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2,362,740

METHOD OF FORMING CONTAINER COVERS

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Fig. 1.

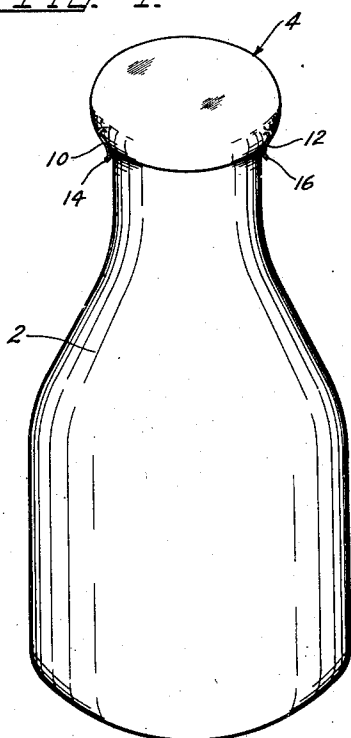


Fig. 2.

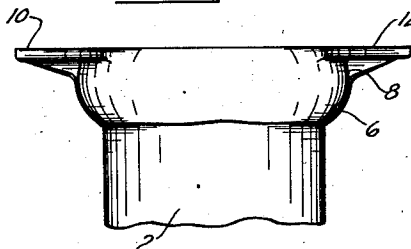


Fig. 3.

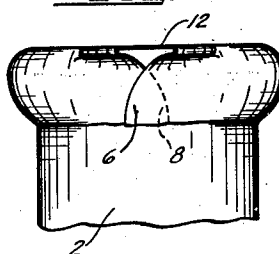
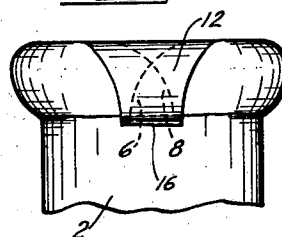


Fig. 4.



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METHOD OF FORMING CONTAINER COVERS

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3 Claims. (Cl. 18—56)

This invention relates to capping and more particularly to the provision of a protecting lip cover and seal for a milk bottle.

An object of this invention is to provide a thoroughly practical and efficient lip cover and seal for the opening of a bottle, such, for example, as a milk bottle. A further object is to provide a means for covering the top of a bottle which is readily manufactured and placed into position and which will provide a reliable seal and will withstand rough usage. A further object is to provide a cover of the above character which will automatically adapt itself to the contour of a lip or rim and which will resist shocks to which the cover is subjected. A further object is to provide a liquid and air-tight covering which will remain in place during use and which may be easily removed when desired. A further object is to provide a seal which may be economically and efficiently formed and positioned in a single operation by a machine.

These and other objects will be in part obvious and in part more fully pointed out hereinafter.

The invention accordingly consists in the features of construction, combinations of elements, arrangements of parts, and in the several steps and relation and order of each of the same to one or more of the others, all as will be illustratively described herein, and the scope of the application of which will be indicated in the following claims.

In the drawing:

Figure 1 is a perspective view of one embodiment of the invention showing a lip covering seal in place on a milk bottle;

Figure 2 is a side elevation of the top of a milk bottle during the process of forming the cover of Figure 1;

Figure 3 is a side elevation from the side of Figure 2; and

Figure 4 is a view similar to Figure 3 and showing the completed cover.

As conducive to a more clear and complete understanding of the present invention, it should be noted that difficulty is encountered in providing a seal and a lip cover for milk bottles and that these difficulties arise due to the exacting requirements. That is, the cover must thoroughly seal the top of the bottle and must prevent the entry of dust and dirt along the sides and to the top of the bottle lip. Further, the cover is subjected to severe treatment as occurs, for example, when ice is dropped onto the tops of the bottles after the bottles are placed

in crates. Later, the bottles are apt to be knocked against the sides of the crate or against sharp corners, and the cover should withstand such treatment.

To this is added the problem of removing the cover when the milk is to be used. If the cover is not easily removed, the user may merely cut a hole in the top of the cover leaving the sides of the cover in place so that the milk runs out over the contaminated cover instead of over the protected lip. Furthermore, when the bottle is returned with the portion of the cover on it, a person must be employed to inspect all of the bottles and remove these portions of the cover. In practice milk bottles are washed, filled, and sealed by machines, and it is important that the machines operate properly without depending upon constant attention by an attendant. However, if some of the bottles are returned with portions of the covers on their necks or lips, the operations of the machine must be supplemented by an individual inspection of all of the bottles and a manual removal of the portions of the covers which are found. Thus it is important that the covers be of a character that the user of the milk will remove the entire cover.

