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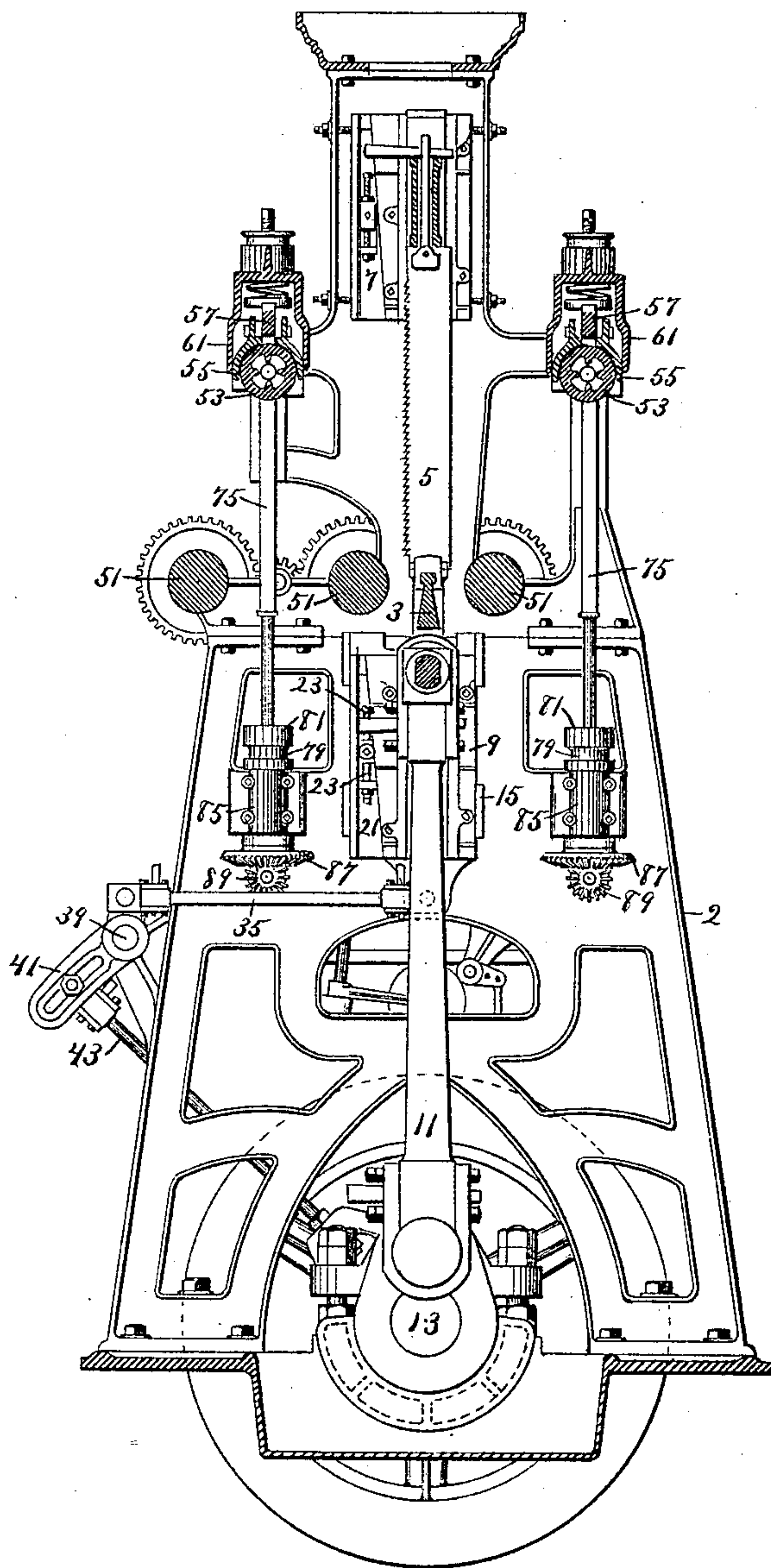
W. F. PARISH.

GANG SAW MILL.

No. 379,657.

Patented Mar. 20, 1888.

Fig. 1.



Witnesses
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William F. Parish.

(No Model.)

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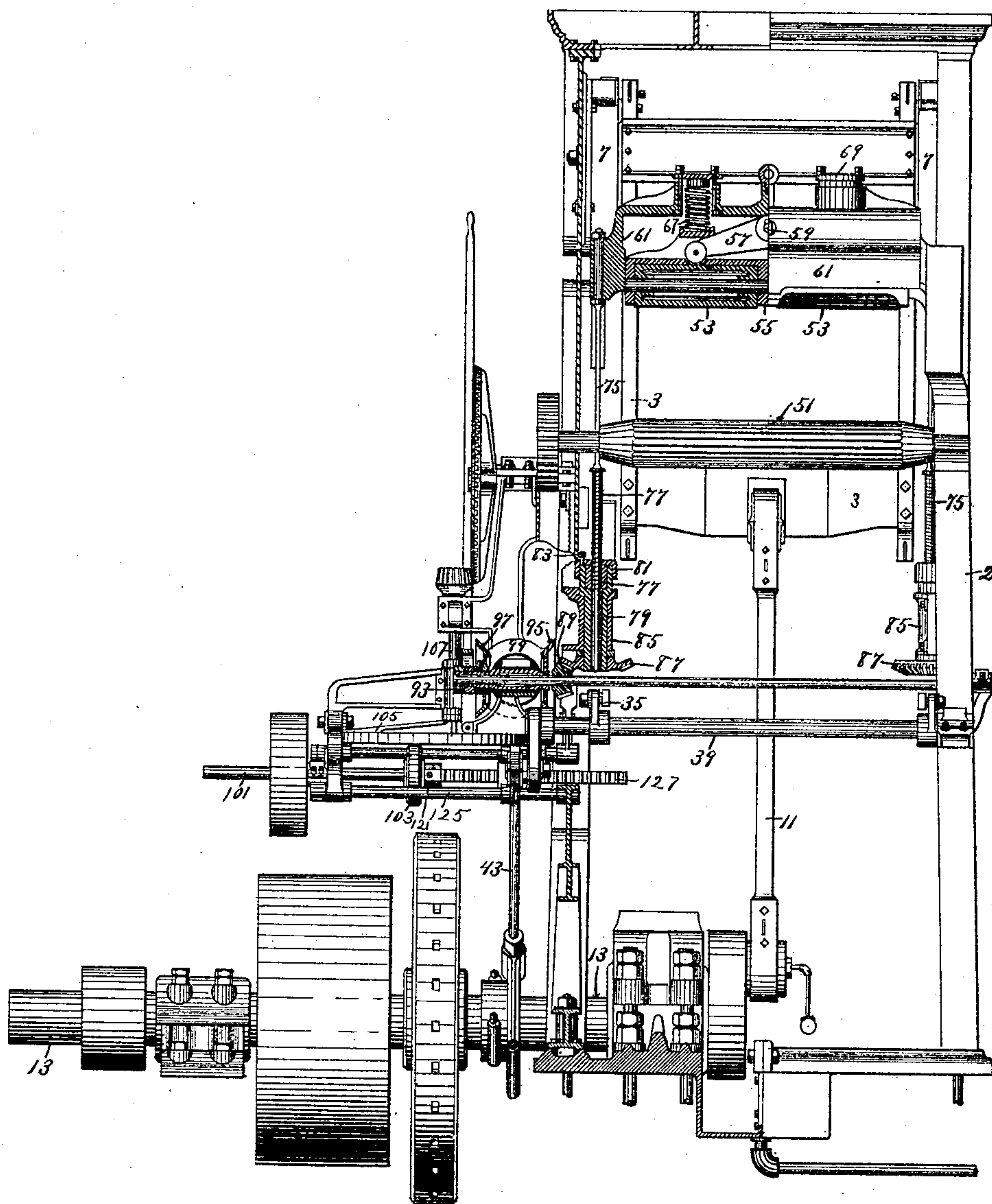
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Fig. 2.



