(No Model.)

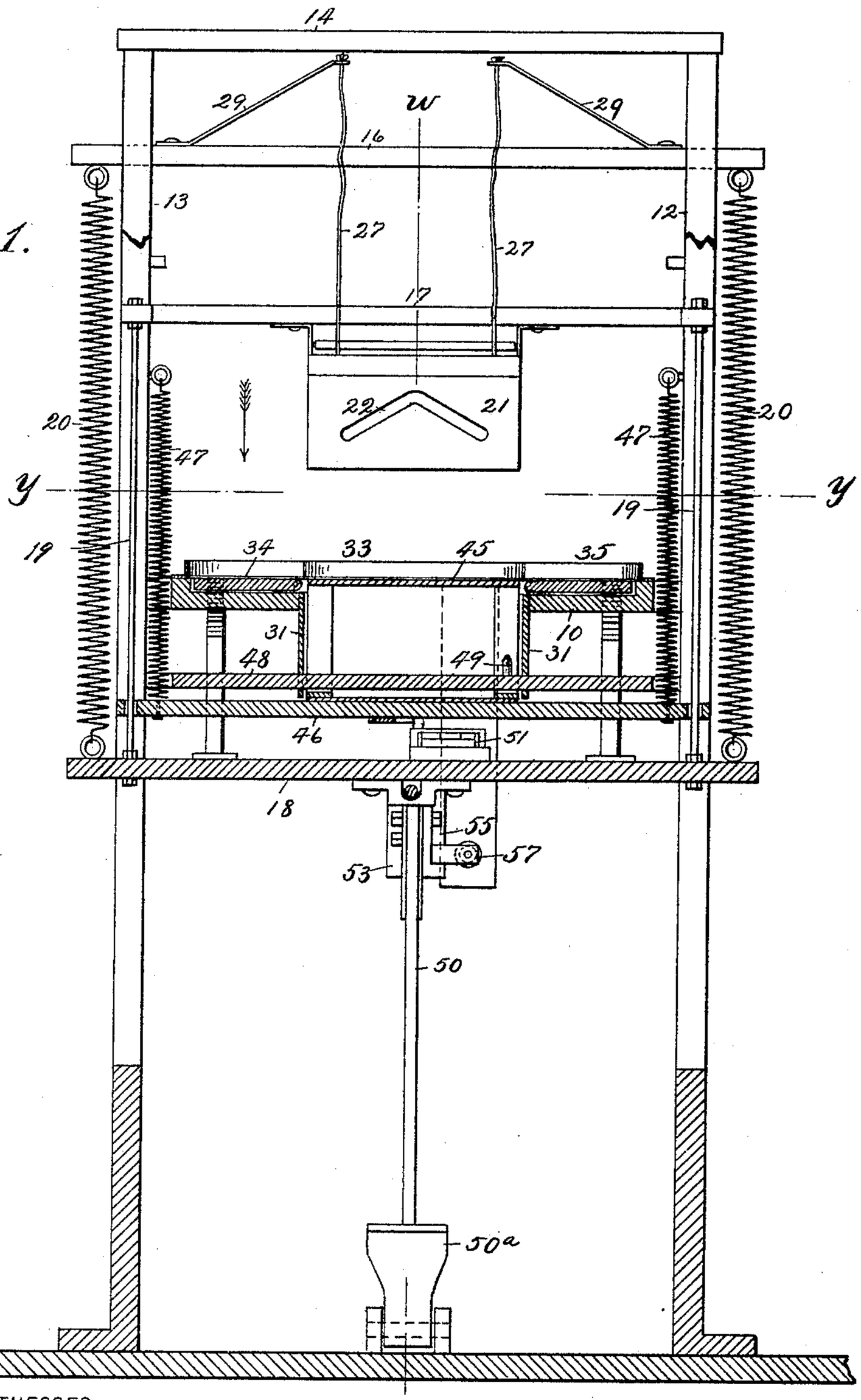
9 Sheets—Sheet 1.

J. D. FLAMMER.

ENVELOPE MACHINE.

No 435,816. Patented Sept. 2, 1890.

Fig. 1.



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(No Model.) 9 Sheets—Sheet 2.

J. D. FLAMMER.

ENVELOPE MACHINE.

No. 435,816. Patented Sept. 2, 1890.

Fig. 2.

