No. 701,229. Patented May 27, 1902.

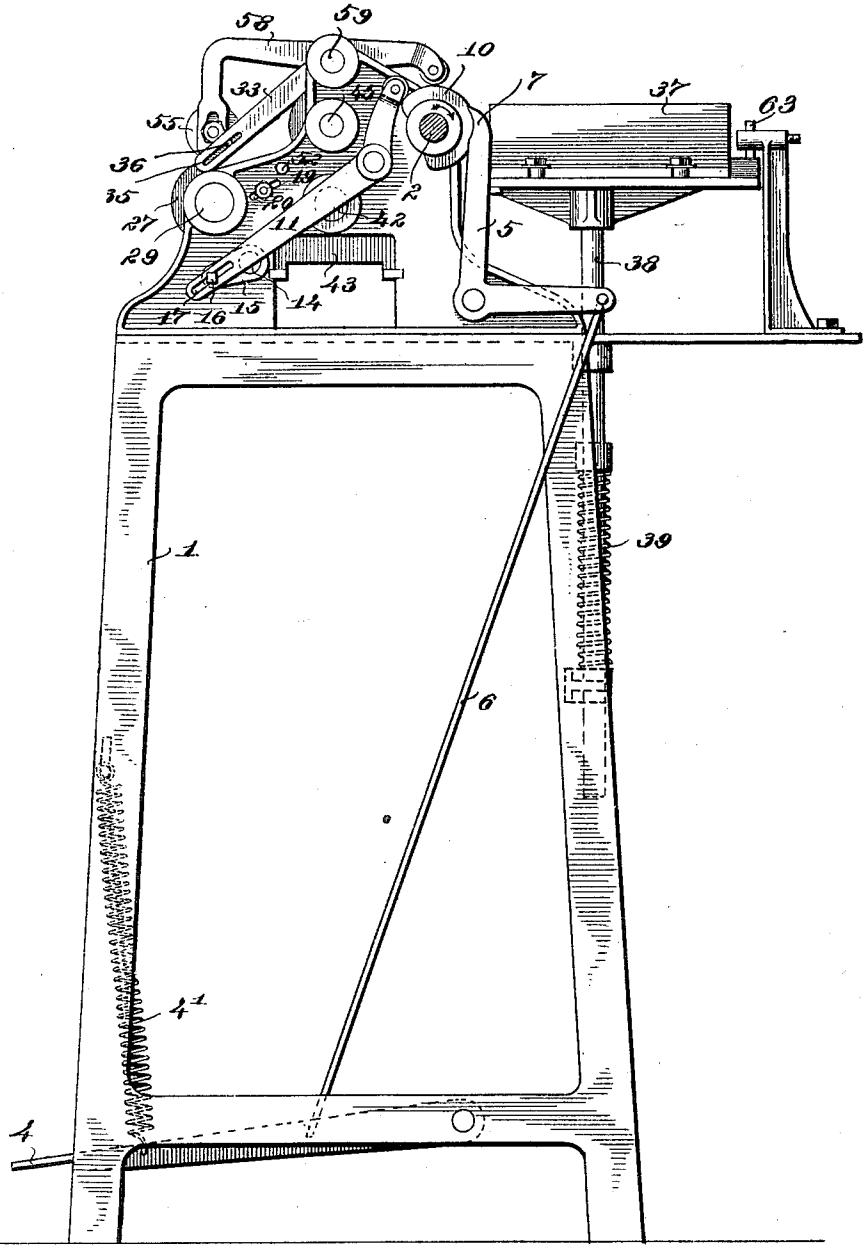
F. C. H. STRASBURGER.

LABELING MACHINE.

(Application filed Jan. 31, 1901.)

(No Model.) 5 Sheets—Sheet 1.

Fig. 1.



Witnesses:

G. A. Nauberschmidt,

F. H. Glendenning.

Inventor:

Frank C. H. Strasburger

By Wm. O. Belt. Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 701,229. Patented May 27, 1902.

