

5 Sheets—Sheet 1.

No. 562,383.

Patented June 23, 1896.



H. M. Corwin
A. L. Gill.

INVENTOR

Daniel A. Fisher
by W. Bakerwell Sons
his Attorneys

(No Model.)

5 Sheets—Sheet 2.

D. A. FISHER.
SAW FILING AND SETTING MACHINE.

No. 562,383.

Patented June 23, 1896.

Fig. 3.

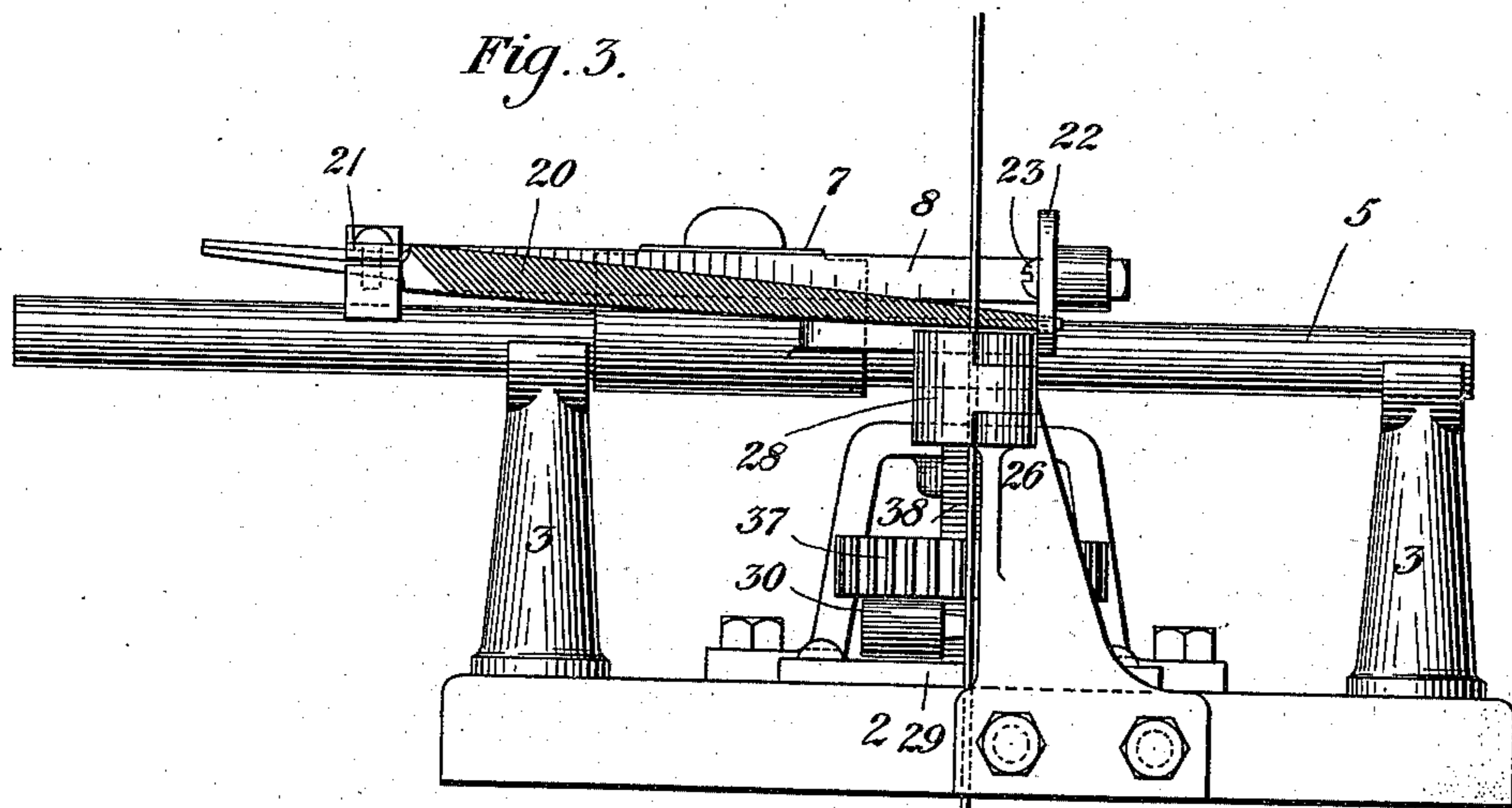


Fig. 4.