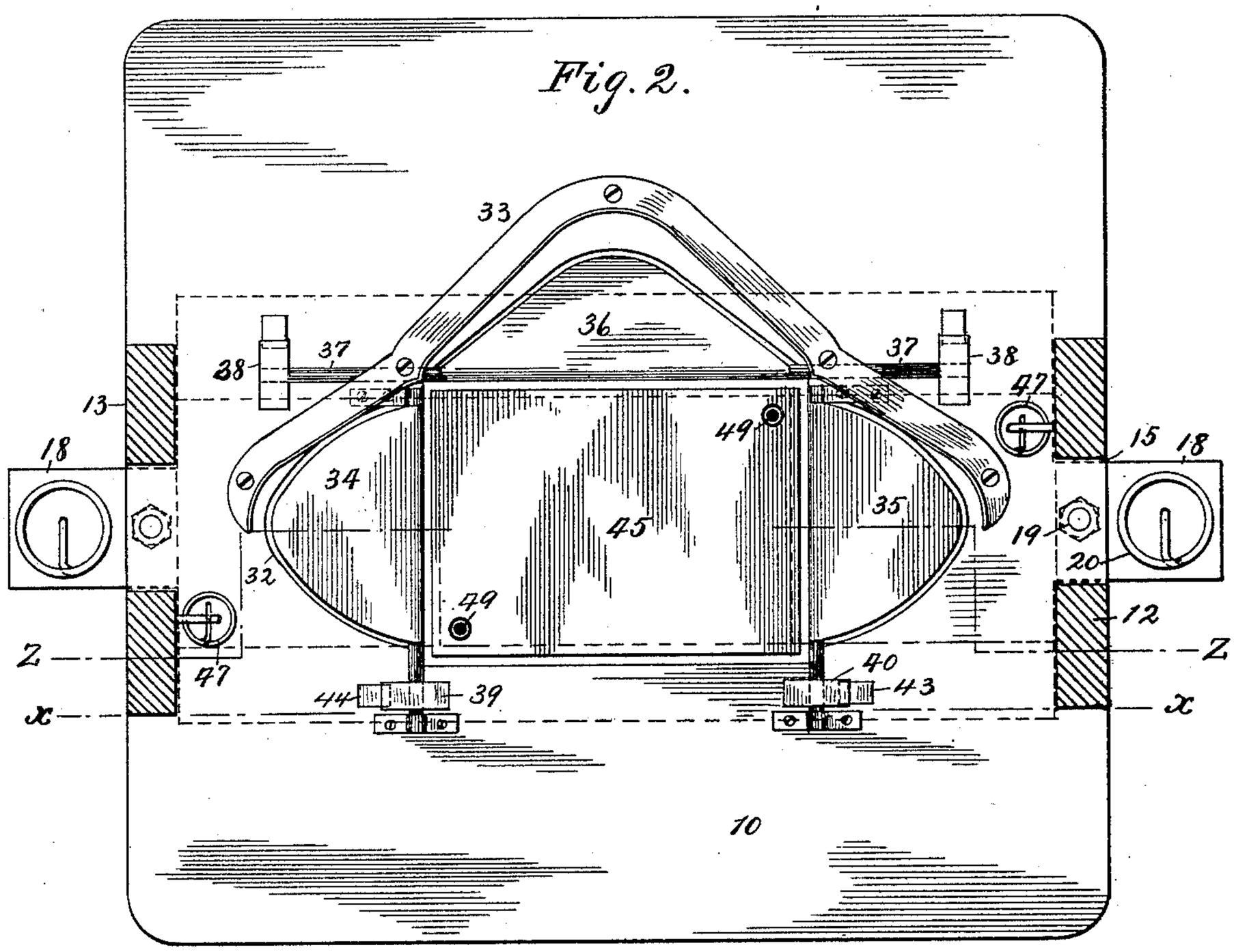


Fig. 11.

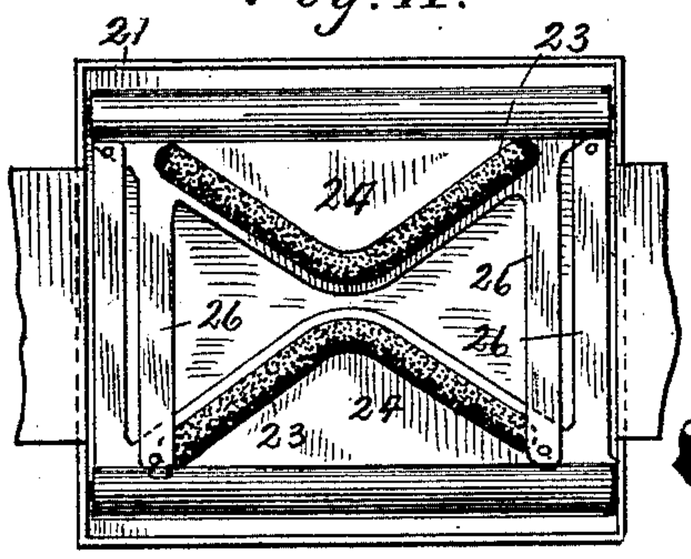


Fig. 8.

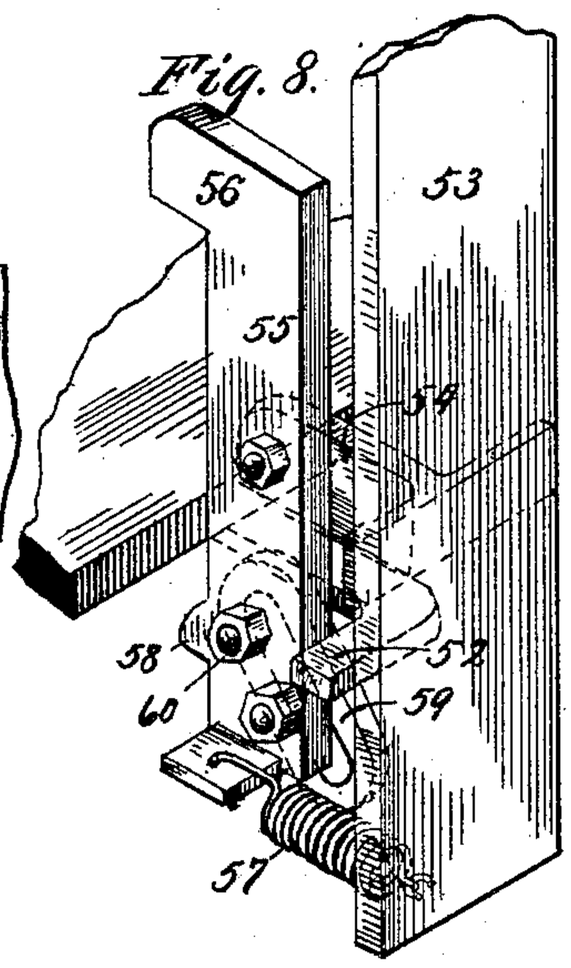
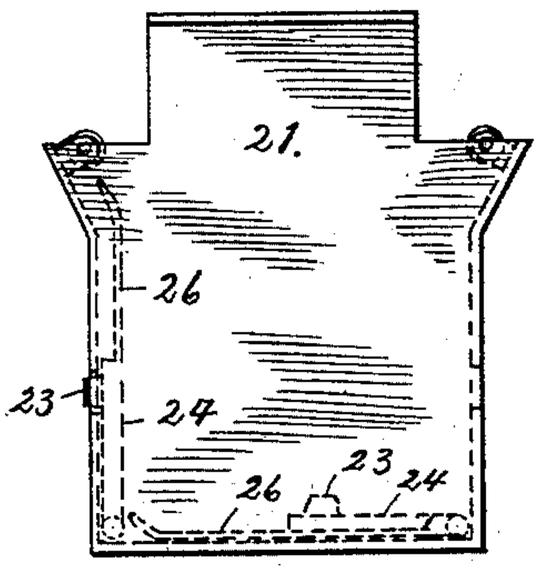


Fig. 11.ª



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(No Model.) 9 Sheets—Sheet 3.

J. D. FLAMMER.

ENVELOPE MACHINE.

No. 435,816. Patented Sept. 2, 1890.

