

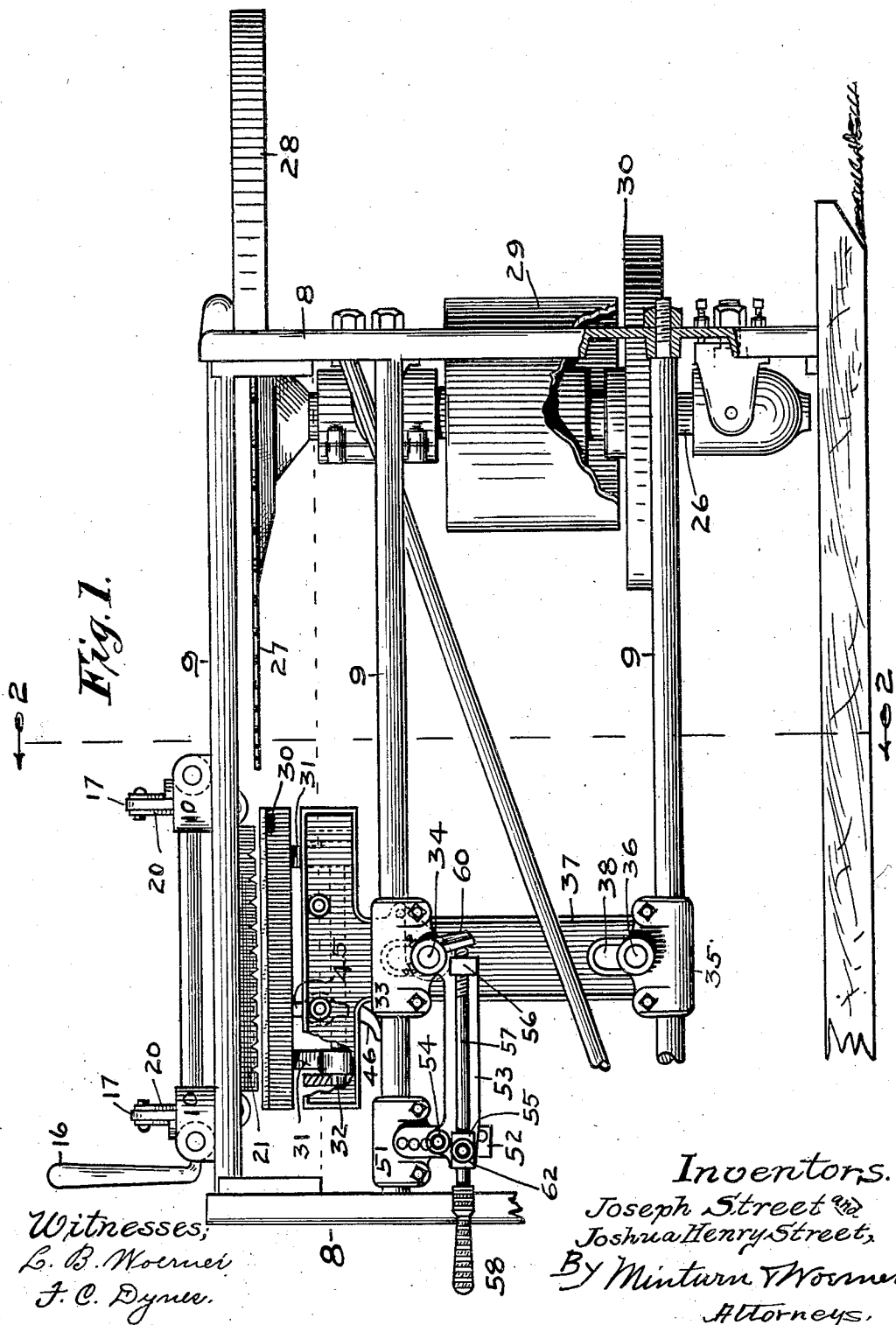
No. 876,502.

PATENTED JAN. 14, 1908.

J. & J. H. STREET.
HEADING AND SHINGLE MACHINE.

APPLICATION FILED OCT. 4, 1906.

