

No. 670,549.

Patented Mar. 26, 1901.

L. R. TULLOCH.
STAMP MILL ATTACHMENT.

(Application filed May 29, 1900.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 1.

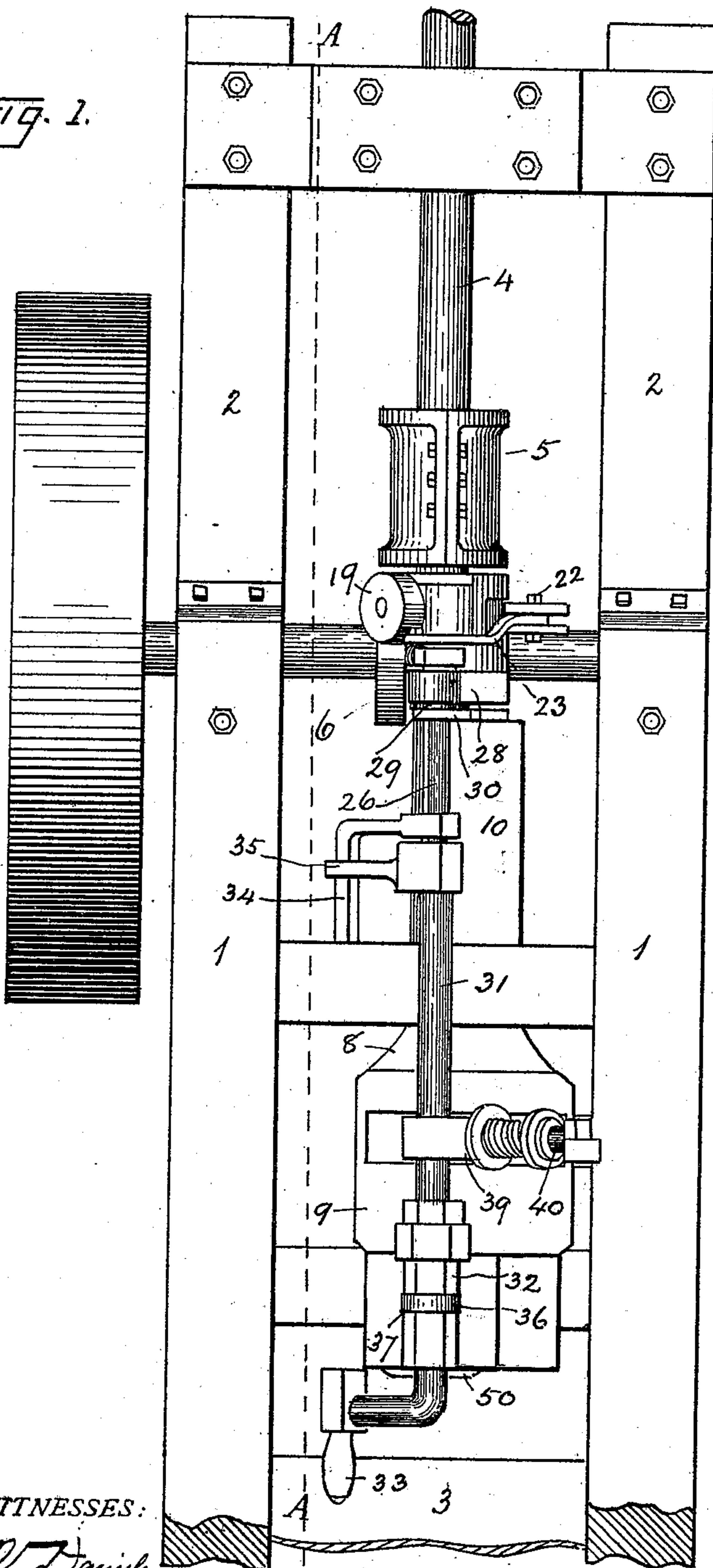
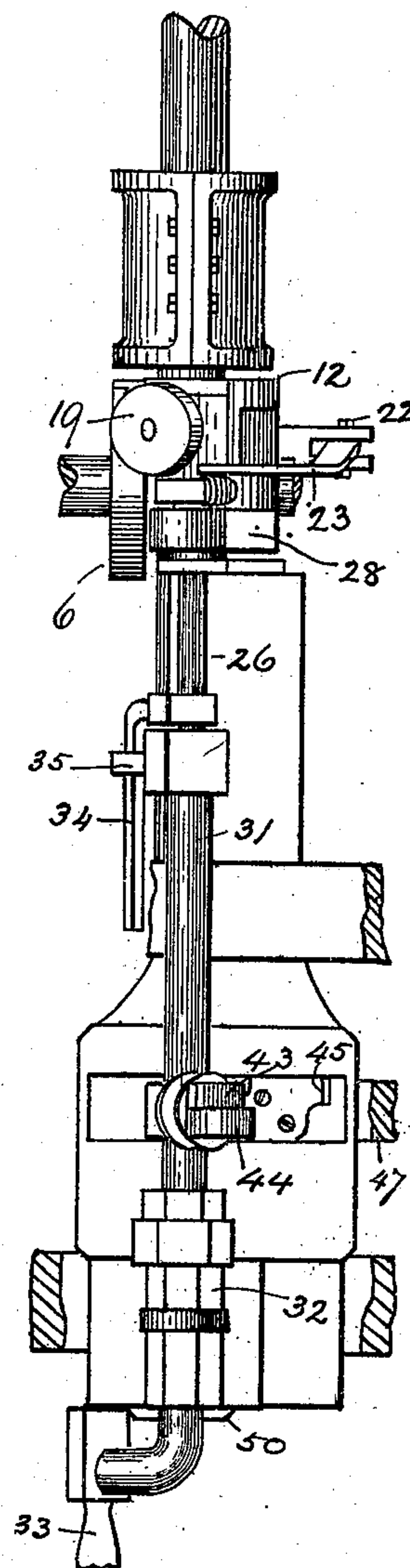


Fig. 2.



