

No. 693,188.

Patented Feb. 11, 1902.

E. E. THOMAS.  
RESAWING DEVICE.

(Application filed Aug. 10, 1901.)

(No Model.)

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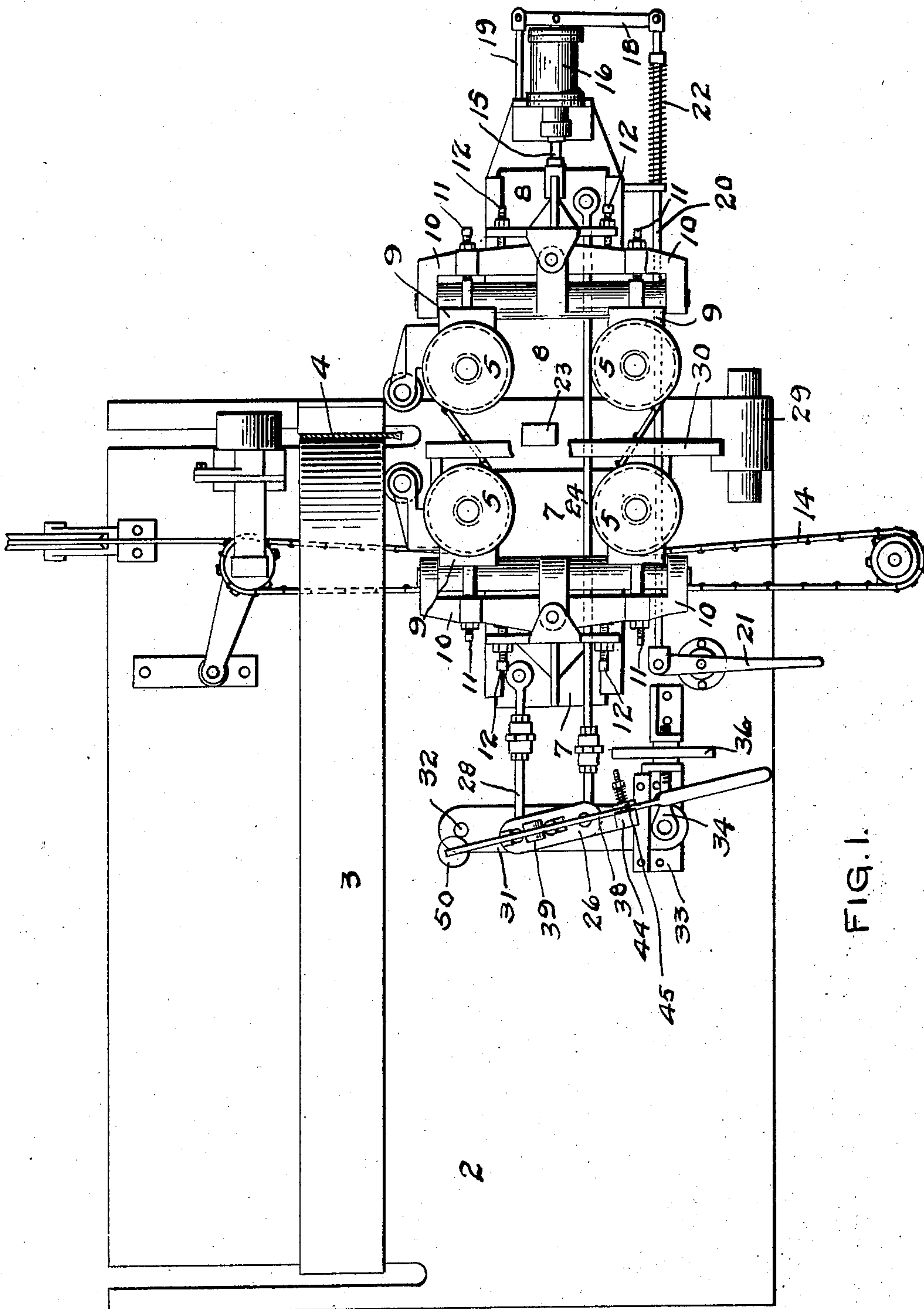


FIG. 1.

