

No. 614,772.

Patented Nov. 22, 1898.

A. SIEGEL.
BOTTLE LABELING MACHINE.

(Application filed Apr. 4, 1895.)

(No Model.)

3 Sheets—Sheet 1.

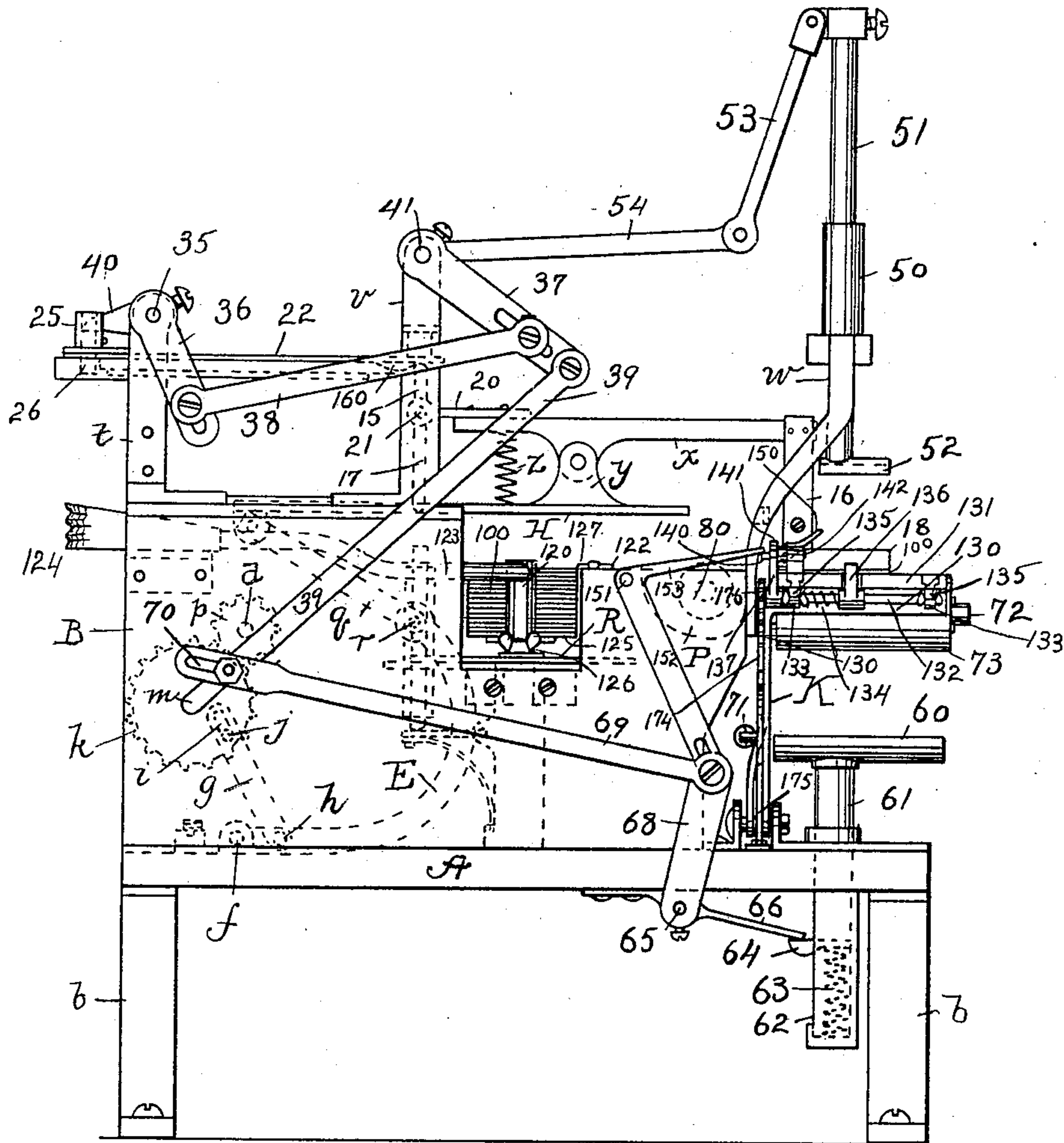


Fig. 1.

