

April 24, 1934.

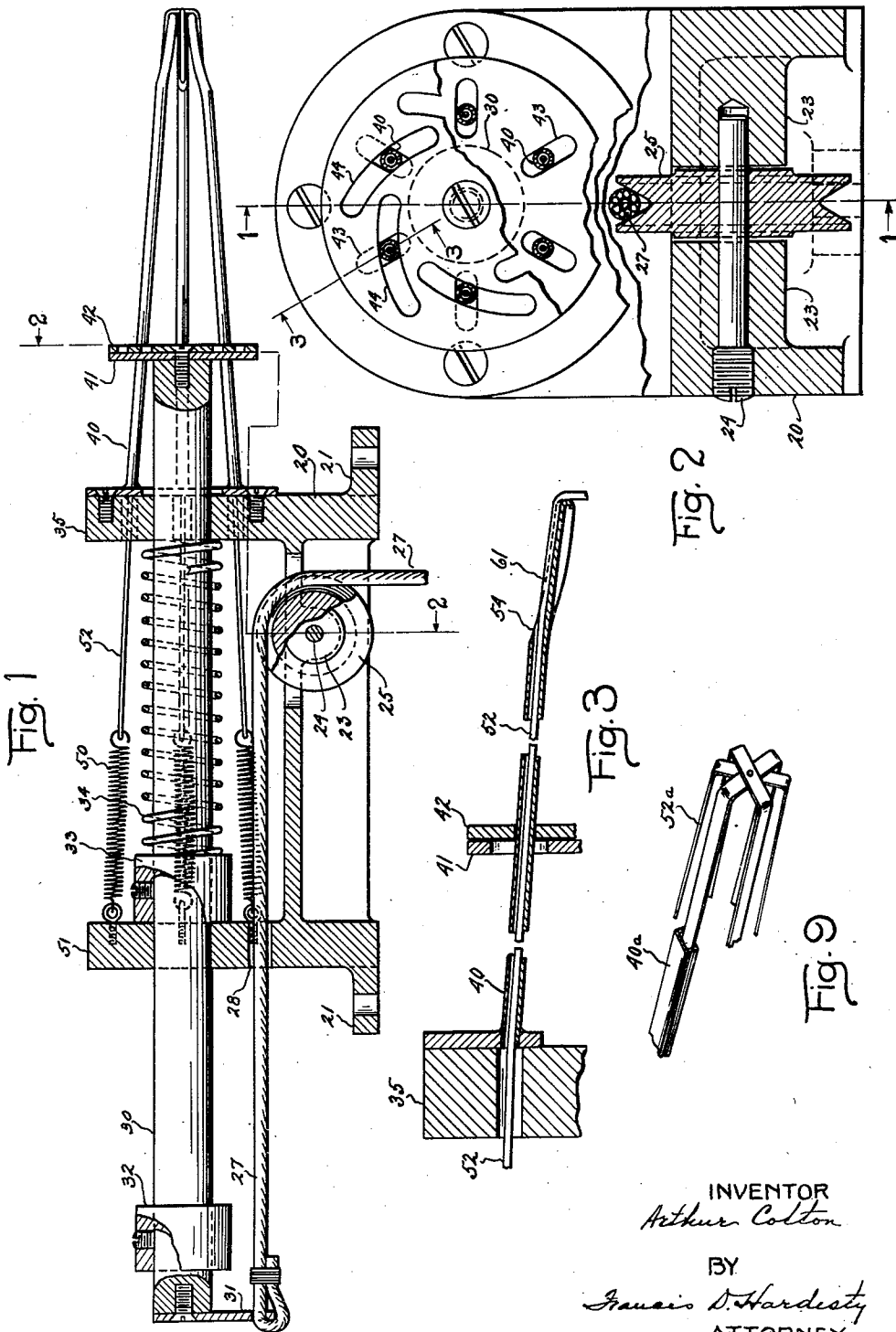
A. COLTON

1,955,949

MACHINE FOR PLACING SEALING CAPS ON BOTTLES

Filed April 21, 1928

2 Sheets-Sheet 1



INVENTOR
Arthur Colton
BY
Francis D. Hardisty
ATTORNEY

April 24, 1934.

