without countershaft	4700	PAMPER
430 with countershaft	5200	PAMPHLET

Attached Motor Bracket and flexible coupling, extra



No. 451 Automatic Saw and Dado Machine

THIS machine applies the principle of our Automatic Cut-off Saws to the general operations of splitting, beveling, cross-cutting, mitering, plowing and dadoing for frame, cabinet or similar work. It has ample range and power for the heaviest of such work, and is fast, accurate and exceptionally convenient.

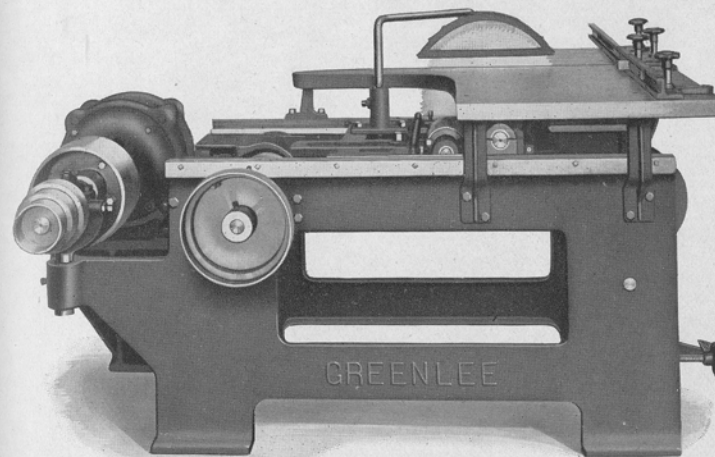
The Saw Carriage is reciprocated in gibbed ways by means of an acme thread lead screw operated through mitre frictions and is controlled by foot lever and automatic stops.

The Table consists of two sections, is regularly 46-inches square and has 2½-inch vertical adjustment for dado work. The right hand section has outward adjustment by lever to provide a wide opening for access to the arbor. It is equipped with our improved straight and bevel ripping gauge, and two universal adjustable cut-off gauges having stop rods and drop finger stops.

The Range is for a 16-inch saw projecting over 4 inches and making a stroke up to 22 inches. Cutter heads of 9, 10, or 12-inch diameter and widths up to 2 inches are the sizes commonly used.

The Equipment includes the gauges shown, full set of stops, collars, wrenches and either tight and loose pulleys, or a flexible motor coupling on the countershaft.

No.	Floor Space	Wt. in Lbs.	Code
451	5' x 6'	2350	PINNACE
Wire Mesh Top Safety Saw Guard, extra			
Attached Bracket for self-contained motor mounting, extra			



No. 452 Automatic Cut-off Machine

THE design of this 16-inch Cut-off Machine closely follows that of the No. 453 shown on the following page, but it does not have as great a capacity and is intended for lighter work. It is especially suited to the requirements of sash and door factories, furniture plants, box factories, etc., or for the cutting of any miscellaneous stock within its range.

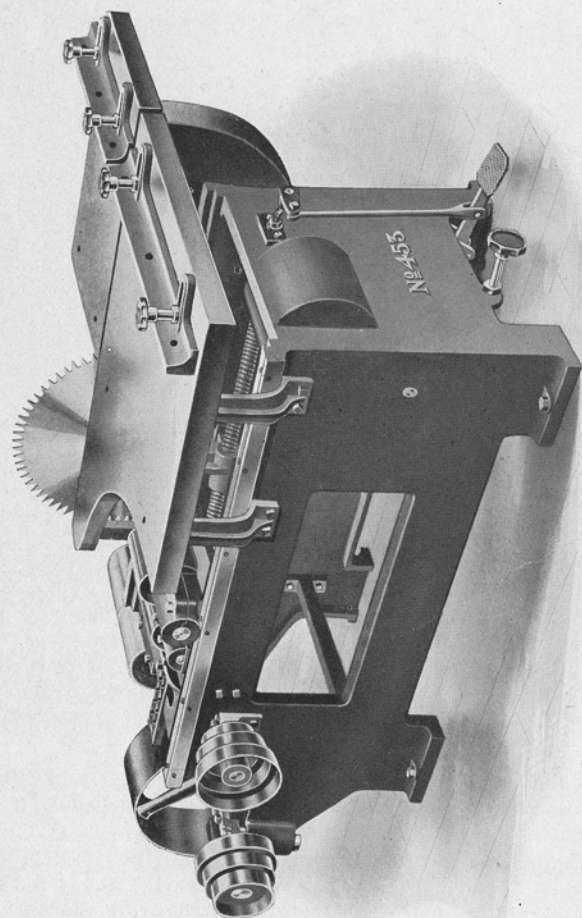
The General Design embodies a stationary timber table, a reciprocating saw carriage operated by power, convenient foot lever feed control, and variable cutting speeds. An acme thread lead screw operated by mitre frictions provides a uniform feed and a quick return. Adjustable stops regulate the length of stroke.

The Table extends on both sides of the saw, has a guard below, and is fitted with convenient gauges for holding the stock.

The Range is for a 16-inch blade cutting 1x20 to 4x15-inch stock. It is most suitable for 1 to 2-inch material regularly, and for occasional requirements on 3 or 4-inch stock.

The Equipment includes the gauges, set of stroke regulating stops, wrenches and the attached countershaft fitted with tight and loose pulleys, or a flexible motor coupling. At extra cost, a motor bracket cast integrally with the frame can be supplied.

No.	Floor Space	Wt. in Lbs.	Code
452	4' x 5'8"	1500	PINAFORE
Traveling Safety Saw Guard, extra			



No. 453 Automatic Cut-off Machine



No. 453 Automatic Cut-off Machine

THIS Automatic Saw is designed for the accurate cutting of light or medium heavy stock, heavy planking, or small dimension pieces. It is used extensively in planing mills, wagon and implement shops, furniture factories and also for the lighter work in car shops and shipyards.

The General Design embodies a stationary timber table, a reciprocating saw carriage operated by power, convenient foot lever feed control, and variable cutting speeds.

The Saw Carriage moves in long gibbed ways on the machine frame. The saw arbor is mounted in double self-oiling boxes and is belted from the attached rear countershaft in such a manner as to insure uniform tension and power at all points in the stroke.

The Table extends on both sides of the saw and has a heavy saw guard underneath. Regular or special gauges can be located at the front or rear. On narrow stock, the saw can be set to make a short stroke from the gauge in either position.

The Automatic Feed consists of mitre frictions and an acme thread screw engaging a floating bronze nut on the saw carriage. It is driven from the countershaft by cone pulleys for the forward feeds and by separate pulleys for the return stroke. This arrangement provides a very rapid return which is cushioned by an air cylinder and the feed is under the control of the foot lever. Adjustable stops regulate the length of the stroke.

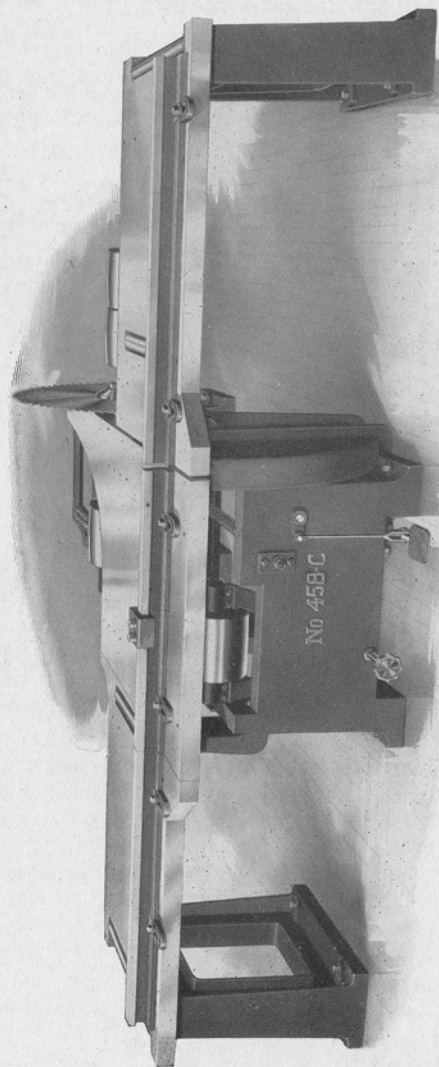
The Range is for a 24-inch saw blade projecting $7\frac{3}{4}$ inches above the table, although it is intended chiefly for cutting hardwood stock up to 4 inches thick. A 25-inch stroke will cut stock from 1x24 to $7\frac{1}{2}$ x16-inch sizes.

