

Aug. 2, 1938.

L. M. SIBLEY

2,125,821

CONTAINER CAPPING MACHINE

Filed Oct. 28, 1936

3 Sheets-Sheet 1

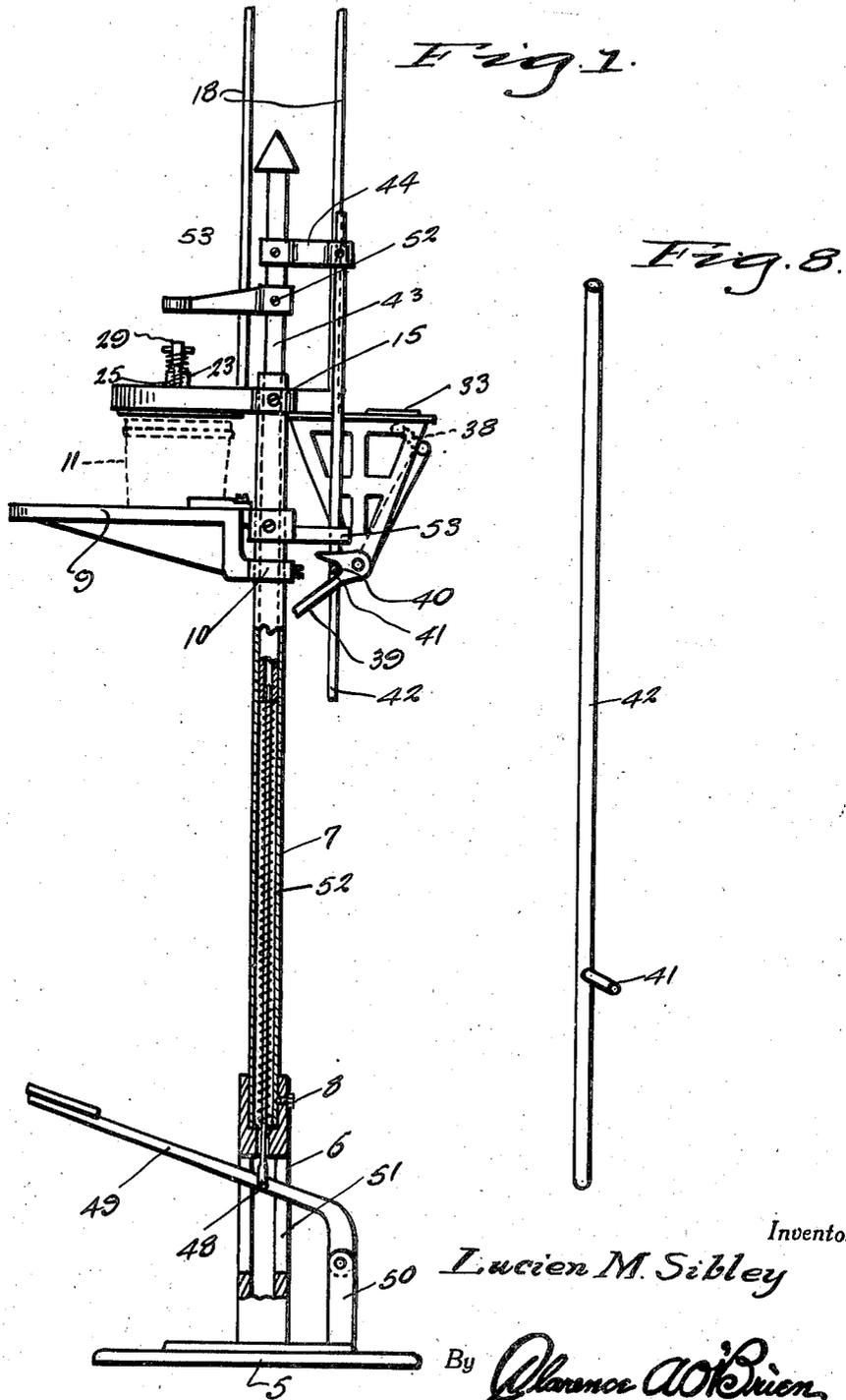


Fig. 1.

