

No. 680,492.

Patented Aug. 13, 1901.

J. E. MENNESSIER.
KNIFE SHARPENING DEVICE.

(Application filed Mar. 9, 1901.)

(No Model.)

8 Sheets—Sheet 1.

Fig. 2.

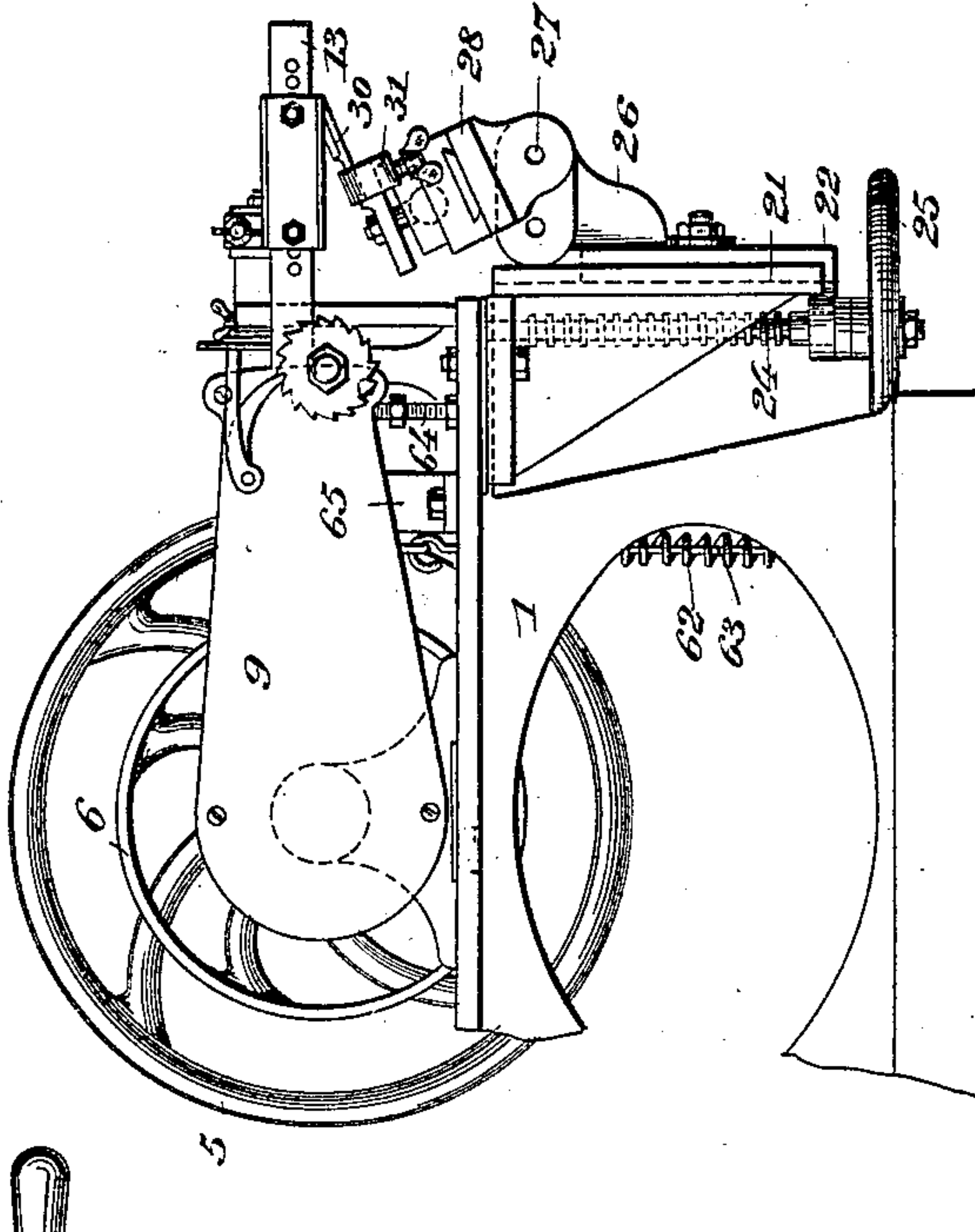
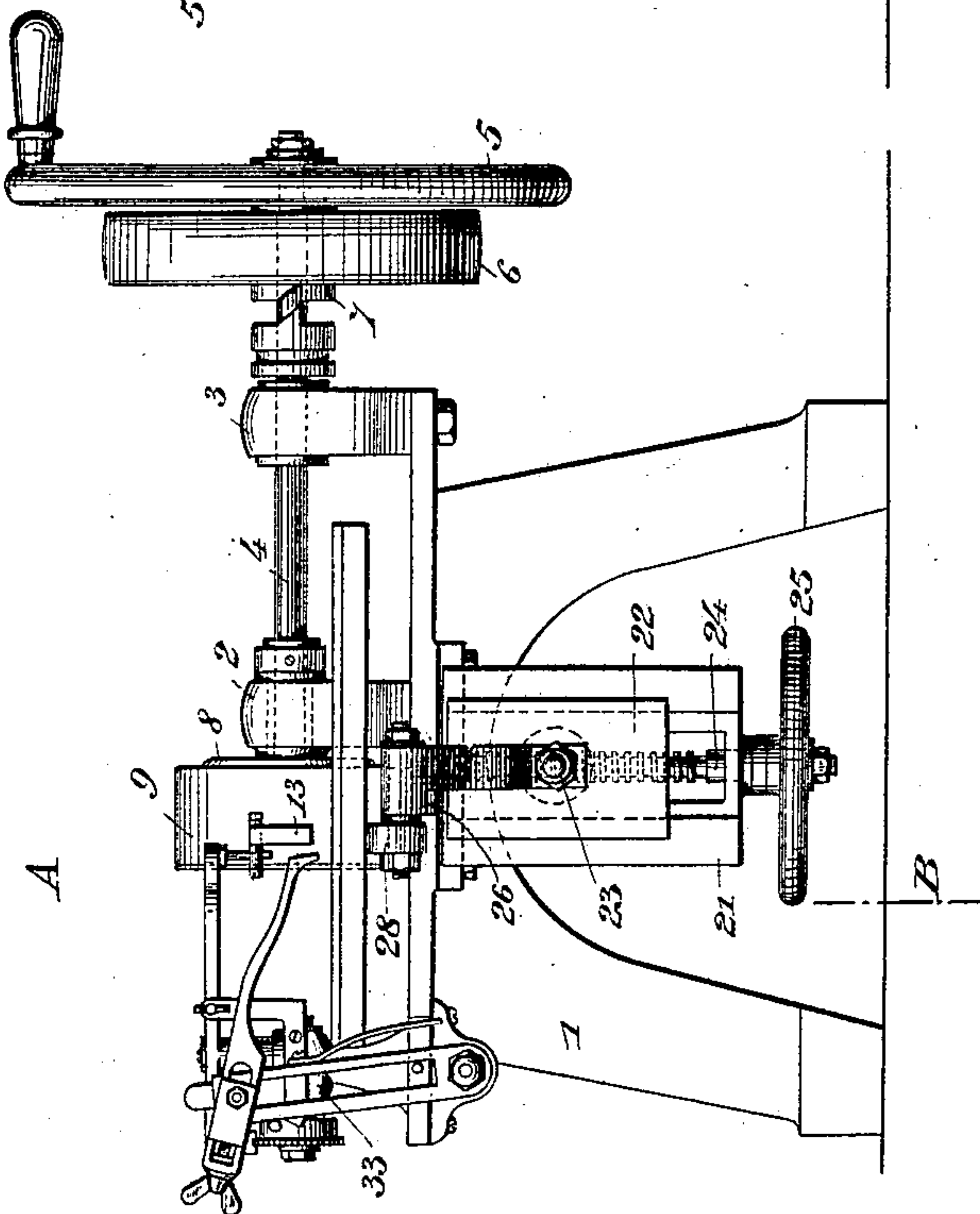


Fig. 1.