The Countershaft is attached at the rear of the machine and has $10 \times 8\frac{1}{2}$ -inch tight and loose pulleys to run about 600 R. P. M. for a 24-inch saw.

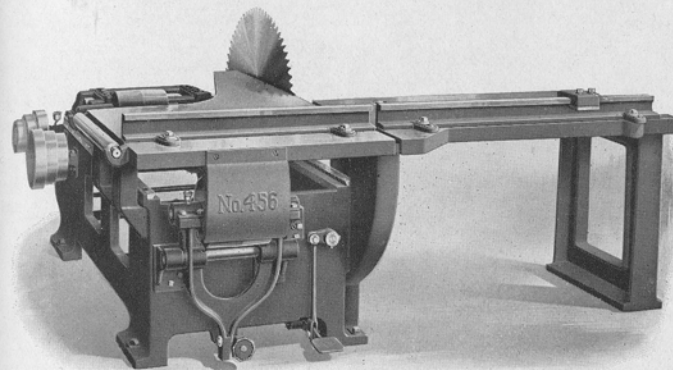
When Motor Driven, a flexible coupling is furnished in place of the tight and loose pulleys for direct connection to a 10 H. P. motor for usual requirements, or to a $7\frac{1}{2}$ H. P. if used with 16 or 18-inch saws. Motor speed, 1200 R. P. M. or less. At extra charge, a motor base can be cast integrally with the frame.

The Equipment regularly includes the gauges, set of stroke regulating stops, wrenches and the attached countershaft.

No.	Floor Space	Wt. in Lbs.	Code
453	4' 8" x 6' 9"	2000	PILLORY
Traveling Safety Saw Guard, extra			



No. 458-C Automatic Cut-off Machine with 10½-ft. Table
Also Built with 4 and 7½-ft. Table



No. 456 with 7½-ft. Table

No. 456 and No. 458 Automatic Cut-off Machines

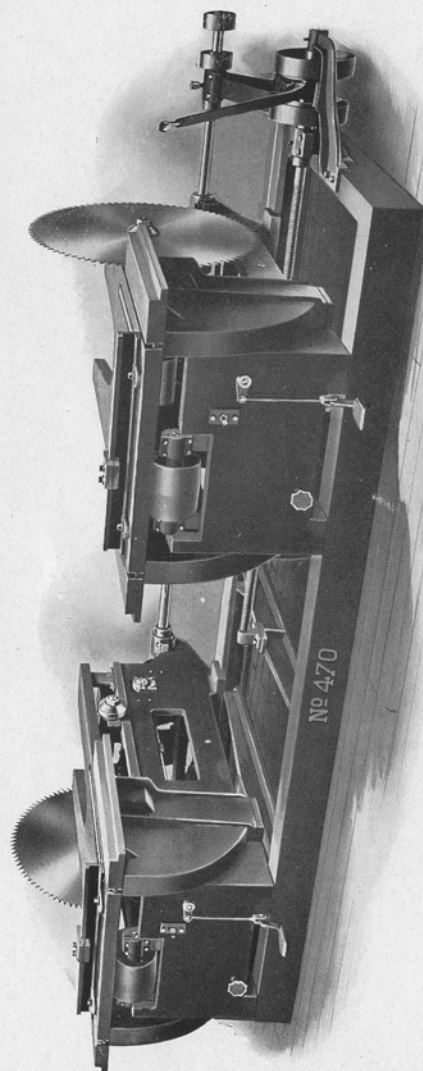
THE design of these heavy Cut-off Machines closely follows that of our No. 453, but their greater size and saw capacity adapts them to such medium and heavy cutting as occurs in Railway Car Shops, Shipyards, etc. The No. 456 has a maximum stroke of 32 inches, capacity for a 36-inch blade and will cut material up to 12x16-inch. The No. 458 has a maximum stroke of 34 inches and will cut material up to 14x14-inch with a 40-inch blade, 16x15-inch with a 44-inch blade and 16x16-inch with a 46-inch blade. Either machine can be motor driven by direct connecting to the attached countershaft with a flexible coupling.

The Automatic Feed is operated through mitre frictions and an acme thread lead screw. The operator has absolute control of the saw movement as it can be started, stopped or varied in speed by the foot lever. Cone pulleys provide three rates of feed and the rapid return stroke is cushioned by an air cylinder. The length of stroke is regulated by adjustable stops.

No.	Table Length	Floor Space	Wt. in Lbs.	Code
456	7' 6"	7' 6" x 7'	3000	PIKEPOLE
456-A	4'	5' x 7'	2600	PIKEMAN
456-C	10' 6"	10' 6" x 7'	3450	PIKESTAFF
458	7' 6"	7' 6" x 8'	3350	PIERSHAFT
458-A	4'	5' 10" x 8'	2850	PIERGLASS
458-C	10' 6"	10' 6" x 8'	3850	PIERTABLE

Adjustable Wire Mesh Top Safety Saw Guard, extra

Complete descriptive circular will be sent on request



No. 470 Double Cut-off Machine



No. 469 and No. 470 Double Cut-off Machines

OUR Double Automatic Cut-off Machines are especially suited for car shop or other work where timber or planking is cut in quantity. This type of machine has two saw frames, one stationary and the other adjustable, and both are mounted on a heavy bed plate. The advantage lies in cutting both ends at once with absolute accuracy and at one handling. Heavy timbers can be cut singly, and flooring, roofing and siding cut in piles.

The Timber Tables are so arranged that the saws may be used on the inner ends of the saw arbors for cutting short pieces, or at the outside ends for cutting long stock. Supporting tables arranged for wooden false plates are fitted beyond the line of the saw travel on both sides of each frame. The gauges may be placed either at the front or rear.

The Adjustment of the movable frame is by a power driven reversible screw in the base, and under control of a hand lever at the end of the bed. This gives rapid and accurate adjustment for cutting any length of stock.

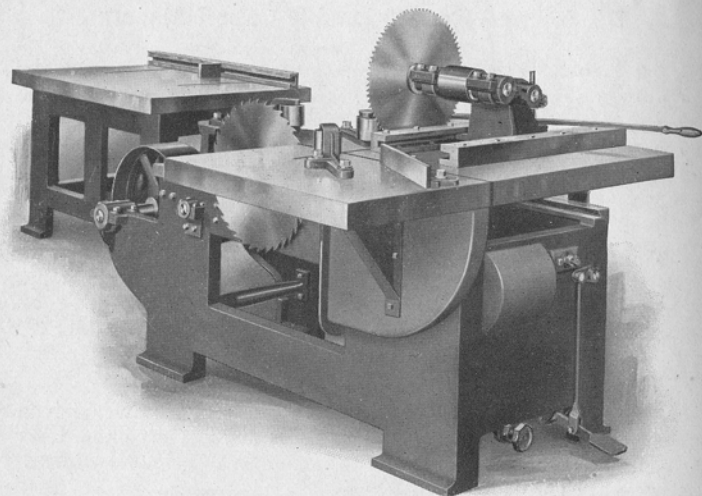
The Saw Carriage of each frame is mounted in gibbed ways and fed by a power mechanism under perfect control of a foot lever. The mechanism consists of mitre frictions and a large acme thread screw providing ample power for the heaviest cuts. The three feeding speeds are suitable for light, medium and heavy work. An air cylinder cushions the rapid return stroke.