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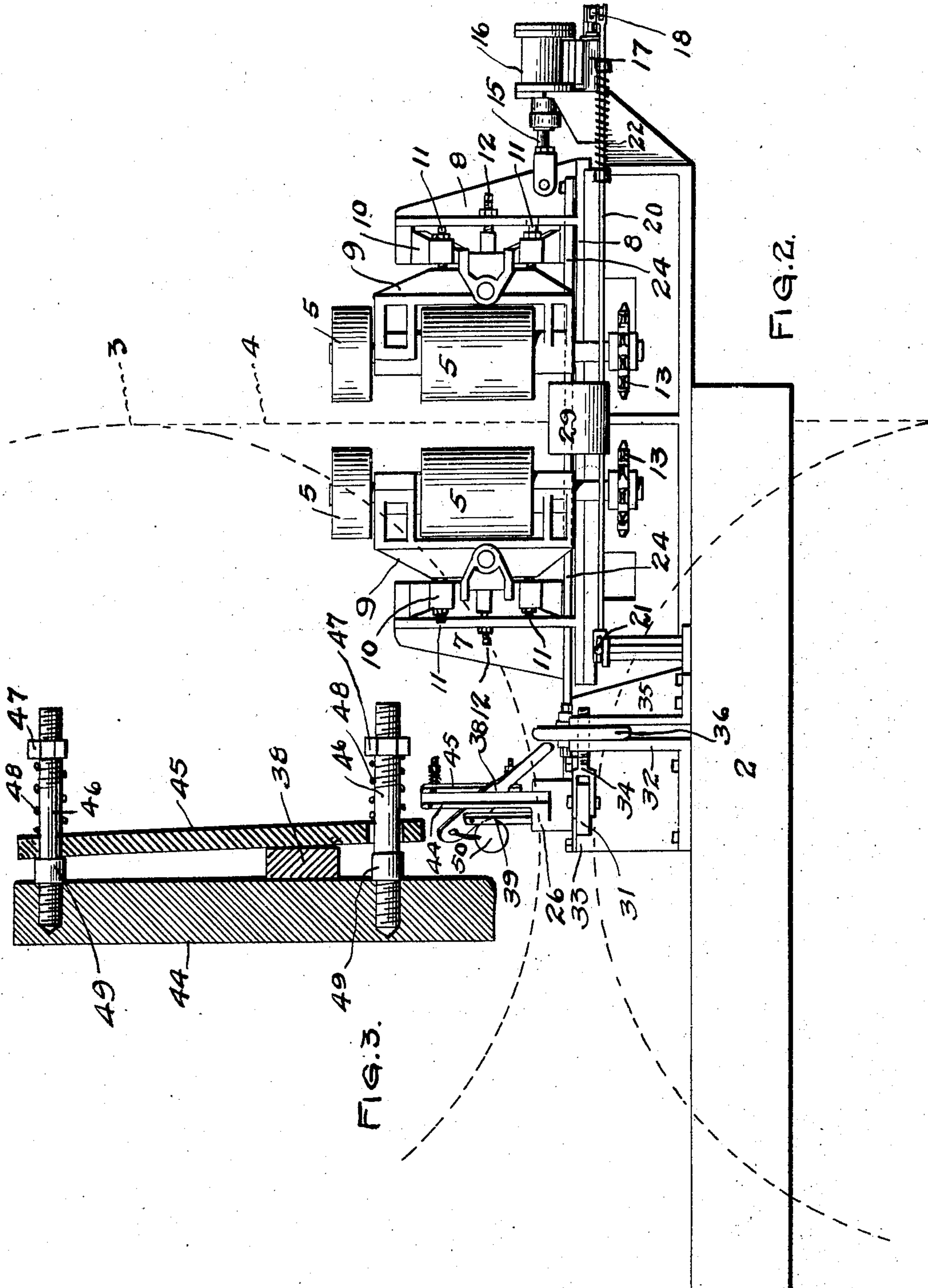
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