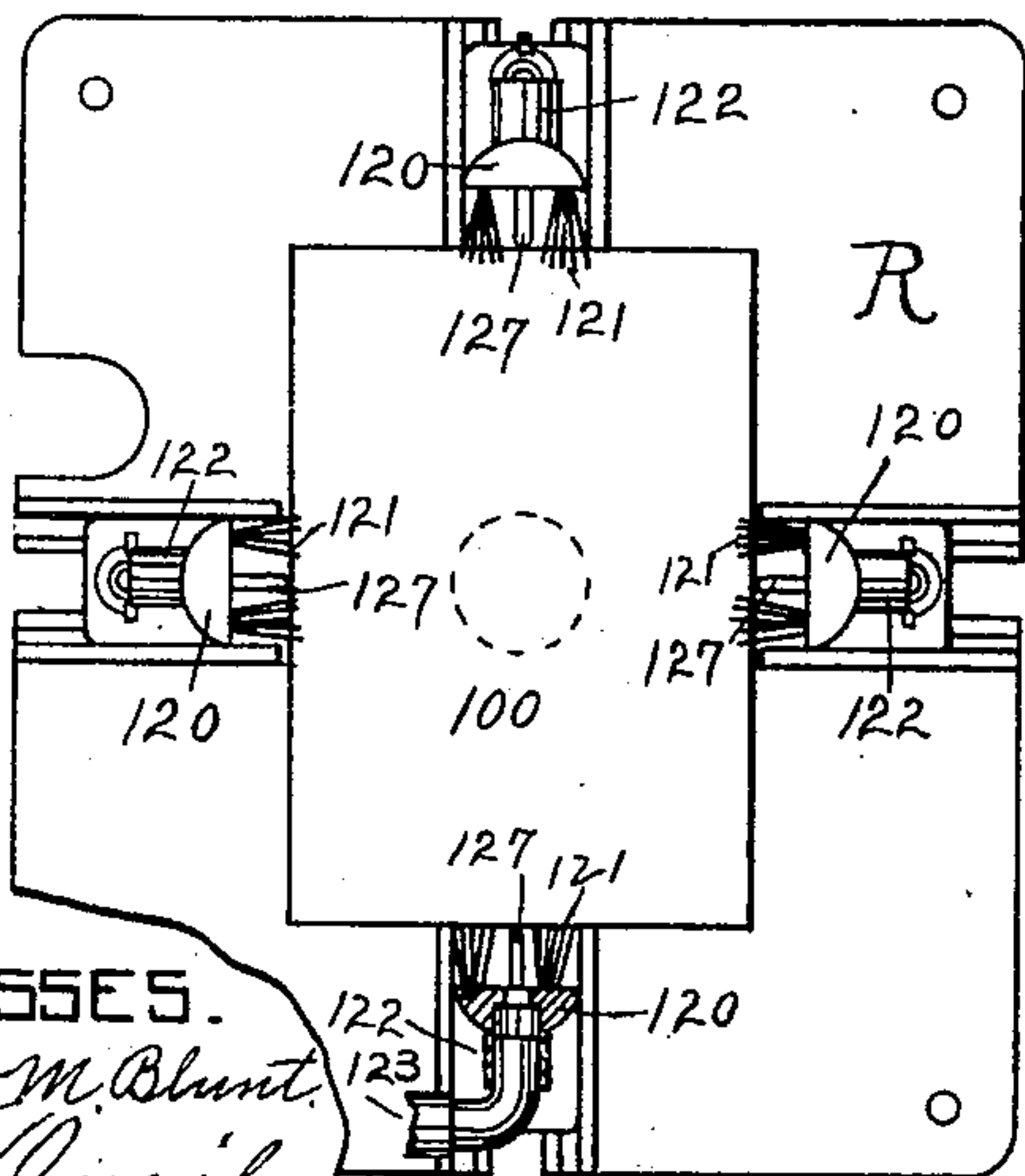


Fig. 5.