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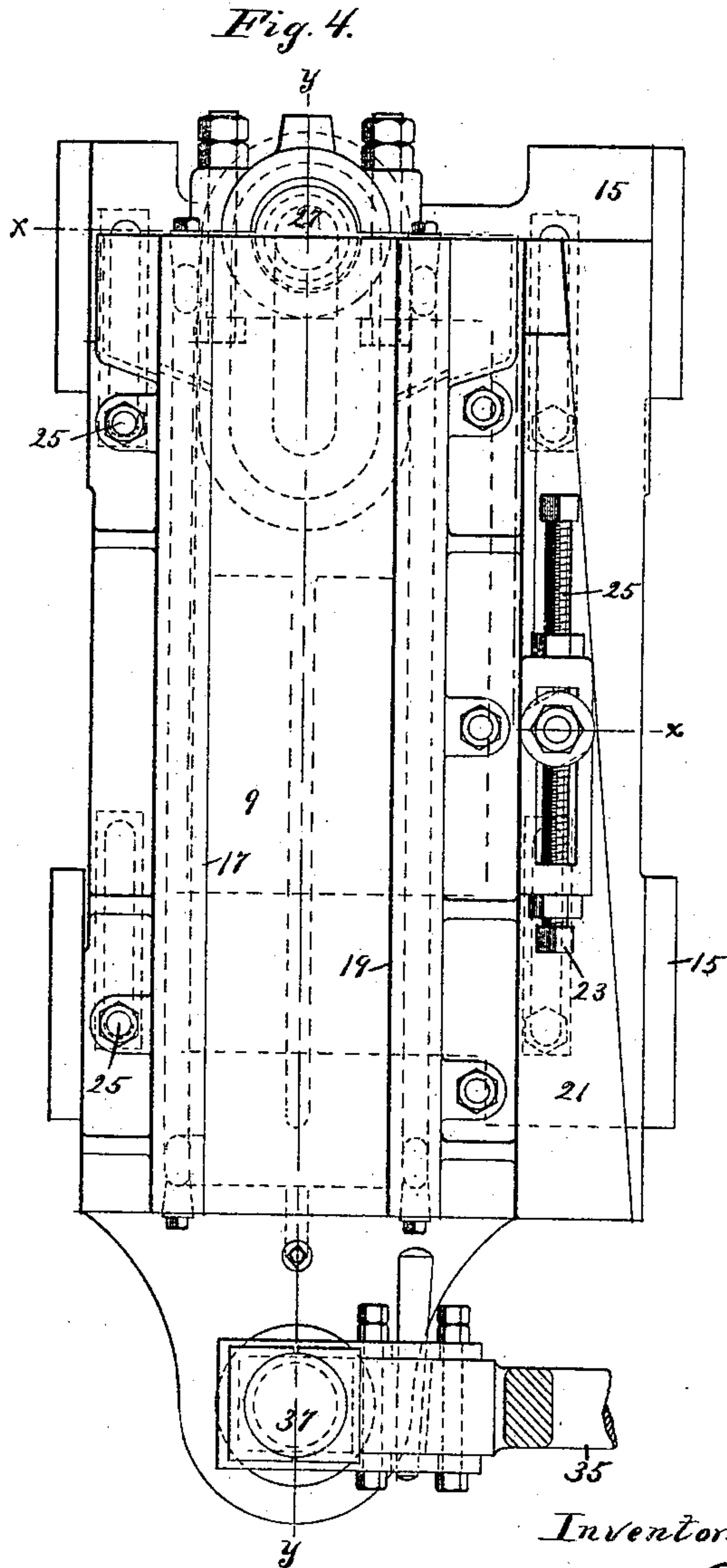
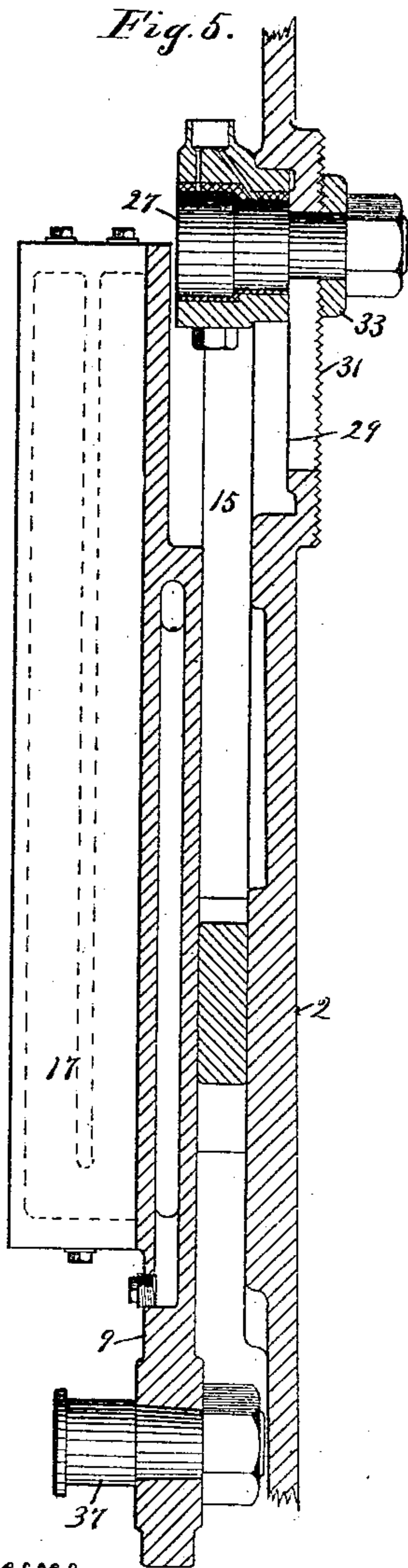
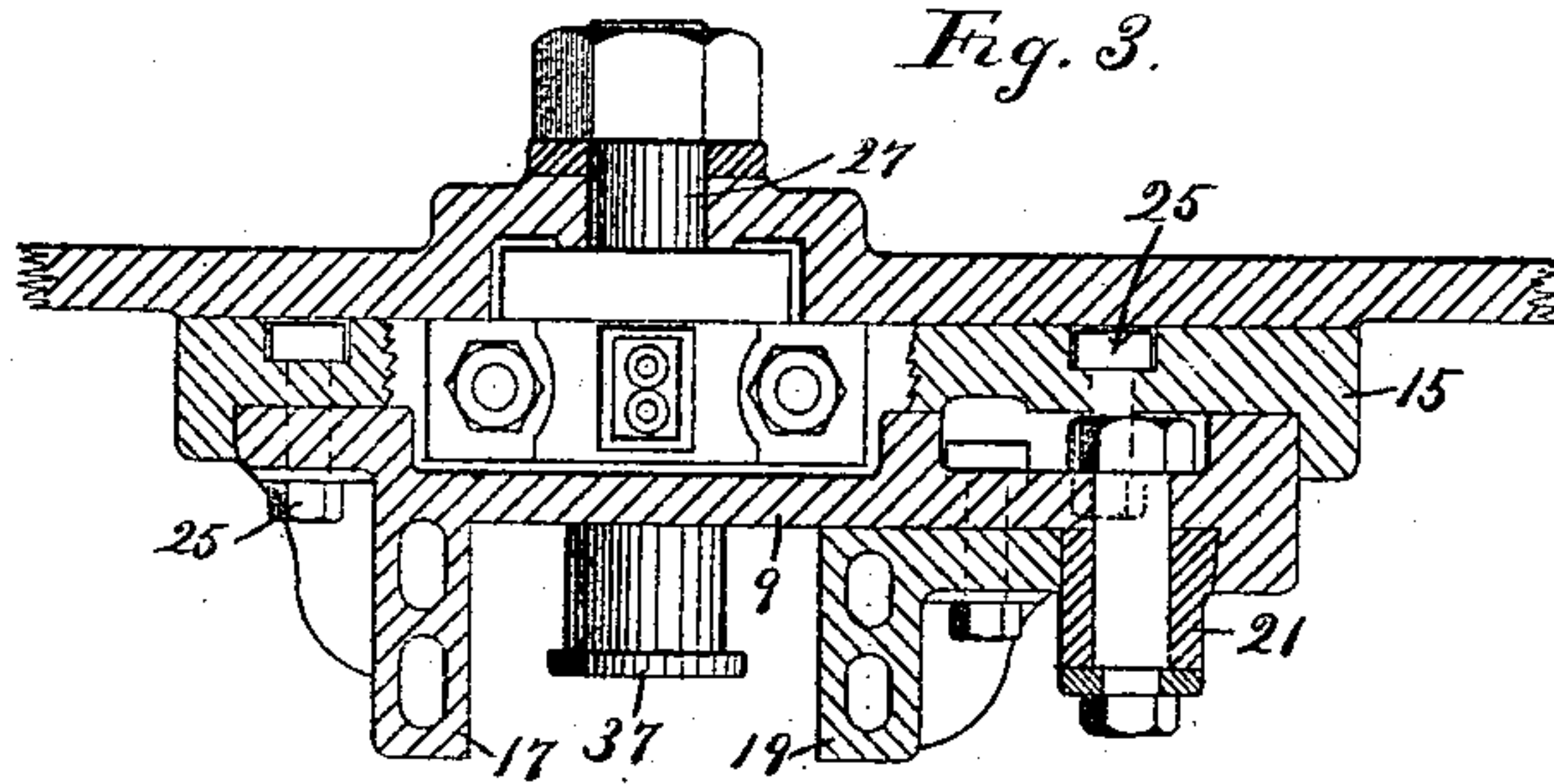
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Fig. 7.

