

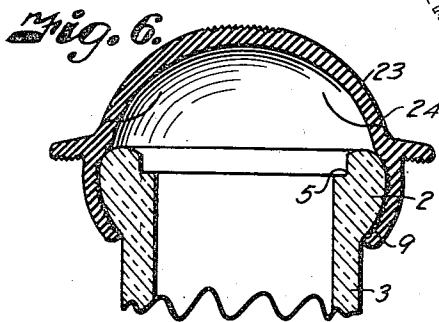
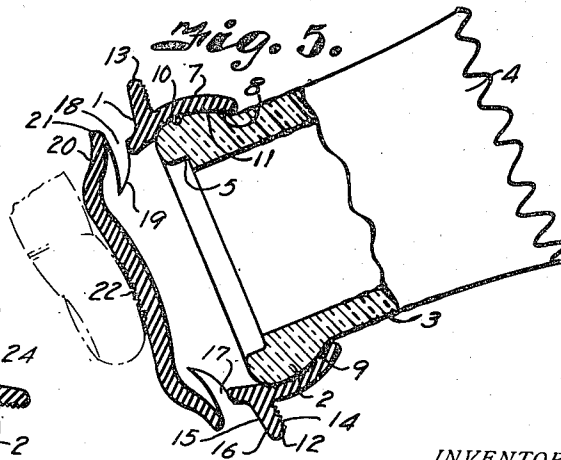
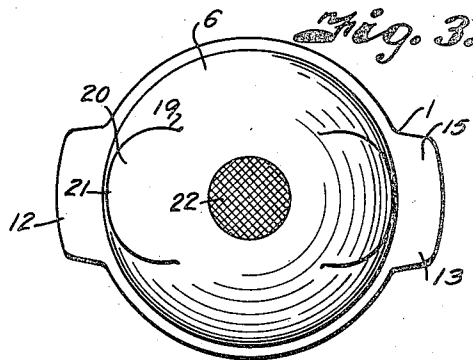
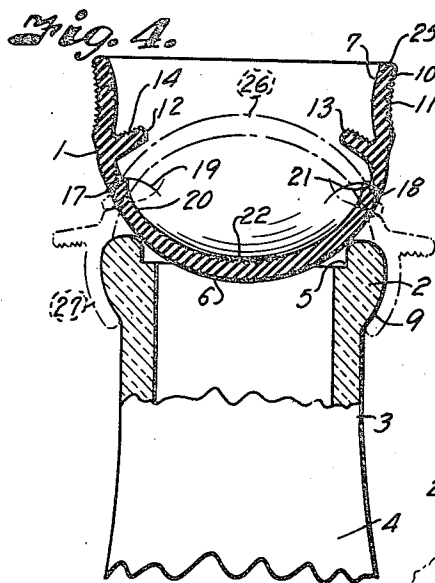
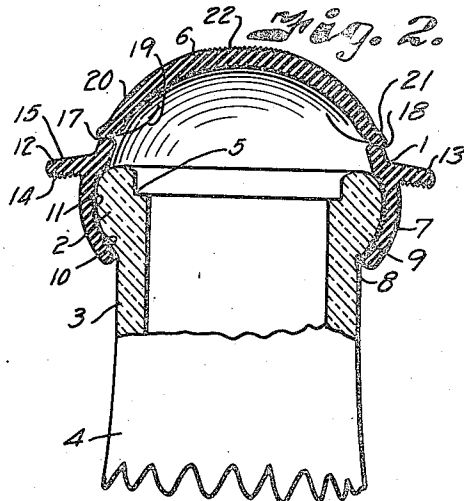
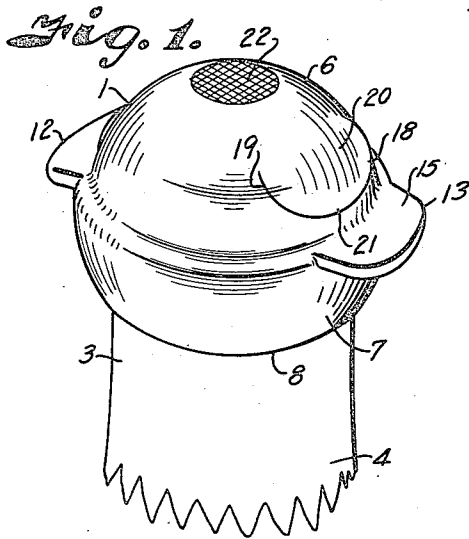
Oct. 15, 1940.