4 SHEETS—SHEET 1.



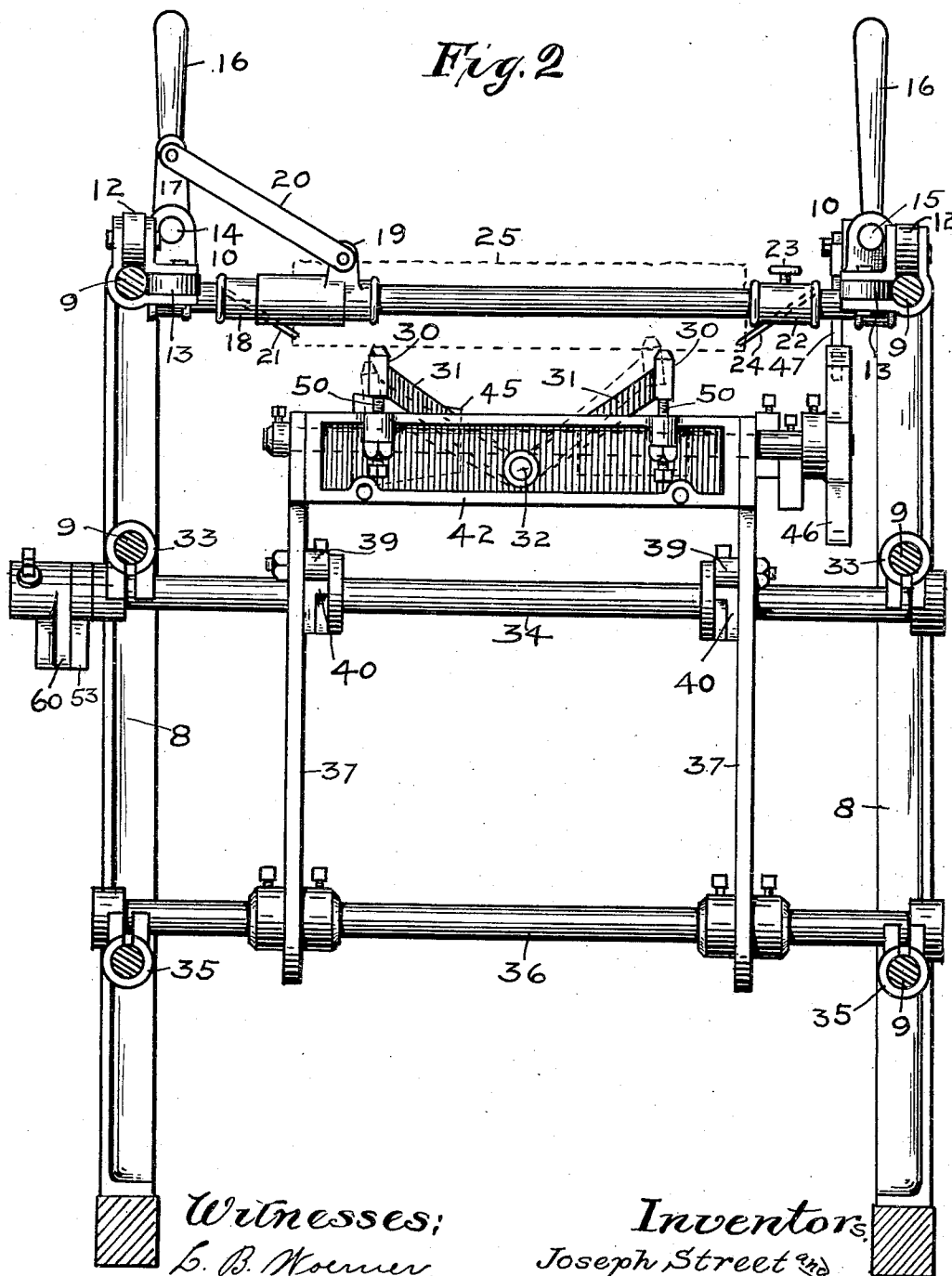
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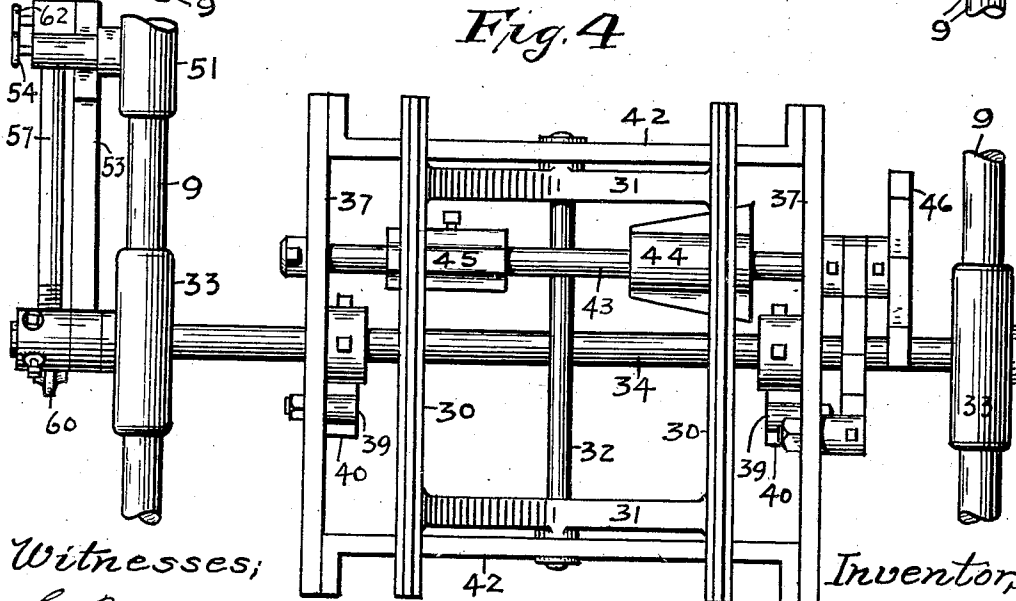