In addition to the above considerations, the lips of bottles are apt to have imperfections as, for example, the bottle may become chipped. These imperfections may not interfere with the normal use of the bottles, but they may interfere with the proper sealing of the bottle unless the cover will adapt itself to the exact contour of the bottle lip. It is an object of the present invention to provide a thoroughly practical and economical cover which will be free of the above objections and which may be readily adapted for a variety of uses.

In the present embodiment of the invention, a lip cover is provided which is a pliant, synthetic, plastic film. Referring particularly to Figure 1 of the drawing, a bottle 2 is provided with a lip at the top and extending over the top of the lip is the lip cover, generally indicated at 4. Cover 4 extends snugly around the top and sides of the lip and is formed into a skirt around the neck of the bottle below the lip.

The material which is used in this embodiment of the invention is known as "Krene" and is a product of the Union Carbide and Carbon Corporation. Chemically this product is known as a copolymer, and it is composed of approximately nine parts of polyvinylchloride and one part polyvinylacetate plus suitable stabilizers and plasticizers. In the case of a standard quart milk

bottle, cover 4 is made from a square sheet approximately three inches square and having a thickness of four thousandths of an inch. This product has ability to stretch in both directions and to then flexibly return to substantially its original condition.

Figures 2 and 3 demonstrate one step of the process of forming cover 4. Initially the sheet of material is stretched in both directions and the center of the sheet is positioned tightly against the top of the bottle. Two opposite sides of the material are then stretched around the neck of the bottle below the lip so that the corners overlap in the manner shown in Figures 2 and 3. Referring to Figure 3, two corners are shown with a corner 6 overlapping on top of a corner 8 and immediately above this overlapping portion is a tongue 12. Referring to Figure 2, tongues 10 and 12 extend outwardly in substantially the plane of the top of the bottle and in this condition heat is applied to the overlapping corners of the material so that the corners are fused together. Tongues 10 and 12 are then grasped and pulled apart so as to tightly stretch the sheet and the tongues are folded downwardly over the overlapping corners. Heat is then applied to the outer surface of each tongue with a resulting seal extending substantially to the bottom of the lip as shown in Figures 1 and 4. Heat is applied to only a portion of the downwardly extending tongues 10 and 12 and thus the ends of the tongues form flaps 14 and 16 which are adapted to be manually grasped. When it is desirable to pour the milk from the bottle, one of these flaps may be grasped and when it is pulled outwardly and upwardly the cover is readily removed. When desirable the cover may be removed carefully without damaging and then replaced. Until the cover is removed, the natural resilience of the material tightly holds the cover on the bottle so that the cover grasps the top of the bottle and the entire side and top portions of the rim.

It is apparent that many changes might be made in the specific embodiment of the invention described above without departing from the spirit of the invention. Thus the corners 6 and 8 and the tongues 10 and 12 may be secured together by using a suitable cement or solvent instead of heat or in combination with heat and/or pressure. Similarly, corners 6 and 8 may be secured to each other and to the tongue 10 in a single sealing operation and other changes may be made in the embodiment of the invention illustratively described above.

I claim:

1. In the art of forming a lip cover for the pouring lip of a milk bottle, the steps of, stretching a thin sheet of a resilient synthetic plastic over the top of the bottle and against the top of the lip, said sheet having two sets of opposite sides, carrying the two opposite sides of one of said sets of opposite sides of the sheet downwardly with the edges below the bottom of the lip, stretching these two opposite sides around the lip and holding the corners of the sheet in an overlapping position, stretching the central portions of the other of said sets of opposite sides downwardly over the overlapped corners, and sealing said corners and central portions to retain the sheet in stretched condition.

2. In the art of forming a lip cover for the pouring lip of a milk bottle, the steps of, stretching a thin sheet of a resilient synthetic plastic over the top of the bottle and against the top of the lip, said sheet having four edge portions, designated edges one, two, three, and four, respectively, wherein edges one and three are opposite each other and edges two and four are opposite each other, carrying edges one and three of the sheet downwardly below the bottom of the lip, stretching each of these edges around the lip and holding the portions of the sheet comprising the extreme portions of edge one and the extreme portions of edge three in an overlapping position, respectively, stretching the central portions of edges two and four downwardly against the respective overlapped corners, and during the last two steps fusing the corners of the overlapped portions of the sheet so as to retain the sheet in stretched condition.

3. In the art of forming a lip cover for a pouring lip, the steps of, stretching and expanding a thin sheet of a resilient synthetic plastic over the top of the lip and around the sides thereof, stretching and expanding the peripheral portion of the sheet circumferentially with respect to the lip beneath the bottom of the lip, forming folds in the peripheral portion of the sheet beneath the bottom of the lip thereby to maintain the main body of the sheet in stretched and expanded condition, and attaching the material forming the folds together to hold the cover in place and to hold the main body of the sheet and the peripheral portion in the taut and stretched condition.

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