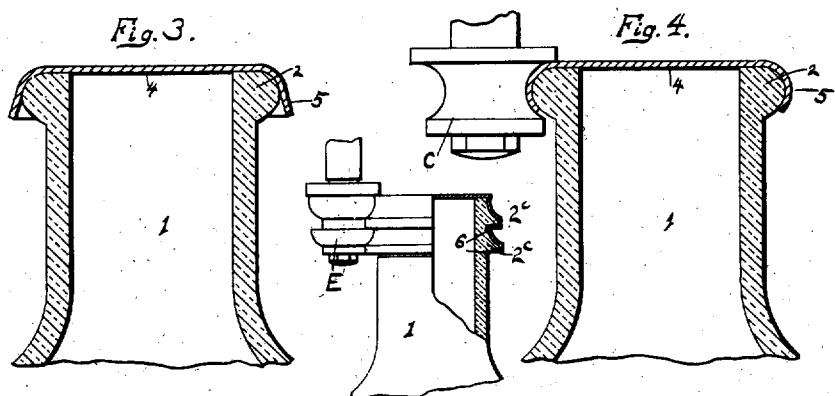
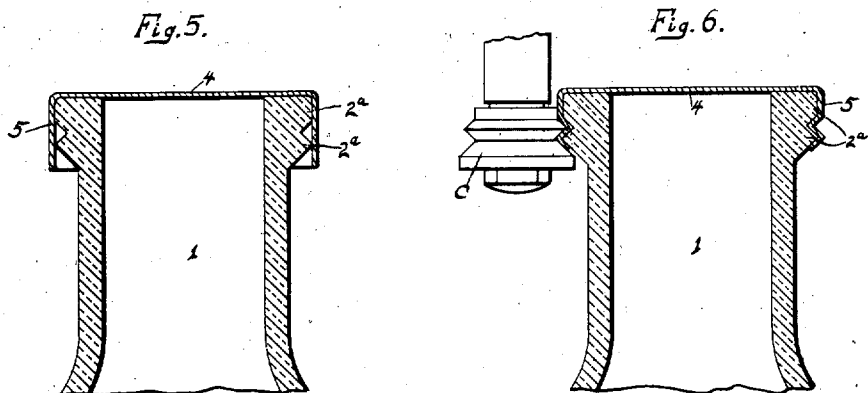
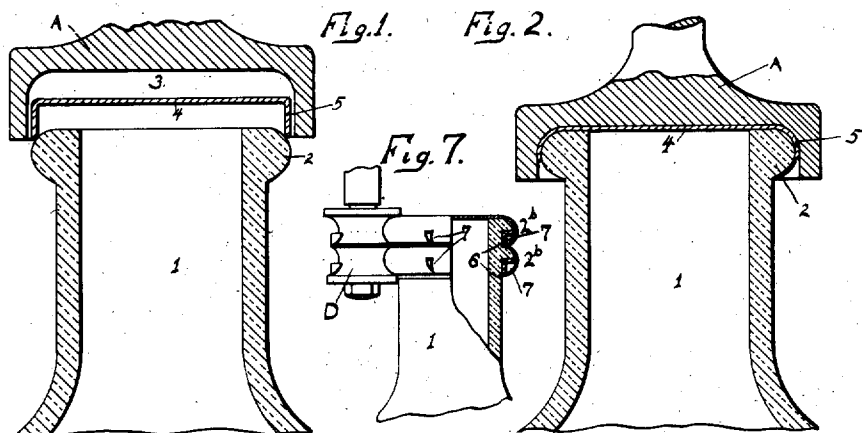


C. DE WITT.
BOTTLE CLOSURE.
APPLICATION FILED DEC. 11, 1909.

1,018,387.

Patented Feb. 20, 1912.



Witnesses—
Robert S. Frazier Jr.
Mary S. Handy.

Inventor—
Charles De Witt
By Smith & Frazier
Attys.

UNITED STATES PATENT OFFICE.

CHARLES DE WITT, OF BALTIMORE, MARYLAND, ASSIGNOR TO CHARLES CAWTHORNE CARTER, OF BALTIMORE, MARYLAND.

BOTTLE-CLOSURE.

1,018,387.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed December 11, 1909. Serial No. 532,590.

To all whom it may concern:

Be it known that I, CHARLES DE WITT, a citizen of the United States, residing in Baltimore, Maryland, have invented certain improvements in Bottle-Closures, of which the following is a specification.

My invention relates to bottle closures especially adapted for use on milk bottles, although applicable to various kinds of bottles.

Heretofore it has been customary to use on milk bottles an inside closure consisting of a paper disk seated upon a ledge a short distance below the mouth of the bottle, and different modifications of this form of closure are used. Experience has demonstrated that there are serious objections to the use of this form of closure, especially for milk bottles, since it promotes an accumulation of dirt in and about the bottle neck and contributes to an unsanitary handling of the bottle, as it frequently happens that the bottles are refilled in transit by the handlers and drivers who deliver the milk to different places. In this refilling it is a common occurrence for bottles to be taken from hospitals or other places where contagious diseases exist and milk introduced therein and disks applied to the bottles by the hands of the manipulators, obviously resulting in an unsanitary condition, which is a serious menace to the health of the community.

The object of my invention is to provide such a closure, particularly for milk bottles, that renders impossible the serious objections noted, and I provide for this purpose by making an outside closure, as distinguished from an inside closure, which must necessarily be applied by machinery by the proper appliances at the bottling plant or distributing station, thus making it impossible for the bottles to be tampered with in transit.

With the object stated in view, my invention consists in the novel construction of bottle closure and the manner of applying the same to the bottle neck, and the details thereof as hereinafter described with reference to the accompanying drawing, and more particularly pointed out in the claims.