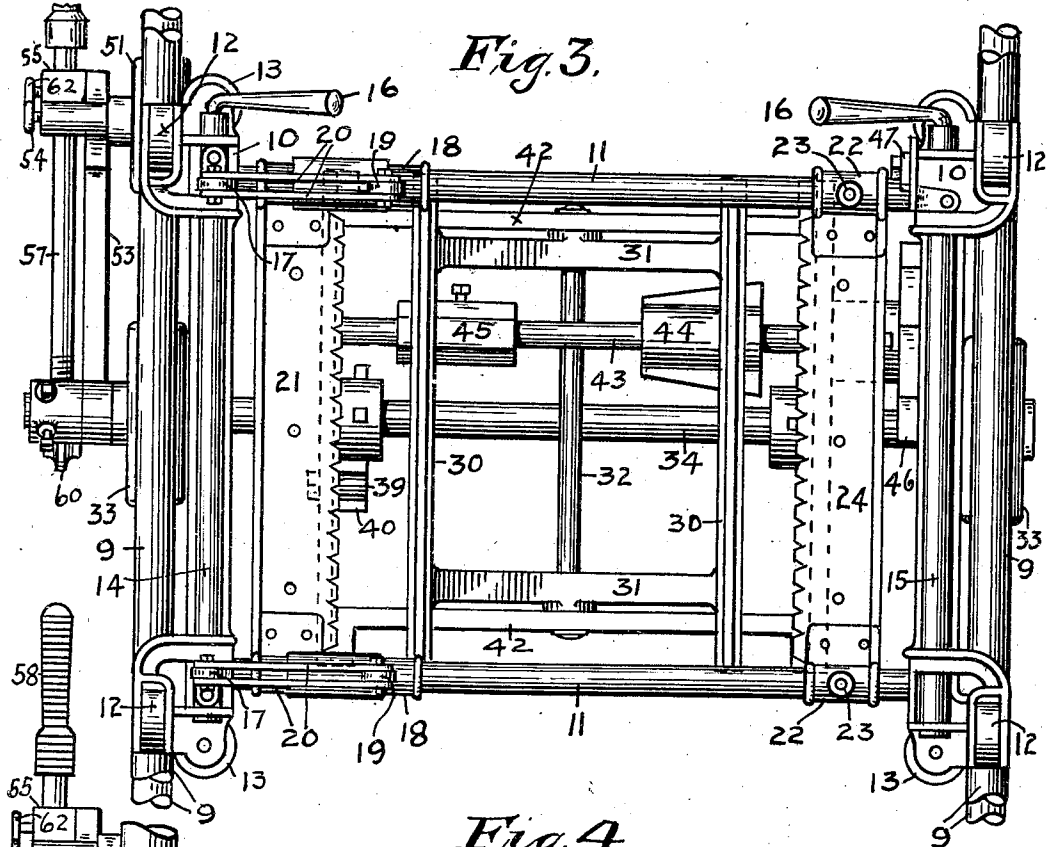
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4 SHEETS—SHEET 3.