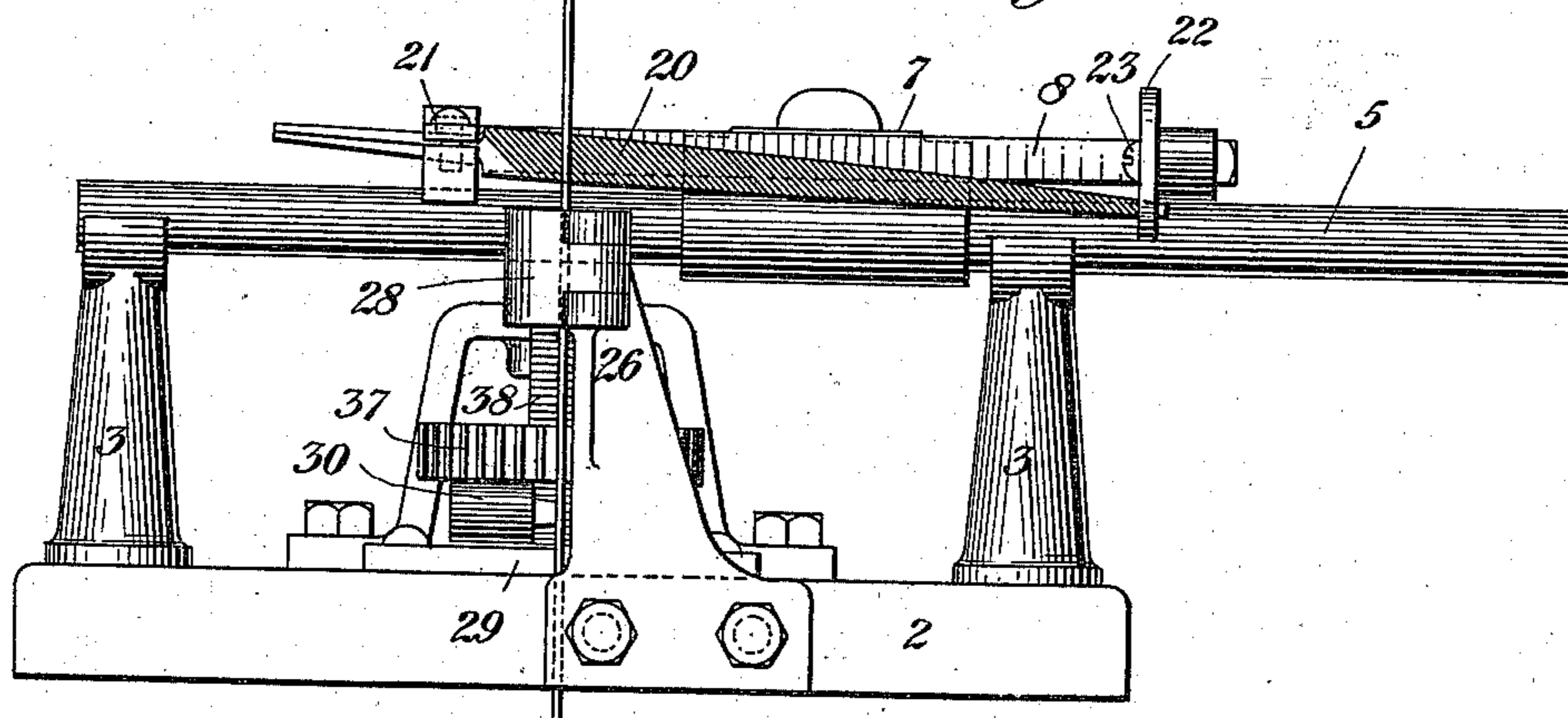
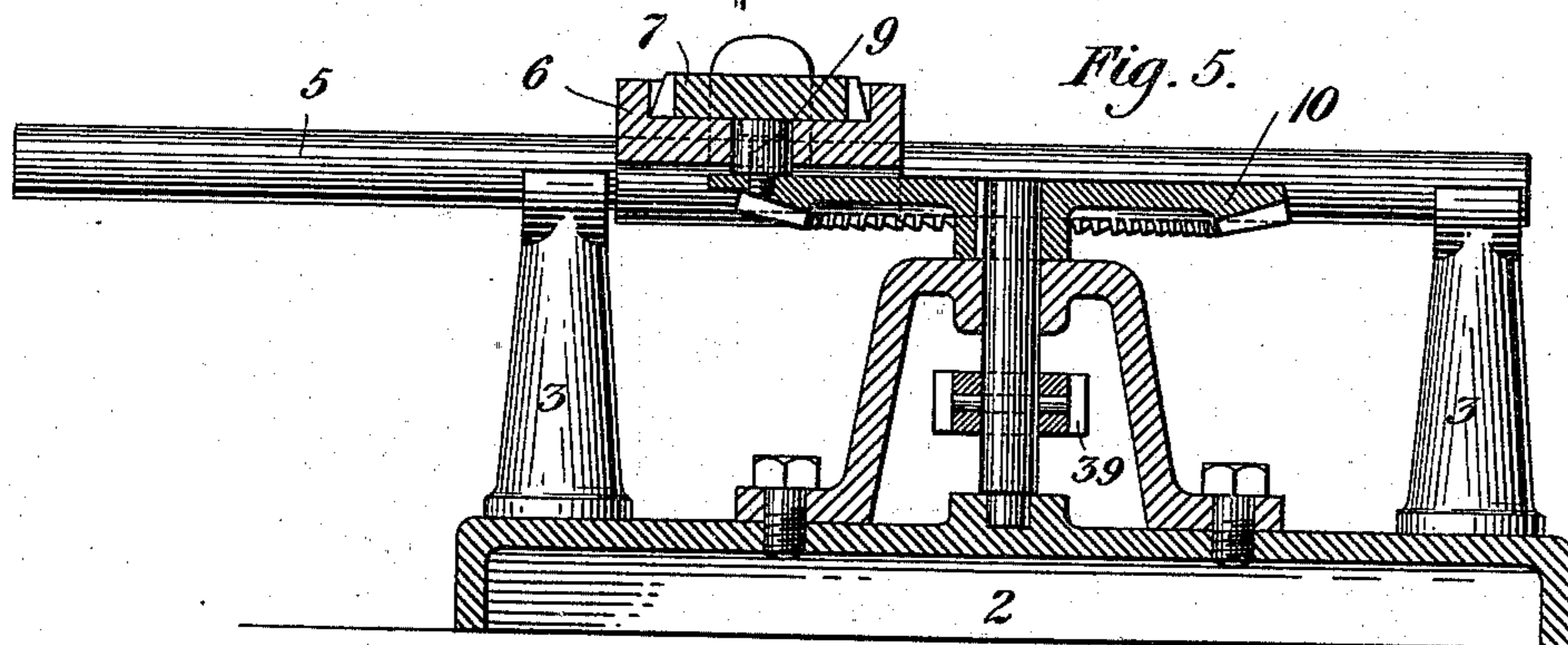


Fig. 5.



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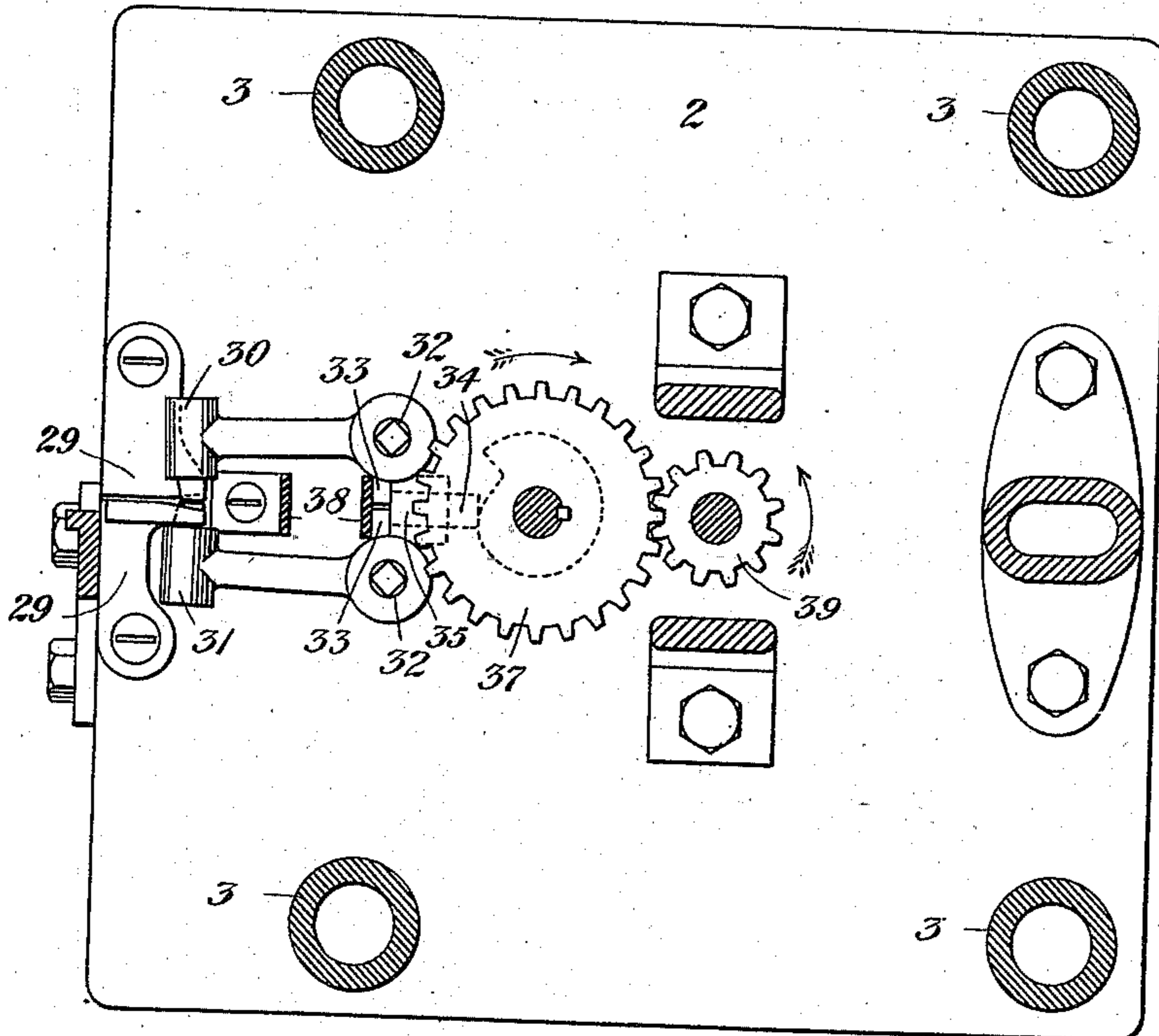


Fig. 6.