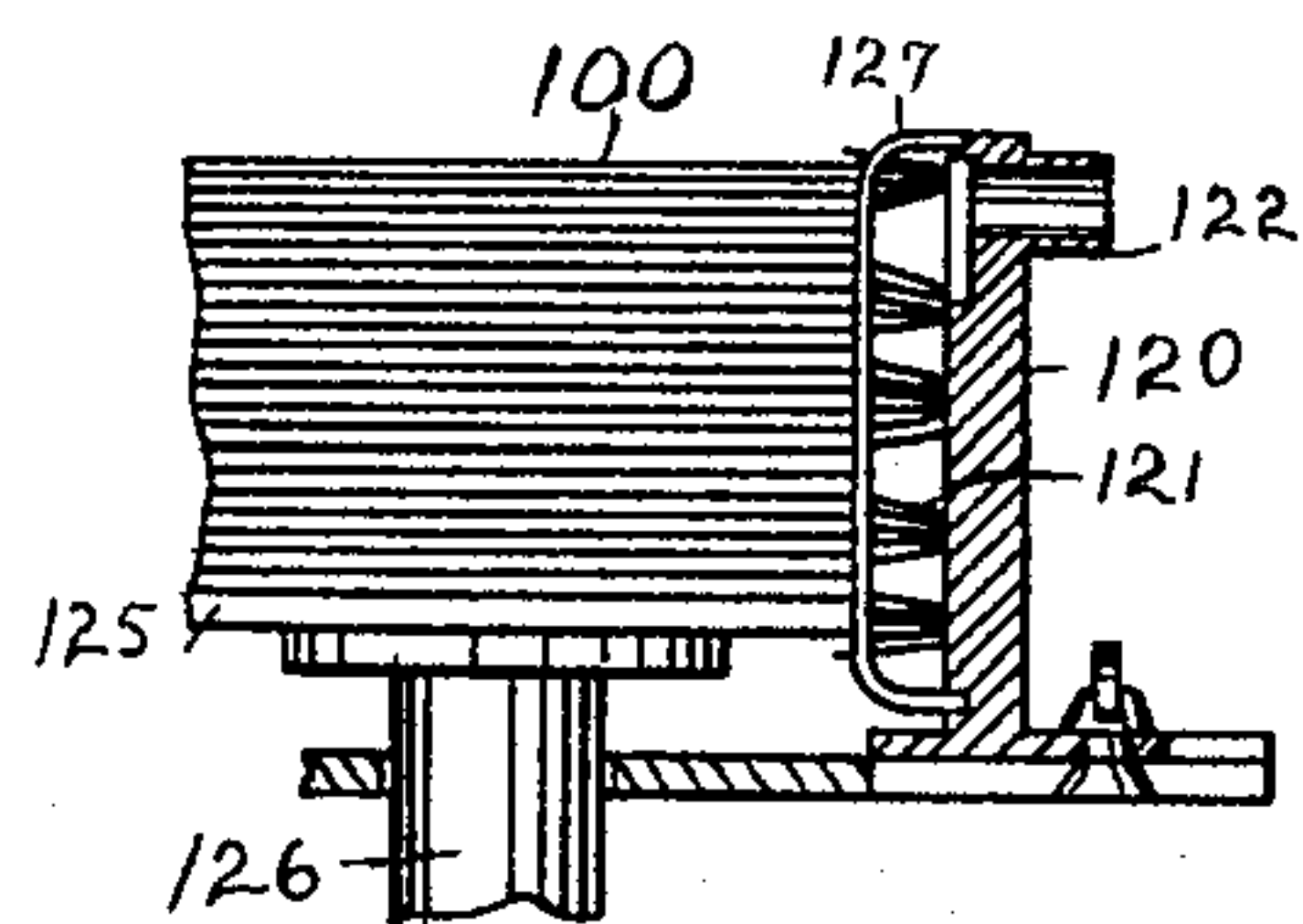


Fig. 6.

