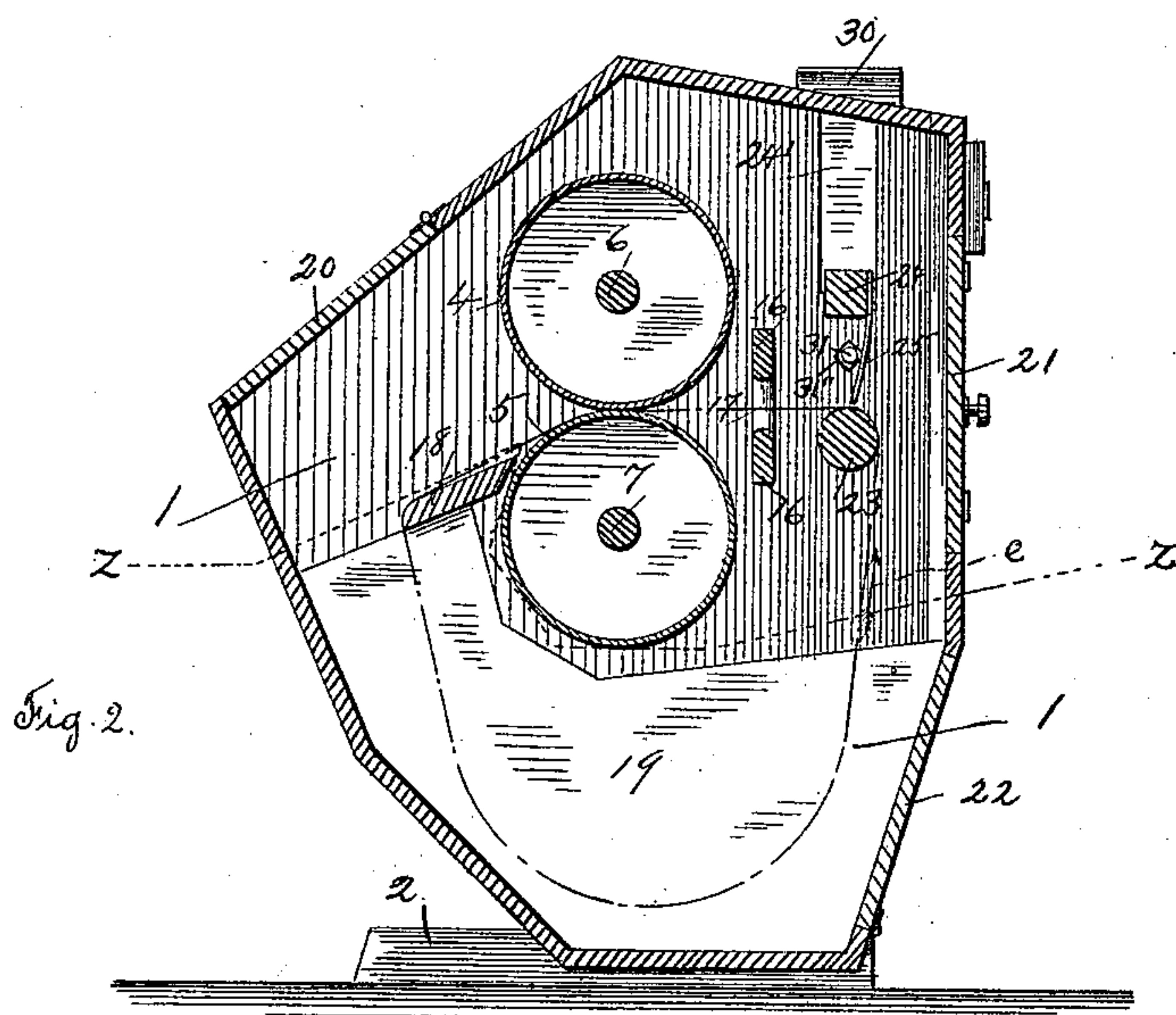