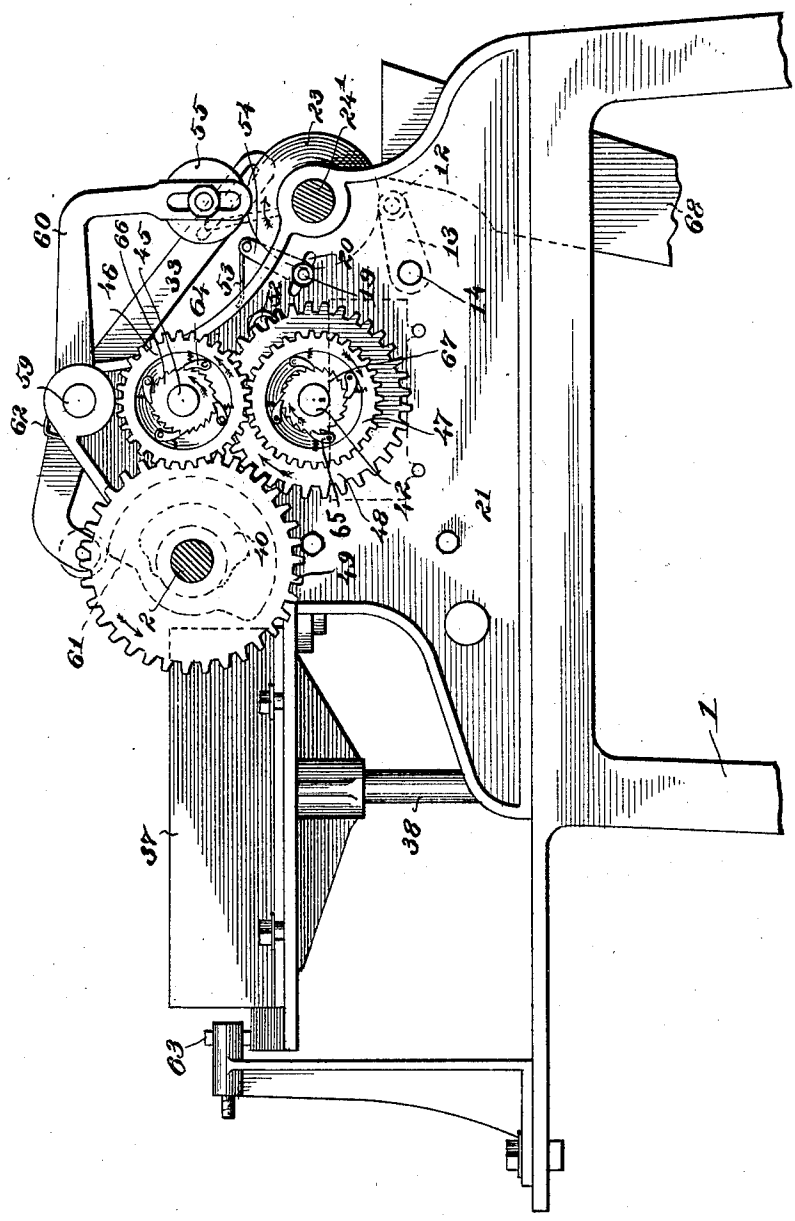
F. C. H. STRASBURGER.

LABELING MACHINE.

(Application filed Jan. 31, 1901.)

(No Model.) 5 Sheets—Sheet 2.

Fig. 2.



Witnesses:
G. A. Pauberschmidt.
J. H. Glendenning.

Inventor:
Frank C. H. Strasburger.
By Wm. O. Belt
Atty.

No. 701,229. Patented May 27, 1902.

F. C. H. STRASBURGER.

LABELING MACHINE.

(Application filed Jan. 31, 1901.)

(No Model.) 5 Sheets—Sheet 3.

Fig. 2.