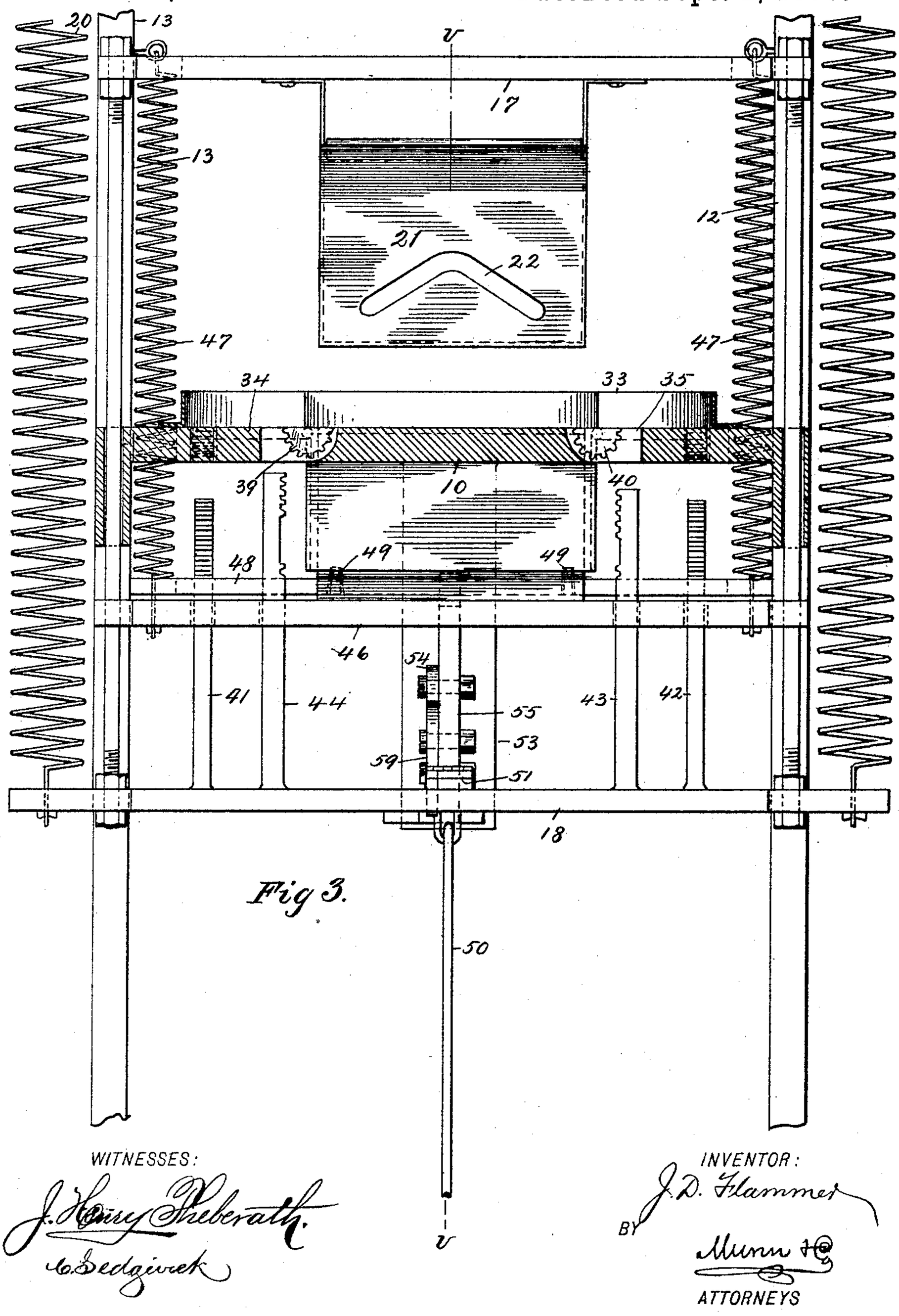

Fig 3.

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(No Model.) 9 Sheets—Sheet 4.

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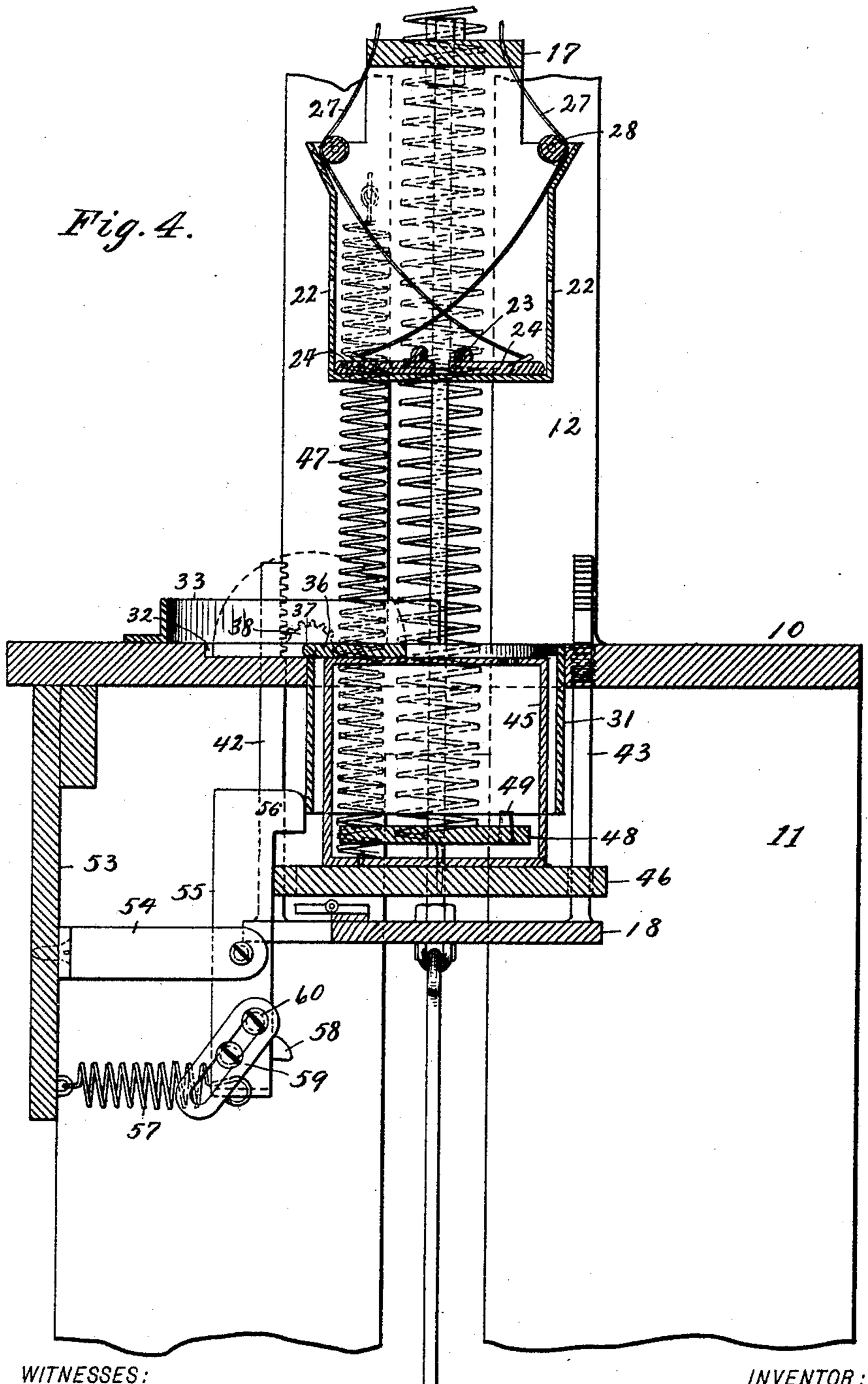
ENVELOPE MACHINE.

