

No. 705,832.

Patented July 29, 1902.

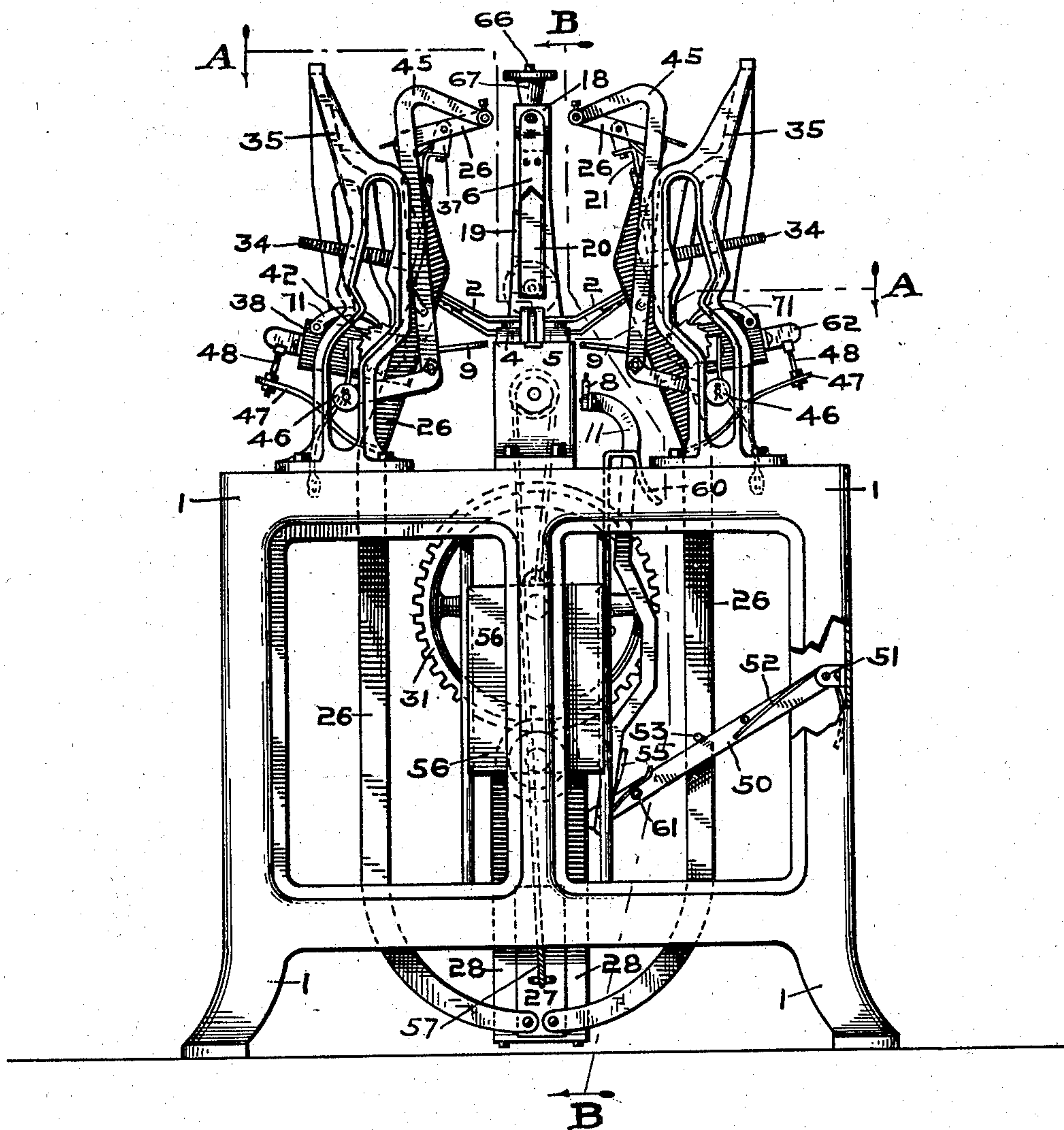
J. J. GAYNOR.
LABELING MACHINE.

(Application filed Dec. 2, 1901.)

(No Model.)

5 Sheets—Sheet 1.

Fig. 1.



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5 Sheets—Sheet 2.

Fig. 2.