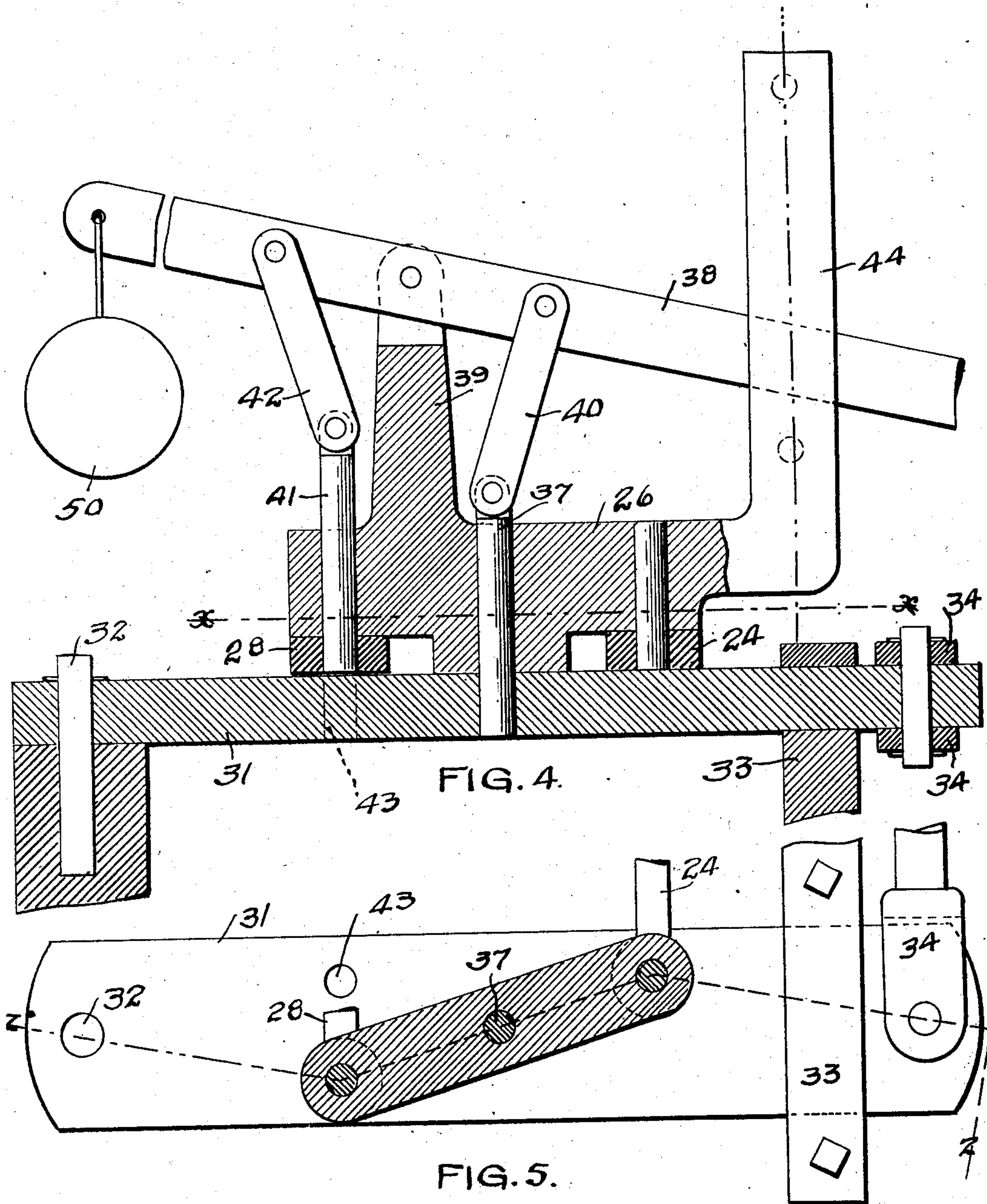
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WITNESSES