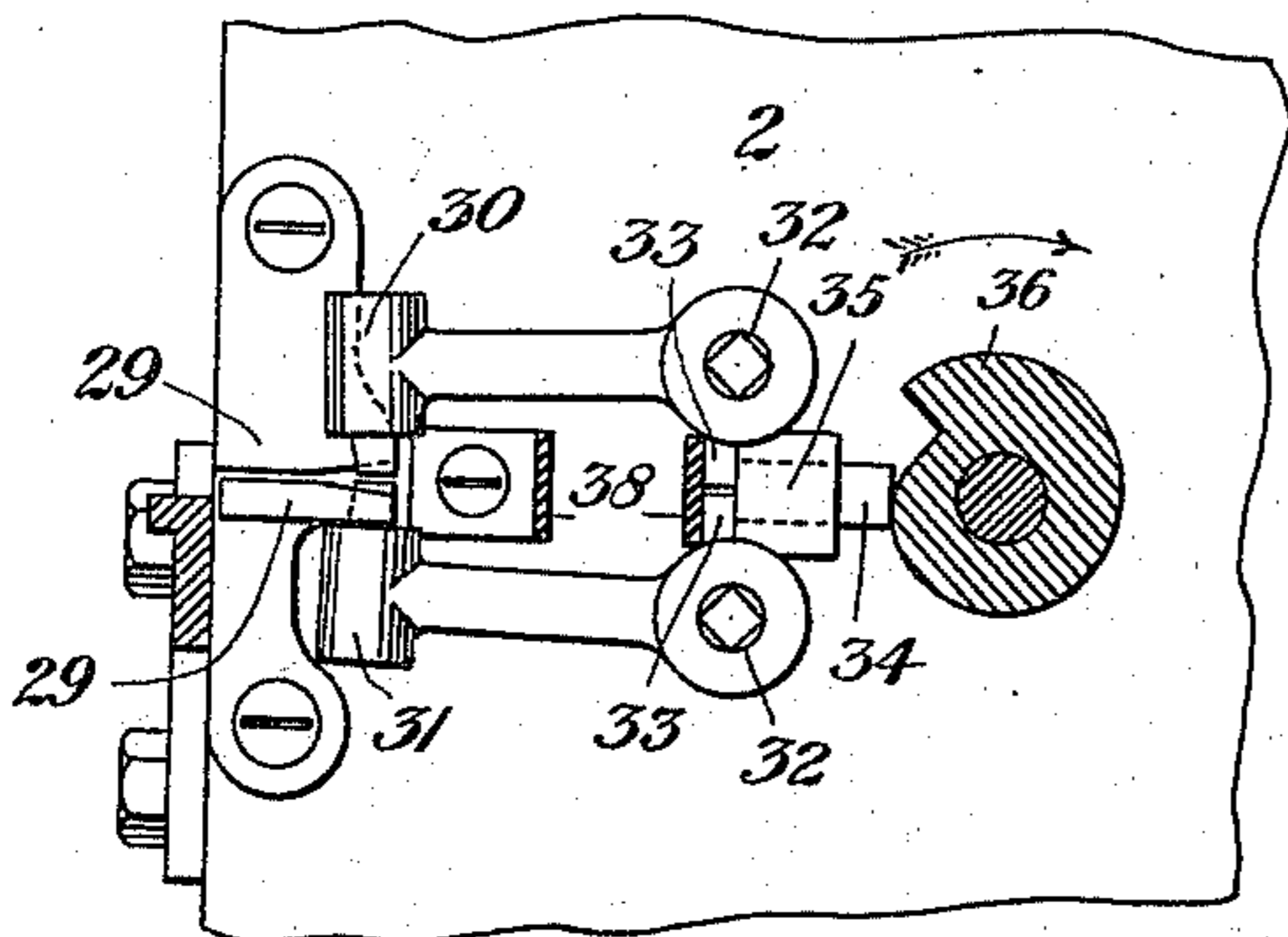


Fig. 7.

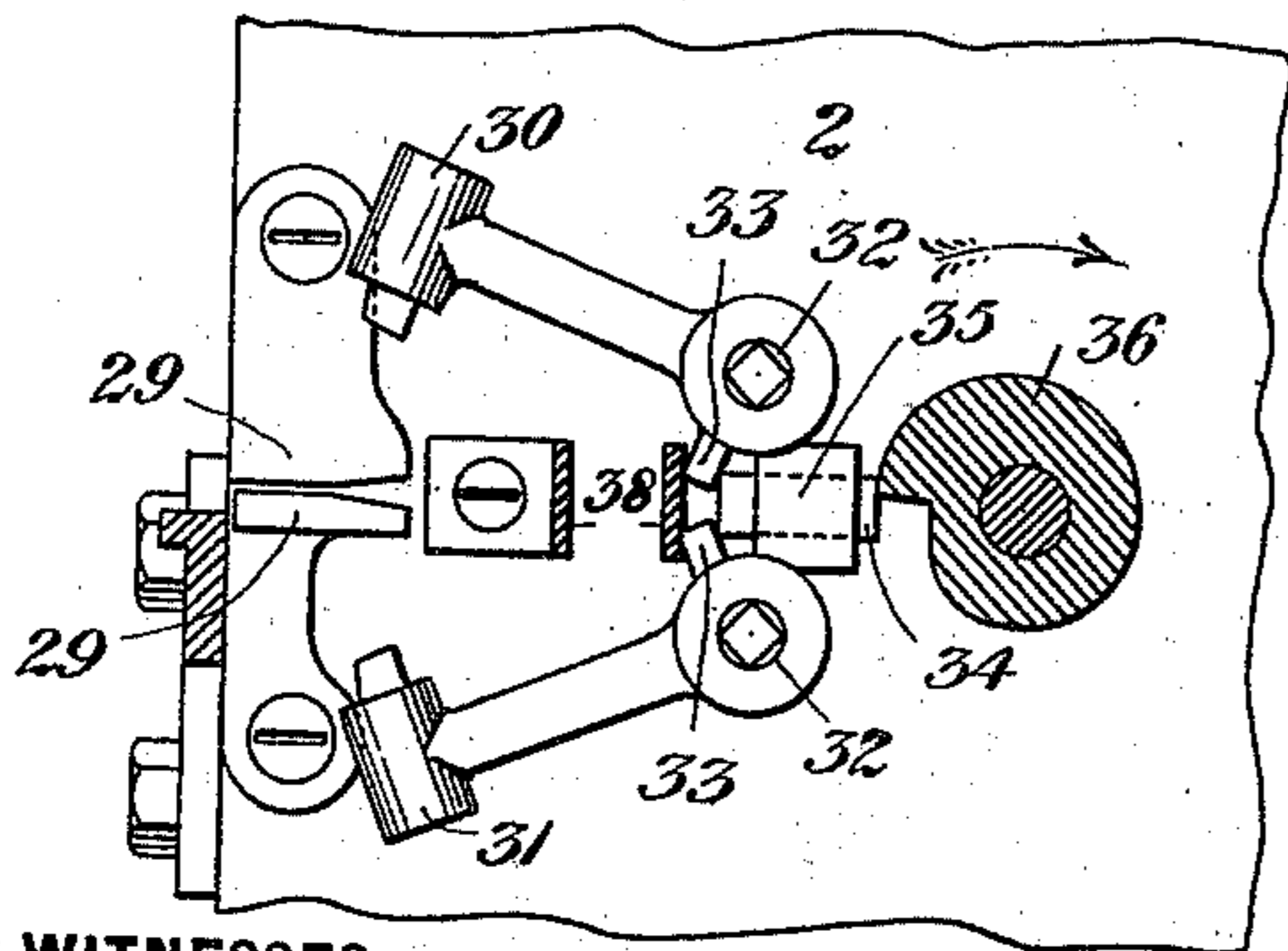


Fig. 8.

