

(No Model.)

3 Sheets—Sheet 1

E. C. MERSHON.  
BAND SAW RESAWING MACHINE.

No. 547,796.

Patented Oct. 15, 1895.

Fig. 1.

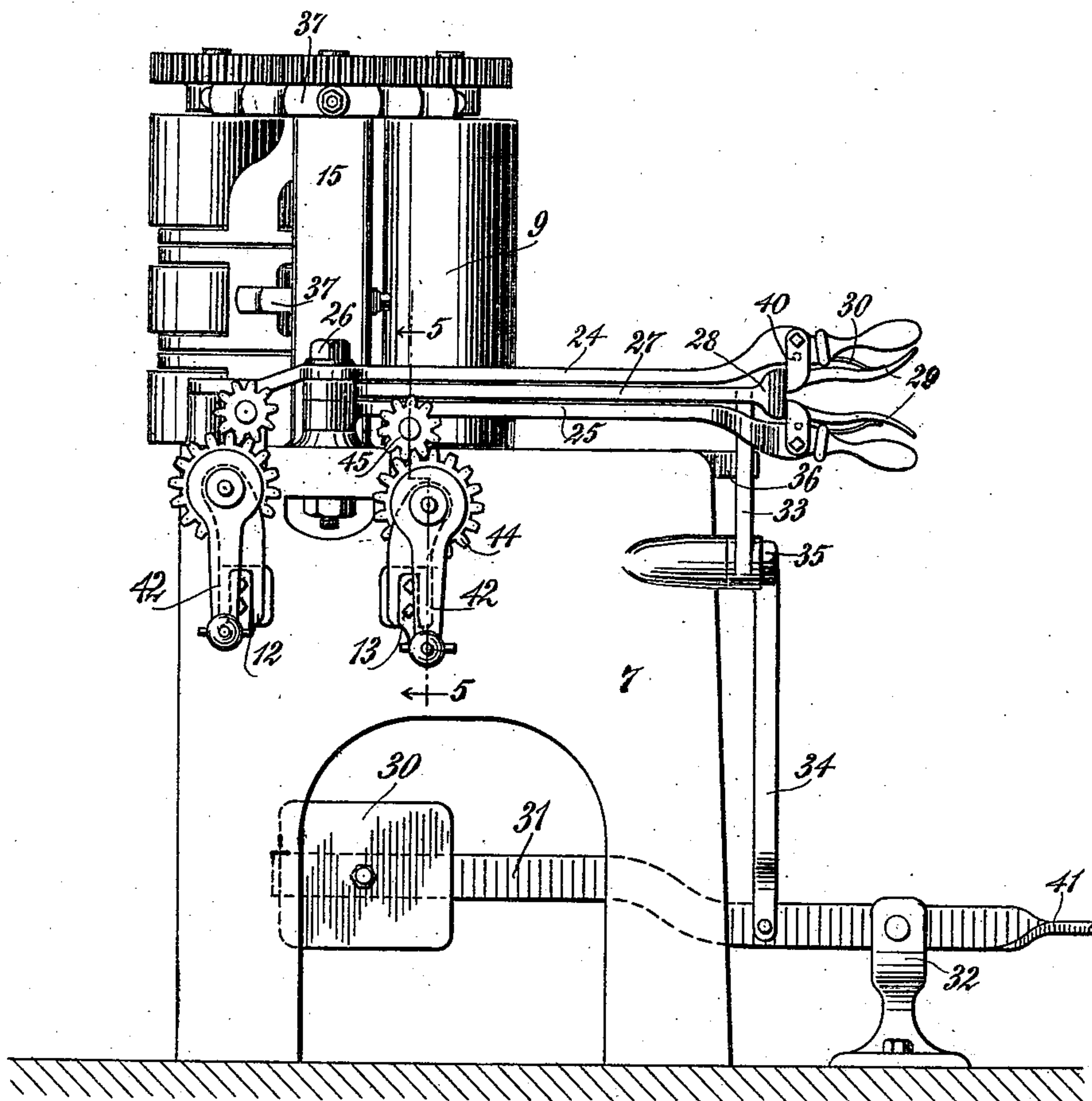
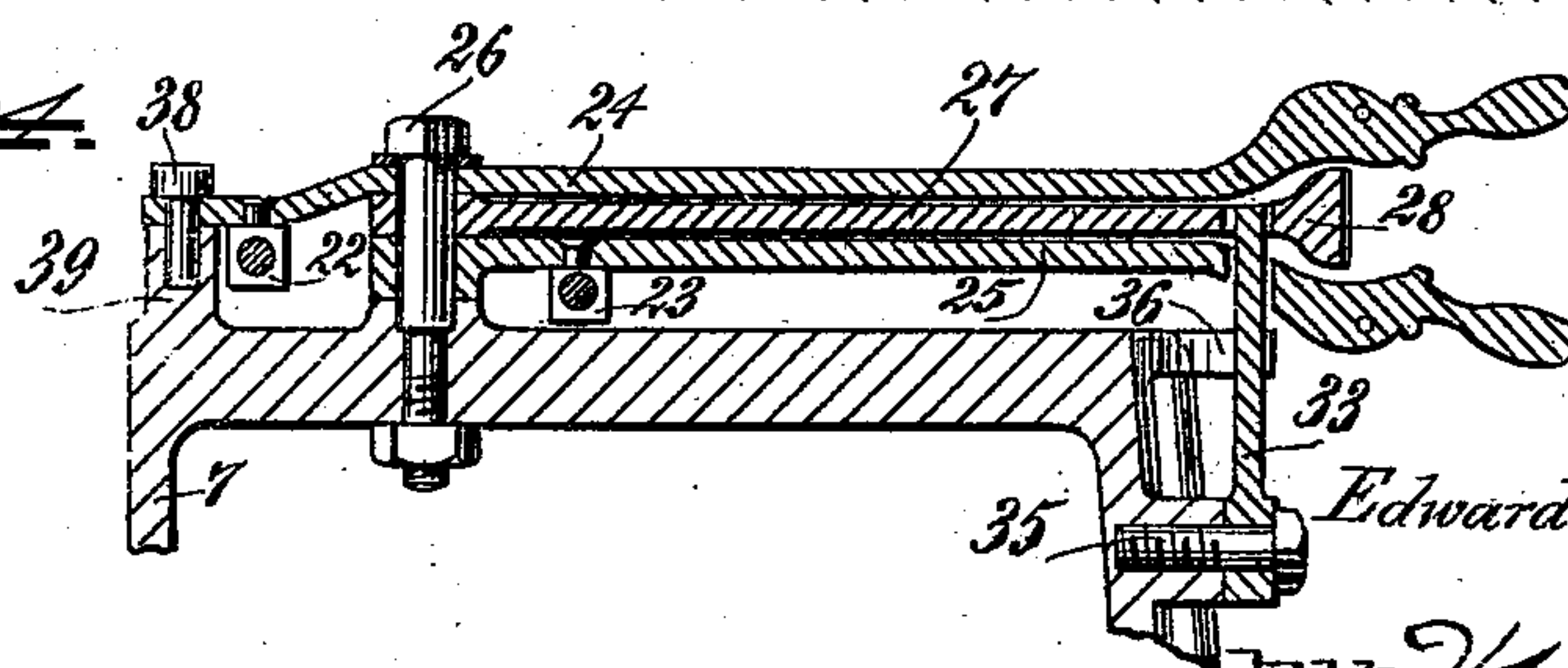


