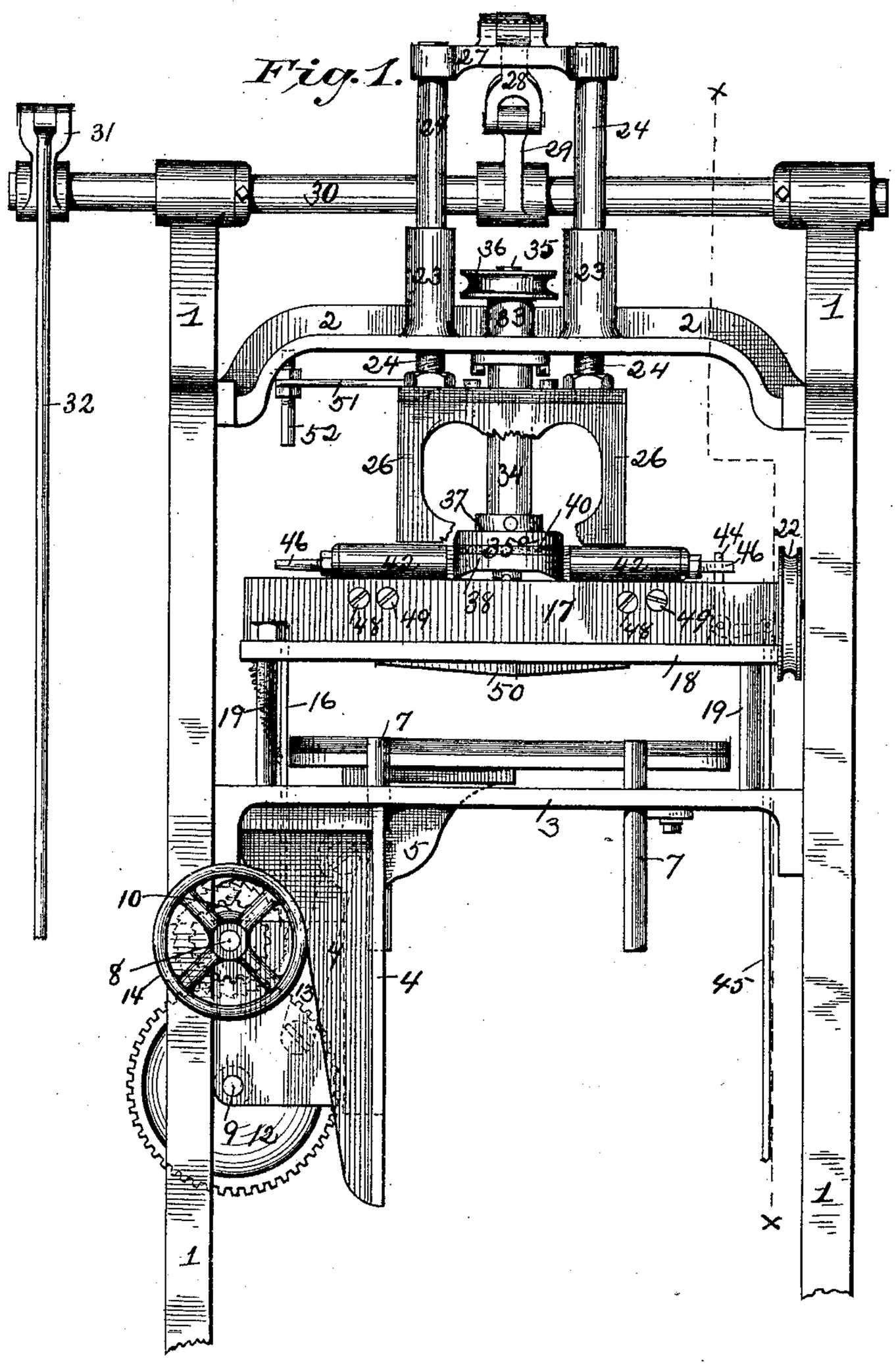
(No Model.) 3 Sheets—Sheet 1.

