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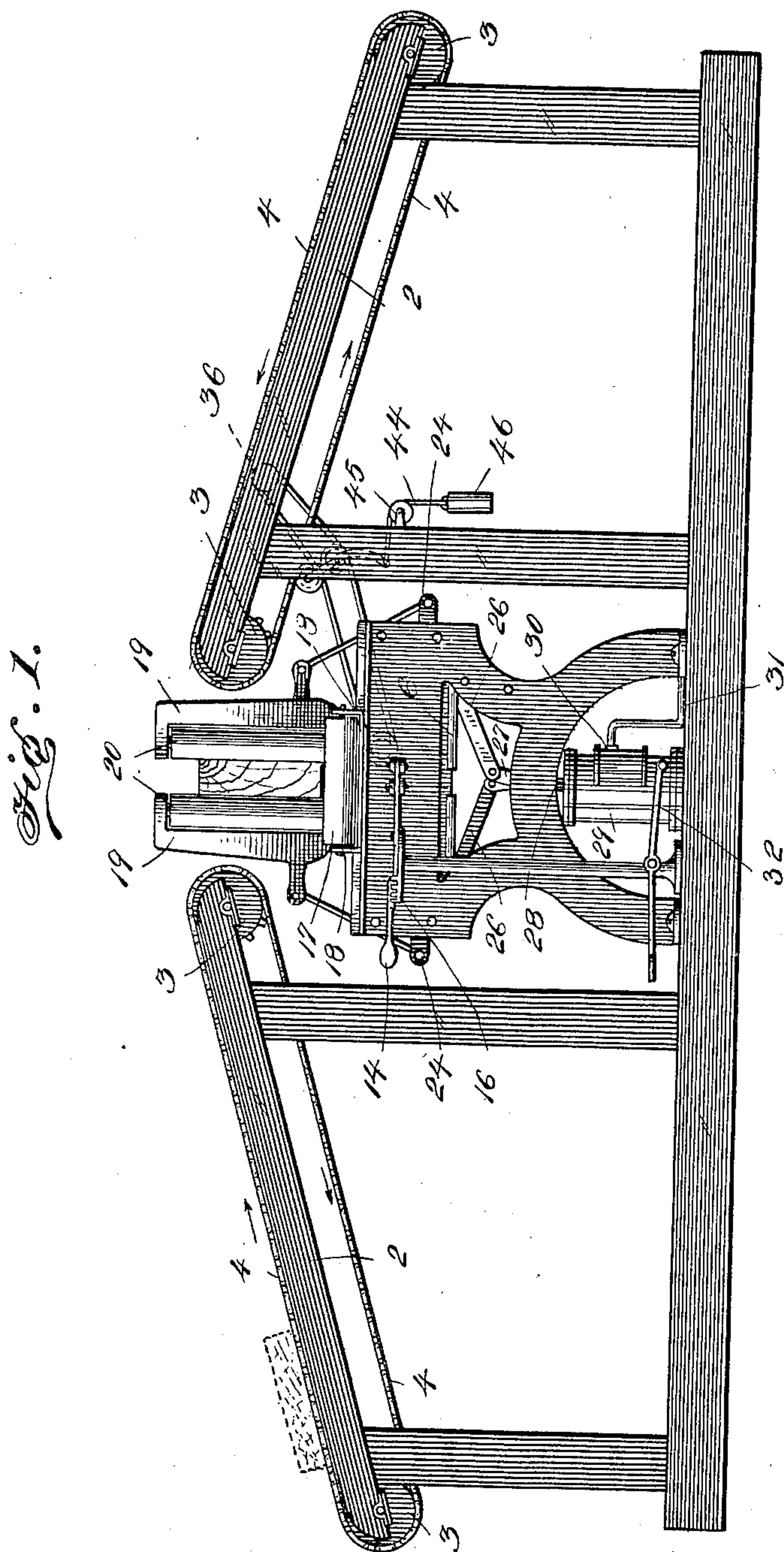
Patented Sept. 11, 1900.

