

No. 778,764.

PATENTED DEC. 27, 1904.

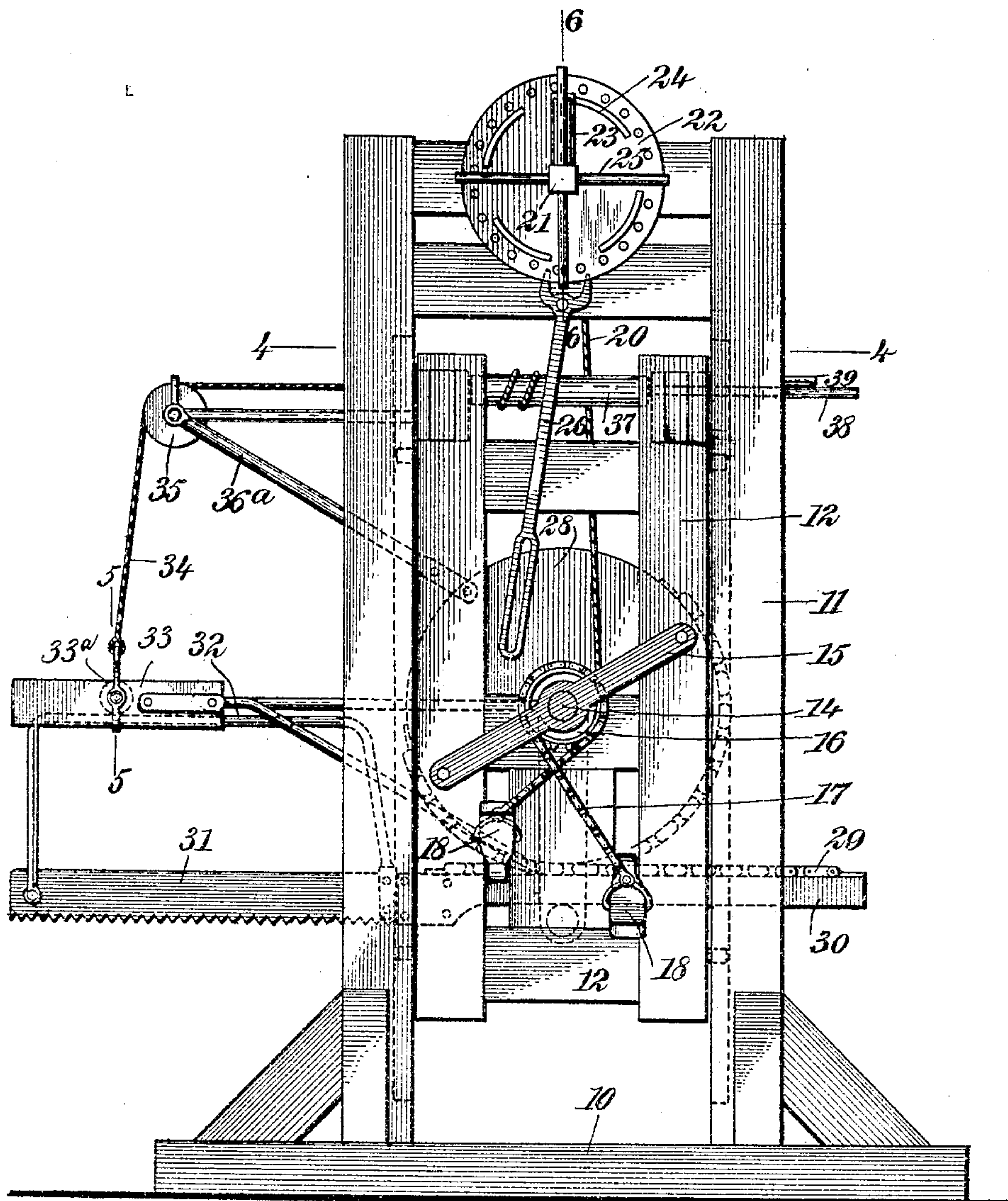
F. J. SHELDON.

DRAG SAW.

APPLICATION FILED SEPT. 10, 1903.