The Range is for cutting from 14-inch to 12 foot lengths. The No. 469 machine takes 36-inch saws, cutting over 12 inches thick and making a 32-inch stroke. The No. 470 machine will cut 16 inches thick with 44-inch saws, but 40-inch saws are usual and cut 14-inch timbers. The maximum stroke is 33 inches. For lighter requirements we can furnish a machine of similar design but with capacity for 24-inch saws.

The Drive is from the attached countershaft which is fitted with tight and loose pulleys or a flexible coupling for direct motor connection.

The Equipment includes a full set of gauges, stroke and layout stops, two saw blades and necessary wrenches. Safety saw guards are furnished only when specified.

No.	Saw Capacity	Wt. in Lbs.	Code
469	36"	7800	PICKEREL
470	44" (40" are usual)	8500	PICKAXE
Adjustable Wire Mesh Top Safety Saw Guards, extra			



No. 474 Automatic Car Brace Cutter

OUR Automatic Car Brace Cutter has effected great saving in both time and lumber in cutting braces for box cars. The essential feature consists in the mounting of one saw in a carriage reciprocated by automatic power feed under control of a foot lever, and of another saw in a top sliding frame fed by a hand lever. A lay-out table is furnished for location at a suitable distance from the main machine and is fitted with a movable gauge having an adjustable stop. The forming of a brace is done by cutting the long line of the angle by the automatic saw and trimming off the toe by the auxiliary saw above.

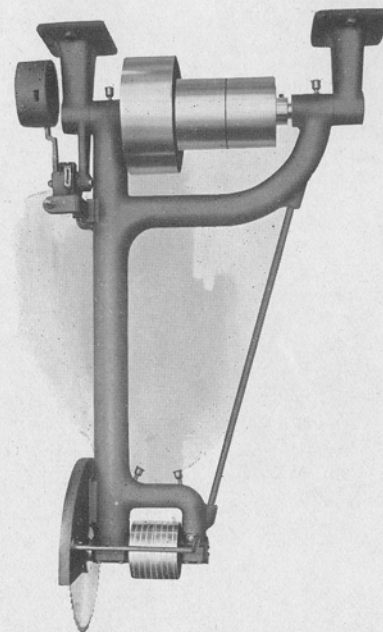
The Range of the machine is for a 24-inch saw cutting 6 inches thick on the power feed carriage and an 18-inch saw cutting 6 inches thick on the lever feed carriage.

When Motor Driven, the overhead countershaft is usually omitted and one motor coupled to the countershaft on the machine and another mounted on the machine to drive the top saw.

The Equipment includes one 24-inch and one 18-inch saw, complete set of gauges, rolls, guides, stops and wrenches.

No.	Floor Space	Wt. in Lbs.	Code
474	About 6½' x 11' for maximum	3200	PICKTOOTH

Complete descriptive circular will be sent upon request

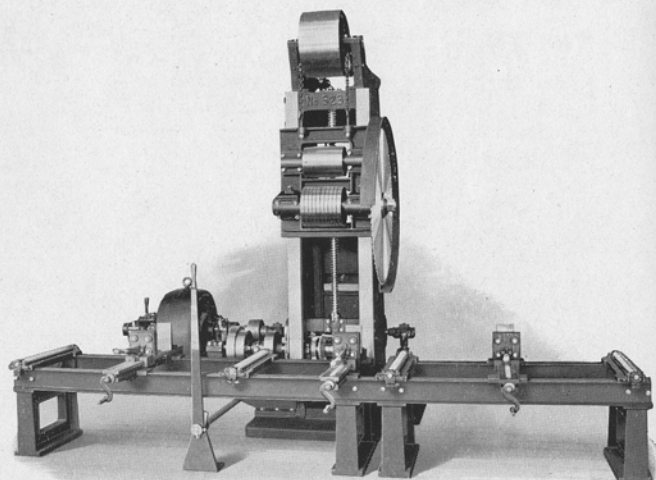


No. 445 Heavy Belt Driven Swing Saw

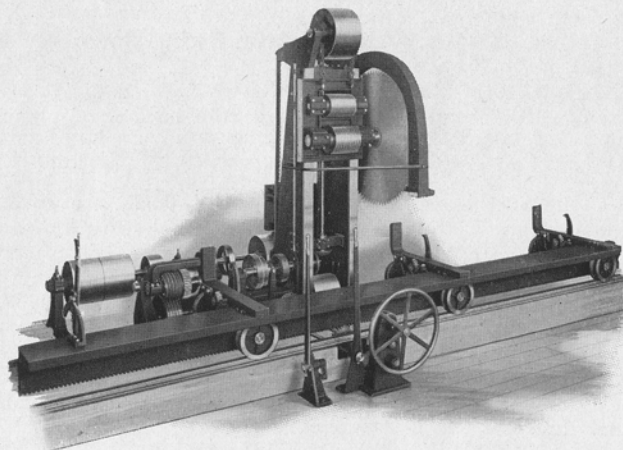
THE design of this Heavy Swing Cut-off Saw adapts it to any class of shop for cutting heavy timbers or hard wood planking. Car shops, saw mills and implement factories have a large amount of work that can be handled to advantage with this machine.

The Construction is very rigid and all parts are carefully fitted for accurate cutting. The frame is a cored casting of ample weight and strength for the most severe requirements. It has a saw guard, a handle for operating and is fitted with an improved counterbalance to return it to the original position. The saw arbor is 11½ inches in diameter and is located 6 feet 2½ inches from the center line of the drive shaft. The arbor pulley is 8 or 10-inch diameter to suit the saw size, the drive pulley 20x8½, and the tight and loose pulleys 12x8½-inch. Saw blades from 24 to 40-inch diameter can be operated.

No.	Capacity	Wt. in Lbs.	Code
445	40"	1500	PHOSGENE



No. 523



No. 523-P

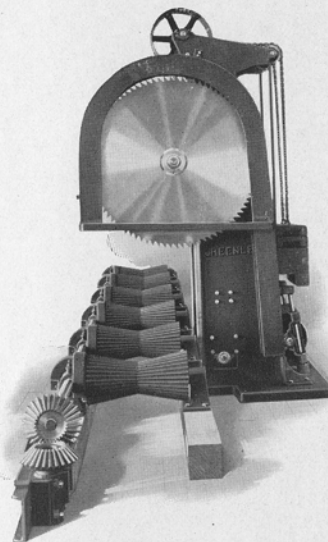


No. 523 Vertical Automatic Saws or Gainers

THIS heavy pattern Vertical Automatic Saw is designed for cross cutting or gaining the largest square timbers or ordinary logs. As shown with a fixed table, it is suitable for use in railway car shops or timber mills, but with a traveling carriage or a set of live log rolls it is adapted for saw mills or timber framing plants and is most efficient for such work.

The Saw Carriage is gibbed to the face of the frame and travels smoothly under power feed. It has four speeds for the cutting stroke and two for the reverse. While automatic, it is under perfect control and can be started, stopped or reversed at any point in its stroke.