Fig. 8.

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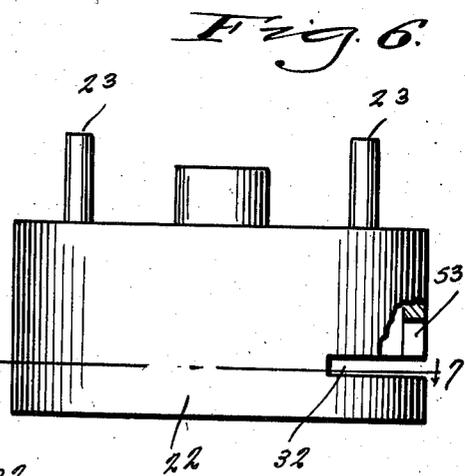
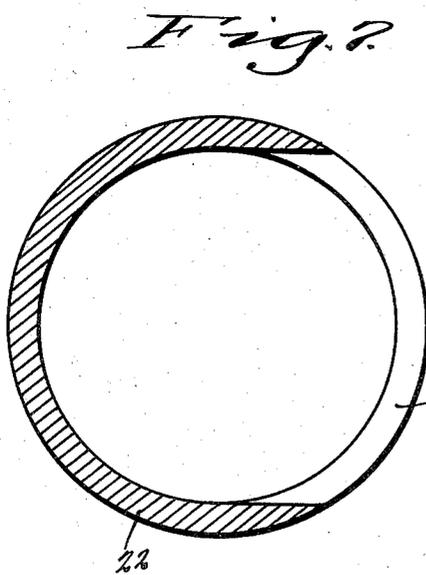
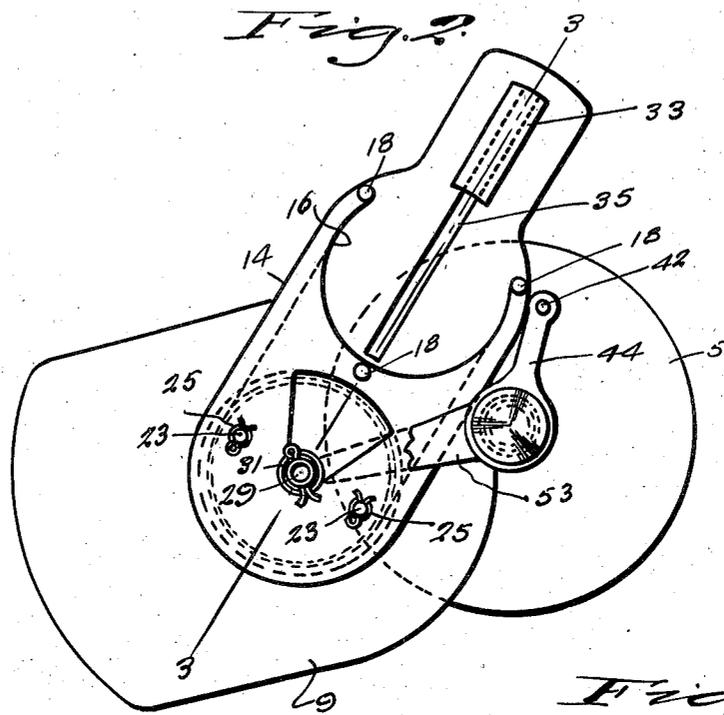
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