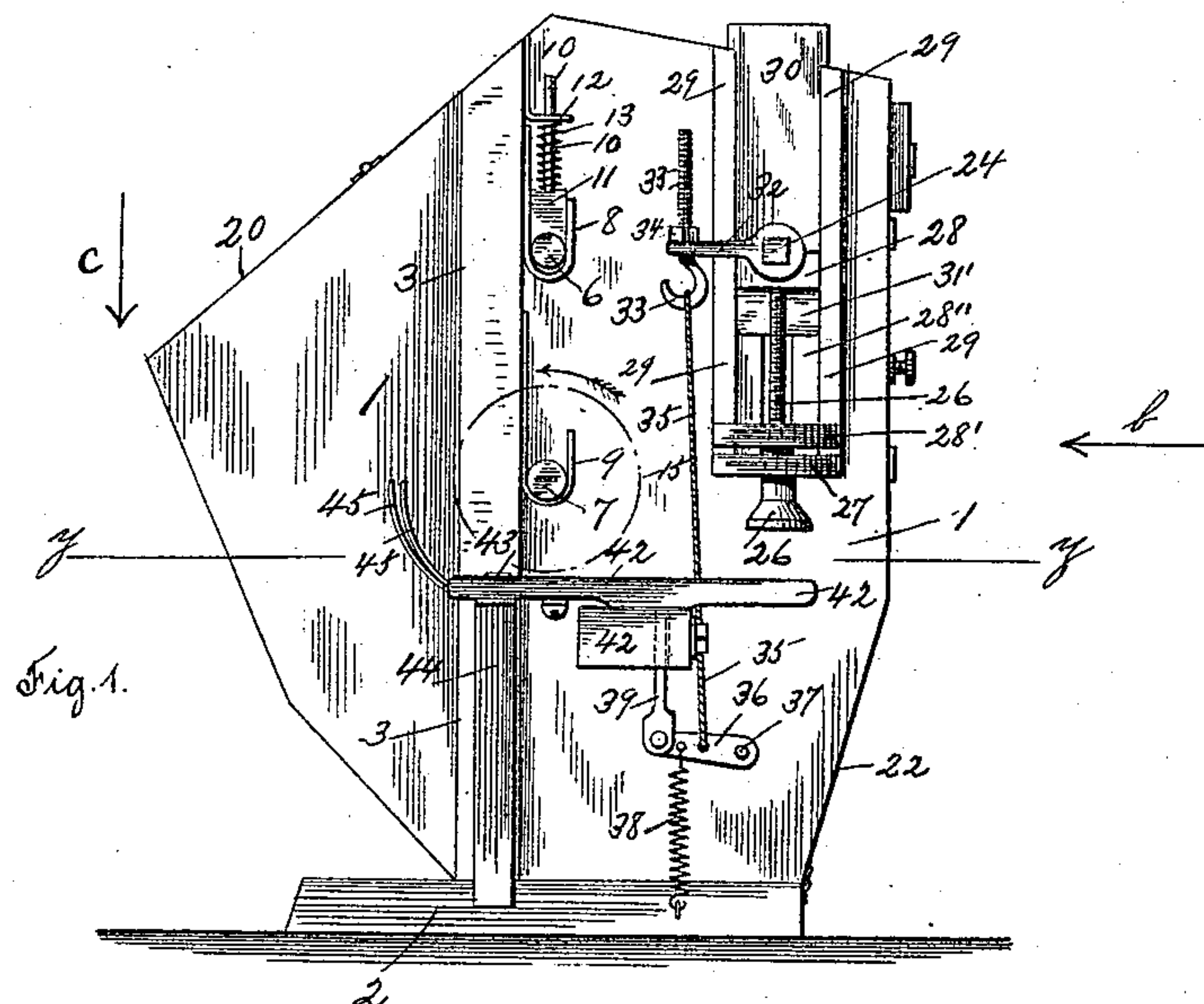


