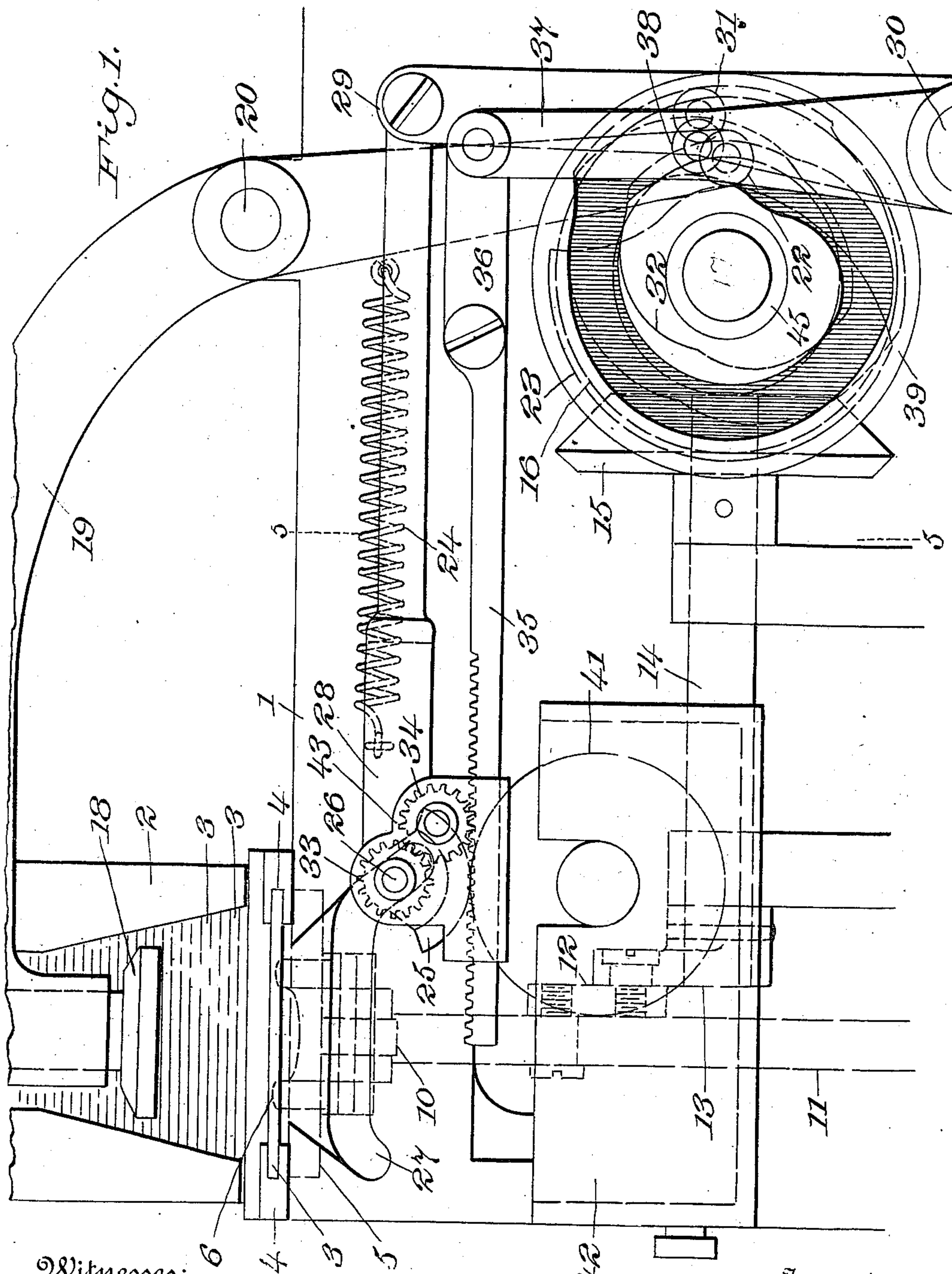


976,142.

E. D. BELKNAP.
ADDRESSING MACHINE.
APPLICATION FILED SEPT. 10, 1909.

Patented Nov. 22, 1910.

5 SHEETS—SHEET 1.



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5 SHEETS—SHEET 2.