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Fig. 3.

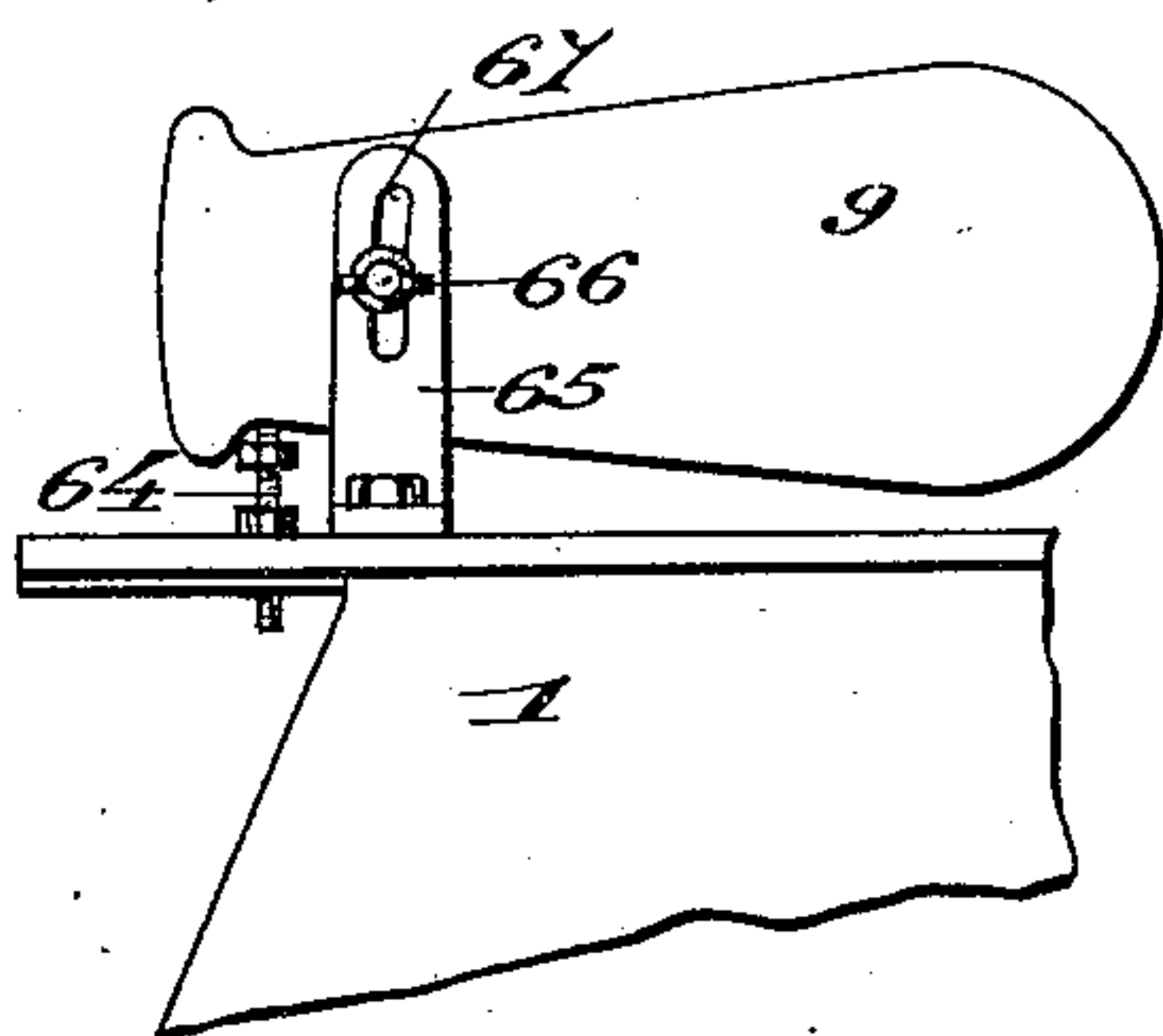
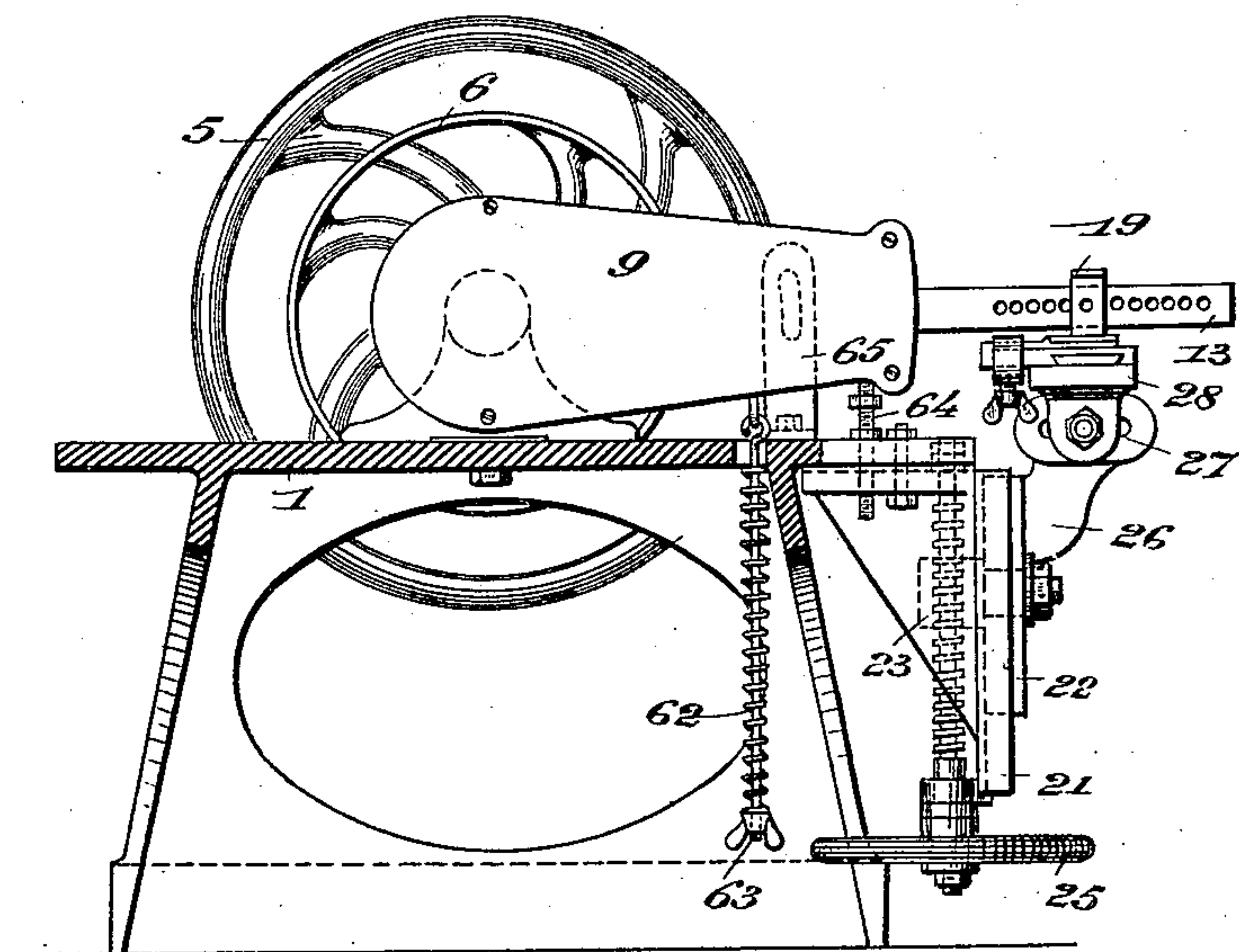