J. C. MELBY.
LUMBER DELIVERING MACHINE.

(Application filed May 7, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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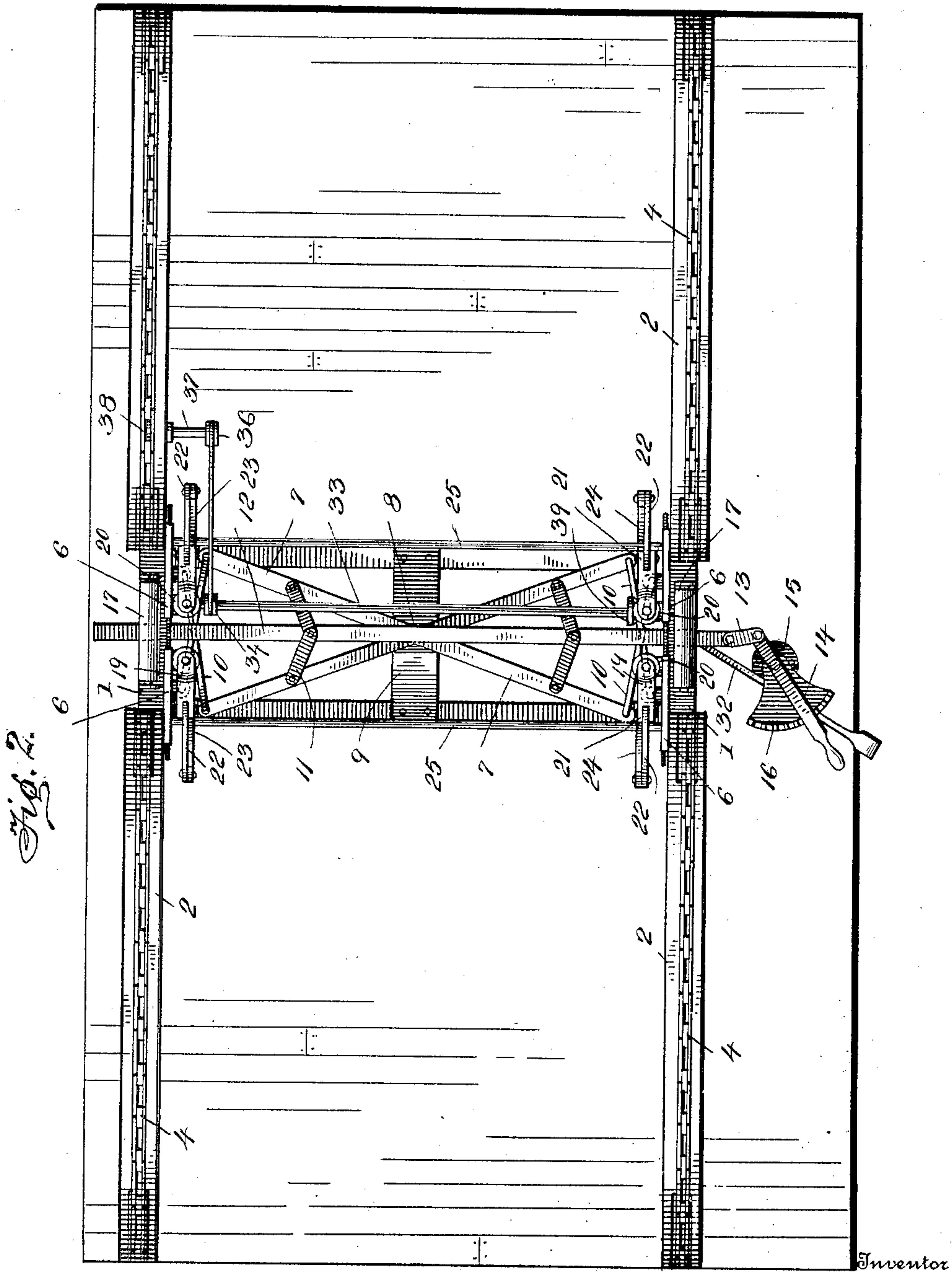
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