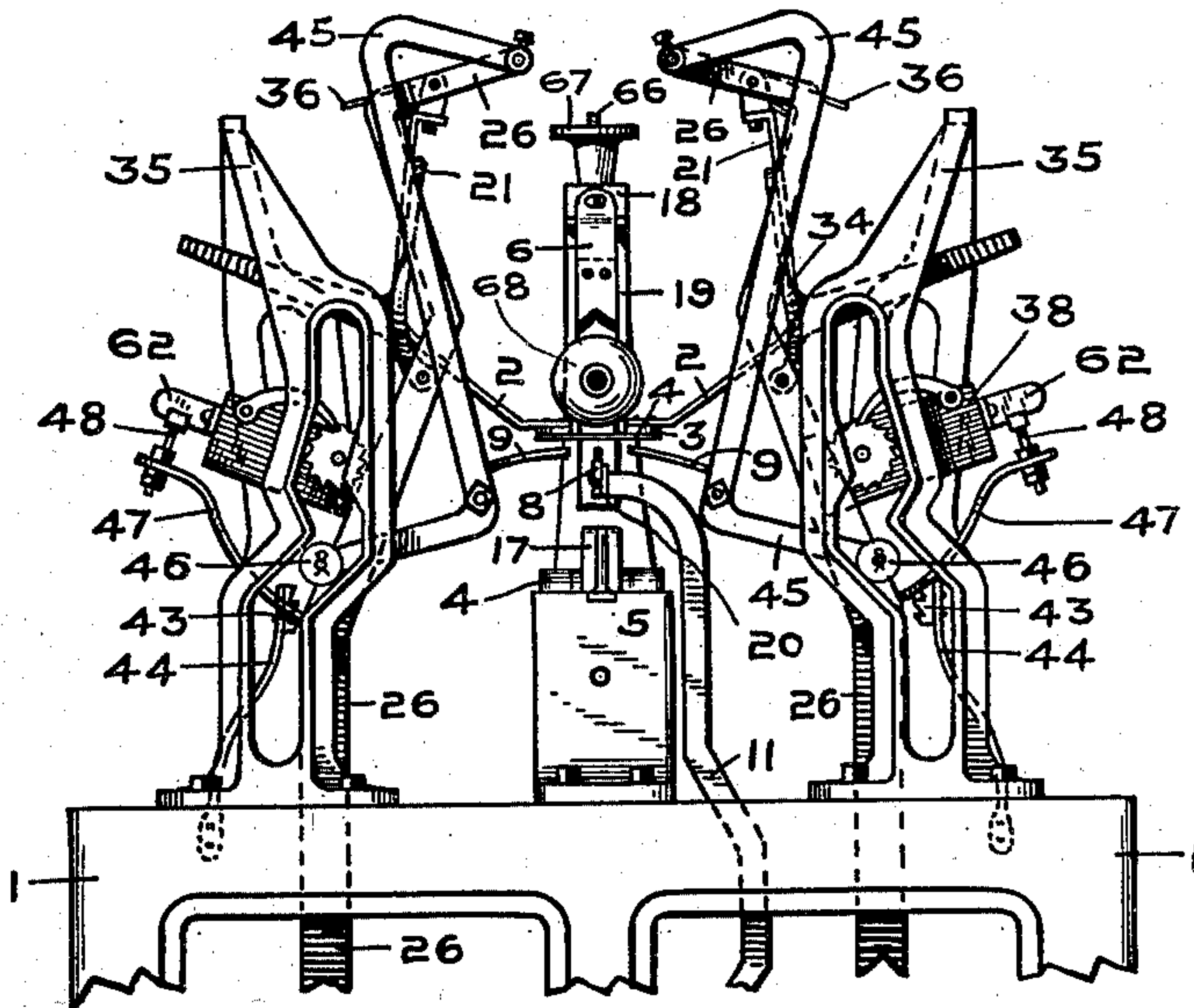
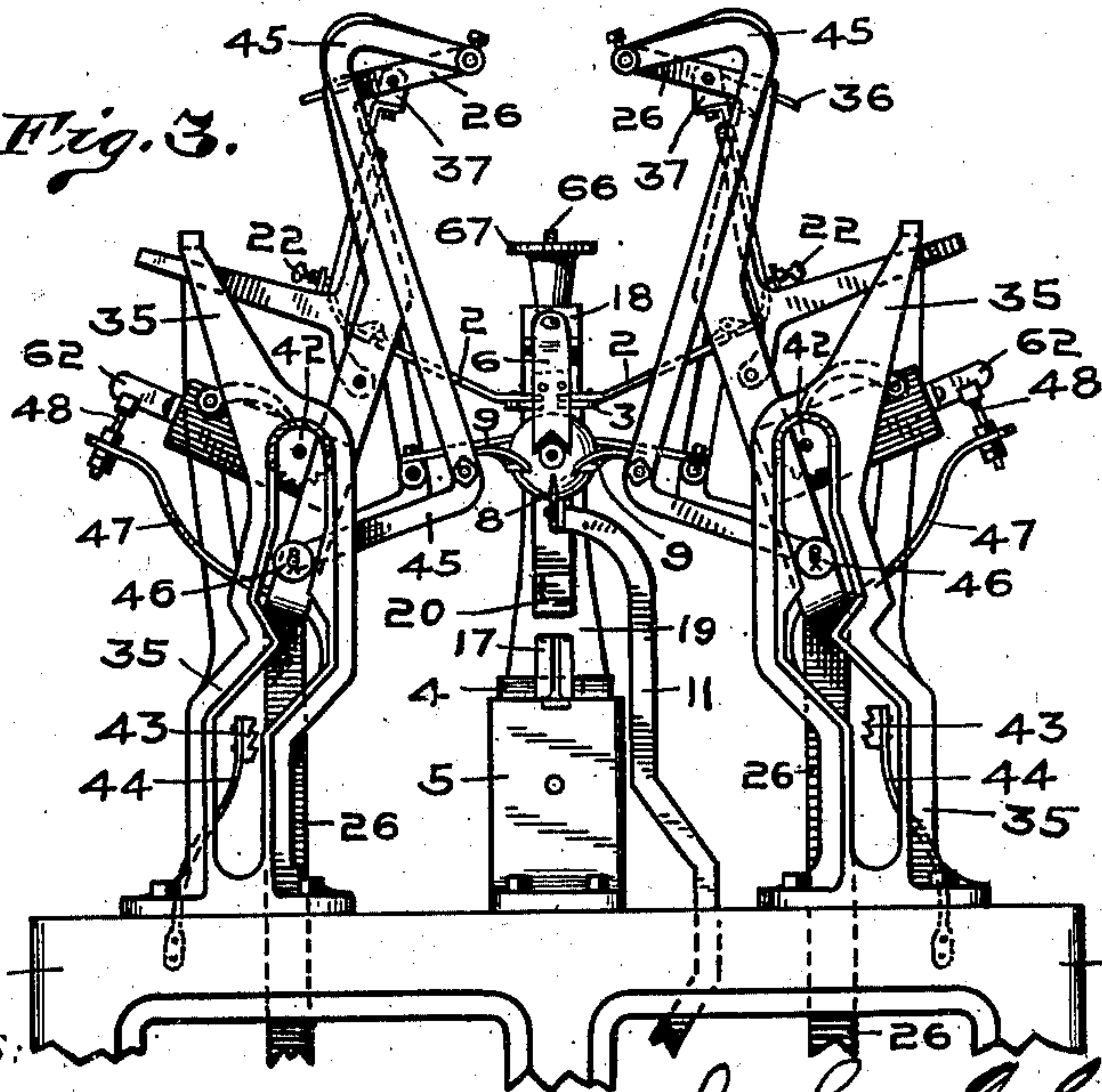


Fig. 3.