4 SHEETS—SHEET 1.

Fig. 1



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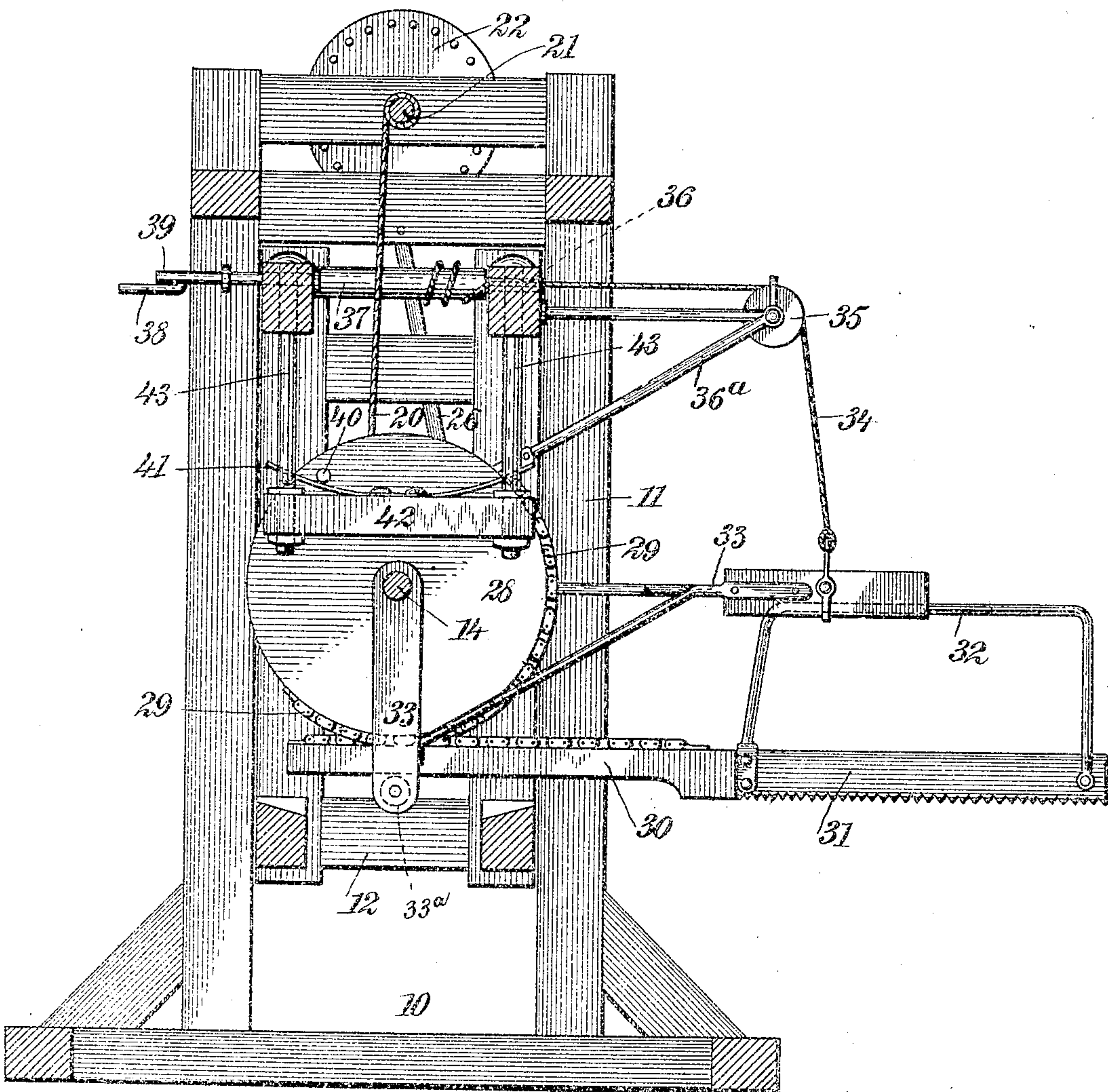
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4 SHEETS—SHEET 2.

