Oct. 23, 1962 I. L. WILCOX 3,059,799

MILK BOTTLE CAP

Filed Aug. 9, 1960

FIG.1

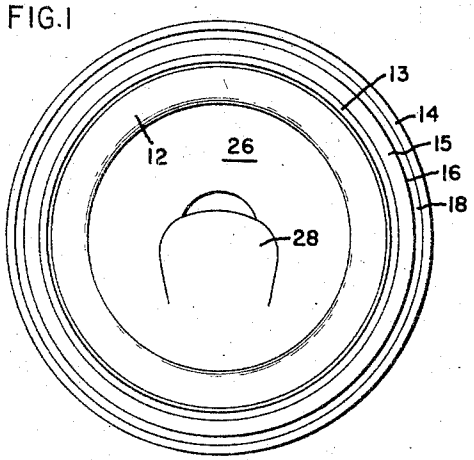


FIG.2

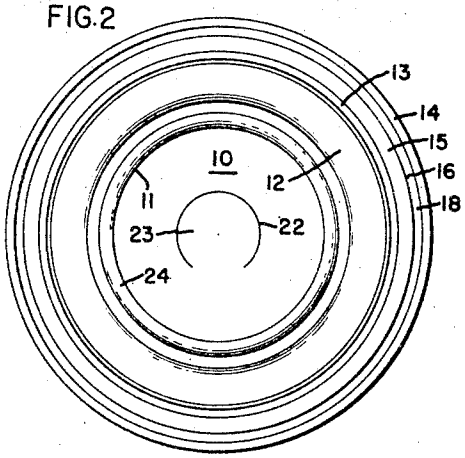


FIG.3

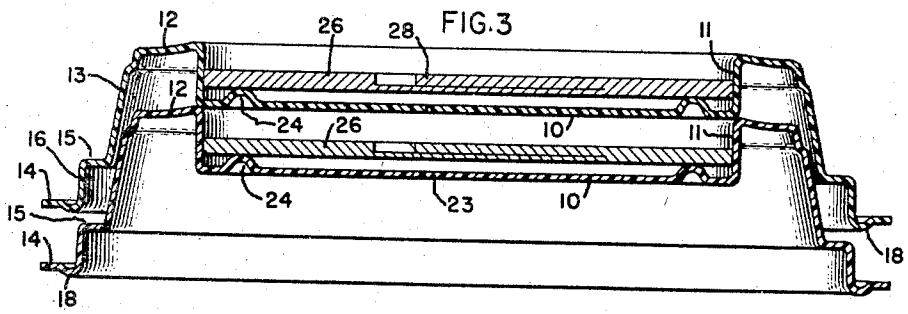
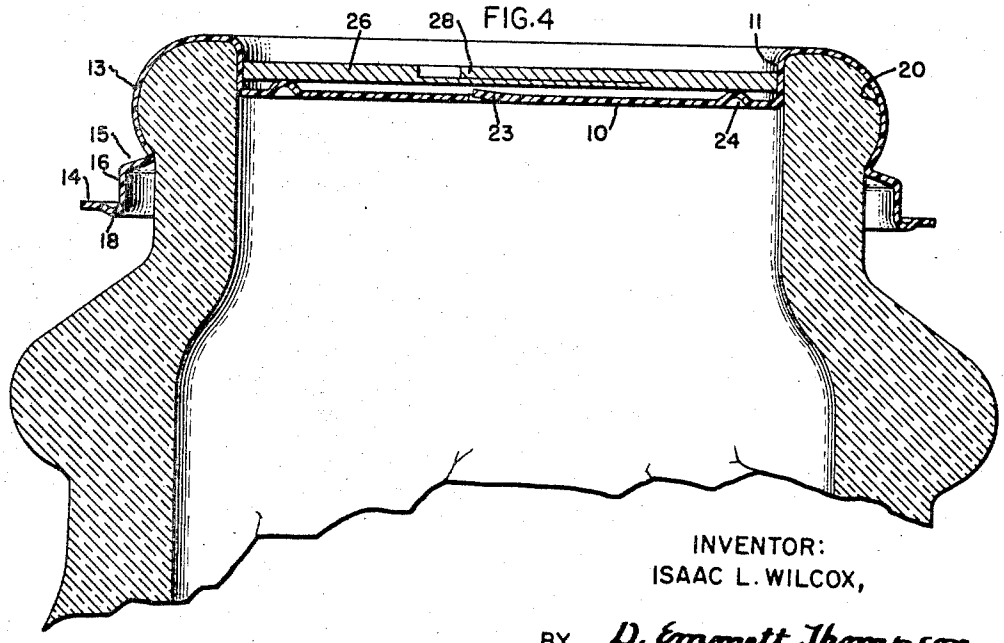


FIG.4



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United States Patent Office

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MILK BOTTLE CAP

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3 Claims. (Cl. 215—56)

This invention relates to caps for application to milk bottle tops having an external bead at the top of the bottle. This general type of cap is disclosed in Patent No. 2,934,232, to Pesch and Wilcox, April 26, 1960.

The cap disclosed in said patent is formed of thin, sheet plastic material. It is applied to the bottle top by a simple mechanical applying head. In its application to the bottle top, the cap conforms to the top in such a fashion that the cap is not only liquid tight, but also gas tight, whereby air entrapped in the bottle top above the surface of the milk cannot readily escape when it is expanded because of temperature rise. This results in exerting pressure against the cap sufficient to cause some portion of the cap to be separated from the bottle top, and if this happens while any milk is in contact with the under side of the cap, the milk will be forced out with the escapement of air under pressure. There is some objection to the milk thus forced out of the bottle under the cap running down the outside surface of the bottle.