No. 435,816. Patented Sept. 2, 1890.

Fig. 4.



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(No Model.) 9 Sheets—Sheet 5.

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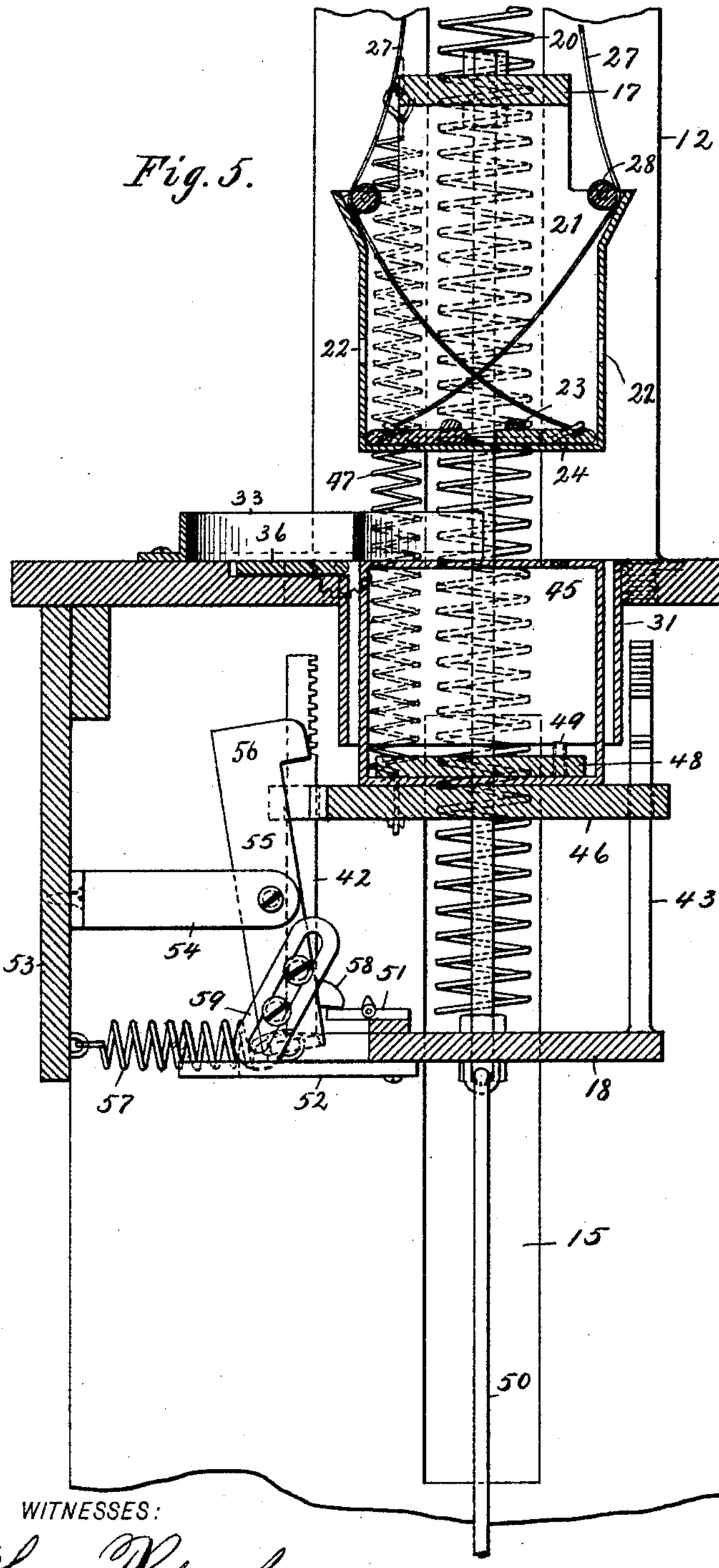
ENVELOPE MACHINE.

No. 435,816. Patented Sept. 2, 1890.

Fig. 5.



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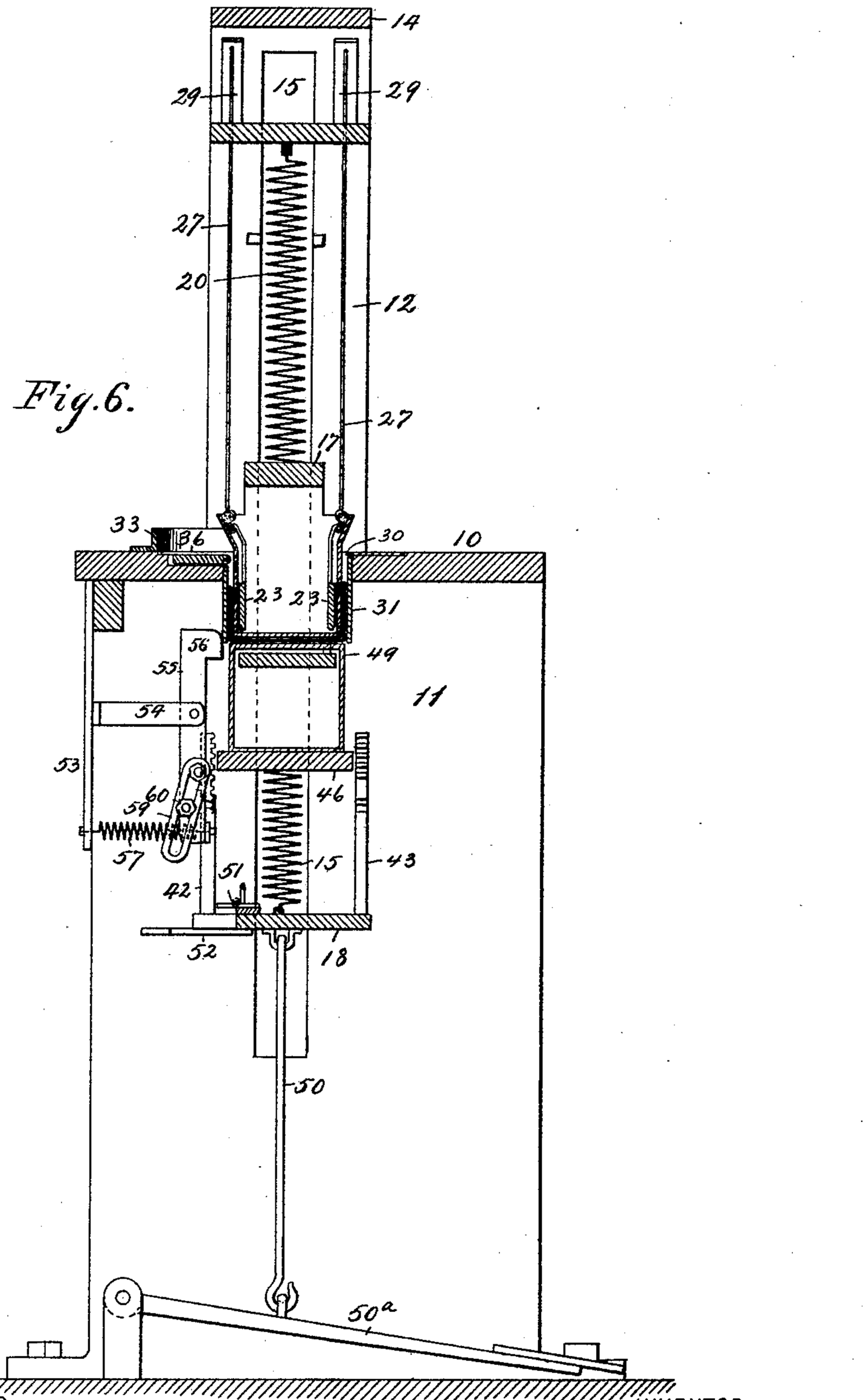
(No Model.) 9 Sheets—Sheet 6.