Fig. 2



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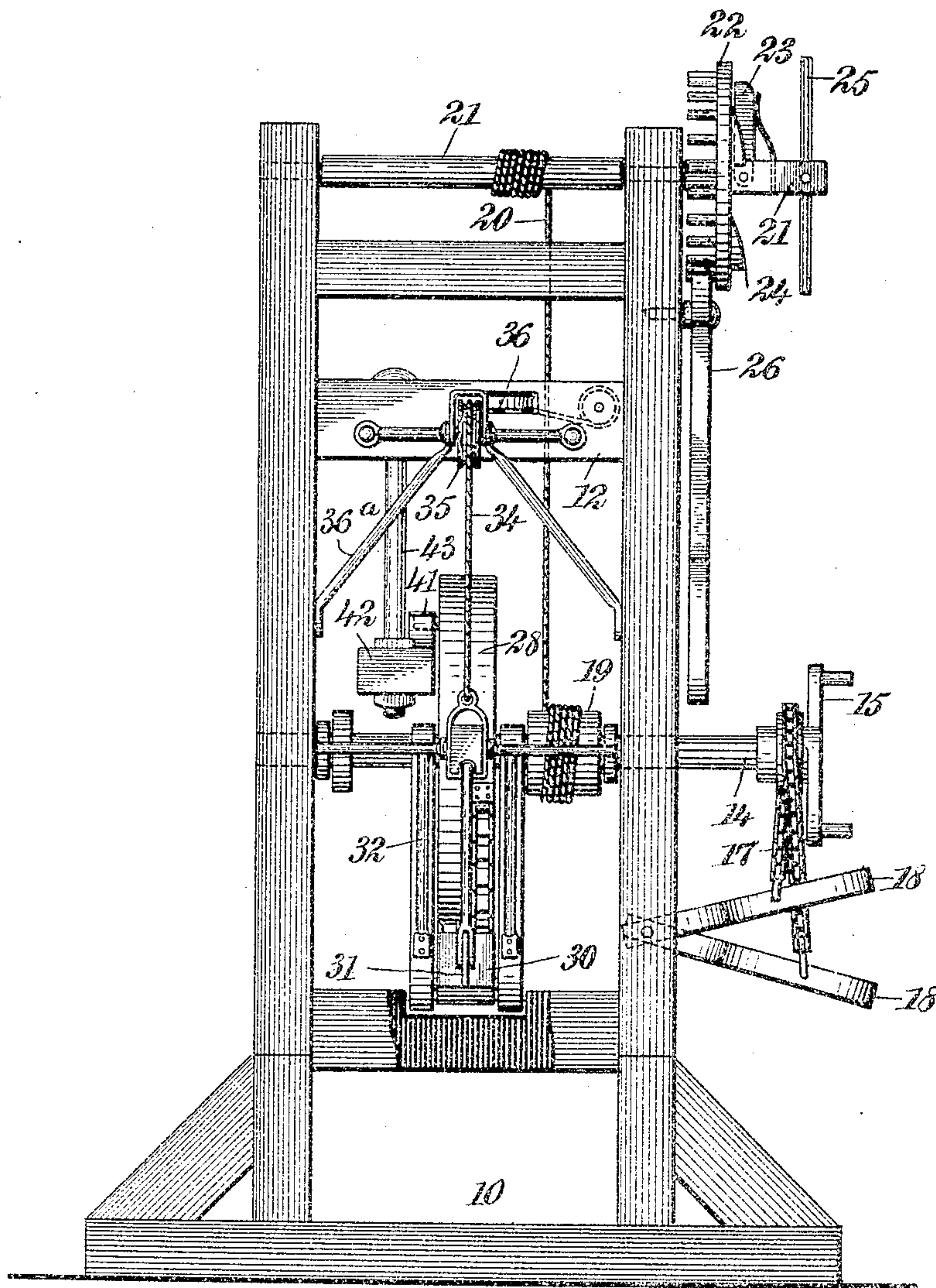
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4 SHEETS—SHEET 3.

Fig. 3



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4 SHEETS—SHEET 4.