Fig. 4.



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(No Model.)

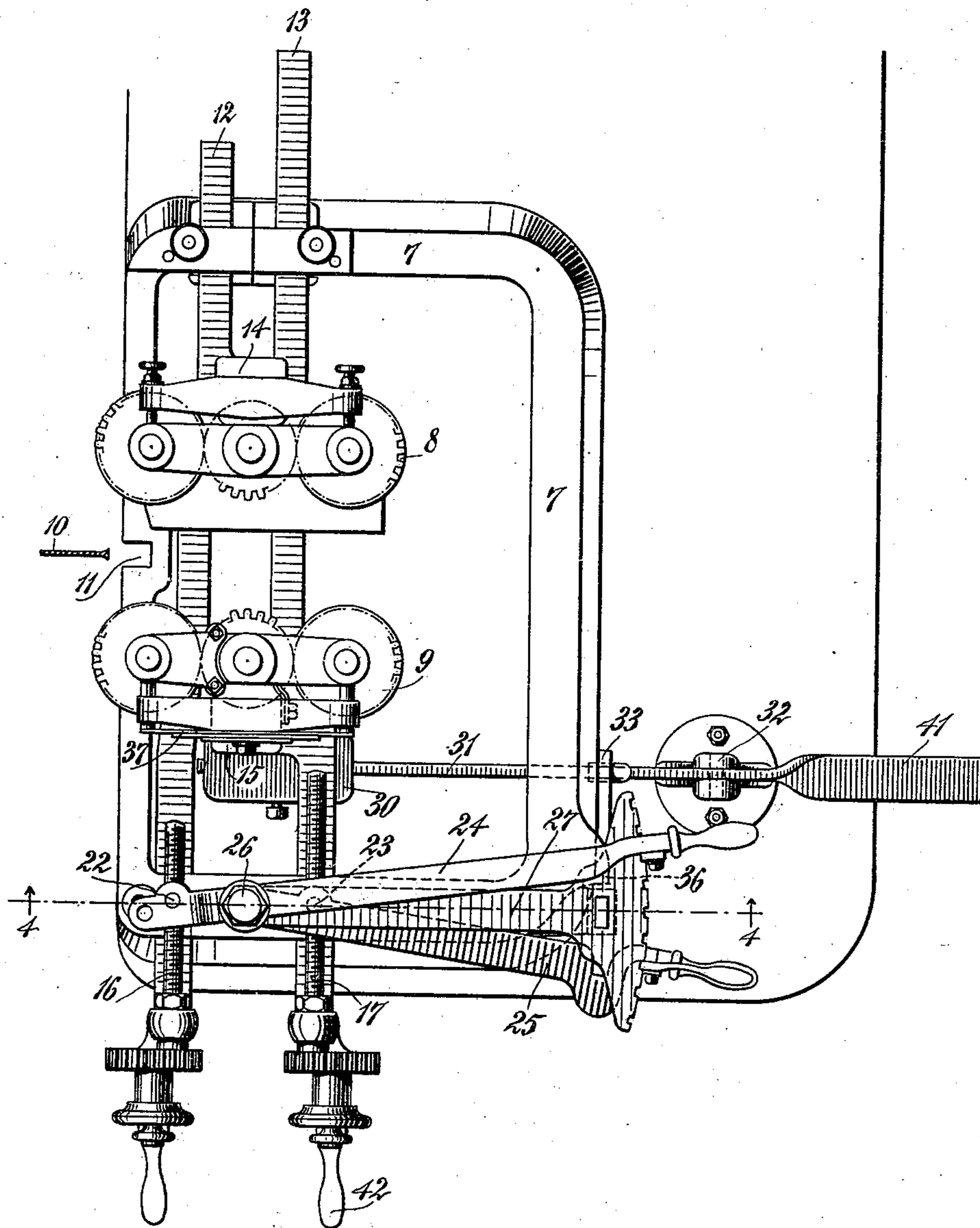
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Fig. 2.



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3 Sheets—Sheet 3.