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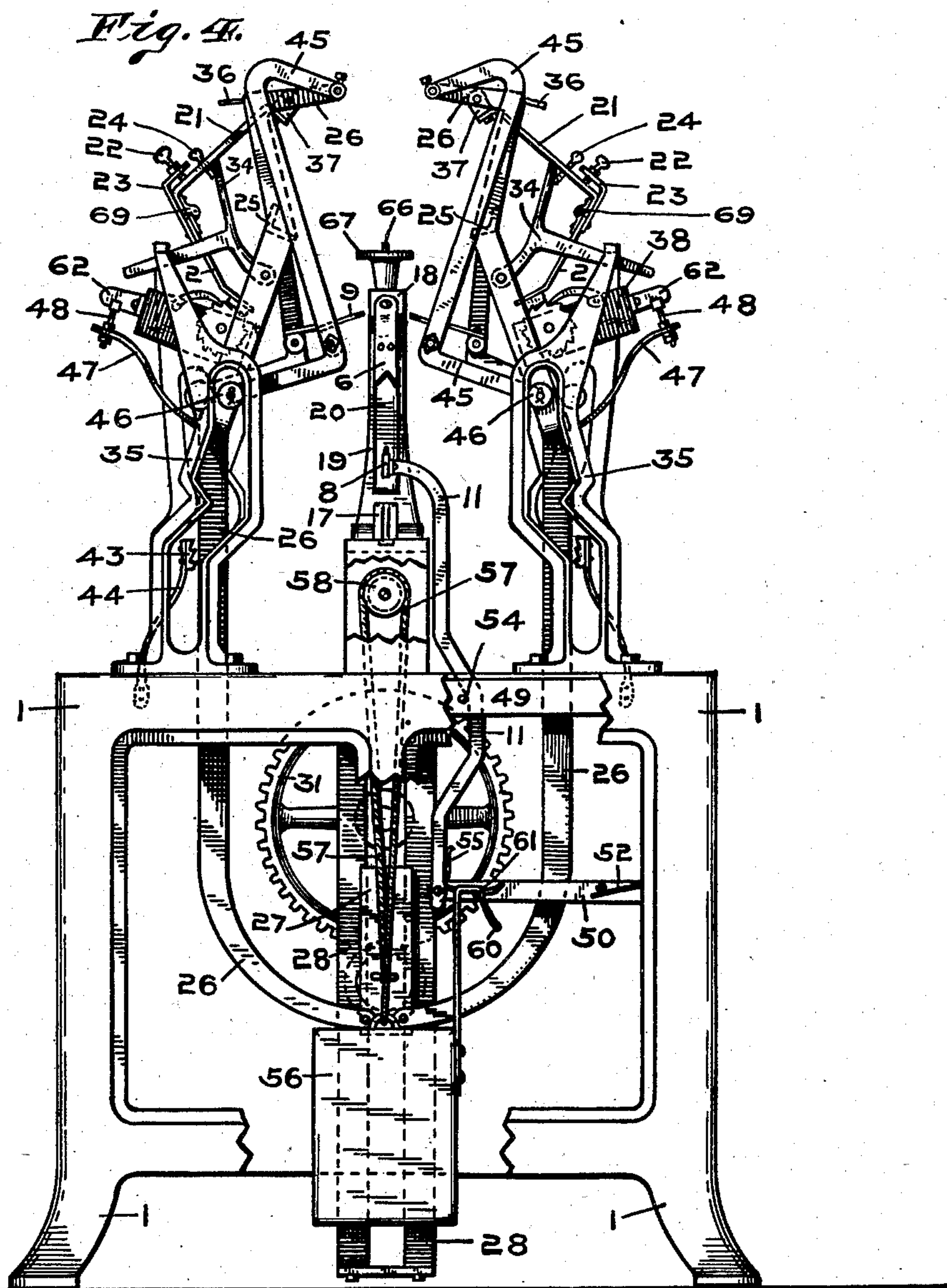
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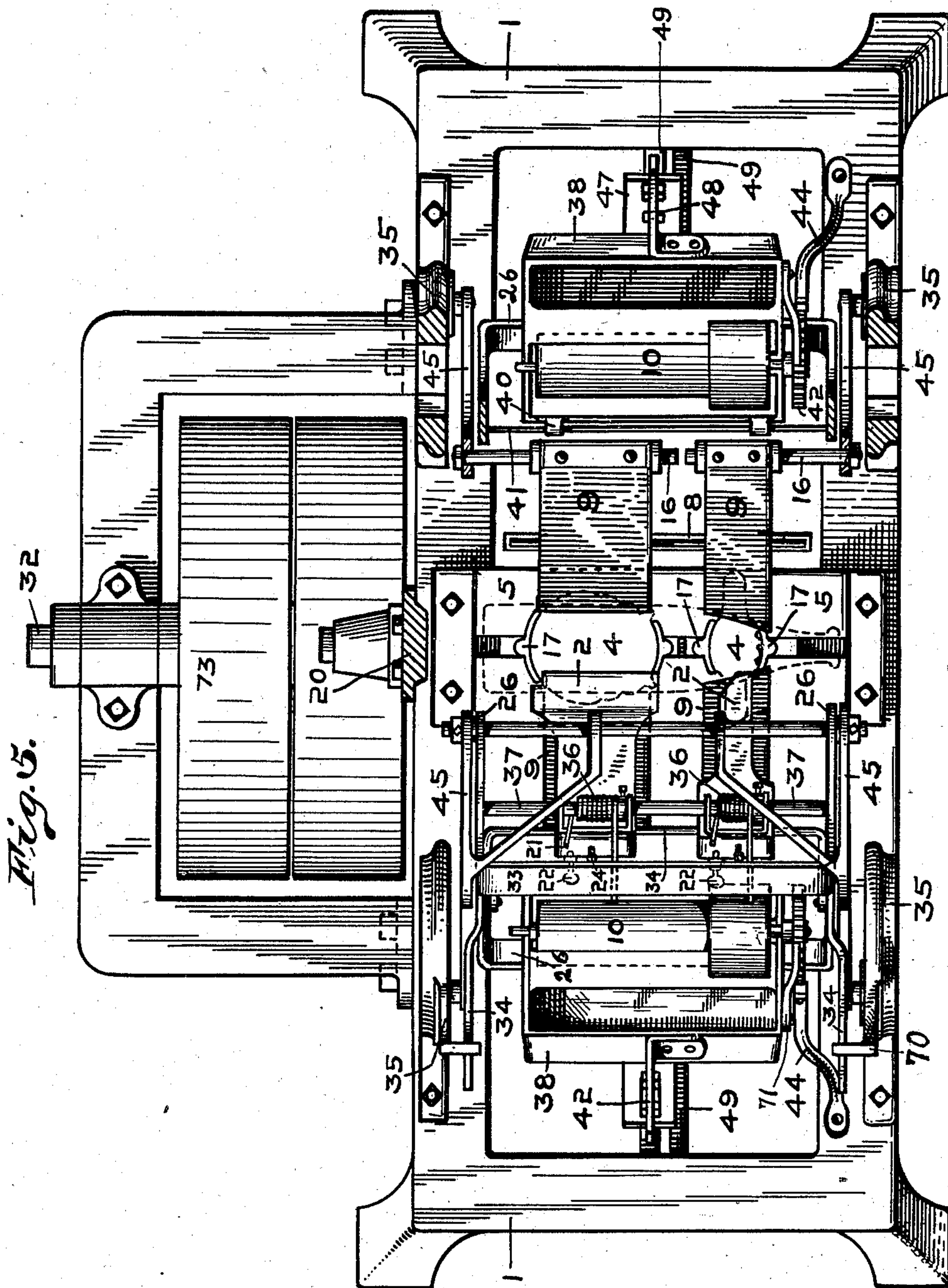
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(No Model.)

5 Sheets—Sheet 4.



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Fig. 6.