Fig. 4

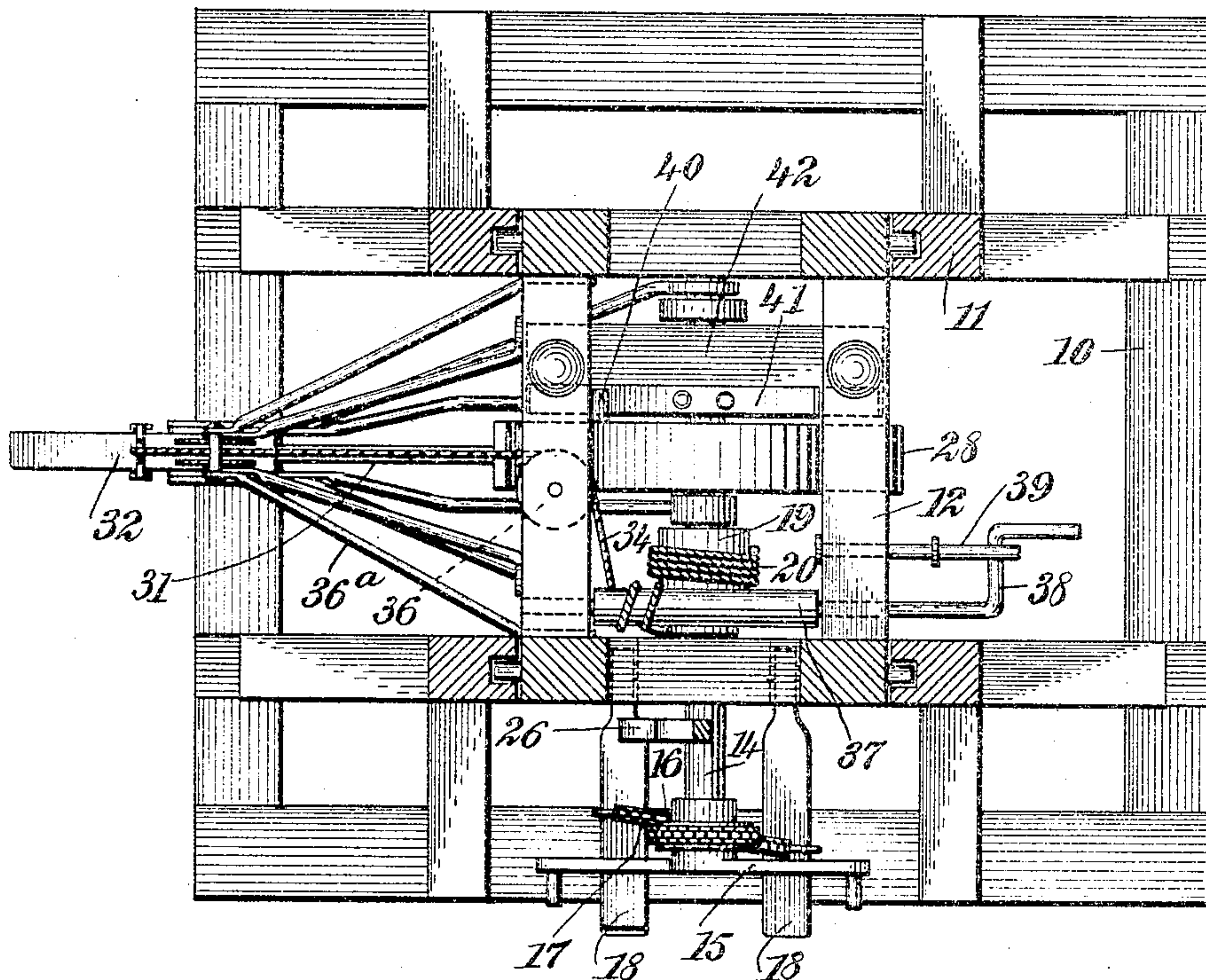


Fig. 5

