

E. R. FREYER.
CROWN CORK FEEDING ATTACHMENT.
APPLICATION FILED OCT. 1, 1908.

944,548.

Patented Dec. 28, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

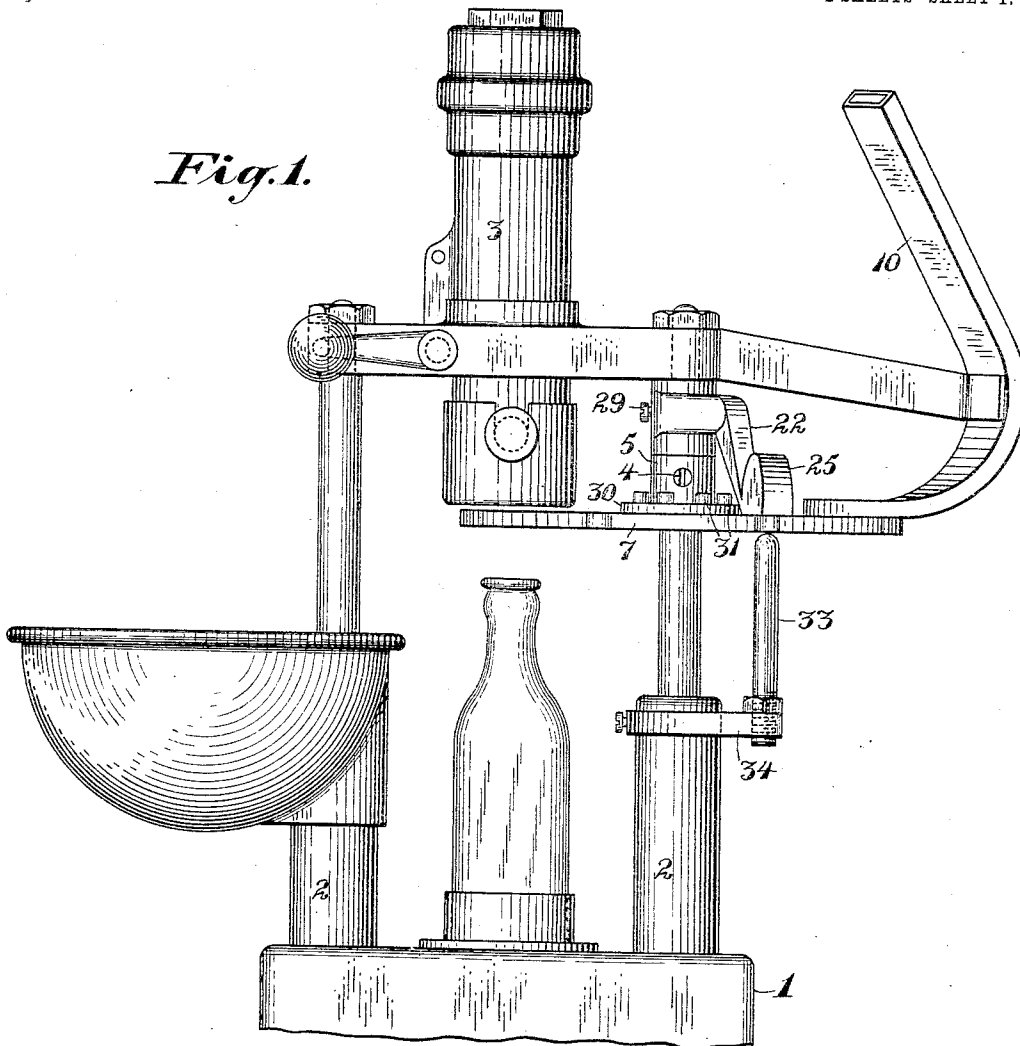
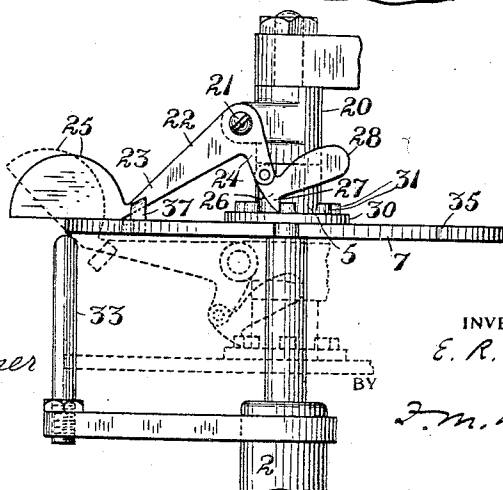