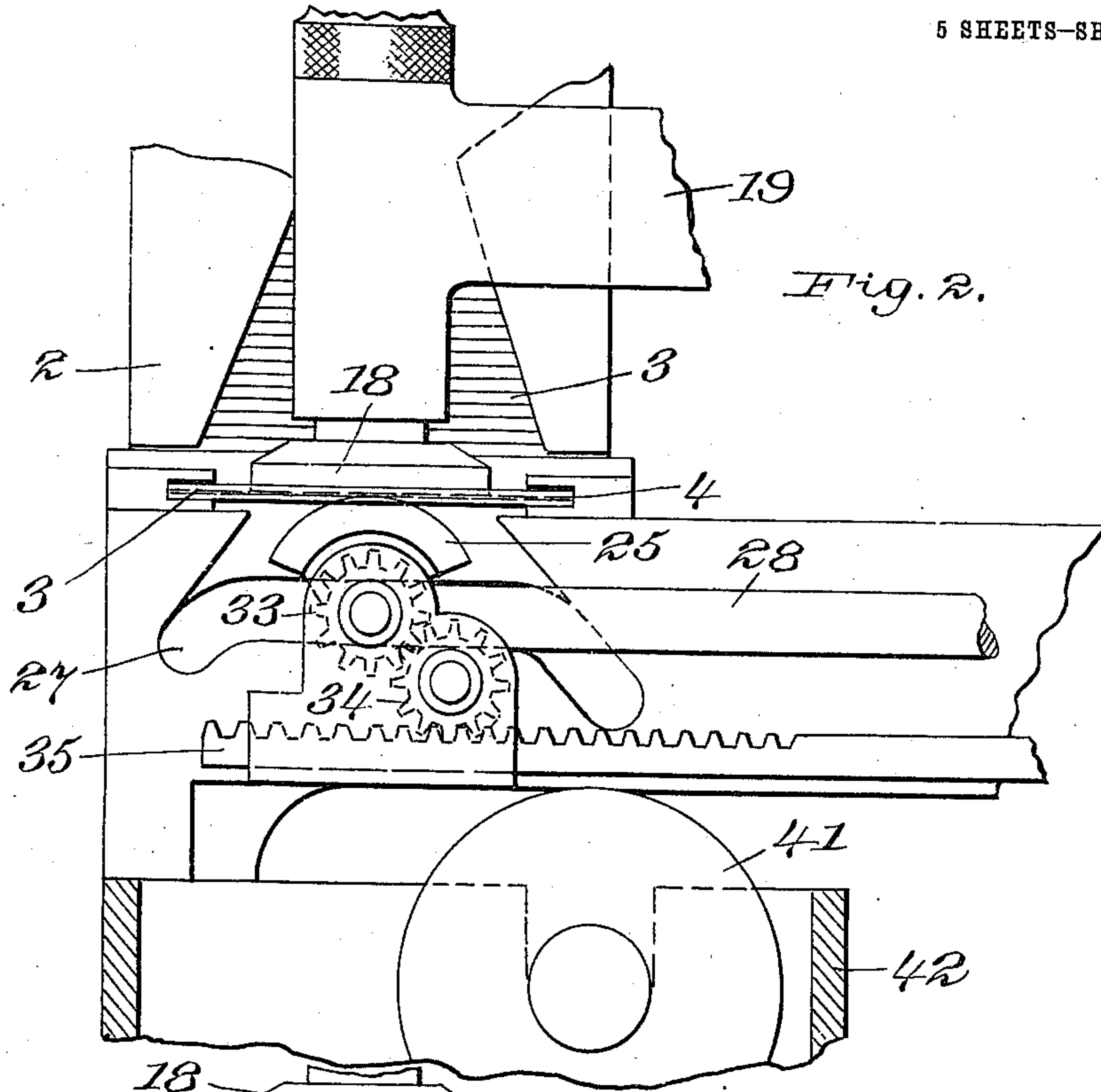


Fig. 2.