B. COMER

2,218,308

BOTTLE CAP

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BOTTLE CAP

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4 Claims. (Cl. 215-41)

This invention relates to bottle caps particularly those for application to an opened container to protect and preserve the contents until used, and has for its principal object to provide a simple, unitary cap, capable of ready application and removal, and which is easily kept in sanitary condition.

Other objects of the invention are to provide a cap having separate pour and inlet openings automatically opened and closed responsive to external pressure applied to the cap; to provide a cap having self-sealing openings; to provide a cap with pouring spouts which also serve as finger grips to aid in removal of the cap; and to provide a cap that sealingly grips the neck of a bottle upon application thereof.

In accomplishing these and other objects of the invention, I have provided improved details of structure, the preferred form of which is illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of a cap constructed in accordance with the present invention and illustrated in position on a bottle.

Fig. 2 is a cross-section through the cap and the neck of the bottle.

Fig. 3 is a plan view of the cap.

Fig. 4 is a sectional view similar to Fig. 2, but showing the method of applying the cap to a bottle.

Fig. 5 is a sectional view through the cap and neck of the bottle showing the method of applying pressure to the cap to effect spreading of the pour and air inlet openings.

Fig. 6 is a section similar to Fig. 2, but showing a modified form of the invention.

Referring more in detail to the drawing:

1 designates a bottle cap constructed in accordance with the present invention and which is adapted to be applied over the bead 2 encircling a neck 3 of a bottle or similar container 4, the bottle illustrated being an ordinary milk bottle which is usually sealed by a paper disk (not shown), inset within an internal shoulder 5.

To preserve and protect the contents remaining in the bottle it has been necessary to replace the paper cap, but even replacement of the cap does not adequately protect the contents for the reason that the cap is usually punctured or distorted when removed and does not fit tightly within the shoulder upon replacement.

The cap 1 is, therefore, provided for application to the neck of the bottle after removal of the paper closure and is so designed as to seal and protect the contents and also form a spout

by which the contents is readily poured from the bottle without spilling.

In carrying out the invention, the cap is preferably formed of resilient material such as rubber and molded to spheroidal shape to provide a dome-shaped top 6 and an integral annular skirt-like flange 7 surrounding an opening 8 into which the neck of the bottle extends when the bead 2 is gripped by the flange 7 as shown in Fig. 2. The inner diameter of the flange portion is preferably slightly smaller than the diameter of the bead 2 so that it grips the bead and closely engages the bevelled portion 9 thereof to securely retain the cap and prevent leakage therebetween.

In order to supplement gripping action of the flange portion of the cap, the inner surface thereof may be roughened or provided with a plurality of annular grooves 10, of shallower character and forming annular ribs or lips 11 therebetween. When the cap is applied the grooves form vacuum spaces to assist in retention of the cap.

Extending laterally from opposite, diametrical sides of the cap are ears 12 and 13 having the under surfaces thereof roughened or grooved, as at 14, so that they may be readily gripped by the thumb and the forefinger to aid in removal of the cap as later described. The upper faces 15 of the ears are smooth and shaped to form pouring spouts 16 for directing contents of the bottle when being emptied through one or the other openings 17 and 18 that are formed in the dome-shaped top of the cap in alignment with the ears 12 and 13.

The openings 17 and 18 are formed by providing substantially U shaped slits 19 through the wall of the dome, as clearly shown in Figs. 1 and 2. The slits thus form tab-like closures 20 which are adapted to be raised to open position by pressing the finger against the top of the dome-shaped portion of the cap as shown in Fig. 5. These closure portions may be formed of material having less strength than the remainder of the cap so that when the pressure is applied they will open freely.