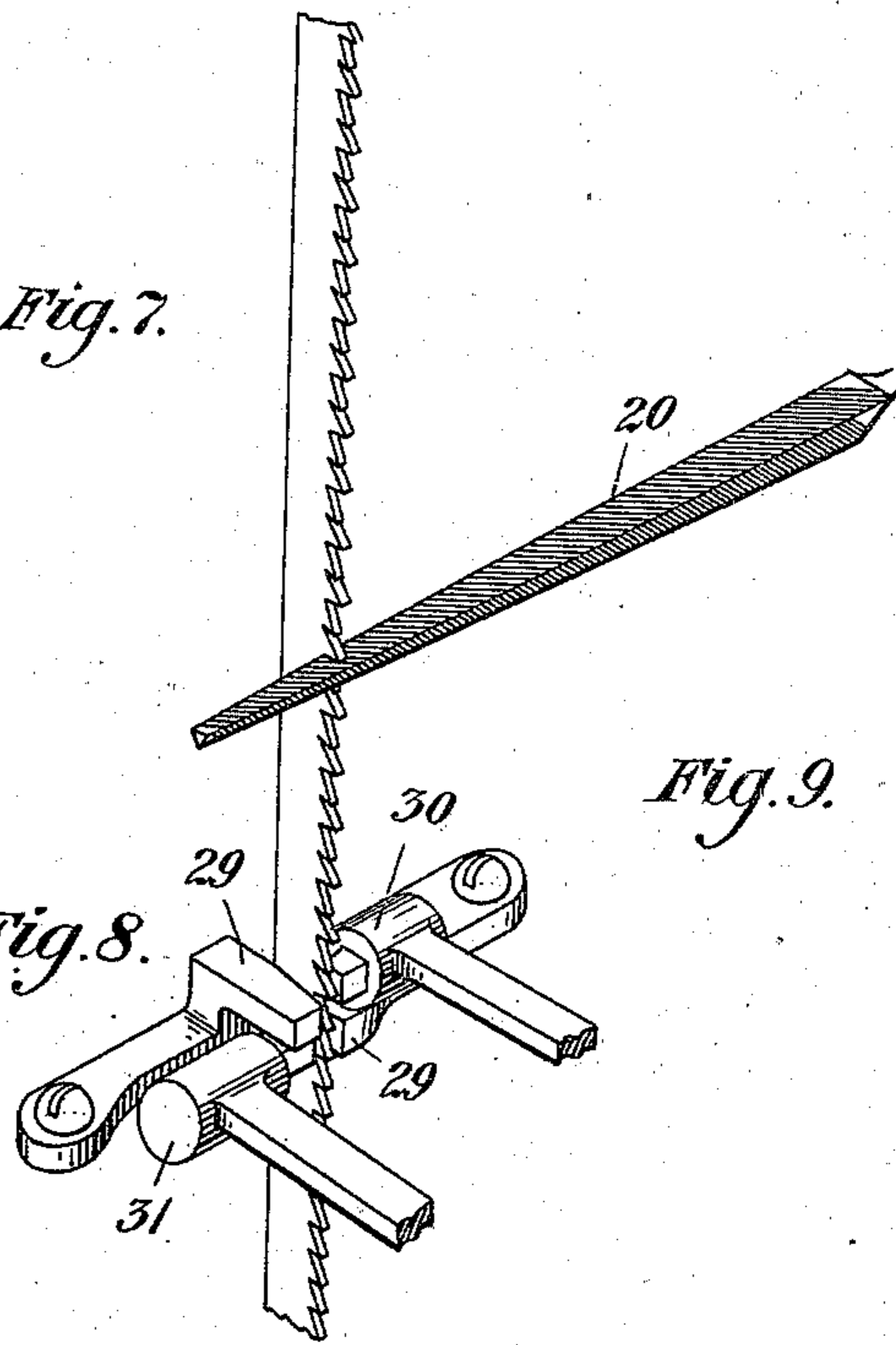


Fig. 9.