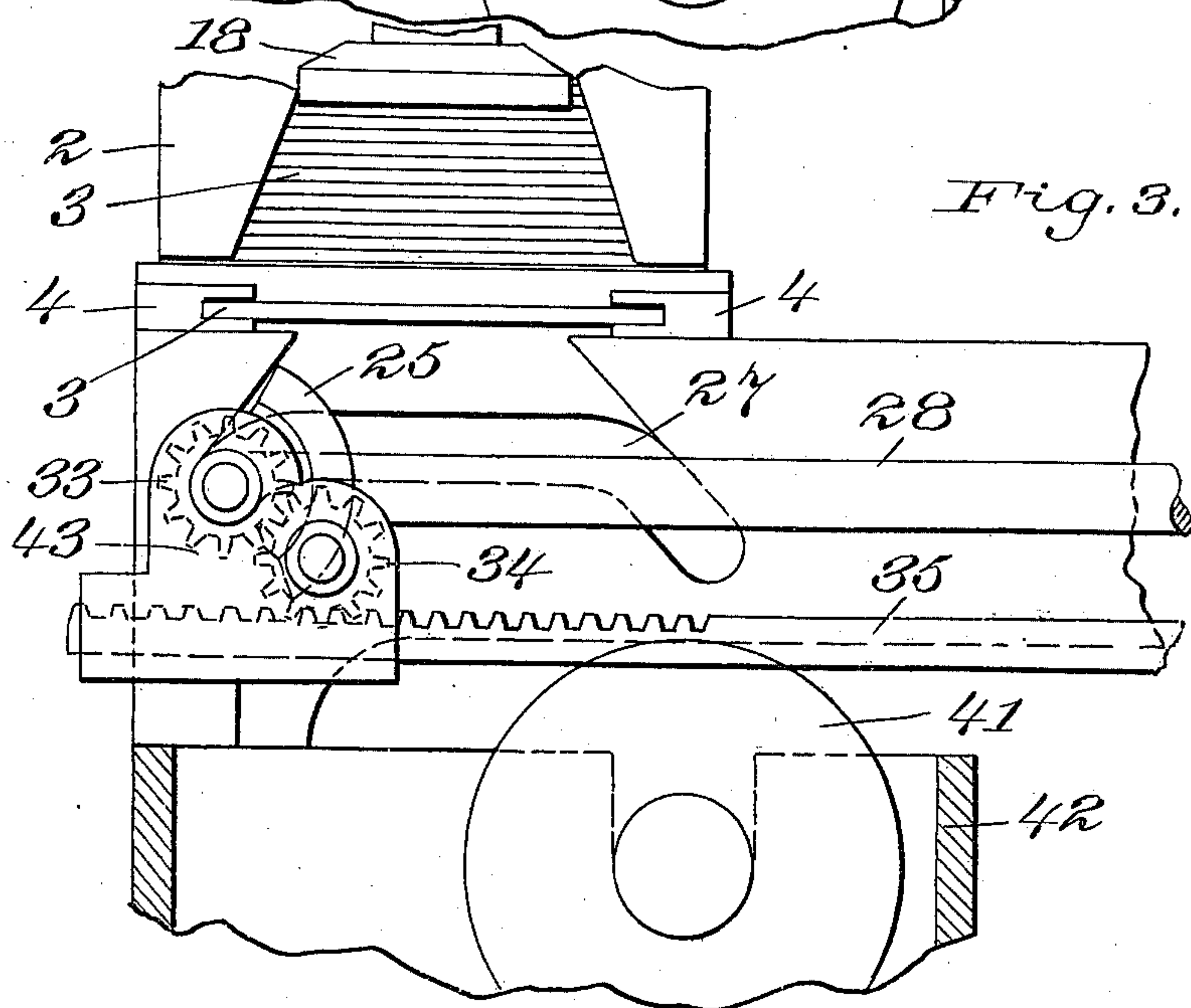


Fig. 3.

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5 SHEETS—SHEET 3.