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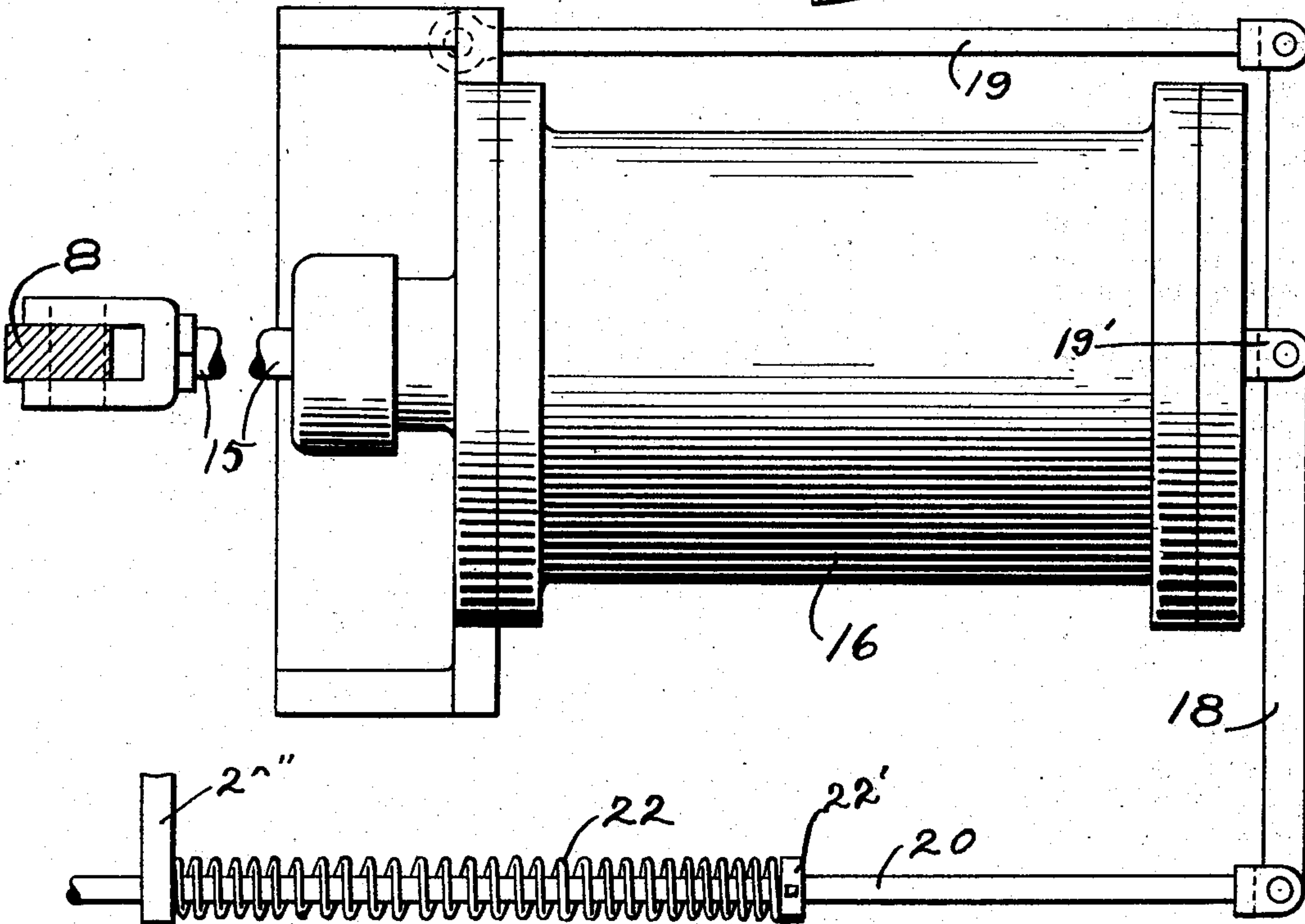
