May 21, 1957 C. A. RODRIGUEZ 2,792,957

BOTTLE CAP

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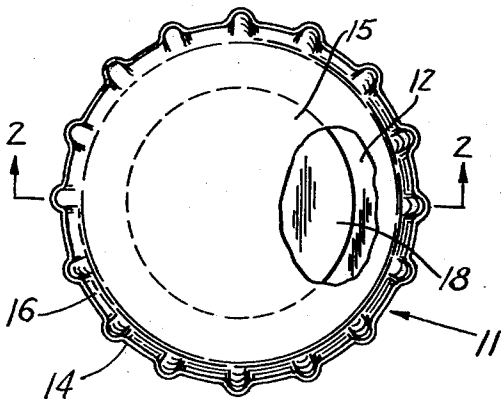


FIG. 1

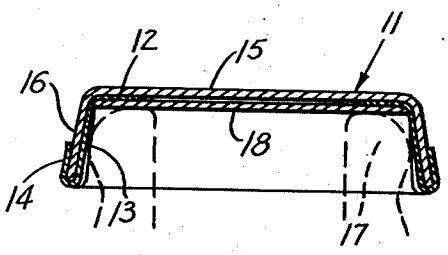


FIG. 2

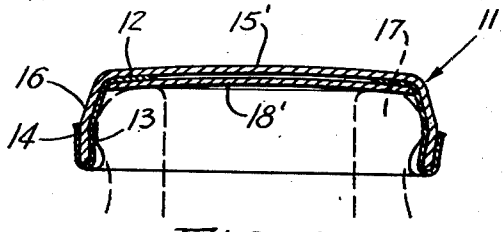


FIG. 4

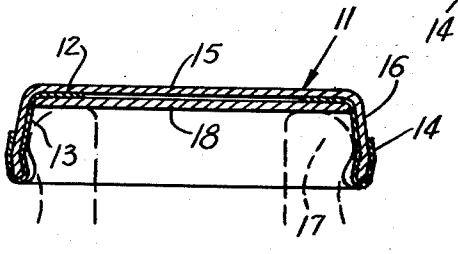


FIG. 3

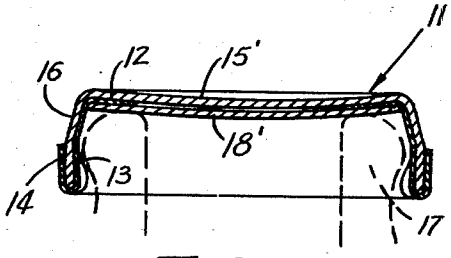


FIG. 5

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BOTTLE CAP

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3 Claims. (Cl. 215—39)

This invention relates to bottle caps of the crown type, and more particularly to an improved crown cap of the type employing an annular metal ring having the crimped skirt portion formed therein and a non-metallic additional sealing element co-operating with said annular metal ring.

A main object of this invention is to provide a novel and improved bottle cap of the crown type which is simple in construction, which is easy to fabricate, and which provides a reliable sealing action.

A further object of invention is to provide an improved bottle cap of the crown type which is inexpensive to manufacture, which is attractive in appearance, and which is easy to remove from the top of a bottle employing the cap.

Further objects and advantages of the invention will become apparent from the following description and claims, and from the accompanying drawings, wherein:

Figure 1 is a top view, partly broken away, of an improved bottle cap constructed in accordance with the present invention.

Figure 2 is a vertical cross sectional view taken on line 2—2 of Figure 1.

Figure 3 is a vertical cross sectional view similar to Figure 2, but showing the relationship of the elements of the cap after the skirt portion thereof has been crimped inwardly to secure the cap on the top of a bottle.

Figure 4 is a cross sectional view similar to Figure 3 but showing a modified form of cap provided with an upward curvature, the cap being arranged so that the cap may be removed from a bottle by exerting downward pressure on the upward curvature thereof.

Figure 5 is a cross sectional view similar to Figure 4 but showing the elements of the cap after pressure has been applied to the normally upwardly bowed portions of the cap to depress said bowed portions downwardly.

Referring to the drawings, and more particularly to Figures 1, 2 and 3 the improved bottle cap is designated generally at 11 and comprises a flat annular metal ring 12 having a depending peripheral skirt 13 formed at its bottom margin with an upwardly facing peripherally channel 14. The ring element 12, the skirt element 13 and the channel 14 are integrally formed of relatively thin metal. Designated at 15 is a circular outer paper body which is mounted on the ring element 12 and which is provided with a depending peripheral skirt portion 16 received in the channel 14 and sealingly clamped therein when the channel 14 is crimped in the conventional manner to secure the cap on the bead 17 of a bottle, as shown in Figure 3.