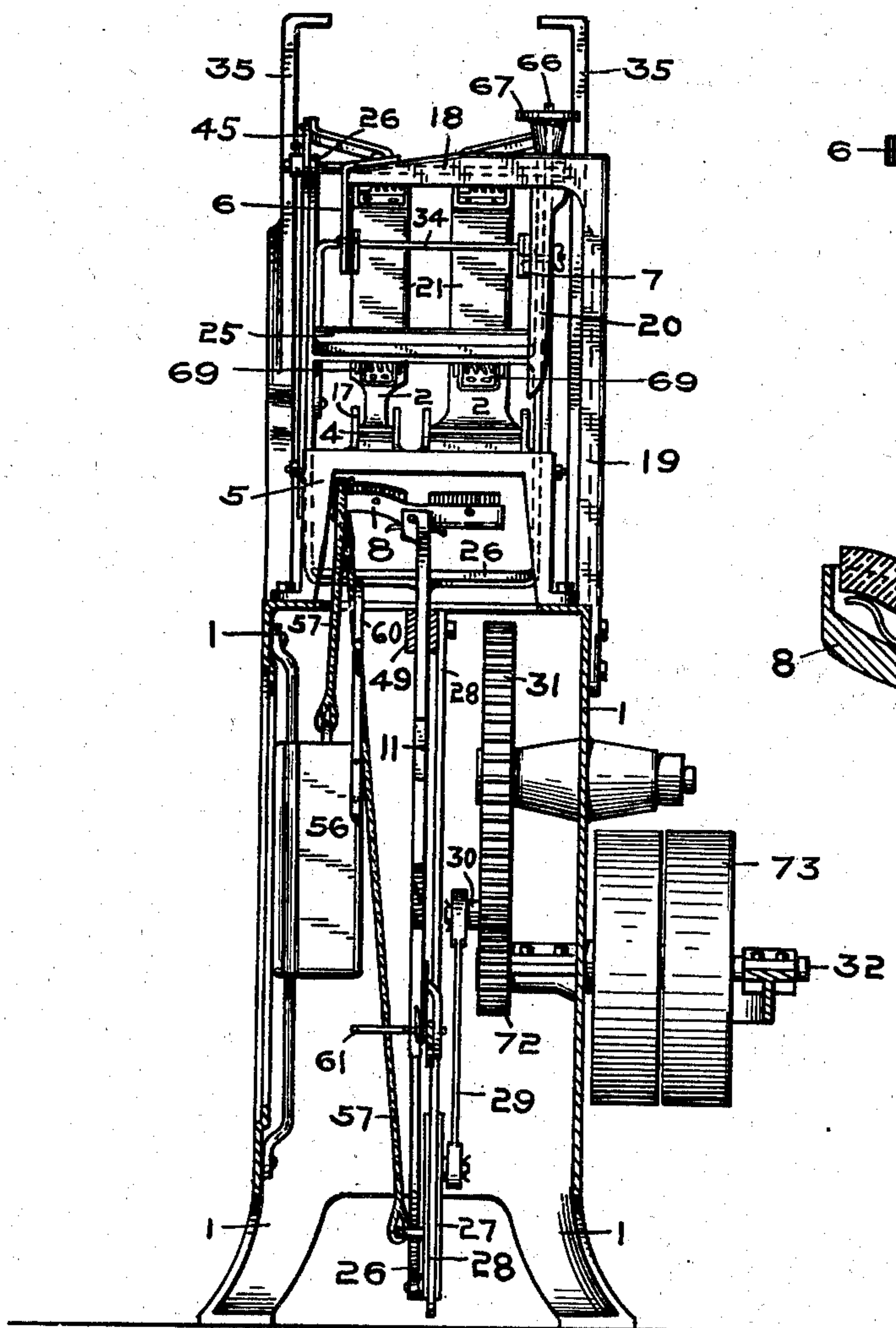


Fig. 7.

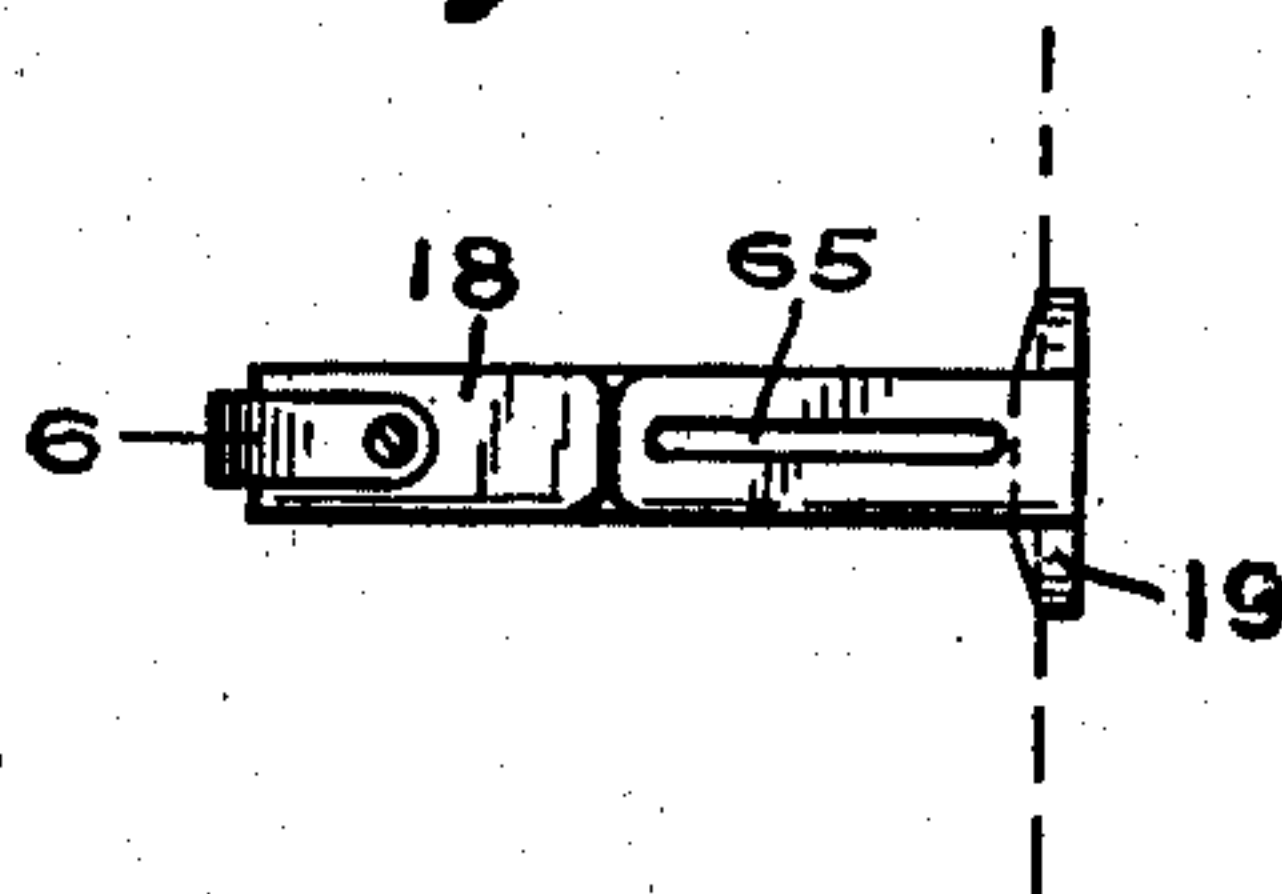


Fig. 8.