D. J. KENARY.  
FULLING MILL.

No. 452,058.

Patented May 12, 1891.



Witnesses  
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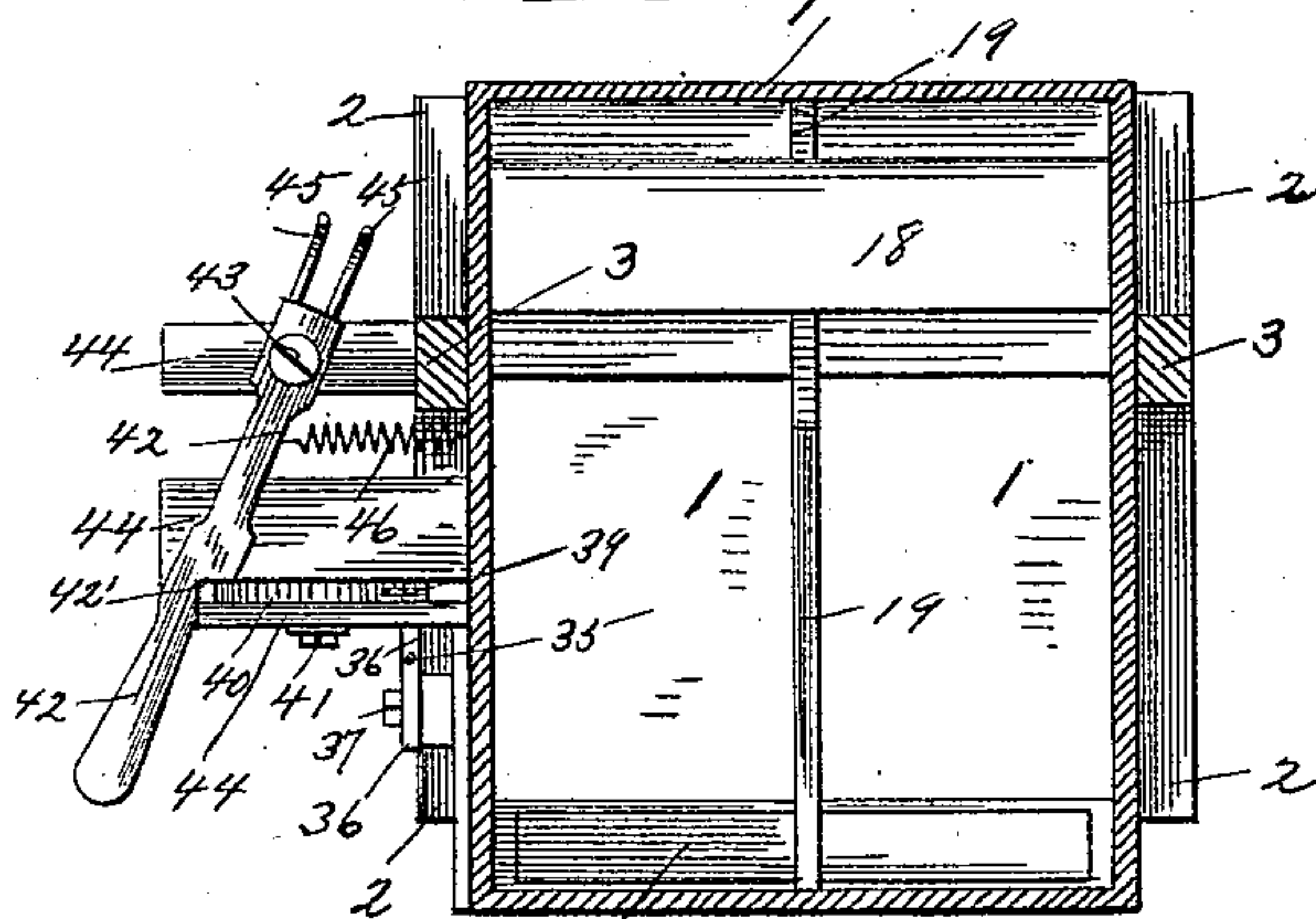