R. W. PITTMAN.

ENVELOPE MACHINE.

No. 452,731. Patented May 19, 1891.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

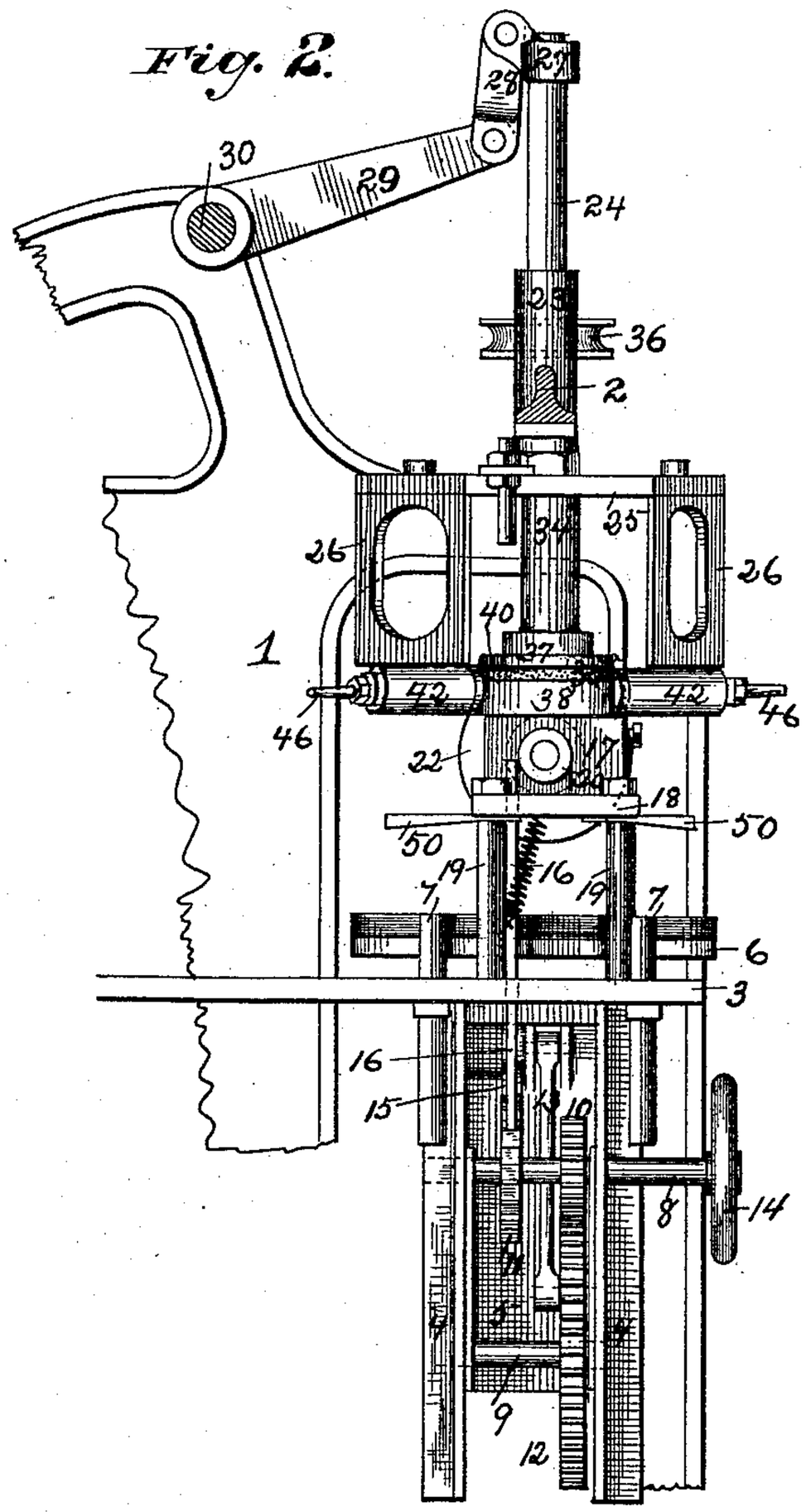
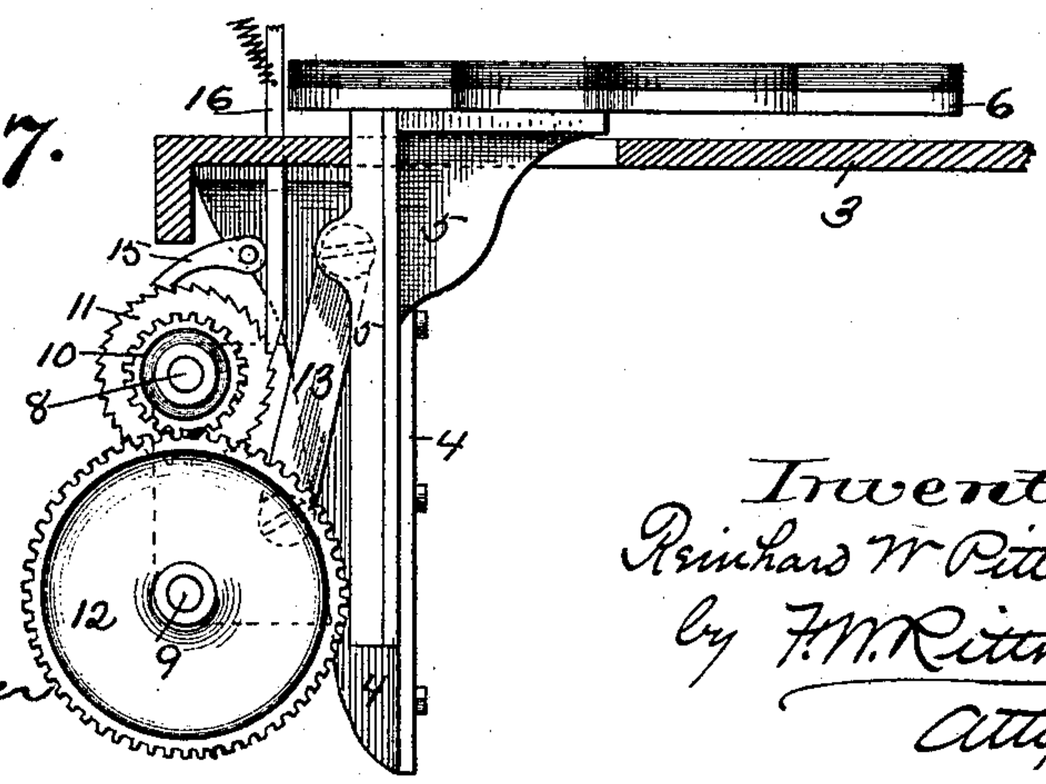