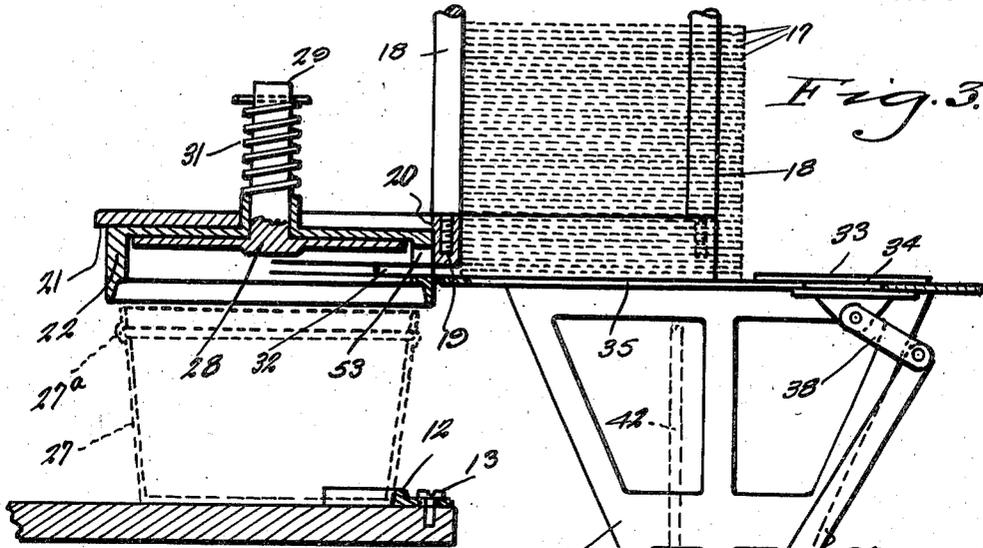


Fig. 3.

Fig. 4.

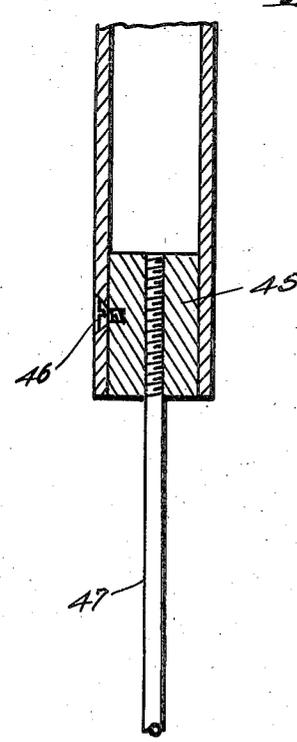
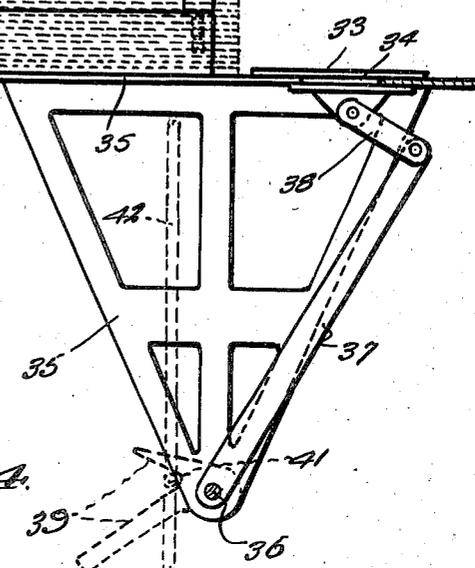
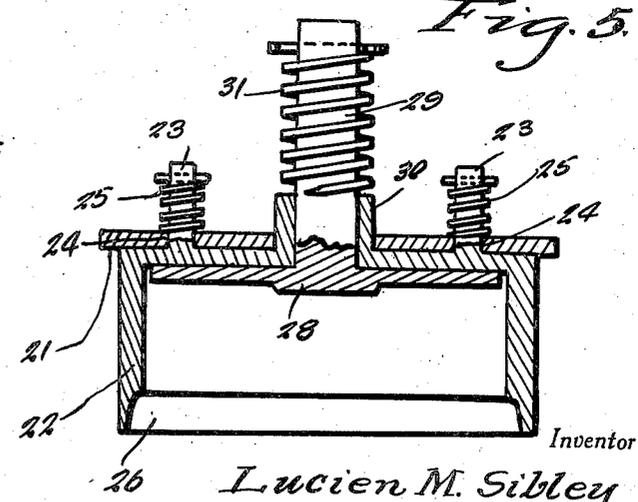


Fig. 5.



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UNITED STATES PATENT OFFICE

2,125,821

CONTAINER CAPPING MACHINE

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Application October 28, 1936, Serial No. 108,054

2 Claims. (Cl. 226-92)

This invention relates to machines or devices for applying caps or closures to containers for sealing the latter, and one of the objects of the invention is to provide a sealing machine which will facilitate the application of flat disklike closures to containers in a manner to positively seal the container; also to provide a machine which will be positive and efficient in operation; and thirdly to provide a machine which can be operated without requiring a great deal of skill.