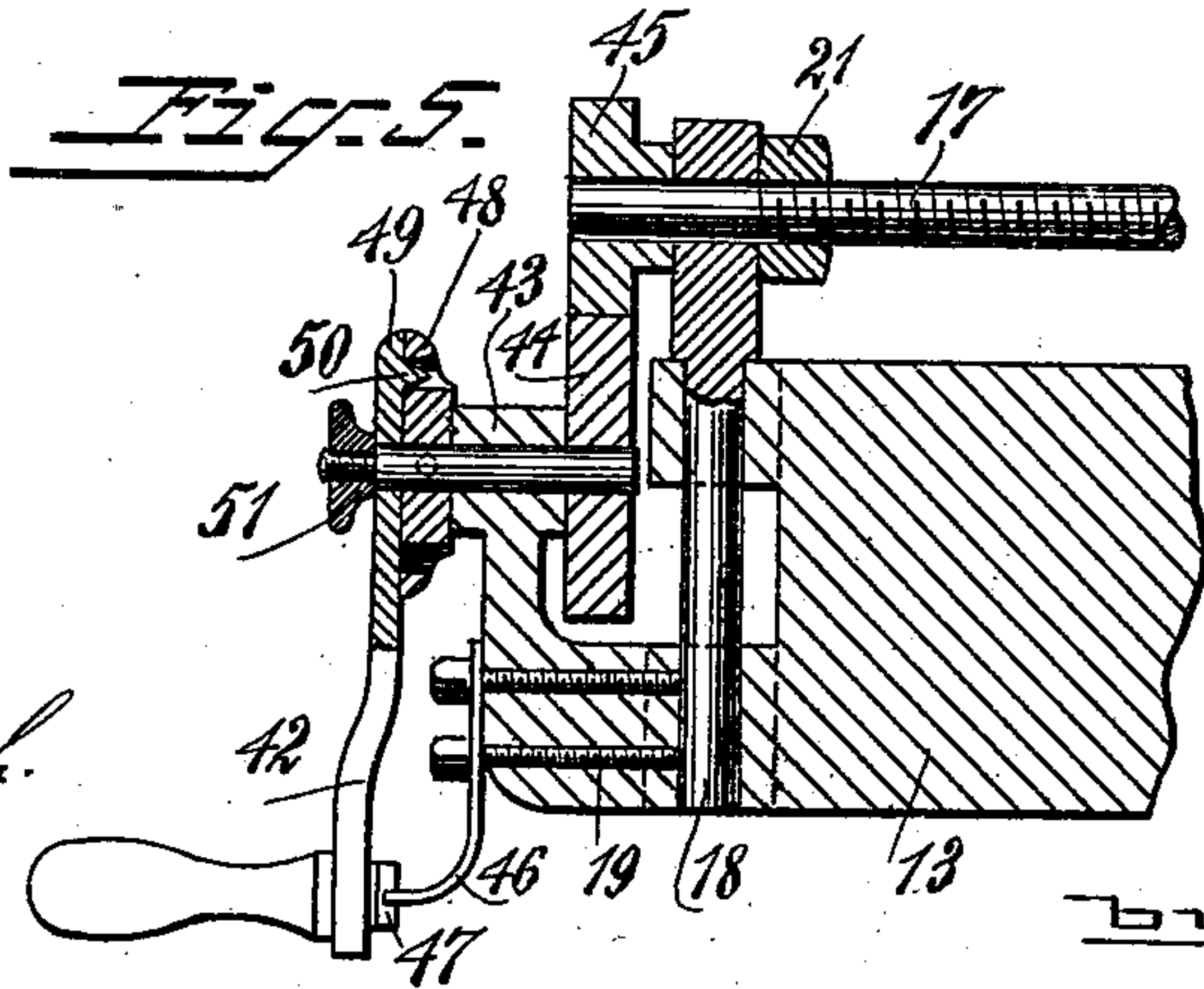
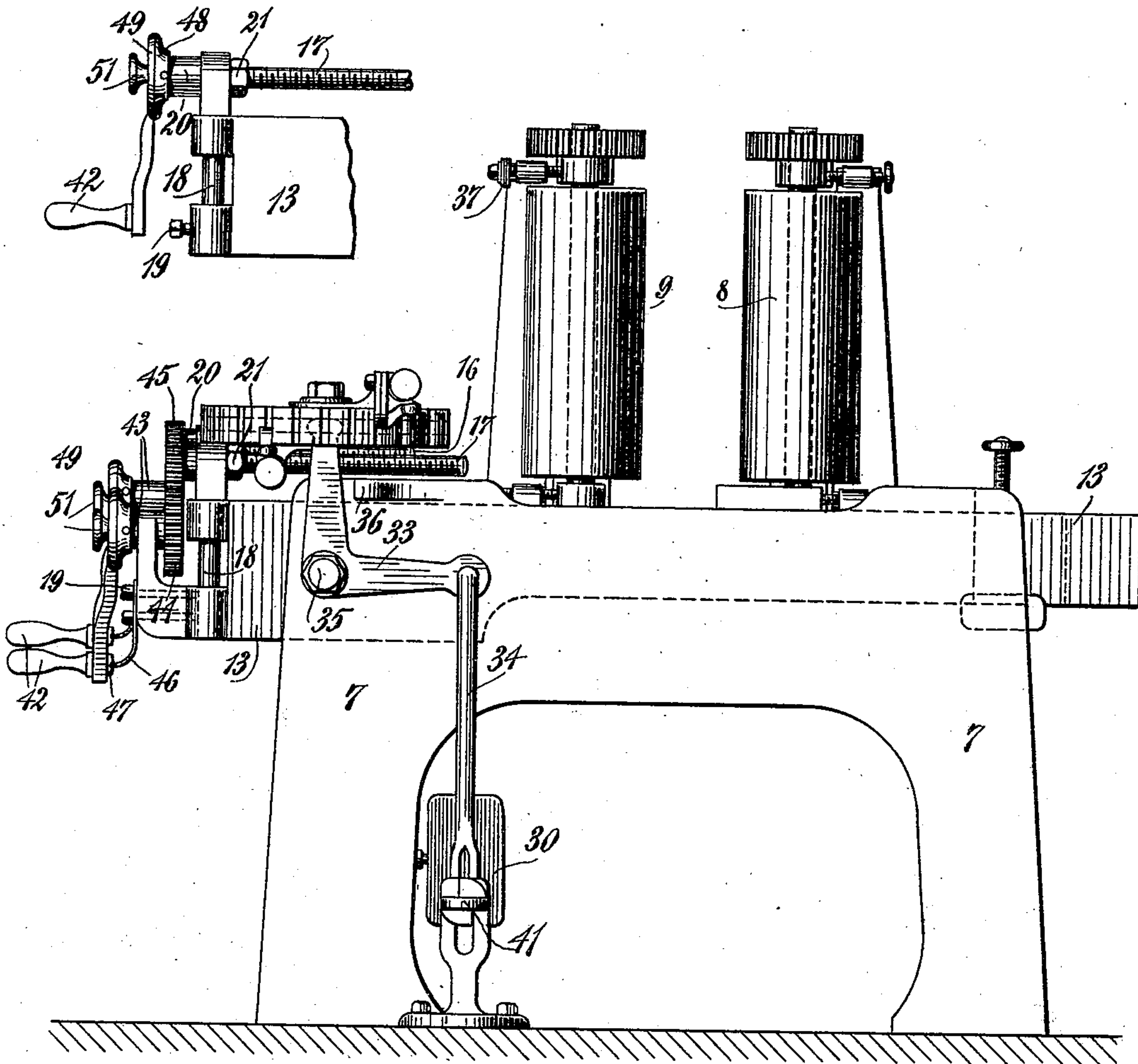
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*Fig. 6.*