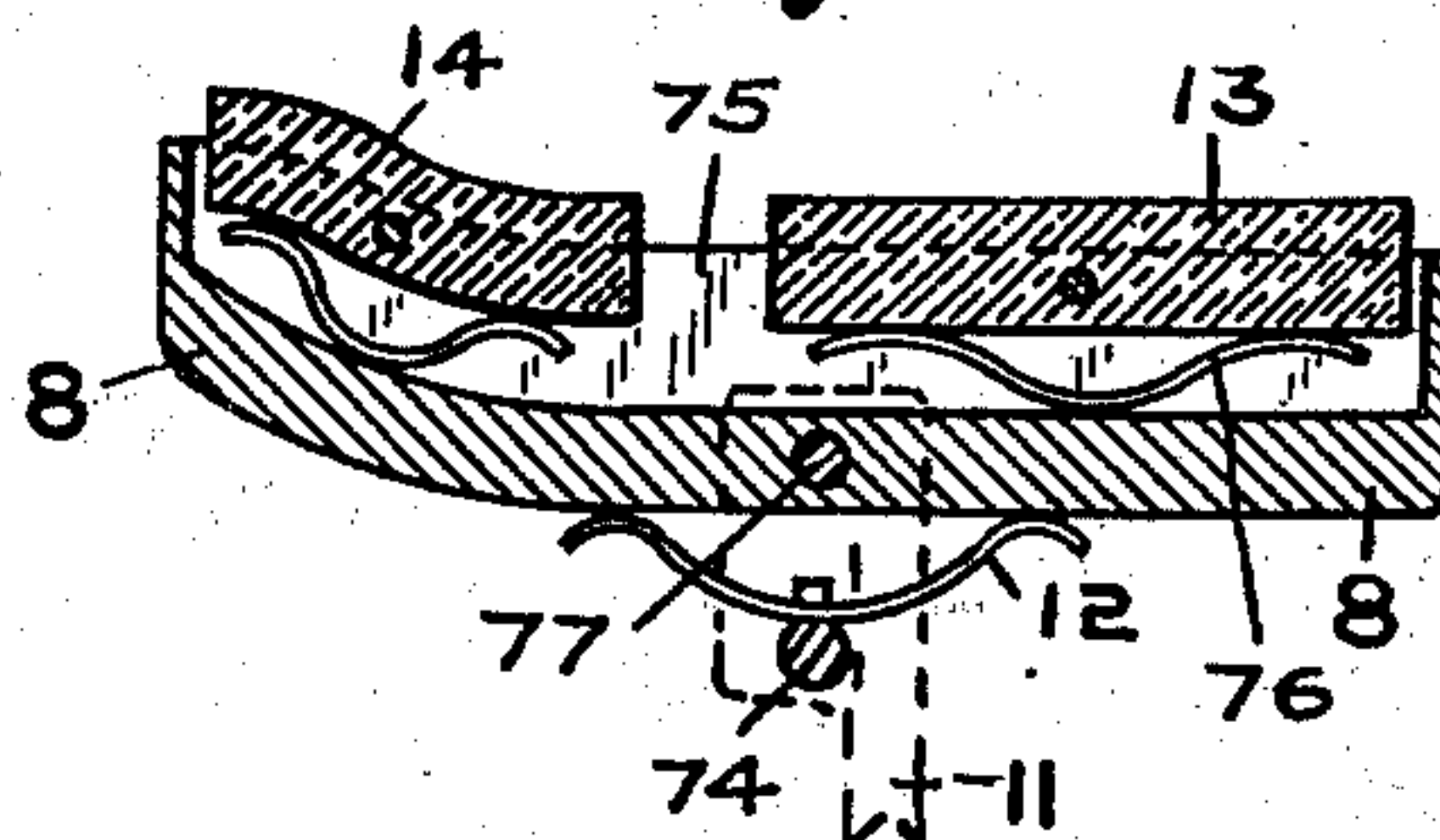
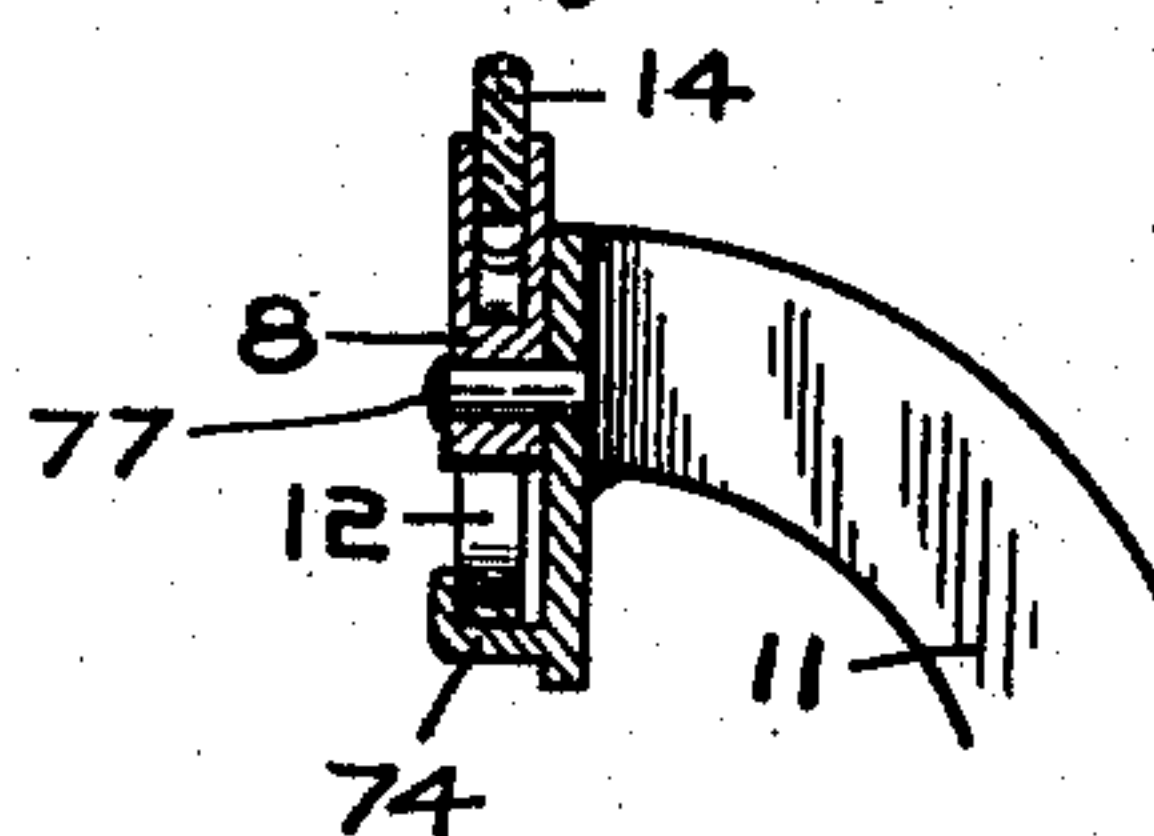


Fig. 9.



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UNITED STATES PATENT OFFICE.

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LABELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 705,832, dated July 29, 1902.

Application filed December 2, 1901. Serial No. 84,427. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. GAYNOR, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Labeling-Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like characters refer to like parts.

10 The object of this invention is to provide a simple and easily-operated machine for affixing labels to bottles, cans, and the like, and especially a plurality of labels simultaneously to the neck and body of the bottle; and the new features thereof consist of improvements upon the machine shown and described in the patent for a "labeling-machine" granted to me on the 10th day of December, 1901.

20 One important feature of novelty in the machine herein shown and described is a label-holder—that is, means for holding the label centrally lengthwise of the bottle against the under side of the bottle while the label-carrying plates are moving away from the label and the label is being affixed to the bottle. Such means is so moved and controlled that it moves from the side into a position between the label-support and the label-carrying plates and bottle above and follows the same upward until the bottle is stopped, when it engages the labels centrally on the under side of the bottle and holds them while being affixed.