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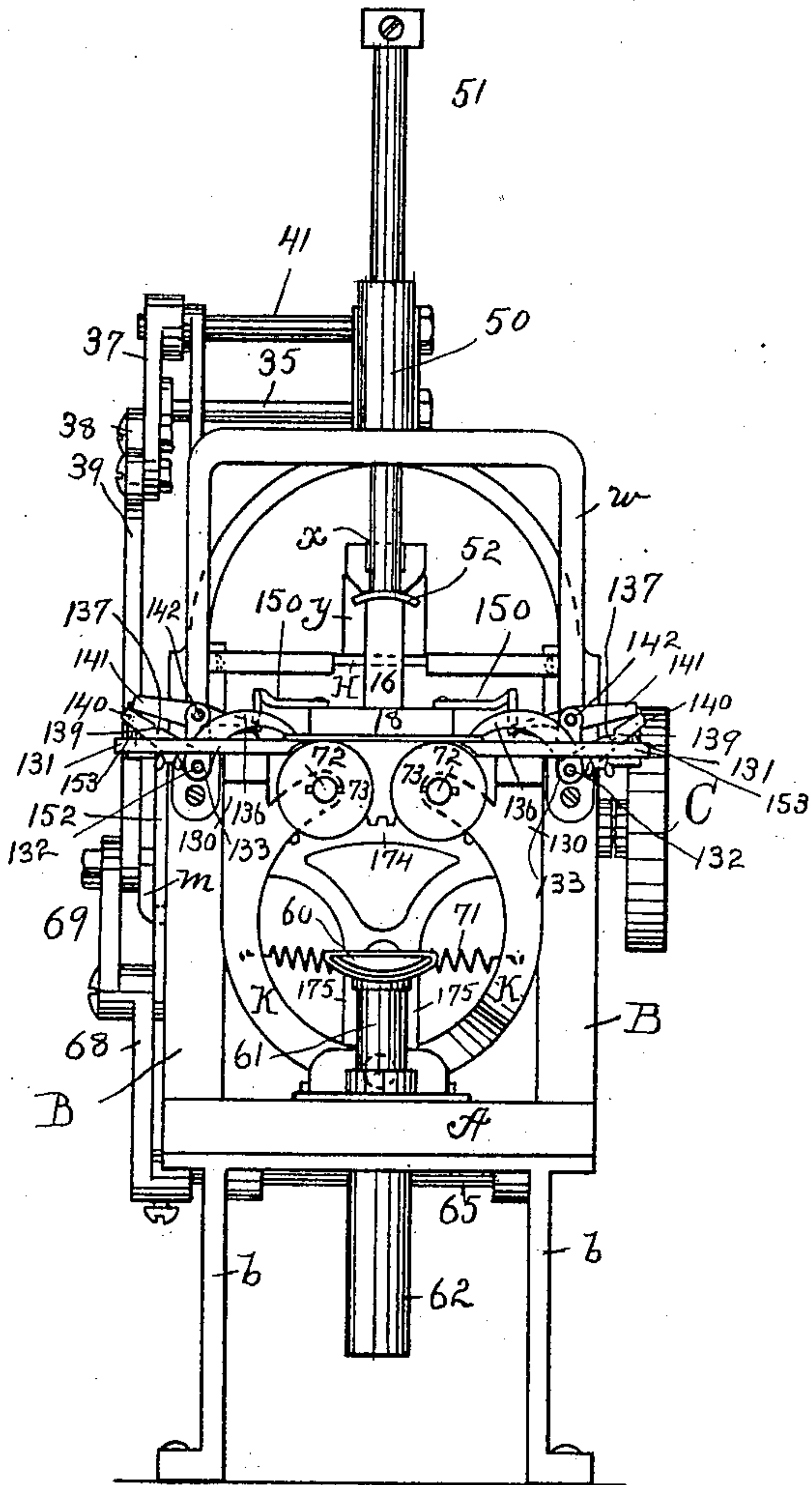
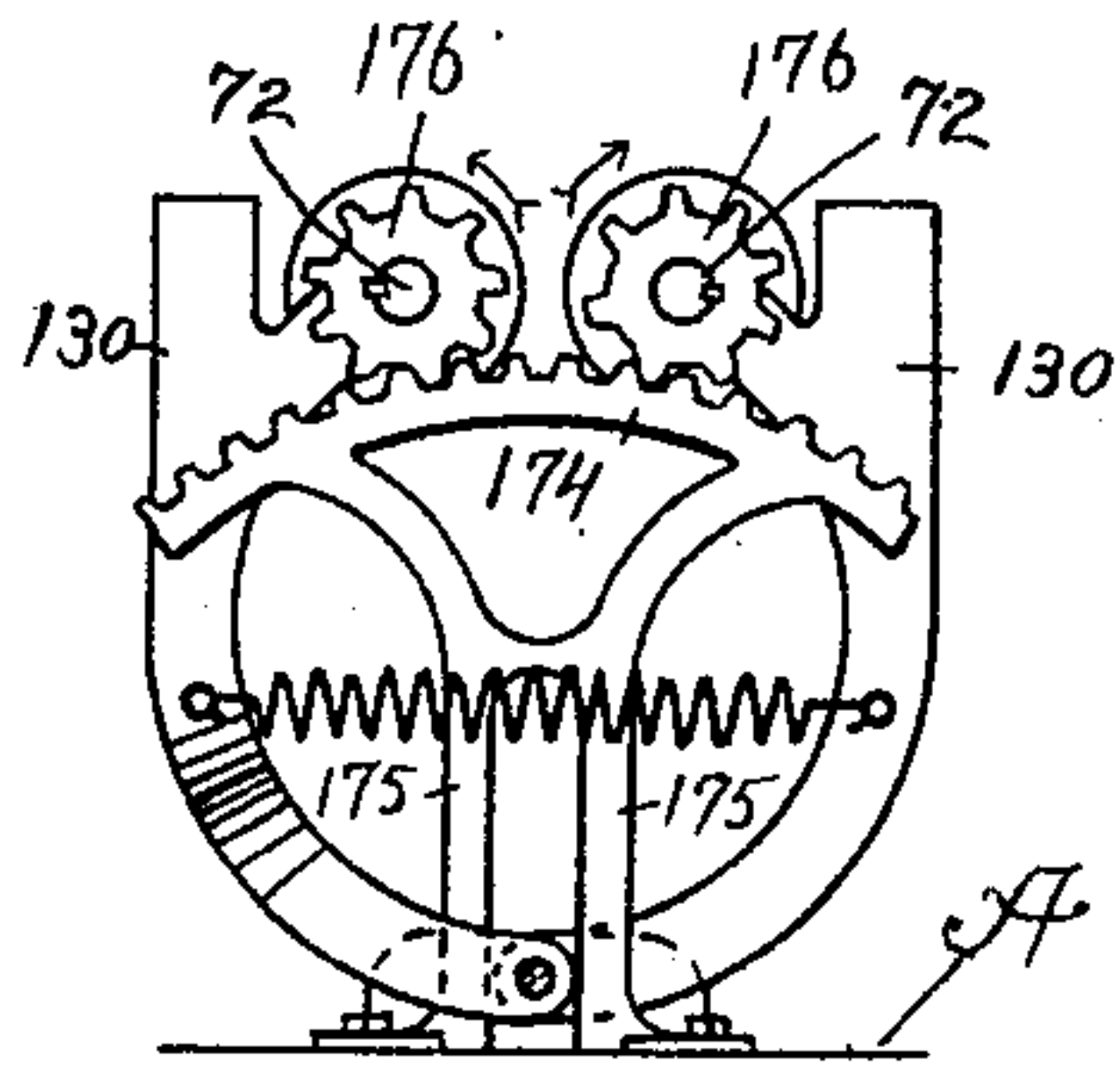


Fig.2.