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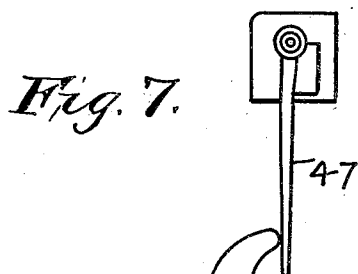
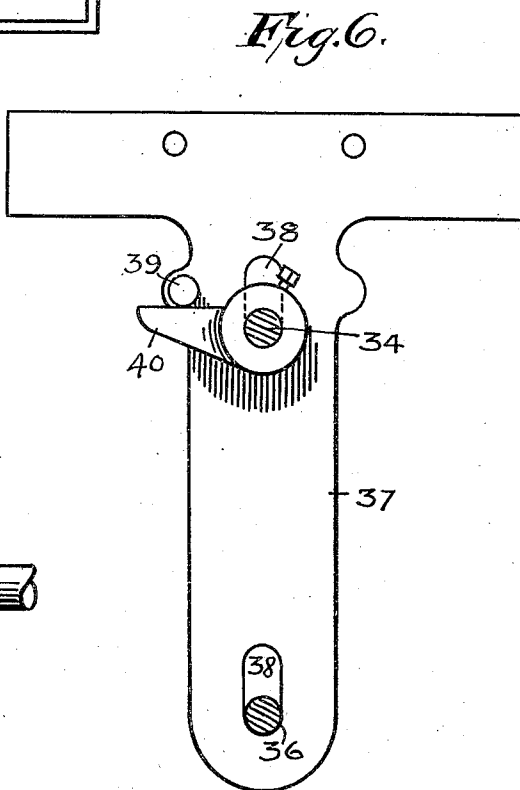
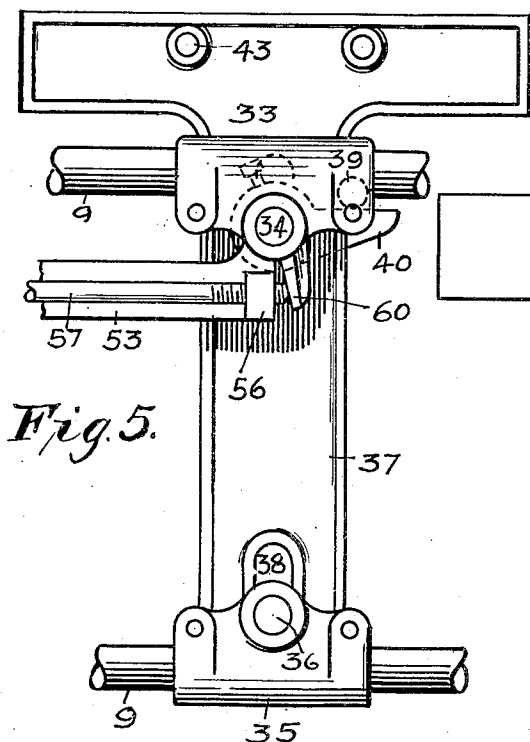
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UNITED STATES PATENT OFFICE.