*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

EDWARD C. MERSHON, OF SAGINAW, MICHIGAN.

## BAND-SAW RESAWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 547,796, dated October 15, 1895.

Application filed July 1, 1895. Serial No. 554,533. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD C. MERSHON, a citizen of the United States, and a resident of Saginaw, in the county of Saginaw and State of Michigan, have invented a certain new and useful Improvement in Band-Saw Resawing-Machines, of which the following is a specification.

My invention relates to certain new and useful improvements in sawing-machines, and particularly to the adjustment and control of the feeding mechanism for band-resaws. These improvements especially relate to the form of machine presented in my Patent No. 538,688, granted May 7, 1895, wherein the feeding-rollers are mounted upon slides extending across the bed of the machine and to which adjustable self-centering mechanism is connected. Said improvements may, however, be as well applied to the old form of slides which carry the feeding mechanism.

In my machine above referred to, as in others which provide for individual adjustment of the sets of feeding-rolls, such adjustment is generally made once for a certain lot of lumber and cannot be readily and instantaneously changed.

My present invention is to obviate this difficulty by making it possible to shift each set of feeding-rolls instantaneously and at any time. They may be thus shifted through any distance desired; but I herein show and describe the mechanism as constructed to shift said rolls through only sufficient distance to provide instantaneous adjustment for the variations in the pieces of lumber of a certain lot, depending upon the usual individual adjustment of each set of rolls in changing from one lot of lumber to a different one.

With this object in view the invention consists in the combination, with feeding mechanism for advancing the lumber to the saw, of means connected thereto and within the reach of the sawyer for instantaneously adjusting each portion of said feeding mechanism.