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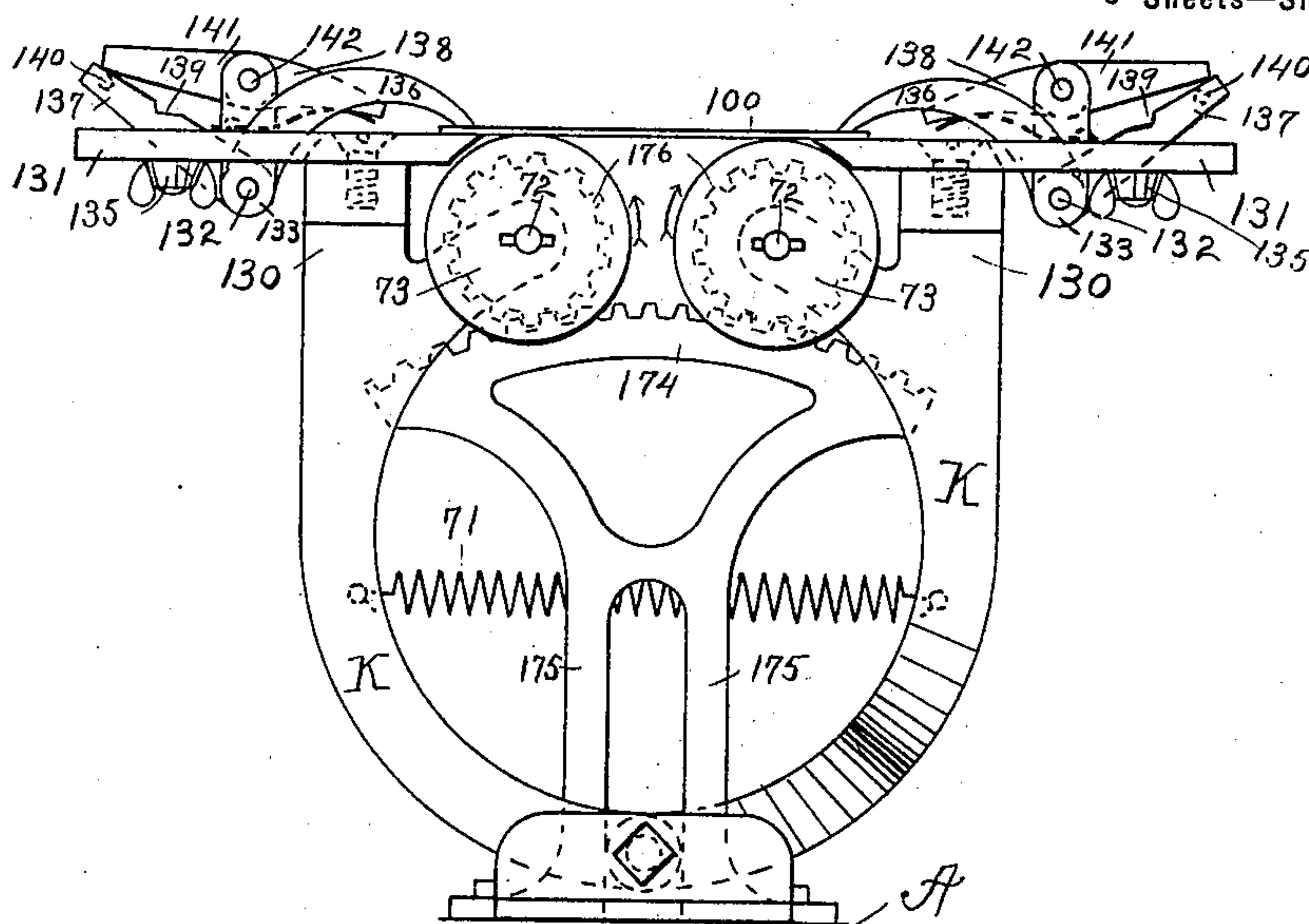


Fig. 3.

