June 13, 1933. W. G. LAIDLAW 1,914,208

BOTTLE CLOSURE

Filed Aug. 19, 1929

Fig. 1.

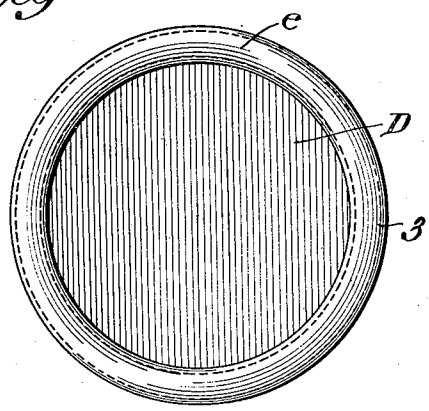


Fig. 3.

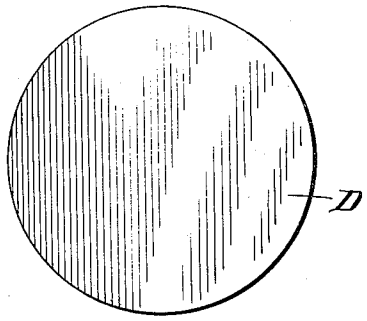


Fig. 5.

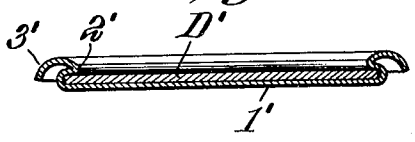


Fig. 2.

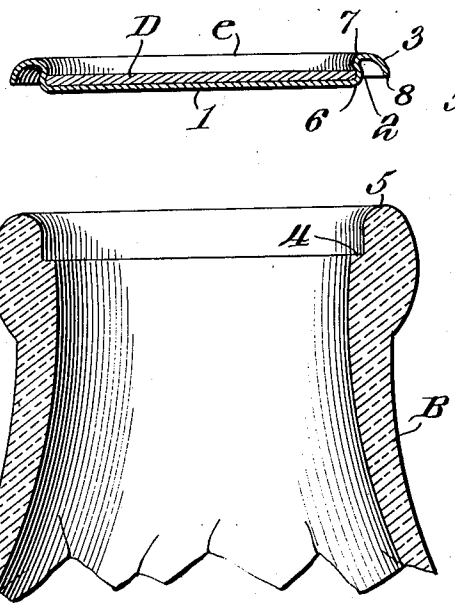
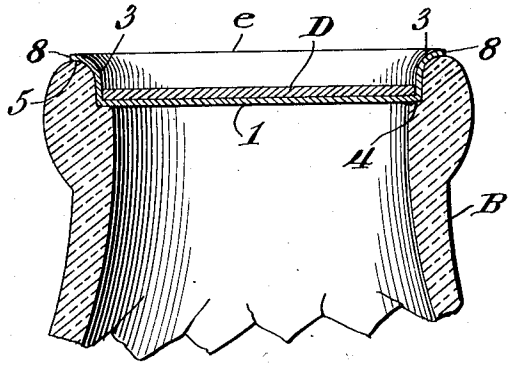


Fig. 4.



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UNITED STATES PATENT OFFICE

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BOTTLE CLOSURE

Application filed August 19, 1929. Serial No. 386,907.

This invention relates to closures for containers, and particularly closures for milk bottles of the usual type.

In the prior art attempts have been made to produce milk-bottle caps which are adapted to seat against the shoulder in the bottle mouth, such caps also being provided with flanges which extend over the mouth of the bottle. In these caps, however, no provision was made for allowing the caps to adjust themselves to the usual variations in milk bottles, the caps themselves being finished articles in which the distances between the portion seating in the shoulder of the bottle was made at a fixed point from the bottle mouth. In the patent to Parker, No. 1,460,269, there was suggested for the first time in the art the provision of a bottle cap or a closure of this character, in which the cap possessed the function of adjusting itself to varying distances between the shoulder in the mouth of the bottle and that mouth, so that an effective double seal was obtained. The present invention is concerned with caps of the type set forth in that Parker patent.

Among the objects of the present invention is the provision of a bottle cap which will adjust itself to variations in the distance between the shoulder and the mouth of the bottle, so that an effective double seal will be obtained.

Other and further objects and advantages will appear from the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of explanation and illustration, and not as limiting, since various changes may be made in this disclosure by those skilled in the art without departing from the scope and spirit of the present invention.

In connection with that more detailed description, there is shown in the drawing, in

Figure 1, a plan view of a closure made in accordance with the present invention; in

Figure 2, a transverse section of the closure of Figure 1, as it appears when about to be applied to a bottle, also shown in fragmentary section in Figure 2; in

Figure 3, a strengthening disk desirably used with the closure; in

Figure 4, a transverse section showing the cap applied to a bottle; and in

Figure 5, a sectional view of a modified form of cap.

Turning to a consideration of the preferred form of closure illustrated in the drawing, the disclosure desirably taking the form of a cap having a central or disk-like portion 1, provided with an upstanding wall portion 2, and a flaring portion 3. The flaring portion 3 is desirably formed with a curvature greater than that of the bottle to which the cap is to be applied. Furthermore, the upstanding wall portion 2 is desirably made of a height less than the distance between the shoulder 4 of the bottle and the mouth 5 thereof. Desirably the upstanding wall portion 2 tapers inwardly from the point 6 where it joins the central or disk-like portion to the point 7 where it joins the flaring portion 3. The diameter of the central portion 1 is such that it fits snugly within the shoulder 4 of the bottle B, and the inward taper of the upstanding wall 2 is sufficient to hold a strengthening disk D firmly in position in the finished closure when such strengthening disk is utilized. Due to the greater curvature of the flaring portion 3 as compared with the curvature of the bottle mouth 5, the end 8 of the flaring portion will usually fit on the mouth 5 of the bottle at the beginning of the capping operation.