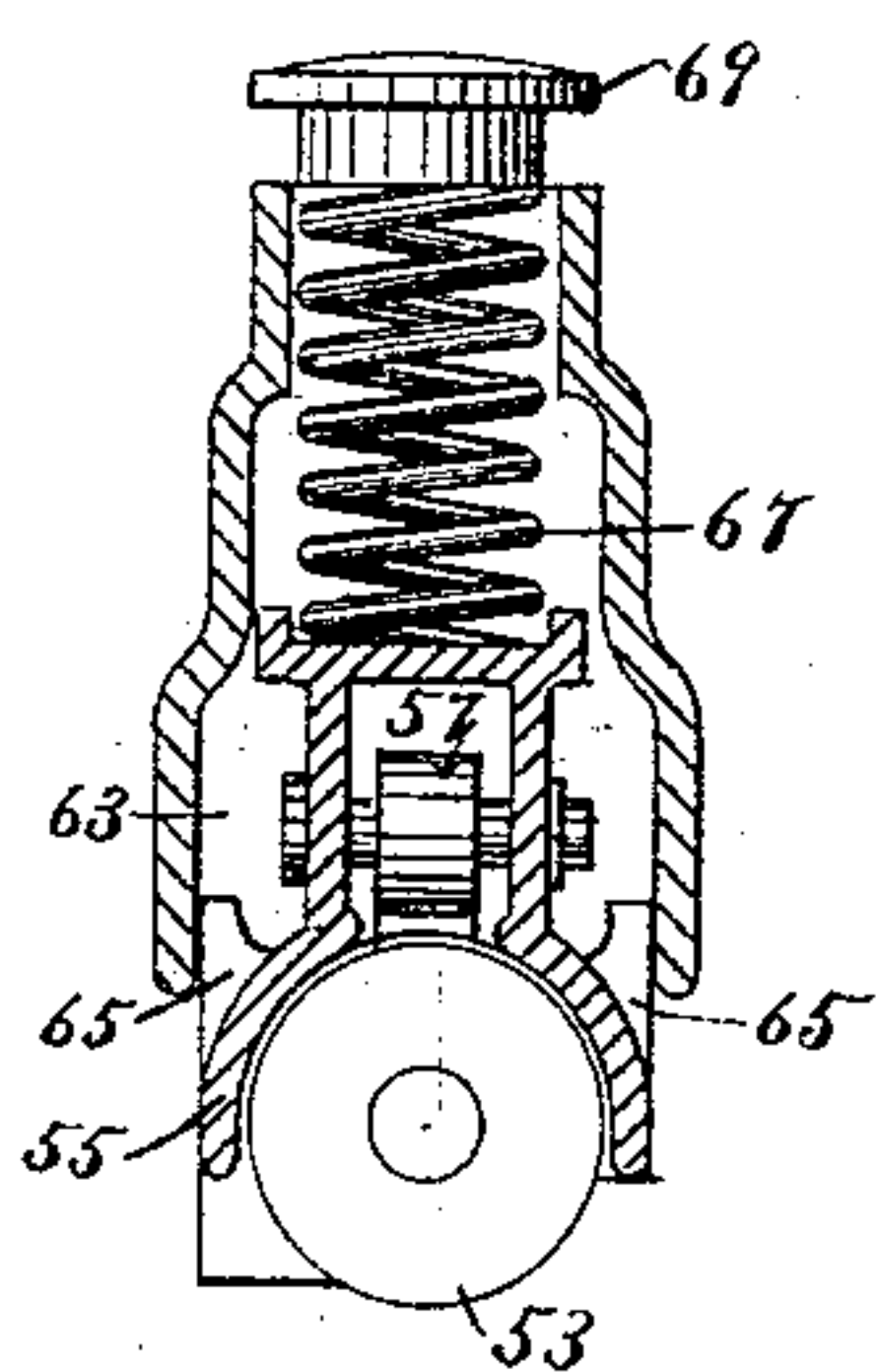


Fig. 6.

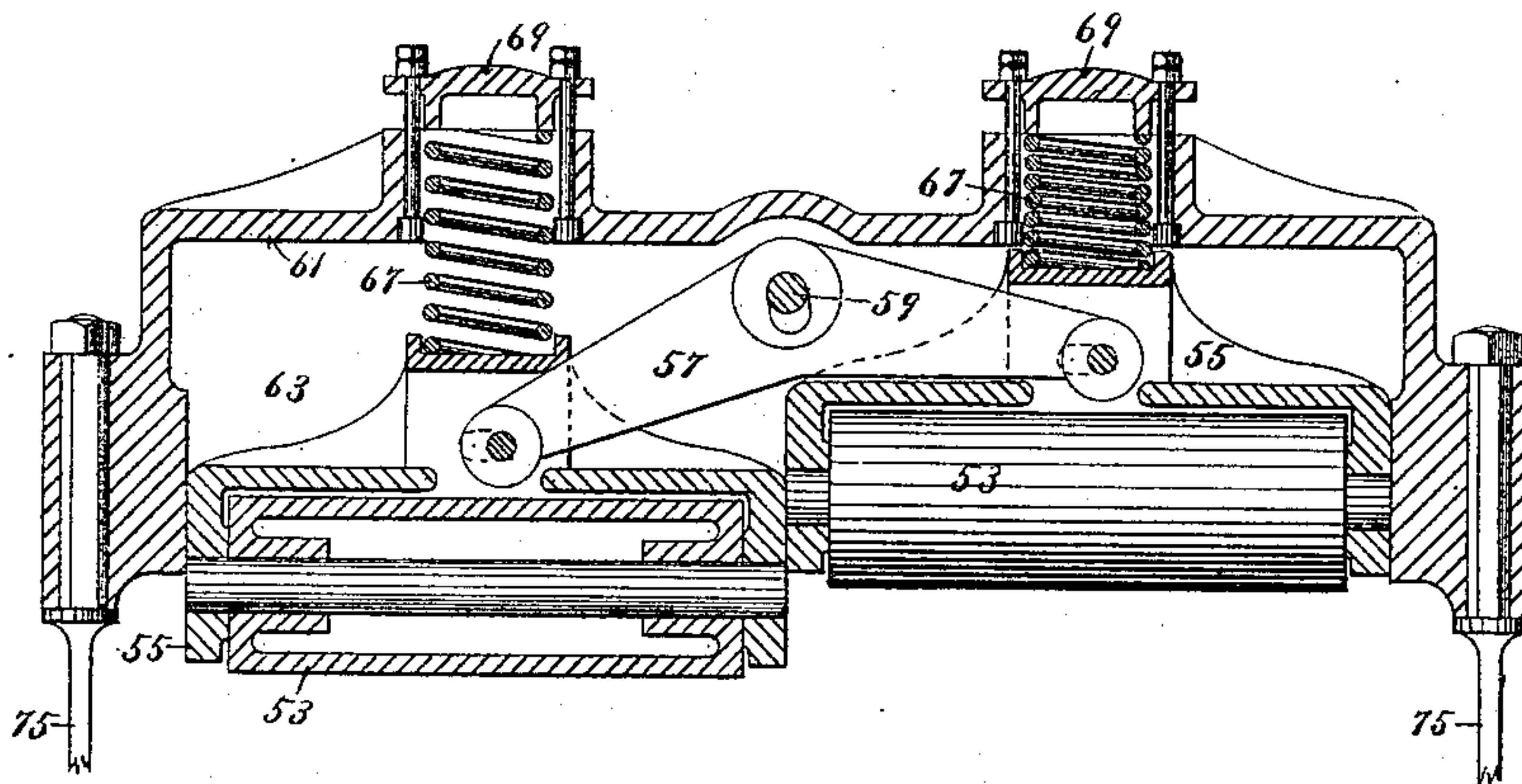


Fig. 8.