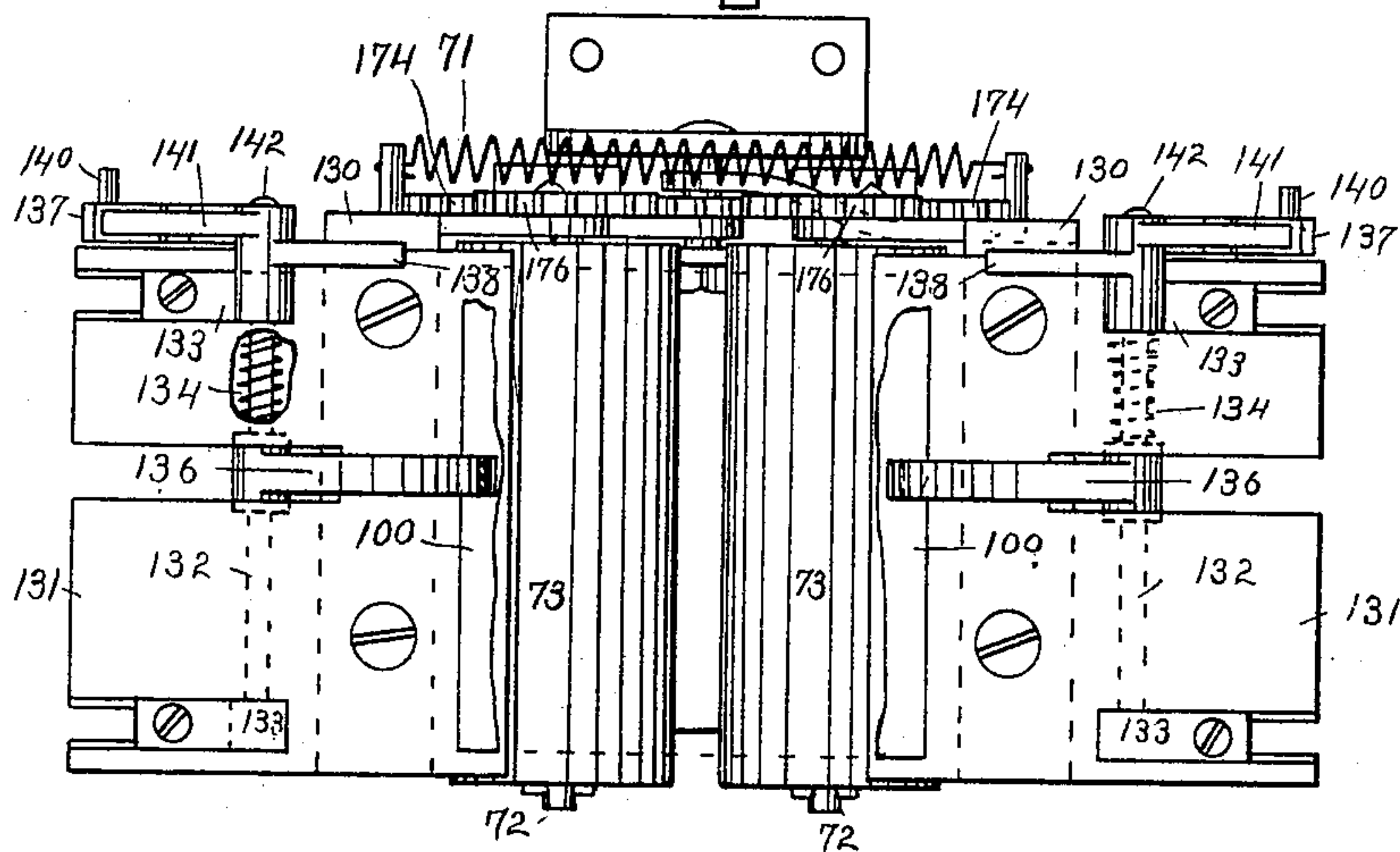


Fig. 4.

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UNITED STATES PATENT OFFICE.

ANDREW SIEGEL, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE SIEGEL LABELING MACHINE COMPANY, OF SAME PLACE.

BOTTLE-LABELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 614,772, dated November 22, 1898.

Application filed April 4, 1895. Serial No. 544,413. (No model.)

To all whom it may concern:

Be it known that I, ANDREW SIEGEL, of Boston, in the county of Suffolk, State of Massachusetts, have invented certain new and useful Improvements in Bottle-Labeling Machines, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my improved bottle-labeling machine; Fig. 2, a front elevation of the same, showing the label in contact with the spreading-rolls; Fig. 3, a front elevation showing the label-clamp and its actuating mechanism; Fig. 4, a top plan view of the same; Fig. 5, a top plan view of the label-box; Fig. 6, a sectional elevation of the same, illustrating details; and Fig. 7, an elevation illustrating mechanism for imparting a rotary movement to the spreading or smoothing rolls.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to a device for applying labels to glass bottles, cans, or other receptacles; and it consists in certain novel features hereinafter fully set forth and claimed, the object being to produce a more effective device whereby the labels can be discharged separately from the label-box and applied smoothly to the bottle.

In the drawings, A represents the bed of the machine, which is supported on legs *b* and is of any suitable form. Running transversely of the bed and journaled in side pieces B there is a rotary shaft *d*, bearing a pulley C, which may be connected with any source of power.

Between the standards B a vertically-curved forked lever E is pivoted to the base at *f*. This lever is actuated by a pitman *g*, pivoted to the lever at *h* and slotted in its opposite end *i*.

A gear *k*, journaled on a stub-shaft *m*, has a crank-pin *j* working in said slot, said gear meshing with a pinion *p* on the drive-shaft *d*.

A horizontally-arranged carriage H is fitted to slide in suitable ways on the standards longitudinally of the machine. This carriage is actuated by a forked lever *q*, pivoted centrally to the carriage and connected at *r* to the arms of the vertically-curved lever E. Three arch-bars *t v w* are mounted vertically on the standards and support the label-carrying mechanism.

On the carriage H a lever *x* is pivoted to swing vertically on a standard *y*. Its rear arm is pushed upward by a spring *z* and at the end of said arm bears a vertical finger 15. (Shown by dotted lines.) The opposite arm of said lever *x* bears a vertical label-carrying arm 16.

A detachable foot or shoe 18 is mounted on the lower end of the arm 16. The finger 15 on the rear arm of the lever *x* is carried by a bar 20, pivoted to swing laterally on said arm, said finger being pivoted at 21 to swing vertically on said bar. On the same pivot 21 there is a pendent pivoted finger 17. (Shown dotted in Fig. 1.)

A cam-plate 22 is supported in horizontal position by the arch-bars *t v* and is arranged longitudinally of the machine. On the rear of said plate there is a socket 25, in which a stud 26 is fitted to slide and is engaged by the finger 15, as hereinafter described.

The cam-tracks are so arranged that when the carriage has advanced, as in Fig. 1, the finger is freed, permitting the spring to act and throw the outer end of the lever *x* downward. On the retreat of the carriage the cams act to operate the lever *x*, so that the shoe 18 will pass over a paste-roll and into a label-box. These parts forming no part of the present invention, it is not deemed essential to more specifically describe them herein.

At the end of the retreat of the carriage the pin 15 engages the pin 26 in the socket 25 and drives it upward. On the arch *t* a shaft 35 is journaled and bears an arm 40, which will engage the pin 26, driving it downward and forcing the cam-finger in like direction, so that said finger may be directed into the proper groove of the cam 22 at a determined point in the passage of the carriage.

