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BOTTLES AND CLOSURE CAPS FOR SAME

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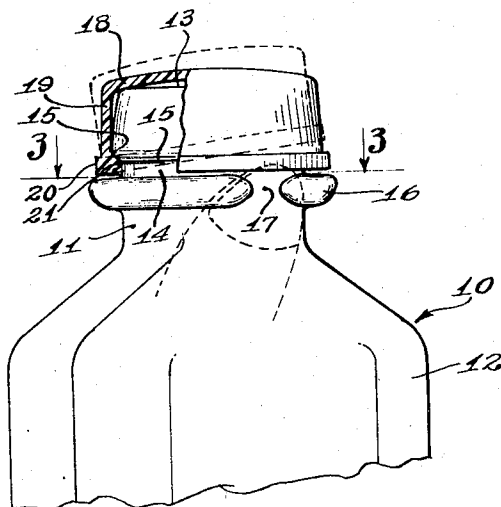


Fig. 1.

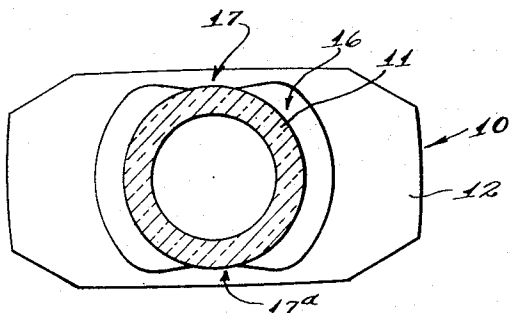


Fig. 3.

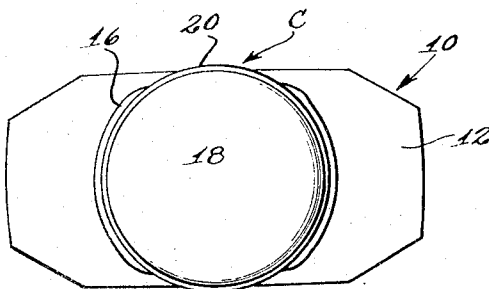


Fig. 2.

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BOTTLES AND CLOSURE CAPS FOR SAME

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5 Claims. (Cl. 215—38)

Our invention relates to bottles and closure caps for same.

It is well known that in recent years ready access to bottles of aspirin tablets and many other medicines and the exceptional ease of closure cap removal have resulted both in serious illnesses and deaths among small children and others.

An object of our invention is the provision of novel, simple and most effective means by which removal of such closure caps becomes quite difficult, if not impossible, for small children but will not present too great a problem for adults.

A further object of our invention is the provision of a bottle and closure cap combination in which removal of the cap requires the exercise of substantially greater strength than that possessed by the average small child and the application of upward pressure to the attaching skirt of the cap in a preselected relatively inconspicuous zone of quite small or restricted dimensions.

Other objects will be in part apparent and in part pointed out hereinafter.

In the drawings:

Fig. 1 is a fragmentary side elevational view of a bottle and closure cap incorporating our invention, parts being broken away and shown in section to reveal the neck and cap structure and relationship.

Fig. 2 is a top plan view.

Fig. 3 is a sectional plan view taken substantially along the plane line 3—3 of Fig. 1.

In the illustrated embodiment of our invention, the bottle 10 is provided with a diametrically reduced neck 11 which extends upwardly from the body 12 and defines the usual mouth 13. Preferably a substantial upper portion of the neck diminishes in diameter in a direction axially outward or upward from the body, thereby providing a tapered guiding surface facilitating application of a closure cap C as will be apparent. At the base of the tapered portion of the neck, there is an annular groove or channel 14, the upper wall of which provides an abutment 15, extending circumferentially of the neck and facing generally downwardly. Below this abutment 15 is an external circumferentially extending radial bead 16 which is interrupted to provide a transverse opening 17, or notch. This notch extends entirely across the bead and is of rather small dimensions circumferentially so as to be relatively inconspicuous. There may also be a second identical notch 17^a diametrically opposite the first notch 17.

The closure cap C, preferably, though not necessarily, is formed of polyethylene or some similar thermoplastic material and includes a top portion, or panel 18 and a depending annular attaching skirt 19. The lower margin of this skirt 19 may be thickened radially by means of an external rib 20. Internally at this point the skirt

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is formed with an annular abutment 21, or bead, designed for releasable holding engagement with the abutment 15 on the neck of the bottle. It is of utmost importance that the skirt terminate quite close to the radial rib 16 and additionally be of no greater external diameter than said bead in order to prevent easy removal by resorting to conventional procedure. With the closure cap skirt so related to the bead 16 and the notch, or notches, so very inconspicuous, because of their relatively small dimensions, there is little likelihood of a small child either discovering how these closure caps can or are intended to be removed, or being able to effect removal, in any event. First, the notch must be located and its function determined and the individual must also have sufficient finger strength to enable him to raise the closure cap about as shown in dotted lines in Fig. 1. Such operation, with only a minimum area of skirt margin available for finger engagement is for all practical purposes impossible by small children.

Modifications may be resorted to within the spirit and scope of the appended claims.

We claim:

1. In combination a bottle having a mouth-defining neck rising therefrom, said neck formed with an annular downwardly facing closure cap retaining abutment spaced from the mouth end, a circumferentially extending radial bead externally of the neck immediately below said abutment and of greater radial extent than the latter, said bead being interrupted to provide a transverse notch of radial extent substantially equal to the radial dimension of the bead, a resilient slip-type closure cap telescoped over the neck and including a top portion, a depending attaching skirt and a radially inwardly directed projection formed at the lower margin of the skirt for holding engagement with said abutment and projecting into the space between the latter and the bead, the lower margin of the skirt spanning the notch in said bead and being of no greater diameter externally than the external diameter of said bead.

2. The combination defined in claim 1, the projection at the lower margin of the skirt being formed by radially thickening the lower margin of the attaching skirt to provide an internal bead for holding engagement with said abutment and an external rib radially outward of said bead to facilitate manual removal of the closure cap.

3. The combination defined in claim 1, the neck progressively diminishing in external diameter upwardly away from said abutment whereby to provide a tapered guiding surface facilitating closure cap application.

4. The combination defined in claim 1, the abutment on the neck being a continuous downwardly facing shoulder and the projection at the lower margin of the skirt being an annular internal bead formed with an upper surface engageable with the abutment.

5. The combination defined in claim 1, the circumferential extent of the notch being only sufficient to permit finger engagement with the lower margin of the skirt.

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