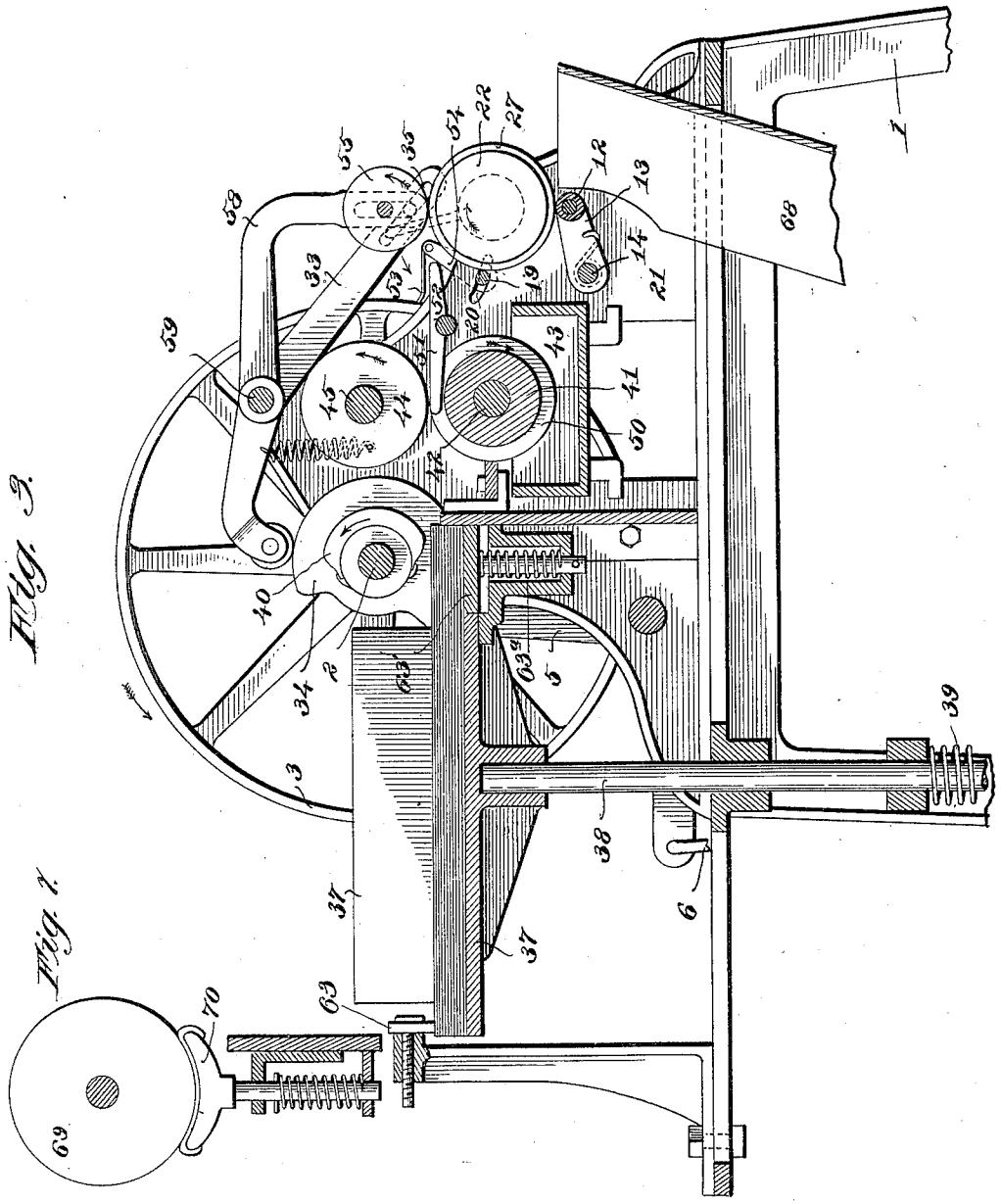


Fig. 1.

Witnesses:
G. A. Dauberschmidt.
J. H. Glendenning.

Inventor.
Frank C. H. Strasburger
By Wm. O. Belt
Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 701,229. Patented May 27, 1902.

F. C. H. STRASBURGER.

LABELING MACHINE.

(Application filed Jan. 31, 1901.)

(No Model.) 5 Sheets—Sheet 4.

Fig. 4.

