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E. J. HEYL ET AL

2,964,208

CAP AND PLASTIC FITMENT COMBINATION

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FIG. 1.

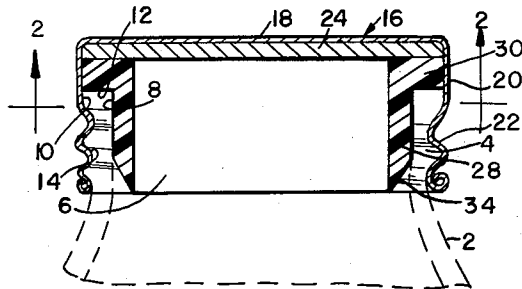


FIG. 2.

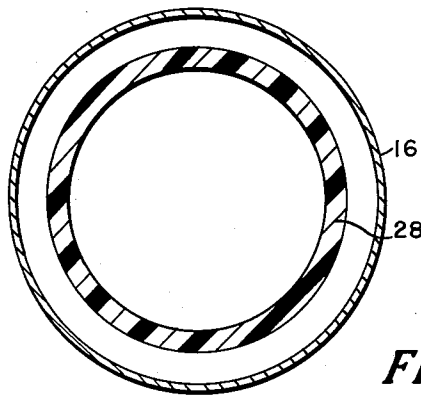


FIG. 3.

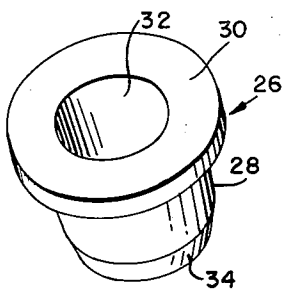
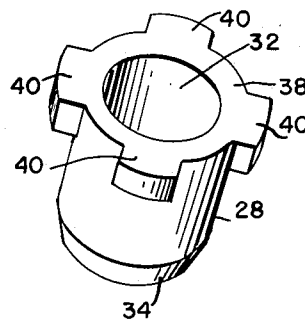


FIG. 4.



INVENTORS

EDGAR J. HEYL

JOSEPH J. HITOV
HERMAN SAMPSON

BY

Cushman, Darby & Cushman
ATTORNEYS

1

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Edgar J. Heyl and Joseph J. Hitov, Baltimore, Md., and Herman Sampson, San Francisco, Calif., assignors to Crown Cork & Seal Company, Inc., Baltimore, Md., a corporation of New York

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9 Claims. (Cl. 215—40)

This invention relates to securing plastic fitments to bottle necks.

Plastic fitments for bottle necks, such as no-drip pouring collars, shaker spouts for liquids, perforated discs for powder dispensing, etc., are currently inserted in the bottle necks by hand. This is a slow, unsanitary and expensive operation.

Alternatively, it has been proposed to apply an adhesive to a fitment whereby the latter can be adhered to the top of the bottle. This procedure has the disadvantage that it is costly and time consuming to apply the adhesive and furthermore there is frequently a problem in ensuring a tight bond between the adhesive and the glass bottle.

Accordingly it is an object of the present invention to devise a method of applying a fitment for a bottle which eliminates the need for an adhesive.

Another object is to eliminate the slow, unsanitary, expensive hand method of applying fitments to bottles.

A further object is to devise a closure and plastic fitment combination adapted for ready application to a bottle.

An additional object is the provision of a bottle having securing means with a closure having mating securing means and with a fitment which will be retained with the container upon removal of the closure.

Still further objects and the entire scope of applicability of the present invention will become apparent from the detailed description given hereinafter; it should be understood, however, that the detailed description and specific examples, while indicating the preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

It has now been found that these objects can be attained by making a plastic fitment of appropriate design so that it can be snapped into the cap or closure shell. When the cap is secured on the bottle the fitment goes into place and when the cap is removed the fitment remains in place on the bottle neck as will become clear as the description proceeds.

The cap or closure can be of conventional type and can have lugs, threads or other container securing means. The cap normally will be of metal but can be made of glass, plastic or the like. The cap can have a protective liner or if the metal cap has an appropriate coating, e.g., a vinyl resin coating, the liner may be dispensed with. The container neck has securing means matingly engageable with the securing means on the cap.

The plastic fitment can be a no-drip pouring collar, shaker spout or perforated disc, etc., and is made of a material which is inert to the contents of the container. Suitable plastics include polyethylene, rubber, etc. The plastic should be one that is flexible and which also will develop considerable friction between it and the container neck if an effort is made to separate them.

2

The invention will be more clearly understood with reference to the drawings wherein:

Figure 1 is a vertical section of a closure and fitment in accordance with the invention and showing in dotted outline a bottle for use therewith;

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

Figure 3 is a plan view of the fitment of Figure 1;

Figure 4 is a plan view of an alternative and preferred type of fitment.

Referring more specifically to the drawings, there is provided a glass bottle 2 having a neck or sidewall 4. The sidewall terminates in a pouring opening 6 having an inner edge 8, an outer edge 10 and a top wall 12 defining the termination of sidewall 4. Outer edge 10 is provided with threads 14.

There is also provided a metal closure 16 having a top 18 and depending skirt 20. The skirt has threads 22 adapted to matingly engage the threads 14 of the bottle side wall 4. The closure has a conventional liner 24 of cork or other suitable material.