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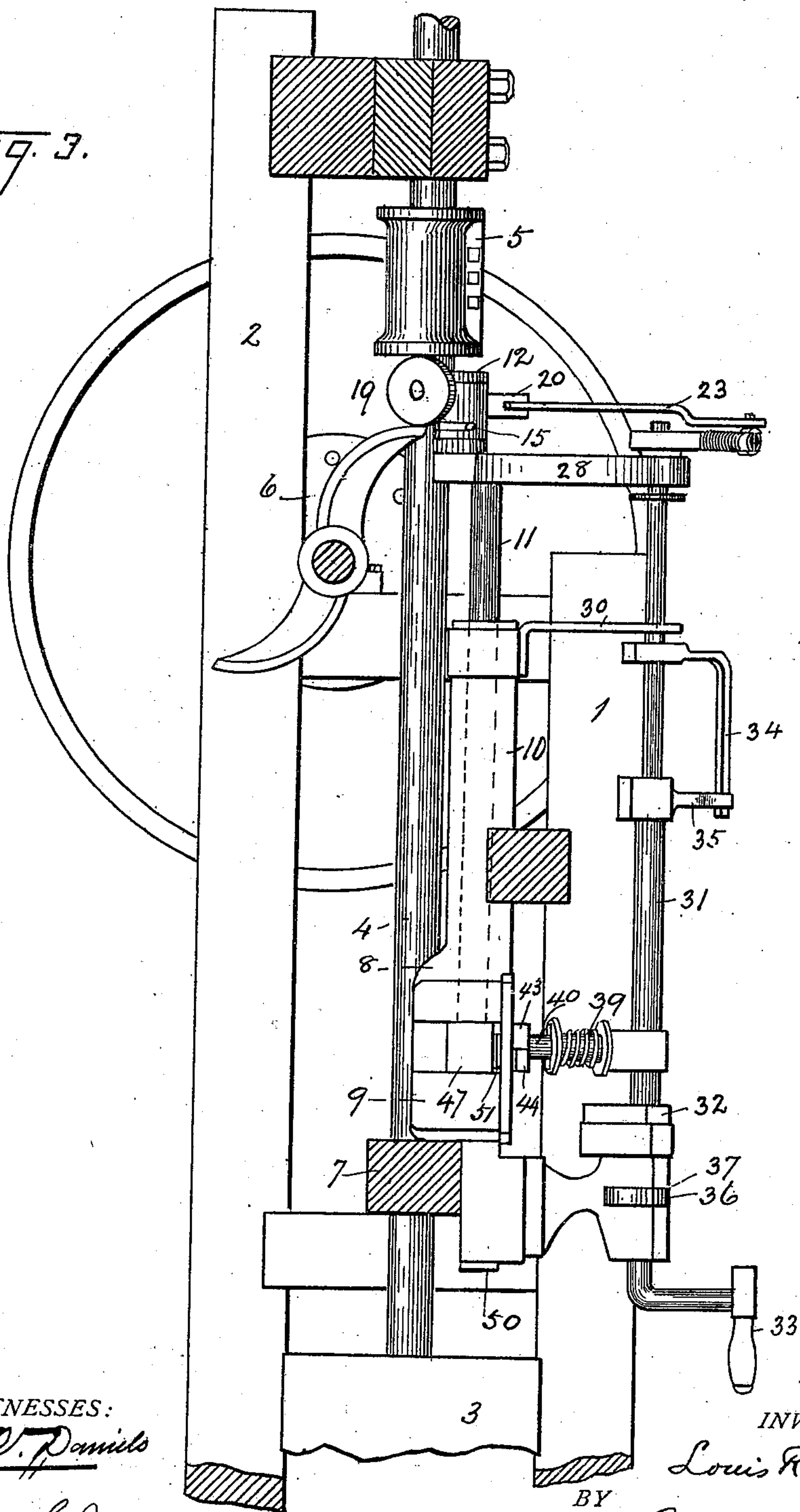
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Fig. 3.