Tables or Carriages can be furnished in various forms for this machine. The No. 523 regularly has a 12-foot stationary steel table, but this type can be furnished in any length. The No. 523-P is arranged for a power feed traveling carriage as shown on the opposite page, or for such types as are used on our Borers, Mortisers, etc. The No. 523-W is intended for use with live or idle timber rolls and we are prepared to

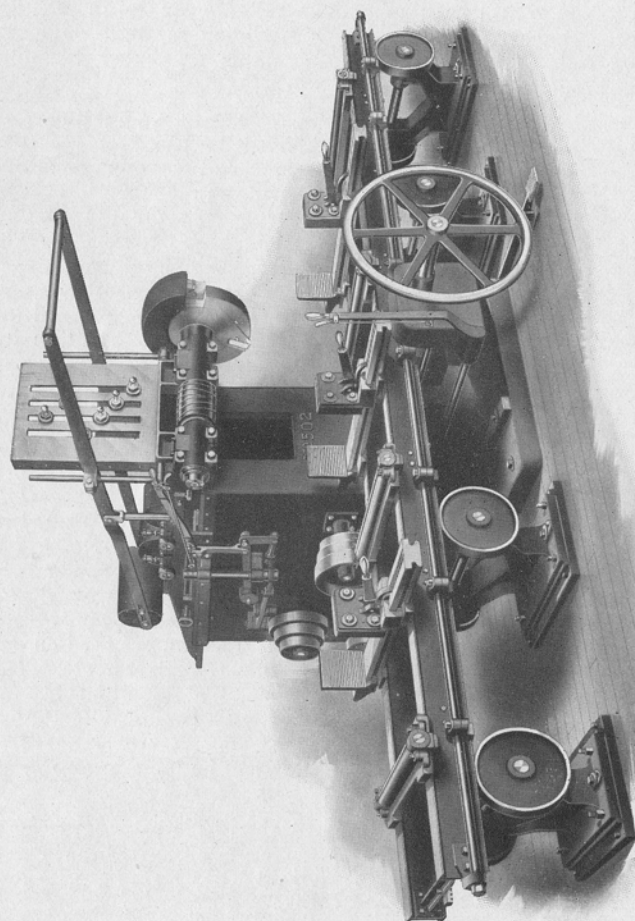


No. 523-W and Power Feed Log Roll

furnish these to suit requirements. They can be built in any practical length and roll spacing.

The Range is for saws up to 48 inches in diameter, making a 45-inch stroke and cutting 18-inch timbers or logs. A 40-inch saw will handle 14-inch timbers. For gaining, it will operate the largest size of head and take cuts up to 6 inches wide.

No.	Style	Code
523	With 12-ft. Stationary Table	NULLIFIER
523-P	Arranged for Power Feed Table	NULLIZE
523-W	Suitable for Live or Idle Timber Rolls	NULLED



No. 502-P Gainer with Power Feed Table



No. 502 Heavy Automatic Car Gainer

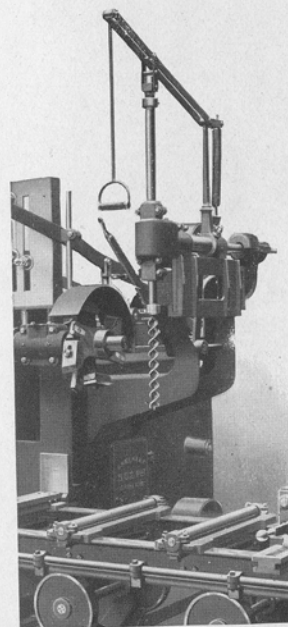
THE outstanding features in the design of this Gainer consist of the automatic tension for the spindle belt, the variable automatic feed, complete outfit of automatic stops, also its extra range, high speed and superior mechanical construction. It is built for belt or direct connected motor drive and can be furnished with a vertical boring attachment when so specified. Combinations with Borers and Mortisers are shown on pages 42 and 43. These are served by the same traveling timber table and are very economical and efficient under certain shop conditions.

The Gaining Ram is mounted in gibbed ways on the main frame and is reciprocated automatically by the power feed mechanism which has three speeds. Adjustable stops regulate the length of stroke and a control lever starts, stops or reverses the feed.

The Spindle Carriage is easily adjusted by the counterbalance lever which is also adjustable for convenient working height. Six adjustable depth stops for duplicate work, a graduated depth index and a ram locking device are furnished.

The Steel Timber Table is carried on adjustable roller stands and has timber rolls, quick acting clamps and a lay-out stop rod. It can be furnished in any length.

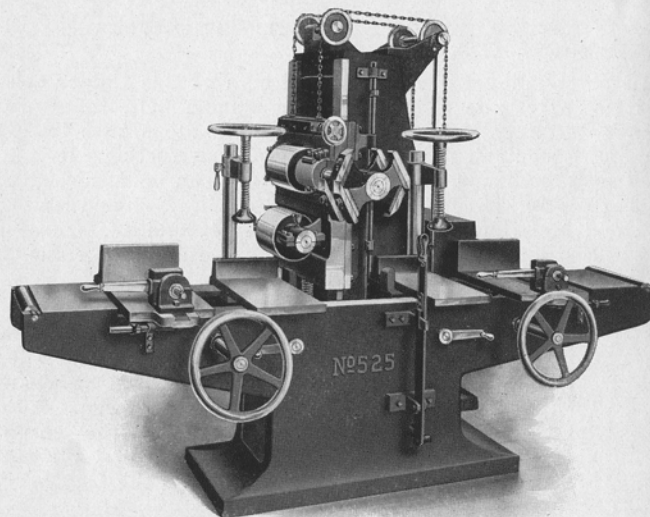
The Range of the head is 25 inches horizontally and 21 inches vertically, while the table will clamp widths up to 24-inch. A 16-inch by 2 to 4-inch expansion gaining head is regularly furnished.



Vertical Boring Attachment

No.	Table Feed	Style	Code
502-H	Hand	Without Boring Attachment	NEGLIGEE
502-P	Power	Without Boring Attachment	NEGRESS
502-HB	Hand	With Vertical Boring Attachment	NEGLIGIBLE
502-PB	Power	With Vertical Boring Attachment	NEGROISM

Complete descriptive circular will be sent on request



No. 525

Nos. 525 and 529 Vertical Car Tenoners

OUR No. 525 Automatic Tenoner is designed for making single, double or triple tenons on car sills or other heavy timbers without reversing. Special work can be done by using irregular knives, side sills can be scarfed by feeding them under the cutters while the carriage is stationary, and long lip tenons can be cut by clamping them forward on the table to clear the spindle.

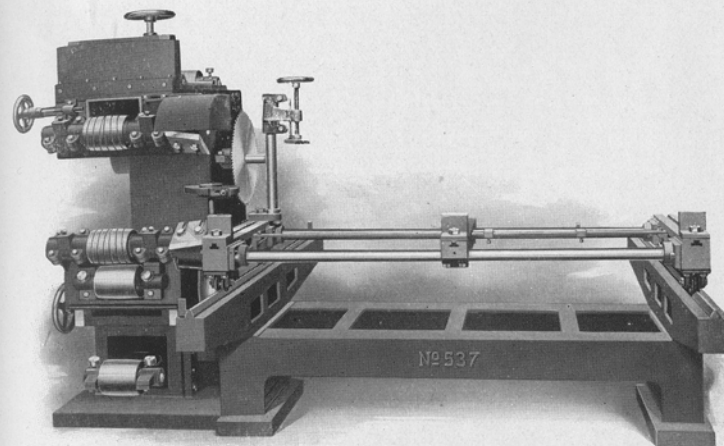
All Adjustments are complete and stops are provided to gauge the stroke and to lay out the length of tenons. Transverse adjustment of the spindle yoke is provided. The power feed has three speeds and is perfectly controlled by the feed lever.