Fig. 4.



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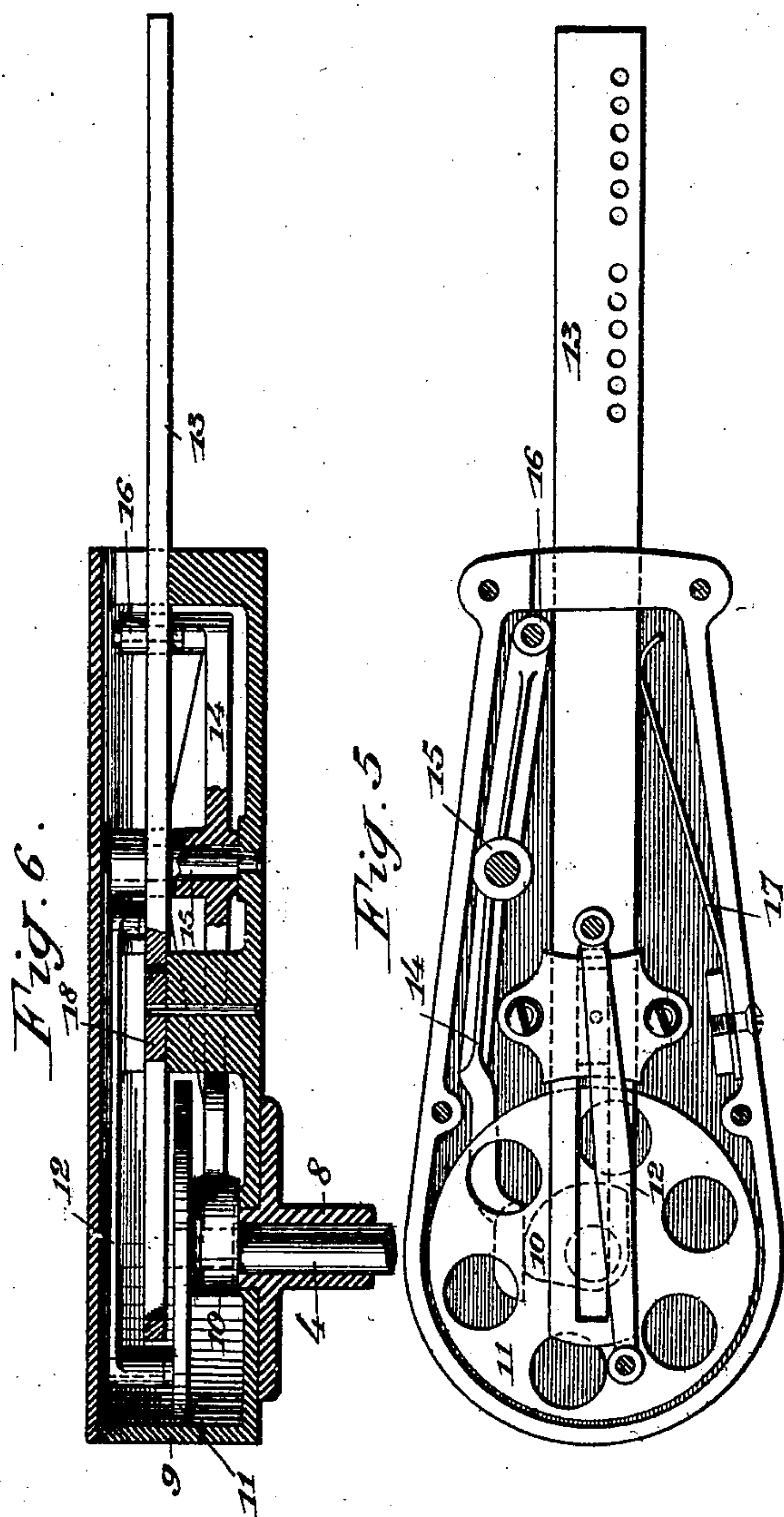
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8 Sheets—Sheet 3.



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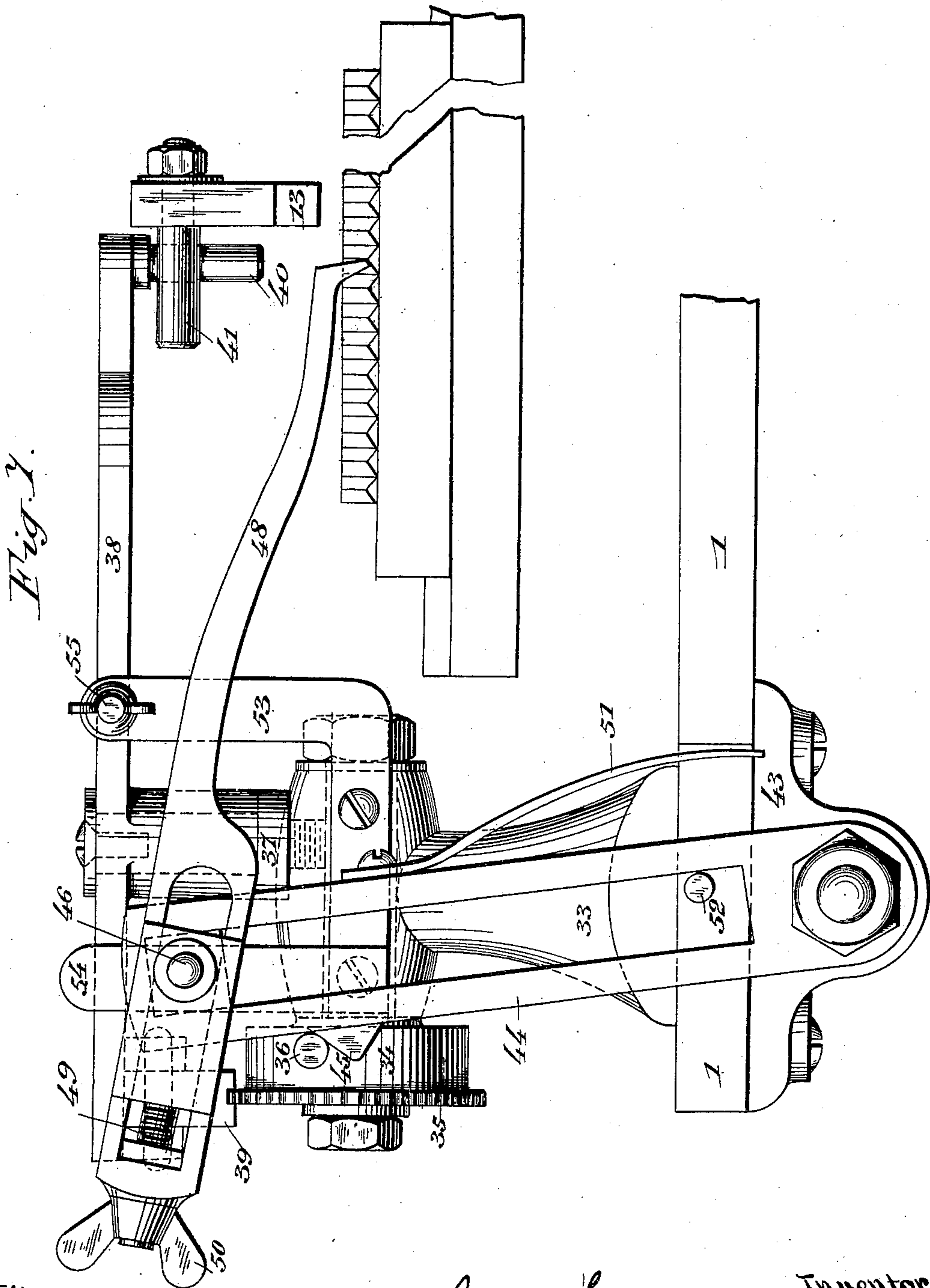
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8 Sheets—Sheet 4.