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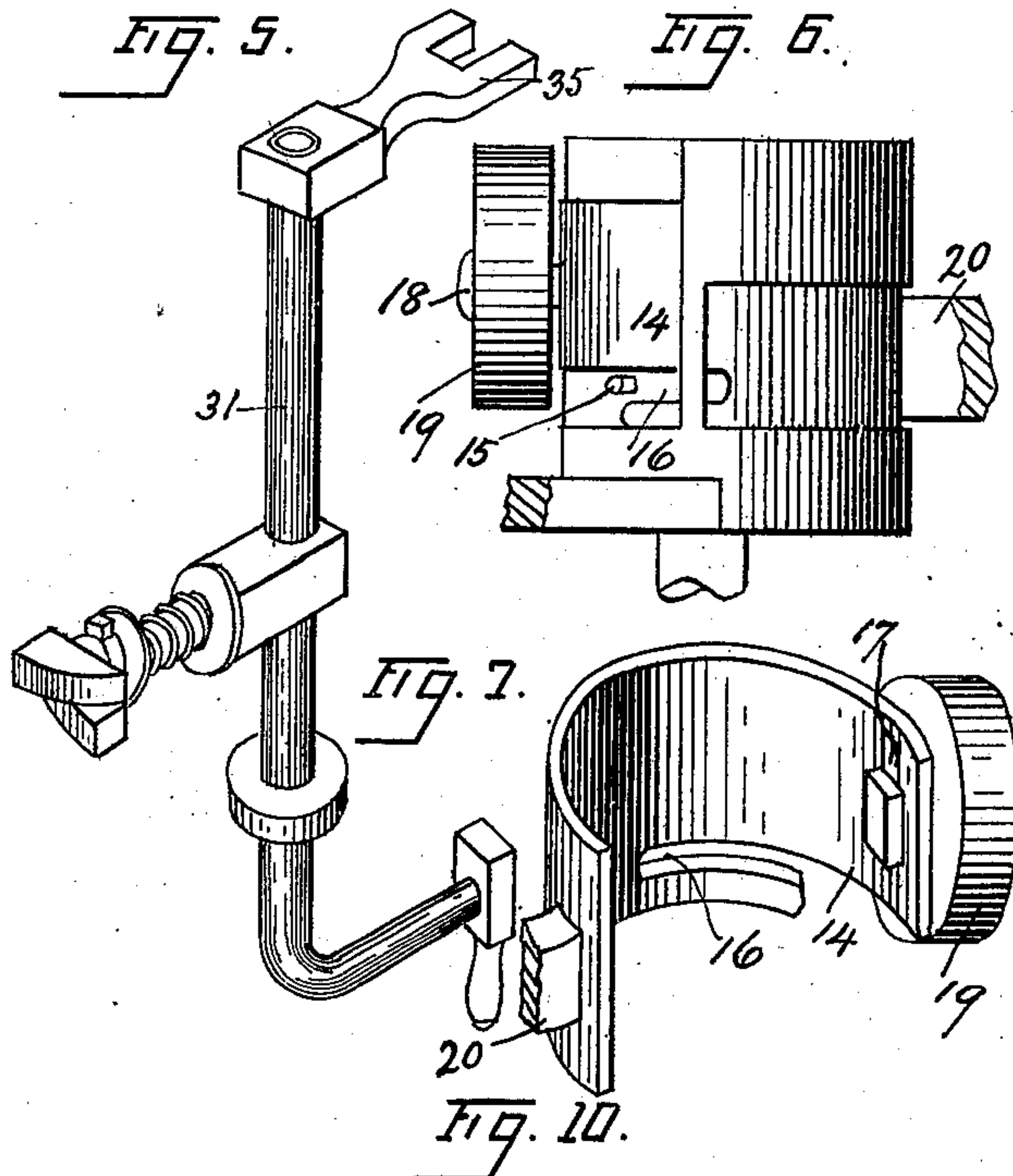