WITNESSES

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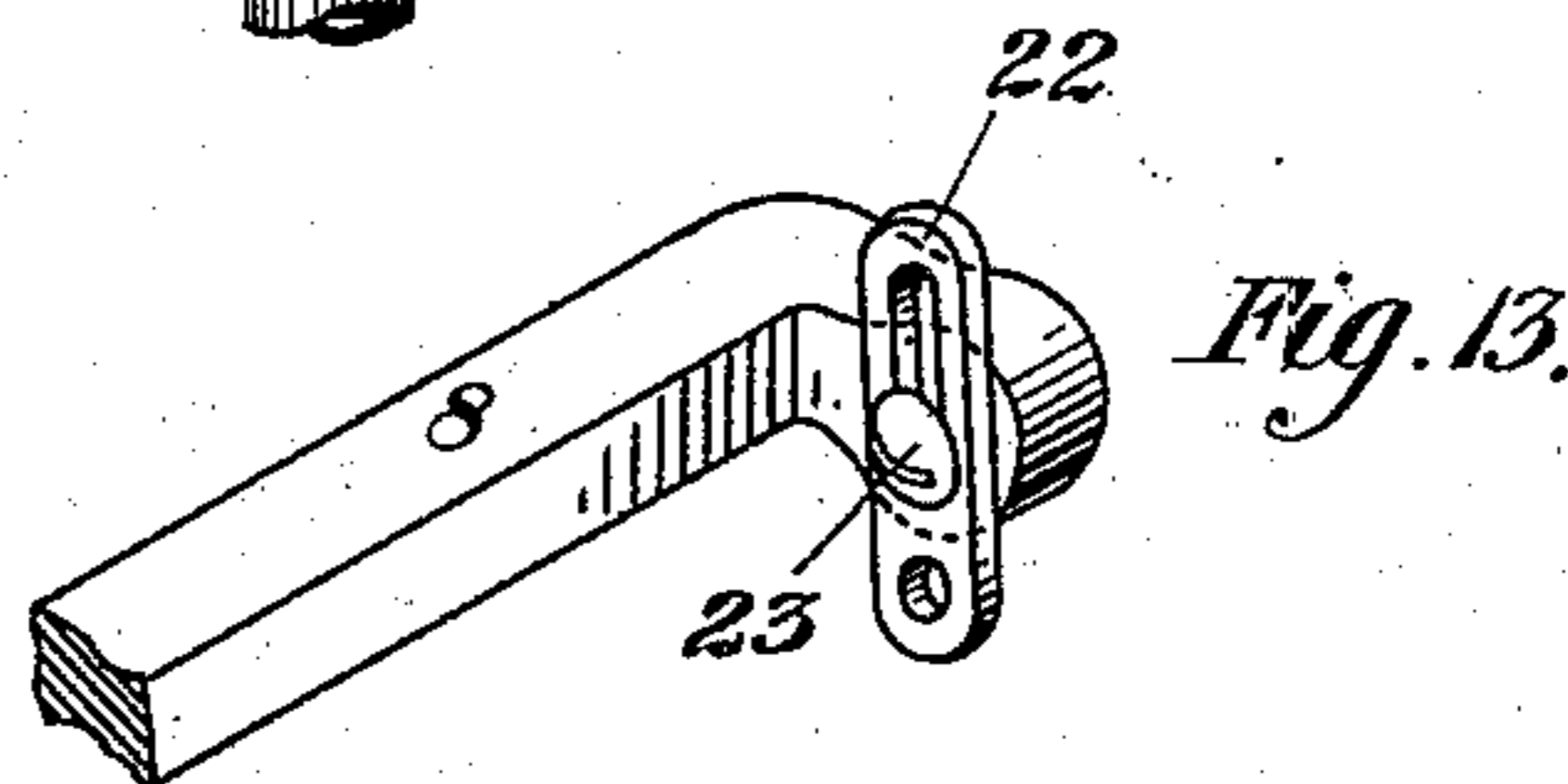
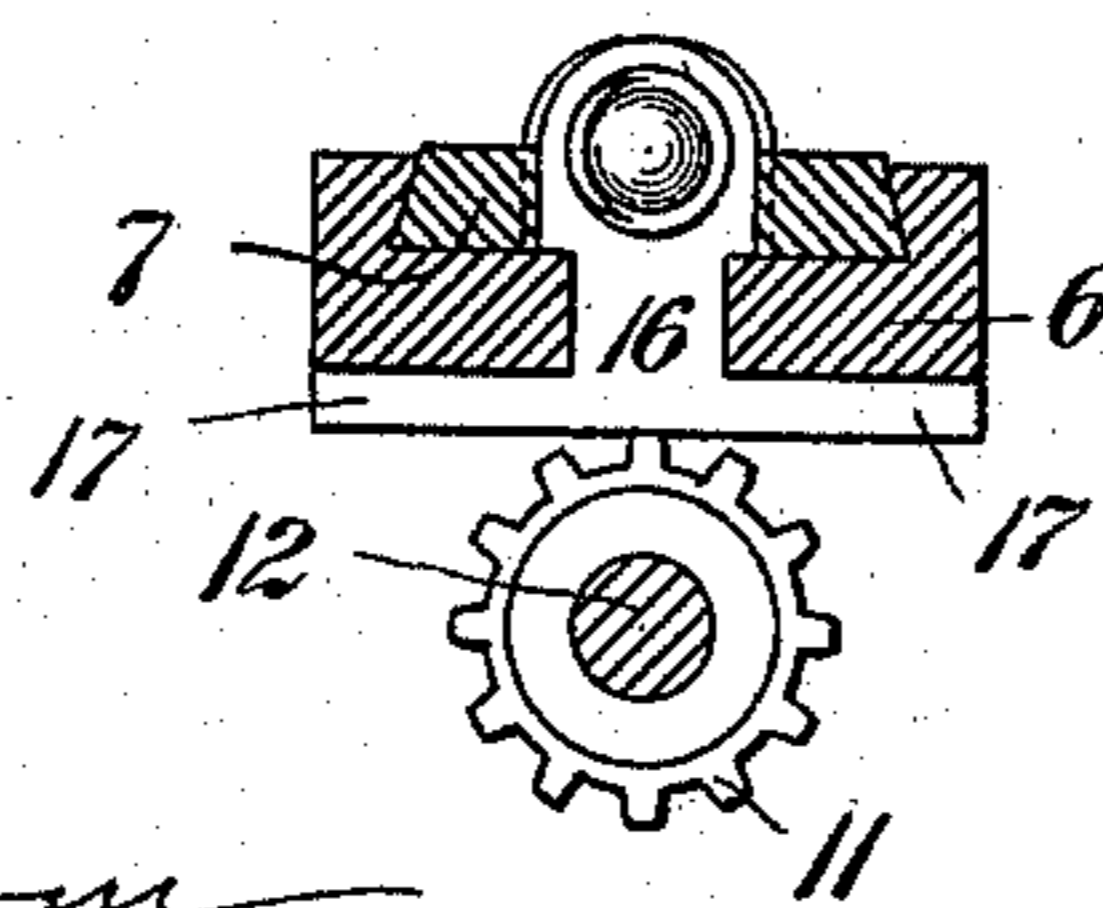
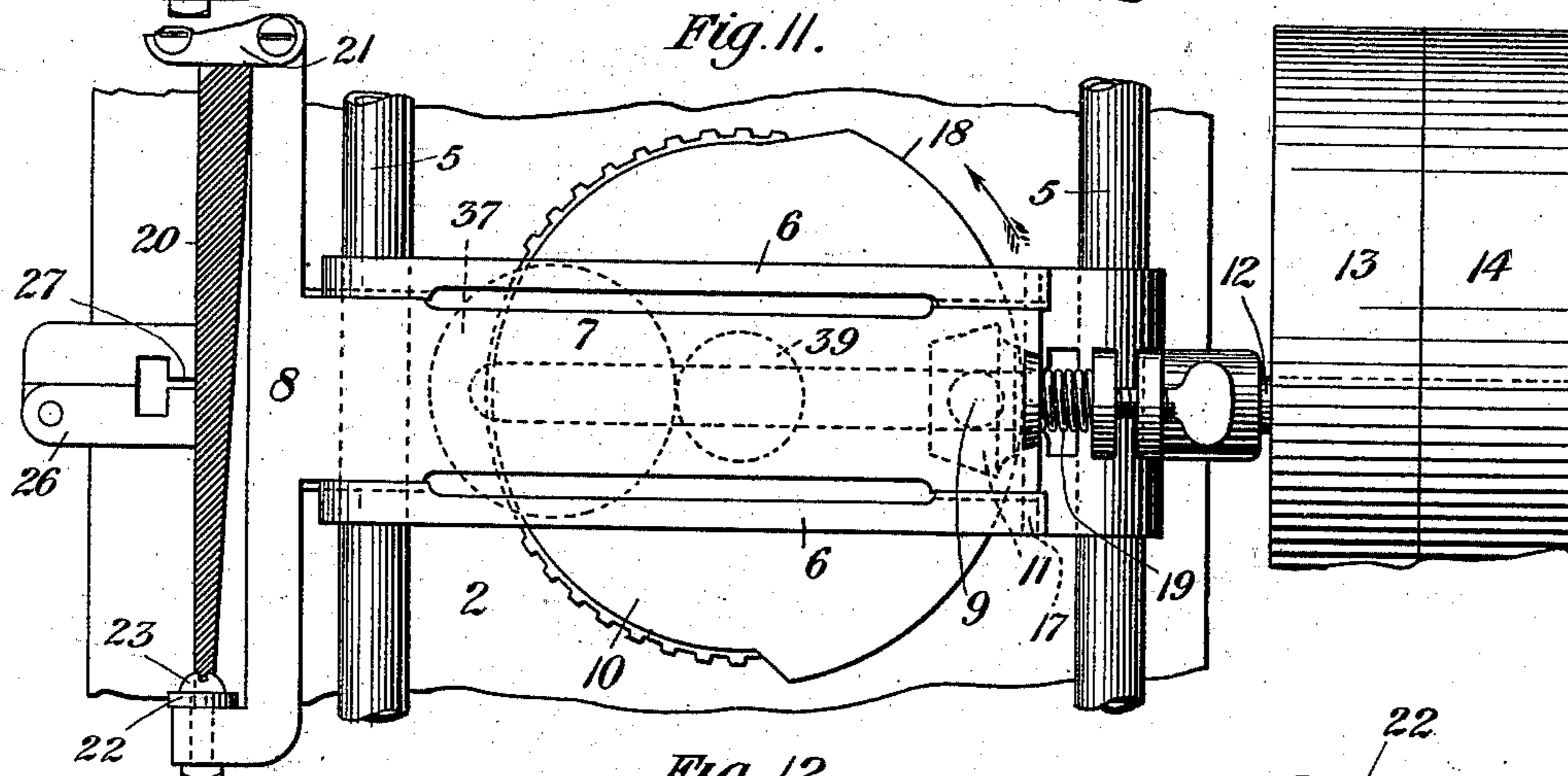
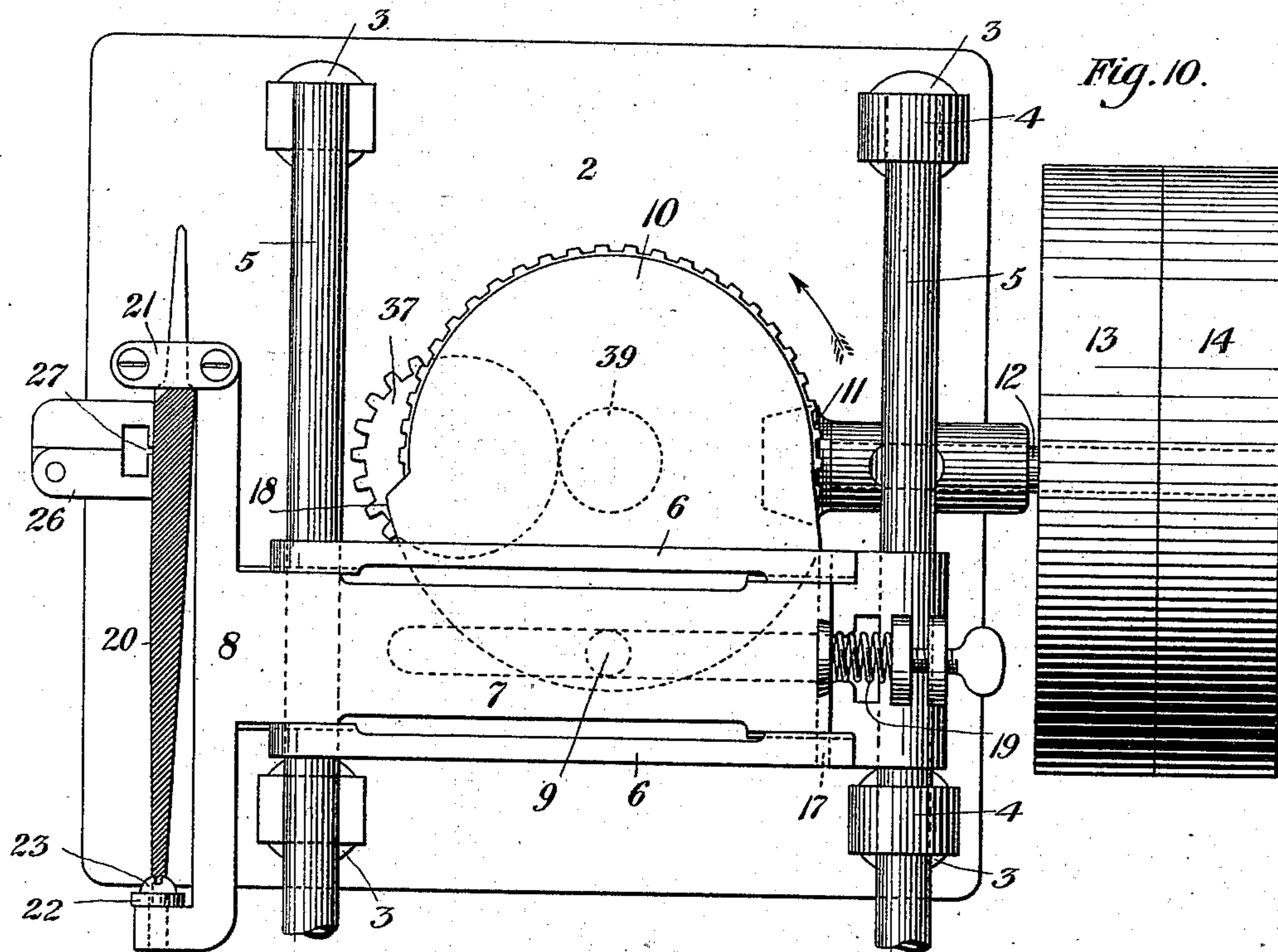
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Fig. 14.