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Fig. 12.

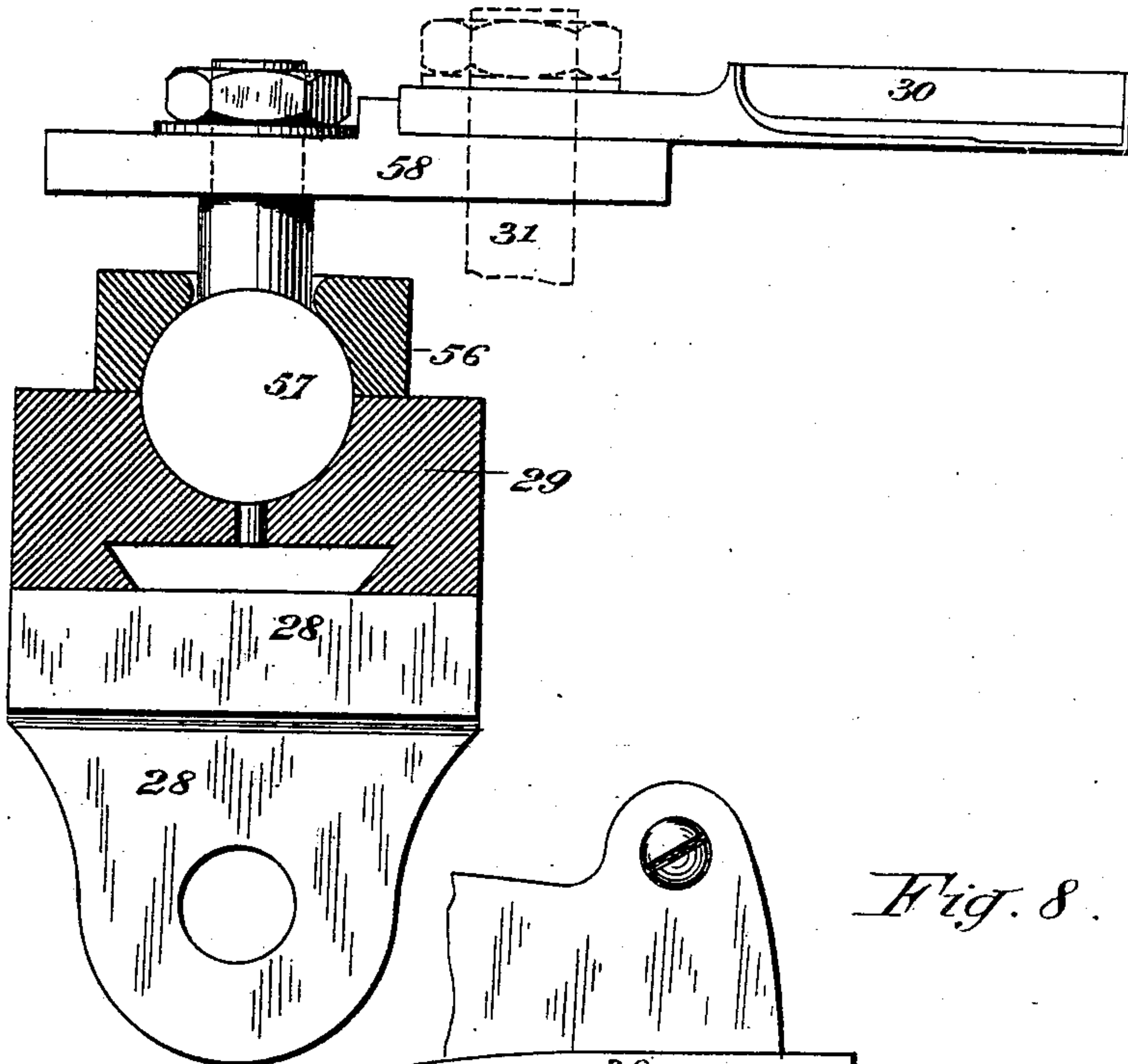
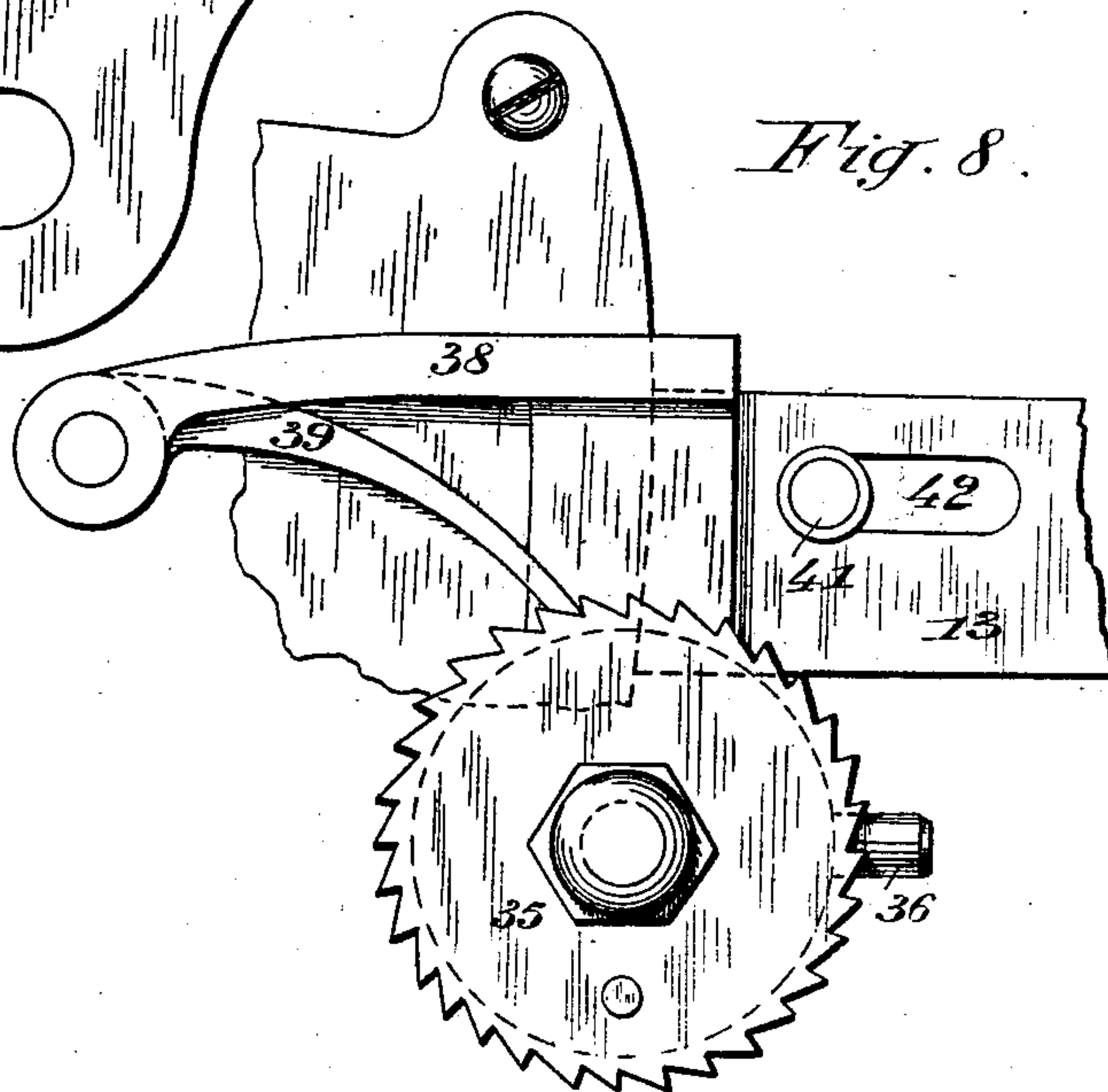