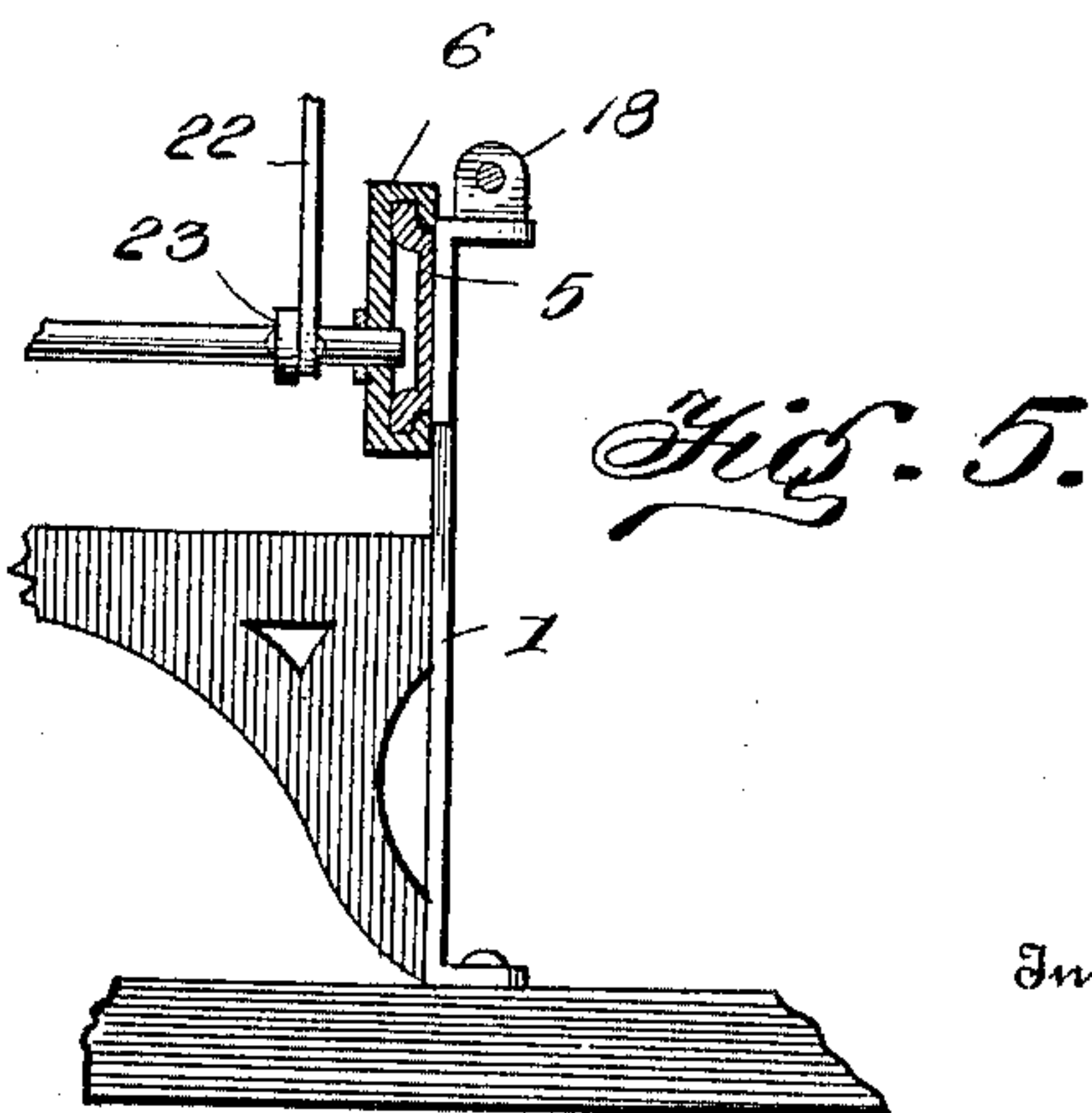
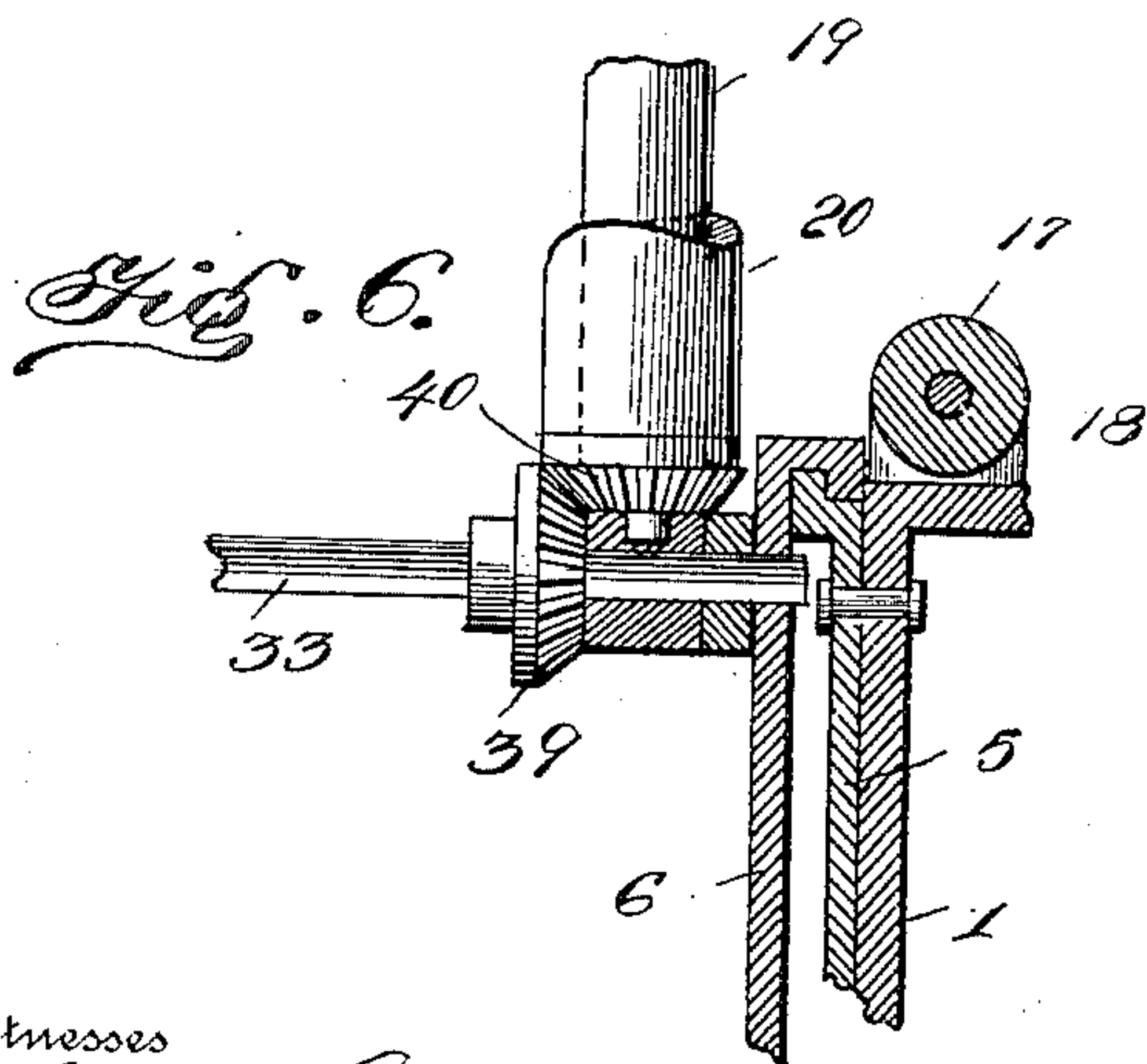
