

[54] BOTTLE CAP STRUCTURE AND METHOD FOR MAKING THE SAME

[76] Inventor: Eiji Yamada, 103 2-1 Hamacho, Nihonbashi, Chuoku, Tokyo, Japan

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[51] Int. Cl.B65d 41/22

[58] Field of Search215/41, 42, 46 R; 220/60 R

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Primary Examiner—Leonard Summer
Assistant Examiner—James R. Garrett
Attorney—Polachek, Saulsbury & Hough

[57] ABSTRACT

A bottle cap of inverted concave shape in its cross section made of blank material of synthetic resin of high resiliency such as polyethylene or the like, wherein a horizontal, raised recess is formed on the center surface of the cap, and a bottle opening abutting channel is defined by the periphery of the cap and the wall of the recess on the backside of the cap, and projecting strips are provided integrally with the inner wall of the periphery at the base side of a tongue projecting from and secured to the periphery at right angle thereto and at the opposite side to the base on the backside of the periphery, cut-out portions are formed on opposite sides of the projecting strips, said cut-out portions extending to the depth adjacent to the cap periphery, and small projecting strips encompassing the backside wall of the recess are provided.

1 Claim, 3 Drawing Figures

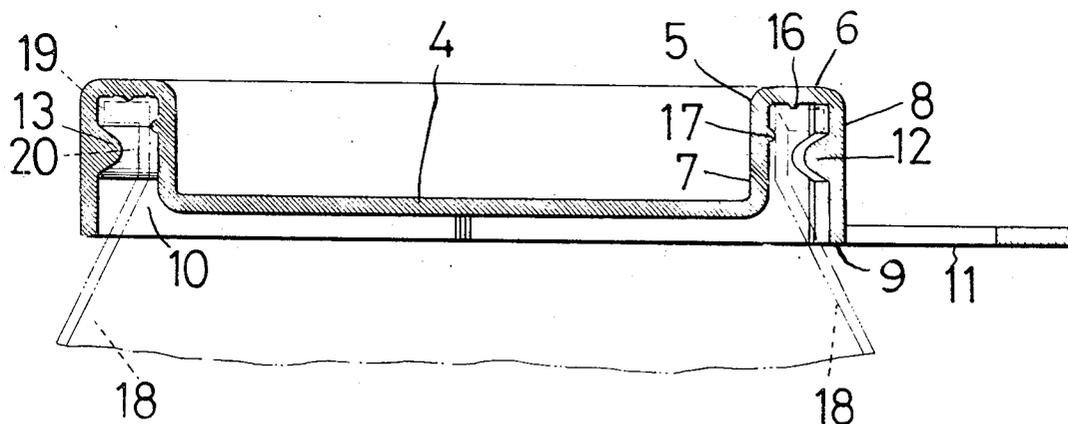


Fig. 1

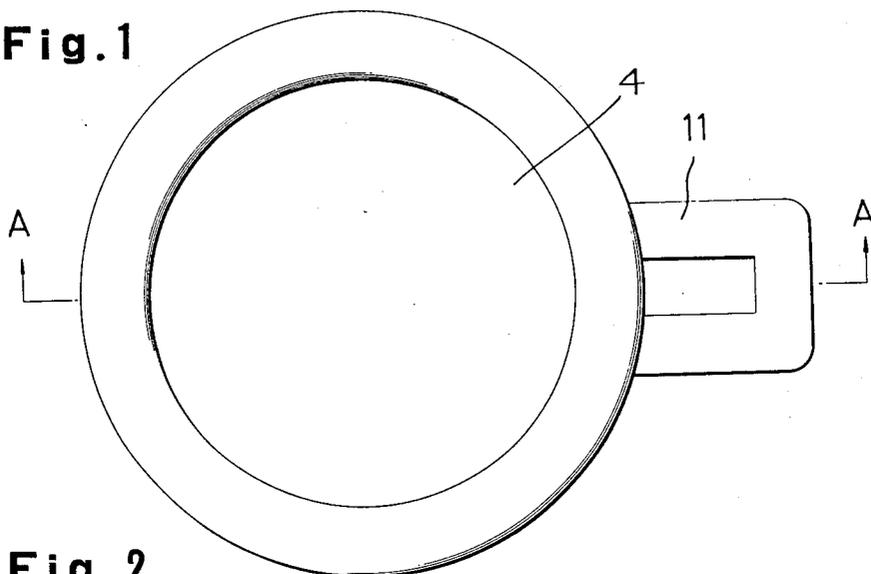


Fig. 2

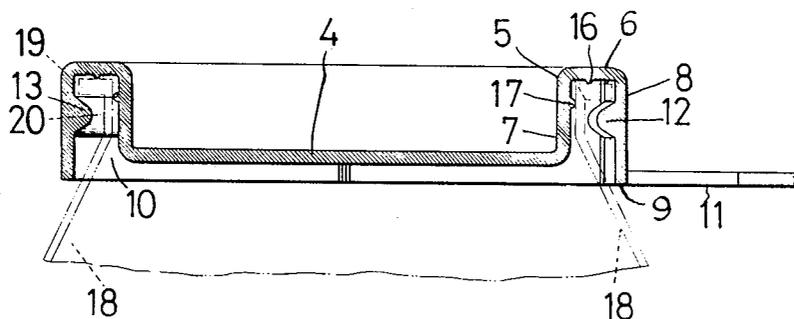
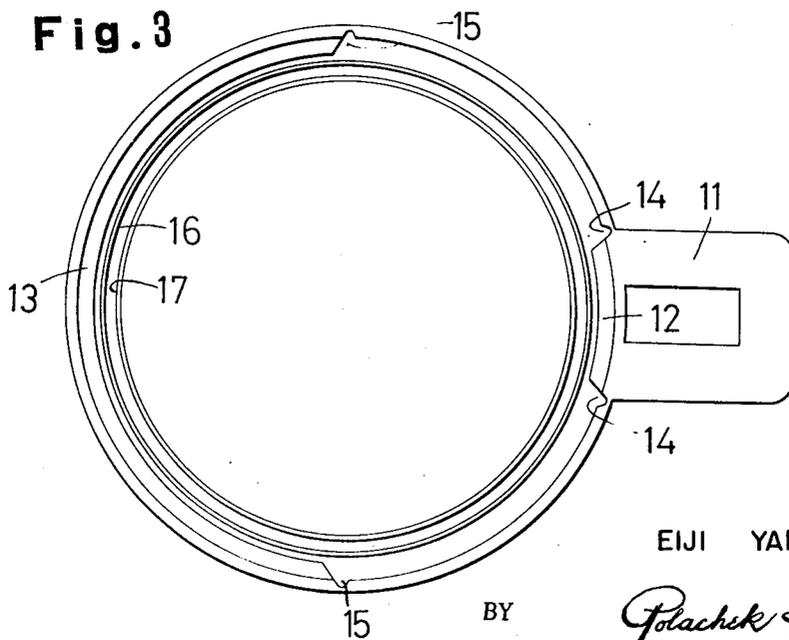


Fig. 3



INVENTOR

EIJI YAMADA

BY

Polachek & Saulsbury
ATTORNEYS

BOTTLE CAP STRUCTURE AND METHOD FOR MAKING THE SAME

This invention relates to a bottle cap structure and a method for making the same. An object of this invention is to provide a bottle cap wherein in securing the cap onto the bottle the cap can be fitted into an abutting channel on the bottle opening by merely depressing the cap from the above, to thereby securely sealing the bottle opening, and in removing the cap, the cap can easily be disengaged from the bottle opening by merely pushing up a tongue which projects beyond peripheral edge.