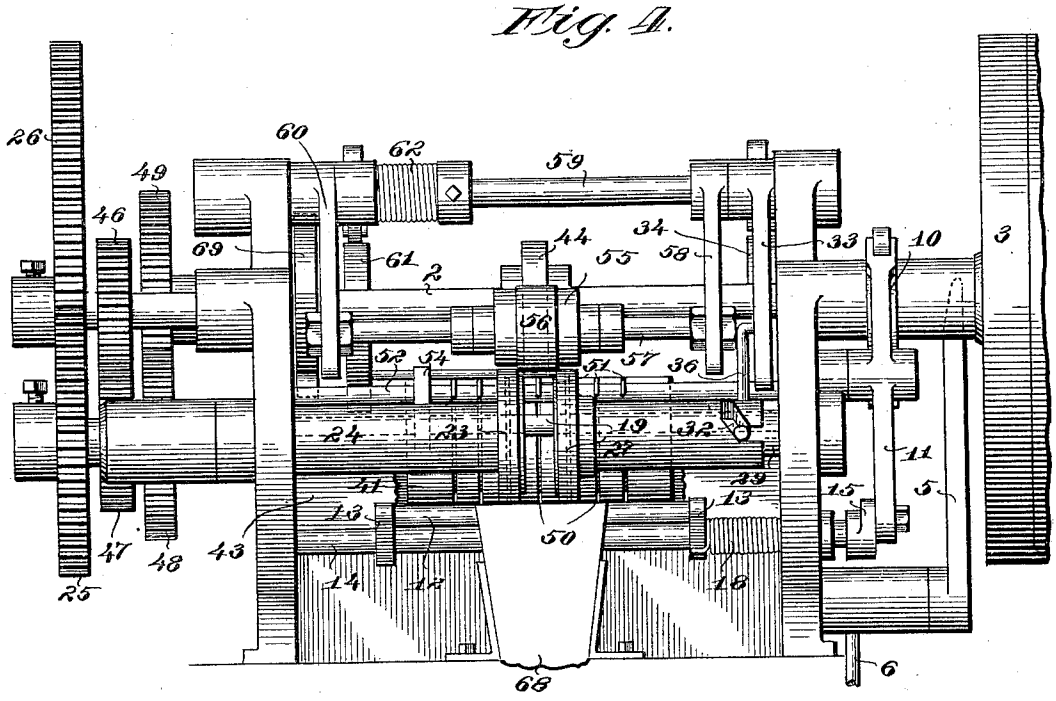


Fig. 5.

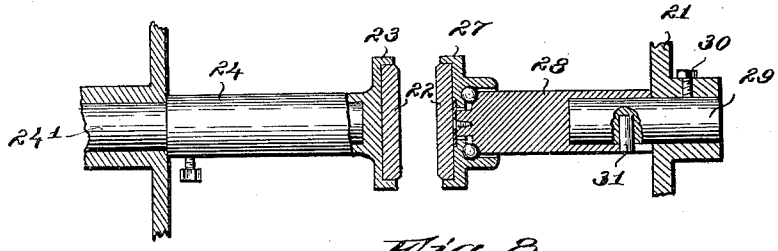
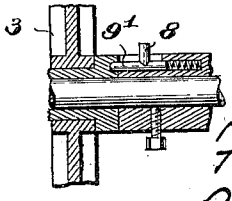


Fig. 8.



Witnesses:
G. A. Pauberschmidt.
J. H. Glendening.

Inventor:
Frank C. H. Strasburger
By Wm. O. Belt. Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 701,229. Patented May 27, 1902.

F. C. H. STRASBURGER.

LABELING MACHINE.

(Application filed Jan. 31, 1901.)

(No Model.) 5 Sheets—Sheet 5.