Fig. 7.



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(No Model.) 3 Sheets—Sheet 3.

R. W. PITTMAN.

ENVELOPE MACHINE.

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Fig. 3.

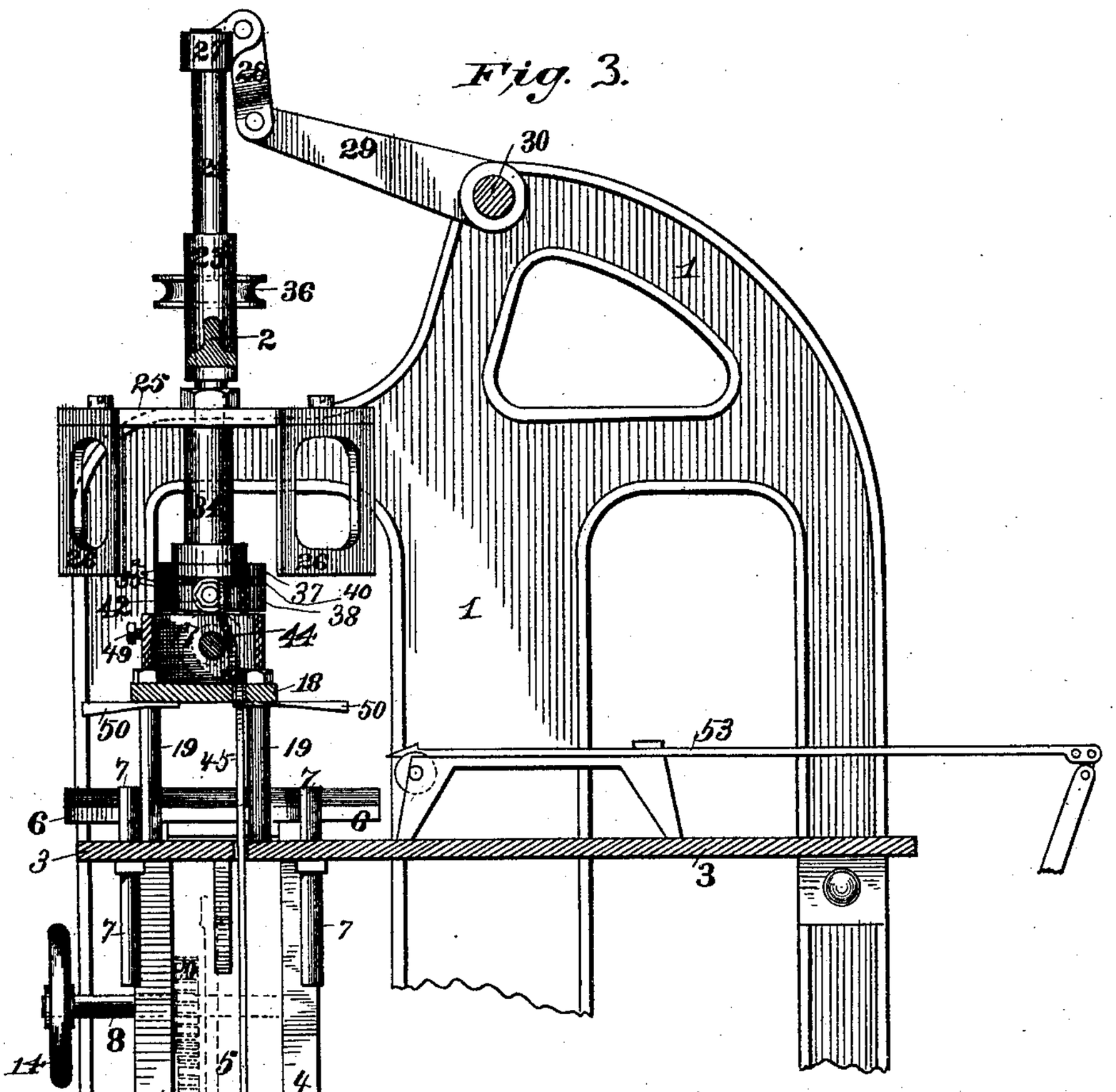


Fig. 6.