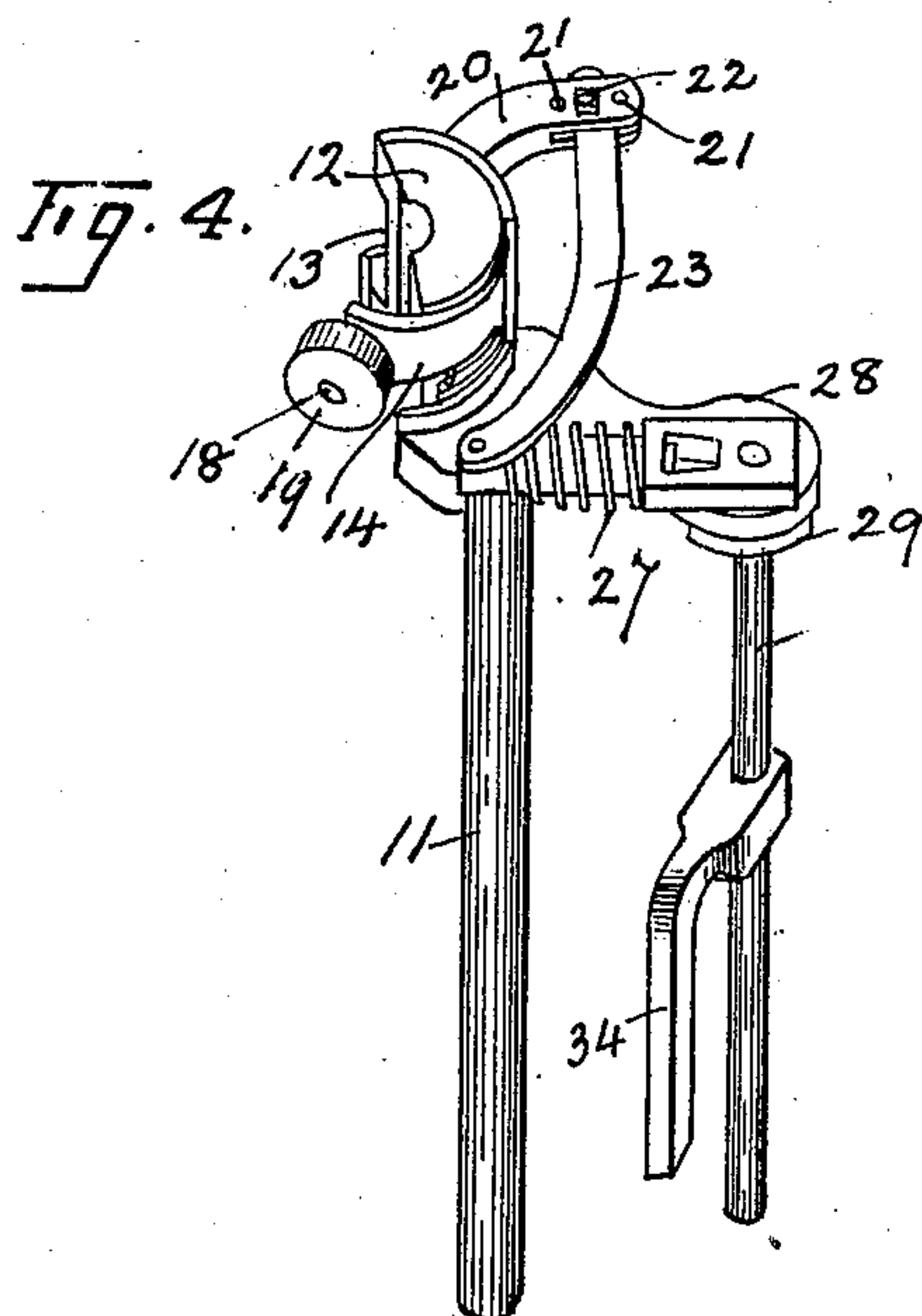
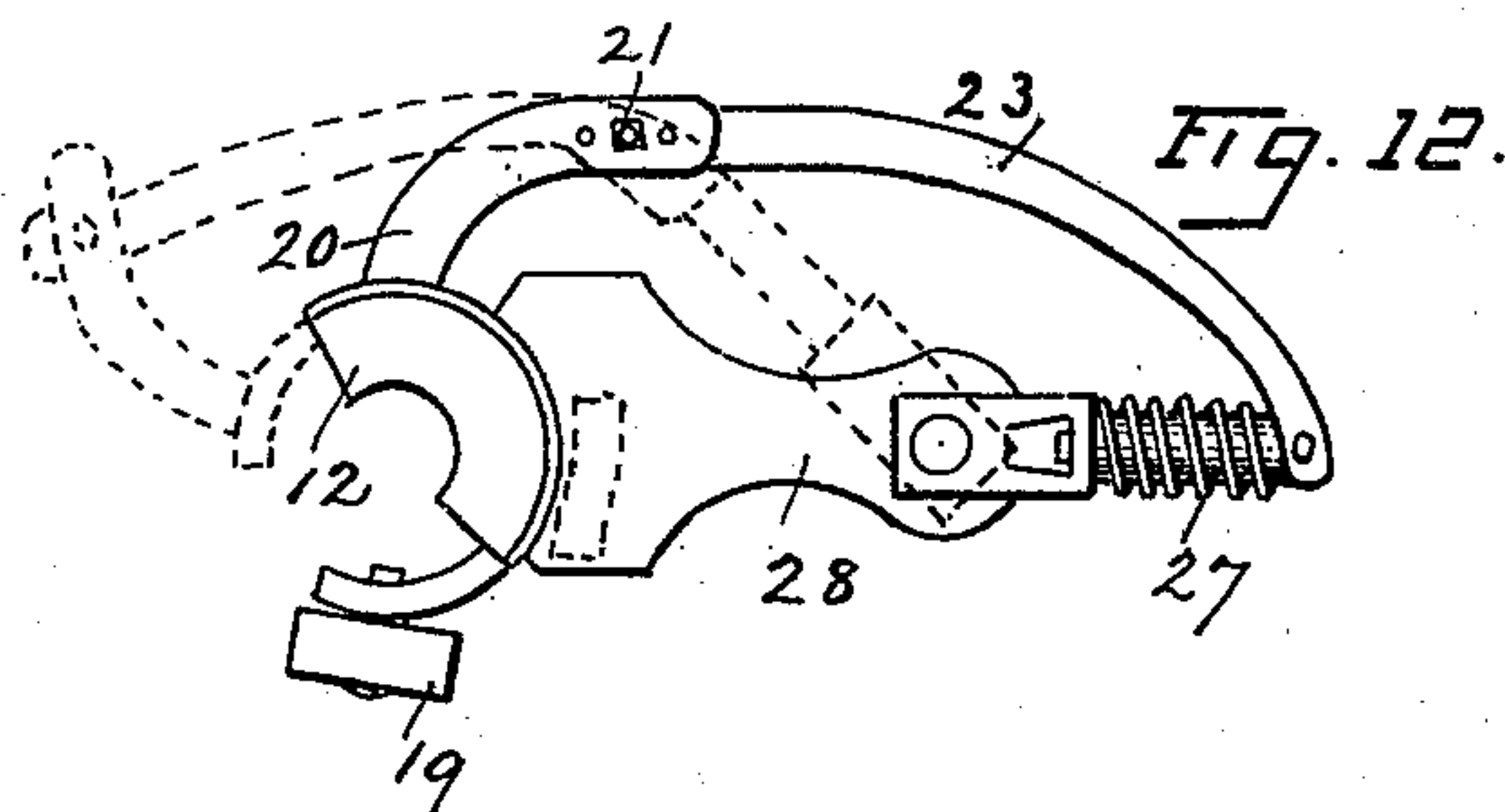
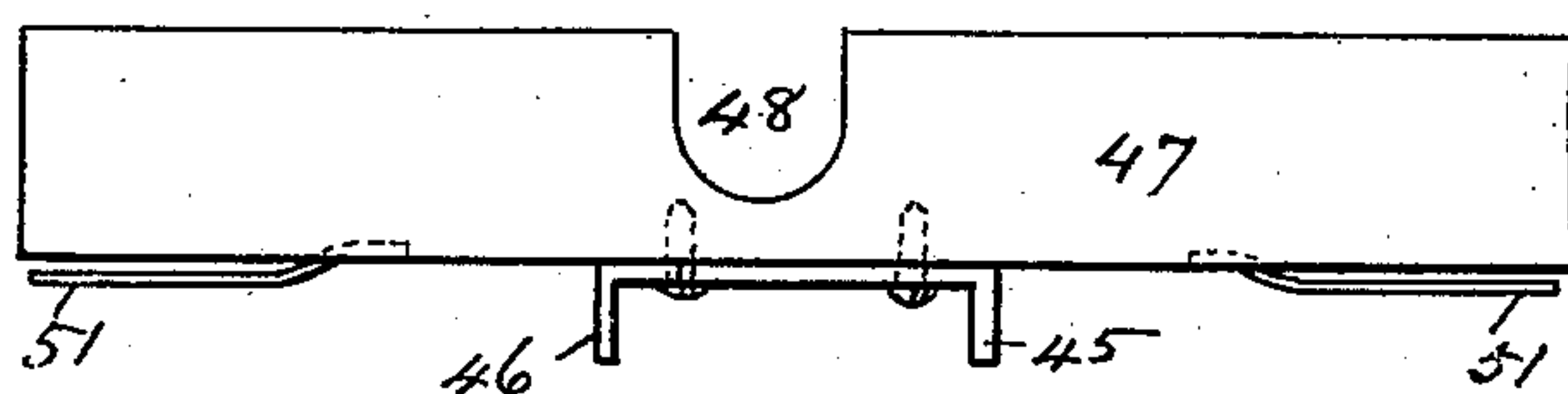