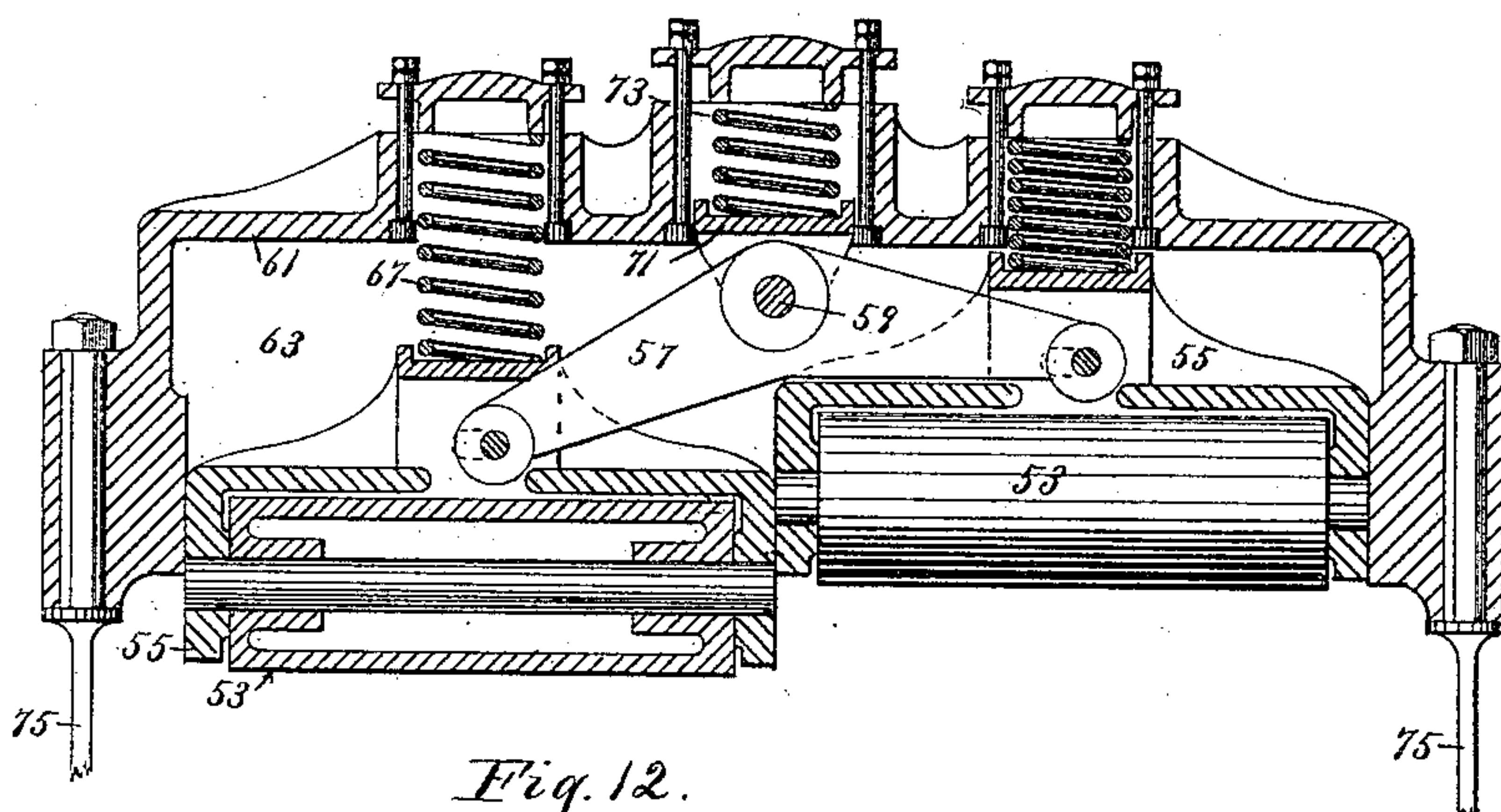
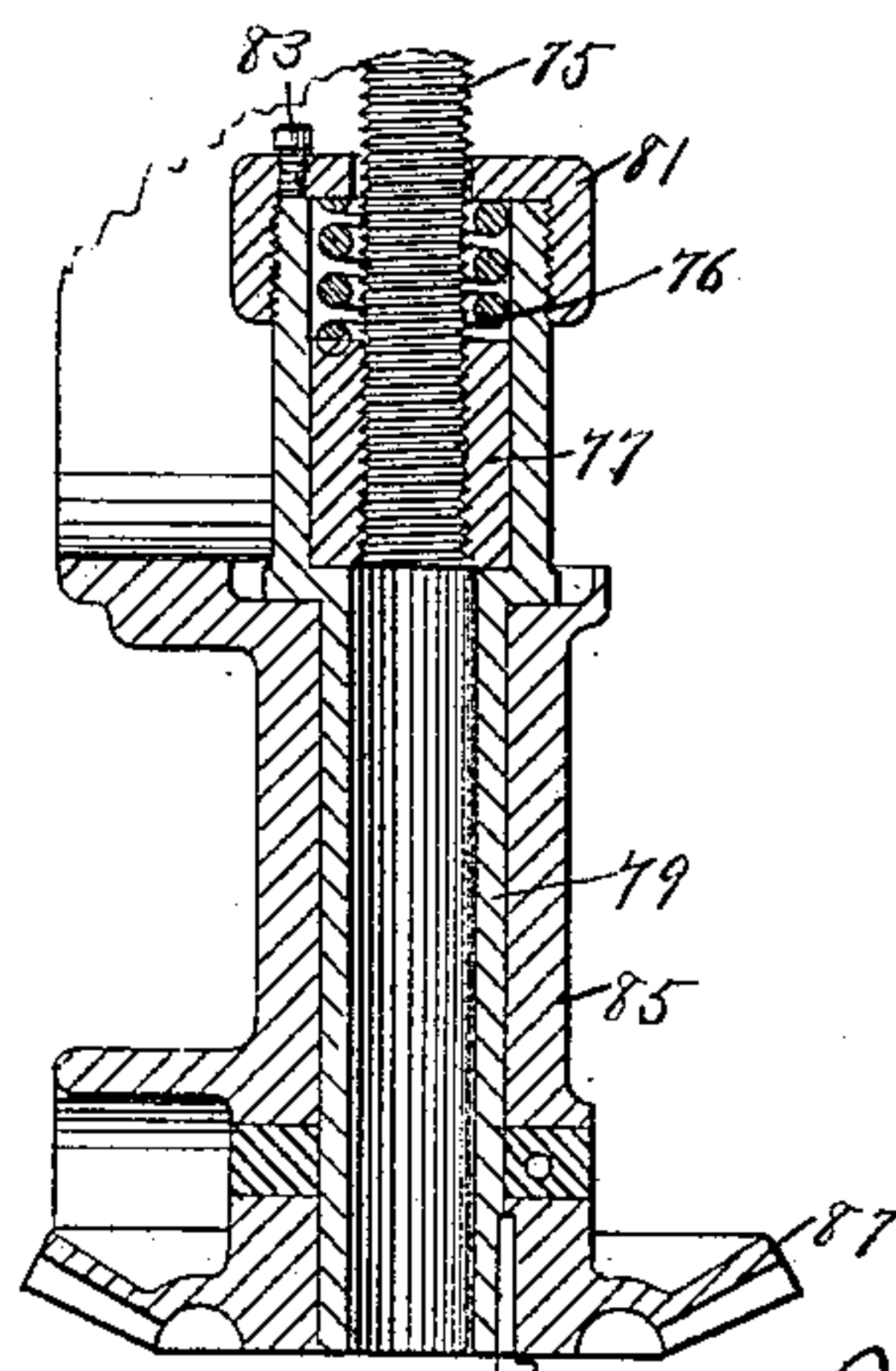


Fig. 12.



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Fig. 9.