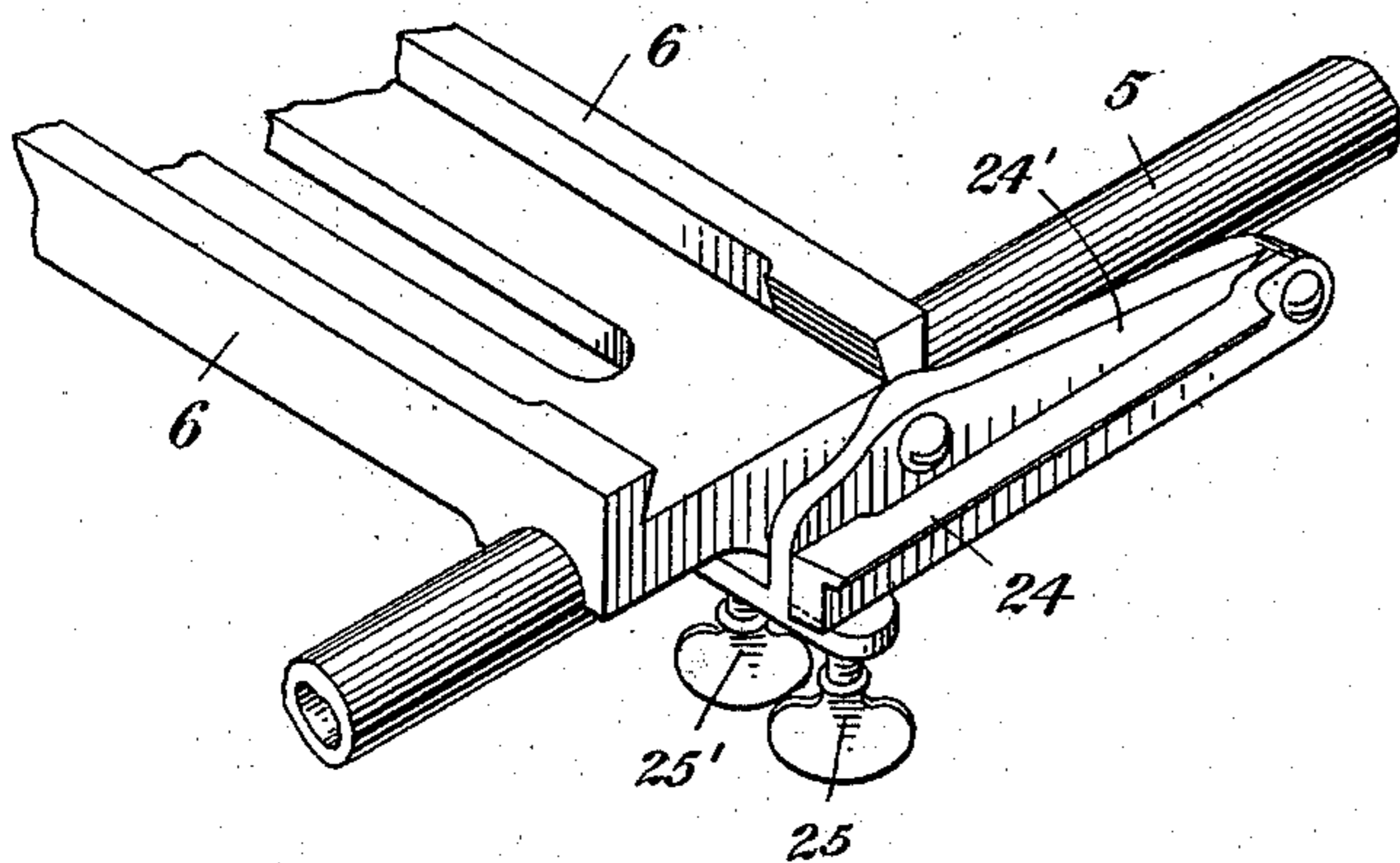


Fig. 15.