J. D. FLAMMER.

ENVELOPE MACHINE.

No. 435,816. Patented Sept. 2, 1890.

Fig. 6.



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(No Model.)

9 Sheets—Sheet 7.

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ENVELOPE MACHINE.

No. 435,816. Patented Sept. 2, 1890.

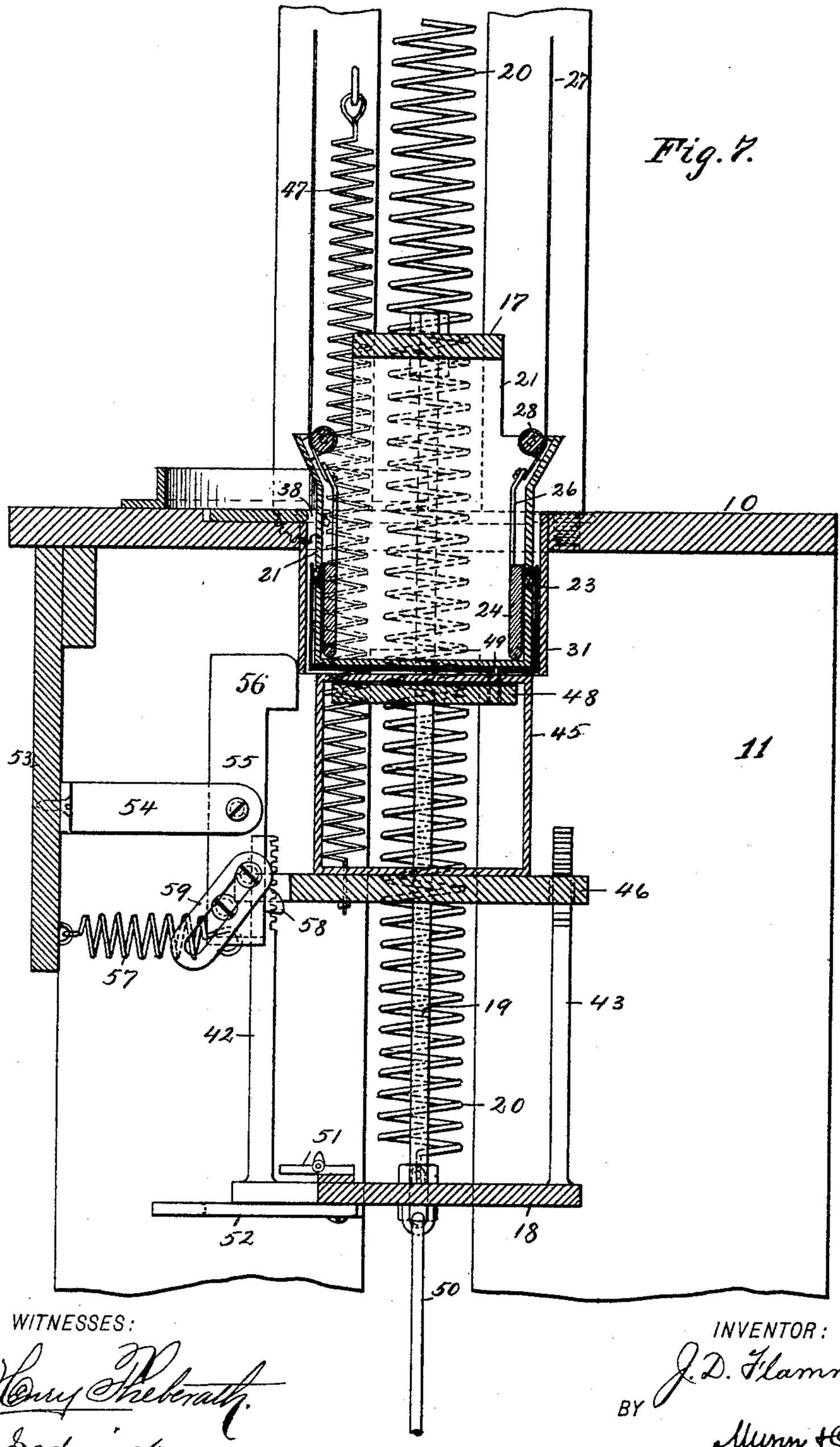

Fig. 7.

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ENVELOPE MACHINE.