Fig. 8.



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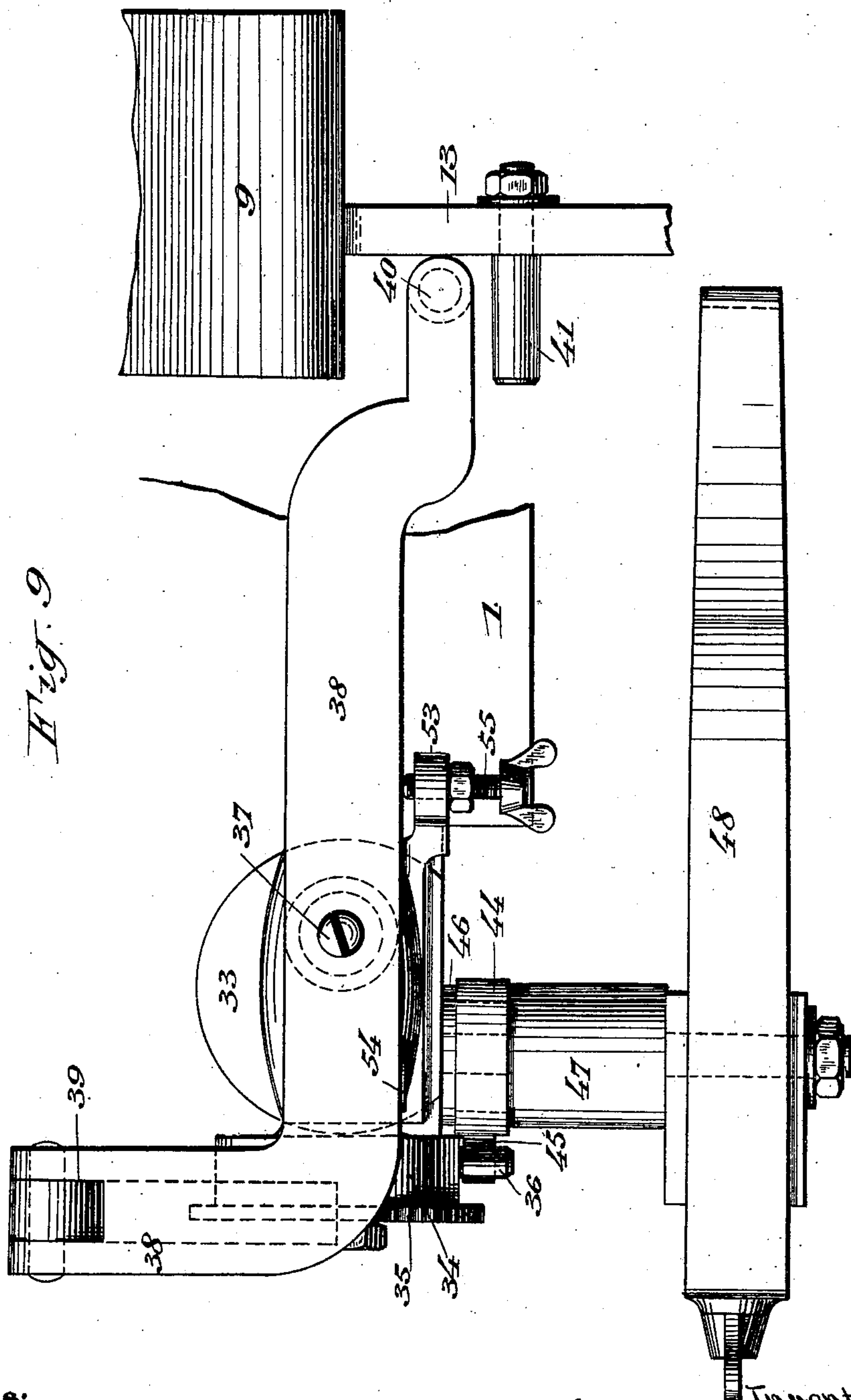
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8 Sheets—Sheet 6.



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(Application filed Mar. 9, 1901.)

(No Model.)

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Fig. 10.