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

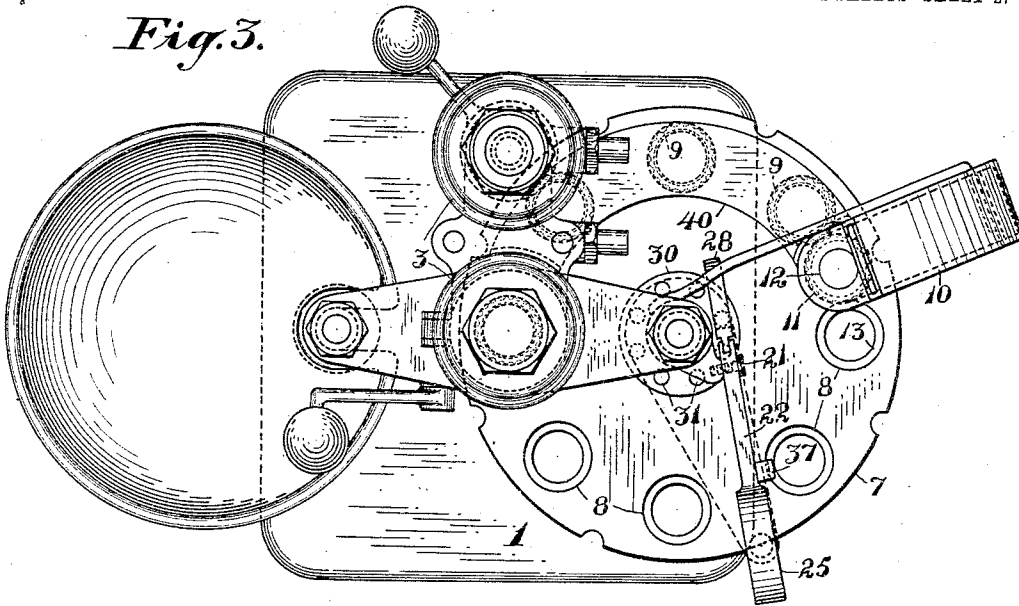


Fig. 5.

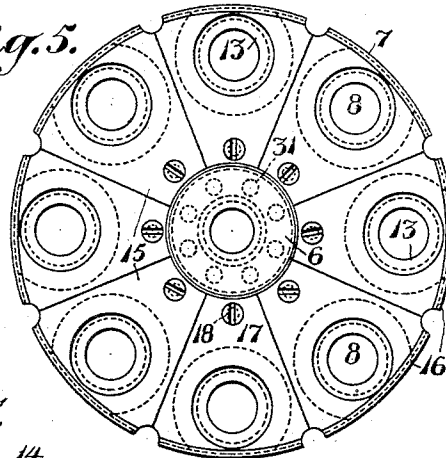


Fig. 4.

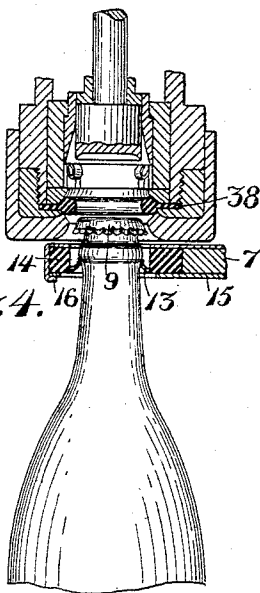


Fig. 7.