35 Other novel features in this improved machine consist in the means for mounting and controlling the movement of the label-carriers and the brushes for affixing the labels, and also in the means for stopping the upward movement of the bottle, and also in the means for mounting and controlling the paste boxes and rolls therein; also, in the use of a weight for depressing the label-holder and to counterbalance the weight of the parts of the label-carrier and affixing means.

45 The various features of invention will more fully appear from the accompanying drawings and the following description and claims.

50 In the drawings, Figure 1 is a front elevation of such a machine before operation. Fig. 2 shows the upper portion of Fig. 1 as the bot-

tle and labels are being elevated. Fig. 3 shows the same as the labels are being secured to the bottle. Fig. 4 shows the same as Fig. 1, with the parts at their limit of upward movement after the labels have been affixed. 55 Fig. 5 is a plan view of the machine with a portion of the top broken away on the line A A of Fig. 1. Fig. 6 is a vertical section of the machine from front to rear on the line B B of Fig. 1. Fig. 7 is a plan view of the 60 arm holding the bottle-stops. Figs. 8 and 9 are details of the label-holder.

Referring now to the details of the construction of the machine herein shown for the purpose of illustrating the nature of my said invention, a suitable rectangular frame 1 is provided, upon which there is centrally mounted a label-support 5, being a metallic stand, as appears in Fig. 6, with the ends turned down to form legs, which are secured to the 70 frame 1 by bolts. As seen in Fig. 5, said label-support is longitudinally slotted to receive the adjustable posts 17, that extend through said slot at their lower ends and are clamped on the under side of the label-support by suitable nuts. In the machine shown there are two pairs of these posts 17, oppositely located, as seen in Fig. 5, and between them on the label-support piles of labels 4 are deposited. The upper ends of the posts 17 are 80 laterally lengthened, as shown in Fig. 5, and made to conform somewhat to the shape of the labels to enable them to hold the labels in place on the label-support. The upper ends of said posts, however, are narrow enough 85 to permit the side edges of the labels to extend beyond said posts on each side in order that the paste-pads on the under edges of the label-carrying plates may come in contact with the side edges of the upper labels in the 90 piles as the piles diminish, which will hereinafter be explained. The posts 17 in each pair may be adjusted toward or away from each other to suit the varying sizes of labels. When the machine is ready to be used, the 95 labels are placed in piles, as shown in Fig. 5, upon the label-holder, one pile of labels being designed for the neck of the bottle and the other pile for the body of the bottle; but the number of piles may be varied. 100

The means for stopping the upward movement of the bottle are mounted on the post 19, secured to the frame 1 and extend up from the back thereof, as appears in Fig. 1. It has a horizontal forwardly-extending arm 18 on its upper end that has a longitudinal slot 65. An arm 20 is adjustably secured in said slot by a threaded bolt 66 and the clamping-screw 67. The arm 20 extends almost to the label-support and is intended to be a rear limit or stop for the bottle 68 when it is first placed in the machine, as shown in Figs. 2 and 3. By reason of the rear stop 20 being adjustable the machine is adapted for applying labels to bottles of varying lengths. When a series of shorter bottles are to be used than those indicated in the drawings, the stop 20 is moved to the left from its position in Fig. 6 and clamped. Two stops 6 and 7 limit the upward movement of the bottle. Both are forked at their lower ends, like 6 in Fig. 1, and the stop 6 is secured to the front end of the arm 18 and extends downward to engage the neck of the bottle, while the stop 7 is secured to the arm 20 and engages the rear end of the bottle or bottom as it moves upward.

The bottle is first placed in the machine when the parts are in the position shown in Fig. 1 and is inserted horizontally, so as to rest upon the pair of label-carrying plates 2. These plates do not meet, and therefore a space is left between them, as explained in my former patent, above referred to. At that time the paste-pads 3, which are secured to the under side of the label-carrying plates 2, rest upon the top labels in the piles, and since the paste-pads had previously been supplied with paste, as will hereinafter be explained, they will when elevated carry the label with them immediately under the bottle until the bottle is stopped by stops 6 and 7, and then the plates 2 will be further moved upward about the bottle, leaving the labels on the under side to be affixed by means that follows said plates, as will be hereinafter explained. As the label-carrying plates 2 move upward with the bottle a pair of brushes 9 for affixing the labels to the under side of the bottle follow, and also the label-holder 8 at the same time moves upward from the position in Fig. 1 and laterally into place under the bottle and labels, being elevated and into contact with the labels when the bottle is stopped, and the label-holder 8 holds said labels stationary against the under side of the bottle, while in the further upward movement of the brushes 9 they press the side edges of said labels against the bottle and the labels adhere to the bottle by reason of the paste left upon their lateral edges by the paste-pads 3 under the label-carriers 2 as the latter move upward away from the labels. The steps in the operation are illustrated in the first four figures. In Fig. 1 the machine is ready for the insertion of the bottle. In Fig. 2 the bottle has been moved up almost to the stops, and there it is shown how the la-

bel follows immediately under the bottle, and the brushes 9 and the label-holder 8 move upward therewith. Fig. 3 shows the label-carriers 2 to have passed upward beyond the bottle and the brushes 9 to be affixing the labels, and the label-holder 8 still holding the label against the under side of the bottle. Fig. 4 shows the bottle removed after the labels have been affixed and the label-holder descending and the brushes 9 have moved up above the position where the bottle was, while the label-carriers have been moved laterally to bring the paste-pads 3 into engagement with the paste-rolls for applying paste to the under side thereof. A little further movement brings the parts shown in Fig. 4 again to the position shown in Fig. 1 ready for another operation.

The means whereby the parts referred to in the foregoing description of the operation are mounted, operated, and controlled will now be explained.

The label-carrier consists of two pairs of plates—one on each side of the bottle—that extend inwardly toward the middle of the machine from each side, as appears in Fig. 5. In each pair there is one plate 2 for the body of the bottle and another plate 2 for the neck of the bottle. The inner ends of said plates are made to conform somewhat to the shape of the portion of the bottle that they respectively engage. The mounting of these label-carrier plates 2 appears best in Fig. 4. They are connected by the spring-hinges 69 to the lower intumed ends of the bars 21, and the bars 21 are at their upper ends secured to the cross-rods 37, (seen best in Figs. 4 and 5,) which extend from front to rear across the machine and are at each end mounted in the bars 26. By the springs 36, that are mounted on the rods 37, one end bearing down upon the top of the bars 21 and the other end of the wire pressing upward against the under side of the bars 33, as appears in Fig. 5, the bars 21 and the label-carriers 2 are forced inward toward the middle of the machine. The inward movement of these parts is limited and adjusted by the screws 24 in the bars 21, that come into contact with the cross-bar or angle-iron 25, that extends between the bars 26 at the front and back of the machine, as appears in Figs. 4 and 6. The label-carrier plates, while being connected with the bars 21 by spring-hinges 69, have secured to them the arms 23, that are turned upward at their outer ends and carry a set-screw that bears against the bars 21, whereby the angle between the label-carrier plates 2 and bars 21 may be adjusted somewhat to vary the height of the paste-pads 3 on said label-carrier plates 2 when in their innermost position, as shown in Fig. 1, and thereby accommodate them somewhat to the height of the piles of labels. The set-screw 24 regulates the approach of the label-carrying plates 2 to each other and is modified to suit varying sizes of labels and bottles, as it

is desirable to have the paste-pads engage and paste only the side edges of the labels and not apply paste to the middle or whole surface of the labels. With this arrangement almost any sort of paste can be used.