This invention intends to improve a method for mass-producing bottle caps simply and economically, which bottle caps have superiority to conventional bottle caps in their ability of attaching and removing operations, by providing a bottle opening abutting channel defined by a wall of a recess formed on the center surface of the cap having an inverted concave shape in its periphery and the periphery of the cap, on the backside of the cap periphery, forming projecting strips integrally with the inner wall of the periphery on the inner wall on the periphery side of said channel at the projecting tongue and at the opposite side thereto, and providing small projecting strips encompassing the inner top carrying the backside upper corner of the recess and the side wall of the recess of the bottle opening abutting channel.

The prior art cap of this type has been manufactured by stamping thin metal plate and forming plait skirt and having cork or other suitable packing material applied on its back surface, or has been a simple construction made of synthetic resin or other light material. Both of these prior art bottle caps have inherent disadvantage in using them. On the contrary, in the present invention, the above shortcomings are substantially eliminated by providing special projecting strips at the position to which the bottle opening is engaged, and also providing a plurality of cut-out portions on the periphery of the cap, to improve the removing operation and the engagement of the cap with the bottle opening.

This invention also intends to make smoother and easier the cap removal operation from the bottle opening, by securing a tongue at a portion of the cap periphery, which tongue projecting from the periphery and is to be used in the cap removal operation.

The present invention further intends to mass-produce bottle caps which are beautiful in their design, simple in structure and less expensive.

In the accompanying drawings forming a part of this invention:

FIG. 1 is a plan view of a bottle cap in accordance with this invention;

FIG. 2 is a longitudinal sectional view taken along the line A—A of FIG. 1; and

FIG. 3 is a bottom view of the cap.