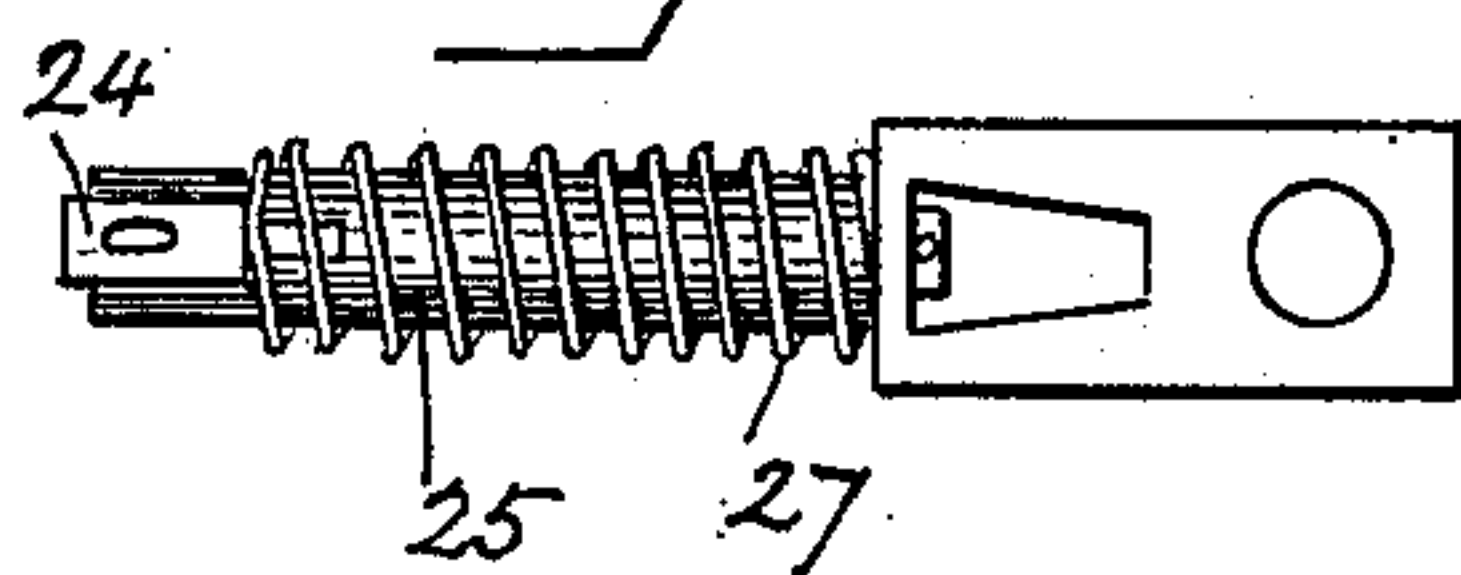
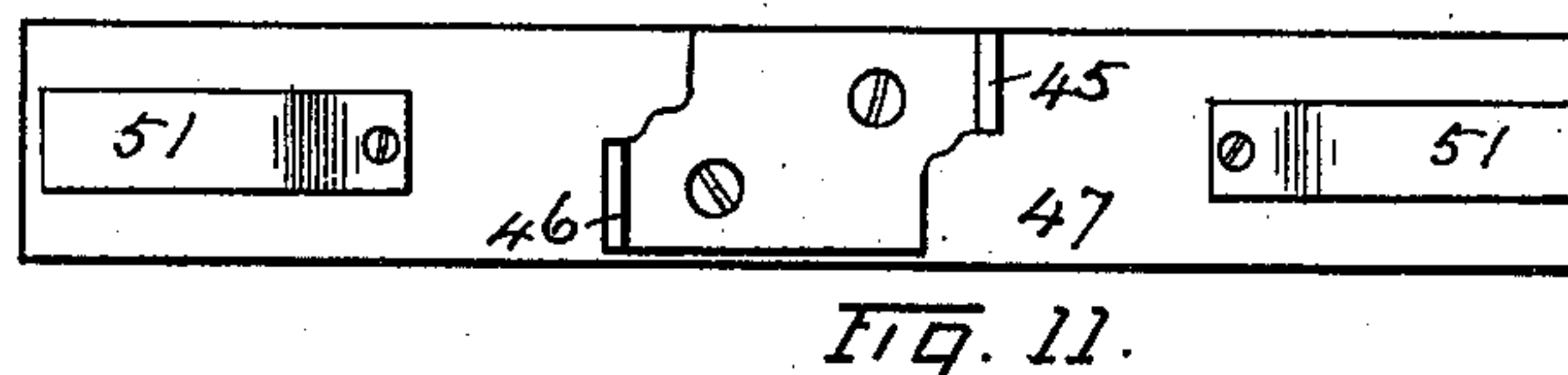
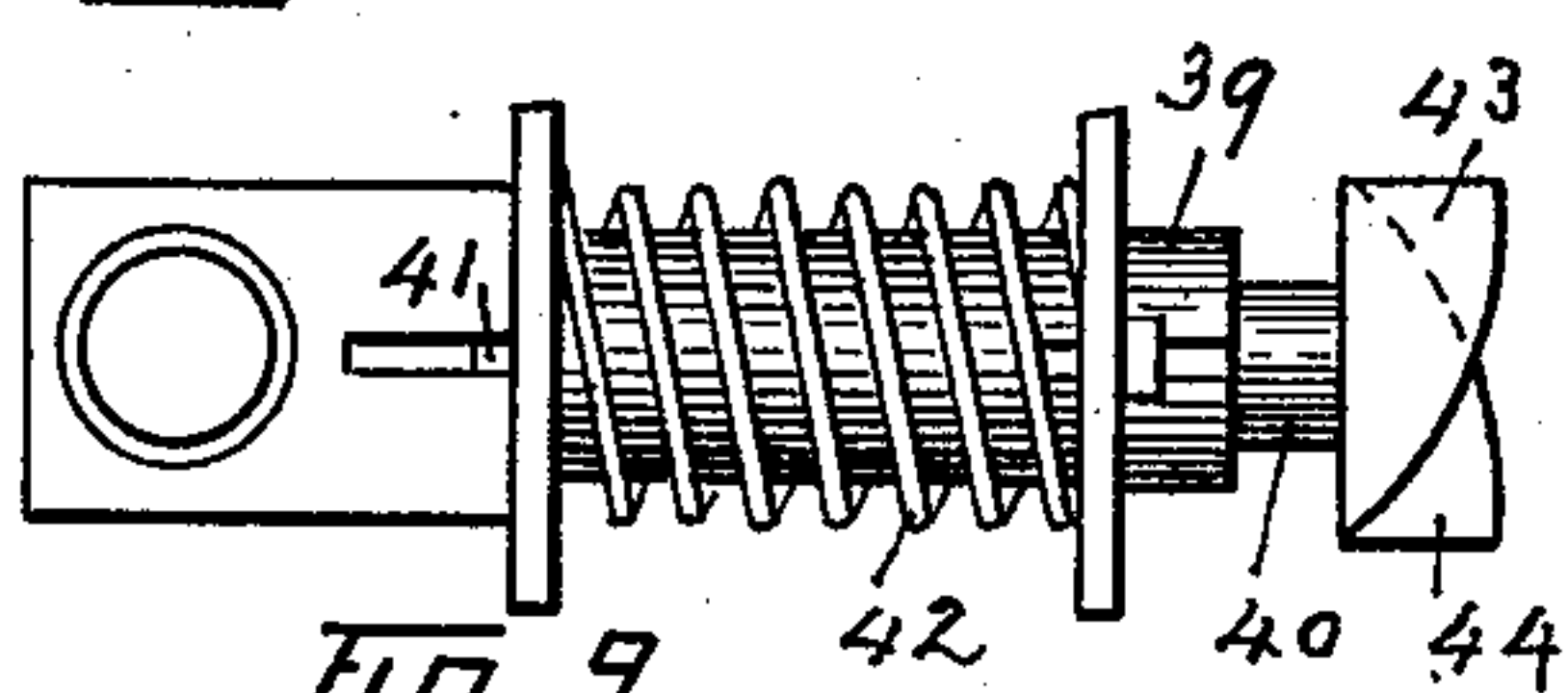