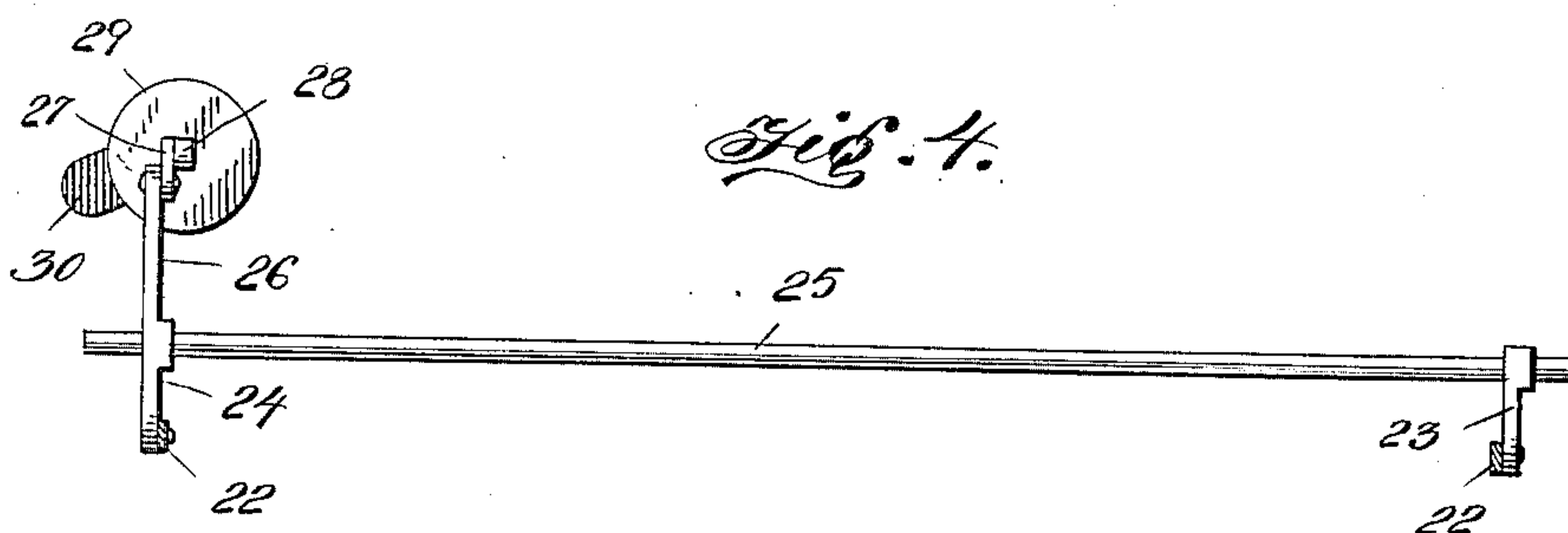
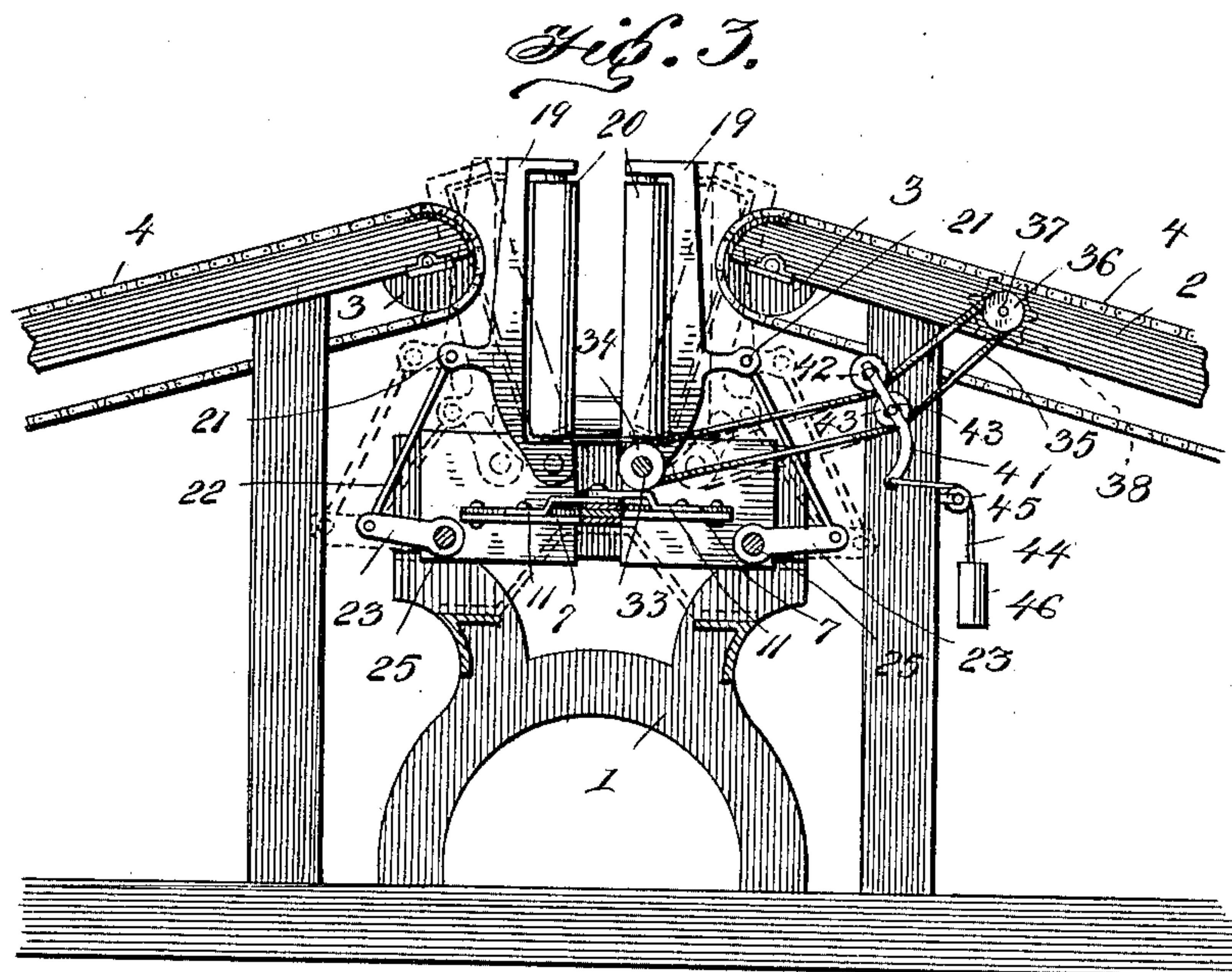
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