There is a crank 36 on the shaft 35, con-

nected by a pitman 38 with a crank 37 on a shaft 41 on the arch *v*. A pitman 39 connects crank 37 with a crank-shaft *m*. Shafts 35 and 41 are rocked by pitman 39.

5 On the arch *w* a plunger 51 slides vertically in a guide 50 and has a laterally-curved shoe 52 on its lower end conforming to the shape of the bottle which it is to engage. The plunger is actuated by a lever 53, pivotally
10 connecting it with an arm 54 on the rock-shaft 41.

A table 60 is mounted on a spindle 61, fitted to slide vertically in the bed A in alinement with the plunger. The spindle is pushed
15 upward by a spring 63 in a socket 62, and a stud 64 on the spindle projects through a slot in the socket. An arm 66 on a shaft 65 will engage stud 64 and draw the spindle down against its spring. A crank 68 on said shaft
20 connects by a pitman 69 with the crank-pin on the shaft *m*, which enters a slot 70 in said pitman.

At the rear of the spindle 61 tongs-levers K are pivoted to swing laterally and are pulled
25 together by a spring 71. Rollers 73 are borne on pins 72 on the upper or free ends of these levers, said rollers projecting into the path of the plunger normally. A paste-box P is disposed directly behind the rollers, and a
30 transversely-arranged daubing-roll 80 is journaled in the box in position to be engaged by the shoe 18 during the retreat of the carriage. Disposed behind the paste-box there is a label-box R. (Shown in detail in Figs. 5 and 6.)

35 This box comprises four standards 120, composed of vertically-arranged brushes, the bristles 121 of which project inwardly toward opposite standards. In the top of each standard there is a nipple 122 opposite the upper
40 row of bristles. To one of these nipples a flexible tube 123 is attached, and on the outer end of said tube at the rear of the machine a bellows is secured. This bellows is in position to be engaged by the finger 17 at a determined point in the rearward passage of the
45 carriage, so that a quick puff of air may be discharged into the label-box adjacent the upper label of the stack when the label-carrying shoe 18 engages said label, thus breaking
50 the frictional adhesion of the labels and preventing more than one label from being removed from the box at a time. The stack of labels 100 rests on a plate 125, secured to a spindle 126, which may be spring supported
55 or fed upward by any suitable means.

Through each set of bristles a vertical wire 127 runs adjacent their outer ends to prevent the labels from projecting too far into said
60 brushes. These brushes serve to retard the labels as they are withdrawn and as an additional precaution against more than one leaving the box at a time. With their use the air apparatus may, if desired, be omitted.

65 On each spreading-roll lever K there is a standard 130, which bears at its upper end a horizontal bed 131 in the plane of the upper faces of said rolls. A shaft 132, Fig. 4, is

70 journaled in bearing 133, fitted to slide in said bed and held by set-screws 135. This shaft is tensioned by a torsion-spring 134. On this bed and actuated by the shaft and conjunctive mechanism the label-clamping device is carried. This comprises a dog 136, fast on the shaft centrally and normally held in engagement with the bed by the spring 134. A
75 lever 137 (see Fig. 3) is also fast on the shaft and is notched at 139. A locking-lever 141 is fast on a stub-shaft 142, with its free end adapted to engage in the notch 139. An arm 138 is fast on the stub-shaft. The lever 137
80 has a laterally-projecting pin 140.

On the label-shoe 18 there is an angular spring-cam 150, which when the carriage is sufficiently advanced will engage the arm 138, rocking the shaft 142 and releasing the lever
85 137 from the locking-lever 141, permitting the spring 134 to act and throw the dog 136 into engagement with the bed 131 and clamp a label 100 to it, as shown.

On a rock-shaft 151, Fig. 1, which is actuated by a pitman 152, connecting with the
90 pitman 69, there is a fast arm 153, projecting into position to engage the pin 140 on the locking-lever 137. At a determined point in the retreat of the carriage and simultaneously
95 with the contact of the bottle with the label this arm 153 will be driven into engagement with the pin 140, depressing the lever 137, which permits the spring 134 to act, elevating the dog 136 and freeing the label. 100

On the forward end of the cam-track 22 there is a cam-boss 160 in position to engage the finger 15 immediately the carriage starts to retreat, elevating the shoe 18 out of contact with the label which has previously been
105 clamped by the dogs, so that it will not drag and tear said label.

Power being applied, the parts being in the position shown in Fig. 1, a label is held to the beds 131 by the dogs, as in Fig. 2. The
110 carriage starts back and the shoe 18 is elevated out of the path of the plunger. The operator now inserts a bottle over the label thus held by the dogs, as described. The plunger descending engages the bottle and drives it
115 down onto the label. As the bottle continues to descend it spreads the spring-tensioned rollers 73, which are caused to rotate in the direction of the arrows in Fig. 3 or, in other words, in opposition to the path of movement
120 of the bottle, smoothing the label onto the bottle. The bottle is withdrawn after passing the rollers from between the levers K. As the carriage recedes the shoe 18 contacts with the paste-roll, which coats its face with
125 paste. The lever *x*, operated by the cams, projects the shoe into the label-box. Simultaneously the connecting mechanism elevates the plunger, and the arm 40, engaging the finger 15, operates the lever *x* and elevates
130 the label-shoe, to which a label adheres above the label-box. Immediately this movement begins the finger 17 is driven into engagement with the bellows 124, discharging a puff of air

into the label-box, so that the labels will not adhere together and more than one be drawn from the box at a time. As before described, the bristles afford sufficient friction on the edges of the labels to aid materially in accomplishing this result. This mechanism overcomes a serious objection incident to the use of stacked labels in machines of this class.