Fig. 8.



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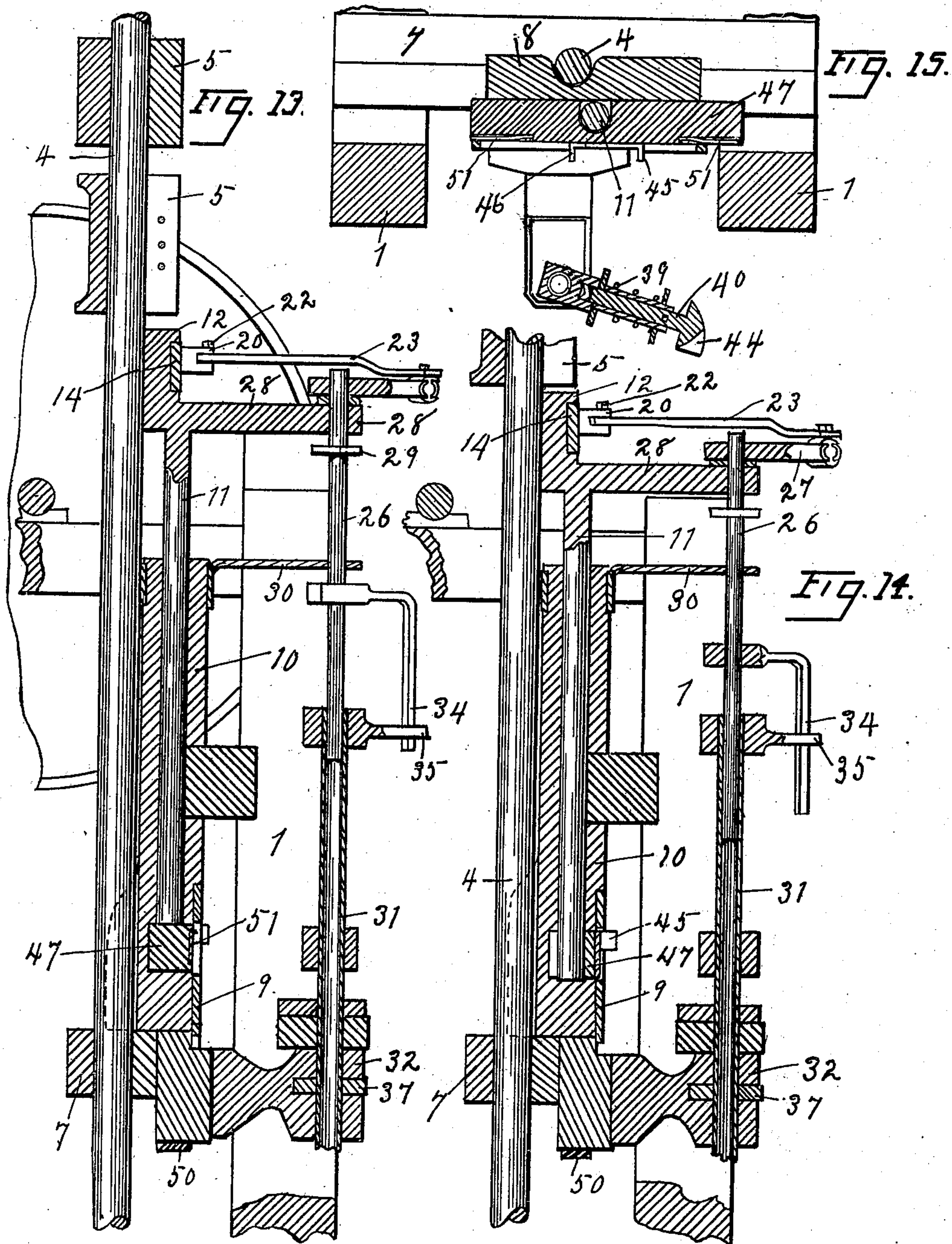
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4 Sheets—Sheet 4.