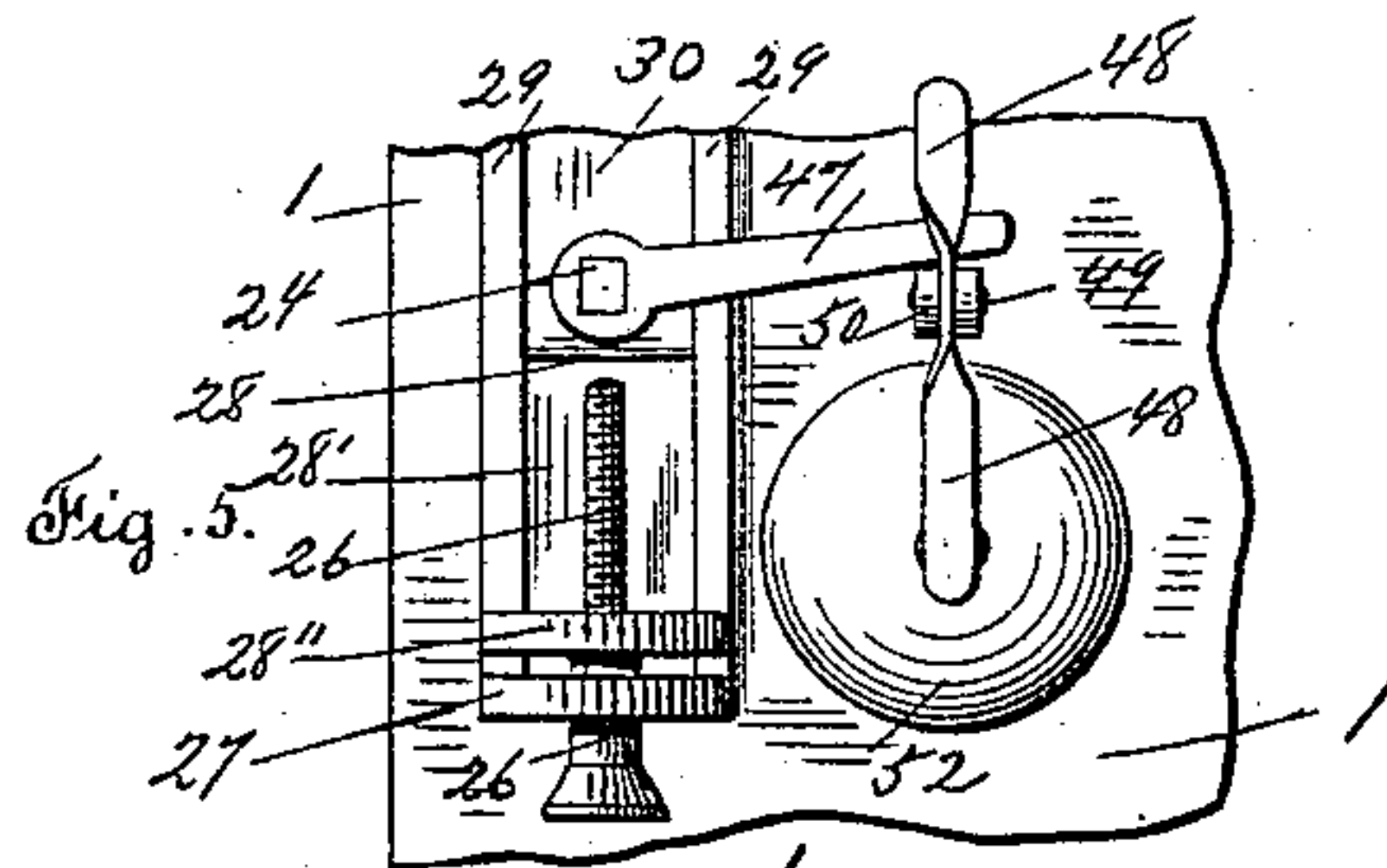
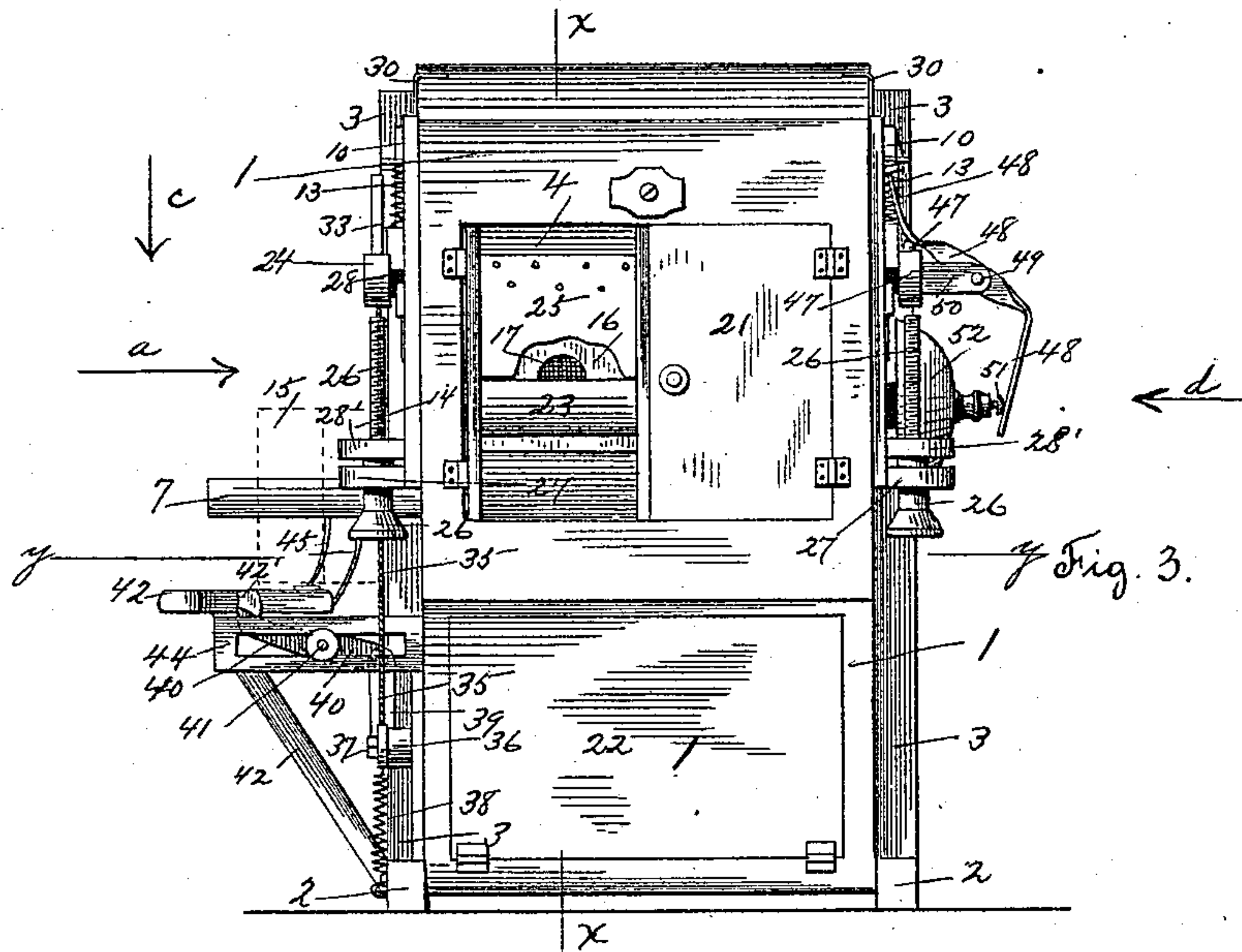
(No Model.)