In addition there is provided a no-drip pouring collar fitment 26 of polyethylene. The fitment includes an inner wall 28 which terminates at its upper end in an exterior horizontal flange 30. The inner wall 28 defines an opening 32. At its lower end the wall 28 is tapered downwardly and inwardly at 34. The diameter of the flange 30 of the fitment is such, in relation to inside diameter of the closure shell threads 22, that the fitment can be snapped in place and yet retained in the shell. The fitment is thus ensembled in the closure by snapping the flange 30 into position above the threads 22. This operation can be done either manually or by mechanical means.

After the fitment is in place in the closure the combination is then applied to the bottle by screwing the cap down. The outside diameter of the fitment tube wall 28 is such that it fits snugly in the neck of the bottle. The small taper 34 at the bottom of the wall 28 aids in the insertion in the bottle neck or sidewall. When the closure is unscrewed the friction between the fitment tube and the bottle neck retains the fitment in place. The relationship between the flange and inside thread diameters of the closure plus the flexibility of the plastic allows the closure to be removed without tending to pull the fitment out.

Instead of having an overall flange 30 of uniform diameter as shown in Figures 1—3 there can be provided a narrow flange 38 as in Figure 4 having a plurality of projections 40 whereby there will be provided recess portions 38 of lesser diameter and other portions 40 of greater diameter. The diameter of the projections 40 is such that the fitment will still snap into the shell in the manner previously set forth and will be retained therein prior to application to the bottle. However, the tendency for removal of the fitment of Figure 4 with the closure is decreased in comparison to the fitment of Figure 3 due to the weakened holding power of the projections as compared with a full flange of the same diameter. The projections 40 have been found to have no adverse effect on the no-drip effect of the fitment.

There is thus provided a plastic fitment properly positioned within a bottle neck without the aid of adhesives, which fitment due to the flexibility of the projections on the flange allows the bottle closure to be removed without any tendency to pull up on the fitment.

We claim:

1. The combination of a container having a mouth, a closure for said container mouth, and a plastic fitment adapted to be engaged by said closure for insertion into said mouth by said closure upon application of said closure to said mouth and to remain in said mouth thereafter upon subsequent removal of said closure, said mouth

3

having first predetermined interior dimensions and carrying exteriorly thereof securing means, said closure having a crown portion and a depending skirt portion carrying inwardly projecting securing means for cooperation with said securing means carried by said mouth upon application of said closure to said mouth; said securing means carried by said skirt portion having second predetermined interior dimensions and said skirt portion of said closure having third predetermined interior dimensions; said fitment comprising a flange portion, and a skirt portion depending from said flange portion and spaced from said securing means, said flange portion having in its normal state, outer peripheral limits of dimensions greater than the corresponding second predetermined interior dimensions of said securing means but at least substantially no greater than the corresponding third predetermined interior dimensions of said skirt portion of said closure, said depending skirt portion of said fitment having, in its normal state, outer peripheral limits of dimensions at least as great as the corresponding first predetermined dimensions of said mouth whereby said flange can be snapped into frictional engagement with said closure above said securing means, prior to applying said closure to said mouth, and once said closure is applied to said mouth said skirt portion frictionally engages said mouth and remains therein upon subsequent removal of said closure.

2. A combination as in claim 1 wherein the lower end of the fitment skirt portion is cut diagonally away from the container mouth.

3. A combination as in claim 1 wherein said closure and said mouth are circular in cross-section and wherein said fitment flange portion is an overall flange of uniform diameter.

4. A combination as in claim 1 wherein said closure and said mouth are circular in cross-section and wherein said fitment flange portion is partially cut away to provide recess portions of lesser diameter and other portions of greater diameter.

5. The combination of a closure for a container, and a plastic fitment adapted to be releasably engaged by said closure for insertion into the container by said closure upon application of said closure to the container and to remain in the container thereafter upon subsequent removal of said closure, said closure having a crown portion and a depending skirt portion carrying inwardly projecting securing means for cooperation with securing means carried by the container upon application of said

4

closure to the container; said securing means having first predetermined interior dimensions and said skirt portion of said closure having second predetermined interior dimensions; said fitment comprising a flange portion, and a skirt portion depending from said flange portion, said flange portion having in its normal state, outer peripheral limits of dimensions greater than the corresponding first predetermined interior dimensions of said securing means carried by the skirt of said closure but at least substantially no greater than the corresponding second predetermined interior dimensions of said skirt portion of said closure, said depending skirt portion of said fitment having, in its normal state, outer peripheral limits of dimensions smaller than the corresponding first predetermined dimensions of said securing means carried by said closure, whereby said flange can be snapped into frictional engagement with said closure above said securing means, and said skirt portion of said fitment is spaced from said securing means carried by said skirt portion of said closure.

6. A combination as in claim 5 wherein the lower end of the fitment skirt portion is cut diagonally away from the container mouth.

7. A combination as in claim 5 wherein said closure is circular in cross-section and wherein said fitment flange portion is an overall flange of uniform diameter.

8. A combination as in claim 5 wherein said closure is circular in cross-section and wherein said fitment flange portion is partially cut away to provide recess portions of lesser diameter and other portions of greater diameter.

9. A combination as defined in claim 5 wherein said closure is cylindrical in shape, wherein said securing means comprise threads, and wherein said fitment flange, in its normal state, has a diameter no greater than the interior diameter of said skirt portion, but greater than the inner diameter of said threads.

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