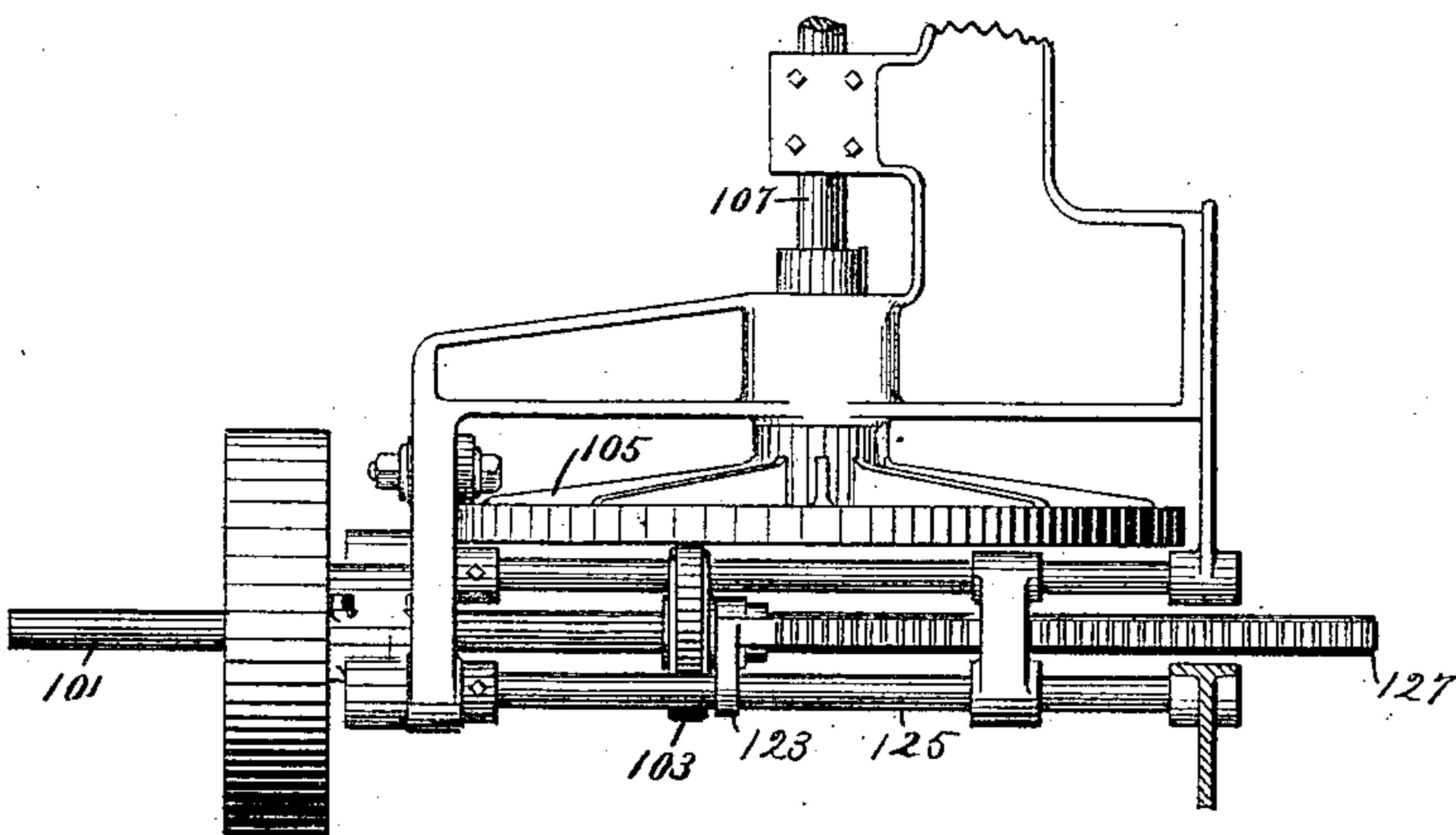


Fig. 10.

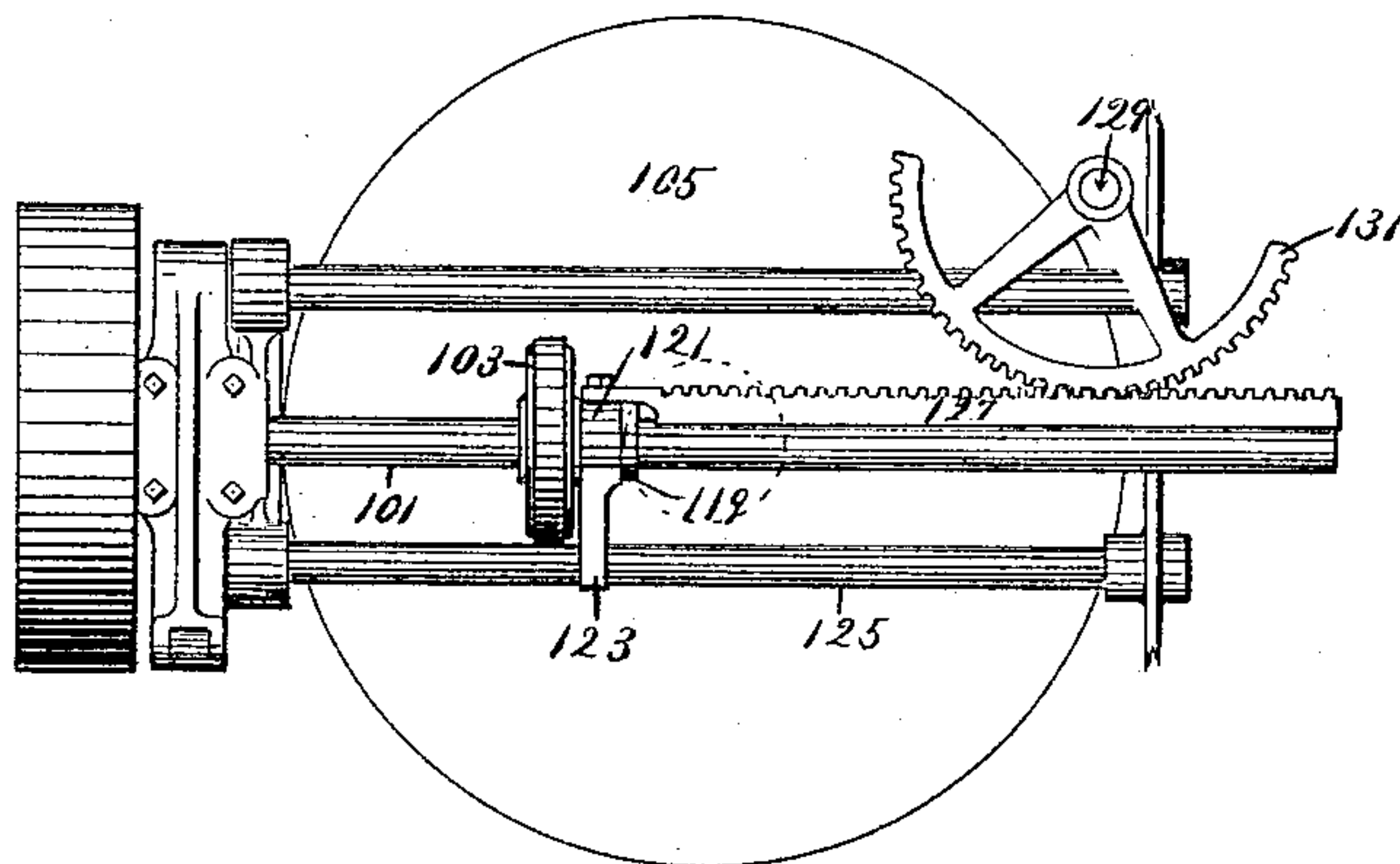
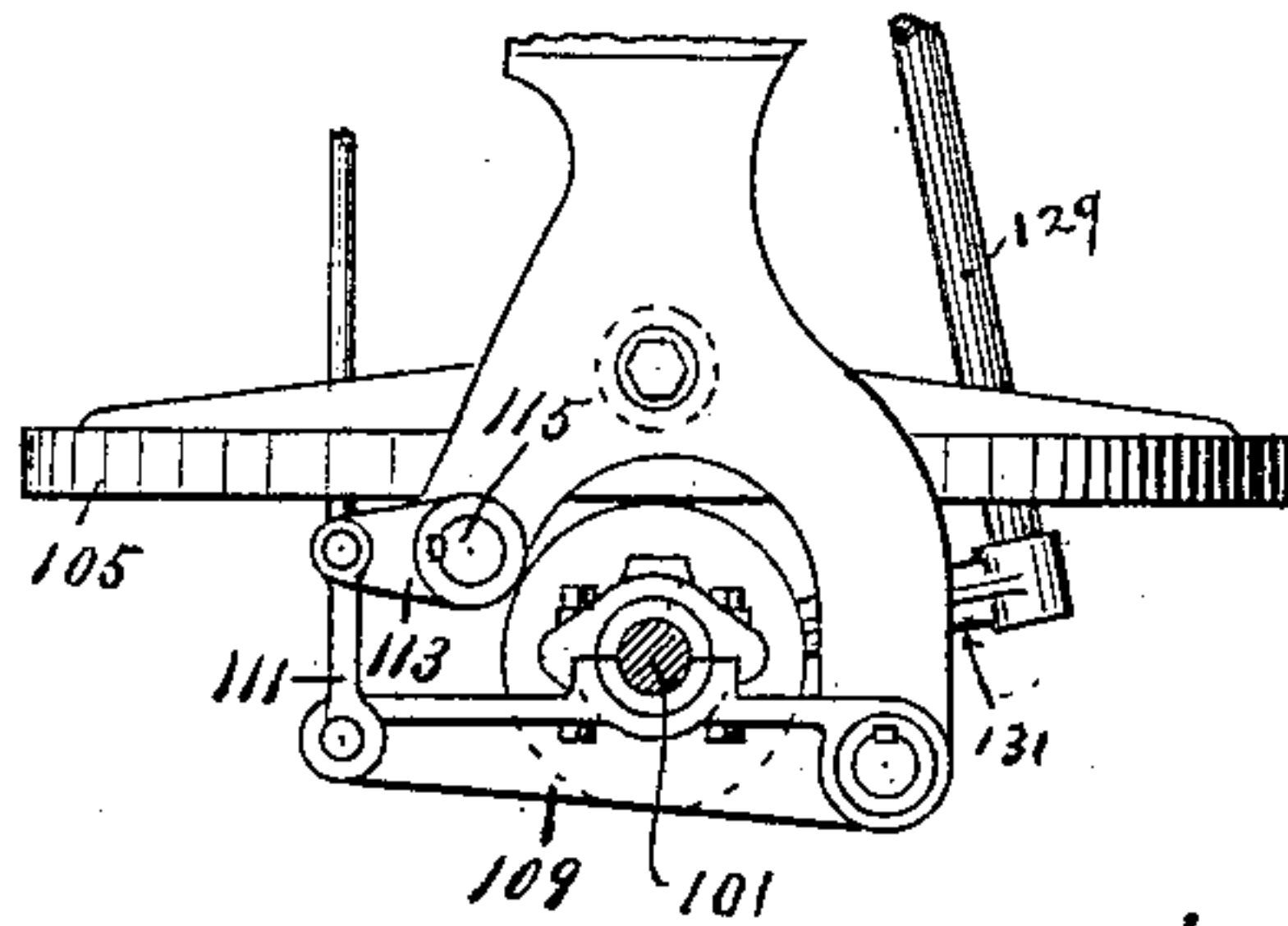