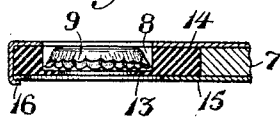


Fig. 6.

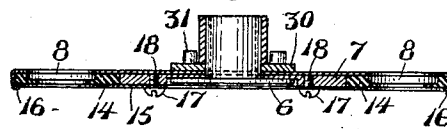
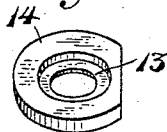


Fig. 8.



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UNITED STATES PATENT OFFICE.

EGMONT R. FREYER, OF SACRAMENTO, CALIFORNIA.

CROWN-CORK-FEEDING ATTACHMENT.

944,548.

Specification of Letters Patent.

Patented Dec. 28, 1909.

Application filed October 1, 1908. Serial No. 455,760.

To all whom it may concern:

Be it known that I, EGMONT R. FREYER, a citizen of the United States, residing at Sacramento, in the county of Sacramento and State of California, have invented new and useful Improvements in Crown-Cork-Feeding Attachments, of which the following is a specification.

This invention relates to improvements in machines for filling bottles and sealing them with crown caps. In using such machines for carbonated beverages, it is at present the practice to insert the crown cap in its position in the machine by hand, before placing the bottle in the proper position to be sealed thereby. The cap is pushed by the finger of the operator through a rubber ring, which ring, when the filling and sealing device is depressed, forms a tight seal or packing around the neck of the bottle. While the bottle is being filled, the cap is held in position by means of spring fingers. The operation of thus inserting the caps is tedious and troublesome.

One object of the present invention is to provide an attachment to the present machines by which the necessity of so inserting the caps by hand may be dispensed with, so that the operator can give his entire attention to supplying and removing the bottles. However, it occasionally happens that, from a broken bottle, a piece of glass remains in the receptacle for the cap, which may severely cut the finger of the operator, when inserting a cap.

A further object of the invention is to reduce the danger to the operator both from the above cause and also from pieces of broken glass which fly in all directions when a bottle bursts under the high pressure.

In the accompanying drawings, Figure 1 is a broken side elevation of the machine; Fig. 2 is a rear elevation of the pawl and ratchet mechanism detached; Fig. 3 is a plan view of the machine; Fig. 4 is a detail vertical sectional view showing a cap in position upon the top of a bottle; Fig. 5 is a bottom plan view of the carrier detached; Fig. 6 is a sectional view of the same; Fig. 7 is an enlarged detail sectional view of one of the pockets with a cap therein; Fig. 8 is a perspective view of one of the supports detached.

In the accompanying drawing, 1 indicates a casing of a crown cork and seal stoppering machine, such as is now commonly in

use, and is disclosed in the patent to William Painter, No. 473,776, dated April 26, 1892. Upon said casing are formed bearings 2 for the rods which carry the stopping head 3, and the usual filling tubes. To one of these rods is attached adjustably, by means of a set screw 4, a hub 5 formed at the bottom with a flange 6, upon which is rotatably supported a circular carrier plate 7. Said plate is formed with a circular series of round pockets 8, provided for the purpose of transferring the crown caps, from the position where they are fed to the carrier, to the position of use. Said caps 9 are supplied to a hopper, not shown, from which they descend in series down a curved chute 10, the lower end of which extends to a point in the circular line of the pockets 8 for the cans, and, in the stationary position of the carrier to a point midway between two pockets. The lower side of the chute is formed at said lower end with a round hole 11 through which the cap can drop on to the carrier plate and its upper side at said lower end is also formed with a small hole 12 for the purpose of inspecting the caps in said chute. Each cap in succession drops through said hole 11 on to the carrier plate between two of the pockets 8, and, when the plate is advanced in the next operation of the machine, as will be hereinafter described, the cap drops into the next succeeding pocket 8 in said carrier passing beneath said chute.