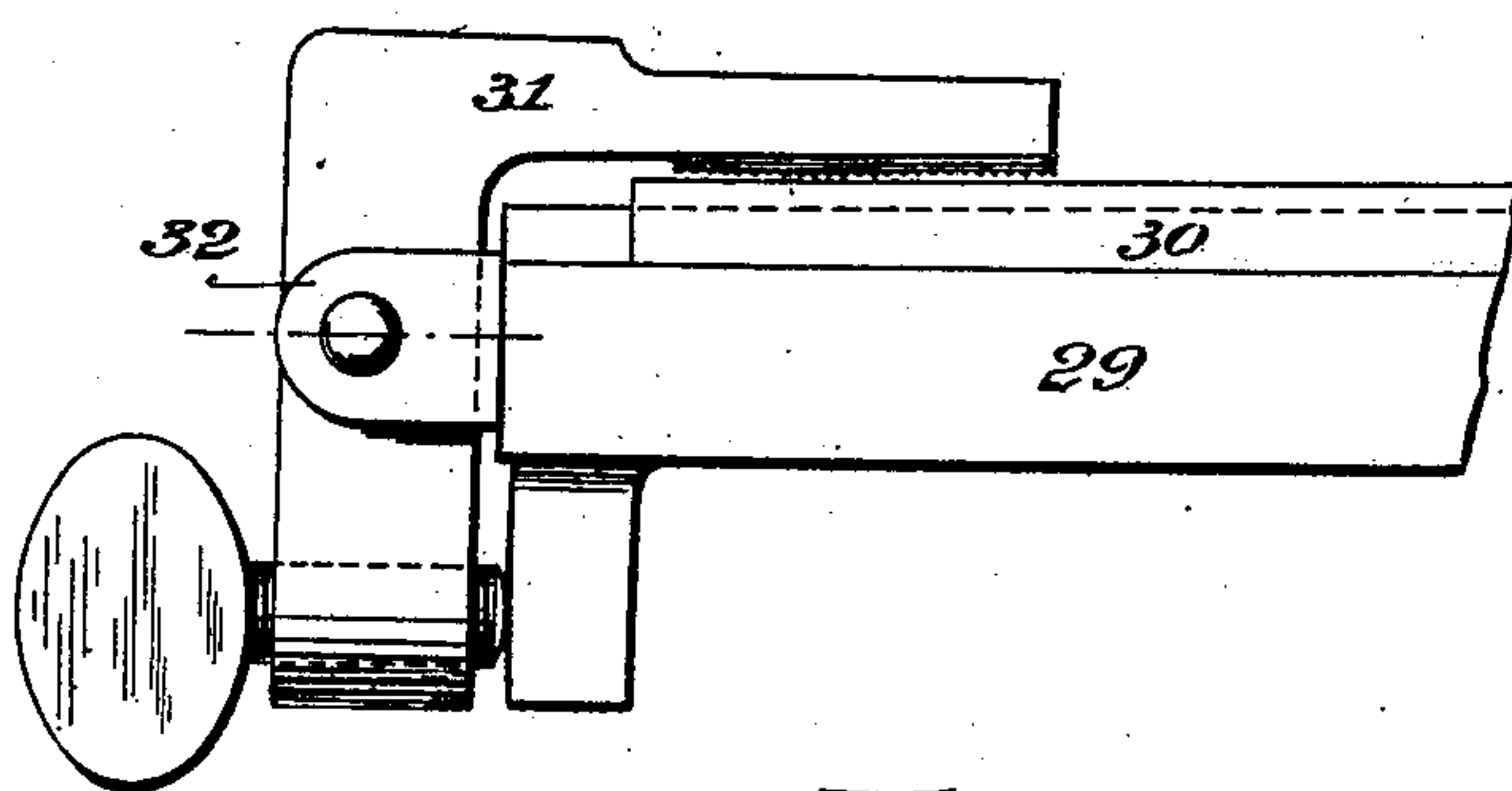
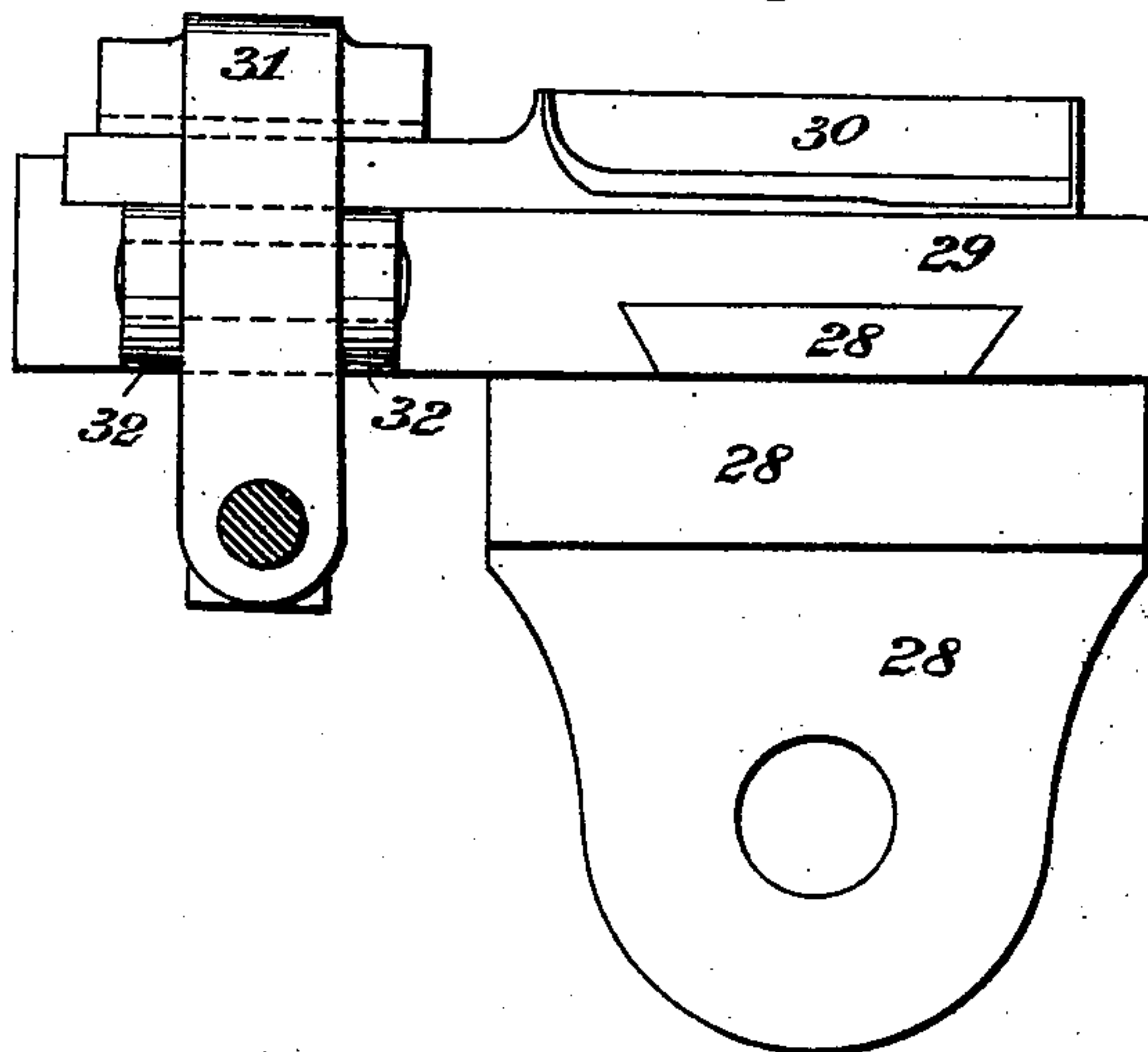


Fig. 11.



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Fig. 15.