The label-carrying plates 2 are elevated and depressed by the vertically-movable bars 26, that extend in a crooked line from the top of the machine to the bottom, passing between the pair of cross-bars 49 in the top of the frame 1, which appear in Figs. 4 and 5, and at their lower ends are pivoted to the cross-head 27. The cross-head 27 vertically reciprocates said bars 26. These bars 26 are single at their lower ends and double at their upper ends—that is, they are forked or Y-shaped, when viewed from the sides of the machine, as appears in Fig. 6, where the divided upper ends or arms appear just above the top of the table 1 and the lower portion lies hidden behind the arm 11, excepting at the lower end, where the bar 26 appears. These vertically-movable bars 26 actuate the label-carrying plates 2, the label-affixing brushes 9, and the paste boxes and rolls, as will now be explained. When said bars 26 are first moved from their unoperated position, which is shown in Fig. 1, they elevate the label-carrying plates to the position shown in Figs. 2 and 3. After said plates have passed the bottle, as appears in Fig. 3, the further elevation of the bars 26 causes one arm of the bell-cranks 34, which are pivoted to said bars 26, to come into engagement with the intumed upper ends of the standards 35, which are mounted on the top of the machine, all of which appears in Figs. 4 and 5. There are four of these standards—two on the front side and two on the rear side of the machine—and at their upper ends they have an intumed finger 70, as appears in the left-hand end of Fig. 5. As the bars 26 continue to move upward the upper arm of the bell-crank 34 engages the inner faces of the bars 21 and pushes the same rearward from the position shown in Fig. 3 to that shown in Fig. 4, and this rearward movement of the bars 21 brings the under side of the label-carrying plates 2 directly in contact with the paste-rolls 10. The subsequent downward movement of the bars 26 causes the bell-cranks 34 to disengage the plates 21, and the springs 36 force the label-carrier plates 2 inward as far as permitted by the cross-bars 25. The upward movement of the bars 26 just explained causes the paste-boxes 38 to move along with the other parts of the mechanism, inasmuch as said boxes are mounted between said bars 26. These boxes 38 have hooks 40 at their inner edges (see Fig. 5) that rest loosely on the rod 41, connecting the upper ends of the bars 26. This permits the ready removal of the paste-boxes. They are supported at the rear end adjustably on the arm 47, through the bolt 48 and extension 62. The parts 62 are secured to the boxes, as seen in Fig. 4,

and the arms 47 are secured upon the horizontal portion of the bars 26, near their dividing-point, as appears in Fig. 3. The bolt 48 has nuts on it for adjusting the relation between the extension 62 and arm 47 to give the box the desired pitch and adjust it so as to bring the paste-rolls into positive contact with the paste-pads 3 on the label-carrier plates 2. The paste-rolls 10 are actuated by the ratchet-wheels 42 coming in contact at each downward movement with a toothed block 43, secured on the upper end of the arm 44, that is fastened to the side of frame 1, as appears in the first three figures. A pawl 71 prevents the backward movement of the ratchet-wheel.

The brushes 9, which affix the labels to the bottom of the bottles, consist likewise of two pairs. (Shown in Fig. 5.) One brush of each pair is for the body of the bottle and the other one for the neck, the inner end of which is made to conform to that portion of the bottle engaged by it. These brushes 9 are in the machine shown made of strips of rubber secured at their outer ends independent of each other to the rods 16, bolted and extending inward from the bars 45, as also appears in Fig. 5. There is one pair of these bars 45 on each side of the middle of the machine, one of each pair being at the front of the machine and the other at the rear. Said bars 45 are very crooked, as appears in the first three figures, and are at their upper ends pivoted to the upper ends of the vertically-movable bars 26, wherefore the bars 45 move up and down with the bars 26. They are moved laterally in order to bring the brushes 9 into the proper positions at various times by the guideways in the standards 35. A roller 46 is mounted on the lower end of each bar 45, that runs in said guideways. The lower portion of each of said guideways is vertical until said brushes rise above the level of the piles of labels. Then the guideways extend inward obliquely, so as to move the brushes inward toward each other over the pile of labels and under the bottle and the labels to be affixed thereto. Then said guideways move outward somewhat to guide the brushes as they are affixing the label, and then inward to increase the pressure of the brushes as they pass over the lateral edges of the labels, and thence they are vertical. These guideways may be in any desired form to effect the proper movement of the brushes. By independently mounting the brushes, as herein shown, and having independent guideways the pair of brushes for the neck and the pair of brushes for the body of the bottle may be differently moved to a different extent. As shown in the drawings, the rear standards 35 and guideways therein are somewhat differently shaped from the front ones and are placed slightly farther apart than the front ones, because they control the brushes for the body of the bottle, which is larger than the neck of the bottle,

and therefore such brushes do not need so much movement as the brushes for the neck of the bottle.

The cross-head 27 reciprocates in the guide-way made by the bars 28 in the middle of the machine, as shown in Figs. 1, 4, and 6. They are at their upper ends secured to the cross-rods 49 and at their lower ends fastened together. The cross-head 27 is actuated by the cross-rod 49, (seen in Fig. 6,) that extends from the wrist-pin 30 on the gear 31, that meshes with the pinion 72 on the shaft 32, that is driven by the pulleys 73.

The label-holder 8 is mounted on the upper end of the bar 11, that extends down through the pair of cross-bars 49 and at its lower end is pivoted to the inner end of the bar 50, which at its outer end is pivoted to the bracket 51, secured to the frame. The bar 11 and label-holder 8 are elevated by the spring 52, as such elevation is permitted by the pin 53 and one of the bars 26 during the upward movement of such bars. The spring 55, coiled about the pivotal connection between the bars 11 and 50 and with one end bearing against the pin 61 in bar 50 and the other end bearing against the bar 11, tends to force the upper end of the bar 11 and the label-holder 8 inward toward the center of the machine as far as the pin 54 in the cross-bars 49 (seen in Fig. 4) will permit. The bar 11 is curved outward in the lower portion of its length in order to permit the label-holder to move inward to a position between the label-support 5 and the stop-blocks 6 and 7. The label-holder is depressed from the position shown in Fig. 4 by the weight 56 and the hook 60, connected therewith, that catches over the pin 61 in the bar 50 during a portion of the downward movement of the weight. The weight is connected by a cable 57, running over the pulley 58, mounted in the label-supporting stand, to the cross-head 27, whereby the weight is elevated by said cross-head when the latter is depressed. The parts just described are in the position shown in Fig. 1 before the machine is operated. The operation of the machine moves the cross-head 27 upward and that permits the weight to descend and the label-holder to ascend from the position shown in Fig. 1 to that shown in Figs. 2 and 3. The further elevation of the cross-head 27 after the parts are in the position shown in Fig. 3 causes a further descension of the weight, and in the latter portion of the movement of the weight downward and the cross-head upward the hook 60 depresses the label-holder enough to permit the removal of the bottle. Then the cross-head begins to move downward and the weight to move upward, and the further depression of the label-holder is effected by the pin 53 in one of the bars 26, as seen in Fig. 1. The preferable form and construction of the label-holder is shown in Figs. 8 and 9. The label-holder 8 is made to conform substantially to the form of the bottle lengthwise. It is pivotally mounted near