By means of the label-clamping device, which enables the carrier to deliver the label and retreat before the bottle engages said label, the operation of the machine is much quickened. Moreover, a tension is applied to the label, which aids the smoothing-rolls and prevents wrinkling. These rolls would naturally rotate inwardly or contrary to the direction of the arrows in Fig. 3. In order to stretch the label more firmly and smoothly onto the bottle, I deem it preferable to rotate these rolls in the opposite direction, that the label may be stretched outward more firmly as it is being applied.

In Fig. 7 I show a device whereby this may be effected. On the bed A, I mount two standards 175, which support an arc-shaped or segmental rack 174 on their upper ends. On the journals on the rolls 73 I mount gears 176, which mesh with this rack, so that when the bottle is forced between the rolls, spreading them outward, the gears act to rotate them outward or in the direction of the arrows in said figure. This means I find more effective, as when the rolls rotate inward they tend to drag the label in like direction and wrinkle it.

Having thus explained my invention, what I claim is—

1. In a bottle-labeling machine, a label-box adapted to contain a pile of labels, a carriage for intermittently removing one of the labels, an air-blast nozzle arranged near the top of the pile of labels, and means operated by said carriage for intermittently discharging a blast of air through said nozzle against the edges of the labels.

2. In a bottle-labeling machine, in combination, a plunger adapted to engage the bottle, two rolls against which the bottle is adapted to be forced by the plunger, devices for intermittently holding the label in position relatively to the rolls, and means for operating said devices, and said plunger.

3. In a bottle-labeling machine, in combination, a plunger adapted to engage the bottle, two rolls against which the bottle is adapted to be forced by the plunger, supports for the rolls, devices mounted on said supports for holding each label in position relatively to the rolls, means for intermittently operating said devices, and mechanism for operating the plunger.

4. In a bottle-labeling machine, in combination, a plunger adapted to engage the bottle, two rolls against which the bottle is adapted to be forced by the plunger, movable supports for the rolls, devices for automatically

clamping and holding each label between the plunger and the rolls, and means for operating said devices.

5. In a bottle-labeling machine, in combination, a plunger adapted to engage the bottle, two rolls against which the bottle is adapted to be forced by the plunger, a carrier for placing each label between the plunger and the rolls, devices for automatically receiving each label from the carrier and clamping the edges thereof prior to its being engaged by the plunger, and means for operating said devices.

6. In a bottle-labeling machine, in combination, two rolls separable from each other by the bottle, and mechanism for positively rotating said rolls to spread the label over the bottle.

7. In a bottle-labeling machine in combination, two rolls separable from each other by the bottle, and mechanism for positively rotating said rolls oppositely to the path of movement of the bottle to spread the ends of the label outwardly.

8. In a bottle-labeling machine, in combination, two spring-tensioned rolls separable from each other by the bottle, and mechanism independent of the bottle being labeled for rotating said rolls to spread the ends of the label outward over the bottle.

9. In a bottle-labeling machine, in combination, two separable pivoted supports held together by spring pressure, rolls mounted on said supports and mechanism for positively rotating said rolls oppositely to the path of movement of the bottle to spread the ends of the label.

10. In a bottle-labeling machine, in combination, laterally-separable label-smoothing rolls, a segment-rack, and gears on the rolls and meshing with the said rack.

11. In a bottle-labeling machine, in combination, spring-tensioned separable label-smoothing rolls and gears for rotating said rolls oppositely and in a direction opposite to the path of movement of the bottle, when the rolls are engaged by the bottle, for the purpose of spreading the ends of the label over the bottle.

12. In a bottle-labeling machine, in combination a plunger for the bottle, a label-carrier and actuating mechanism therefor, two yielding smoothing devices between which the bottle is forced by the plunger, and automatic devices for temporarily holding the label in position to be engaged by the bottle.

13. In a bottle-labeling machine, in combination, two yielding label-smoothing devices, spring-tensioned dogs carried by the supports of said devices for clamping the labels, and mechanism for automatically operating said dogs to release the labels at predetermined times in the operation of the machine.

14. In a bottle-labeling machine, in combination, two separable label-smoothing rolls; spring-tensioned dogs carried by the supports of said rolls; locking mechanism for said dogs,

and devices for automatically releasing said dogs and subsequently locking them at predetermined points in the movements of the machine.

- 5 15. In a bottle-labeling machine, in combination, yielding label-smoothing devices, bed-plates carried by the supports of said devices, and automatic label-clamping mechanism mounted on said bed-plates and adjustable
10 with relation to the said devices.

16. In a bottle-labeling machine, in combination, a reciprocating label-carrier, spring-tensioned smoothing-rolls, dogs carried by the roll-supports, a notched lever 137, a latch-arm 141, for engaging the said lever, and devices 15 for automatically reciprocating the lever.

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Witnesses:

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