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UNITED STATES PATENT OFFICE.

LOUIS R. TULLOCH, OF ANGELS CAMP, CALIFORNIA.

STAMP-MILL ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 670,549, dated March 26, 1901.

Application filed May 29, 1900. Serial No. 18,458. (No model.)

To all whom it may concern:

Be it known that I, LOUIS R. TULLOCH, a citizen of the United States, residing at Angels Camp, in the county of Calaveras and State of California, have invented certain new and useful Improvements in Stamp-Mill Attachments, of which the following is a specification.

My invention relates to an apparatus for hanging up the stamp of a stamp-mill or for dropping the same without stopping the rotation of the cam-shaft. These operations with the devices commonly used at present are both difficult and dangerous and are, moreover, unnecessarily slow.

The object of my invention is to provide an apparatus by means of which they may be accomplished with great ease and rapidity and with perfect safety while the cam-shaft is rotating.

My invention therefore resides in the novel construction, combination, and arrangement of parts for the above ends hereinafter fully specified, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of a stamp-mill with my improved attachment applied thereto. Fig. 2 is a similar view of a portion thereof. Fig. 3 is a section on the line A A of Fig. 1. Fig. 4 is a perspective of the upper part of the prop-shifting mechanism. Fig. 5 is a similar view of the lower part of the same. Fig. 6 is an enlarged detail of part of said mechanism. Fig. 7 is another detail of the same. Fig. 8 is a top plan view, enlarged, of the slide-shifting arm. Fig. 9 is a similar view of the arm and the slide therein on the upper shaft-section of the shifter. Fig. 10 is a front view of the slide detached. Fig. 11 is a top plan view of the same. Fig. 12 is a top plan view of the upper portion of the prop-shifting mechanism. Fig. 13 is a vertical section of the apparatus in a plane passing through the stamp stem and guide and prop-stem when the stamp is raised. Fig. 14 is a similar view when the stamp is lowered. Fig. 15 is a transverse section through the slide.

Referring to the drawings, 1 1 represent the front posts, and 2 2 the rear posts, of a stamp-mill. 3 represents the mortar, 4 the stem, 5

the tappet, and 6 the cam, all constructed and arranged in the usual manner.

On the cross-beam 7, in which is the lower bearing for the stem, is supported a pedestal 8, having a broad base 9, resting upon the cross-beam 7 and tapering to a narrow upper portion 10, forming a guide for a vertically-reciprocating prop-stem 11. Said stem carries at its upper end a prop 12, approximately semicylindrical in shape, hollowed out along the axis to permit it to reciprocate vertically as close as possible to the stamp-stem 4. Said prop can thus be located immediately beneath the tappet 5 and can thus most effectually sustain the weight of the stamp.

The prop 12 is grooved circumferentially, as shown at 13, to form a bearing for a circular arm 14, the rotary movement of said arm 14 in said groove being limited by a stop 15 on said prop abutting against the end of a recess 16 in said arm. The free end of said arm 14 is vertically slotted, as shown at 17, and in said slot 17 moves vertically the shaft 18 of the roller 19. From the power end of said curved arm 14 extends rigidly an arm 20, which is adjustably connected, by means of holes 21 and a pin 22, with a curved link 23, the latter being pivotally connected at its other end to the end of a slide-piece 24. Said slide-piece 24 slides in an arm 25 on a vertical shaft-section 26 and is normally pressed out by a spring 27 around said arm 25.

The upper end of the shaft-section 26 passes through the end of an extension 28 from the prop 12, and a collar 29 is secured to the shaft-section 26 below said extension 28, so that said shaft-section 26 is raised or lowered, together with the prop 12, by means of the extension 28.

An arm 30 from the upper end of the pedestal 8 forms an upper bearing for the shaft-section 26, which slides freely in a lower shaft-section 31, having a vertical bearing in an extension 32 from the base 9 of the pedestal. A crank-handle 33 at the lower end of said shaft-section 31 serves to rotate the latter, and this rotation is imparted to the section 26 by means of a bent arm 34, secured to the section 26, passing through the fork of an arm 35, secured to the section 31. By this means the sections 26 31 are caused to

rotate in unison, while having a free relative longitudinal movement.

The shaft-section 31 is maintained against vertical movement by means of a collar 36 on said section working in a recess 37 in the extension 32.

From the shaft-section 31 extends a slide-shifter arm 39, in which slides a slide-shifter 40, its movement being limited by a stop 41 and it being pressed out by a spring 42. Said shifter 40 has upper and lower dogs 43 44, which when said arm is vibrated by the rocking of the shaft-section 31 engage upper and lower lugs 45 46 on a slide 47, sliding in a suitable bearing in the base 9 of the pedestal. Said slide 47 is recessed, as shown at 48, so that when the slide is in one of its positions the end of the prop-stem 11 can pass through said recess 48 and rest upon the pedestal-base, and when in another position the prop-stem can rest upon the top of said slide.

50 is a stop for the crank-handle 33, secured upon the underside of the extension 32, preferably formed of rubber, which arrests the crank-handle at the end of its vibration through almost a complete revolution.

In order to arrest the slide 47 at the end of one movement of reciprocation, so that it shall be in proper position for the return movement, and to prevent rebound, there is provided at each end of said slide a brake, formed of a bent spring 51, secured at its inner end to the side of the slide in a recess thereof and extending above said side, so as to be pressed inward by the corresponding side of the bearing for said slide.

The mode of operation of the apparatus is as follows: Supposing the parts to be in the position shown in Fig. 2 or in the position shown in dotted lines in Fig. 3, the operator moves the handle 33 to the left and outward, thereby moving the roller 19 into the position shown in Fig. 3 or in full lines in figure, in which said roller is in the path of the ascending cam. Said cam raises said roller and causes it to abut against the under side of the tappet and raise said tappet. Said cam also raises the prop 12 and the prop-stem 11. While the cam is raising the roller and tappet the continued rotation of the crank-handle 33 brings the square face of the lower dog 44 into engagement with the lower lug 46 on the slide 47, and when the cam has raised the prop-stem 11 out of the recess 48 and above the upper surface of the slide 47, so that said slide is free to move, said slide is shifted to the left, moving the recess 48 out of alinement with said cam-stem. When the roller 19 is raised by the cam and in turn raises the tappet, the roller-shaft 18 rises to the top of the slot 17, and thus the top of the roller is raised above the level of the top of the prop 12, and the tappet 5 is maintained out of contact with said prop 12. The continued movement of the crank-handle 33 moves the dog 44 out of engagement with the lug 46 and also moves the arm 25 rearwardly and to the right.