The Equipment includes three 13-inch heads with knives, wrenches and separate floor countershaft with tight and loose pulleys or a coupling for direct motor connection.

The No. 529 Hand Feed Tenoner is furnished only on special order and requires overhead belt drive from a separate countershaft or direct from a motor with proper size pulley.

No.	Style	Floor Space	Wt. in Lbs.	Code
525	Automatic	11' 3"x6'	6800	NABOB
529	Hand Feed	8' 10"x4' 7"	5700	NAUTICAL

Complete descriptive circular will be sent on request



No. 537

Nos. 536 and 537 Horizontal Car Tenoners

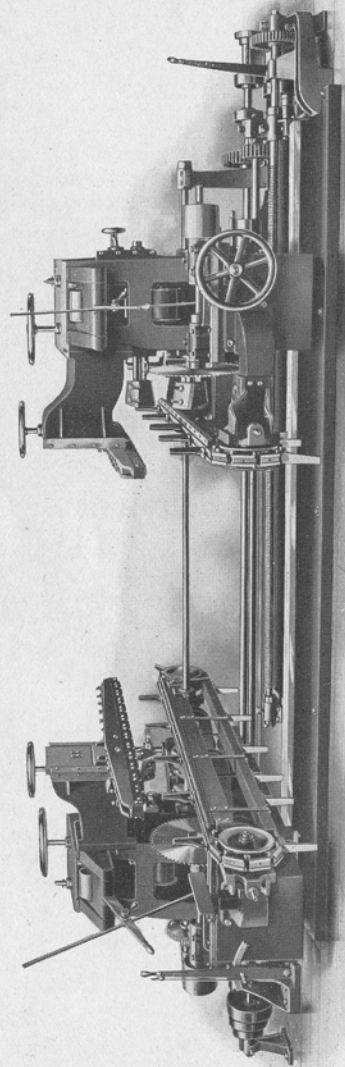
THE design of this modern type of heavy tenoner provides a gap frame for free passage of timbers between the heads, and also avoids the usual overhanging pulleys and short belts sharply wrapped around idlers. The heads on the upper and lower horizontal spindles in connection with those on the vertical spindle, form single, double and triple tenons or other cuts on light or heavy car framing of ordinary length.

The Spindles are independently driven from a double floor countershaft and their pulleys are located between double boxes. Independent use of any spindle is provided for and belt tension is regulated by a lever tightener.

The Range is for handling material up to 14 inches thick, cutting 6-inch wide gains, tenons or half-laps at each pass. One or more 14-inch cope heads may be used and the cut-off attachment takes a 22-inch saw.

The Equipment includes the tenon and cope heads, pulley and head guards, table outfit, wrenches, and floor countershaft with tight and loose pulleys or motor coupling.

No.	Style	Wt. in Lbs.	Code
536	Without Cut-off Attachment	5000	NAMESAKE
537	With Cut-off Attachment	5150	NAMECARD



No. 540 Automatic Double End Car Tenoner

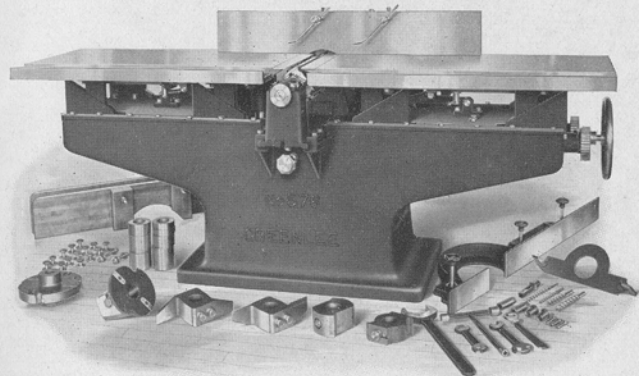
Built for either belt or direct connected motor drive. Range for timbers up to 12-inch thickness, cutting 12-ft. lengths and tenoning up to 10 ft. between shoulders. Each end has a cut-off saw, double upper and lower tenoning heads and vertical cope spindle which may carry two or three heads. An undercutting Center Gaining Attachment can be mounted between the tenoning housings and be used with two or more heads for forming intermediate gains on floor boards or other medium length material.



No. 540 Automatic Double End Car Tenoner

FULL consideration has been given to the requirements of modern car construction in designing this Extra Range Double End Car Tenoner. It has the decided advantage of cutting off and tenoning both ends of timbers at one handling, eliminating possible mistakes in lengths or tenon sizes, insuring square cuts, and working with such speed that its output is limited only by the ability of the workmen to feed it. When set up for a job, every piece is an exact duplicate. It is also a very rapid double cut-off saw and is regularly used for that purpose.

No.	Floor Space	Wt. in Lbs.	Code
540	10'x26'	21000	NAPTHA

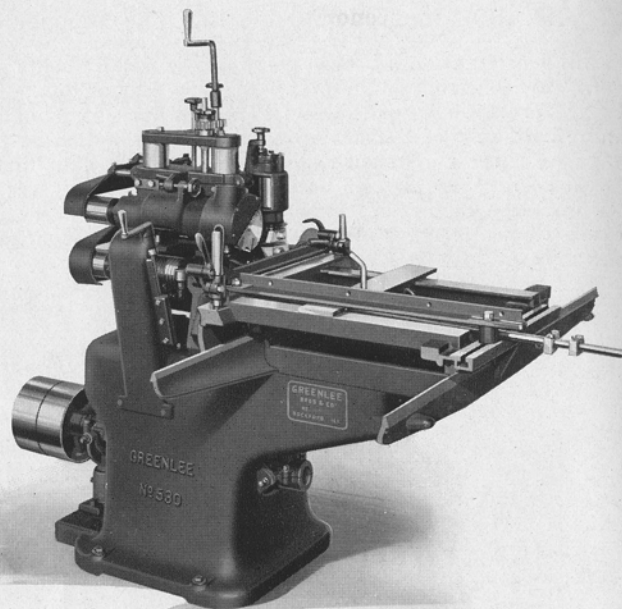


No. 576 Heavy 16-inch Variety Woodworker

THE Woodworker shown above is equipped to surface, plane out of wind, joint, square, rabbet, plow, gain, bevel, chamfer, tenon, raise panels, groove, bore, mortise and do various other operations with special cutters. Such parts as the panel raising and gaining attachments are furnished only when specified.

No.	Style	Code
576	With Mortising and Boring Attachment	NURSERY
576-B	With Boring Attachment only	NUTATION
576-W	Without either Attachment	NUPTIAL
	Vertical Side Head Attachment, extra	NYMPH

Complete descriptive circular will be sent on request

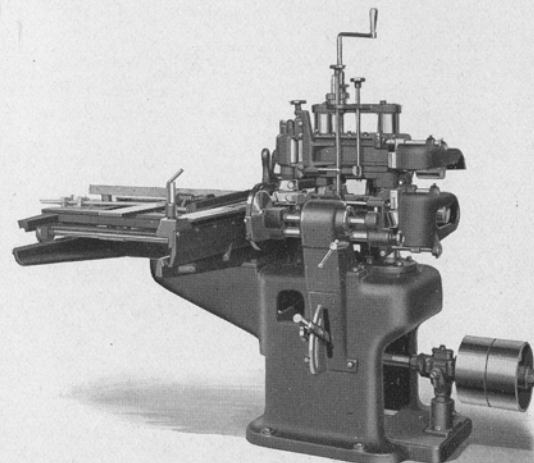


No. 530 Ball Bearing Sash, Door and Cabinet Tenoner

THE Design of this Tenoner embodies many features which give it distinct advantages. The cylindrical columns for mounting the tenoning head carriages provide great rigidity and the usual vertical countershaft at the rear is eliminated by driving the cope spindles from the tenoning head spindles with belts running over idlers. The use of ball bearings for all spindles and idlers reduces the power consumption to a minimum.