Fig. 11.



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Fig. 13.

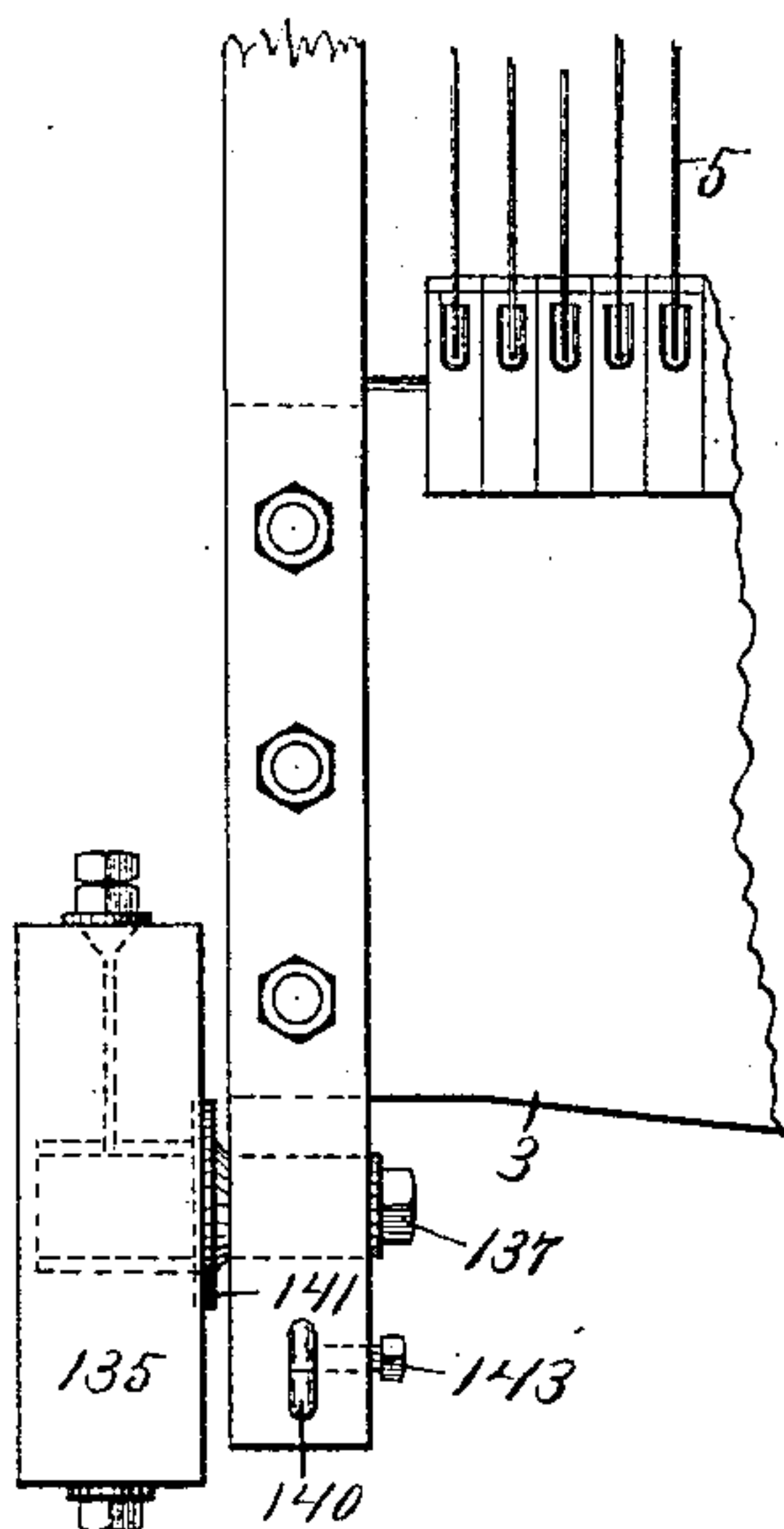


Fig. 14.