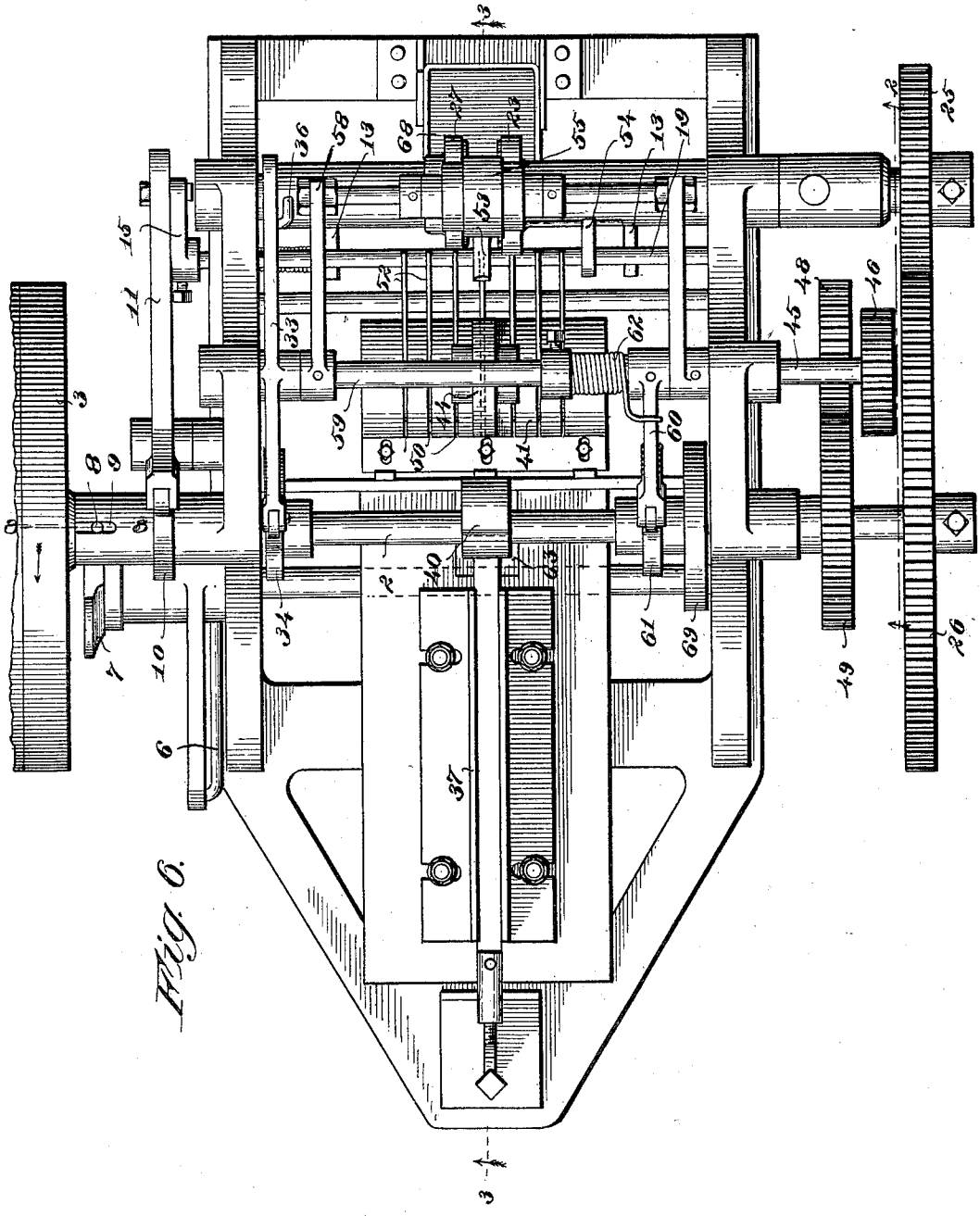


Fig. 6.

Witnesses:
W. C. Paulsenschmidt.
F. H. Glendenning.

Inventor:
Frank C. H. Strasburger
By Wm. O. Belt. Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK C. H. STRASBURGER, OF CHICAGO, ILLINOIS.

LABELING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 701,229, dated May 27, 1902.

Application filed January 31, 1901. Serial No. 45,421. (No model.)

To all whom it may concern:

Be it known that I, FRANK C. H. STRASBURGER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Labeling-Machines, of which the following is a specification.

My invention relates to certain novel improvements in labeling-machines; and it is primarily intended to provide a machine for labeling cans and similar receptacles and which by suitable adjustments can be used to affix labels to bottles, jars, boxes, and other receptacles of different sizes.

The object of the present invention is to provide a simple and automatic machine into which the articles to be labeled can be fed rapidly and which will itself properly position said receptacle therein to receive a label, one of which is fed from a supply at each operation of the machine and provided with sufficient paste to cause it to stick tightly to the receptacle when affixed thereto.

Another object of the invention is to provide for positioning the receptacle in the machine and then causing the same to revolve in contact with the pasted side of the label under pressure sufficient to cause the label to adhere to the receptacle after the receptacle has been discharged.

My invention also has other objects in view, which will fully and clearly appear in connection with the detailed description of the machine.

In the accompanying drawings I have shown the invention embodied in a machine adapted to apply labels on the side of a flat round box, and, referring thereto—

Figure 1 is a side elevation of the machine, showing the same constructed to be operated by a foot-pedal. Fig. 2 shows the other side of the machine, being taken on the line 2 2 of Fig. 6. Fig. 3 is a sectional view on the line 3 3 of Fig. 6. Fig. 4 is a front view of the machine with the supporting-frame omitted. Fig. 5 is a detailed sectional view of the rotating clamps. Fig. 6 is a top plan view. Fig. 7 is a detailed sectional view showing the device for steadying the operation of the main shaft. Fig. 8 is a detailed sectional view of the clutch device on the line 8 8 of Fig. 6.

In the drawings like numerals of reference denote corresponding parts in all of the figures, and referring thereto—

1 designates a frame of any suitable construction, on which the operative mechanisms and devices of the machine are mounted, and 2 is the main shaft, with which the belt-pulley 3 is adapted to be coupled by suitable clutch mechanism to set the machine in operation. I have shown in the drawings a foot-pedal 4, pivoted on the frame and connected with one arm of a pivoted crank-lever 5 by means of a rod 6, the other arm of said lever carrying a shoe 7, Fig. 6, which is arranged to engage the pin 8, operating in the slot 9 and carried by the spring-pressed clutch-bolt 9′. When the cam 7 is withdrawn from engagement with the pin by operating the pedal or other suitable means, the clutch-bolt will be projected by its spring to couple the main shaft and the driving-pulley.