In the drawing: Figure 1 is a view of a bottle neck showing the first step in the application of my improved closure; Fig. 2 is a similar view showing the second and last step; Figs. 3 and 4 are similar views show-

ing modified mode of applying the cap or closure; Figs. 5 and 6 are similar views showing further modifications; and Figs. 7 and 8 are similar views of two other modifications.

Referring to the drawing, in which the same reference characters relate to the same or corresponding parts in all of the views, the numeral 1 indicates the bottle neck which, in the form shown in Figs. 1 to 4, is provided with a bead 2 at the top, which is somewhat enlarged or exaggerated in order to more fully illustrate the invention.

In order to apply my closure to the bottle I form a cap of paper or equivalent material which is susceptible of a certain degree of compression and adapted to retain the form in which it is compressed, and apply the same to the bottle neck, as indicated in Fig. 1, the diameter of the cap being slightly less than the greatest diameter of the bead 2. It will be noted that this cap 3 is in the form of a cap comprising a main body 4 having a plain depending flange 5 projecting therefrom.

When the cap 3 is applied to the bottle neck, as indicated in Fig. 1, a die A, operated in any suitable manner by any suitable means, is forced down upon the bottle neck and cap, forcing the latter over the bead 2, whereby the rim of the cap is first expanded as it is forced beyond the greatest diameter of the bead and thence, under this abnormal tension, the lower edge of the flange, when the die has firmly pressed the cap into contact with the bottle mouth, contracts and grasps the bead, as indicated in Fig. 2, firmly holding the cap in position; or, if desired, the cap blank, consisting of a flat disk, may be placed upon the bottle mouth, and the die forced against the same, thereby forming the cup-shaped cap with plain depending flange and compressing the latter upon the bottle neck in one operation; again, the cup-shaped cap may, if desired, it is obvious, be applied to the die first and the latter operated as indicated, forcing the cap into the position shown in Fig. 2, or this operation may be effected in any way well known to the art, as the mechanism for applying the cap forms no part of my present invention.

As a modification of the above described form of the invention, the cap 3 may be applied to the bottle neck as shown in Figs. 110

3 and 4, and then forced into position by a roller C, suitably shaped, which causes the plain depending flange of the cap to be compressed against and around the bead 2, as shown in Fig. 4.

A further modification is shown in Figs. 5 and 6, wherein the bottle neck is provided with a plurality of beads 2^a upon which the cap may be compressed by the action of a roller in a similar manner to that shown in Figs. 3 and 4, or the said cap, in this instance, may be compressed on the bottle neck, as before described.

Further modifications are shown in Figs. 7 and 8, in the former of which views is shown a bottle neck 1, provided with one or more beads or ridges 2^b, having a groove 6 below each ridge or bead, and having one or more longitudinal slots 7 in the periphery of said bead or ridge, preferably intersecting the said groove. This form insures a firm hold of the flange of the cap upon the bottle neck, to which said cap may be applied by roller dies D, as indicated, or other suitable devices. In Fig. 8 the beads or ridges 2^c are undercut, as shown, the grooves 6 being similar to those in Fig. 7, and the cap being applied, if desired, by compressive roller E, or any other suitable device.

From the above description of my invention, it will be noted that an outside closure is provided which can only be applied in the proper manner to the bottle by the use of machinery, and consequently said caps can only be placed upon the bottles at the bottling plant or distributing station under the proper supervision to insure sanitary manipulation of the bottles, and furthermore there can be no tampering with the closures during transit, thus eliminating the serious objections which have confronted the problem of milk distribution in former years.

It will be noted that, when the cap is fixed upon the neck, the material of the cap will be under abnormal tension, so that said cap, when in position on the bottle neck, will have an inherent tendency to contract thereupon.

I am aware that it has been proposed, as a solution to the difficulties herein specified in connection with the handling of milk, to substitute, for the ordinary inside disk closure, a composite cap of metal and a disk of cork or paper seated therein and applied to the bottle neck by a crimping process, similar to the well known crown cork or seal, but this suggestion has been abandoned as impracticable because of the prohibitive cost of such a cap.

I am also aware that an outside covering has been applied to corked bottles, especially bottles containing wines and spirituous liquors. Such coverings have not been designed to act as a closure for the bottle or could they so act; they are simply for the purpose of covering up the cork and presenting a neat and attractive appearance, whereas my invention is applied directly to the bottle neck for the purpose of constituting the sole closure thereof, and it is held in place by the compressive action of the material after it has been expanded, in the one case, beyond its normal limit, and, in the other case, by direct compression under the influence of some compressing tool.

I claim as my invention.

1. A bottle closure consisting of a bottle having around the mouth thereof an external bead, said bead having a circumferential groove, which opens radially from the bottle, and a flanged cap, the flanged portion of which has a normal diameter slightly less than that of the bead, said cap being formed of paper susceptible of a certain degree of compression so that when expanded under pressure, by being forced over the bead, it will tightly grip the same by its tendency to return to normal condition, the intermediate portion of the cap overlying said groove and being displaced and forced into the groove while the lower edge portion of said flange remains gripped to the bead, the flange being thereby lengthened to provide the said displaced portion thereof.

2. A bottle closure consisting of a bottle having around the mouth thereof an external bead, said bead having a circumferential groove which opens radially from the bottle, said bead having a plurality of spaced notches formed therein, and a flanged cap formed of paper susceptible of a certain degree of compression so that when expanded under pressure by being forced over the bead it will grip the bead by its tendency to return to normal condition, the intermediate portion of the cap being displaced and forced into locking engagement with said groove while the flange remains gripped to the bead, and portions of the displaced part of the flange being struck out thereof and forced into locking engagement with said notches.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

CHARLES DE WITT.

Witnesses:

JAS. G. STANLEY,
OLIVER G. HANNAL.