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# UNITED STATES PATENT OFFICE.

DAVID J. KENARY, OF CHERRY VALLEY, MASSACHUSETTS.

## FULLING-MILL.

SPECIFICATION forming part of Letters Patent No. 452,058, dated May 12, 1891.

Application filed November 7, 1890. Serial No. 370,606. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID J. KENARY, a citizen of the United States, residing at Cherry Valley, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Fulling-Mills; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to fulling-mills; and the object of my invention is to improve upon the construction and operation of fulling-mills as now ordinarily constructed and operated and to provide the same with a mechanism for automatically unshipping the driving-belt and stopping the operation of the machine, and at the same time ring a bell to notify the operator in case of the failure of the machine to operate in the proper manner.

My invention consists in certain novel features of construction and operation of the mechanism for automatically stopping the operation of the fulling-machine, as will be hereinafter fully described, and the nature thereof indicated by the claims.

Referring to the drawings, Figure 1 is an end elevation of a fulling-machine with my improvements applied thereto, looking in the direction of arrow *a*, Fig. 3. Fig. 2 is a central longitudinal section on line *xx*, Fig. 3. Fig. 3 is a rear view, looking in the direction of arrow *b*, Fig. 1, one of the doors being open and the interior part shown partially broken away. Fig. 4 is a cross-section at line *yy*, Figs. 1 and 3, looking in the direction of arrow *c*, same figures, and taken on line *zz*, Fig. 2; and Fig. 5 is a detached section of the opposite end of the machine shown in Fig. 1, looking in the direction of arrow *d*, Fig. 3, showing the bell-operating device.

In the accompanying drawings, 1 is the box or chest of the machine, supported on the base 2 and having the upright frame-pieces 3 on each end thereof. Two horizontal rollers 4 and 5 are supported within the box 1, between which the cloth passes to be fulling in the ordinary way. The shafts 6 and 7 of the rollers 4 and 5 project through the ends of the

box 1, and are supported and turned in hangers 8 and 9, secured to the frame 3. A spring-actuated pin 10 is arranged over the shaft 6 of the roller 4, said pin having a block 11 on the lower end thereof, which rests upon the projecting end of the shaft 6. The upper end of said pin 10 extends through an arm 12, secured to the frame 3. A spiral spring 13 encircles said pin 10 and has its bearing at each end on the block 11 and arm 12. The object of the spring 13 is to hold the upper roller 4 in yielding contact with the lower roller 5 as the cloth passes between said rollers. The shaft 7 of the lower roller 5 carries the fast and loose pulleys 14 and 15 thereon. A vertical plate 16 is secured in the box 1 in front of the rollers 4 and 5. Said plate 16 has holes 17 therein, through which the cloth passes to the rollers 4 and 5. At the rear of the rollers 4 and 5 is arranged an inclined plate 18, over which the cloth passes after it has passed between the rollers 4 and 5. A central vertical division 19 extends in the lower part of the box 1, dividing the same into two compartments, as shown in Figs. 2 and 4.

In the upper part of the box 1 is a door 20, and at the front of the box 1 are a pair of doors 21. In the lower part of the box, beneath the doors 21, is a door 22, through which the cloth to be fulling is placed in the two compartments of the box.

I will now proceed to describe my improved mechanism for automatically unshipping the driving-belt to stop the machine and for ringing a bell. In front of the plate 16 and parallel to the rollers 4 and 5 is a roll 23, supported and revolving within the box 1. Above said roll 23 and parallel therewith is supported a bar 24, having a sheet or plate 25, preferably of metal, secured thereto and extending down therefrom, so that its lower edge will extend parallel to and just above the roll 23. The bar 24 is adjustable vertically in this instance by means of a screw 26 at each side of the box 1 on the exterior thereof. The screw 26 is supported and turns in a stand 27, fast on the outside of the box 1, and the thread of said screw engages and moves up and down in the lower arm 28' of the angle-piece 28, the other arm 28'' of which is made slotted (see



Fig. 1) and moves up and down in ways 29, secured on the outside of the box 1. (See Fig. 1.)

In a box upon the upper end of the arm 28'' is journaled the projecting ends of the bar 24. Said ends extend through slots 24' in the ends of the box 1, which are covered by the sliding plates 30, which are supported and move up and down in the ways 29. After the bar 24 has been adjusted up or down, as desired, by means of the mechanism above described it is secured in place by means of the bolt 31, having an enlarged head 31', bearing upon the arm 28'', and a nut 31'' upon the inside of the box adapted to be turned to draw the head 31' upon the arm 28''.

In lieu of the means shown for adjusting the position of the bar 24 and securing the same in place when adjusted, any other suitable or well-known means may be employed.

Upon one end of the bar 24, which extends through the side of the box 1, is rigidly secured an arm 32, (see Fig. 1,) and in the outer end of said arm is supported a hook 33, having a screw-shank, which may be adjusted up or down in the arm 32 by the nut 34, according as the bar 24 is adjusted up or down. Extending from the hook 33 is a cord or connector 35, the lower end of which is attached to a lever 36, pivoted at 37 on the outside of the box 1. A spring 38 is attached to said lever 36 at its upper end, and at its lower end to the base 2 of the machine. Said spring 38 acts against the cord 35 to return the lever 36 to its normal position.