The invention further consists in the construction, combination, and arrangement of parts, as hereinafter fully described, and set forth in the claims.

In the accompanying drawings, Figure 1 represents that portion of a resawing-machine

involving the features of my invention. Fig. 2 represents a plan thereof; Fig. 3, a front elevation; Fig. 4, a section through the instantaneously-adjusting mechanism, taken on the line 4 4 of Fig. 2. Fig. 5 represents a vertical section through the screw-adjusting mechanism, represented as taken on the line 5 5 of Fig. 1. Fig. 6 represents in side elevation a modification of the screw-adjusting mechanism.

I have simply shown so much of a band-resawing machine as considered necessary to illustrate my improvement. For a description of the entire machine and of several of the features illustrated herein, which do not form a part of my present invention, reference may be had to the patent above referred to.

In the drawings, 7 represents that portion of the frame or bed of the machine upon which are mounted the feeding mechanism and the apparatus for regulating and controlling the same. It will be noticed that the driving mechanism for the feeding-rolls has also been omitted.

8 represents the feeding-rolls at the right-hand side of the line of cut, and 9 the set of feeding-rolls at the left-hand side of the line of cut, said line being indicated by the position of the saw represented in section at 10 in Fig. 2, a notch, indicated at 11 in the frame 7, being formed for the purpose of preventing the saw from striking the frame should it be forced ahead in any way. As in the patent above referred to, the feeding-rolls are shown as mounted upon slides 12 and 13, extending across the line of cut from side to side of the frame 7, wherein they are mounted in suitable bearings. From the slide 12 arises the post 14, upon which is mounted the set of rolls 8, and from the slide 13 arises the post 15, upon which is mounted the set of rolls 9.

The feeding mechanism may be of any sort other than that illustrated, and the slides for carrying the feeding-rolls may be of any of the well-known forms, for in these features there is nothing of special relation to my present invention. The only essential is that the opposite sets of rolls shall be mounted upon slides capable of moving to and from the line of cut.

To the slide 12 I secure in any suitable manner a screw, as 16, and to the slide 13 a



similar screw, as 17. By preference, these screws are secured to the slides by means of posts 18, secured in any suitable manner to the ends of the slides, as by mounting them in bosses formed upon or secured to the slides, screws, as 19, being passed through one or more of said bosses into engagement with the posts 18. Said screws 16 and 17 may be retained in said posts in any suitable way, as by collars 20 and nuts 21, placed, respectively, upon opposite sides of the post. These screws are used for adjusting the feeding-rolls with relation to the line of cut and, as seen, move with the slides to which they are attached. In order to cause them to move said slides, they pass, respectively, through trunnion-nuts 22 and 23, pivotally secured to levers 24 and 25, respectively, as clearly indicated in Fig. 4. These levers are pivoted upon the frame 7 by means of a suitable stud or bolt, as indicated at 26. Between these two levers and upon the pivot common thereto is mounted what may be termed an "idle-lever" 27, which has formed upon its outer end a segmental rack, as 28, each of the levers 24 and 25 being provided with means for securing them to said rack. This securing means may be of any suitable construction, one form of which is illustrated and consists of a spring-pressed hand-lever 29, pivoted to each lever, as indicated, and engaging with the notches in the rack 28. The spring for throwing each lever into the notches is indicated at 30. By securing each of the levers 24 and 25 to the idle-lever 27 by means of the detents the adjusting-screws 16 and 17, and therefore the slides 13 and 14, are retained in fixed relation to one another, and whatever variation of position takes place with respect to one slide necessarily affects the other, and, as will be seen from Fig. 2, any pressure upon the rolls 8 forcing them from the line of cut will likewise force the rolls 9 from said line, thereby equalizing the displacement of said feeding-rolls with relation to the line of cut.

For returning the feeding-rolls toward the line of cut the usual automatically-operating weight, as indicated at 30, is employed, its connection to the slides being formed through its lever 31, pivoted at 32, and the elbow-lever 33, connected thereto by link 34 and pivoted to the frame of the machine, as at 35, and the idle-lever 27, with which the upper end of the elbow-lever engages, as by entering into a slot formed therein. This arrangement of weight and levers automatically equalizes the pressure of the rolls upon the lumber. By the construction above described the feeding-rolls are forced equally to and from their respective positions at the sides of the line of cut by means of said weight and the lumber inserted, respectively. This action is generally termed the "self-centering" action of the feeding mechanism.