its center on the upper end of the bar 11 by the pin 77, so it can rock, and thereby conform to variations in the shapes of bottles. Its rocking movement is limited by the spring 12, mounted on the projection 74 from the upper end of the bar 11. To cause said label-holder to be more accurate in its accommodation to bottles of various sizes and shapes and to hold more positively the labels in its grasp when it moves upward and presses the labels against the bottle, the label-holder 8 is longitudinally and centrally provided with a channel 75, and in said channel two blocks 13 and 14, made of rubber or other cushion-like material, are centrally pivoted to the label-holder 8, so as to rock and extend above the edges thereof to engage the labels. One of these, 14, is curved to conform to the shape of the neck of the bottle and the other, 13, is straight for engaging the body of the bottle. Their rocking movements are limited by the springs 76, placed in the channel 75. Besides temporarily depressing the label-holder the weight 56 has the further function of counterbalancing the weight of the cross-head 27, the bars 26, and the parts mounted on said bars at their upper ends, so that the downward movement of the cross-head and other parts will not be sudden and jerky to injure or destroy the machine during the reversal of the parts just mentioned, but the movement thereof will be steady and smooth.

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

1. In a labeling-machine, oppositely-placed pairs of label-carrying plates that bring the labels into position against the neck and body of the bottle or the like for being affixed, and a label-holder that conforms to the neck and body of the bottle and which enters between said plates and holds the labels centrally lengthwise against the neck and body of the bottle while being affixed.

2. In a labeling-machine, a stationary label-support, means for elevating labels from the support to the underside of the bottle, a label-holder adapted to engage the labels centrally lengthwise of the bottle and hold them while being affixed, and means for moving the label-holder from the side into position between the label-support and label-carrier and then upward for engaging said labels.

3. In a labeling-machine, a label-support, means over the label-support for stopping the upward movement of the bottle, label-carriers for elevating the labels from the support to the under side of the bottle, brushes for affixing the labels that follow said label-carriers in their upward movement, a label-holder for centrally engaging the labels lengthwise of the bottle, and means for moving the same upward between the label-carriers and brushes against the labels on the under side of the bottles.

4. In a labeling-machine, means for holding labels against the bottle or the like while be-

ing affixed made to conform substantially to the shape of the bottle lengthwise and mounted so as to rock and adjust itself to different shapes of bottles.

5 5. In a labeling-machine, means for holding labels against the bottle or the like while being affixed that is made to conform substantially to the shape of the bottle lengthwise, a bar or support to which said label-holder is
10 centrally pivoted so as to rock, and a spring to limit the rocking movement thereof.

6. In a labeling-machine, means for holding labels against the bottle or the like while being affixed consisting of a bar lengthwise of
15 the bottle, a support on which said bar is pivotally mounted so as to rock, and cushions connected with said bar and extending beyond the same and made to conform substantially to the form of the bottle lengthwise.

20 7. In a labeling-machine, means for holding labels against the bottle or the like while being affixed which consists of a channeled bar, and pieces of resilient material pivoted in the channel thereof near their center so they will
25 rock and which are made to conform substantially to the bottle lengthwise.

8. In a labeling-machine, the label-holder apparatus consisting of the bar 8 with the channel 75 therein, the bar 11 to which the
30 bar 8 is centrally pivoted, the spring 12 mounted on the pin 74 in the bar 11 and acting against the bar 8 to limit its rocking movement, the resilient blocks 13 and 14 centrally pivoted in the channel 75 of the bar 8, and the springs
35 76 in said channel and acting against said blocks to limit their rocking movement, substantially as shown and described.

9. In a labeling-machine, the label-holder 8, the bar 11 on which the same is mounted,
40 the bar 50 pivoted at one end of the framework of the machine and at its other end to said bar 11, a spring for elevating said bar 50, a spring tending to force the upper end of the bar 11 and the label-holder inward,
45 and means for limiting the inward movement thereof.

10. In a labeling-machine, oppositely-located pairs of brushes made to conform to the neck and body of the bottle for affixing the
50 labels to the different parts of the bottle or the like, and independent means for mounting and controlling the movement of the oppositely-located brushes.

11. In a labeling-machine, the combination
55 of the brushes 9, the rods 16 to which the same are secured, the bars 45 to which said rods are secured, means for actuating said bars 45,

and the standards 35 with a guideway therein for guiding and controlling the lateral movement of said rods and brushes, substantially 60 as set forth.

12. In a labeling-machine, brushes for affixing labels to the bottle or the like, the rods 16 on which they are mounted, the bars 45 to which said rods are secured, the vertically-
65 movable bars 26 to which said bars 45 are pivoted at their upper ends, the standards 35 provided with the guideways therein and rollers 46 on said bars 45 that run in said guideways, substantially as shown and described. 70

13. In a labeling-machine, a label-carrier plate, the pivotally-mounted bar 21 with its lower end inturned and hinged to said label-carrying plate, arms 23 rigidly connected with the label-carrying plate and extending about
75 the inturned end of the bar 21, and a set-screw 22 in the arm 23 that acts against the bar 21, substantially as set forth.

14. In a labeling-machine, a pair of label-carrying plates, a paste-pad under each plate, 80 a paste-applying apparatus, means for vertically moving the label-carriers, a bell-crank pivoted to said vertically-moving means that when actuated moves the paste-plates into engagement with the paste-applying appa-
85 ratus, a stationary means to engage and cause the actuation of said bell-crank, and a spring for moving the label-carrying plates inward when the bell-crank is released.

15. In a labeling-machine, the paste-box 38, 90 the cross-rod 41, the hooks 40 connected with the paste-box, the extension 62, the support 47, and the adjustable plate 48 combined, substantially as shown and described.

16. In a labeling-machine, a label-support, 95 and means for holding the labels on said support that leaves the side edges of said labels exposed and free to be engaged on their upper edges.

17. In a labeling-machine, means for affix- 100 ing the labels, the bars 26 for supporting said means, the cross-head 27 to which said bars are pivoted, means for reciprocating the cross-head 27, the weight 56, a stationary pulley, and a cable running over said pulley from 105 the cross-head to the weight to support and elevate the latter.

In witness whereof I have hereunto affixed my signature in the presence of the witnesses herein named.

JOHN J. GAYNOR.

Witnesses:

V. H. LOCKWOOD,
FLORENCE E. BRYANT.