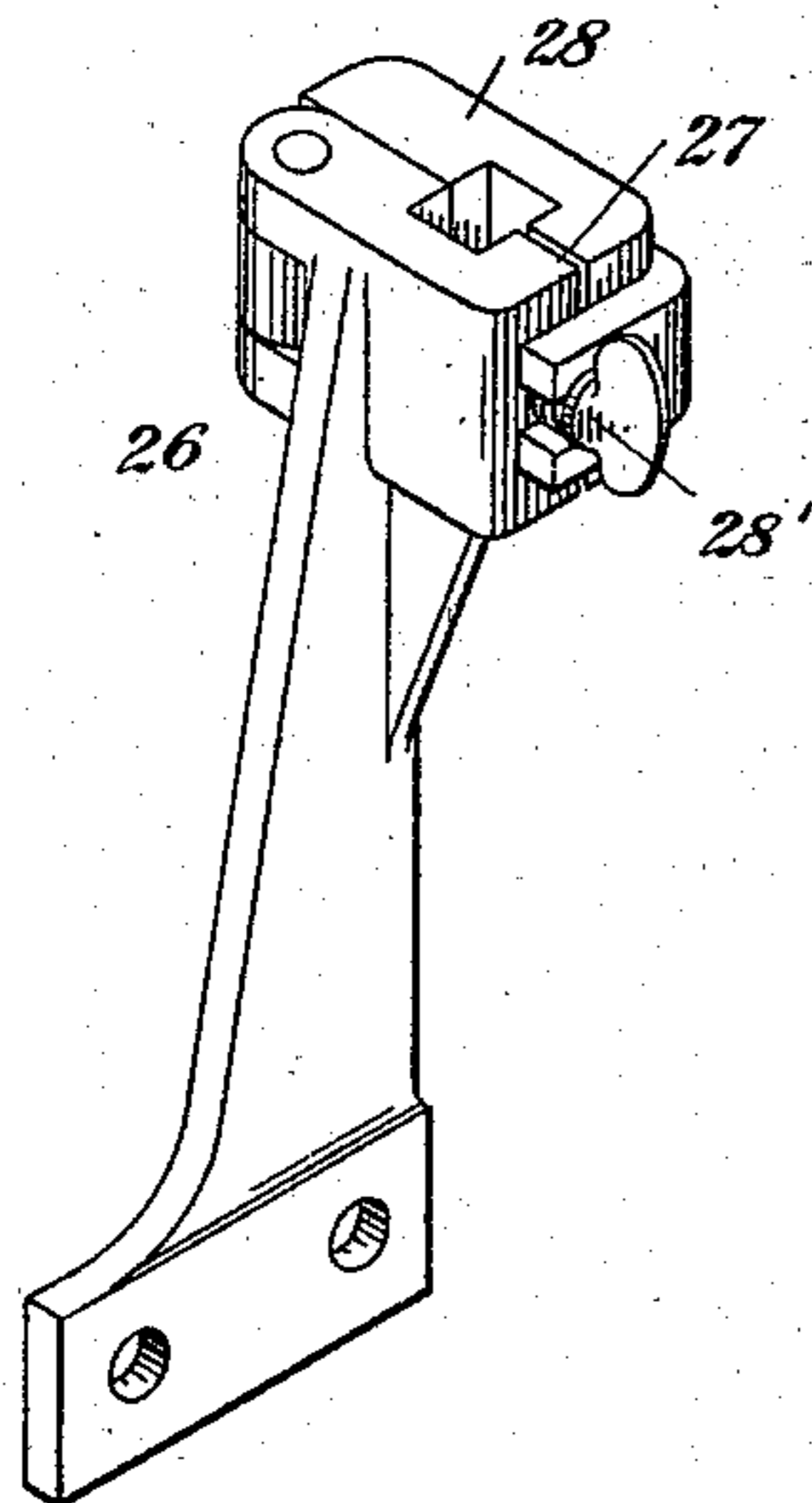
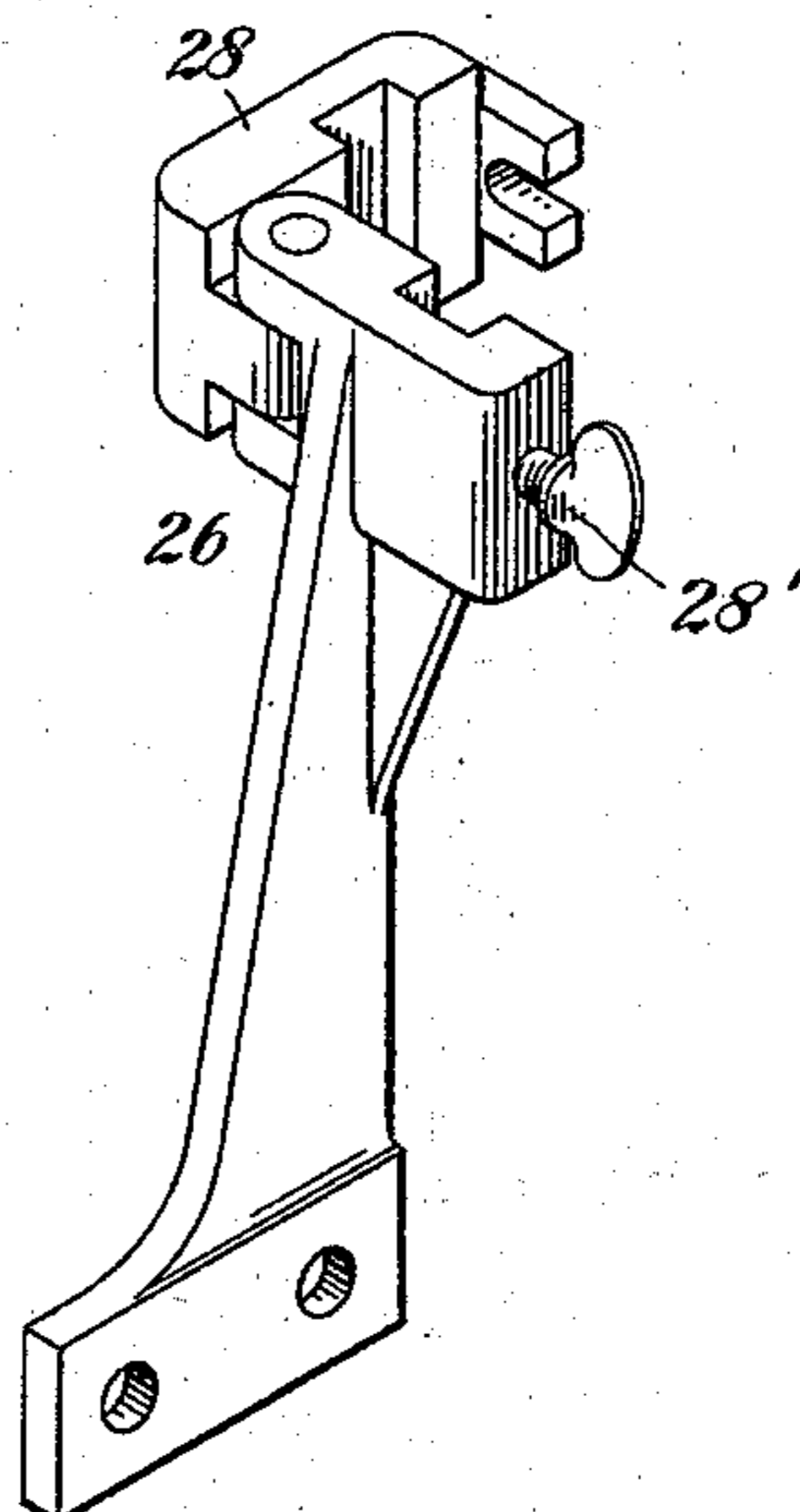


Fig. 16.



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UNITED STATES PATENT OFFICE.

DANIEL A. FISHER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO ALEXANDER W. CADMAN, OF EDGEWOOD PARK, PENNSYLVANIA.

SAW FILING AND SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 562,383, dated June 23, 1896.

Application filed July 25, 1894. Serial No. 518,497. (No model.)