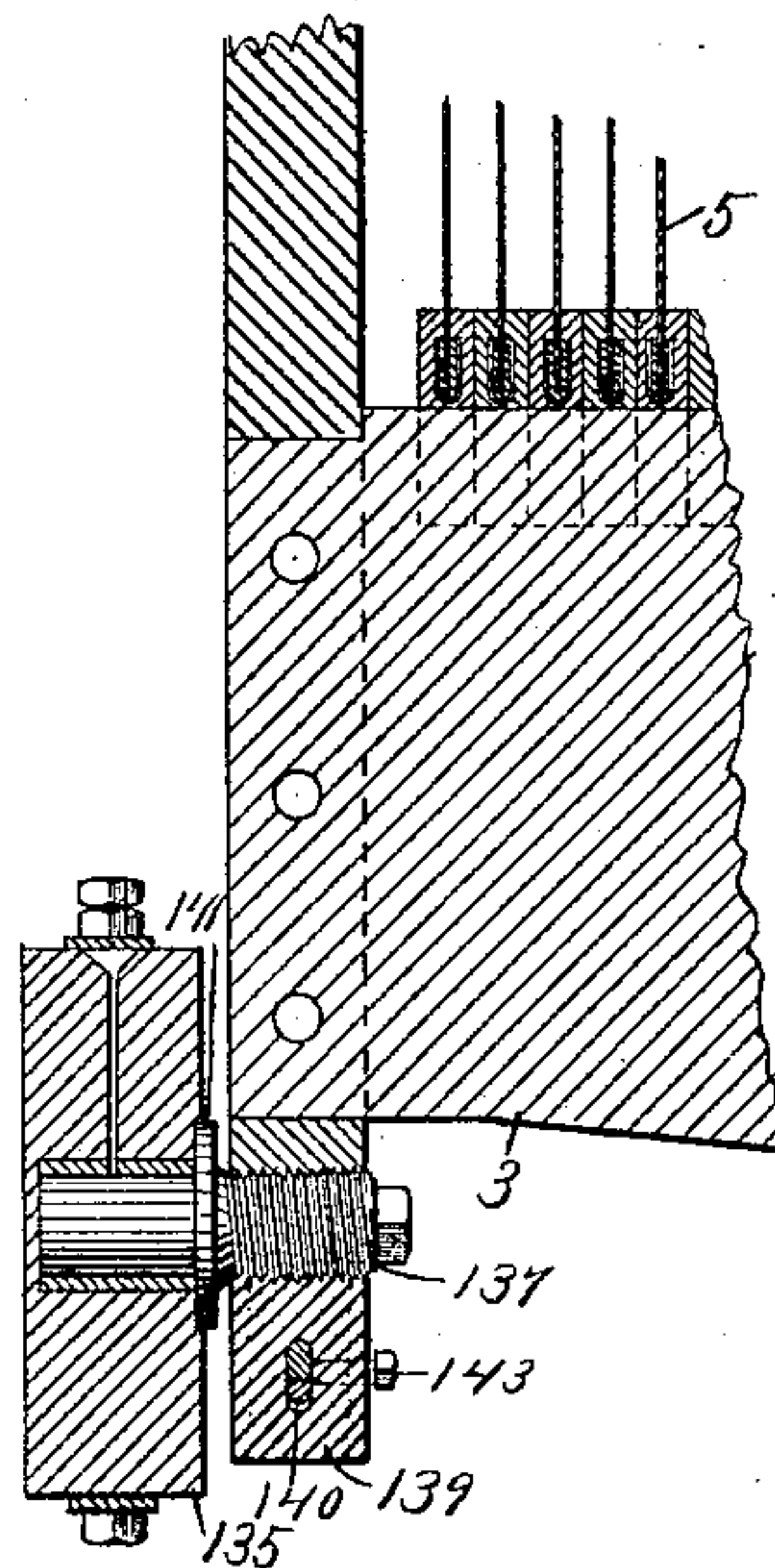
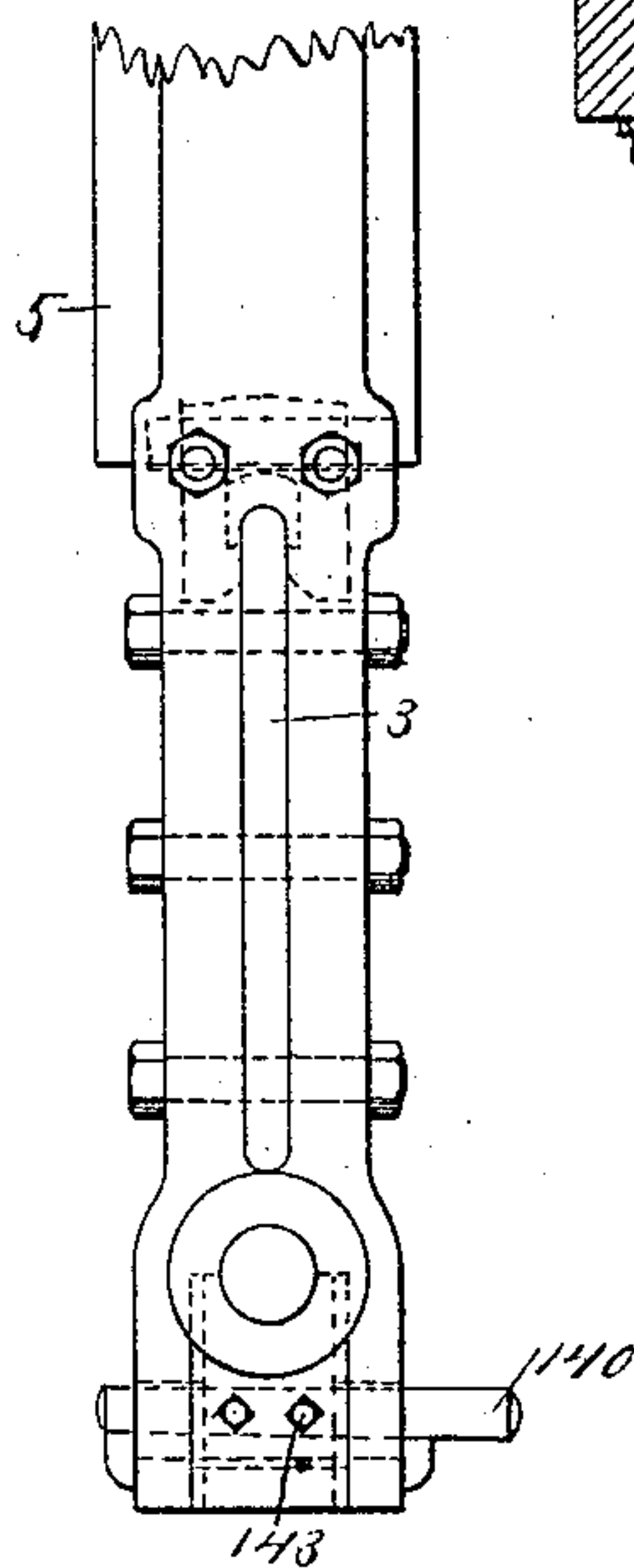


Fig. 15.



Witnesses.

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Inventor.

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UNITED STATES PATENT OFFICE.

WILLIAM F. PARISH, OF MINNEAPOLIS, MINNESOTA.

GANG-SAW MILL.

SPECIFICATION forming part of Letters Patent No. 379,657, dated March 20, 1888.

Application filed September 9, 1887. Serial No. 249,204. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. PARISH, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Gang-Saw Mills, of which the following is a specification.

The objects that I have in view are to improve the construction of gang-mills whereby they are rendered more durable and are more easily operated and adjusted and produce better results.

The invention relates particularly to improvements in the construction of the presser-rolls and the means for adjusting and operating them; to improvements in the means for supporting and oscillating the guides for the sash-frame; to improvements in the gigging and receding devices, and to improvements in the means for securing and adjusting the sliding blocks of the sash-frame on said frame.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertical section of a gang-mill embodying my invention. Fig. 2 is a sectional end elevation of the same. Fig. 3 is a section on line X X of Fig. 4, showing a detail of the sash-guide and means for supporting and adjusting it. Fig. 4 is a side elevation of the same. Fig. 5 is a vertical section on line Y Y of Fig. 4. Fig. 6 is a vertical longitudinal section of the presser-rolls. Fig. 7 is a vertical transverse section of the same. Fig. 8 is a view similar to Fig. 6, showing a modified construction. Fig. 9 is an elevation of the gigging and receding device. Fig. 10 is an under side view of the same. Fig. 11 is a detail end elevation of the same. Fig. 12 is a detail showing one of the adjusting-screws of the presser-rolls provided with a spring to permit the rolls to yield. Figs. 13, 14, and 15 are details showing the means for connecting the sash-frame to its sliding blocks.

In the drawings, 2 represents the frame of the machine, of any suitable size and construction. A sash-frame, 3, carrying the desired number of saws, 5, is mounted in suitable guides, and is reciprocated by a pitman, 11, connected with the crank-shaft 13, in the usual way. The upper guide, 7, may be of any preferred construction and is supported on the frame in any suitable manner. The lower guide preferably consists of two plates, 9 and

15. The plate 9 is provided with a stationary wearing-plate, 17, and an adjustable wearing-plate, 19, which form a way in which the sash-frame blocks reciprocate. The wearing-plate 19 is adjusted by means of a wedge, 21, and screws 23, in the ordinary manner. The plate 15 is arranged between the plate 9, which I term the "guide-plate," and the frame of the machine; hence I term the plate 15 the "intermediate plate." These two plates are secured together, preferably by means of bolts 25, that pass through slots in the plate 15. A pivot-bolt, 27, passes through the plate 15 and through a vertical slot, 29, in the frame of the machine. The surface of the frame at the sides of this slot is provided with a series of grooves, 31. A washer, 33, having corresponding grooves, is arranged on the bolt 27.

When the nut on the pivot-bolt is screwed tight, the grooved face of the washer is clamped upon the grooved surface of the frame, and thereby the bolt is prevented from moving vertically in the slot. The pivot-bolt forms the only support for the intermediate plate and the guide-plate secured to it. In place of the grooved washer and the grooved surface on the frame, other equivalent devices may be used to hold the pivot-pin in its place.

The plates 9 and 15 are oscillated on the pivot-bolt for the purpose of allowing the desired motion to be given to the sash-frame. For oscillating the guide-plate a connecting-rod, 35, is secured to a pin, 37, in the lower end of the guide-plate 9. The other end of this connecting-rod is secured to an arm upon a rock-shaft, 39. The shaft 39 is provided with an arm, to which is connected an eccentric-rod, 43, that is moved by an eccentric on the main shaft. This device for moving the guide-plate has heretofore been used and I make no claim to it, and I may use any other suitable means for giving the desired motion to the guide-plate.

The oscillation of the guide-plate, and hence the movement of the sash-frame and saws, depends in part upon the distance between the pivot-bolt and the pin 37. By changing the distance between the connecting-pin and the pivot-bolt I may regulate the oscillation of the guide-plate and govern very accurately the oscillating motion of the sash-frame.

By loosening the pivot-bolt and the bolts

that connect the plates 9 and 15 the intermediate plate, 15, may be vertically adjusted, thereby changing the position of the pivot-bolt without changing the position of the guide-plate 9. Other equivalent means may be used for adjustably connecting the guide-plate and pivot-pin, or the guide-plate may be pivoted directly upon the pivot-pin. Several important advantages result from this construction, the principal of which is that the center of oscillation of the guides can be adjusted without changing the relative arrangement of the guides and sash-frame, and any desired motion may be given to the saws. When the guide-plates are constructed and supported in the usual way, they cannot be adjusted, as the pivots are fixed in one position in the frame of the mill, and the sash-frame and saws are not so completely under the control of the operator and cannot be adjusted to give the desired motion to the saws.