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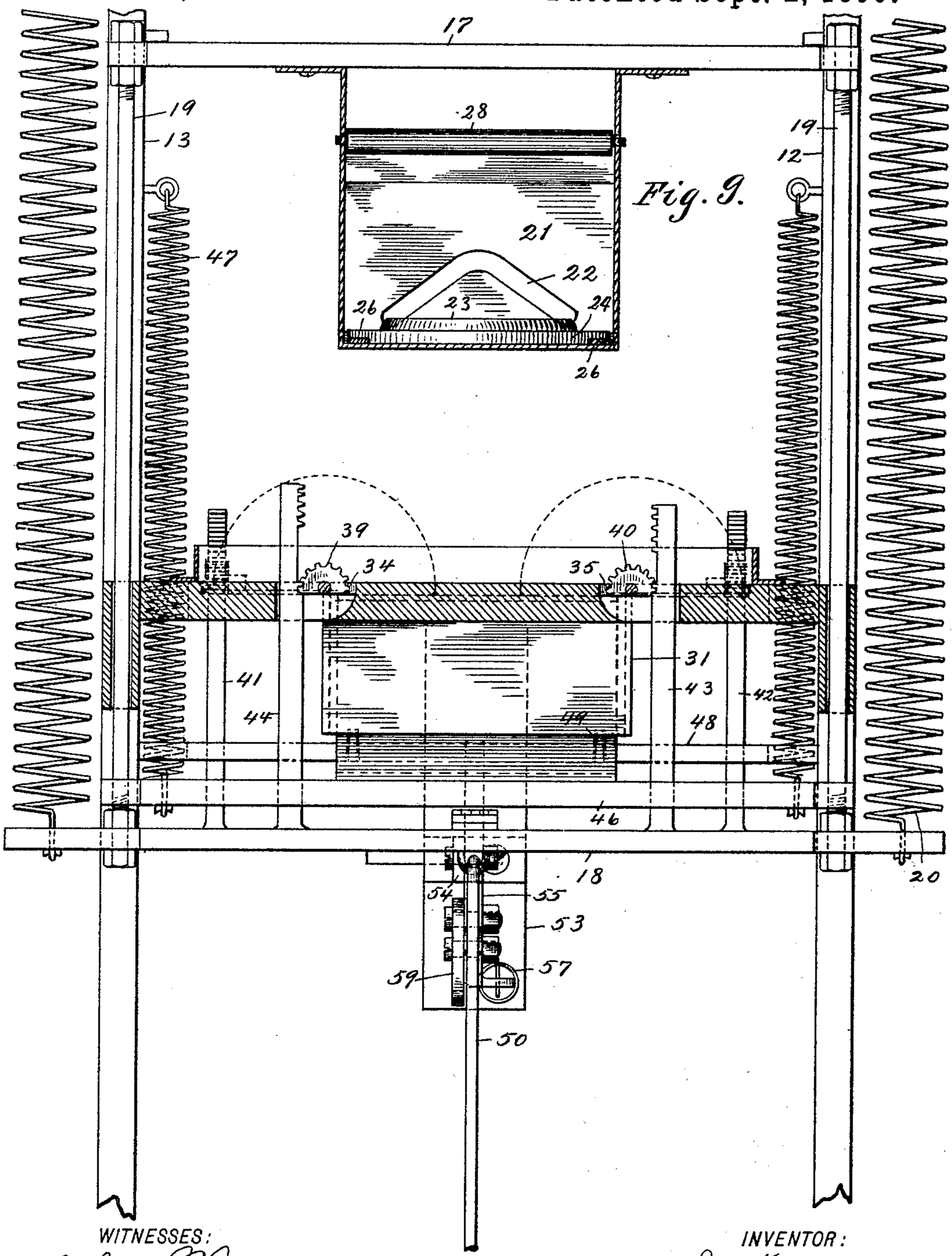

Fig. 9.

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(No Model.)

9 Sheets—Sheet 9.

J. D. FLAMMER.

ENVELOPE MACHINE.

No. 435,816. Patented Sept. 2, 1890.

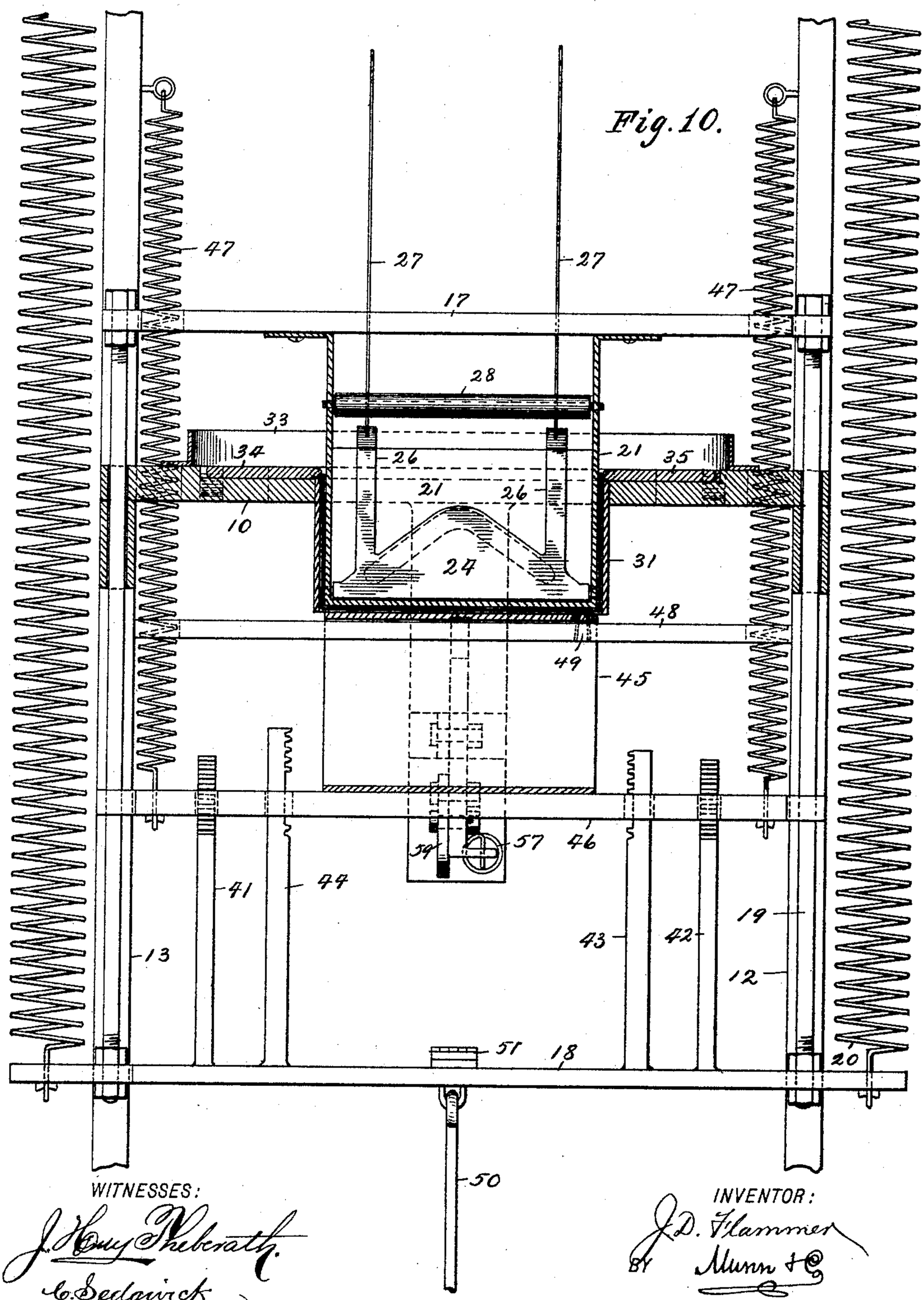

Fig. 10.

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UNITED STATES PATENT OFFICE.

JOHN D. FLAMMER, OF NEW YORK, N. Y.

ENVELOPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 435,816, dated September 2, 1890.

Application filed October 13, 1888. Serial No. 287,987. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. FLAMMER, of New York city, in the county and State of New York, have invented a new and Improved Envelope-Machine, of which the following is a full, clear, and exact description.