Pivoted to the outer end of the lever 36 is a link 39, secured to one end of a lever 40, pivoted at 41 in a bracket 44, secured on the outside of the box 1. The outer end of said lever 40 is adapted to extend above and engage a notch 42' in the shipper-lever 42, pivoted at 43 on a stand 44, secured to the box-side. The shipper-lever 42 is provided with curved arms 45, adapted to extend on each side of the driving-belt. (Not shown.) A spring 46, secured to shipper-lever 42 and the box 1, serves to draw over said shipper-lever when it is released by the lever 40 and unship the belt from the fast pulley 14 to the loose pulley 15 to stop the machine.

On the opposite end of the bar 24 from the arm 32, above described, is rigidly secured an arm 47, which is adapted to engage and operate the upper end of a lever 48, pivoted at 49 in an arm 50, secured to the outside of the box 1. (See Fig. 5.) The lower end of said lever 48 is adapted to engage and operate the push-lever 51 of the bell 52 and to ring said bell when the lever 48 is operated by the arm 47 on the bar 24.

From the above description, in connection with the drawings, the operation of my improvements will be readily understood by those skilled in the art, and is as follows: The cloth to be fulled having been placed within the box 1, the end is taken and passed between the feeler-plate 25 on the bar 24 and

the roll 23 and through the hole 17 in the plate 16, and between the rollers 4 and 5. As the machine is operated, the cloth passes, as indicated by the dotted lines, in the direction of arrow *e*, Fig. 2. If desired, two or three thicknesses of the cloth may be passed between the feeler-plate 25 and roll 23, and through the opening 17 and between the rollers 4 and 5. In case of there being any knot or imperfection in the cloth, which, in passing between the rollers 4 and 5 would cause the cloth to be torn or injured, said knot or imperfection will strike against the feeler-plate 25 as the cloth passes between the lower edge of said plate and roll 23 and cause said plate to be moved inwardly, and at the same time cause the bar 24 to be rocked and raise the arm 32, and through hook 33, connector 35, lever 36, and link 39 operate the lever 40 to disconnect the end thereof from the shipper-lever 42 and allow the spring 46 to operate said lever to unship the driving-belt and stop the machine. At the same time the rocking of the bar 24 will move the arm 47 on the opposite end thereof and operate the lever 48 to ring the bell 52, thus notifying the operator of the stoppage of the machine. When the knot or imperfection has been removed, the shipper-lever 42 is drawn over into the position shown in Fig. 4, and the end of said lever 40, drawn up by the spring 38, will hold said lever in said position, and the machine will be operated as before.

It will be understood that the details of construction of my improved automatic stop mechanism and the manner of operating the same may be varied some from what is shown and described, if desired.

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

1. In a fulling-mill, the combination, with a horizontal roll, a rocking bar carrying a feeler-plate parallel to said roll, and means for adjusting said bar and feeler-plate in a vertical direction, of means connected with said bar and feeler-plate and operated thereby for unshipping the driving-belt to automatically stop the machine, substantially as set forth.

2. In a fulling-mill, the combination, with a horizontal roll and a bar carrying a feeler-plate having a rocking motion and arranged parallel to said roll, of means connected with said feeler-plate and operated thereby for unshipping the driving-belt, the said means consisting of an arm fast on said bar, a connector to a lever, and said lever, and a spring attached thereto, a link to a second lever and said lever, and a shipper-lever engaged by said second lever and a spring connected with the shipper-lever, for the purpose stated, substantially as set forth.

3. In a fulling-mill, the combination, with a horizontal roll and a rocking bar carrying a feeler-plate arranged parallel to said roll, of

means connected with said bar and feeler-plate and operated thereby for unshipping the driving-belt and ringing a bell, the said means consisting of an arm on one end of  
5 said bar, a connector to a lever and said lever, a spring attached thereto, a link to a second lever and said second lever, and the shipper-lever, and a lever operated by the

rocking bar, and a bell operated by said lever, substantially as set forth, and for the purpose stated.

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