Considering more particularly Figure 2 of the drawing, when the capping operation is employed the closure C is applied to the bottle, and the end 8 of the flaring portion will engage the mouth 5 of the bottle. In the actual capping operation to secure the cap on the bottle as shown in Figure 4, the central

or disk-like portion 1 is depressed until it seats upon the shoulder 4 of the bottle. During this operation, the flaring portion 3 is flattened against the mouth of the bottle, and the upstanding wall portion 2 adjusts itself to the distance between the shoulder 4 and the mouth 5 of the bottle. The cap thus possesses the function of adjusting itself to varying distances of the shoulder 4 from the mouth 5 of the bottle, and such distances actually have been found to vary in the milk bottles in use. By the use of a cap of the type of the present invention, an effective double seal is obtained both at the shoulder 4 and also at the mouth 5 of the bottle.

The closure is desirably used with a strengthening disk of the usual type employed in connection with milk bottles, such disk D being held in position in the closure C due to the tapered wall portion 2. Such wall portions may be crimped about the disk D to effectively hold that disk in position.

In the modification shown in Figure 5, the closure may have its side walls 2′ flattened down against the disk D′. Such structure may be obtained either by depressing the flaring portion 3 of the closure shown in Figure 2; or the structure of Figure 5 may be obtained by turning the wall 2′ inwardly upon the disk D′ and then outwardly upon itself to form the flaring portion 3′. The structure of Figure 5 also shows the flaring portion 3′ having a curvature greater than the mouth of the bottle to which the closure is to be applied, so that during the capping operation, the flattened wall 2′ will unfold sufficiently to adjust itself to the distance between the shoulder 4 and mouth 5 of a bottle.

The central portion 1 of the cap may be made slightly oval, so that the cap will adapt itself to the irregularities of the shoulders which are not generally true circles in the average run of milk bottles, and similarly the strengthening disk D may be made slightly oval for a similar reason.

The cap may be made of any desired material, but particularly a good grade of paper gives an effective closure. Such paper may be waterproofed in any desired manner, if a waterproof closure is sought.

The closures of the present invention may be desirably packed in cartons. The flattened shapes of the closures adapt them to this type of packaging, and this is particularly true of the article shown in Figure 5.

Having thus set forth my invention, I claim:

1. A bottle closure comprising a central portion carrying an annular flange having a wall portion and a flaring portion, the flaring portion having a greater curvature than the mouth of the bottle to which the closure is to be applied.

2. A bottle closure comprising a central portion having an annular flange having an inwardly tapering wall portion and a flaring portion, the flaring portion having a greater curvature than the mouth of the bottle to which the closure is to be applied, and a strengthening disk held in place by the inwardly tapering wall portion of the annular flange.

3. A closure for a bottle provided with a shoulder in the inner wall of the bottle spaced from the mouth of the bottle, said closure comprising a central portion adapted to seat on the shoulder of the bottle, and an annular flange adapted to cover at least a portion of the mouth of the bottle, said flange comprising an upstanding wall of a height less than the distance from the shoulder to the mouth of the bottle, and a flaring portion having a greater curvature than the mouth of the bottle to which the closure is to be applied, so that upon seating the central portion of the closure on the shoulder of the bottle, the flaring portion is fitted to the bottle mouth and the upstanding wall is adjusted to the distance from the shoulder to the bottle mouth, whereby a double seal is effected.

4. A closure for a bottle provided with a shoulder in the inner wall of the bottle spaced from the mouth of the bottle, said closure comprising a central portion adapted to seat on the shoulder of the bottle, and an annular flange adapted to cover at least a portion of the mouth of the bottle, said flange comprising an inwardly tapering wall portion of a height less than the distance from the shoulder to the mouth of the bottle, and a flaring portion having a greater curvature than the mouth of the bottle to which the closure is to be applied, so that upon seating the central portion of the closure on the shoulder of the bottle, the flaring portion is fitted to the bottle mouth and the upstanding wall is adjusted to the distance from the shoulder to the bottle mouth, and a strengthening disk held in place within the closure by the inwardly tapering wall.

5. A closure for a milk bottle having the usual shoulder comprising a central portion adapted to fit snugly in the mouth of the milk bottle, said central portion carrying an annular portion of substantially inverted U-shape forming inner and outer wall sections, the inner wall section being adapted to receive and hold securely a reenforcing disc, the outer wall section being capable of being displaced during a capping operation to conform substantially with the contour of the shoulder of the milk bottle, for which purpose the outer wall section prior to capping has a curvature greater than the mouth wall of the bottle.

6. A closure for a milk bottle having the usual shoulder comprising a central portion adapted to fit snugly in the mouth of the milk bottle, said central portion carrying an

annular portion of substantially inverted U-shape forming inner and outer wall sections, the inner wall section being adapted to receive and hold securely a reenforcing disc, the outer wall section having a curvature prior to capping greater than the mouth wall of the bottle but being capable of displacement during the capping operation to conform substantially with the contour of the shoulder of the milk bottle, and a reenforcing disc carried by said closure and retained in position thereon by the said inner wall section.

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