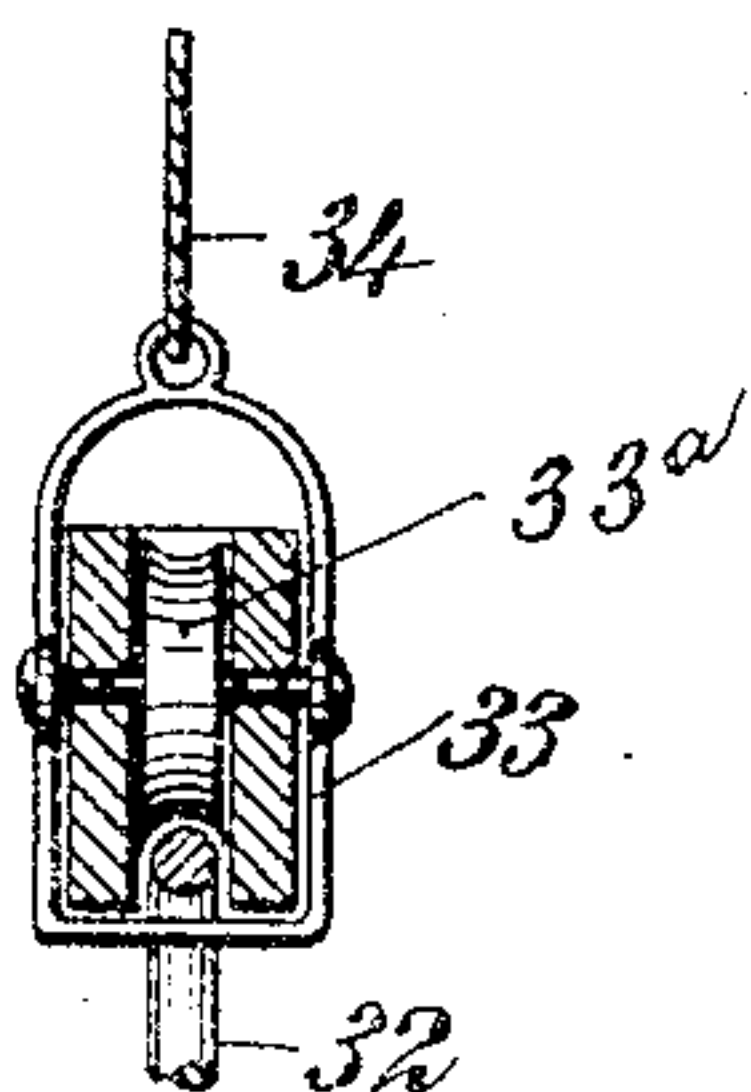
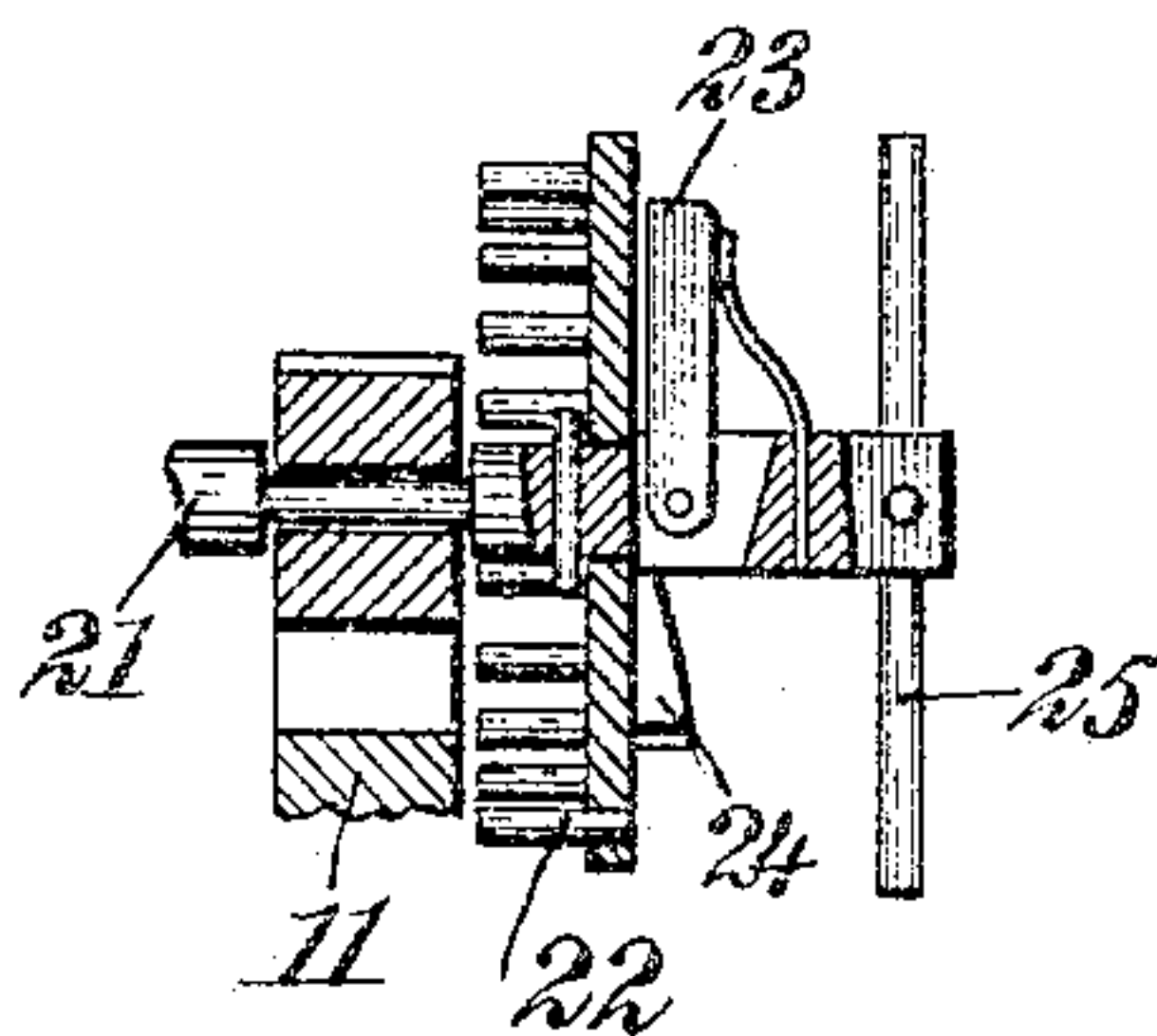