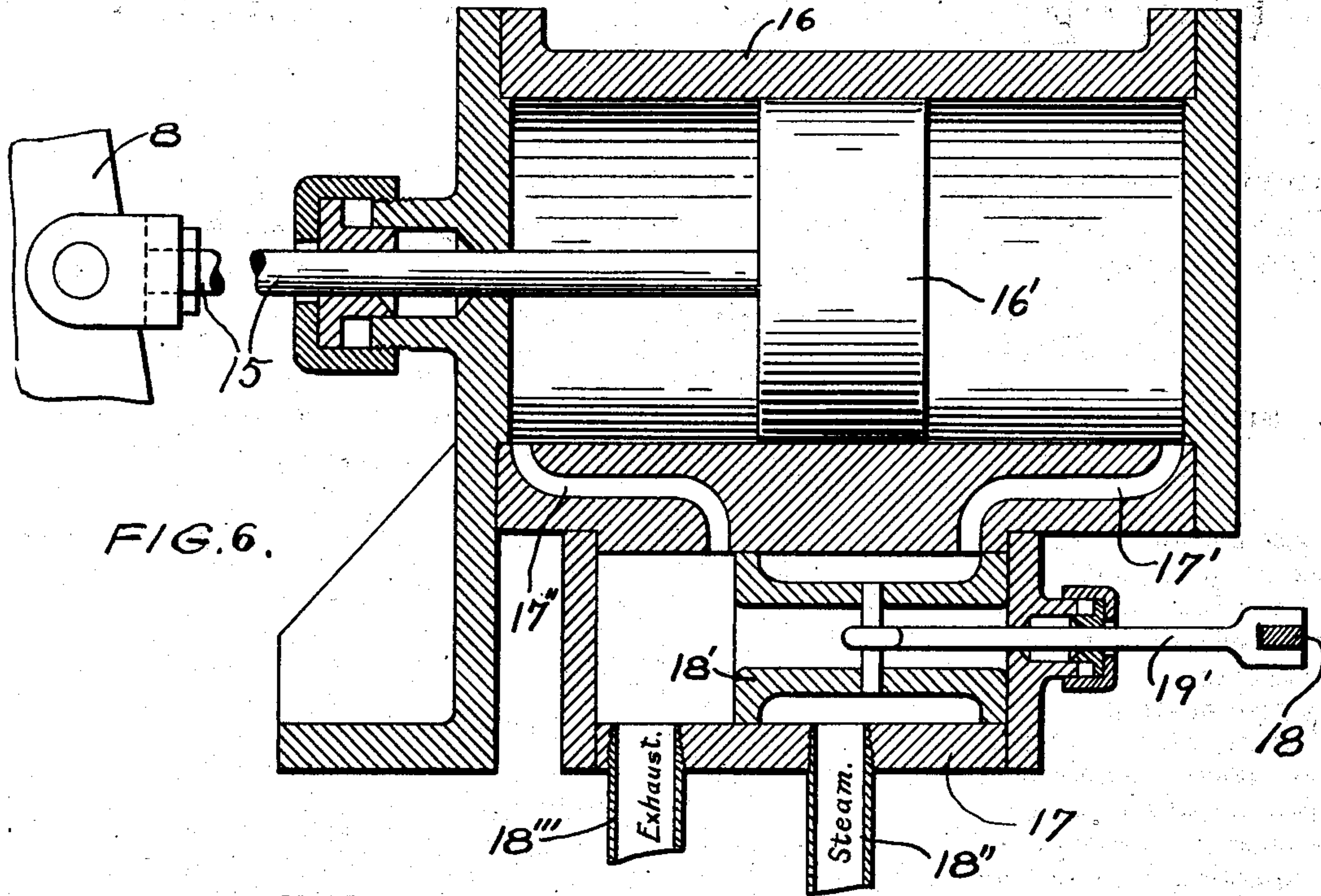
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4 Sheets—Sheet 4.