The main shaft carries a cam 10, which is arranged to actuate a pivoted lever 11, which operates the movable positioning device, comprising the rod 12, carried by arms 13 on the rock-shaft 14, which is also provided on one end with an arm 15, carrying a pin 16, which works in a slot in the end of said lever. The cam is arranged to rock the shaft 14 and lower the positioning-rod 12, for a purpose as will be hereinafter described, and the spring 18 is arranged to raise the positioning-rod after a receptacle has been fed to the machine. I also provide a stationary positioning-rod 19, which is adjustably secured in slots 20 in the sides 21 of the frame by means of nuts on its ends, so that it can be adjusted for receptacles of different sizes and shapes.

The receptacle is held in position for receiving a label by means of two rotating clamping-heads, which are preferably provided with rubber facings 22, Figs. 4, 5. One of these clamping-heads 23 is carried by a sleeve 24, keyed to a shaft 24′, which carries a gear 25, meshing with the gear 26 on the main shaft, which communicates a rotary motion to the clamping-heads 23 whenever power is applied to the main shaft. The other clamping-head 27 is loosely mounted on a sleeve

28, having a ball-bearing connection therewith, and this sleeve is carried by a pintle 29, which is held in the side of the frame by means of a set-screw 30. A pin 31 is carried by the pintle and projects upward through a slot 32 in the sleeve, so that the sleeve may be moved laterally by turning it on the stationary pintle, and this movement is automatically effected by means of the pivoted lever 33, which is operated by a cam 34 on the main shaft and has its forward end provided with a slot 35 to receive the upper bent end of an arm 36, rigid with the sleeve. The rod 19 is located just behind the clamping-heads, and the movable positioning-rod 12 is arranged below the clamping-heads, so that when the receptacle is slipped into place between the two clamping-heads it will rest upon and against the two positioning-rods 19 12 and be properly positioned and held in place thereby until the clamping-head 27 is moved up to clamp the receptacle between itself and the opposite head, at which time also rotary motion is imparted thereto through the operation of the shaft 24', the head 27 rotating freely on the sleeve 28 by reason of its ball-bearing connection.

A supply of labels is provided in a holder 37, Fig. 3, of suitable construction to accommodate the style of labels to be used and mounted on a supporting-rod 38, which is pressed upward by the spring 39. The labels are fed from this supply by means of the cam 40 on the main shaft 2, which engages the top label and moves the same forward by frictional contact therewith. As the label is moved forward by the feeding-cam it next passes over the paste-roller 41, mounted on a shaft 42. This paste-roll operates in a paste-pot 43, and the label is held in contact with said roll and moved thereover by means of a feed-roll 44, carried by a shaft 45, this shaft being provided on its outer end with a gear 46, which meshes with a gear 47 on the shaft 42, said shaft 42 also carrying a gear 48, which meshes with a gear 49 on the main shaft 2, Fig. 2.

In order to prevent the label from adhering to the paste-roll, I provide this roll with a number of peripheral grooves 50, Figs. 3, 6, to receive the ends of the fingers 51, which keep the label from sticking to and being wrapped up on the paste-roll.

As the label is fed forward over the table formed by the fingers 51 it passes under a guide 53, carried by an arm 54, to the receptacle held between the clamping-heads, against which it is pressed by the affixing-roller 55. This affixing-roller is provided, preferably, with a rubber band 56, which in the construction as shown in Fig. 4 fits between the clamping-heads and against the receptacle to press the label thereon while the receptacle revolves with the clamping-heads, and said roller is carried by the shaft 57, adjustably supported in the arms 58, secured on a shaft 59. An arm 60 on the shaft 59 is held in engagement with a cam 61 on the main shaft, Fig. 6, by a spring 62, so that as the main shaft rotates the arm will be operated to rock the shaft 59, and thus cause the affixing-roller to descend into affixing position.