Designated at 18 is a paper sealing disc which is received within the skirt 13 and which is disposed adjacent the bottom surface of the ring element 12, as is clearly shown in Figures 2 and 3.

Paper body 15 and disc 18 are of sufficiently close texture to provide the desired sealing action, and to prevent liquid from soaking therethrough after the cap has been

mounted on the bead 17 of the bottle. Thus, the outer paper cap 15 may be of heavy waxed paper, or of a material similar to that generally employed for paper drinking cups. The interior paper disc 18 is preferably of a texture sufficiently deformable to provide a required sealing action and sufficiently impervious to moisture to prevent seepage of liquid therethrough.

As shown, the inner disc 18 is spaced from the circular outer paper body 15 by the thickness of the ring element 12.

In mounting the cap, the assembly is first placed on the bead of the bottle 17 and then the channel 14 is crimped inwardly in the usual manner to tightly clamp skirt 16 is said channel 14 and to lock the cap on the bead 17 of the bottle, as shown in Figure 3. At the same time the clamping pressure forces the top rim of the bottle against the peripheral portion of the sealing disc 18, providing the required liquid-tight seal.

It will be noted that no metal or cork is employed in the assembly, whereby the cost of the cap is reduced to a minimum and whereby possibility of contamination of the liquid from contact with a metal gasket is completely avoided.

In the form of the invention shown in Figures 4 and 5, the circular outer body element, shown at 15′ and the inside sealing disc, shown at 18′ are normally bowed upwardly at their central portions, as by properly dimensioning these members whereby the central portions of the elements 15′ and 18′ will be bowed upwardly when the clamping and crimping pressure is applied to the channel 14. Thus, by providing a slightly large diameter for the body element 15′ and for the disc element 18′ than would be provided for the corresponding elements 15 and 18 in the form of the cap shown in Figures 1 to 3, the clamping and crimping force acting inwardly on the channels 14 produces an inwardly directed stress in the material of elements 15′ and 18′ which causes the central portions thereof to be deflected upwardly to provide the configuration shown in Figure 4. The thickness of the elements 15′ and 18′ is preferably substantial so that by pressing downwardly on the central portion of the cap 15′, a corresponding reversed stress will be developed in the material of the elements 15′ and 18′, which is sufficient to deflect the peripheral skirt portion 13 outwardly, whereby to release the cap and to allow the cap to be freely disengaged from the bottle bead 17. By exerting enough downward presure, the central portion of elements 15′ and 18′ are carried past their dead positions and will snap downwardly to the configurations shown in Figure 5 wherein the central portions of the elements 15′ and 18′ will be depressed below the horizontal planes defined by their respective peripheries. This results from the redistribution of the stress in the material of the elements 15′ and 18′.

Thus, to remove a cap such as shown in Figures 4 and 5, it is merely necessary to exert sufficient finger pressure on the center of the outer paper body 15′ to depress the central portion of said outer paper body and to cause the elements 15′ and 18′ to snap into the positions thereof shown in Figure 5.

While certain specific embodiments of an improved bottle cap has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore it is intended that no limitations be placed on the invention except as defined by the scope of the appended claims.

What is claimed is:

1. A bottle cap of the crown type comprising a flat annular metal ring having a depending peripheral skirt, an outwardly facing peripheral channel on said skirt, a

circular outer paper body mounted on said ring and having a depending peripheral skirt received in and sealingly clamped in said channel, and a paper sealing disc received in said first named skirt and disposed in sealing contact with the bottom surface of said ring.

2. A bottle cap of the crown type comprising a flat annular metal ring having a depending peripheral skirt, an outwardly facing peripheral channel on said skirt, a circular outer paper body mounted on said ring and having a depending peripheral skirt received in said channel, said channel being crimped into clamping and sealing engagement with said second named skirt, and a paper sealing disc received in said first named skirt and disposed in sealing contact with the bottom surface of said ring and in spaced relation to the top portion of the paper body.

3. A bottle cap of the crown type comprising a flat annular metal ring of relatively thin deformable metal

having a depending peripheral skirt, and upwardly facing peripheral channel on the bottom margin of said skirt, a circular outer paper body mounted on said ring and having a depending peripheral skirt received in said channel, said channel being crimped to clamping and sealing engagement with said second named skirt, and a paper sealing disc received in said first named skirt and disposed in sealing contact with the bottom surface of said ring and in spaced relation to the top portion of the paper body, the channel being crimped inwardly sufficiently to elevate the central portions of said outer paper body and paper sealing disc, and being sufficiently yieldable to be deflected outwardly when sufficient finger presure is applied to the elevated central portions of the outer paper body to depress said central portion.

No references cited.