JOSEPH STREET AND JOSHUA HENRY STREET, OF CHATTANOOGA, TENNESSEE.

HEADING AND SHINGLE MACHINE.

No. 876,502.

Specification of Letters Patent.

Patented Jan. 14, 1908.

Application filed October 4, 1906. Serial No. 337,464.

To all whom it may concern:

Be it known that we, JOSEPH STREET and JOSHUA HENRY STREET, citizens of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Heading and Shingle Machines, of which the following is a specification.

This invention relates to improvements in shingle and heading machines and relates particularly to the mechanism for regulating the thickness of the material removed from the timber bolt at each sawing and to the mechanism for tilting the bolt to produce the thick and thin edges of a shingle.

The object is to provide a gaging and guiding mechanism having an adjustment covering a range of an inch or two or any fraction thereof, and to provide means for tilting this mechanism in alternate opposite directions after each cut, or for holding it on a plane parallel with the saw or in an oblique plane without change in angle, subject to the control of the operator.

The further object is to simplify and improve the machine in its various details in the manner which will be hereinafter fully described and pointed out in the appended claims.

The objects of the invention are accomplished by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view in side elevation, and partial vertical section of a machine embodying the features of this invention. Fig. 2 is a vertical section on the line 2—2 of Fig. 1 looking in the direction of the arrow. Fig. 3 is a detail in top plan view of the drop and tilt works of this new machine. Fig. 4 is a like detail in plan view with the timber-bolt clamping and carrying mechanism removed so as to show the cradle and its supports. Fig. 5 is a detail in side elevation of one of the standards or side plates which support the tilt works. Fig. 6 is a vertical section through the shaft carrying the cams for raising the standards of the tilt works and showing such standards in elevation looking at the inner side of the latter. Fig. 7 is a detail in side elevation of the mechanism for rotating the shaft which carries the cams for tilting the cradle.

Like characters of reference indicate like parts throughout the several views of the drawings.

8 are the two end frames of the machine which are connected by the six horizontal shafts 9 arranged in triplicate on each side of the machine, as shown in Fig. 2. The two top shafts 9 form a track for the carriage which holds and carries the material to be sawed into shingles or heading. This carriage comprises four corner castings 10 which are connected in pairs by means of the horizontal transverse shafts 11. The castings 10 are mounted on the vertical rollers 12 and are provided with the horizontal rollers 13 bearing against the inner sides of the shafts 9 to prevent lateral binding of the carriage. Mounted in the castings 10 at each side of the carriage are the rocking shafts 14 and 15 extending longitudinally of the machine and parallel with shafts 9. The shafts 14 and 15 have the handles 16. The shaft 14 has the upwardly extended arms 17, and the shafts 11 have the sleeves 18 slidably mounted thereon. The sleeves 18 have the lugs 19, and the lugs 19 are connected with the arms 17 by means of the link-bars 20, whereby the rocking of the shaft 14 will slide the sleeves 18 longitudinally on the shafts 11. 21 is a gripping plate or dog, the ends of which are fastened to the sleeves 18 on the shafts 11. Also mounted on the shafts 11 near the opposite ends of said shafts are the sleeves 22. These sleeves are held at any given position on the shafts 11 by means of the set-screws 23, and 24 is a gripping plate or dog, similar to the dog 21, the ends of which are fastened to the sleeves 22. From the above construction it will be seen that the dog 24 while capable of adjustment is practically fixed in its position, while the dog 21 is readily adjusted to and from the dog 24 by rocking the shaft 14 through the agency of the handle 16. The bolt of wood which is to be sawed into headings or shingles, shown in dotted lines at 25 in Fig. 2, is held between the dogs 21 and 24.