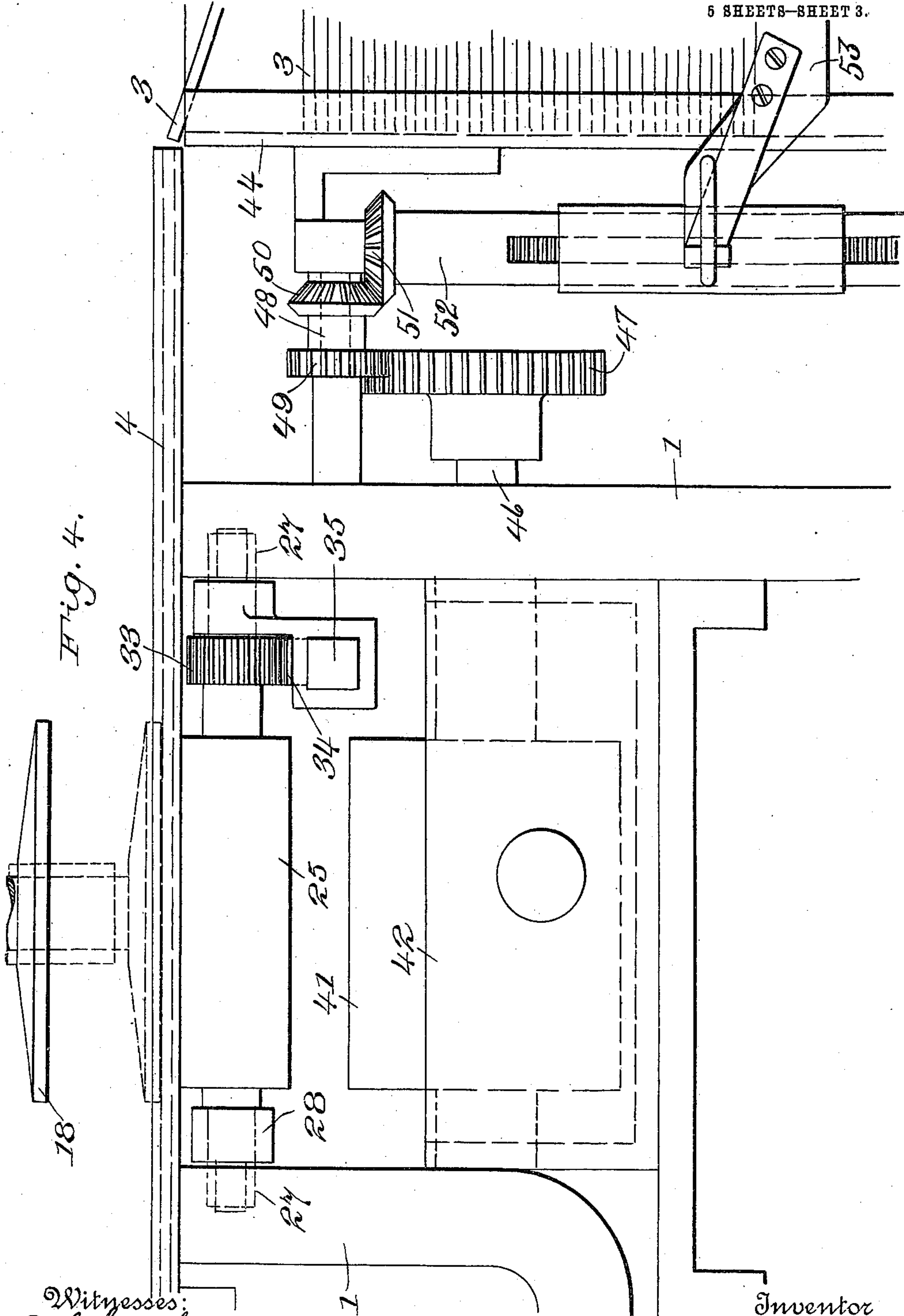


Fig. 4.

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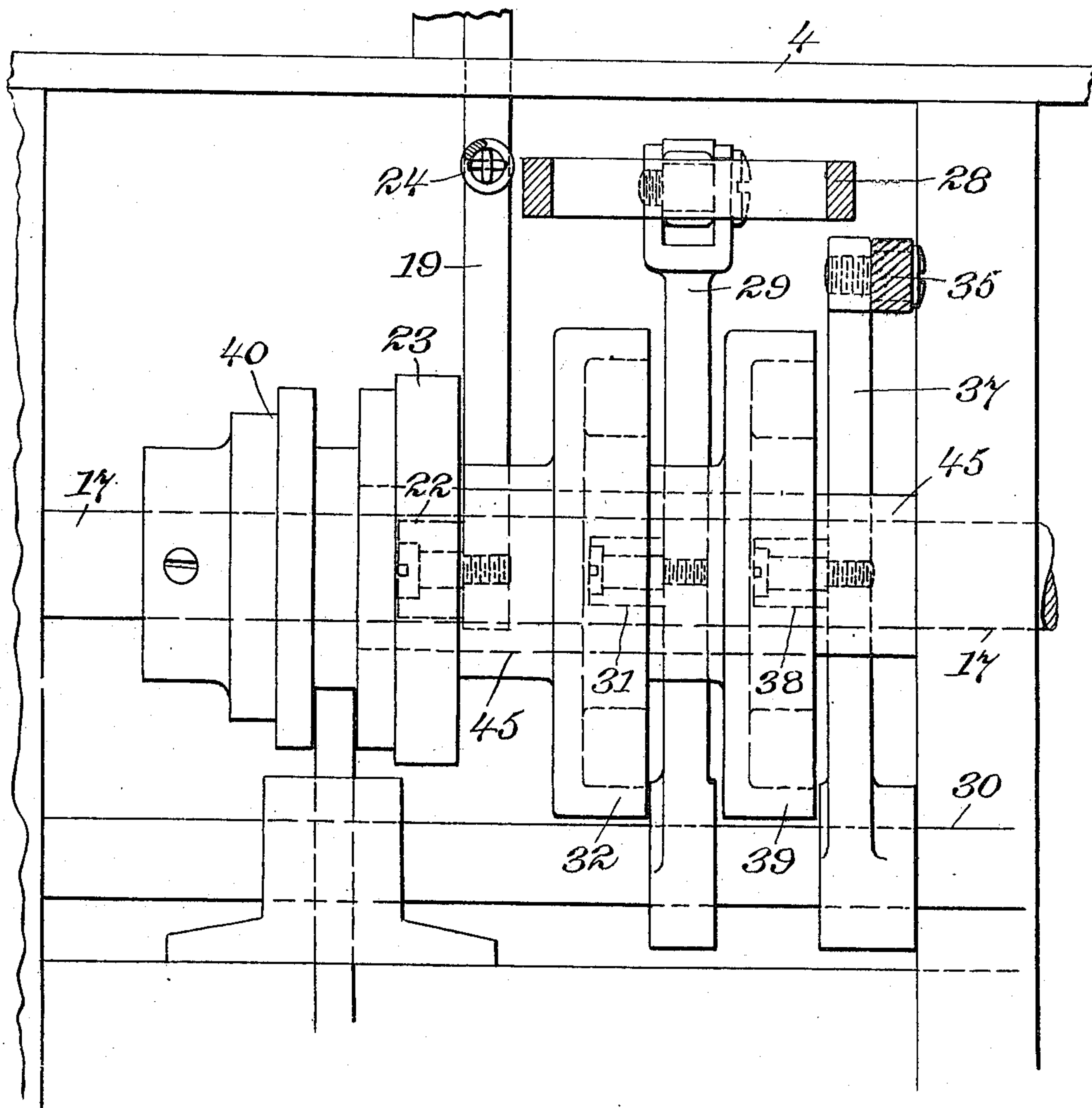
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5 SHEETS—SHEET 4.