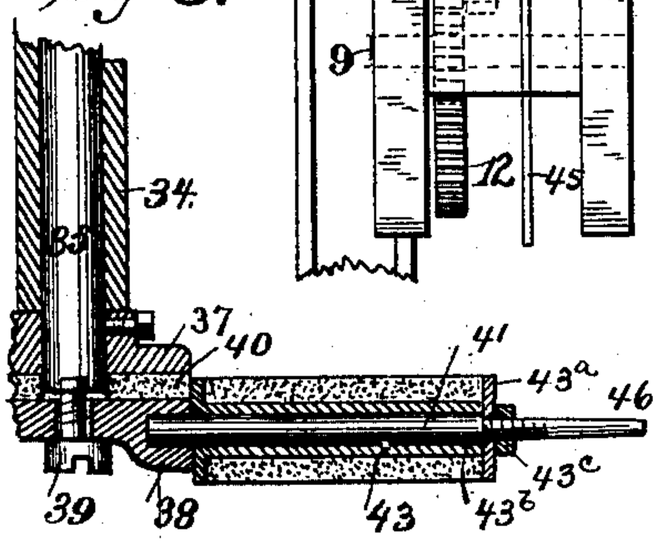


Fig 4

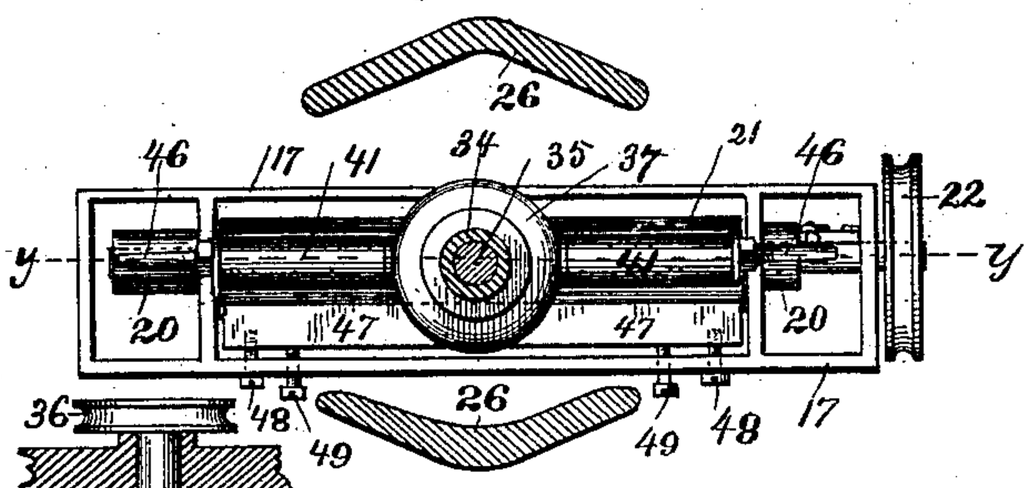
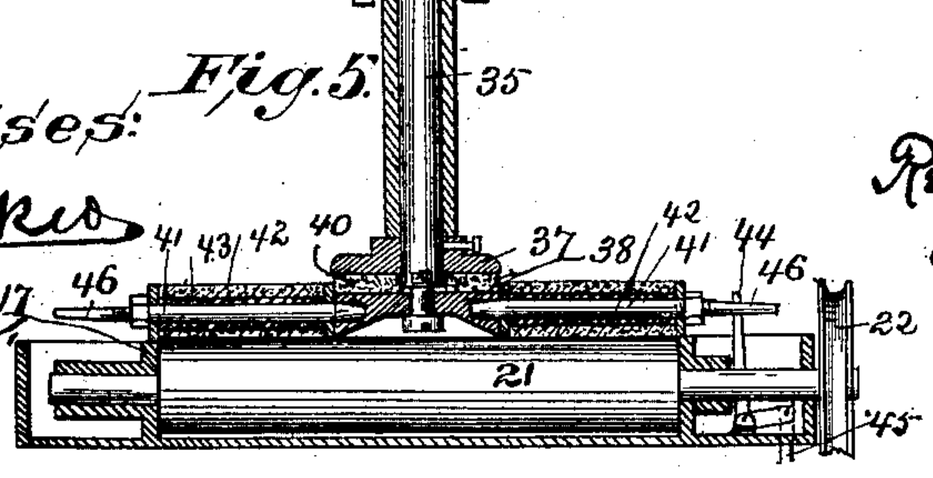


Fig. 5.



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UNITED STATES PATENT OFFICE.

REINHARD W. PITTMAN, OF HARTFORD, CONNECTICUT.

ENVELOPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 452,731, dated May 19, 1891.

Application filed July 8, 1890. Serial No. 358,058. (No model.)

To all whom it may concern:

Be it known that I, REINHARD W. PITTMAN, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Envelope-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings.

My invention relates to blank-tables and gumming devices for envelope-machines generally, but designed more especially for use on the machine shown in my application, Serial No. 306,140, filed April 5, 1889.

The objects of my invention are, first, to provide a blank-supporting table which can be readily adjusted by hand to bring the top blank in position to be pressed upon by the gummer-pickers when near the limit of their downward stroke, and afterward set to be elevated automatically step by step as the blanks are removed by the gummed pickers; also, to provide improved means for supplying or transferring the gum from the reservoir to the pickers, and, finally, in minor features of construction and combinations of parts, which will be fully described and distinctly pointed out in the following specification and claims.

In order that my invention may be more clearly understood, I have illustrated it in the accompanying drawings, in which—

Figure 1 represents a front elevation of my improvements in position between the side frames of an envelope-machine, the pickers being in their elevated position ready to receive a fresh supply of gum. Fig. 2 represents a vertical section on the line $x\,x$ of Fig. 1. Fig. 3 represents a side elevation, looking from the opposite side, with the left-hand side frame removed, showing the gumming-rollers in the act of applying gum to the pickers. Fig. 4 represents a plan view of the gumming apparatus, showing the pickers in section. Fig. 5 is a vertical section of the gumming apparatus, taken on the line $y\,y$ of Fig. 4; Fig. 6, a similar view of a portion of the same, shown on a larger scale. Fig. 7 is a detached view of the blank-elevating table, one of the grooved guide-brackets being removed and the bed shown in section.

In the accompanying drawings I have shown only so much of an envelope-machine as will suffice to illustrate the application of my invention. The driving-shaft and cams for imparting motion to the various parts being the same as in my aforesaid application are omitted from this application, as they have no bearing on my present invention.

In the drawings, 1 1 are the main side frames of an envelope-machine.

2 is a tie-bar rigidly connecting the two frames together near their upper ends, and 3 is a stationary table or bed, also rigidly connecting the side frames 1 1 together. Bolted or otherwise secured to the under side of the bed 3 are two brackets 4 4 in grooved guides, in which is mounted a vertically-sliding bracket 5, which passes through an opening in bed 3 and carries at its upper end a plate 6, which conforms to the shape and size of the blank to be gummed, and secured to the bed 3 are four guide-posts 7 7 7 7, located one at each of the four corners of the envelope-blank to retain the blanks in position on the table or plate 6.

In order to adjust the blank-table when desired, I journal in the brackets 4 4 two shafts 8 and 9, the former of which has a pinion 10 keyed thereon meshing with a spur-wheel 12, keyed to the shaft 9, and said spur-wheel is connected with and imparts motion to the blank-table 6 through the medium of a link 13, pivoted at one end to a pin on the spur-wheel and at its other end to the vertical bracket of the blank-table. On the outer end of shaft 8 is a hand-wheel 14, by which the pinion 10 may be rotated, which, through the medium of spur-wheel 12 and link 13, imparts a vertical movement to the blank-table. In order to hold said blank-table in its elevated position, I provide said guide-bracket 4 with a pawl 15, adapted to engage with the teeth of a ratchet-wheel 11, secured to shaft 8. In order to move said table step by step as the blanks are removed, so as to always present a blank in position to be acted on by the pickers, I provide a vertically-movable spring-supported rod 16, located in the vertical plane of the ratchet-wheel and adapted to strike a tooth of the said wheel on its descent and partially rotate the shaft 8 and pinion 10.