This invention has as an object a plastic milk bottle cap of the type referred to embodying a structural arrangement which functions to readily vent air from within the bottle, but to prevent the escape of milk from the bottle.

The invention resides in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention reference is had to the accompanying drawings.

In the drawings:

FIGURE 1 is a top plan view of a cap embodying my invention.

FIGURE 2 is a top plan view of the cap with the top disk member removed.

FIGURE 3 is a transverse sectional view of a plurality of caps arranged in stack formation.

FIGURE 4 is a transverse sectional view of a cap applied to a bottle top.

The cap generally comprises a flat discoidal portion merging with an upwardly extending cylindrical portion adapted to be positioned in the bore of the bottle top. This cylindrical portion extends over the top edge of the bottle, and merges with a depending skirt portion which, when the cap is applied to the bottle, snugly engages the bottle bead. The flat discoidal portion is formed with an upwardly extending projection, preferably in the form of a circular bead extending concentrically and in rather close spaced relation to the cylindrical portion. A flat disk of relatively heavy paperboard material is positioned in the cylindrical portion of the cap on the projection, whereby the disk is spaced upwardly a distance above the discoidal portion of the cap. The discoidal portion of the cap is also formed with a venting aperture whereby air under pressure within the bottle may collect between the discoidal portion and the top disk member and escape about the periphery of the disk without putting any undue pressure on the cap.

Referring to the drawings, the discoidal portion of the cap is indicated at 10, the peripheral edge of which merges with an upstanding cylindrical portion 11 which, in turn, merges with a radially extending annular portion 12, from the periphery of which depends a skirt 13. The lower end of the skirt terminates in a radially extending flange 14. As shown in FIGURES 3 and 4, there is an intermediate

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radial flange 15, from the periphery of which there depends a circular flange 16, which merges with the lower flange 14. This lower flange 14 is formed with a bead, or ridge, to impart a degree of rigidity to it to prevent the lower portion of the skirt from deforming during application of the cap to the bottle top.

This main body portion of the cap is formed of thin sheet plastic material. It is most economically produced by being moulded in automatic equipment from a web of such material. The skirt 13 is somewhat smaller, or less in diameter, than the outside diameter of the bottle bead 20 whereby, during application of the cap to the bottle, the skirt portion 13 is formed about the bottle bead causing the cap to be tightly adhered to the bottle.

The discoidal portion 10 is provided, preferably in its central area, with an aperture, and preferably the aperture is produced by making a C-shaped incision 22, thereby providing a movable tab 23. The discoidal portion is formed with an upwardly extending projection and, as bead 24 and on which there is positioned a disk 26 formed of paperboard and of sufficient thickness to be relatively rigid. The periphery of the disk 26 engages the cylindrical portion 11 of the cap. The disk 26 may be formed with a conventional lift tab 28 for the convenient removal of the disk 26, whereupon the tab 23 may be pressed downwardly to provide a straw receiving aperture.

If, after the bottle is filled with cold milk, and subsequently subjected to elevated room temperature, causing the milk and air in the space between the surface of the milk and the cap to expand, the pressure within the bottle will cause the tab 23 to lift, as shown in FIGURE 4. This permits the air to escape into the space between the discoidal portion 10 and the disk 26. The vented air will gradually escape about the periphery of the disk 26. The space between the discoidal portion 10 and the disk 26 is sufficient to entrap any milk that may pass through the vent aperture effected by the lifting of the tab 23.

What I claim is:

1. A ventable milk bottle cap moulded of thin, sheet plastic material for application to milk bottles having an external bead at the top edge thereof, said cap comprising a discoidal portion, a cylindrical portion extending upwardly from the periphery of said discoidal portion for insertion in the bore of the bottle top, the upper end of said cylindrical portion merging with a radially extending annular portion adapted to be positioned on the upper surface of the bottle bead, a skirt portion depending from the periphery of said annular portion and being less in diameter than the bottle bead, said skirt terminating on an outwardly flared rim formed with a circumferentially extending reinforcing ridge, said discoidal portion being provided with a venting aperture and being formed with an integral upwardly extending projection contiguous to said cylindrical portion and a paperboard disk mounted on said projcetion, the peripheral edge of said disk frictionally engaging said cylindrical portion.

2. A milk bottle cap as defined in claim 1 and further characterized in that said projection consists of a circular bead arranged concentric to said cylindrical portion and adjacent thereto.

3. A milk bottle cap as defined in claim 1 and further characterized in that said venting aperture is in the form of a C-shaped incision formed in said discoidal portion and extending therethrough.

References Cited in the file of this patent

UNITED STATES PATENTS

934,832	Parker	Sept. 21, 1909
2,356,632	Van Den Dool	Aug. 22, 1944

FOREIGN PATENTS

463,961	Italy	June 14, 1951

(OVER)

3 4

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,059,799 October 23, 1962

Isaac L. Wilcox

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 2, line 19, after "as" insert -- shown, this projection is in the form of a circular --; line 36, for "mlik" read -- milk --; line 55, for "projcetion" read -- projection --.

Signed and sealed this 26th day of March 1963.

(SEAL)
Attest:

ESTON G. JOHNSON
Attesting Officer

DAVID L. LADD
Commissioner of Patents