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# UNITED STATES PATENT OFFICE.

EDWIN E. THOMAS, OF ST. PAUL, MINNESOTA, ASSIGNOR OF ONE-HALF TO UNION IRON WORKS, OF MINNEAPOLIS, MINNESOTA, A CORPORATION OF MINNESOTA.

## RESAWING DEVICE.

SPECIFICATION forming part of Letters Patent No. 693,188, dated February 11, 1902.

Application filed August 10, 1901. Serial No. 71,631. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN E. THOMAS, of St. Paul, Ramsey county, Minnesota, have invented certain new and useful Improvements in Resawing Devices, of which the following is a specification.

This invention relates to improvements in band sawing-machines, and particularly to improvements in that class of machines that are used for resawing lumber—that is to say, for splitting lumber that has already been sawed so as to be rectangular in cross-section.

The invention consists generally in a resawing device or machine having a steam-cylinder for automatically holding the feed-rolls in the desired position and permitting them to adjust themselves to the thickness of the lumber that is passed between them.

The invention consists, further, in means for separating the rolls, means for fixing one set of rolls in position while the other set of rolls remains adjustable, and means for adjusting the rolls so as to have the saw in a central position between the rolls.

The invention consists, further, in the constructions and combinations hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of a portion of a band-saw mill embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a detail of the means for holding the lever carrying the pivots for the sway-bar. Figs. 4 and 5 are details of the bridge-tree and sway-bar. Fig. 6 is a longitudinal section of the steam-cylinder and its valve. Fig. 7 is a plan view of the same.

In the drawings, 2 represents a portion of the frame or base of a band-saw mill, 3 one of the band-wheels, and 4 the band-saw. The feed-rolls 5 5, of which there are two sets or pairs, are mounted in the sliding brackets 7 and 8. These rolls are carried upon the brackets by the adjustable bars 9 and 10, and these bars are provided with the adjusting-screws 11 and 12, by means of which the rolls may be adjusted and alined. The shaft of each

roll is provided with a suitable sprocket-wheel 13, and the rolls are all driven, preferably, by a sprocket-chain 14.

In my present application I make no claim to the means for supporting or adjusting the feed-rolls hereinbefore described nor to the means for driving said rolls, having shown and described substantially the same means in my former application for patent, Serial No. 13,572, filed August 20, 1900.

The bracket 8 is arranged to slide in ways upon the frame of the machine, and the bracket 7 is also arranged to slide in similar ways, so that the two brackets and the rolls carried by them may be made to approach toward or recede from each other. One of the brackets, as here shown the bracket 8, is connected to the piston-rod 15 of a single-action steam-engine. This engine consists of a single cylinder 16, with a piston 16' therein, a steam-chest 17, ports 17' and 17'', leading from the steam-chest into the cylinder, and a sliding valve 18', provided in said steam-chest, whereby steam may be admitted to either side of the piston from a steam-supply pipe 18''. An exhaust 18''' is provided in one end of the steam-chest. A lever 18, pivoted near one end on a stationary support 19, is connected at a point intermediate to its ends to the valve-stem 19' and at the end opposite from the support 19 is connected to a rod 20, that in turn is connected to a hand-operated lever 21. A spring 22 is provided on the rod 20, between a collar 22' on said rod and a fixed guide 22'' and this spring normally holds the valve 18' in the position shown in Fig. 6, with the port behind the piston open to the live steam and the opposite side of the piston open to the exhaust. The steam entering the cylinder behind the piston forces it forward and moves the bracket 8 and the rolls carried thereby toward the bracket 7. A suitable stop 23 is arranged between the two brackets and prevents the brackets from being moved close enough to each other to permit the rolls to come in contact. The bracket 8 is connected by a rod 24 to a pivoted sway-bar 26, and the bracket 7 is connected by a rod 28 to the opposite end



of this bar. The sway-bar being centrally pivoted (see Fig. 5) the brackets 7 and 8 will be simultaneously and equally moved toward and from each other and with the steam behind the pistons will be normally held toward each other with a yielding pressure, and this pressure will be the same whether the rolls are near the saw or a considerable distance therefrom. I have found this means for yieldingly holding the rolls toward each other a great improvement over the weight devices ordinarily employed for this purpose, as the power exerted by the weight is constantly changing, owing to the change of leverage. I have also found that where the rolls are held together by steam-pressure behind the piston they are more sensitive and will adapt themselves more readily to variations in the thickness of the lumber. By operating the lever 18 the valve 18' may be moved to the other end of the steam-chest, opening the port 17' to the exhaust and allowing the steam to flow in ahead of the piston to force it back and separate the rolls.

The machine is provided with the usual supporting roll or rolls 29, and it may also be provided with the bar 30, supported upon and in front of one of the brackets, for the purpose of holding the lumber in a substantially horizontal position and preventing the forward end from tipping down as the lumber is being fed to the saw. The sway-bar 26 is supported upon the pivoted bridge-tree 31. One end of this bridge-tree is secured upon the pivot 32, and the opposite end rests upon a bracket 33 and is provided with a bolt 34, pivotally connected thereto. This bolt passes through suitable openings in the bracket 33 and in a bracket 35, and a threaded hand-wheel 36 is arranged upon the bolt 34, between the two brackets 33 and 35. By this means the end of the bridge-tree 31 may be adjusted toward or from the feed-rolls, and thereby the pivot of the sway-bar may be adjusted toward or from the saw, and the brackets 7 and 8 and the rolls may be moved at right angles to the plane of the saw, so as to bring them into position, with the saw on a central line between them.