My invention relates to an improvement in envelope-machines, and has for its object to provide a machine of simple and durable construction capable of operation by foot-power, and which will automatically and expeditiously fold, press, and perforate an envelope-blank.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a vertical section of the machine, the parts being in position to commence operations. Fig. 2 is a horizontal section on line *y y* of Fig. 1. Fig. 3 is a vertical section on line *x x* of Fig. 2. Fig. 4 is a vertical section on line *w w* of Fig. 1, the pasting-box being in the upper position and the folding-blocks represented as folding the envelope. Fig. 5 is a vertical section of Fig. 3, illustrating the machine in the resting position and ready for the reception of a blank. Fig. 6 is a vertical section through the machine, illustrating the platform and pasting-box as carried downward to their lowest position. Fig. 7 is a vertical section illustrating the platform and pasting-box in their lowest position. Fig. 8 is a detail view of the tripping and locking device. Fig. 9 is a vertical sectional view of the paste-box and forming-blocks, the punching mechanism and folding-blocks being turned in. Fig. 10 is a section on line 10 10 of Fig. 2, illustrating the box in position to paste. Fig. 11 is a plan view of the pasting-box, and Fig. 11ª is a side view of the same.

It is the prime object of the present invention to provide a machine for forming and pasting envelope-blanks which may be readily transported and conveniently manipulated, and wherein the mechanism employed in the construction of the machine will be of a simple and durable character, and also wherein the machine may be built at a minimum cost.

In carrying out the invention the frame consists of a table 10, usually supported by two side pieces 11 and opposing standards 12 and 13, projected perpendicularly upward from the sides of the table at or near the center of the same, which standards are preferably connected at the top by a bar 14 and provided with a longitudinal slot 15, the said slots being carried downward in the supporting side pieces 11. The side pieces 11 and the standards aligning the same will, if desired, be made integral, and two pins are provided upon the inside of the upright standards, being adapted to limit the movement of the bar 17, as shown in Fig. 1, which bar will be hereinafter described. Near the top of the standards the ends of a horizontal bar 16 are projected through the slots 15, which bar is fixed to the standards. Two cross-bars 17 and 18 are held to slide vertically in the slots 15 of the standards, one bar 17 being located above the table and the other bar 18 beneath the same. The two cross-bars are united by rods 19 to move together, and the ends of the lower bar extending through the said slots 15 are connected by springs 20 with the extremities of the fixed horizontal bar 16, as best shown in Fig. 1.

Upon the upper face of the upper sliding bar 17 the paste-box 21 is centrally secured, having produced in opposite sides curved or angular slots 22, corresponding in contour to the respective top and bottom flaps of an envelope-blank. These slots are preferably located from one-half to three-quarters of an inch from the bottom of the paste-box, it being necessary only to paste the envelope to such an extent that the flaps may be properly sealed. The pasters 23 are pivoted in the ends of the box—one at each of the slotted sides—which pasters usually consist of a suitably-shaped metal plate 24, provided at or near the top with attached pads 25 of any absorbent material, the said pads being formed to the contour of the slots 22, and so located that when the plates are brought to a vertical position the pads will enter and project through the said slots 22, as best shown in Figs. 7 and 11. Each paster 23 is provided with two arms 26 at its extremities, having

secured thereto a cord 27, a light chain, or its equivalent, and the said cords are passed through guides 28, formed upon the paste-box, to a connection with the free end of springs 29, fastened to the upper face of the horizontal fixed bar 16, as best illustrated in Figs. 1, 4, and 5. When the paste-box is in position above the table and the cords are slacked, the pasters lie horizontally in the bottom of the box, as illustrated in Figs. 4 and 5, and the cords near their lower ends cross each other. When the paste-box is carried downward below the table, the cords are drawn tight and raise the pasters to a vertical position, causing the saturated pads to project from the box, as illustrated in Figs. 6 and 7.

The table 10 is provided with a central preferably rectangular opening 30, surrounded by a downwardly-projecting metal casing 31, the paste-box being adapted to pass through the said opening and within the casing when carried down to its lowest position. Around the opening 30 a depression 32 is produced in the upper surface of the table 10, which depression is shaped in accordance with the contour of the envelope-blank, whereby the several flaps of the said blank are accommodated. At the rear of the depression 32 a vertical guide 33 is secured to the table, and in practice when the blank is brought in contact with the inner face of the said guide it will have assumed a proper position to be folded into shape.

In that portion of the depression 32 located at the sides of the table-opening metal folding-blocks 34 and 35 are respectively hinged, adapted to compress the end flaps of the blanks, and at the rear of the opening a larger folding-block 36 is hinged, purposed to compress the bottom flap, the forward portion of the depression being adapted for the reception of the closing-flap. The pivot 37 of the folding-block 36 projects outward from the ends of the same, and at each extremity of said pivot a mutilated gear 38 is secured, as best shown in Fig. 2. Similar mutilated gears 39 and 40 are also secured to the forward ends of the pintles hinging the respective end blocks 34 and 35. The said mutilated gears are revolved by contacting with perpendicular racks 41, 42, 43, and 44, secured to the lower sliding bar 18, which racks pass upward through suitable apertures produced in the table.

It will be observed that in order to properly paste an envelope it is necessary that the blocks cause the flaps to be folded down one after the other, and to accomplish this the racks 43 and 44 are made one longer than the other, and the said racks are provided with a sufficient number of teeth to cause the blocks as acted upon to describe a half-circle and then drop down with the flaps. The same number of teeth will throw the said blocks outward. The width of the spaces between the teeth of the racks will depend upon the number of teeth upon their gears. The reason for these spaces is obvious, as when the rear or larger block is thrown back upon its bed it can go no farther. The side block-racks being longer work on a similar scale, as the rear one. Thus, for instance, if the racks 43 and 44 had no teeth omitted, some of their teeth must project above the table and could not be pushed down, as their blocks would then be resting upon their beds.

The body of the envelope-blank is supported upon a rectangular compressible box-like platform 45, held to slide within the casing 31, the said platform being provided with two apertures in the top for punches to pass through, and closed at the top, two sides, and bottom only. The bottom of the platform is attached to a cross-bar 46, and the said cross-bar is connected with the standards above the table by spiral or coiled springs 47.