26 is a shaft mounted vertically in the end of the machine opposite that on which the above-described carriage is shown and 27 is a circular saw mounted on the upper end of the shaft 26. 28 is a saw guard surrounding the outer portion of the saw, 29 is a driving pulley mounted on the shaft 26 to which power is applied by a belt in the usual manner to drive the shaft 26 and 30 is a fly-wheel mounted on the shaft 26. All of the above parts are of usual and well-known construction. The saw 27 is mounted in a horizontal plane immediately below the lower edges of

the dogs 21 and 24, and the wooden bolts are sawed into headings or shingles by moving the carriage carrying the bolt along the tracks 9 against the saw. This is done in the present machine by pushing the carriage back and forth by hand. The shape of the section which is sawed off of the bolt at each passage of the saw through it will be determined by the position of the bolt itself. After the first cut has been made, if it is desired to cut shingles having one thick edge and an opposite thin edge, the required conditions will be secured by tilting the bolt of wood in alternate opposite directions after each cut has been made. This is accomplished in the present machine by loosening the hold of the dogs 21 and 24 on the bolt after each cut, changing the bolt by tipping it in the desired direction and then re-gripping it. The angle at which the bolt is placed at each new adjustment and the distance that it is dropped, which determines the thickness of the piece to be sawed off, will be determined by a pair of bars 30 running longitudinally of the machine and parallel with the bars 9, said bars forming a track which is located below the dogs 21 and 24 and capable of being raised and lowered and tilted sidewise. The bars 30 are connected by the transverse arms 31, forming a rigid cradle which is mounted on the shaft 32 so as to tilt on said shaft.

Clamped to the middle shafts 9 are the brackets 33 having bearings for the support of the shaft 34, and clamped to the lower shafts 9 are the brackets 35 having bearings for the support of the transverse shaft 36. 37 are standards or side plates having vertical slots 38 for the passage through them of the shafts 34 and 36. Extending inwardly from the inner faces of the standards 37 are the pins 39, and mounted on the shaft 34 are the cams 40 which bear under the pins 39 and raise the standards 37 by a rocking movement of the shaft 34. The shafts 34 and 36 passing through the slots 38 guide the standards in a constant vertical direction. The standards 37 have a T-shaped upper end and these opposite expanded ends are connected by the transverse bars 42 to form a frame which supports the shaft 32 on which the rocking track 30 or cradle is mounted. 43 is a shaft supported by this frame at right angles to the shaft 32 and passing under the rails 30 of the track. Mounted on the shaft 43 under the rails or bars 30 are the respective cams 44 and 45. These cams have diametrically opposite flanges which are arranged at right angles to each other in the two cams so that, as the shaft 43 is rotated, each quarter turn of the shaft will present alternate opposite flange extensions which will bear against the underside of the track and tilt it in alternate opposite directions. Mounted on one end of the shaft 43 is a spider 46 having four arms

(see Fig. 7), and pivoted near the rear corner casting 10 above the spider is the pawl 47 which extends down into engagement with the arms of the spider 46 and moves the spider a quarter turn during the backward travel of the carriage carrying said pawl. By rocking the shaft 15 by means of the hand 16, the pawl 47 will be swung out of the path of the spider 46 so as not to move the spider and move its shaft to change the positions of the cams 44 and 45, in which case the cradle will not be rocked, and if a defect is in the end of the block lowest in the machine, it will be removed quicker than if it were allowed to tilt. The cradle is lowered by lowering both standards 37 supporting the frame in which the cradle is mounted. The lowering of the standards is accomplished by lowering the cams 40 which support the pins 39. The cradle can be fastened in position for cutting small boards and heading with parallel sides, by means of the set-screws 50.

Clamped to the middle shaft 9 is the bracket 51 having a downwardly extended quadrant 52 with suitable lever-locking perforations. 53 is a bar having an eye at one end, by means of which the bar is loosely mounted on the shaft 34. 54 is a pin passing through the bar 53 near its opposite end, by means of which the bar is fastened to the quadrant 52. Near the hinged end of the bar 53 is a lug 56 having a screw-threaded hole.