It sometimes occurs that it is desirable to have one set of the rolls fixed, while the other set is automatically adjustable. I accomplish this result by changing the pivotal point of the sway-bar from the center thereof to the end, where the rod 28 from the bracket 7 is connected to said sway-bar. This construction is shown in detail in Figs. 3, 4, and 5 of the drawings. As here shown, the sway-bar is pivoted to the bridge-tree centrally by means of the pivot-pin 37. A lever 38 is pivoted upon a projection 39 upon the sway-bar, and the pivot-pin 37 is connected to said lever by a link 40. A pivot-pin 41 is also provided on the sway-bar 26 for connecting the rod 28 to said sway-bar. This pivot-pin is connected to the lever 38 by the link 42 at the opposite

side of the fulcrum from the connection for the link 40. A hole 43 is provided in the bridge-tree, and when the pivot-pin 41 is directly over the hole 43 the lever 38 may be operated to raise the pivot-pin 37 out of the bridge-tree and to force the pivot-pin 41 down into the hole 43 in said bridge-tree. This changes the pivotal point of the sway-bar from the center of the sway-bar to its end, and the movement of the bracket 8 will not now cause any movement of the bracket 7, and the rolls supported by the bracket 7 will remain stationary, while those supported upon the bracket 8 may be adjusted toward and from these stationary rolls. When the machine is in operation, ordinarily it will be noted that the lumber that is passed between the rolls will be sawed through the center. If, however, it is desired to saw it at one side of the center, the bracket 7 may be fixed in a stationary position in the manner already described, and the lumber may now be sawed at any point, dependent upon the position of the bracket 7. I prefer also to provide an automatic device for holding the lever 38 in the desired position. As here shown, the sway-bar 26 is provided with the upright 44, against which the side of the lever 38 rests and upon which said lever slides. A bar 45 is arranged parallel with the upright 44 and outside of the lever 38. Studs 46 are arranged in the upright 44 and pass through holes in the bar 45. The ends of these studs are threaded for nuts 47 and are provided with the springs 48. (See Fig. 3.) Collars 49 are provided on the studs between the bar 45 and the upright 44, the thickness of these collars being less than the thickness of the bar 38. A weight 50 is hung upon the end of the lever 38, and this weight tends to balance the lever, so it will stay where it is put. When the end of the lever opposite that which carries the weight is depressed, the bar 45 will stand in the position shown in Fig. 3, and the lever 38 will be pinched between the bar and the upright 44 and the lever will be clamped in any position in which it may be placed. By raising the end of the lever the pin 37 will be raised out of the bridge-tree and the pin 41 will be pushed down into the bridge-tree and the pivotal point of the sway-bar will be transferred from its center to its end. The bridge-tree may then be adjusted so as to bring the bracket 7 and the rolls carried thereby into the desired position, and these rolls will now remain fixed in this position, the opposite set of rolls remaining automatically adjustable, as before. If for any reason while the machine is in operation it is desired to separate the rolls, this may be done through the medium of the hand-lever 21, the rod 20, the lever 18, and the valve and valve-stem connected thereto by admitting steam to the cylinder at the opposite side of the piston, and thereby forcing the piston back into the cyl-



inder and withdrawing the bracket 8, and when the sway-bar is centrally pivoted simultaneously withdrawing the bracket 7.

It will be obvious that the details of the construction may be modified in many particulars without departing from my invention and, if preferred, other means than those shown and described may be used for alining and for driving the rolls.

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

1. In a resawing-machine, the combination, with a saw, of two sets of feed-rolls, movable brackets whereon said feed-rolls are supported respectively, a sway-bar pivoted at a point intermediate to its ends, rods connecting the ends of said bar and said brackets respectively, means for moving the pivot of said bar to center the saw with respect to said rolls, a suitable steam-cylinder provided with a piston and connected to one of said brackets, and a valve normally open to allow steam to enter said cylinder behind said piston, whereby said rolls will be held toward each other with a yielding pressure, substantially as described.