Fig. 5.



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5 SHEETS—SHEET 5.

Fig. 6.

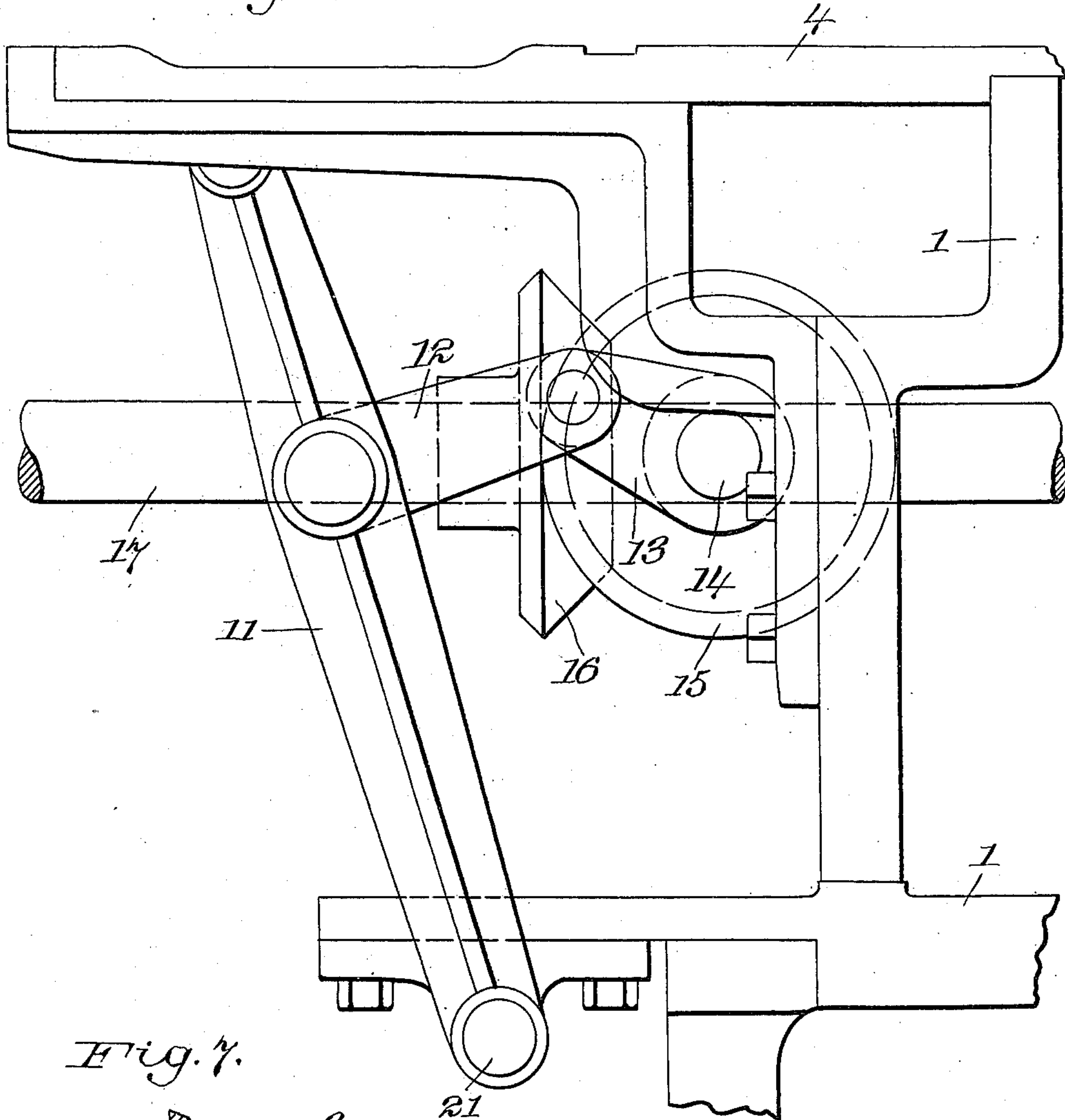
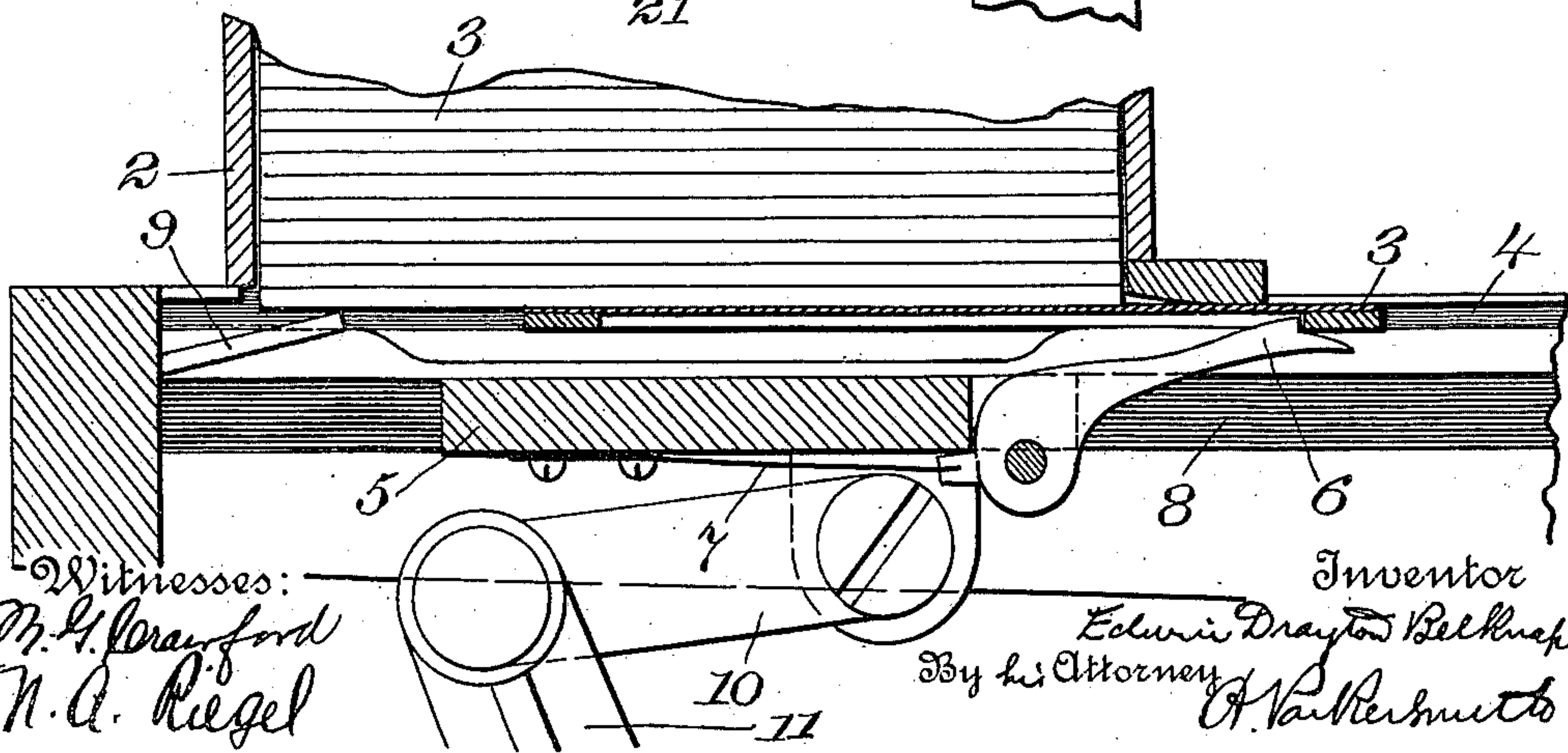


Fig. 7.



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UNITED STATES PATENT OFFICE.

EDWIN DRAYTON BELKNAP, OF EAST ORANGE, NEW JERSEY.

ADDRESSING-MACHINE.

976,142.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed September 10, 1909. Serial No. 517,039.

To all whom it may concern:

Be it known that I, EDWIN DRAYTON BELKNAP, a citizen of the United States of America, residing at East Orange, Essex county, State of New Jersey, have invented certain new and useful Improvements in Addressing-Machines, of which the following is a specification.