An important feature of the invention resides in the construction of the bottom of each pocket, so that it can support a cap, and at the same time permit the neck of the bottle to pass through the hole, as will be hereinafter described, removing with it the cap from the bottom of the pocket. This I accomplish by forming said bottom of a thin, annular internal flange 13, extending inward from a comparatively thick washer-shaped piece 14 of soft rubber. Said piece is circular in form, except that one side thereof is cut away to conform to the circumference of the carrier plate, and it is retained in position by means of a sectorial lower plate 15 secured upon said carrier, there being one such plate 15 for each pocket. Each sectorial plate 15 is preferably secured by means of lips 16 formed upon the carrier and bent downward and inward, so as to engage the outer edge of the sectorial plate 15, the latter being secured in position by being first pushed radially

outward against said lips, until a screw hole therein registers with a screw hole 18 formed in the carrier plate, and then a screw 17 is screwed thereinto. It may happen that the thin rubber flange 13 is cut by the breaking of a bottle, and although said flange will support a cap even when considerably so cut and worn, yet, when it becomes necessary to remove said support and replace it with a new one, this is easily done by removing the corresponding sectorial plate 15.

The rotation of the carrier plate is effected intermittently in unison with the reciprocating movement of the vertical rods 3 which support and operate the stopping head 4. For this purpose, the upper end of the hub 5 is enlarged, as shown at 20, so that the end of a transverse pivot pin 21 may be secured therein. Upon said pivot pin is pivoted an angular lever 22 having a long arm 23 and a short arm 24. The long arm 23 is weighted at its outer end, as shown at 25, said weight being preferably formed in one piece with said arm. The short arm of said lever extends downwardly, and is forked at its lower end, and in said fork is pivoted a pawl 26, which is formed with an operating shoulder 27, and is extended forward from said shoulder to form a weight 28, so as to insure the operating shoulder dropping into its operative position after each advance. Upon the upper surface of said carrier plate, around said hub 5, is detachably secured, by means of screws 29, a wearing ring 30, of hard metal, having secured thereon studs 31 corresponding in number with the pockets for the crown caps. These studs constitute a crown ratchet wheel, the operating shoulder 27 of the pawl engaging each stud in turn, and then being retracted to engage the next succeeding stud to advance the carrier through the angular distance between two succeeding studs.

In order to cause said pawl to so engage said studs in succession, the long arm 23 of the lever is raised with the vertical rods 3 by means of a vertical finger 33 which extends upward from the end of an arm 34 carried upon one of the guides 2. Said finger extends in succession through each of a circular series of half round notches 35 formed in the edge of the carrier plate, thus locking said carrier plate against rotation except when the carrier plate has been raised above the top of said finger. When the carrier plate is descending, and the finger 33 is engaging one of said notches 35, the top of the finger engages the long arm 23 of the lever and arrests it, thereby retracting the short arm 24 and the pawl 26 carried thereby, until the operating shoulder 27 on said pawl has been retracted far enough to drop against a succeeding stud 31 on the wearing ring to that just operated. During all this time the carrier is locked by said finger engaging the

notch 35. But upon the next upward movement of the carrier plate with the rod, the long arm of the lever does not drop, although no longer supported by the finger for the reason that the pawl 26 is held back by engagement with a stud 21 upon the wearing plate. But as soon as the carrier plate has risen to such a level that the notch 35 therein has passed above the finger 33 so that the carrier plate is free to turn, it immediately does so under the force of the weight of the long arm of the lever which is now free to drop. Thereby the carrier plate is advanced through an annular distance between two successive studs, that is between two successive pockets in the plate. By this means, with each reciprocation of the stopping devices commonly used in such machines the caps are advanced through a distance between two successive pockets, until each cap in turn is brought into position over the bottle which is to be filled. When the carrier plate has been thus advanced, an arm 37 extending downward from the long arm 23 into one of the cap pockets abuts against the side of said pocket, and thereby arrests the rotary movement of the carrier plate, and moreover locks it against any forward movement, while the carrier plate is raised above the level of the finger.