2. The combination, with the saw, of two sets of feed-rolls, brackets supporting said rolls, a pivoted sway-bar connected with each of said brackets, and means for changing the pivotal point of said sway-bar to coincide with its point of connection with one of said brackets, substantially as described.

3. The combination, with the saw, of two sets of feed-rolls, brackets supporting said rolls, a pivoted sway-bar connected with each of said brackets, means for changing the pivotal point of said sway-bar to coincide with its point of connection with one of said brackets, and a suitable steam-cylinder provided with a piston that is connected to one of said brackets, substantially as described.

4. The combination, with the feed-rolls and brackets, of the pivoted sway-bar connected with said brackets, the bridge-tree upon which said sway-bar is supported, the movable pivots, either one of which is adapted to connect said sway-bar to said bridge-tree and one coinciding with the point of connection of said bar to one of said brackets, and means for moving said pivots, substantially as described.

5. In a resawing-machine, the combination, with a saw, of feed-rolls, movable brackets whereon said rolls are supported, a sway-bar pivoted at a point intermediate to its ends, means connecting said ends respectively with said brackets, a bridge-tree whereon said sway-bar is supported, said tree being pivoted at one end, and means for adjusting its opposite end to move the pivot of said sway-bar toward or from the saw, for the purpose specified.

6. The combination, with the movable brackets and the feed-rolls carried thereby, of

the pivoted sway-bar connected with each of said brackets, movable pivots either of which is adapted to connect said sway-bar with said bridge-tree and one coinciding with the point of connection of said bar to one of said brackets, and a lever for operating said pivots, substantially as described.

7. The combination, with the bridge-tree, of the sway-bar pivoted thereon, the feed-rolls and their movable supports connected with said bar, the pivoted lever, the pivot-pins connected with said lever, and means for locking said lever, substantially as described.

8. The combination, with the sway-bar, and pivot-pins, of the rolls and their movable supports connected with said bar, the movable lever 38, the upright 44, the studs 49, the bar 45 arranged upon said studs, and springs engaging said bar, substantially as described.

9. In a resawing-machine, the combination, with a saw, of feed-rolls arranged in pairs upon each side of the saw, movable supports for said rolls, a bar having its ends connected respectively with said supports and pivoted at an intermediate point to said ends, and means for changing the pivotal point of said bar to correspond with its point of connection with one of said supports, substantially as described.

10. In a resawing-machine, the combination, with a saw, of brackets provided on each side of the same, feed-rolls carried by said brackets, a cylinder having its piston connected with said brackets for simultaneously moving them toward or from said saw, a valve for said piston, an operating-lever, a rod connecting said lever and valve, and a spring provided on said rod and normally holding said valve in an open position, whereby steam is normally admitted to one side of the piston and tends to move said rolls and brackets toward the plane of the saw but permits them to yield as the lumber is fed to the saw, substantially as described.

11. In a resawing-machine, the combination, with a saw, of two sets of feed-rolls, movable brackets whereon said feed-rolls are supported respectively, a sway-bar pivoted at an intermediate point to its ends, means connecting the ends of said bar and said brackets respectively, a suitable steam-cylinder having a piston connected to one of said brackets, and a valve normally open to allow steam to enter said cylinder behind said piston, whereby said rolls will be held toward each other with a yielding pressure, substantially as described.

12. In a resawing-machine, the combination, with a saw, of the feed-rolls, movable supports whereon said rolls are arranged, a member having connections respectively with said supports and pivoted at an intermediate point, a fluid-pressure motor having a piston connected with one of said supports, and means for normally allowing pressure to enter



said motor behind said piston whereby said rolls will be held toward each other with a yielding pressure.

13. In a resawing-machine, the combination, with a saw, of the feed-rolls, movable supports whereon said rolls are arranged, a member having connections respectively with said supports and pivoted at an intermediate point, a suitable steam-cylinder having a piston connected to one of said supports, and a

valve normally open to allow steam to enter said cylinder behind said piston, whereby said rolls will be held toward each other with a yielding pressure.

In witness whereof I have hereunto set my hand this 7th day of August, 1901.

EDWIN E. THOMAS.

In presence of—

RICHARD PAUL,  
M. E. GOOLEY.