The operation of the principal parts of the invention as heretofore described is as follows: When the machine is at rest, the pedal 4 will be held up by the spring 4' to hold the cam in engagement with the pin 8 and the clutch-bolt in retracted position, so that the main shaft is uncoupled from the driving-pulley. At this time the affixing-roller is elevated and the movable positioning-rod 12 is depressed and the clamping-heads separated, so that the receptacle can be readily fed into the machine between the clamping-heads against the rear positioning-rod 19 and upon the rod 12. In the ordinary operation of the machine the pedal 4 will be depressed at approximately the same time that the receptacle is fed to the machine, and this depression of the pedal withdraws the cam from engagement with the pin of the clutch-bolt, which is thereupon forced forward by its spring to couple the main shaft with the driving-pulley. The movable positioning-rod 12 is carried up against the clamping-heads, and the affixing-roller is brought down into engagement with the receptacle to affix thereon the label, which has been fed forward from the supply by the cam 40 and provided with paste in its passage over the paste-roll 50. An arm 33 is also operated at this time to move the sleeve 28 laterally and clamp the receptacle, which has been positioned by the rods 19 12, and the affixing-roll securely in place between the two heads 23 27. At the rear end of the label-holder I provide a device 63, which has a pointed or knife-edge lower end to engage the top labels in the pile and prevent more than one label being fed from the pile at a time, and at the front end of the holder is a spring-pressed section 63', arranged beneath the feed-cam 40. The spring 63^a of this section permits said section to yield under the pressure of the feed-cam to reduce the friction between said cam and the top label without affecting the holder proper or depressing its spring 39, so that the top label can be fed forward from beneath the device 63 without carrying the second label in the pile along with it. The shaft 24' is geared to rotate at a greater speed than the main shaft and the paste and feed-roll shafts, and for this reason and in order to prevent the label from becoming torn during its movement through the machine I arrange the gearing for the feed and paste roll shafts so that these rolls may at the proper time revolve at a greater rate of speed than their shafts. These gears 46 47 are secured to their shafts by means of pawls 64 65, which engage the ratchet-wheels 66 67, rigidly mounted on the shafts. By these means the shafts will revolve the feed and paste rolls at a regular speed to feed the label forward until the forward end of the label is

pressed by the affixing-roll against the receptacle, which being revolved at a greater speed than the feed and paste rolls will cause the label to pass more rapidly through the machine, and the ratchet mechanisms in the gear-wheels on the feed and paste roll shafts thereupon permit these rolls to revolve more rapidly in accordance with the increased movement of the label without injury to the same.

In order to affix the label properly to the receptacle, the shaft 24′ may be geared to rotate several times during each complete operation of the machine, so that the receptacle will be revolved in contact with the affixing-roll once or twice after the label has been affixed thereto. This may be especially desirable when the machine is used to affix labels to cans and other receptacles to cover and seal the joints formed between the top and body of the can. This is one of the important uses of the machine, as in a great many cases the labels are used on receptacles for the purpose of sealing the same to preserve their contents and prevent them being opened without detection. With my machine labels can be easily and very rapidly affixed to receptacles in this manner.

After the machine is fairly in motion the pressure on the foot-pedal may be withdrawn, so that the cam will return to its position to engage the pin 8 and retract the clutch-bolt to uncouple the main shaft and driving-pulley at the completion of the operation. By this time the affixing-roll has been raised and the rod 12 lowered, so that the receptacle may drop from between the clamping-heads as the movable head is returned to its normal position at rest and into a chute 68, by which it can be disposed of as desired.

I provide a disk 69 on the main shaft and a spring-pressed friction device 70, which is supported on the frame of the machine and is held by its spring against said disk for the purpose of steadying the operation of the main shaft in its movement.

The machine can be adapted for affixing labels of any size and variety to receptacles of different kinds by making the proper changes in the parts. The label-holder can be adjusted for labels of different sizes and the friction-roll or its band changed accordingly, and the clamping-heads can be readily removed and replaced by others corresponding to the particular kind of receptacle to be labeled, the other parts being adjusted to perform their work in the same manner hereinbefore described.

My machine is constructed and arranged so that it can be operated by any one capable of working the pedal and slipping the receptacles to be labeled in between the clamping-heads, and it will operate about as fast as the receptacles can be slipped therein. It is of course obvious that the clutch device may be operated otherwise than by means of the pedal, and that suitable mechanical means can be employed for automatically feeding the receptacles to the machines, and, further, that other means may be employed in connection with the machine for receiving the receptacles after they have been labeled, stacking or packing or otherwise disposing of them. The machine is adapted to affix labels of any kind and upon any part of receptacles of different sizes and shapes; but, as before stated, it is especially useful in affixing labels on round receptacles of many varieties to seal the top to the body.

The receptacles may be fed to the machine one at a time by hand or otherwise.

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

1. In a labeling-machine, the combination of a pair of clamping-heads to engage and rotate the receptacle while the label is being affixed thereto, a stop permanently located behind the clamping-heads and adjacent thereto, a rock-shaft beneath said permanent stop, arms mounted on said rock-shaft, a rod carried by said arms, said rod being arranged to receive and support the receptacle when it is fed to the machine and while it is resting against the permanent stop, means for lifting the rod to arrange the receptacle in labeling position between the clamping-heads, and means for lowering the rod to permit the discharge of the labeled receptacle before another receptacle is fed to the machine, substantially as described.