57 is a shaft having a handle 58 at one end and having its other end screw-threaded. This shaft passes through the perforation of lug 55 and its threaded end is screwed through the threaded hole in the lug 56. Mounted in a fixed manner on the shaft 34 outside of the bar 53 is a sleeve having the arm 60. The weight of the cradle and tilt works supported by the standards 37 is sufficient to press the cam 40 down by gravity to permit the lowering of the cradle. The raising of the cradle will be accomplished by moving the handle 58 in a downward direction. This follows because the threaded end of the handle-bar 53 bears against the arm 60 on the shaft 34 carrying the cams 40 which raises the standards 37 by lifting on the pin 39. A finer adjustment of the cradle may be had by screwing the bar 53 to or from the arm 60 and a given adjustment will be held by means of the set-screw 62.

To operate the machine, raise the handle 16 which will draw the dog 21 back toward the shaft 14 and will make a space between dogs 21 and 24 so that the bolt or block of wood to be sawed will drop through upon the cradle 30. This will gage the thickness of the material to be cut: then clamp the timber and hold it tight enough to keep it from slipping. Press down on the lever 16 and at the same time shove the carriage toward the saw until a piece has been cut off of the bot-

tom of the block. This will carry the block off of the cradle and allow the piece cut off to drop down out of the machine; pull the carriage back to the starting point. During this operation the pawl 47 will engage with the spider 46 and will rotate the shaft 43 a quarter turn, thus changing the tilt of the cradle and by raising the handle 16, the block will again drop to the cradle. Repeat each stroke of the carriage until the block has been sawed up, then place another block in the machine. If the thickness of the material to be cut is too great, screw the handle-bar 53 against the arm 60 and raise the tilt works until the material is of the proper thickness.

If the block to be sawed has a defect in one end and it is desired to remove the defective part only, as quickly as possible, the operator should allow the thick part of the material to be cut from the defective end of the block. By raising handle 16 on shaft 15, the pawl 47 will be swung sideways so as not to strike the spider 46 which will allow the cradle to remain without tilting until the defective part has been cut out. This is an important feature of this invention.

By the construction above described there is no chance for saw dust or chips to interfere with the sawing and the cradle can be lowered any fractional part or all of its distance and still retain perfect alignment with the rest of the machine, and it can be restored to its original position to cut the same thickness as before without requiring any measurements to be made.

Having thus fully described the invention, what it is desired to claim, is—

1. In a machine for the purposes specified, a frame having a plurality of parallel longitudinal bars on each side, a horizontal revolving circular saw at one end of the frame, transverse shafts clamps securing the transverse shafts to the longitudinal bars and adjustable in their distance from the saw, a carriage to convey the material to be sawed, a cradle to receive and readjust the position of the material after each cut for a new cut, standards for supporting the cradle said standards being longitudinally slotted and supported by the said adjustable transverse shafts which pass through said longitudinal slots.

2. In a machine for the purposes specified, a frame having triplicate parallel longitudinal bars on each side, a pair of transverse shafts adjustably secured one to each of the two lower of said bars so as to be adjustable longitudinally of said bars, a carriage mounted so as to travel longitudinally on the top pair of bars, standards supported by the transverse shafts, a cradle supported by said vertically slotted standards, said standards and cradle being adjustable to and from the saw by correspondingly adjusting said transverse

shafts said shafts passing through said slots of the standards.

3. In a machine for the purposes specified, a horizontally revolving circular saw, a carriage having a reciprocating travel carrying material against the saw to be operated upon, means for liberating the material for readjustment after each cut, means under the carriage at the opposite end of its travel from the saw for gaging the position of said liberated material, said means comprising a frame, vertically adjustable standards, one at each end of the frame carrying the latter, said standards being vertically slotted, a pair of transverse shafts passing through the slots of the standards, means including one of said transverse shafts for vertically adjusting the standards, means for holding a given adjustment of the standards, and a support on the frame to receive the liberated material.