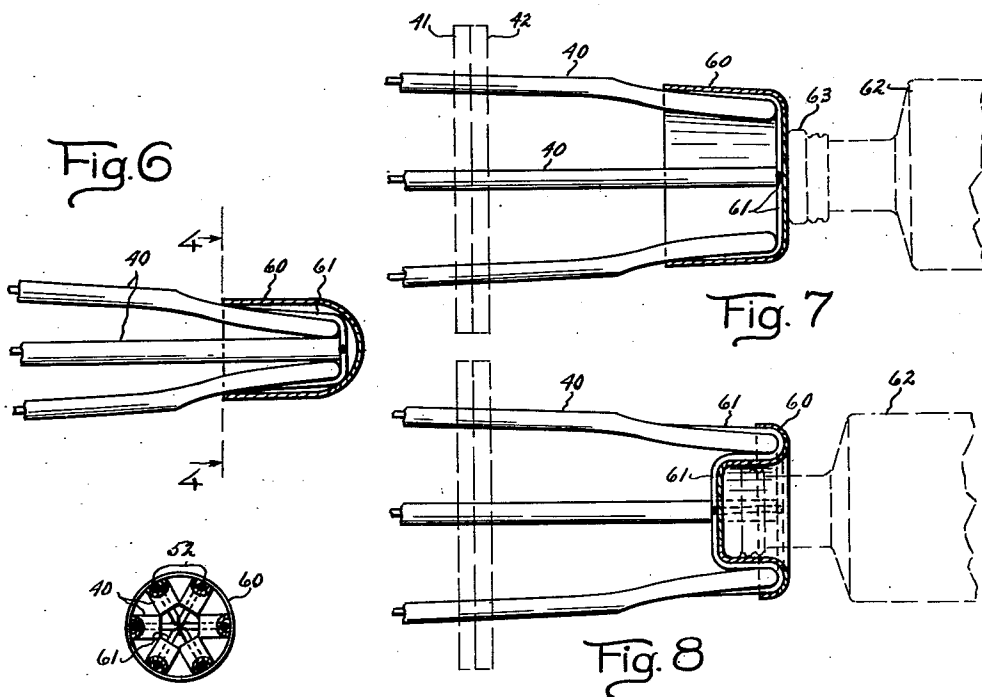
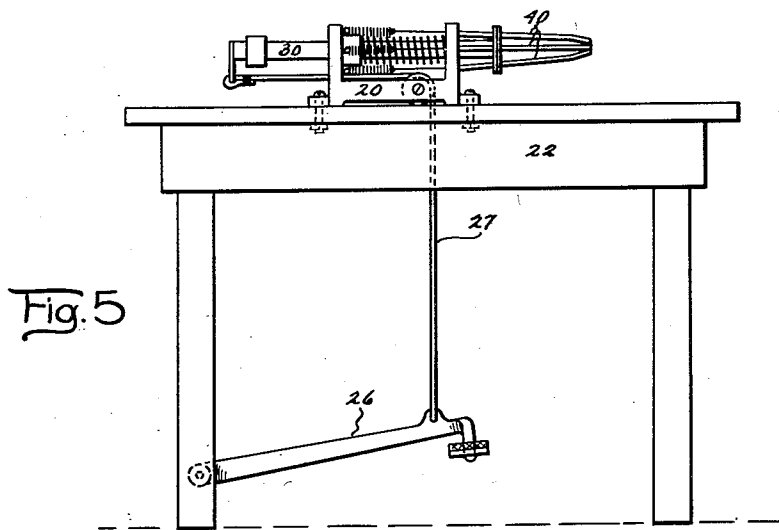
A. COLTON

1,955,949

MACHINE FOR PLACING SEALING CAPS ON BOTTLES

Filed April 21, 1928

2 Sheets-Sheet 2



INVENTOR
Arthur Colton

BY
Francis D. Hardesty
ATTORNEY

UNITED STATES PATENT OFFICE

1,955,949

MACHINE FOR PLACING SEALING CAPS ON BOTTLES

Arthur Colton, Detroit, Mich., assignor, by mesne assignments, to Parke, Davis & Co., Detroit, Mich., a corporation of Michigan

Application April 21, 1928, Serial No. 271,738

11 Claims. (Cl. 226—80)

The present invention relates to devices for placing caps upon bottles and more especially, to the application of caps to bottles already corked, for the purpose of sealing.