When the parts are in the position above described, any rotation of either screw 16 or

17 will affect the relative location of the feeding-rolls, which may be thereby adjusted to any desired distance from the line of cut. After the rolls have been once set by said screws, it is frequently desirable and often necessary to change their relation more quickly than can be done by the sawyer moving from his position in front of the machine to the location of the adjusting-screws at the side thereof. To provide for this instantaneous adjustment the levers 24, 25, and 27 and their appurtenances have been devised, and, as will be seen, to shift either set of rolls to or from the line of cut it is only necessary for the sawyer to reach forward, grasp the necessary lever, thereby withdrawing the detent 29, when said lever may be moved in the necessary direction and retained in the desired position upon the release of the detent 29. The feeding-rolls, by means of these levers, may be moved through any desired distance, but preferably through fractions of an inch up to one inch, the greater adjustment of the rolls being generally made by means of the adjusting-screws 16 and 17.

I have shown at 36 the stop formed upon the frame 7 to limit the movement of the elbow-lever 33. This stop serves, in the self-centering action, to hold the feeding-rolls at a predetermined distance from the line of cut, as in the patent above referred to, the rolls 9 being at that time forced toward the line of cut by means of suitable springs, as 37, mounted and operating substantially in the manner disclosed in said patent.

Should it be desired to fix one of the sets of rolls, as 8, in a certain position and leave the other set of rolls subject to the automatic and instantaneous adjustment, lever 24 may be moved to its middle position and retained there by means of the bolt or pin 38, passed through a hole in the end thereof into a stud 39 upon the frame 7, the detent 29 on said lever being withdrawn from the rack 28 and held in the withdrawn position in any suitable manner, as by means of a pin or spring-cotter inserted through said lever, as at a point 40. (Indicated in Fig. 1.)

To provide for readily throwing the feeding-rolls apart, I extend the lever 31 in the form of a treadle, as at 41, so that the sawyer, by placing his foot on said treadle, may lift the weight 30 and separate said rolls.

For the operation of the adjusting-screws 16 and 17 I have provided, as indicated in Figs. 3 and 5, handles, as 42, connected to short shafts 43, mounted in suitable bearings secured to the ends of the slides 12 and 13. Upon the inner ends of these shafts are gears 44, which mesh with pinions 45, mounted upon the ends of said screws. I then so proportion the gears and pinions and the pitch of said screws that one revolution of the handles 42 will produce a definite amount of movement of the feeding-rolls.

To insure the retention of the handles 42 at



the zero position, I secure in any suitable manner to the slides or to the bearings of the shafts 43 spring-plates, as 46, which are notched for the reception of knife-edges 47, formed upon the rear side of said handles. I may also mount said handles directly upon the screws 16 and 17, as indicated in Fig. 6. I prefer to secure these handles 42 to their shafts or to the screws by means of an adjustable connection, so that after adjusting the rollers to the desired position, if the handles should not have arrived at the zero position, they may be brought to that position without further movement of said rolls. This connection may be made in many ways; but the one devised by me and illustrated particularly in Figs. 3 and 5 consists of a perforated disk 48, secured to the shaft 43, or as may be to one of the screws 16 or 17, and a corresponding disk 49, formed integrally with or connected to the handle 42, and bearing a pin or stud 50, adapted to enter the perforations of disk 48. I then secure these disks together by means of a nut 51, turning upon a screw on the end of shaft 23. By this construction, when it is found that the knife-edge 47 of a handle 42 does not coincide with the notch in spring 46 at the time when the feeding-rolls controlled thereby have assumed the desired position, the nut 51 may be loosened and the knife-edge brought into its retaining-notch, thereby placing the handle in the zero position, when the nut 51 will be again tightened, causing the stud 50, on entering a perforation of disk 49, to hold said handle firmly in place.