As compared to the claim, for improved clarity of understanding, the invention may be defined as: a circular planar central panel 4; a first cylindrical wall 7 having top and bottom ends, said bottom end being circumferentially joined to said central panel, and said wall extending substantially perpendicularly upwardly from said panel; an annular member 6 having inner and second outer peripheries, the inner periphery of same

being integrally joined to the top end 5 of the said cylindrical wall 7 and extending radially outwardly therefrom; a second cylindrical upright wall 8 having top and bottom edges, the top edge of some being integrally joined to the outer periphery of said annular member and said upright wall 8 extending downwardly from said annular member and terminating at a location spaced below the plane of said central panel; and a planar radially outwardly extending tongue 11 integrally joined to the second cylindrical wall at its bottom edge 9; said first and second cylindrical walls 7 and 8 and said annular member 6 together forming a bottle-mouth receiving channel 10; said first cylindrical wall 7 having an integral radially outwardly projecting sealing rib 17 disposed in spaced parallel relationship to said annular member and extending about the full interior circumference of said wall 7; said annular member having a continuous downwardly projecting sealing rib 16 disposed in parallel spaced relationship to both of said first and second cylindrical walls 7 and 8; said second cylindrical wall 8 having inner and outer surfaces and having integral radially inwardly projecting locking ribs 12 and 13 disposed circumferentially on the inner surface in a plane parallel to and spaced from both said annular member and the bottom edge 9 of said second cylindrical wall, one, 13, of said locking ribs being disposed with its longitudinal center diametrically opposite the center of said tongue with said locking rib extending substantially 180° along the inner surface of the second cylindrical wall, and the other, 12, of said locking ribs being disposed on the portion of the second cylindrical wall 8 adjacent said tongue with its terminal ends disposed substantially symmetrically relative to the side edges of said tongue and with said ends horizontally spaced less than the horizontal space between said edges; and said second cylindrical wall being provided on its inner surface with an axially-extending groove 14 or 15 at each terminal end of the locking ribs with each said groove extending from the bottom face of the annular member to the bottom edge 9 of the second cylindrical wall 8.

In attaching the bottle cap of this invention onto the bottle neck 18, the cap is positioned at the bottle opening and depressed from above. The bottle neck 18 is then fitted into the bottle-mouth receiving channel 10. The recess 20 defined by outer encompassing portion 19 of the bottle neck 18 is fitted to the projecting strips 12, 13 of the cap, and the top and the inner side adjacent to the inner corner of the bottle neck 18 are compressed by the small projecting strips 16, 17 so that the bottle neck 18 is closely fitted into the bottle-mouth receiving channel 10 of the cap to provide airtight sealing. In removing the cap from the bottle neck 18, the tongue 11 is pushed upwardly to break the cap periphery longitudinally at the cut-out portions 14, 14 of the base of the tongue, so that the air can flow into the bottle. By further pushing up the tongue the cap periphery 8 is further broken at the cut-out portions 15, 15 on both sides of the projecting strip 17. Thus, the cap is completely removed from the bottle neck 18.

What is claimed is:

1. A bottle cap structure comprising a circular planar central panel; a first cylindrical wall having top and bottom ends, said bottom end being circumferentially joined to said central panel, and said wall extending

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uprightly upwardly from said panel; an annular member having inner and second outer peripheries, the inner periphery being integrally joined to the top end of the said cylindrical wall and extending radially outwardly therefrom; a second cylindrical upright wall having top and bottom edges, said top edge of said second cylindrical wall being integrally joined at said top edge to the second outer periphery of said annular member and said upright wall extending downwardly from said annular member and terminating at a location spaced below the plane of said central panel; and a planar radially outwardly extending tongue integrally joined to the second cylindrical wall at its bottom edge; said first and second cylindrical walls and said annular member together forming a bottle-mouth receiving-channel; said first cylindrical wall having an integral radially outwardly projecting sealing rib disposed in spaced parallel relationship to said annular member and extending about the full circumference of said wall; said annular member having a continuous downwardly projecting sealing rib disposed in parallel spaced relationship to both of said first and second cylindrical

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walls; said second cylindrical wall having inner and outer surfaces and having integral radially inwardly projecting locking ribs disposed circumferentially on the inner surface in a plane parallel to and spaced from both said annular member and the bottom edge of said second cylindrical wall, one of said locking ribs being disposed with its longitudinal center diametrically opposite the center of said tongue with said locking rib extending substantially 180° along the inner surface of the second cylindrical wall, and the other of said locking ribs being disposed on the portion of the second cylindrical wall adjacent said tongue with its terminal ends disposed substantially symmetrically relative to the side edges of said tongue and with said ends horizontally spaced less than the horizontal space of said edges; and said second cylindrical wall being provided on its inner surface with an axially-extending groove at each terminal end of the locking ribs with each said groove extending from the bottom face of the annular member to the bottom edge of the second cylindrical wall.

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