The invention together with its objects and advantages will be best understood from a study of the following description taken in connection with the accompanying drawings, wherein:

Figure 1 is a side elevational view of the capping machine with certain parts broken away and shown in section.

Fig. 2 is a top plan view of the machine.

Fig. 3 is a vertical sectional view taken substantially on the line 3-3 of Fig. 2.

Fig. 4 is a detail sectional view showing the manner of connecting a vertically slidable rod with one end of the pedal actuated link.

Fig. 5 is a detail sectional view through a plunger assembly.

Fig. 6 is an elevational view of a plunger and

Fig. 7 is a sectional view taken substantially on the line 7-7 of Fig. 6 and Fig. 8 is a perspective view of the actuating rod for the cap feed plate.

Referring to the drawings by reference numerals it will be seen that in the preferred embodiment thereof, the machine comprises a base 5 from which rises a relatively short post 6. The post 6, at its upper end, is provided with a socket which receives one end of a fixed vertical guide tube 7 secured within the socket of the post 6 through the medium of a set screw 8.

A table or supporting plate 9 is clamped to the post 7 as at 10 and is adapted to receive and support the container 11 to be capped. A centering flange 12 is detachably secured to the table or supporting plate 9 as at 13.

A plate-like casting 14 is equipped with a bracket 15 through the medium of which the casting is secured to the uppermost end of the tubular guide post 7. The casting 14 is provided as at 16 with a seat for accommodating a plurality of superimposed disc-shaped caps or closures 17 confined between guide posts 18 that have at their lower ends threaded pins 19 threaded into sockets 20 provided therefor on the casting 14.

Adjacent its forward end, the casting 14 is formed as at 21 to accommodate at the underside thereof a substantially cylindrical plunger

22. Plunger 22 is provided at the top thereof with pins 23 that work through suitable openings 24 provided therefor in the end 21 of the casting. Suitable spring devices 25 are associated with the pins 23 for normally urging the plunger 22 upwardly against the underside of part 21 of the casting.

At its bottom open end the plunger 22 is formed as at 26 to receive the mouth or upper end of the container 27 to be sealed. A follower or capping plunger in the form of a disc 28 works within the plunger 22 and is provided with a stem 29 that has a sliding fit through a boss 30 provided on the top of the plunger 26 and extending through a suitable opening provided in the end 21 of the casting. A suitable spring device 31 is associated with the pin 29 for normally urging the plunger 28 upwardly against the inner side of the top of plunger 22 as shown in Fig. 5.

The plunger 22 is provided in its peripheral wall with a slot 32 through which the caps or discs 17 are successively passed through the plunger and into position within the mouth of the container 27.

For forcing the caps 17 successively into the plunger 22 through the slot 32 thereof, there is slidably mounted on the casting 14 a slide or follower plate 33, the lower side of which is formed as at 34 to work in a slot 35 provided therefor in the casting 14.

Depending from the under side of the casting 14 is a bracket 35, and in the lower end of the bracket 35 there is journaled a shaft 36. Shaft 36 is provided with an arm 37 which is pivotally connected to the slide 33 through the medium of a link 38 as shown in Fig. 3.

Also provided on the shaft 36 is a dog 39 that receives within the crotch 40 thereof, a pin 41 provided on a vertically slidable rod 42.

Rod 42 is secured adjacent its upper end to and in spaced parallelism with a rod 43 through the medium of a bracket 44. Rod 43 has a sliding fit within the guide 7 and at its inner end rod 43 is provided with a plug 45 secured in position through the medium of a set screw 46 as shown in Fig. 4. A link 47 has an end threaded into the plug 45 and a lower end pivoted as at 48 to a foot pedal 49 that is pivoted at one end to a bracket 50 rising from the base 5. Pedal 49 works through a suitable slot 51 provided therefor in the short post or standard 6, shown in Fig. 1.