40 indicates a shield secured to the chute and hub, for the purpose of preventing the escape, from their proper position in the pockets, of the caps as they travel. When any cap has thus been brought into such position and a bottle has been placed in the proper position by the operator in the same manner as is now done, then, upon the next operation of the machine, the stopping mechanism descends upon the bottle and the carrier plate also descends, so that the cap in the pocket immediately over the bottle is arrested upon the top of the bottle the neck of which passes through the pocket, the rubber flange 13 in said pocket descending around said neck. In this way said cap is introduced into the uppermost or innermost part of the stopping head in the same way as if it had been pushed into that position by the finger of the operator. The operator now raises his foot slightly from the foot lever to raise the cap slightly from the top of the bottle and permit the liquid to flow into said bottle, the neck of the bottle being now sealed by the rubber ring 38 at present used in this class of devices. The remainder of the operation is precisely like that now following. The operator again depresses the lever so as to force the cap down upon the top of the bottle and clamp it thereon, and, having done so, releases the pressure which allows the stopping mechanism to rise, leaving the bottle with the cap properly clamped thereon, the thin rubber flange 13 passing upward around the neck of the bottle.

It will be observed that the operation of stopping the bottle with the crown cap does not differ from that now practiced except that it dispenses with the necessity of placing the cap in position in the top of the stoppering recess by hand, this being effected automatically by the same movement which moved the stoppering mechanism vertically to stop the bottle.

10 I claim:—

1. In an apparatus of the character described, the combination of a rotary carrier formed with a circular series of pockets, an apertured piece of flexible material in each pocket forming a support at the bottom thereof, and means for removably securing said material in position, substantially as described.

2. In an apparatus of the character described, the combination of a rotary carrier formed with a circular series of pockets, individual pieces of flexible material each having a thin internal annular flange, to form a bottom for the pocket, and individual plates removably secured to the carrier for supporting said pieces in position, substantially as described.

3. In an apparatus of the character described, a carrier plate having a series of pockets, each provided with individual annular means for supporting a cap therein, and having a central aperture of a size to receive the neck of a bottle adapted to be closed by said cap, substantially as described.

4. In an apparatus of the character described, capping mechanism, a carrier plate movable with said capping mechanism and having a series of pockets, provided with individual means carried on the plate for supporting a cap therein while permitting the neck of a bottle to pass therethrough, and means automatically actuated with the movement of said carrier plate for revolving the plate through the distance between successive pockets, substantially as described.

5. In an apparatus of the character de-

scribed, capping mechanism, a carrier plate movable with said capping mechanism and having a series of pockets, provided with individual means carried on the plate for supporting a cap therein while permitting the neck of a bottle to pass therethrough, means automatically actuated with the movement of said carrier plate for revolving the plate through the distance between successive pockets, and means for preventing the escape of the caps from the pocket as they travel, substantially as described.

6. In an apparatus of the character described, capping mechanism, a carrier movable with said capping mechanism and having a pocket, means for supporting a cap while permitting the neck of a bottle to pass therethrough, means automatically actuated with the movement of said carrier plate for moving the plate into and out of position beneath said capping mechanism, comprising a weighted lever arranged to be actuated with said carrier plate, a pawl carried by said lever, and a ratchet wheel on said carrier, substantially as described.

7. In an apparatus of the character described, capping mechanism, a carrier plate movable with said capping mechanism and having a series of pockets, each provided with means for supporting a cap therein while permitting the neck of a bottle to pass therethrough, means automatically actuated with the movement of said carrier plate for revolving the plate through the distance between successive pockets, comprising a weighted lever arranged to be actuated with said carrier plate, a pawl carried by said lever, and a ratchet wheel on said carrier, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EGMONT R. FREYER.

Witnesses:

F. M. WRIGHT,
H. B. DENSON.