Fig. 6



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UNITED STATES PATENT OFFICE.

FREDERICK J. SHELDON, OF LONGWOOD, WISCONSIN, ASSIGNOR OF ONE-HALF TO WILLIAM A. SHELDON, OF LONGWOOD, WISCONSIN.

DRAG-SAW.

SPECIFICATION forming part of Letters Patent No. 778,764, dated December 27, 1904.

Application filed September 10, 1903. Serial No. 172,598.

To all whom it may concern:

Be it known that I, FREDERICK J. SHELDON, a citizen of the United States, and a resident of Longwood, in the county of Clark and State of Wisconsin, have invented a new and Improved Drag-Saw, of which the following is a full, clear, and exact description.

This invention relates to that class of saws in which the carriage carrying the saw-frame is vertically adjustable and so suspended that the saw is gradually fed downward to the work; and the invention consists in a novel construction, combination, and arrangement of parts, as will be hereinafter described and then pointed out in the claims.

This specification is an exact description of one example of my invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the machine embodying my invention. Fig. 2 is a vertical longitudinal section thereof. Fig. 3 is a front elevation. Fig. 4 is a sectional plan on the line 4 4 of Fig. 1. Fig. 5 is a sectional detail on the line 5 5 of Fig. 1, and Fig. 6 is a sectional detail on the line 6 6 of Fig. 1.

10 indicates the base of the machine, on which is built a vertical guide 11, of preferably rectangular cross-sectional form. In this guide is arranged to move vertically a carriage 12, mounting the main or drive shaft 14 of the apparatus. On said drive-shaft, outside of the bearings thereof, is fastened a hand-lever 15 and also a sprocket-wheel 16. Over this wheel a chain 17 runs, and this chain is connected with treadles 18, mounted at their inner ends in the carriage 12. An operator standing on the treadles and grasping the hand-lever 15 may apply both his muscular strength and the weight of his body to the work of imparting a rocking movement to the shaft 14. If desired, the devices 15, 16, 17, and 18 may be duplicated on the opposite side of the machine. On said drive-shaft 14 is a drum 19, and over this drum is wound a rope or the like, 20, which is passed upward to the

top of the guide 11 and wound over a shaft or drum 21 revolubly mounted therein. On said shaft 21 is loosely mounted an escapement-disk 22, the shaft having a spring-pawl 23 engaging ratchet-teeth 24 on the escapement-disk.

25 indicates handles attached to the shaft 21 to facilitate the manual rotation thereof.

26 indicates an escapement-pawl which is mounted on the rigid framing or guide 11 and which extends downward into position to be rocked by the operator. The carriage 12 is sustained in the guide 11 by means of the rope 20 and its appurtenances, and as the escapement-pawl 26 is operated it imparts a certain movement to the shaft 21, thus gradually unwinding the rope 20 and gradually dropping the carriage 12. Owing to the pawl 23 and ratchet 24 and the loose arrangement of the escapement-disk 22 on the shaft 21, said shaft may be rotated independently of the escapement-disk to rewind the rope 20 and return the carriage to its elevated position.