The Tenoning Head Spindles run in ball bearings inclosed in dust and grease tight housings. The top head carriage has fine screw endwise adjustment, and both carriages have independent and connected vertical adjustment for altering the position of the tenon without changing its thickness.

The Cope Head Spindles are mounted on the back of the tenoning head carriages. They raise or lower with the tenoning heads, but have independent horizontal and vertical adjustment by hand knobs within easy reach of the operator.



Rear View of No. 530

The Cut-off Attachment has quick adjustment for rough location and fine adjustment by hand knob and screw. When not in use, its drive can be disengaged simply by moving a lever.

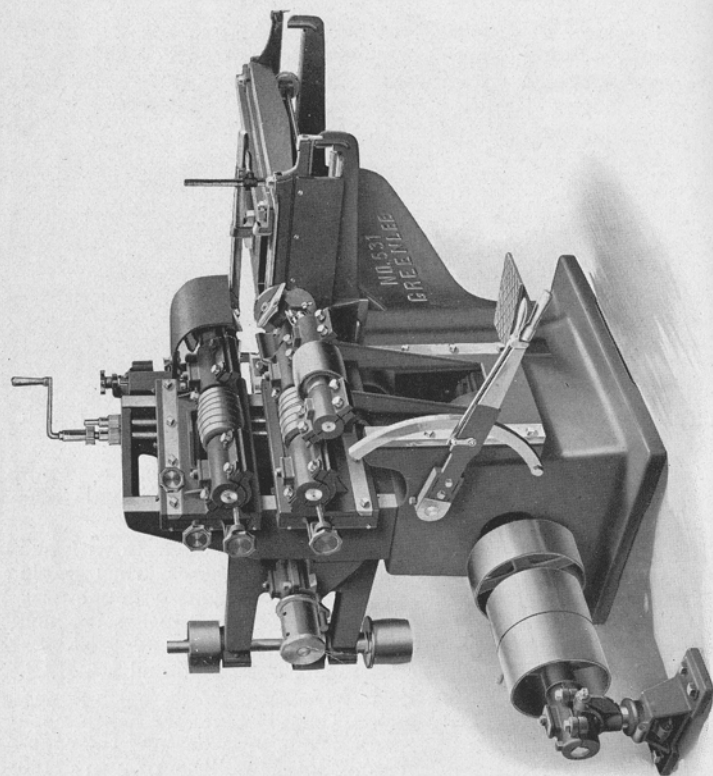
The Table is carried on anti-friction rollers and has a parallel motion type of work clamp, a fence for straight or angle tenons, and a false sliding part which carries the stop rod.

The range is for cutting tenons up to $3\frac{3}{4}$ -inch length with one pass of the table and up to $7\frac{1}{2}$ -inch with two passes, when single heads are used. Double heads cut 6-inch long tenons with one pass or $7\frac{1}{2}$ -inch with two. Tenoning heads open up 5 inches, 24-inch widths can be worked and 9-inch slotting saws can be used.

When Motor Driven, the countershaft is omitted and a 5 H. P. motor with pulley set within the base.

The Equipment regularly includes single tenoning heads, cope heads, trim saw attachment when specified, wrenches and the countershaft with $10 \times 4\frac{1}{2}$ -inch tight and loose pulleys to run 1140 R. P. M.

No.	Style	Floor Space	Wt. in Lbs.	Code
530	With 2 Copes	6'4" x 6'6"	2450	NAPKIN
530-A	With 1 Cope	6'4" x 6'6"	2400	NAPMAN
530-B	With no Copes	6'4" x 6'6"	2350	NAPLESS
Cut-off Attachment with 8" saw			100	NAPPY
Double Tenoning Heads instead of single				NASAL



No. 531 Tenoner



No. 531 Heavy Sash, Door or Cabinet Tenoner

THE Double Head Tenoner shown on the opposite page differs from the usual type in being heavier, stronger and more complete in its mechanical details. It is furnished extensively for use in the manufacture of sash and doors, implements, automobile bodies, furniture, etc.

The Horizontal Spindles run in two long self-oiling bearings on large yoke castings fitted in gibbed ways to provide lateral adjustment for both tenoning heads. The headstocks have independent and connected vertical adjustment on ways 18 inches wide.

The Cope Spindles, when furnished, are on independent yokes with vertical and horizontal adjustments but supported from the main headstocks. They adjust easily by screws and have ample power to carry slotting saws. Their drive is from a vertical countershaft running on a supporting ball bearing mounted on a long and extra heavy double bracket.

The Table is mounted on anti-friction rollers set on widely spaced centers. Stops are provided, and it also has a track guard and cleaning device as well as a fence for straight or angle work and a very handy hold-down.

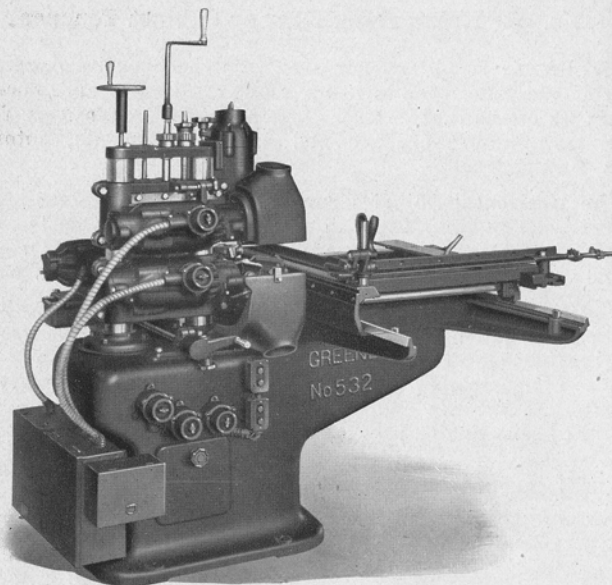
The Cut-off Attachment is placed at the rear of the machine. It has adjustable stop collars, quick adjustment for rough location, and fine screw movement for accurately setting the saw in the required cutting position. Ample power is provided for the 8-inch saw blade. This attachment is furnished only when specified.

The Range is to cut 7½-inch long tenons at one pass with the double heads or 9¼ inches long by two passes. The table travel allows 26-inch width of stock to be tenoned and the heads will open more than 5½ inches. The cope heads have a 7-inch cutting circle for a 2-inch depth and will take knives up to 1¾ inches wide.

When Motor Driven, the countershaft has a flexible coupling in place of the tight and loose pulleys for direct connection to a 5 H. P. motor of any speed from 850 to 1500 R. P. M.

The Equipment includes such heads with a set of knives for each as are specified with the machine, wrenches, and 12x6½-inch tight and loose pulleys on the countershaft, which should run about 900 R. P. M.

No.	Style	Floor Space	Wt. in Lbs.	Code
531	With 2 Copes	7' 5" x 6' 3"	3150	NATION
531-B	With no Copes	7' 5" x 4' 9"	2750	NATIONIST
Cut-off Attachment in rear with 8" saw, extra				NATTY

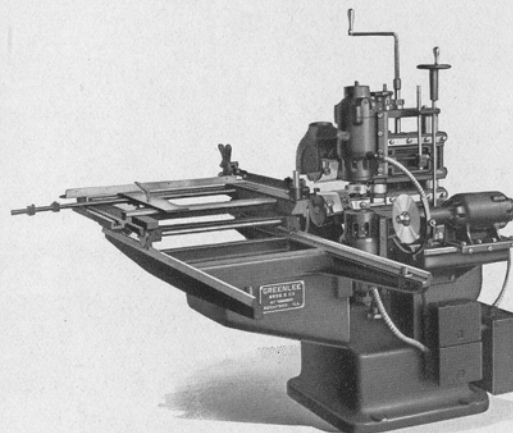


No. 532 Motor Driven Sash, Door and Cabinet Tenoner

WITH the exception of the method of drive, this tenoner is of the same general design as our No. 530 belt-driven machine has the same range and capacity. Each spindle is driven by a built-in, $1\frac{1}{2}$ H. P. motor, providing ample power for sash, door, cabinet, furniture and similar work.