JOHN C. MELBY, OF RED CLIFF, WISCONSIN, ASSIGNOR OF ONE-EIGHTH TO
JAMES T. WATSON, OF DULUTH, MINNESOTA.

LUMBER-DELIVERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 657,666, dated September 11, 1900.

Application filed May 7, 1900. Serial No. 15,788. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. MELBY, a citizen of the United States, residing at Red Cliff, in the county of Bayfield and State of Wisconsin, have invented certain new and useful Improvements in Lumber-Delivering Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in machines for directing lumber into the rolls of resawing-machines.

It consists in adjustable rolls, means for moving the rolls closer together or farther apart for accommodating lumber of different thicknesses, and means for permitting them to fall apart to receive the lumber or to bring them into vertical position again to grip the same, all within easy control of operators of the mechanism.

It consists also in a machine having slides adapted to move toward or away from each other, levers connected with the said slides, a reciprocating bar connected with the levers by means of toggle-levers, whereby upon moving the reciprocating bar the toggles will, through the agency of the levers, move the slides toward or away from each other, and lumber-gripping rolls mounted upon the said slides for engaging and properly directing lumber.

My invention further consists in a frame supporting transversely-moving slides, pivoted frames carried by the slides, lumber-gripping rolls mounted on said frames, shafts extending longitudinally of the frames and mounted in the said slides, means connecting the shafts with the pivoted roller-frames, and means for rotating the said shafts, whereby the roller-frames and rolls may be brought into a vertical position for gripping and directing the lumber.

It also consists in certain other novel constructions, combinations, and arrangements of parts, as will be hereinafter fully described and specifically claimed.

In the drawings forming a portion of this specification, Figure 1 represents an end elevation of my improved lumber-directing ma-

chine. Fig. 2 represents a top plan view of the same. Fig. 3 is a cross-section through the said machine looking toward the discharge end thereof. Fig. 4 is a detail view of one of the shafts for tilting the gripping-rollers. Fig. 5 is a detail sectional view through one of the slides which carries one of the gripping-rolls and a portion of the frame supporting the same. Fig. 6 is a detail view, upon an enlarged scale, illustrating the manner of communicating a revoluble motion to one of the gripping-rolls.

My improved lumber-handling machine is intended for directing lumber into the rolls of resawing-machines. This has usually been done by hand at considerable cost and labor. The results, in addition to the cost, have also been extremely poor, as it is very difficult to hold the lumber properly by hand when passing it to a resawing-machine. By my invention the lumber is taken automatically from delivery-chains and is then gripped in a manner to accurately deliver the same in proper position for the action of the saw of a resawing-machine.

The construction of the machine embraces a central supporting-frame, as 1, mounted upon any suitable base and preferably located between inclined skids, as 2 2. The skids 2 may be arranged upon either side of the frame 1, and I preferably locate skids upon both sides of the machine, so that lumber can be delivered to it from either side, as may be required. The skids 2 preferably comprise inclined frames having sprocket or belt wheels, as 3 3, located at their ends and supporting sprocket chains or belts 4 4. The belts are so actuated that the portions which travel along the tops of the skids 2 move toward the center of the machine, carrying with them lumber, which may be deposited upon them near the lower outer ends of the skids. As seen in Fig. 2 of the drawings, there should be at least two skid-frames upon each side of the machine, although of course there may be a greater number of them without departing from the spirit of the invention or without changing the operation of the device. The frame 1, mounted between the skids, is provided at each end with a guideway or track, as 5, and upon the tracks 5 are adapted

to move inclosing slides 6 6. As illustrated in Figs. 5 and 6 of the drawings, the slide 6 may be composed of a single piece of metal bent over at its upper and lower edges so as to inclose the upper and lower edges of the tracks or ways 5, but may be of any other suitable design within the scope of the invention. The slides 6 are made sufficiently short, so that two can be mounted upon the end frames and in such a manner that they will have considerable play and may be moved back and forth toward each other. These slides support lumber-gripping rolls, as will be hereinafter more fully described. Pivotally mounted centrally of the frame 1 are levers 7 7, which preferably cross each other at their pivotal point 8. The levers may be strengthened in their position at this point by bracing, as 9, arranged transversely of the frame 1. The outer ends of the levers 7 7 are connected, by means of links 10 10, with the slides 6 6. It is preferable to connect the end of the lever 7 upon one side of the frame with the slide at that end of the machine which is upon the opposite side of the frame, so that the links 10 10 cross each other. At a suitable point either side of the central pivot 8 the levers 7 7 are connected, by means of toggles 11 11, with a centrally-arranged longitudinally-reciprocating bar 12. The bar 12 is adapted to move back and forth through openings or bearings formed in the frame 1. The toggles so connect the levers 7 7 with the said bar that when the bar is reciprocated it will draw the ends of the levers toward each other or separate them from each other, thus moving the slides back and forth. One end of the reciprocating bar 12 is connected, by means of a link 13 or otherwise, with the end of an adjusting-lever 14. The lever 14 is fulcrumed upon the top of a standard 15, the movement of the said lever being gaged and regulated by a segmental rack 16, secured to the top of said standard. By operating the handle or lever 14 the bar 12 may be reciprocated and the slides at each end of the frame be simultaneously brought to a suitable distance from each other for causing the rollers carried by the said slides to grip lumber placed between them.

The frame 1 is provided at each end with a transversely-arranged horizontal roller 17 17, adapted to support the lumber as it passes to the resawing-machine. These rollers are preferably pivoted between upwardly-extending standards or lugs 18, secured to the frame 1. The rollers 17 are preferably located upon the outer sides of the end framing, so as to not interfere with the adjustable gripping-rolls on the inner side of the said framing.