On the tie-rod 2 are two sleeved guides 23,

through which pass two vertically-reciprocating rods 24, carrying at their lower ends a plate 25, to the under side of which the pickers or gummers 26 are secured. These pickers are smooth on their lower faces and correspond in cross-section to the shape of the front and back flaps, respectively, of the envelope-blank and are located directly above the blanks. The reciprocating rods 24 are connected at their upper ends by a cross-head 27, which is connected by link 28 to an arm 29, secured to rock-shaft 30. This rock-shaft 30 carries at one end outside the frame of the machine an arm 31, which receives its rocking movement from a cam (not shown) through the medium of a connecting-rod 32, all of which are shown in my aforesaid application.

The gum-box consists of a narrow oblong box 17, resting on a narrow table 18, supported centrally above the blank-table on posts 19, projecting from the bed 3. In the ends of the gum-box 17 are horizontal bearings 20, in which is journaled a roller 21, adapted to rotate within the gum-reservoir by means of a grooved pulley 22, secured to the roller-shaft and receiving its motion from any convenient part of the machine by a belt. (Not shown.)

The tie-bar 2 is provided with a central vertical bearing 33 at a point intermediate the sleeved guides 23 23, and to the under side of said tie-rod in line with bearing 33 is bolted or otherwise secured a downwardly-projecting sleeve 34, through which sleeve and bearing passes a rotary vertical shaft 35, provided at its upper end above said bearing 33 with a pulley 36, which receives its motion from any convenient part of the machine by a belt. (Not shown.) Rigidly secured to the lower end of the shaft 35 is a circular disk 37, a similar disk 38 being loosely secured to said shaft by means of an adjusting-screw 39, passing loosely through a central opening in said disk and screw-threaded into the center of said shaft. Intermediate said disks is an interposed friction-washer 40, of leather or other frictional material, which, together with the disks 37 and 37, constitute a friction-clutch. The lower disk 38 is provided with two diametrically-opposite axles 41, rigidly secured in sockets in said disk 38. Loosely journaled on said axles 41 are two composition rollers 42, provided with bushings or sleeved bearings 43. Near their outer ends the axles 41 are provided each with a shoulder 43^a. These composition rollers 42, which I term "gum-distributers," normally rest vertically above and in contact with the reservoir-roller 21 and are secured on the axles by a washer 43^a, held up against the shoulders 43^b on said axles by a clamping-nut 43^c, as clearly shown in Fig. 6, the outer ends of said axles being somewhat smaller than the bearing portion and project a short distance therefrom, as shown at 46. The movement of the pickers is such as to stop at the end of their upward movement with their plane under faces on a level with the upper surface of the composition rollers, and said rollers, being carried by the lower or friction disk 38, are caused to rotate around the vertical shaft 35 and in contact with the lower face of the pickers, coating said pickers with gum. In order to stop further motion of the rollers 42 at the end of every half-revolution, or, in other words, after they have transferred their supply of gum to the pickers, I provide at a convenient point on the table 18, preferably to one side of the gum-roller bearing 20, a pivoted bell-crank lever or detent 44, which is actuated from the main drive-shaft (not shown) by connecting-rod 45. The normal position of the vertical arm of said bell-crank lever is such as to be struck by the projecting end 46 of the axles 41, and thereby stop the motion of the gum-distributers until the pickers are again at their highest position.

In order to regulate the supply of gum transferred from the gum-roller 21 to the distributing-rollers 42, I provide the gum-reservoir 19 with scrapers 47, adjustable to and from the gumming-roller 21 by means of adjusting-screws 48, which pass loosely through the side of the gum-box and are screw-threaded into the scraper, a second set of screws 49 being screw-threaded into the side of said reservoir and bearing against the edge of said scraper, as clearly shown in Fig. 4.

In order to strip the blank from the pickers after it is gummed and is being raised from the pile of blanks, I provide the table 18 on its under side with stripper-fingers 50, similar to those shown in my aforesaid application.

To the top plate 25 of the pickers is secured a laterally-projecting arm 51, which carries at its end a short vertical rod adjustable therein and adapted to strike the spring-supported rod 16 near the limit of the downward stroke of the pickers and depress the same into contact with the teeth of the ratchet-wheel 11 and partially elevate the blank-table.