5 Among the objects of the invention is a device of the type indicated, which may be used for the sealing of a variety of sizes of bottles.

Another object is a device adapted to place the well known gelatin sealing caps on bottles 10 quickly and easily.

Other objects will readily occur to those skilled in the art upon reference to the following description and accompanying drawings, in which:—

15 Figure 1 is a vertical, longitudinal section along line 1—1 of Fig. 2 through the device showing parts in elevation;

Figure 2 is a section on the line 2—2 of Figure 1;

20 Figure 3 is a longitudinal section of one of the distending fingers on line 3—3 of Figure 2;

Figure 4 is a section on the line 4—4 of Figure 6;

25 Figure 5 is a perspective view of the device mounted on a suitable support showing a preferred operating means;

Figure 6 is an enlarged view of the ends of the distending fingers with a cap or capsule in position to be distended;

30 Figure 7 is a view similar to Figure 6 showing the cap distended and the bottle in position to transfer the cap to itself;

Figure 8 is a view similar to Figure 7 showing the bottle neck entering the fingers and cap, and showing the operation of reversing the cap;

35 Figure 9 is a fragmentary view of a modified form of the device.

As indicated in the drawings, the distending device comprises a U-shaped frame 20 having flanges 21 whereby it may be secured to a suitable support, such as a table 22. The lower part of the frame 20 is provided with lugs 23 drilled longitudinally for the reception of a pin 24 serving as a bearing member for the pulley 25. Secured to the table is a pedal 26 to which is attached a cable 27 extending over the pulley 25 and through one end 51 of the frame, as at 28, which cable and pedal serve to actuate the distending mechanism.

45 Mounted in the frame 20 and passing through the two end members is a longitudinally slidable shaft 30 having at its rear end attaching means 31 for the cable 27. The rear end of the shaft 30 may be provided with a suitable collar 32, adjustably mounted thereon, which collar is designed to limit the endwise forward movement

of the shaft 30. A second collar 33 is adjustably secured to the shaft 30 between the ends of the frame and serves to limit the rearward movement of the shaft and also as an abutment for a spring 34 which acts between the collar 33 and the other end 35 of the frame.

On the forward side of the end portion 35 of the frame is secured a plurality of tubular fingers 40 mounted at an equal radial distance from the shaft 30 and surrounding the latter. These fingers 40 are shown in the drawings as six in number but more or less may be used and are shown as extending forward from end member 35 for a considerable distance and as coming together at their forward ends. The shaft 30 in its rearward position is sufficiently long to extend from the frame end 35 for a short distance between the fingers 40 and carries thereon a pair of disks 41 and 42. These disks serve as means to spread the outer ends of fingers 40, and also serve as adjusting means whereby the amount of spread may be varied to suit the particular size cap being used. Of these two disks, disk 41 is provided with radially arranged slots 43 through which the fingers 40 extend and disk 42 is provided with spirally arranged slots 44 adapted to overlie the slots 43. With the two disks and their overlying slots, it is possible to determine the radial position of the fingers 40 by fixing the relative angular relation of the disks.

It will be noted from Figures 1, 3 and 4 to 7 that the tubular fingers 40 at their outer ends are cut away, as at 54, on one side for a short distance and that each finger has therein a cord 52 extending back through the finger and end frame member 35 to connection with a light spring 50, which, at its other end, is anchored to the rear frame member 51.

The forward end of the cord 52 of each finger is connected to the forward ends of all the other cords so that when the fingers are distended, the cord ends form a net over the space between the finger ends.

The present device is designed, particularly, for the application to bottles, of the well-known gelatin caps which, when suitably softened by soaking, will permit considerable distension and which upon drying, will shrink and stick tightly to the bottle necks and effectively seal them.

In Figures 4, 6, 7 and 8, such a cap is indicated at 60 and, in the operation of the device, the cap is first placed over the ends of the converged ends of fingers 40 where it rests upon the fingers and the exposed portions 61 of the cord conveyor. The pedal 26 is then depressed and moves the

shaft 30 so that the disks 41 and 42 move outwardly on the fingers and spread them apart distending the cap 60 to about the form shown in Figure 7. With the cap thus distended, the bottle neck 62 is then placed in the position indicated in Figure 7 with the cork or metal cap 63 against the outside of the cap 60 which is supported by the cord net behind it. When the bottle is forced into the space between the fingers 40, as indicated in Figure 8, it carries the cap 60 along with it and causes the latter to be reversed over the neck of the bottle. The cap, being quite elastic, will grip tightly the neck of the bottle and, upon drying, shrink securely into place, thus making an effective seal.