My invention relates to printing machines in general, but more specifically consists of an improved construction of address printing machines employing stencil cards.

My invention constitutes an improvement on the general type of addressing machines illustrated in U. S. Patent to F. D. Belknap, No. 592,603, dated October 26, 1897, and in my U. S. Patent No. 889,503, dated June 2, 1908. In the machines of these patents a series of stencil cards are fed along guides and pass between inking and platen rollers together with the articles on which the addresses are to be printed. The stencil cards and envelopes or other articles to be printed are thus in motion during the act of printing. I have found that it is more convenient when the envelopes are to be fed to the machine by hand, to have them stationary during the act of printing, and also that this permits the inking mechanism to be arranged so as to move across the line of motion of the stencil cards, instead of parallel to it, which permits of a more compact arrangement of gearing and which also allows the operator to stand nearer to the point of the machine at which he feeds the envelopes.

The best form of apparatus at present known to me embodying this invention or idea of mine is illustrated in the accompanying drawings in which:

Figure 1 is a side elevation of a portion of the machine with a part of the frame removed showing the inking mechanism in one position at nearly one end of its stroke. Fig. 2 is a similar detail showing the inking mechanism in mid position. Fig. 3 is a similar detail showing the inking mechanism at the other end of its stroke. Fig. 4 is a front elevation of a portion of the machine. Fig. 5 is a detail section on line 5-5 of Fig. 1 part of the machine being broken away. Figs. 6 and 7 are details of the card feed mechanism.

Throughout the drawings like reference numbers indicate like parts.

1 is the main frame of the machine, 2 the

card magazine, 3, 3, the stencil cards ready for use therein, 4 the card guides in line with the bottom card in the stack, and 5 the card feed slide. This slide is equipped with a pivoted finger 6, controlled by spring 7 so as to press up against the bottom card and snap in behind the frame thereof, as indicated in Fig. 7. The slide 5 reciprocates in guides 8. A pin 9 acts as a retainer for the cards above the level of the card guides at one side of the magazine and tips the other edge of the card down in position to be more easily and securely grasped by finger 6. The slide 5 is reciprocated by link 10 connected to feed lever 11 pivoted to the frame at 21, and having a connecting rod 12 extending to crank 13, on crank shaft 14. The slide 5 is never in contact with the bottom card in the magazine which is touched by the light spring pressed finger 6 only. Shaft 14 is rotated by bevel gear 15 meshing with bevel gear 16 on main shaft 17, (see Fig. 6.)

At a suitable point over the card feed guides is located the platen 18, on lever 19 pivoted at 20 to the main frame. The other end of lever 19 has roller 22 engaging cam 23, on sleeve 45 (see Figs. 1 and 5). Spring 24 holds the roller in engagement with the cam and lifts the platen when the cam permits.

Under the platen and card guides is located the inking mechanism comprising an inking roller 25 on shaft 26 which slides in cam shaped guides 27 in a direction at right angles to the line along which the stencil cards are fed. The movement of the shaft 26 and roller 25 in guides 27 is controlled by yoke 28 pivoted to cam lever 29, which latter is pivoted on the frame at 30 and has a cam roller 31 which engages the cam groove in cam plate 32 on sleeve 45. The yoke 28 has a projection 43 on which is journaled an idler pinion 34 meshing with pinion 33 on the inking roller shaft. This projection 43 is shaped to inclose and form a guide for rack bar 35 which meshes with pinion 34. The rack bar is connected by link 36 to cam lever 37, also pivoted to the main frame at 30, and having a roller 38 engaging a cam groove in cam plate 39 on sleeve 45. Motion is given to sleeve 45 through any suitable means such as a clutch 40, on main shaft 17, on which the sleeve 45 is placed.

Any convenient ink fountain 42 having a fountain roller 41, is provided for supplying ink to roller 25, which as shown in Figs. 1, 2 and 3, may be cut away for about two-thirds of its circumference. The fountain roller is mounted on shaft 46 (see Fig. 4) to which motion is given by gear 47, connected by a train of gearing (not shown) with main shaft 17. A short shaft 48 having pinion 49 and bevel pinion 50 meshing with a pinion 51 on screw shaft 52, automatically lowers the sliding bottom 53 of the card receiving magazine 44.

In Fig. 4 a part of the card receiving magazine is shown at 44.