This moves the link 23 rearwardly, and so rotates the arm 20 rearwardly, and thus causes the roller 19 to move forwardly and to the right, out of the way of the rotating cams. As soon as the roller 19 is moved out of contact with the rotating cams it drops and then permits also the prop 12 to drop, the prop-stem 11 then dropping onto the top of the slide 47. The weight of the stamp is thus supported upon said slide by means of the prop-stem 11, prop 12, and tappet 5. When it is desired to drop the stamp, it is effected by reversing the operation above described. In each case, whether in hanging up the stamp or in dropping it, the handle 33 is rotated through almost a complete revolution, and in each case by one continued movement the roller is moved into the path of the ascending cam, the tappet is thereby lifted, and then when it has been so lifted the slide 47 is shifted. The difference between the two operations is that in hanging the stamp the slide is shifted so that the recess 48 is moved out of alinement with the prop-stem 11, and in dropping the stamp the slide is shifted so that said recess 48 is moved into alinement with said prop-stem, so that said stem descends thereinto.

I claim—

1. In a stamp-mill attachment, the combination, with the tappet and cam, of a prop, a roller connected thereto to rise and fall therewith, a vertical shaft, an arm extending therefrom to move the roller into the path of the cam, a block, and an arm extending from the shaft to move the block beneath the prop when raised, substantially as described.

2. In a stamp-mill attachment, the combination, with the tappet and cam, of a prop, a roller mounted on a horizontal axis supported by said prop, means for moving said roller into the path of the cam, a connection between the roller and prop, whereby they rise and fall together, a block and means for moving said block below the prop when raised with the roller, substantially as described.

3. In a stamp-mill attachment, the combination, with the tappet and cam, of a prop for the tappet, a lifting device arranged to be interposed between the cam and tappet to raise the latter by means of the former, said lifting device being connected with the prop to likewise raise and lower the prop, a slide arranged to be moved beneath said prop, and means for first interposing said lifting device then shifting said slide and then withdrawing the lifting device in one continuous movement, substantially as described.

4. In a stamp-mill attachment, the combination, with the tappet and cam, of a prop for the tappet, a lifting device arranged to be interposed between the cam and tappet to raise the latter by means of the former, said lifting device being connected with the prop to rise and fall therewith, a slide arranged to be moved beneath said prop and a shaft arranged to operate said lifting device to inter-

pose and withdraw the same, and also said slide to shift the same beneath said prop, substantially as described.

5. In a stamp-mill attachment, the combination with the tappet and cam, of a prop for the tappet, a roller connected with said prop by means of a pin and vertical slot, whereby said roller has a small vertical movement relatively to said prop, means for moving the roller into the path of the cam, a block, and means for moving said block below said prop when raised with the roller, substantially as described.

6. In a stamp-mill attachment, the combination, with the tappet and cam, of a prop for the tappet, a roller revolubly connected therewith, a block movable beneath the prop to support the same, and a shaft operating said roller to revolve it around the prop to interpose the roller between the cam and tappet to raise the latter by means of the former, the roller and prop being likewise raised by the cam, said shaft also operating the block to move the same beneath the prop when so raised, substantially as described.

7. In a stamp-mill attachment, the combination, with the tappet and cam, of a prop for the tappet, a roller having a horizontal revoluble connection therewith, and having likewise a slight vertical movement relative thereto, a block movable beneath the prop to support the same, and a vertical shaft having arms, whereof one engages the block to shift the same, and the other revolves the roller around the prop to interpose the same between the cam and tappet, substantially as described.

8. In a stamp-mill attachment, the combination, with the tappet and cam, of a prop for the tappet, a roller-arm revoluble around the prop, a roller thereon, a vertical shaft, an arm thereon, a link connecting said arm with the roller-arm, means for raising said prop with the roller, and means for supporting said prop when so raised, substantially as described.

9. In a stamp-mill attachment, the combination, with the tappet and cam, of a prop therefor, having a circular guide or bearing, an arm revolving around said prop in said guide, a roller carried by said arm, a vertical shaft, an arm thereon, a link connecting the two arms, a block movable below the prop when the latter is raised, and an arm on said shaft moving said block, substantially as described.

10. In a stamp-mill attachment, the combination, with the tappet and cam, of a prop therefor, having a circular guide or bearing, an arm revolving around said prop in said guide, a roller carried by said arm, and having a slight vertical movement in a slot in

said arm, a vertical shaft, an arm thereon, a link connecting the two arms, a block movable below the prop when the latter is raised, and an arm on said shaft moving said block, substantially as described.

11. In a stamp-mill attachment, the combination, with the tappet and cam, of a prop therefor, having a circular guide or bearing, an arm revolving around said prop in said guide, a roller carried by said arm, a vertical shaft, an arm thereon, a link adjustably connecting the two arms, a block movable below the prop when the latter is raised, and an arm on said shaft moving said block, substantially as described.

12. In a stamp-mill attachment, the combination, with the tappet and cam, of a prop for the tappet a bearing thereon, an arm revoluble on said bearing, a roller carried by the end of said arm, a movable block, a lower vertical shaft-section, an upper shaft-section sliding thereon, means for causing said shaft-sections to rock in unison, an arm on the upper shaft-section operatively connected with the roller-carrying arm, and an arm on the lower shaft-section for shifting said block beneath the prop, substantially as described.

13. In a stamp-mill attachment, the combination, with the tappet and cam, of a prop for the tappet, a bearing thereon, an arm revoluble on said bearing, a roller carried by the end of said arm, a movable block, a lower vertical shaft-section, an upper vertical shaft-section movable therein, means for causing said shaft-sections to rock in unison, an arm on the upper shaft-section, a link therefrom to the first arm of such length that a continuous movement of the upper section produces a reciprocating movement of the roller to insert the same between the cam and tappet and withdraw the same, and an arm on the lower shaft-section moving said block beneath the prop, substantially as described.

14. In a stamp-mill attachment, the combination, with the tappet and cam, of a lifting device arranged to be interposed between the cam and tappet, a prop for the tappet a slide arranged to be moved beneath said prop, said slide having two lugs on one of its faces, a vertical shaft operatively connected with said lifting device and prop, and an arm extending from said vertical shaft, and having upper and lower dogs resiliently held therein, to engage said lugs to shift the slide in either direction, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LOUIS R. TULLOCH.

Witnesses:

C. P. JONES,
FLORENCE H. WIGAND.