In the form of the invention illustrated in Figs. 1 to 5 inclusive, the lip portions 21 of the closures 20 are formed so that they sealingly overlap the opposite edge of the slits as shown in Fig. 2. With this construction the slits may be opened wider and almost immediately upon application of pressure to the top center of the cap. In order to prevent slipping of the finger when pressure is applied to the cap, the center

thereof is provided with a roughened or serrated area 22, as best shown in Figs. 1 and 3.

In the form of the invention illustrated in Fig. 6, the tab-like closures 23, complementary to the closures 20, lie in the plane of the wall of the cap. This form is satisfactory but it is necessary for the lip 24 to move entirely across the width of the wall before the slots open sufficiently to allow discharge of the contents. Otherwise the cap may be of the same construction as shown in the preferred form.

In applying a cap constructed as described to a bottle, the cap is turned inside out as shown in Fig. 4, and then the dome portion is inverted over the pour opening of the bottle. By pressing against the rim 25 with the palm of the hand, the dome portion of the cap is caused to rise to the dotted line position as indicated at 26 and the skirt portion snaps downwardly into gripping engagement with the bead of the bottle as shown by the dotted lines designated 27. The cap is then in place and the normal resiliency of the material, supplemented by the vacuum action of the grooves, securely retains the cap on the bottle. The resiliency of the material also retains the pour openings tightly closed so that the contents is protected.

When a portion of the contents is to be poured from the bottle, the neck of the bottle is inclined so that one of the pour tabs is over the container into which the contents is to be emptied. Pressure is then applied by pressing the forefinger or thumb against the roughened area 22, whereupon the closure tabs 20 flex upwardly and open the slits as shown in Fig. 5. The contents then readily discharges through the lower slot and air enters the bottle through the upper slot, so that the contents is discharged in a smooth, steady stream without gurgling. Variation in the pressure applied to the top of the dome controls the effective size of the openings so that the flowing stream may be readily controlled. When the pressure is released and the bottle erected, the resiliency of the material automatically closes the openings as shown in Fig. 2. When the cap is to be removed it may be readily pried from the bead of the bottle by pulling on the ears 15. Upon removal the cap turns inside out so that it is ready for reapplication.

From the foregoing it is obvious that I have provided a bottle cap which is readily applied and removed from the neck of a bottle or like

container, and which may be kept in sanitary condition. It is also obvious that the openings are automatically closed and easily controlled by pressure applied to the center of the cap, thereby facilitating emptying contents of a bottle.

What I claim and desire to secure by Letters Patent is:

1. A cap of the character described including a spheroidal-shaped resilient body having a reversible apical portion in the center thereof and provided with self-closing openings arranged symmetrically on opposite sides of said reversible apical portion whereby one of said openings is adapted to form a pour opening and the other a vent opening, said openings being simultaneously opened responsive to reversal in curvature of said apical portion.

2. A cap of the character described including a spheroidal-shaped resilient body having a reversible apical portion in the center thereof and provided with self-closing slits of the like shape and capacity and arranged symmetrically on opposite sides of said reversible apical portion whereby one of said slits is adapted to form a pour opening and the other a vent opening, said slits being simultaneously opened responsive to reversal in curvature of said apical portion.

3. A cap of the character described including a spheroidal-shaped resilient body having a reversible apical portion in the center thereof and provided with self-closing openings arranged substantially symmetrically on opposite sides of said reversible apical portion whereby one of said openings is adapted to form a pour opening and the other a vent opening, said openings being simultaneously opened responsive to reversal of curvature of said apical portion, and ears aligned with said openings and projecting from said body at points below the openings to form pour spouts.

4. A cap of the character described including a spheroidal-shaped resilient body having a reversible apical portion in the center thereof and provided with self-closing slits arranged symmetrically on opposite sides of said reversible apical portion whereby one of said slits is adapted to form a pour opening and the other a vent opening, said slits being simultaneously opened responsive to axial pressure applied on said apical portion, and ears aligned with said slits and projecting from said body at points below the slits to form pour spouts.

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