The Advantage of built-in motor drive is apparent when considered from the standpoint of power consumption and cost of maintenance. There are no belts to replace, the time of installing them is entirely eliminated and the ability to run only such heads as are actually required, results in a material reduction in the required power.

The Motors are built-in with the rotors mounted on the machine spindles. They are fully enclosed and each one is provided with a fan for ventilation. They are regularly carried in stock for either 220 or 440 volt alternating current and their speed is 3600 R. P. M. Convenient control is provided, which permits cutting out any motor, and all wiring is in flexible conduit.



Rear View of No. 532

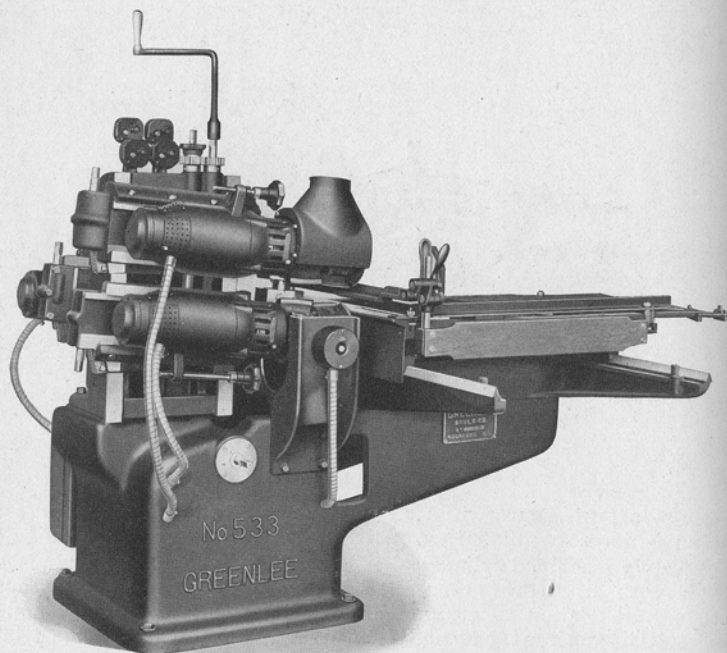
Important Features in design include ball bearings for all spindles, improved mounting of the tenoning head carriages on two accurately machined cylindrical columns, a light operating one-piece table with an improved parallel motion work clamp and lay-out stops, anti-friction rollers and angling fence for the table, simple lubrication and convenient adjustments. When furnished, the trim saw attachment is at the rear.

Single or Double Tenoning Heads can be furnished as required. The latter are supplied when it is necessary to work a longer than $3\frac{3}{4}$ -inch tenon at one pass of the table.

The Range is for cutting tenons up to $3\frac{3}{4}$ -inch length with one pass of the table and up to $7\frac{1}{2}$ -inch with two passes, when single heads are used. Double heads cut 6-inch long tenons with one pass or $7\frac{1}{2}$ -inch with two. Tenoning heads open up 5 inches, 24-inch widths can be worked and 9-inch slotting saws can be used.

The Equipment regularly includes single tenoning heads, cope heads, trim saw attachment when specified, the table outfit, wrenches and the complete electrical equipment.

No.	Style	Floor Space	Wt. in Lbs.	Code
532	With 2 Copes	5'6" x 6'6"	2350	NAVAHO
532-A	With 1 Cope	5'6" x 6'6"	2250	NAVAL
532-B	With no Copes	5'6" x 6'6"	2150	NAVIGATE
Cut-off Attachment with 8" saw			100	NAVY
Double Tenoning Heads instead of single				NEAP

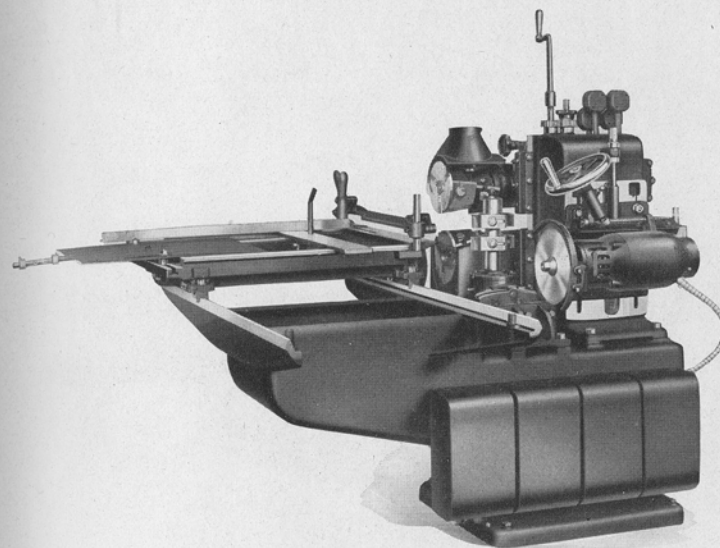


Front View of No. 533 Tenoner

Nos. 533 and 534 Heavy Motor Driven Tenoners

THESE machines represent the very latest development in Single End Tenoner design and construction. In addition to important improvements in table and frame, their outstanding features include ball bearings to lower the power consumption, built-in motors to eliminate all belts, and tilting adjustment for all spindles, so that angle tenons can be made on a horizontal table without the use of forms.

Their Application is very general, although designed especially for automobile body, implement, wagon and heavy door work. They are as efficient as any smaller tenoner on sash or similar light work, but if a machine is wanted exclusively for such requirements, we recommend our smaller pattern which also has built-in motors, but does not have tilting spindles.



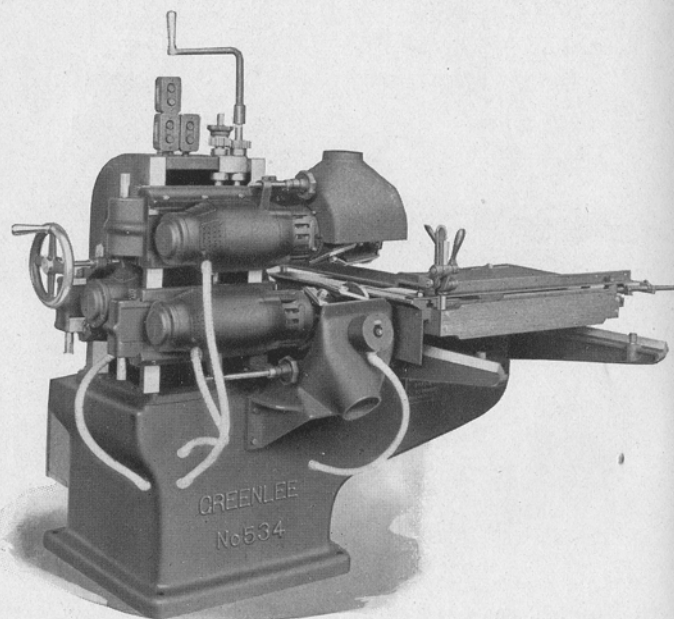
Rear View of No. 533 Tenoner

The No. 533 and 534 Tenoners are of the same design, except that the upright portion of the frame has been modified on the No. 534 in order to house the cut-off attachment within it. It is regularly furnished without the cope spindle, and this change in location of the cut-off attachment places it close to the horizontal spindles, thus eliminating all unnecessary table travel to carry the stock from the tenoning heads to the saw.