Also secured to the rod 43 as at 52 is an arm 53 the free end of which is disposed in alignment

with the plunger stem 29 as also clearly shown in Fig. 1.

The operation of the device may be briefly described as follows:

5 The container 11 to be capped is placed on the table or bracket 9 in substantial alinement with the plunger 22. The operator then places his foot on the pedal 29 and presses downwardly. Movement of the pedal is transmitted through
10 the rod 47 to the rod 43 for moving the latter downwardly. When rod 43 moves downwardly, shaft 36 is forced to rock in a counterclockwise direction by reason of the engagement of the pin 41 on rod 42 within the crotch 40 of the dog
15 39. This will result in a swinging of the link 37 in a counterclockwise direction for moving the slide or follower 33 into engagement with the lowermost cap or disc 17 for forcing the latter through the slot 32 in the plunger 22. Obviously the cap
20 or disc entering the plunger 22 in this manner will pass down into the mouth of the container 27.

Also continued pressure on the pedal 49 will result in the arm 53 coming into engagement with plunger stem 29 which will cause the plunger 22
25 to move downwardly to receive the mouth of the container 27 within the groove 26. Thus further movement of the plunger 22 is arrested with the result that continued downward movement of the rod 43 will cause the plunger disc or follower 28
30 to move downwardly within the plunger 22 to engage the aforementioned disc or cap to force the same into proper seating engagement with the internal groove 27a of the container 27 for thus sealing the container.

35 After the container has been sealed in this manner, pressure is released from the pedal 49 whereupon the parts will return to their normal position, a coiled spring 52 being disposed about the rod 47 and bearing at one end against the
40 plug 45 and at its lower end against the bottom of the socket in the post or standard 6, shown in Fig. 1.

In connection with the above, it will be understood that the downward movement of the plunger 22 will result while the follower 33 is in its forward active position. In order that the follower 33 will not interfere with the downward
45 movement of the plunger 22, the latter is provided with a suitable slot 53 to accommodate the follower or plunger 33, when the latter is at the limit of its forward or feeding stroke.

50 It is thought that a clear understanding of the construction, utility, advantages and operation of a device of this character will be had without a more detailed description; and in this connection it is to be understood that a salient feature of the present invention resides in the floating
55 plunger 22 which, being suspended by springs is

enabled to find the perfect center on the cap tending to a perfect sealing of the cap.

Having thus described the invention, what is claimed as new is:

1. In a capping machine of the character described, a support for the container to be capped, a hollow substantially cylindrical plunger mounted for vertical movement above said support, and adapted to be moved downwardly into engagement with the container, a flat plunger disc having a working fit within the first-mentioned plunger and adapted to move downwardly therewith and also relative thereto for forcing a closure disc into sealing position within the container, said first-mentioned plunger being provided with a slot in the periphery thereof to receive the closure discs, a reciprocally operated rod for actuating said plunger and plunger disk and means operatively connected with said rod for feeding closure disks in succession through said slot, said closure disk feeding means having direct operative engagement with the rod to actuate the said disk feeding means upon an initial movement of the rod and means carried by the rod for contacting and actuating the plunger subsequent to the actuation of the disk feeding means.

2. In a capping machine of the class described, a casting having one end adapted for receiving a stack of caps and at the opposite end thereof providing a plunger support, a hollow plunger associated with said support, and adapted to move downwardly relative thereto to telescope the upper end of a container to be capped, a second plunger working within the first plunger for forcing a cap into sealing position within the container, means for forcing said plungers downwardly as a unit and for moving the second plunger downwardly relative to the first plunger when the latter is at the limit of its downward movement, said first plunger being provided with a lateral slot for successively receiving caps from said stack, said casting being also provided with a guide slot, a follower movable along said casting and having a depending portion working in said slot, said follower being movable along the casting to engage successive caps in the stack for forcing the caps through the slot in the first mentioned plunger, and actuating means for said follower, said plunger and follower actuating means comprising a pair of interconnected parallel rods, means providing a direct operative connection between one of said rods and the follower for actuation of the latter upon initial movement of the rod and means providing delayed operative engagement between the other of said rods and the plungers to subsequently actuate the latter.

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