The mill is provided with the usual grooved feed-rolls, 51, in front and behind and with the two presser-rolls 53. Each of these rolls is journaled in a yoke that is pivoted upon the end of a lever, 57. Midway between the two yokes the lever is mounted upon a pivot-bolt, 59, in a frame, 61, that extends over and incloses the yokes 55. The frame 61 is preferably provided with vertical ways 63 and the yokes 55 with the ribs 65, that are arranged in the ways 63 and guide the yokes as they are moved up and down in the manner herein-after described. A spring, 67, has one end seated upon the center of each yoke 55 and its upper end on the under side of a cap, 69, that is adjustably secured on the frame 61. By adjusting the caps the tension of the springs may be regulated. It will be seen that this device equalizes the pressure between the two rolls, so that there is substantially the same pressure upon each, whether they are bearing upon cants of the same or of unequal sizes. The pivot-hole in the frame is made oblong, so that the lever is capable of moving bodily upward whenever it is necessary for both rolls to yield, as when cants of large size are passed under both rolls simultaneously, or when a cant is passed through partly under each roll, or when it is rendered necessary by the unevenness of the cants. In some instances I prefer to mount the pivot-bolt of this yoke on a vertically-adjustable plate that is held in position on the frame 61 by a spring, 73. As an equivalent construction for the device that permits the lever to yield, the frame 61 may be arranged to yield. I have shown a construction for this purpose in the detail, Fig. 12, in which a spring, 76, is arranged between the top of the nut 77 and the inside of the cap 81, hereinafter described.

The frames 61 are arranged to move vertically on the frame of the machine, and are secured to rods 75, that are threaded at their lower ends and engage nuts 77. These nuts are preferably located in the ends of the hollow shaft 79, and are secured therein by means

of the caps 81 and set-screws 83. These shafts are mounted and turn in the hollow bearings 85 on the frame of the machine, and are provided at their lower ends with bevel-gears 87, that mesh with bevel-pinions 89 on a shaft, 91. A sleeve, 93, is splined upon the shaft 91 and carries the two bevel friction-wheels 95 and 97. By sliding the sleeve 93 one or the other of these friction-wheels is engaged with a similar friction-wheel, 99, on a counter-shaft, and thereby the hollow shafts 79 and nuts 77 are turned either in one direction or the other and the presser-rolls raised or lowered. The ends of the threaded rods are received in and protected by the hollow shafts 79.

The shaft 101 is journaled in suitable bearings on the frame of the machine, and is provided with a friction-wheel, 103, which revolves with said shaft, but is free to slide lengthwise thereon. The friction-wheel is adapted to bear upon the face of a disk or face plate, 105, that is secured upon a vertical shaft, 107, which drives the feed-rolls 51 through suitable intermediate gearing. The bearings for the shaft 101 are secured upon horizontal levers 109, connected by links 111 with the arms 113 upon a rock-shaft, 115. By means of a lever, 117, the shaft 115 may be rocked in its bearings, and thereby the shaft 101 may be raised or lowered and its friction-wheel carried into or out of contact with the face-plate.

The friction-wheel 103 is provided with a hub, 119, which is surrounded by a collar, 121. The hub is free to revolve in the collar, but moves longitudinally therewith. The collar is provided with an arm, 123, that slides upon a stationary shaft, 125. The collar is thereby prevented from turning with the friction-wheel. A rack-bar, 127, is attached to the collar 121. A shaft, 129, is provided with a suitable segmental gear, 131, that meshes with the rack-bar 127.

The shaft 129 is provided with a suitable handle or lever that is arranged in suitable position to be grasped by the hand of the operator. The operation of the segment carries the rack-bar from one extreme of its travel to the other, and the friction-wheel is thereby moved back and forth over the face of the face-plate. When the friction-wheel is in contact with the face-plate near its edge, a slow speed will be given to the feed-rolls. By moving the friction-roll nearer to the center of the face-plate greater speed will be given to the rolls. By moving the friction-wheel from one side of the center of the face-plate to the other side the motion of the face-plate, and consequently the motion of the feed-rolls, will be reversed.

The sash-frame is provided with blocks 135, that move in the ways in the guide-plates. In order that the blocks may be readily adjusted on the sash-frame or may be removed and replaced without removing the sash-frame, I prefer to secure them to the sash-frame by the following described means:

The sash-frame is provided with a screw-

threaded opening, in which is placed a threaded pin, 137. The outer end of the pin is inserted into a socket in the block 135, thereby forming a pivot for the block. The other end of the pin is adapted to have a wrench applied to it for the purpose of turning the pin, and thereby adjusting it in the sash-frame. A block, 139, is inserted into the end of the frame, and about one-half of the screw-thread of the socket is formed in this block. The block is screwed in place by suitable keys, 140, or other suitable means. Set-screws 143 may be provided to hold the keys in place. When the pin 137 has been properly adjusted, the block 139 is clamped against it, so as to prevent any movement of the pin. When it is desired to adjust the pin for any purpose, as to take up the wear of the sliding block, the block 139 is loosened and the pin is screwed out or in until brought to the desired position. When it is desired to remove the sliding blocks of the sash-frame, the blocks 139 are removed, and the pins may then be removed (on the sliding blocks) through the slot in the end of the sash-frame. The pins 137 are preferably provided with the collars 141, against which the sliding blocks bear. This construction enables me to readily adjust the sliding blocks as they become worn, or to remove and replace them without removing other parts of the machine, and without any inconvenience.

I prefer to have the guide-plate adjustable on the pivot-pin, and this pin adjustable in the frame; but either of these adjustments may be omitted, if preferred.

I claim as my invention—

1. The combination, in a gang-mill, of a pivot-pin adjustably supported upon the frame of the mill, and a guide-plate adjustably secured to said pin, for the purpose set forth.

2. The combination, in a gang-mill, of the reciprocating sash-frame, a vertically-adjustable pivot-pin, and a guide-plate pivoted upon said pivot-pin and capable of a vertical adjustment thereon, for the purpose set forth.

3. The combination, in a gang-mill, of a guide-plate and an intermediate plate adjustably secured to said guide-plate and pivoted to the frame of the mill, substantially as described.

4. The combination, in a gang-mill, with the guide-plate 9, of the plate 15, adjustably secured to said plate 9 and secured to the frame of the mill by an adjustable pivot.

5. The combination, in a gang-mill, with the frame 2, provided with the vertical slots, of the plate 15, the pivot-bolt adjustably secured in said slot and supporting the plate 15, and the guide-plate 9, to which said plate 15 is adjustably secured.

6. The combination of the two presser-rolls, yokes in which said rolls are mounted, springs

bearing upon said yokes, and an equalizing-lever pivoted directly to said yokes, substantially as described.

7. The combination of the presser-rolls, vertically-movable yokes in which said rolls are mounted, springs bearing upon said yokes, and a vertically-movable equalizing-lever pivoted directly to both of said yokes, substantially as described.

8. The combination of the presser-rolls, vertically-movable yokes in which said rolls are mounted, springs bearing upon said yokes, and an equalizing-lever pivoted directly to both of said yokes and mounted upon a spring-controlled pivot, substantially as described.

9. The combination, in a gang-mill, of the frame 61, carrying the presser-rolls, the rods secured to said frame and threaded at their lower ends, the hollow shaft 79, into which said rods project, the nut 77, located in the upper ends of said hollow shafts, bevel-gears 87 upon the lower ends of the said hollow shafts, and the driving-shaft 91, extending across the machine beneath the said ends of said hollow shaft and provided with the pinions 89, engaging the bevel-gears on said hollow shafts, whereby the threaded ends of said rods are received in said hollow shafts and are prevented from coming in contact with said shaft 91, substantially as described.

10. The combination, with the feed-rolls and the face-plate connected by suitable gearing with said rolls, of the shaft 101, provided with the friction-wheel 103, the arms 109, supporting said shaft, the rock-shaft 115, having crank-arms 113, and links 111, connecting said crank-arms with said arms 109, substantially as described.

11. The combination, with the sash-frame provided with a screw-threaded opening, of the sliding block 135, provided with a socket, and a pin, 137, engaging the sliding block and having a screw-threaded portion engaging the opening on the sash-frame, substantially as described.

12. The combination, with the sash-frame provided with the removable block 139 and a screw-threaded opening formed partly in the main portion of the frame and partly in said block, of the key securing said block in position, the sliding block 135, and the pin 137, engaging said sliding block and having a threaded portion engaging the threaded opening in the sash-frame, substantially as described.

In testimony whereof I have hereunto set my hand this 3d day of September, A. D. 1887.

WILLIAM F. PARISH.

Witnesses:

A. C. PAUL,

S. J. BEARDSLEE.