The Motors are of the built-in type with the rotors mounted on the machine spindles. They are regularly furnished for 220 or 440 volt alternating current, are 4 H. P. and their speed is 3600 R. P. M. Convenient control is provided and all wiring is in conduit.

The Tenoning Spindles are mounted on carriages having independent and connected vertical adjustment. Each spindle has end-wise adjustment by quick-acting screws, and is arranged to tilt to 15 degrees in either direction for making angle tenons.

The Single Cope Spindle of the No. 533 machine is arranged to carry two heads and is housed within the main frame. It can also be arranged to carry a slotting saw. Convenient adjustments are provided, conforming to those of the other spindles.

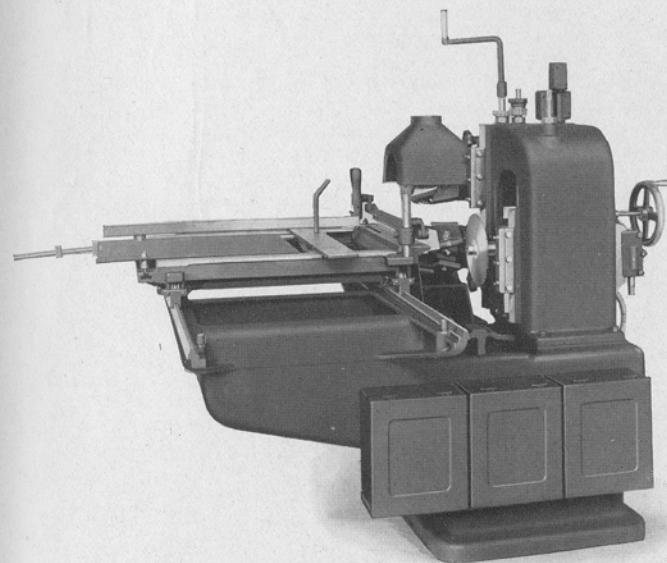


Front View of No. 534 Tenoner

The No. 533 Tenoner is regularly furnished with the cope spindle, although it can be omitted the same as the cut-off attachment. When a machine is required with cut-off attachment, but without cope spindle, the No. 534 should be specified unless it is intended to later apply this spindle.

The Cut-off Attachment is at the rear of the No. 533 Tenoner, but is housed within the frame on the No. 534, to locate it near the horizontal spindles and thus reduce the table travel.

The Table moves with the least possible effort due to its anti-friction roller mounting and exceptional light weight. Its construction is absolutely rigid, however, and it is perfectly secured to the ways. It is fitted with a parallel motion type of work clamp, a fence for straight or angle tenons and a false sliding part which carries the stop rod.



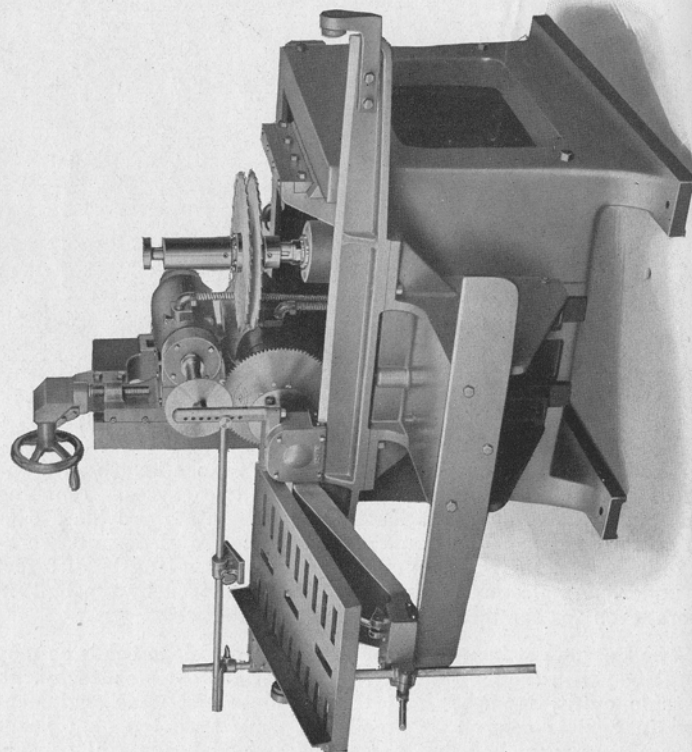
Rear View of No. 534 Tenoner

The Range is for cutting tenons up to 7½-inch length with one pass of the table and up to 10½-inch with two passes. Tenoning head spindles have sufficient vertical adjustment to provide a 6½-inch opening between the heads and the table travel permits working 24-inch stock. The table end stops adjust for lengths of 6 feet and under. Ample power for all heads is provided by the built-in motors, even for the most severe requirements.

The Equipment includes such horizontal and cope heads as may be specified with the machine, saw blade for the cut-off attachment, the table outfit, wrenches and the complete electrical equipment wired in flexible conduit. Three-knife wing type tenoning heads are regularly furnished, but three-knife round heads will be substituted without extra charge if specified.

No.	Style	Wt. in Lbs.	Code
533	With Cope and Trim Saw	3100	NIBBLE
533	Without Cope but with Trim Saw	2800	NIBLICK
534	Without Cope but with Trim Saw	2800	NICCOLITE

Trim Saw Attachment omitted at a reduction in price.



No. 535 Motor Driven Saw Tenoner



No. 535 Motor Driven Saw Tenoner

THE Saw Tenoner illustrated on the opposite page represents an important addition to the Greenlee line of single end machines, which has previously consisted of Knife Tenoners only. It was developed by Baxter D. Whitney and Son, but all manufacturing rights have been transferred to Greenlee Bros. & Co. This machine is now being built under the same favorable conditions as previously, and is offered as the most highly developed Saw Tenoner on the market.

Built-in Motor Drive for each ball-bearing arbor eliminates all belts, reduces the power consumption and makes all adjustments exceptionally convenient. The rotors of the alternating current motors are mounted directly on the arbors and the housing for each motor is made a part of the yoke which carries the saw arbor and bearings. Motors are regularly furnished for 220 or 440 volt current and run 3600 R. P. M.

The Carriage operates on a track supported by a knee having vertical adjustment. It is mounted on ball-bearing wheels enclosed in dust-proof cases, and is very light running.

The Table is heavily ribbed, having slots through which various kinds of fixtures can be clamped. It can be tilted either above or below the horizontal and can be locked at any angle up to 22 degrees. From a tilted position it can quickly be set to the horizontal by means of a positive stop rod. It is equipped with a movable gauge and an adjustable clamping device to securely hold the work to the table.

All Adjustments are complete and convenient. The top and bottom saw arbor carriages have vertical adjustment by hand-wheels at the operator's position. Horizontal adjustment is also provided for the top carriage for lining up the saws or for making offset tenons. The cut-off saw is carried on the lower arbor and has adjustment for the length of tenon to be worked. The vertical arbor has horizontal adjustment by hand wheel, the saws can be adjusted separately or together and the entire top of this arbor can be removed with the saws.

The Range is for making tenons from $\frac{3}{16}$ to 3 inches thick and up to $6\frac{1}{2}$ inches in length.

The Equipment includes the motors and starters, two 8-inch shoulder saws, one 12-inch cut-off saw, two 16-inch splitting saws and necessary wrenches.

No.	Floor Space	Wt. in Lbs.	Code
535	6'0" x 5'6"	3100	NICKER