To all whom it may concern:

Be it known that I, DANIEL A. FISHER, of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Saw Filing and Setting Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—
10 Figure 1 is a side elevation of my improved machine. Fig. 2 is a top plan view of the same. Figs. 3 and 4 are rear elevations showing the file in different positions. Fig. 5 is a vertical cross-section on the line V V of Fig. 2. Fig. 6 is a horizontal section on the line VI VI of Fig. 1. Figs. 7 and 8 are detail views showing the setting-hammers in different positions. Fig. 9 is a detail view showing the relative positions of the file and hammers to the saw. Figs. 10 and 11 are plan views showing the slide-operating cam in different positions. Fig. 12 is a detail rear view of the slide. Fig. 13 is a detail of one end of the saw-frame. Fig. 14 is a view of a modified form of the means for moving the saw. Figs. 15 and 16 are detail perspective views of the head in closed and open positions.

Like symbols of reference indicate like parts in each figure.

30 My invention relates to the filing and setting of band-saws; and it is designed to afford a machine which will quickly and effectually file and set the saw without removing the same from its frame.

35 In the drawings, 2 represents the base of the machine, which is set on the bed of the saw and secured thereto by any suitable means. Fastened to this base are four posts 3, the two front posts of which are provided at their upper ends with collars 4, forming guides for the guide-rod 5, which reciprocates therethrough. The two rear posts are provided with half-collars, in which a similar guide-rod 5 rests, allowing the frame to swing
45 up on the other guide-rod.

Secured to the central portions of the guide-rods is a frame 6, in the upper channeled face of which fits a slide 7, carrying at its end the file-frame 8. The frame 6 and its guide-rods
50 are reciprocated by a pin 9, projecting from

the upper face of a bevel-wheel 10 and having a friction-roller fitting within a longitudinal slot in the frame. The bevel-wheel 10 is actuated by a bevel-wheel 11, carried upon the shaft 12, which is provided with a loose pulley 13 and fast pulley 14, the fast pulley having a handle 15 for applying hand-power when desired. The slide 7 in the frame 6 is provided at its rear end with a bar 16, which extends down through a slot in the frame, and is formed at its lower end with a horizontally-extending contact-strip 17, which is pressed upon by a cam 18 upon the edge of the bevel-wheel 10.

Fig. 10 shows the slide with the cam just beginning to act upon the strip 17 to retract the slide, while Fig. 11 shows the slide held in retracted position as the frame moves back to begin a new stroke. To force the slide forward when it is released by the cam, I provide the coiled spring 19, which presses the slide forward to the limit of its projection and exerts a yielding pressure upon the file 20.

The file-frame is provided at one end with a clamp 21 for the tang of the file, while the other end of the file enters a hole in a link 22, which may be adjusted vertically by means of a screw 23, passing through a slot in the link to vary the degree of inclination of the file. The file is inclined in order to raise the saw a distance of one tooth during the stroke of the file, so as to bring another tooth into position for the next stroke.

Instead of inclining the file itself, I may remove the link 22, secure the file in a horizontal position, and use the lifting-pawl 24, (shown in Fig. 14,) this pawl being pivoted to an arm 24', pivoted to the frame 6, this pawl being prevented from tilting down beyond a certain point by a thumb-screw 25 bearing upon its lower face, but tipping upward freely. The arm 24' is held in adjusted position by a thumb-screw 25'. In this form, on the reverse stroke of the file, the pawl bearing upon a lower tooth lifts the saw one tooth and brings it into position for the next stroke.

In front of the file-frame is removably secured the head 26, (shown in Figs. 15 and 16,) this head having a slot 27 to receive the saw, the width of the slot being made adjustable

of the head for different thicknesses of saw by pivoting one half 28 to the other and using a thumb-screw 28', which enters a slot upon the swinging half of the head, as shown. The
 5 bed-plate is provided with a slot registering with the slot 27 when the head is in place, and to this base are secured the two anvils 29, at different levels with which coact the setting-hammers 30 and 31. These hammers are piv-
 10 oted to the bed-plate at 32 and are provided with lugs 33, the lug of the upper hammer projecting down into the same horizontal plane as the lower, so that both are retracted by the pin 34, which is driven forward through
 15 its guide 35 by a cam 36 upon a vertical shaft carrying a toothed wheel 37. When the hammers are released by the pin riding over the point of the cam, the hammers are driven forward by a bow-spring 38, which is secured
 20 to the base and bears upon the front faces of the lugs 33. With the toothed wheel 37 intermeshes a pinion 39 upon the shaft of the bevel-wheel 10, these wheels being geared in the ratio of two to one, so that the hammers
 25 act once for every two strokes of the file and set two teeth simultaneously.

The action of the machine is as follows: The pivoted half of the head being swung back, the base of the machine is slid forward until
 30 the saw enters the slot therein and rests between the anvils. The half-head is then swung to place and secured by the set-screw, and on rotating the fast pulley the file moves transversely to the saw and files one tooth, lifting
 35 the tooth at the same time, the frame 6 and guide-rods moving across the plane of the saw. As the end of the file approaches the saw, the cam, acting upon the contact-piece which is secured to the slide 7, retracts the file and
 40 holds it in such position as it moves back to begin the next stroke, when it is released by the cam, and, moving forward under the action of the spiral spring, engages the next tooth and files the same, again lifting the saw
 45 as before. At every second return motion of the file, the hammers operate to set two teeth, the point of the cam reaching the operating-pin 34 and releasing it, so that the bow-spring drives the hammers forward. The pin-oper-
 50 ating cam is preferably arranged so that as soon as the hammers strike they begin to retract, the pin riding up an eccentric portion of the cam, so as to free the saw. If the lifting-pawl of Fig. 14 is used, the cam is arranged
 55 to release the hammers at every other forward stroke of the file, in every case the hammers striking when the saw is stationary. As soon as the action is started correctly the belt may be thrown upon the tight pulley, and the ma-
 60 chine will operate automatically to file and set the saw until stopped.

The advantages of my invention are apparent, since without removing the saw and without the use of skilled labor the saw is filed
 65 and set with much greater uniformity and correctness than was possible by hand-labor.

The machine is simple and compact and performs its work effectually.

Many changes may be made in the form and arrangement of the parts by the skilled me- 70
 chanic without departing from my invention; since

What I claim as new, and desire to secure by Letters Patent, is—

1. A saw-filing machine comprising a slid- 75
 ing frame having therein a slide to support the file, means for reciprocating the frame transversely to the saw, and means for re-
 tracting the file-carrier slide within the frame upon each return stroke; substantially as de- 80
 scribed.

2. A saw-filing machine comprising a slid-
 ing frame having therein a slide to support the file, means for reciprocating the frame transversely to the saw, a spring arranged to 85
 hold the file-carrier slide in contact with the saw, and a cam arranged to move said slide rearwardly within the frame; substantially as described.

3. A saw-setting machine comprising ham- 90
 mers, means for moving the saw one tooth at a time between the hammers, and means for actuating the hammers simultaneously at each second step or movement of the saw; substantially as described. 95

4. A saw filing and setting machine comprising a frame arranged to support a file, means for moving the frame transversely of the saw, means for withdrawing it from the saw upon each return stroke, hammers ar- 100
 ranged to simultaneously strike and set the teeth, and means for moving the saw one tooth at a time, substantially as described.

5. A saw filing and setting machine comprising a frame arranged to support a file, 105
 means for moving the frame transversely of the saw, means for withdrawing it from the saw upon each return stroke, and hammers arranged to operate every two double strokes of the file and set two teeth simultaneously; 110
 substantially as described.

6. A saw filing and setting machine comprising a frame arranged to support a file, means for moving the frame transversely of the saw, means for withdrawing it from the 115
 saw upon each return stroke, means located upon the file-frame for moving the saw one tooth at a time, and hammers arranged to set the teeth; substantially as described.

7. A saw-setting machine comprising two 120
 hammers at different levels arranged to strike and set two teeth simultaneously, means for retracting the hammers, and means for moving the saw one tooth at a time past the ham-
 mers; substantially as described. 125

In testimony whereof I have hereunto set my hand.

DANIEL A. FISHER.

Witnesses:

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 C. BYRNES.