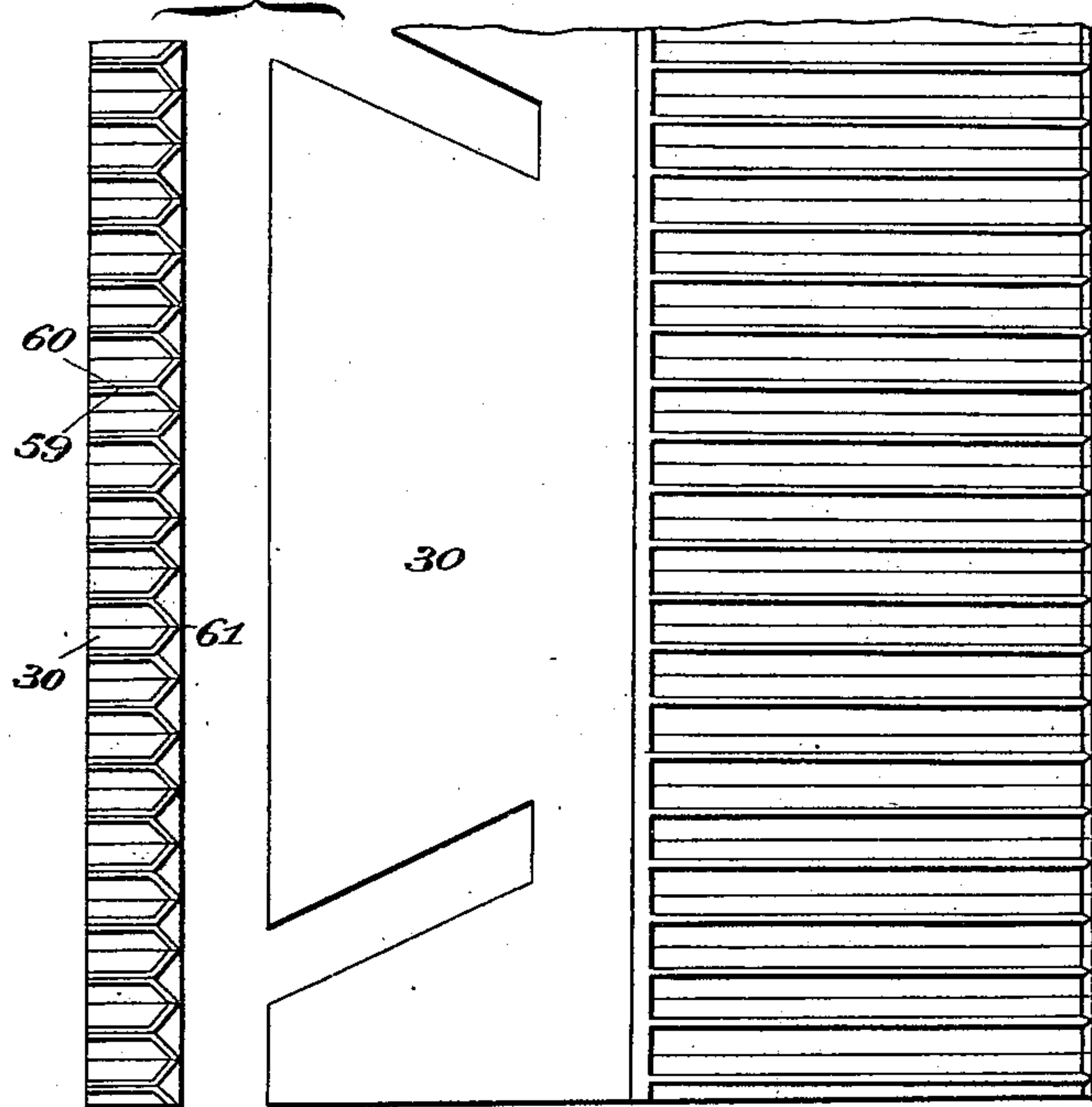
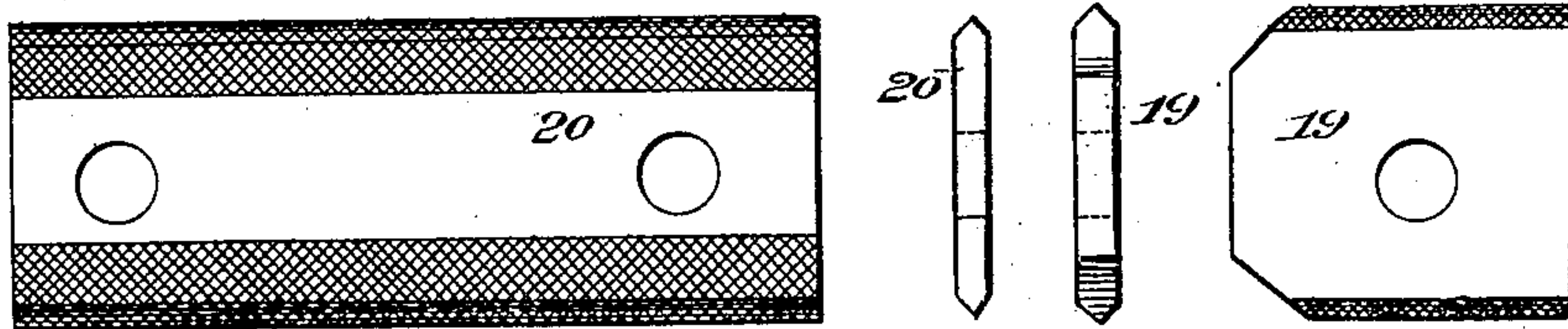


Fig. 14.

Fig. 13.



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UNITED STATES PATENT OFFICE.

JOSEPH EDOUARD MENNESSIER, OF PARIS, FRANCE.

KNIFE-SHARPENING DEVICE.

SPECIFICATION forming part of Letters Patent No. 680,492, dated August 13, 1901.

Application filed March 9, 1901. Serial No. 50,421. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH EDOUARD MENNESSIER, a citizen of the French Republic, and a resident of Paris, France, have invented certain new and useful Improvements in Knife-Sharpening Devices, of which the following is a specification.

My present invention relates to knife-sharpening devices to be particularly employed for sharpening diffusion-knives, such as are employed in distilleries and sugar manufactories; and it consists of the features of construction and combination of parts fully described and claimed hereinafter.

In the accompanying drawings, Figure 1 is a general front view of the apparatus. Fig. 2 is a side elevation of same looking from the left-hand side. Fig. 3 is a similar view looking from the right-hand side. Fig. 4 is a vertical longitudinal section on line A B, Fig. 1. Fig. 5 is a detail view showing a vertical section of the file-holding case and connections. Fig. 6 is a plan view of Fig. 5 with the case shown in section. Fig. 7 is a detail view showing a front elevation of the knife-feeding mechanism. Fig. 8 is a side elevation of same. Fig. 9 is a plan view of same. Fig. 10 is a detail view showing the knife-holding carriage employed for recessing knives. Fig. 11 is a side elevation of same. Fig. 12 shows the knife-holding carriage in position for sharpening knives. Fig. 13 shows front and end detail views of the file serving to recess the bottoms of the knife-grooves. Fig. 14 shows front and end detail views of the file serving to angularly sharpen the walls and bottoms of the knife-grooves. Fig. 15 shows detail end and plan views of a diffusion-knife.