In the operation indicated in Figures 7 and 8 the cord conveyor serves to carry the more or less easily torn cap over the ends of the fingers without damage and this conveyor is, of course, operated by the neck of the bottle itself.

While the cords 52 have been shown as the preferred form, it is also proposed to use flat tape for this purpose, and such a modification is shown in Figure 9. In this figure, the finger 40a is shown as rectangular in cross section and the tapes 52a as comparatively flat tapes. In this figure, the finger 40a is shown broken away back of its forward end but will have the latter approximately the shape of the end of the finger 40.

Now having described the invention and the preferred forms of embodiment thereof, it is to be understood that the said invention is to be limited, not to the specific details herein set forth, but, only by the scope of the claims which follow.

I claim:—

1. Means for sealing bottles, comprising means for distending a sealing cap, and means providing for reversing the distended cap over the neck of a bottle upon relative movement of said distending means and the bottle.

2. Means for applying sealing caps to bottles, comprising a plurality of fingers converging at one end and over the converged ends of which is adapted to be placed a sealing cap, means for spreading apart said fingers and thereby distending said cap, and means providing for removing said cap from said fingers and placing it upon the bottle neck in reversed position upon relative movement of said fingers and the bottle.

3. A device for placing sealing caps on necks of bottles, comprising a plurality of fingers, secured at one end in spaced relation and at equal radial distances from a central point, a longitudinally movable member located at said point, having a spreader carried thereby adapted to spread apart the free ends of said fingers, and means to move said member whereby to cause such spreading each of said fingers being provided at its outer surface with a cap supporting element.

4. A device for placing sealing caps on necks of bottles, comprising a plurality of tubular fingers, secured at one end in spaced relation and at equal radial distances from a central point, a

longitudinally movable member located at said point, having a spreader carried thereby adapted to spread apart the free ends of said fingers, cap supporting means carried by said fingers and operable by a bottle neck, and means to move said member whereby to cause such spreading.

5. A device for placing sealing caps on necks of bottles, comprising a plurality of tubular fingers, secured at one end in spaced relation and at equal radial distances from a central point, a longitudinally movable member located at said point, having a spreader carried thereby adapted to spread apart the free ends of said fingers, said spreader being adjustable to determine the degree of distension of a cap, and means to move said member whereby to cause such spreading.

6. A device for placing sealing caps on necks of bottles, comprising a plurality of tubular fingers, secured at one end in spaced relation and at equal radial distances from a central point, a longitudinally movable member located at said point, having a spreader carried thereby adapted to spread apart the free ends of said fingers, said spreader comprising a pair of coaxial discs angularly adjustable and provided with registrable slots radially arranged in one disc and spirally in the other, through which slots said fingers are adapted to slide, and means to move said member whereby to cause such spreading.

7. In combination means to distend a sealing cap for a bottle neck and means providing for transferring said cap from said distending means to the bottle neck and simultaneously reversing said cap over said neck upon relative movement of said distending means and the bottle.

8. A device for placing sealing caps on necks of bottles comprising a series of fingers for receiving a sealing cap, flexible members extending between the free ends of said fingers for supporting said cap during the relative movement of said fingers and the bottle and means for permitting said flexible members to yield during said relative movement whereby said flexible members envelop the bottle neck and cause the reversal of the cap on said neck.

9. The method of sealing bottles comprising the placing of a sealing cap with a closed end on a holder and relatively moving a bottle to cause the neck thereof to contact with said closed end and to be inserted within said holder thereby reversing the cap on said bottle neck.

10. A method of sealing bottles comprising the placing of a sealing cap with a closed end upon a holder adapted to support the same, moving said holder radially outward to distend said cap and relatively moving a bottle toward the closed end of said distended cap and within said holder to reverse the cap on the bottle neck.

11. In a bottle capping machine, a group of fingers for engaging the cap internally, means for spreading the fingers and moving the fingers down over the end of the bottle, and means for stripping the skirt of the cap off from the fingers.

ARTHUR COLTON.