Pivotally secured to each of the slides 6 6 is a frame or bracket 19. The said brackets overhang at the top and bottom the ends of the gripping-rolls 20 20. The frames 19 19 are pivoted to the slides at their lower ends and are provided with outwardly-extending arms 21 21, which are connected by means of

links 22 with arms 23 and 24, rigidly secured to longitudinally-arranged shafts 25 25. The shafts 25 25 are arranged upon each side of the frame 1 and are journaled at their ends in the moving slides 6 6. By partially rotating the shafts 25 25 the roller-frames 19 19 may be moved back and forth upon their pivotal points. In this way the upper ends of the rolls 20 20 may be caused to fall apart sufficiently to readily receive the lumber traveling upward upon the chains or belts 4 4. In order to bring the gripping-rolls 20 20 into a vertical position for gripping the lumber, the arms 24 24 at one end of the machine are formed with levers 26 26, which extend toward the central line of the machine and are connected by means of links 27 27 with the upper end of the piston-rod 28. The piston-rod 28 extends into a cylinder 29 and is secured to a suitable piston-head moving therein. The cylinder 29 is a power-cylinder adapted to receive suitable pressure, as steam, compressed air, or the like, the said pressure being delivered to the cylinder through a valve-chamber, as 30, which is connected by piping 31 with a suitable source for supplying such pressure. The valve in the chest 30 is connected with a foot-operated lever 32. The lever 32 is fulcrumed to any suitable support—as, for instance, a standard 15, which carries the lever 14. By placing the foot upon the lever 32 steam or other pressure can be admitted to the cylinder 29, so as to force the piston therein and the rod 28 downwardly, thereby pulling the levers 26 26 downwardly and rotating the shafts 25 25 in such a manner as to force the gripping-rolls 20 into their vertical positions. When the foot is removed from the lever 32, the pressure will be cut off from the cylinder 29, and the rolls and the frames carrying them will fall apart of their own weight, as indicated in dotted lines in Fig. 3.

It is desirable to actuate one or more of the feed-rolls so as to move the lumber along between the said rolls and toward the resawing-machine. For this purpose I preferably extend a shaft from the pivotal bearings of one of the roll-frames 19 at one end of the machine to a corresponding one at the other end of the machine, as at 33. Upon the shaft 33 is rigidly fastened a belt-pulley 34, of any suitable construction, which is connected by means of a belt 35 with a belt-pulley 36. The belt-pulley 36 is carried by a shaft 37, journaled in one of the skids 2, said shaft having secured to it a sprocket-wheel 38, which is arranged in a slot formed in the skid 2, so that the teeth of said sprocket-wheel 38 will project sufficiently above the skid 2 to engage the links of one of the sprocket-chains 4. The sprocket-chains 4 are actuated by any suitable means. (Not shown.) The sprocket-wheel 38 will thus be actuated by the sprocket-chain 4 and will communicate motion through the pulley 36 and belt 35 to the pulley 34 and shaft 33. One end of the shaft 33 carries the beveled gear 39, which

meshes with a corresponding beveled gear 40, secured to or formed upon the lower end of one of the rolls 20. Thus by rotating the shaft 33 the roll 20 will be actuated, so as to feed the lumber through the machine. Inasmuch as the slides 6, which carry the shaft 33, are removable and adjustable it is necessary to employ some device to keep the belt 35 at all times taut. I mount upon the belt a tightening device consisting of a frame 41, containing double rolls or spools 42 43, free to ride upon said belt, one spool, 42, resting upon the upper plane of the belt and the other spool, 43, resting upon the lower plane thereof. To the lower bar of the connecting-frame of said tightening device is secured a cord or other flexible means 44, which passes over a pulley 45 and supports a weight 46 at its lower end. The arrangement of the parts is such that the weight 46 will tend to cause the pulleys 43 to exert a tightening pressure upon the belt 35, no matter what the position of the slide 6. The automatic tightening of the belt may, however, be accomplished by any suitable and desirable means.

From the foregoing description it will be seen that the gripping-rolls are susceptible of two adjustments and that they may be separated at their upper ends to easily receive the lumber delivered to them, and that they may be immediately brought into a vertical position for gripping the lumber, and also that by moving the slides 6 6 they may be adjusted to accommodate lumber of different thicknesses. These adjustments can be accomplished very quickly, so that the rolls can be almost instantly adjusted for every piece of lumber received by them and can be made to rigidly and firmly hold the same, so as to deliver it truly to the saw of the resawing-machine. It will be apparent, of course, that I might employ other means besides the power-cylinder 29 for depressing the arms 26 and closing the pressure-rolls 20 20 without departing from the spirit of the invention. The power-cylinder, however, affords a simple, quick, and effective means for accomplishing the purpose.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A machine for delivering lumber to resawing-machines, comprising a frame, gripping-rolls mounted thereon, movable means for carrying the same, means for adjusting them to different widths, and means for permitting them to fall apart to receive lumber and for forcing them together to grip the same.