Referring to the drawings, in which like numerals refer to like parts throughout all the views, 1 represents a suitable frame having bearings 2 3, in which is journaled the main shaft 4, adapted to be actuated by hand by means of the crank-handle 5 or by a transmission-belt extending around a pulley 6, provided with a clutch 7. The shaft 4 receives the socket 8, secured to the file-holding case 9; and carries at its end a cam 10 and a crank 11, to which is pivotally connected a

rod 12, also connected to the file-bar 13, to which it imparts a reciprocating motion. The cam 10 actuates a lever 14, pivotally connected at 15 to the case 9 and carrying at its opposite end a roller 16, in engagement with the upper surface of the bar 13, so as to press the latter downwardly. After each depression the file-bar 13 is again raised by the action of a spring 17. To said file-bar 13, guided at 18, is therefore imparted a reciprocating and simultaneously an angular movement, so that when it is moved backwardly the file is disengaged from the knife, said file acting only in its forward stroke. The bar 13 has at its end a series of holes permitting the attachment thereto of the file 19, Fig. 13, when it is desired to recess the bottoms of the knife-grooves or the file 20, Fig. 14, when the walls and bottoms of said grooves are to be sharpened angularly.

To the front of the frame 1 is secured a slotted part 21, in which, adapted to move vertically, is a carriage 22, provided with a nut 23, through which extends a screw 24, actuated by means of a hand-wheel 25.

The carriage 22 is provided with an arm 26, on which is secured in one of the openings 27 the dovetailed support 28, serving to receive the movable carriages for recessing or sharpening purposes.

The receiving-carriage, Figs. 4, 10, and 11, comprises a plate 29, adapted to move on the support 28 and to which is attached the knife 30 by means of screw-clamps 31, held in suitable flanges 32, made one with the plate 29.

The knives may be attached to the support in any suitable way.

When it is desired to recess the bottom of the grooves in the knives and in order to enable the file to act on said bottom during a number of revolutions before acting on the bottom of the next groove, I provide an automatic and intermittent feed for said knives. To this end a support 33, Figs. 1, 2, 7, 8, and 9, secured to the frame 1, carries a movable shaft, having a disk plate 34, to which is secured a divided ratchet 35. Said plate 34 carries a lug 36, the purpose of which will be described hereinafter. The support 33 carries also a stationary shaft 37, to which is piv-

totally connected a lever 38, carrying at one end a pawl 39, adapted to engage and rotate the ratchet 35, and at the opposite end a fixed pin 40.

5 The file-bar 13 carries a rod 41, provided in said bar, so as to control the number of teeth to which the ratchet 35 is to be rotated for feeding the knife 30 with greater or less rapidity in accordance with the number of ac-
10 tions of the file on the bottom of each groove.

Secured under the bed of the frame 1 is a shaft 43, to which is pivotally connected a slotted rod 44, carrying a key 45, and a slide-block 46, to which is secured a shaft 47,
15 around which moves the pawl 48, engaging successively the grooves in the knife in order to feed the latter while the recessing is in progress.

A screw 49, engaged by a thumb-nut 50, is
20 provided to determine the position of the pawl 48 and therefore the knife, which can thus be placed exactly under the file.

To the connecting-rod 44 is attached a spring 51, serving to bring said rod back to
25 its initial position. The backward stroke of said connecting-rod is determined by a pin 52, secured to the frame 1.

To the support 33 is secured an angle-piece 53, carrying on the left, Figs. 7 and 9, a flat
30 spring 54, serving to bring back the lever 38, and on the right a stop-screw 55, determining the stroke of said lever, so that the pawl 39 is enabled to ride over one or more teeth of the ratchet 35.

35 From the foregoing description it will be readily understood that the file-holding bar 13 when moved backwardly engages, by means of the rod 41, the shaft 40, carrying with it the lever 38 and pawl 39, so as to rotate the
40 ratchet 35 to one or more grooves in accordance with the stroke determined by the rod 41 and the stop-screw 55. The dividing-ratchet 35 when rotated brings the lug 36 into engagement with the key 45 of the link 44,
45 which is then pushed forwardly, moving the knife to one groove through the agency of the pawl 48. When the lug 36 is disengaged from the key 45, the pawl 39 moves back to its initial position by the action of the spring
50 54. Therefore it will be understood that the recessing-file 20 will act in one groove during the rotation of the ratchet 35 until the lug 36 engages the pawl 48 to bring the next groove into engagement with the file, and so on.

55 The sharpening-carriage, Figs. 2 and 12, comprises a plate 29, adapted to move on the dovetailed support 28. A second plate 56 is secured to the plate 29, and between said plates is arranged a ball 57, to which is at-
60 tached the knife-holder 58, holding the knife 30 by means of clamps 31 or in any other approved way. The object of the ball 57 is to enable the knife 30 to be moved in any desired direction.

65 It will be understood that according as the

knife is inclined to the right or to the left or raised the file 20, Fig. 14, will sharpen the sides 59 60 of the grooves, Fig. 13, or the bottom thereof. It will also be understood that for sharpening the knife and to enable the
70 same to be inclined as desired the carriage 22 must first be brought to the lower end of its travel on the support 21 by actuating the screw 24, Fig. 2. The angle at which said sides are sharpened may be regulated by rais-
75 ing or lowering the carriage 22 on the support 21. A coil-spring 62, Fig. 2, surrounding the rod 63, connected to the case 9, enables the latter to be yieldingly held in en-
80 gagement with the file, a stop-screw 64 determining the movement of said case under the pressure of the file. A slotted angle-piece 65, secured to the frame 1 and in the slot of which works a rod 66, secured to the case 9, enables the latter to be fixedly held in place by tight-
85 ening the nut 67, Figs. 3 and 4.

As seen in Fig. 13, the recessing-file 19 is cut only on the beveled edges, so as to recess the bottom of the grooves, while the sharpening-
90 file, Fig. 14, is cut on its sides, so as to permit of the sharpening of the sides and bottoms of the grooves.

Having fully described my invention, what I claim, and desire to secure by Letters Pat-
95 ent, is—

1. In an apparatus for recessing and sharpening knives employed in distilleries and sugar manufactories, the combination with a suitable frame of a file-holding bar, means for reciprocating and at the same time angu-
100 larly moving said file-holding bar, a support adapted to receive and hold the knife to be acted upon, means for automatically and intermittently feeding the knife-support, and a movable ball supporting said knife-holder,
105 substantially as and for the purpose set forth.

2. In an apparatus of the character described, the combination of the file-holding case, the cam 10 and the disk plate 11, a drive-
110 shaft 4 carrying said cam and disk plate, the file-holding bar, and a suitable connection between the latter and the drive-shaft comprising a link 12, a lever 14 and a spring 17, substantially as set forth.

3. In an apparatus of the character de-
115 scribed, the combination with the file-holding case and a support adapted to hold the knife, of devices for automatically feeding the knife-support, comprising a lever 38, actuated by the rod 41, mounted on the file-bar
120 13, a pin 40 adapted to be engaged by said rod 41, a pawl 39 on the lever 38, a ratchet 35 adapted to be engaged by said pawl, a lug 36, a link 44 engaged at each revolution of the ratchet by said lug, and a pawl on said
125 link 44 adapted to engage the grooves in the knives, substantially as set forth.

4. In an apparatus of the character described, the combination of a frame, a verti-
130 cally-removable carriage 22 operating in a

guide-slot in said frame, a support 28, carried by said carriage, means carried by said support for securing the knife, a file-holding bar, means for reciprocating and at the same
5 time angularly moving said file-holding bar, means for automatically and intermittently feeding the said support 28, and a movable ball supporting said knife-holder substan-

tially as described and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

JOSEPH EDOUARD MENNESSIER.

Witnesses:

ADOLPHE STURM,
EDWARD P. MACLEAN.

10