A machine provided with my instantaneous adjusting mechanism is operated substantially as follows, viz: Supposing the resaw to be in use in connection with a log-mill and that the mill is running two-inch stuff, the feed-rolls are then adjusted by means of screws 16 and 17, so that each set will be in effect one inch from the line of cut, the lever 33 resting against the stop 36, when there is no lumber in the machine. In this position lumber varying one-quarter to three-eighths inch from two inches will be properly sawed without further adjustment of the rolls; but should, for any reason, a plank of greater thickness issue from the mill, one or both sets of rolls might be quickly moved the desired distance further from the line of cut by the operation of the handles 24 and 25. If it were a three-inch plank, by moving the handle 25 full over to the left from the central position, an inch board and a two-inch plank will be produced, when said handle may be moved back and the two-inch plank resawed.

The form and construction of parts may be varied from that shown without departing from my invention.

What I claim as my invention is—

1. The combination with the feeding rolls automatically movable toward the line of

cut, of means for adjusting each roll or set of rolls independently of the other, and mechanism for instantaneously and accurately adjusting said rolls at any time, and independently of the automatic action thereof.

2. The combination with the feeding rolls, of self-centering mechanism therefor, means for independently adjusting said rolls with respect to each other, and means within the reach of the sawyer for instantaneously and accurately adjusting said rolls with relation to the line of cut.

3. The combination of the slides, feeding rolls carried thereby, individual adjusting mechanism for said rolls, means for automatically moving the rolls toward the line of cut, and means connected to said slides for instantaneously shifting either of them independently of the other.

4. The combination with the slides and the feeding mechanism carried thereby, of adjusting screws connected to said slides, adjusting levers connected to said screws for moving the slides, and an idle lever to which said adjusting levers may be connected.

5. The combination with the slides and the feeding mechanism carried thereby, of adjusting levers pivoted to the frame of the machine and carrying trunnion nuts, screws connected to said slides and passing through said nuts, an idle lever also pivoted to the frame of the machine, and means for adjustably connecting said adjusting levers to said idle lever.

6. The combination with the slides and the feeding rolls carried thereby, of individual adjusting mechanism for the feeding rolls on either side of the line of cut, and means connected to each of said slides for instantaneously shifting either of them independently of the other and holding them in adjusted positions.

7. In a sawing machine, the combination with feeding rolls at either side of the line of cut, of self-centering mechanism for said rolls, means for adjusting the roll or rolls at one side of the line of cut independently of the roll or rolls at the other side of said line means for securing the roll or rolls at one side of the line of cut in a fixed position against the action of the self-centering mechanism, and means connected to the roll or rolls at the other side of the line of cut for instantaneously adjusting them independently of the self-centering action.

8. In a sawing machine, the combination with slides carrying feeding rolls, of a lever connected to each of said slides, means for securing one of said levers to the frame of the machine, and means for holding the other lever in different positions of adjustment.

9. The combination with the slides carrying the feeding rolls, of the adjusting levers connected thereto, the idle lever, means for connecting the adjusting levers to the idle

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lever, and a weighted lever connected to the idle lever for throwing the feeding rolls toward the line of cut.

5 10. The combination with the slides carrying the feeding rolls, of the adjusting levers connected thereto, the idle lever, means for connecting the adjusting levers to the idle lever, an elbow lever pivoted to the frame of the machine and engaging the idle lever, and  
10 a weighted lever connected to said elbow lever for throwing the feeding rolls toward the line of cut, and provided with a treadle to enable the sawyer to throw the feeding rollers away from the line of cut.

15 11. The combination with the feeding rolls and their slides, of the lever mechanism for instantaneously adjusting the feeding rolls, adjusting screws for said slides connected to the levers of said mechanism, a handle for  
20 turning each screw, an adjusting connection

between the handle and screw, and a fixed spring detent for determining the zero position of said handle.

12. The combination of the feeding rolls at either side of the line of cut of which those 25 rolls at one side are spring-pressed toward said line, means for individually adjusting said rolls with respect to the line of cut, self-centering mechanism for said rolls, and means connected to the rolls for instantaneously 30 shifting them toward or away from said line, substantially as set forth.

Signed at Saginaw, in the county of Saginaw and State of Michigan, this 25th day of June, A. D. 1895.

EDWARD C. MERSHON.

Witnesses:

JOHN JENNESS,  
CHAS. D. CURTIS.