In operation the main shaft 17 runs continuously and the stencil cards are fed along the guides 4, from magazine 2 to magazine 44, under platen 18 and over the inking mechanism. The operator faces the machine, the cards passing before him from left to right. He holds the envelop to be addressed under the platen, if no automatic feed mechanism for envelops is employed, and when a card bearing an address to be printed comes under the platen the clutch 40 is thrown in either by the operator or by any automatic device such as is illustrated in my Patent 889,503, above referred to. This causes the sleeve 45 and cams 23, 32 and 39 carried thereby to revolve. Cam 23 causes platen 18 to descend and hold the envelop against the card. Cam 32 causes the inking roller to remain at or near the right hand end of guides 27, so that it is in contact with fountain roller 41, and cam 39 causes the rack 35 to make slight movement relative to the yoke 28, sufficient to rotate the inking roller in a direction opposite to the movement of the hands of a watch (looking at Fig. 1) through a portion of a revolution sufficient to ink its entire face by contact with the fountain roller (see Fig. 1). The motion of 28 is then reversed and the inking roller moves to the left, its shaft running up the right hand cam portion of guides 27, and freeing the roller from the fountain roll contact. The relative motion of the rack bar 35 to yoke 28 is also reversed and thereby the ink roller is rotated in the opposite direction at a rate sufficient to bring its inked face uppermost as it comes under the card held by the platen, and to cause said inked face to roll but not slide on the card. This drives the ink through the stenciled openings in the card upon the envelop (see Fig. 2). At the left hand end of inking roller travel it is freed from the card by running down the left hand cam portion of the guides 27 (see Fig. 3). Its motion both of translation and rotation are then reversed by action of cams 32 and 39, and it is run back under the card again and down on to the fountain roller. While in the latter position, the platen 18 is lifted and another card is fed

into position under it, the printed envelop is removed, another one placed under the platen and over the card, and the machine is ready to repeat the operation if the clutch 40 is continued in mesh or whenever said clutch is thrown in mesh.

The advantages of my invention comprise its efficient inking action, compact arrangement, ease and accuracy with which the envelops can be inserted and removed from the machine, and the avoidance of the energetic envelop discharging action of the type of mechanism shown in the prior patents above referred to. When one of the machines of such prior patents is operated at a high rate of speed the printed envelops are discharged at a high speed from the machine and are liable to be distributed around the floor of the shop. In machines embodying my present invention this is avoided because the envelop and card are held stationary while the printing is being done, and no motion at all is given to the envelop (or other article being printed) by the printing mechanism. The inking mechanism is also positive in action and little apt to get out of order because the rack bar is continuously in gear with the pinions rotating the roller, at all positions thereof.

The card feeding device is especially positive and certain in action even at the highest speeds because the feed slide proper does not touch the bottom card at any time. When such an unyielding card slide is rapidly reciprocated under the cards in the magazine and in contact with the bottom card, it is apt to throw said cards upward or bend the bottom card backward so that it may not always grasp the cards on its forward stroke. In applicant's device only the light spring pressed finger runs along in contact with the bottom card and this card is tipped forward into a position which insures the positive engagement of the finger with it, both at the beginning of and throughout the forward motion of said finger.

The operation of the cam shaped guides is beneficial in keeping the ink roller away from the cards except at the middle portion of its travel when it is directly beneath the perforated part of the particular card in use.

Having, therefore, described my invention, I claim:

1. In an addressing machine the combination of the inking roller, cam shaped guides for same, mechanism for sliding said roller along said guides, a swinging rack bar, means for gearing the rack bar to the inking roller in all positions of the latter, and mechanism for giving said rack bar a predetermined series of movements in a direction tangent to said inking roller, together with mechanism for placing and holding a

stencil card along the line of travel of the inking roller and in contact with said roller during a portion of said travel.

2. In an addressing machine, the combination of the inking roller, cam shaped guides for same, mechanism for sliding said roller along said guides, a swinging rack bar, means for gearing the rack bar to the inking roller in all positions of the latter, and mechanism for giving said rack bar a predetermined series of movements in a direction tangent to a circle whose center coincides with the axis of said inking roller, both said above mentioned mechanisms comprising cam levers and cams mounted on a common rotating shaft, together with mechanism for placing and holding a stencil card along the line of travel of the inking roller and in contact with said roller during a portion of said travel.

3. In an addressing machine, the combination of a magazine for stencil cards, a set of card guides leading from the bottom thereof, a retaining pin at one side of the magazine projecting under one edge of the bottom card holding said edge of said bot-

tom card above the level of the card guides and tipping the other edge of said card downward, and a reciprocating slide provided with a spring pressed finger adapted to grasp the card at the other and downwardly tipped side, the slide itself not touching said card at any time.

4. In an addressing machine, the combination of guides for a series of stencil cards, means for feeding such cards along said guides, an inking roller, an ink fountain with fountain roller therein, and mechanism for moving said inking roller from contact with the fountain roller to contact with one of said stencil cards and positively rotating same while in contact with the roller and while in contact with the card, said mechanism comprising a pinion on the shaft of the inking roller and a rack bar constantly geared to said pinion at all positions of the inking roller.

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