The operation of my improvement is as follows: The gum-box 19 being supplied with gum and the blanks having been previously cut to the desired shape and placed on the blank-table 6 while in its lowest position in the guides 4 until the top blank is within the range of the pickers 26, when said pickers are in their lowest position, the pawls 15 engaging with the teeth of ratchet-wheel, prevents said table from retrograding, the blanks being held in position by the guide-posts 77. The machine is then started. The gum-distributers, being coated with gum from contact with the reservoir-roller 21, are, by means of the friction-clutch 35^a, carried around with vertical shaft 35, and, being in contact with the under side of the pickers, are caused to rotate on their own axis, leaving a supply of gum on the pickers sufficient to gum the top envelope of the pile. The vertical arm of bell-crank lever or detent 44 now moves into the

path of the projecting end 46 of the axle 41 and stops further motion of said distributing-rollers. The pickers with their supply of gum now begin to descend—one on each side of the gum-box—upon the top blank on the pile. Near the end of the downstroke of the pickers the rod 52 strikes rod 16 and depresses it into contact with the ratchet-wheel, slightly rotating the same. As soon as the pickers have gummed the top blank they begin to rise and carry with them the gummed blank, which, coming in contact with the stripper-fingers, is stripped from the pickers and falls on the transferring-arms 53, which in the meantime have passed under the blank. The pickers continue their upward movement until above the distributer-rollers, which are again released by the detent 44, and the operation proceeds as before.

It will be readily observed from the above construction that various sizes and shapes of blanks may be gummed by simply replacing the plate 6 of the blank-table and the pickers 26 with corresponding parts of the size and shape desired.

The rods 24, being screw-threaded into plate 25 and provided with jam-nuts, allows the pickers to be vertically adjusted when desired.

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

1. In an envelope-machine, the combination, with a blank-table, of a gum-supply arranged transversely of and above the table, a rotary vertical shaft located centrally above the gum-supply and having at its lower end horizontal gummers normally in contact with the gum-supply and adapted to simultaneously receive a supply of gum, a detent to arrest the gummers over or in contact with the gum-supply on each half-rotation, and vertically-reciprocating pickers adapted to straddle the gumming device when descending to gum an envelope, substantially as and for the purposes described.

2. In an envelope-machine, the combination, with the vertically-reciprocating gummers, of a vertical rotary shaft arranged between the gummers, horizontal gum-distributers carried by the vertical shaft, and a friction-clutch for connecting said shaft and gum-distributers, substantially as described.

3. In an envelope-machine, the combination, with the vertically-reciprocating gummer-pickers, of a vertical rotary shaft arranged between the pickers and provided with horizontal gum-distributers, a friction-clutch for connecting said shaft and gum-distributers, and a detent for releasing said clutch, substantially as described.

4. In an envelope-machine, the combination, with the vertically-reciprocating gummer-pickers, of a vertical rotary shaft arranged between the gummers and having a circular disk secured thereto, a second disk loosely secured to said shaft and carrying horizontal gum-distributers, a friction-washer interposed between said disks, a gum-reservoir and delivery-roller, and a detent adapted to control the movement of said distributers, substantially as described.

5. The combination, with the vertically-reciprocating pickers and gum-distributers, of a vertically-movable blank-table, spur-gearing and ratchet-wheel for moving said table, a spring-supported rod located above and in line with said ratchet-wheel, and a projection vertically adjustable on said pickers and adapted to strike said rod near the limit of the downward stroke of said pickers and force said rod into engagement with said ratchet-wheel, whereby a step-by-step movement is imparted to the blank-table, substantially as and for the purposes described.

In testimony whereof I affix my signature, in presence of two witnesses, this 30th day of June, 1890.

REINHARD W. PITTMAN.

Witnesses:

RAOUL W. D'ARCHE,

WILLIAM HACK.