One object of this invention is to perforate the blank at or near two corners when it is receiving its first fold, and to that end a bar 48 is secured horizontally upon the under side of the table, and, passing through and between the bar 46 and the platform 45, the said bar 48 is provided with removable screw-punches 49, which punches are adapted to perforate the blank when threads are used in connection with the envelope, so that when the envelope is closed and the contents are touching either of the two perforated corners the tearing of said contents may be avoided by ripping the letter open at that end where the contents will cause the least impediment. The punch-bar 48 is located parallel with the platform, and the punches extend upward within the same, performing their function when said platform comes in contact with or is resting upon the said bar. The lower sliding bar 18 is connected by a link 50 with any approved form of foot-treadle 50ª, fulcrumed at or near the bottom of the fixed frame. Upon the top of the sliding bar 18 a hinged stop 51 is secured, extending beyond the rear edge of the slot produced in said bar, and at the front edge of said slot an angle-arm 52 is firmly attached, projecting, preferably, to the left. A downwardly-extending vertical post 53 is secured to the back of the table near its center, having an arm 54 located near its center and extending toward the front, upon which arm a latch 55 is fulcrumed, provided with a head 56, and at the bottom of said latch-bar a spring 57 is attached, brought from the lower end of the post 53, by the tension of which spring the latch-bar is held in a vertical position when its head is bearing against or upon the casing 31. The latch-bar is provided with an integral finger 58 near the lower end and upon the edge facing the front, and upon one face of the latch-bar a link 59 is held to slide, the said link being placed at an angle upon the bar and sustained and guided by two or more bolts 60.

In operation, the several parts being in the position shown in Fig. 4 and the paste-box

charged, the foot-lever is depressed, whereupon the frame carrying the paste-box, consisting of the united cross-bars 17 and 18, is lowered. As the frame descends, the angle-arm 52 presses down upon the link of the latch-bar 55 and throws the lower end of the latter toward the front, whereupon the hinged stop 51 is brought in contact with the latch-finger, and the stop folding upward clears the finger and falls back to its bed. While this movement is taking place the paste-box 21 is nearing the platform 45 and the folding-blocks are thrown outward. When the treadle is stopped, the upper face of the hinged stop 51 is brought into engagement with the finger 58, and while said finger is resting upon said hinged stop the angle-arm 52, having been pressed upon the link, releases the head of the latch-bar from the upper face of the bar 46, bearing upon the edge of the same, and places the platform 45 essentially flush with the table, leaving the latch-bar 55 in an inclined position, caused by the tension of the spring 57, and the said angle-arm again slightly raises the link. This position I term the "position of rest," as when the paste-box is brought down the folding-blocks are turned outside away from the top of the platform 45, so that the completed envelope may be removed and a new blank placed in position. The folding-blocks are now in the horizontal position at each side of the table-opening, a blank is laid upon the platform 45, and the treadle again depressed, and as the sliding frame is carried farther downward the paste box is brought in contact with the body of the blank and presses the same into the casing surrounding the table-opening, while at the same time the platform 45 is pushed downward and the blank 61 is partially folded, as shown in Figs. 6 and 7, and the pasters are brought to the vertical position by the tension exerted thereon, transferring a sufficient quantity of fluid through the apertures in the paste-box to the top and bottom flaps of the blank. At the same time the punches are brought in contact with the body of the blank and the said blank is perforated. During the period that the paste-box is operating in conjunction with the platform 45 the former forces the latter downward and the bar 46 moves away from the head of the latch-bar, and said head bears on the casing 31, thereby placing the latch-bar in the vertical position and its head ready to limit the upward movement of the bar 46 when the latter again moves upward, locating the platform 45 in a depressed and proper position to give the folding-blocks free action to fold the flaps of the envelope-blank. Upon the release of the treadle the sliding frame travels upward to its normal position and the angle-arm 52 of the frame ascends and engages with the link upon the latch-bar, elevating the same and removing it from the path of the frame. As the folding-blocks were thrown outward upon the downward movement of the sliding frame, so upon the upward movement of the said frame they are closed down upon the partially-folded and gummed blank, and cause the end and bottom flaps to adhere one to the other.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a machine of the character described, the combination, with a frame having slots and a fixed table having an opening, of a casing surrounding the said opening, a second frame and springs attached to the said frame and to the fixed frame, the said second frame carrying a paste-box and sliding in the slots of the first frame, an angle-arm and a hinged stop secured to the lower bar of the sliding frame, a box-like platform loosely supported in said opening of the table on a yielding bar and operating in conjunction with the said paste-box, a fulcrumed spring latch-bar provided with a shifting link, a head, and finger, the said angle-arm being capable of contact with the said link, and the said head with the cross-bar carrying the box-like platform to limit its upward movement, and the said finger being capable of contact with the said hinged stop, forming a rest, substantially as shown and described.

2. In a machine of the character described, the combination, with a sliding frame having springs attached to its lower cross-bar, of a table having an opening, a fixed frame to which the ends of the said springs are attached, the said sliding frame carrying a slotted box on the under side of its upper cross-bar, and pasters provided with suitable pads pivoted within the box capable of projecting through the said slots and contacting with an envelope-blank, cords leading through guides attached to the arms of the said pasters and to springs on the cross-bar of the fixed frame, an apertured platform, the said box being capable of contact with the envelope-blank upon the apertured platform, and punches secured to the bar located upon the under side of the table, substantially as shown and described.

3. In a machine of the character described, the combination, with an apertured table, a downwardly-extending casing attached to the walls of the aperture, and folding-blocks provided with gears hinged to the upper face of the table at the margin of the aperture, of a spring-controlled sliding frame, mutilated racks attached to the lower portion of said frame and operating in conjunction with the said gears, a guide adjacent to the back of the said margin of the table-aperture, and a paste-box connected with the upper portion of the said spring-controlled frame, adapted to enter the said casing, as and for the purpose specified.

4. In a machine of the character described, the combination, with a table provided with slots and a central aperture, and folding-blocks hinged at the margin of the table-aperture and provided with attached gears, of

a sliding frame, perpendicular racks secured to the lower cross-bar of the sliding frame adapted to project upward through suitable openings in the table and meshing with the gears of the folding-blocks, the said racks being provided with teeth differently arranged, whereby one folding-block after the other is caused to fall, substantially as shown and described.

5. In a machine of the character described, the combination, with a table provided with a central aperture, a guide-casing attached to the walls of the said aperture, a spring-supported bar located beneath the casing, and a box-like platform carried by the bar and adapted to enter the casing, of a spring-pressed locking latch-bar centrally fulcrumed upon one side wall of the machine-frame provided with an integral head adapted for engagement with the said spring-supported bar, a finger projected from the locking-bar, a link attached to the said bar, a frame held to slide in the main frame of the machine provided with an angled trip-arm adapted for engagement with the link of the latch-bar, and a hinged stop secured to the said frame and adapted for engagement with the finger of the latch-bar, substantially as shown and described.

6. In a machine of the character described, the combination of a paste-box provided with angular slots in opposite sides, guides journaled above the slots, pads hinged within the box and adapted to project outward, when elevated, through the angular slots, and cords attached to the pads and passed in contact with the guides, substantially as shown and described, and for the purpose specified.

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