2. In a labeling-machine, the combination of a pair of clamping-heads to engage and rotate the receptacle while the label is being affixed thereto, a fixed stop at one side of the clamping-heads, a discharge-chute, a rock-shaft, arms mounted on said rock-shaft, a rod carried by said arms beneath the clamping-heads to receive and support the receptacle when fed to the machine, a spring device for lifting the rod to arrange the receptacle in labeling position between the clamping-heads, and means for lowering the rod after the receptacle has been engaged by the clamping-heads, so that the receptacle may drop into the discharge-chute when the clamping-heads are released, substantially as described.

3. In a labeling-machine, the combination with a pair of rotatable clamping-heads to receive and rotate the receptacle to be labeled, a main shaft, a label-supply holder, a feed-cam on the main shaft and arranged to carry a label forward from the supply, a paste-roll, a feed-roll located above the paste-roll and arranged to receive the label carried forward by the feed-cam and feed said label onto the receptacle, an affixing-roll located above the receptacle, a rock-shaft, arms on said rock-shaft and carrying said affixing-roll, and a cam on the main shaft for locking said rock-shaft, substantially as and for the purpose described.

4. In a labeling-machine, the combination of a pair of rotatable clamping-heads, devices for receiving the receptacle to be labeled and

arranging the same in position between said heads, means for clamping the heads upon the receptacle, means for feeding the label to the receptacle, a main shaft, a rock-shaft 59, arms carried by said rock-shaft, an affixing-roll carried by said arms and devices connected with the main shaft for actuating the rock-shaft to bring the affixing-roll into operative engagement with the receptacle, substantially as described.

5. In a labeling-machine, the combination of means for rapidly rotating the receptacle to be labeled, a paste device, a device for feeding a label from the paste device to the receptacle to be labeled, pawl-and-ratchet mechanisms on the feed and paste devices, and a device for affixing the label to the receptacle while it is rotating, substantially as described.

6. In a labeling-machine, the combination of means for rotating the receptacle to be labeled, a paste-applying device, a label-supply holder, feeding devices rotating at less speed than the receptacle, a device for affixing the label to the receptacle while the latter is rotating, and means for permitting the label to move more rapidly through the machine after it is engaged by the affixing device and while still engaged by the feeding devices, substantially as described.

7. In a labeling-machine, the combination of means for rotating the receptacle to be labeled, a paste-applying device, a feed-roll adjacent to said paste device, a label-supply holder, a feed device moving a label from the supply to the paste device, a device for affixing the label to the receptacle while it is being rotated, and means for permitting the feed-roll and the paste-applying device to rotate more rapidly after the affixing device has engaged the label, substantially as described.

8. In a labeling-machine, the combination of means for rotating a receptacle to be labeled, a paste-roll shaft, a paste-roll having a ratchet connection with said paste-roll shaft, a feed-roll shaft, a feed-roll normally rotating at less speed than the receptacle and having a ratchet connection with said feed-roll shaft, a label-supply holder, a device for feeding the labels from the supply to said paste-roll and feed-roll, and a device for affixing the label to the receptacle, substantially as described.

9. In a labeling-machine, the combination of means for rotating the receptacle to be labeled, a paste-roll shaft, a paste-roll having a ratchet connection with said paste-roll shaft, a feed-roll shaft, a feed-roll normally rotating at less speed than the receptacle and having a ratchet connection with said feed-roll shaft, a label-supply holder having its bottom provided with a yielding section at its front end, a cam located above said yielding section for feeding the labels from the supply, and a device for affixing a label to the receptacle, substantially as described.

10. In a labeling-machine, the combination with a receptacle-clamping head, of a fixed pintle, a sleeve mounted on said pintle, a clamping-head rotatably mounted on said sleeve, and means for moving said sleeve longitudinally on the pintle, substantially as described.

11. In a labeling-machine, the combination with a receptacle-clamping head, of a fixed pintle, a sleeve mounted on said pintle and provided with an angular slot, a pin on the pintle projecting up through the slot, means for moving said sleeve rotatably on the pintle to move the sleeve laterally, and a clamping-head carried by the sleeve, substantially as described.

12. In a labeling-machine, a fixed pintle, a sleeve mounted on said pintle and provided with an angular slot, a pin on the pintle projecting up through the slot, a head carried by the sleeve, an arm connected with the sleeve, and a device for actuating said arm to move said sleeve rotatably on the pintle and thereby move it laterally, substantially as described.

FRANK C. H. STRASBURGER.

Witnesses:
WM. O. BELT,
KATHRYN M. MCLAREN.