4. In a heading and shingle machine, a pair of end frames, shafts in a series of horizontal pairs connecting said end frames, a horizontal circular saw mounted adjacent to one of the end frames under the top pair of shafts, a carriage mounted on rollers upon said top pair of shafts, said carriage having a pair of horizontal shafts at right angles to said track shafts, a stationary dog-plate carried by the shafts of the carriage at one side of the carriage, a second dog-plate attached to sleeves slidingly mounted on said last shafts near the other side of the carriage, means for changing the positions of the sleeves on their shafts to clamp and unclamp the material to be operated upon by the machine between said dog-plates, a horizontal frame at the opposite end of the machine from the saw, under the carriage when the latter is at that end of the machine, a pair of horizontal shafts disposed in the same vertical plane under the frame, a pair of standards supporting the horizontal frame, said standards having vertical slots to receive said pair of horizontal shafts whereby the standards are maintained in a vertical position, a tilt-table pivotally connected to the frame, and means for tilting the table.

5. In a heading and shingle machine, a pair of end frames, a series of horizontal pairs of shafts connecting said end frames, a horizontally mounted circular saw revolving near one of said end frames, a carriage mounted on the top pair of horizontal shafts, means for fastening the material to be operated on by the saw to said carriage so it will extend into the path of the saw and be sawed when the carriage is moved toward the saw so as to bring the material into contact with the latter, a horizontal frame supported on vertical standards under the path of the carriage at the opposite end of the machine from the saw, said standards being vertically slotted, a pair of transverse shafts passing

through the slots to guide the standards, a cradle having a pair of bars running longitudinally of the machine, said cradle being mounted in the last-named frame on pivots
 5 whereby the cradle may be rocked to alternately raise and lower its rails, means for tilting the cradle in an opposite direction after each cut of the saw.

6. In a machine for the purposes specified, a horizontally revolving circular saw, a carriage carrying the material to be sawed reciprocating over the saw and carrying the material to be operated on against the saw, means for liberating the material from the
 15 carriage after each cut for readjustment for the next cut and for again securing the material to the carriage, a horizontal frame at the opposite end of the machine from the saw under the carriage when the latter is at
 20 that end of the machine, a pair of horizontal shafts disposed in the same vertical plane under the frame, a pair of standards supporting the horizontal frame, said standards having vertical slots to receive said pair of horizontal
 25 shafts whereby the standards are maintained in a vertical position, a cradle pivotally connected to the frame so as to rock laterally of the machine, said cradle having a pair of rails parallel with the direction of travel of the carriage, and means
 30 for tilting the cradle after each cut in an opposite direction.

7. In a heading and shingle machine, a horizontally revolving circular saw, a carriage having a reciprocating travel carrying the material against the saw to be operated upon, means for holding the material to the carriage and for liberating it for readjustment after each cut, means under the carriage
 40 at the opposite end of its travel from the saw for gaging the position of said liber-

ated material, said means comprising a horizontal frame, vertically adjustable standards rigidly secured to and supporting said frame, means on the frame for supporting the liberated material, a rocking shaft mounted at
 45 right angles to the travel of the carriage, cams on said shaft, pins on the standards resting upon said cams, an arm mounted on the outer end of the shaft, a lever-bar mounted loosely on the shaft between the machine
 50 and said arm, said handle-bar having perforated lugs, one of which is screw threaded, and a threaded shaft passing through the perforated lugs and screwing against the arm
 55 mounted on the end of the rocking shaft, and means for holding a given adjustment of the lever-bar.

8. In a heading and shingle machine, a saw, a carriage, means for fastening the material to be sawed to the carriage, means for releasing the material from the carriage after
 60 each cut for re-adjustment, a cradle to receive the released material and gage its new position, said cradle being pivoted to rock laterally of the direction of travel of the carriage, means for rocking the cradle after
 65 each cut a horizontal frame in which said cradle is pivoted, lugs on the out-side of said frame, and set screws through said lugs forming stops under the cradle for locking it
 70 against rocking.

In witness whereof, we have hereunto set our hands and seals at Chattanooga, Tenn., this 22nd day of Sept., A. D. one thousand
 75 nine hundred and six.

JOSEPH STREET. [L. S.]
 JOSHUA HENRY STREET. [L. S.]

Witnesses:

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