2. A machine for delivering lumber for resawing, comprising a frame, slides moving thereon, rolls carried by the said slides, levers connected with the slides, toggles interposed between the ends of the said levers, a reciprocating bar connected with the said toggles for operating them, and means for reciprocating the bar, whereby the slides carrying

the gripping-rolls may be adjusted to accommodate different thicknesses of lumber.

3. A machine for delivering lumber for resawing, comprising a frame, transversely-moving slides mounted thereon, pivoted frames secured to the slides, gripping-rolls carried by the said frames, means for adjusting the slides to accommodate the thickness of the lumber, and means for moving the roll-carrying frames upon their pivot-points, so that they may be thrown apart to receive the same and brought together to grip it.

4. A lumber-handling machine comprising a frame, slides moving thereon, cross-levers pivoted upon the frame and connected with the slides at their outer ends, a reciprocating bar moving in the frame, toggles connecting the cross-levers with the said bar, means for reciprocating the bar, whereby the crossed levers will be caused to draw the slides closer together or force them farther apart, and gripping-rolls carried by the said slides for engaging the lumber to be handled.

5. A lumber-handling machine comprising a frame having ways or tracks arranged at each end, slides adapted to move upon the said tracks, levers pivotally connected by means of links with the said slides, the said levers crossing each other and being fulcrumed near their central points, a reciprocating bar moving in the frame, toggle-levers connecting the bar with the ends of the said crossed levers, a lever connected with the said bar and mounted upon a suitable standard, a segment carried by the standard for holding the lever in adjusted positions, and gripping-rolls mounted upon the slides, the structure being such that by moving the handlever upon its segment the crossed levers will be so actuated as to adjust the slides closer together or farther apart, substantially as described.

6. A lumber-handling machine comprising a frame, horizontal supporting-rolls mounted upon each end thereof, slides moving upon the ends of the frame transversely thereof, means for adjusting them with respect to each other, pivoted frames mounted upon the said slides, gripping-rolls secured in the said frames, shafts mounted upon the slides and connected with the pivoted frames, and means for rotating the shafts, whereby the pivoted frames may be moved so as to spread the gripping-rolls apart above the pivotal points of their respective frames for receiving lumber or for drawing them together to grip the same.

7. A lumber-handling machine comprising a frame, slides mounted thereon, pivoted frames mounted upon the slides, gripping-rolls carried by the said frames, shafts arranged longitudinally of the frames, and journaled at their ends in the slides, arms upon the said shafts connected by links with arms on said pivoted frames, actuating-arms mounted upon the shafts, and means for ac-

tuating them, whereby the shafts may be rotated so as to move the pivoted frames back and forth, and means for adjusting the slides upon the frames so that the gripping-rolls will accommodate themselves to different thicknesses of lumber, substantially as described.

8. A lumber-delivering machine comprising a frame, movable slides mounted thereon, frames pivoted to the said slides, gripping-rolls carried thereby, means for adjusting the slides so that the rolls will be nearer together or farther apart, means for rocking the pivoted frames so that their upper ends will fall apart to receive the lumber, skids arranged upon each side of the frame and having traveling belts adapted to deliver the lumber between the gripping-rolls when they are separated, and means for actuating one of the gripping-rolls to feed the lumber through the machine, substantially as described.

9. A lumber-delivering machine comprising a frame, gripping-rolls adjustably mounted thereon, means for spreading the rolls apart to receive the lumber and for drawing them together to grip the same, skids mounted upon each side of the frame and having lumber-delivering chains moving thereon, a shaft journaled upon the slides carrying the gripping-rolls, a beveled gear upon the said shaft, and a beveled gear upon one of the rollers for engaging the same, a pulley secured to the shaft, a pulley secured to a counter-shaft mounted upon one of the skids, a sprocket-

wheel carried by the said counter-shaft and engaging one of the lumber-carrying chains, a belt connecting the pulley on the counter-shaft with the roll-actuating pulley, and means for tightening the said belt, comprising pulleys engaging or riding upon the same, and a weight for exerting a pressure upon them, the structure being such that the belt will be held taut no matter what the adjusted position of the gripping-rolls, substantially as described.

10. A lumber-delivering machine comprising a frame provided with slideways or tracks, roll-carrying slides mounted thereon, means for adjusting the slides with respect to each other, pivoted frames carried by the slides, gripping-rolls mounted in the said frames, shafts mounted upon the slides and connected with the pivoted frames, arms upon the said shafts, a piston-rod connected with the said arms and extending into a power-cylinder, and means for delivering power to the said cylinder for operating a piston therein and thereby moving the piston-rod, whereby the gripping-rolls after they have received the lumber may be forced together to grip the same, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JOHN C. MELBY.

Witnesses:

J. K. OLSON,

A. H. WILKINSON.