Fastened to the drive-shaft 14 is a drive-wheel 28, this wheel turning with the drive-shaft and having two chains 29 attached to its periphery, these chains being wound in opposite directions and having their opposite ends attached to a shank 30. This element 30 may be any means for imparting the movement of the apparatus. It is here illustrated as part of a drag-saw 31, the frame 32 of which is arranged to reciprocate horizontally in a guide 33, this guide being mounted to swing on the shaft 14 and having friction-rollers 33^a engaged by the said frame and by the shank 30, as shown by the dotted lines in Figs. 1 and 2 and the full lines in Fig. 5. Said guide 33 is held in the desired position by means of a rope 34, which passes over a sheave 35, supported over the frame 33 by a bracket 36^a, mounted on the upper part of the carriage 12. From the sheave 35 the rope 34 passes over a sheave 36, mounted in the carriage 12, and thence around a drum 37, by which roller the rope 34 may be drawn in or paid out, and thus the frame 33 may be raised or lowered to regulate the inclination of the saw 31. Said drum 37 has a handle 38, and

39 indicates a sliding lock-bar by which the handle and drum may be held in the position desired. The drive-wheel 28 is provided at its upper portion with a lateral pin 40, adapted
 5 in rocking with the drive-wheel to strike the ends of a buffer-spring 41, this spring being fastened horizontally on a similarly-disposed supporting-beam 42 and said beam being supported vertically adjustable in the carriage 12
 10 by means of rods 43. The spring 41 limits the rocking movement of the wheel 28 and also forms a buffer for arresting the oscillating movements of the drive-wheel and for starting the return of the wheel at the end of
 15 its movement. By adjusting the spring 41 the length of the oscillations of the drive-wheel 28 and its attached parts may be regulated at will.

In the operation of the apparatus, the parts
 20 being adjusted as shown and the operator standing on the pedals 18 and grasping the handle 15, as the shaft 14 is rocked the wheel 28 follows its movements, and thus a reciprocating movement is imparted to the parts 30
 25 and 31. Simultaneously with this, owing to the action of the elements 26, 22, and 21, the rope 20 is gradually paid out and the carriage 12, with all the attached parts, is allowed to fall. Also as the shaft 14 is rocked to pro-
 30 ject the parts 30 and 31 outward the rope 20 is wound on the drum 19 and the carriage is slightly lifted. This upward movement of the carriage carries with it the saw and allows the saw to clear its work as the saw moves
 35 forward. Then as the saw returns the rocking of the drum 19 in the opposite direction unwinds the rope 20 and allows the carriage 12 a slight downward movement, thus causing the saw to reengage the work. The
 40 weight of the carriage 12 and of the operator mounted thereon tends to assist this unwinding of the drum 19, and therefore the machine upon the working stroke of the saw is operated not only by the strength of the operator,
 45 but also by the weight of the carriage 12 and its attachments. The action of the escapement mechanism allows the whole carriage to drop steadily to follow the movement of the saw through the work.

50 Various changes in the form, proportions, and minor details of my invention may be resorted to at will without departing from the spirit and scope thereof. Hence I consider

myself entitled to all such variations as may lie within the intent of my claims.

55

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

1. The combination of a rigid framing, a carriage mounted to move therein, a saw carried by the carriage, mechanism mounted on
 60 the carriage and connected with the saw to operate the same, an oscillating drum in connection with said mechanism, and a flexible connection between the drum and the said framing, whereby as the drum operates the
 65 carriage is alternately raised and lowered.

2. The combination of a rigid framing, a carriage mounted to move therein, a saw, and operative mechanism for the saw mounted on
 70 the carriage, an oscillating drum in connection with said mechanism, a shaft mounted in the framing, a flexible connection wound over the drum and over said shaft, an escapement-disk in connection with said shaft, and an
 75 escapement-pawl coacting with the disk.

3. The combination with a framing, of a carriage having vertical-guided movement in the framing, a drive-shaft mounted to oscillate in the carriage, a saw supported on the
 80 carriage and operated from the drive-shaft, a drum on said drive-shaft, a shaft mounted in the upper part of the framing, an escapement mechanism for said shaft, and a flexible connection wound over the drum and over
 85 said shaft, whereby as the drive-shaft is oscillated the carriage is alternately raised and lowered.

4. In a drag-saw, the combination with a framing of a carriage mounted to move vertically thereon, a drive-shaft mounted to oscillate on the carriage, a saw carried by the carriage, an adjustable guide for the saw, means
 90 for imparting a reciprocating movement to the saw from the drive-shaft, a drum mounted on the drive-shaft, and means for suspending the carriage to drop gradually in the framing, the said means comprising a flexible connection between the said drum and the framing.

In testimony whereof I have signed my name to this specification in the presence of two sub-
 100 scribing witnesses.

FREDERICK J. SHELDON.

Witnesses:

W. C. TUFTS,

W. A. SHELDON.