May 9, 1939. G. H. HUTAFF, JR 2,157,239

BOTTLE CAP

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Fig. 1.

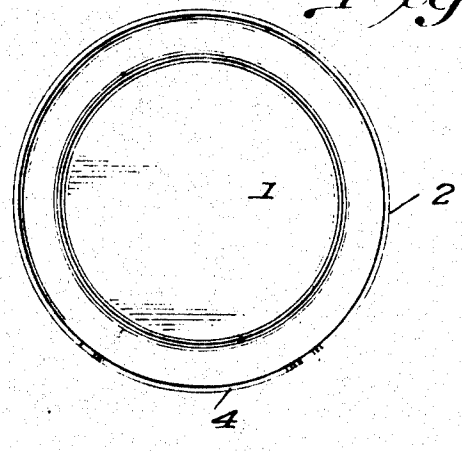


Fig. 5.

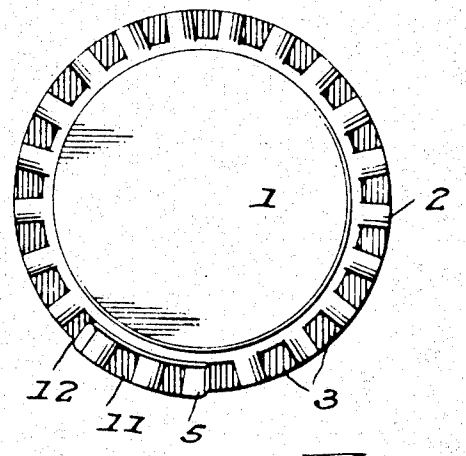
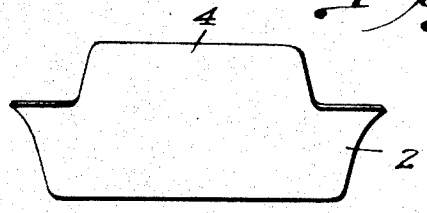


Fig. 2.



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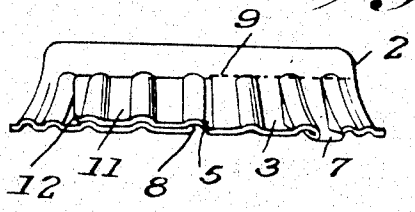

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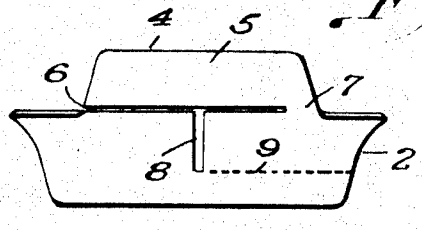

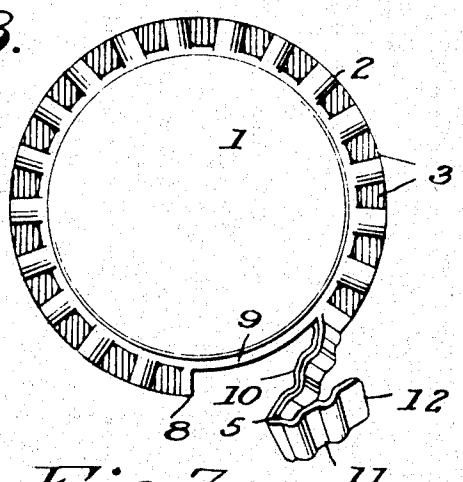

Fig. 4.

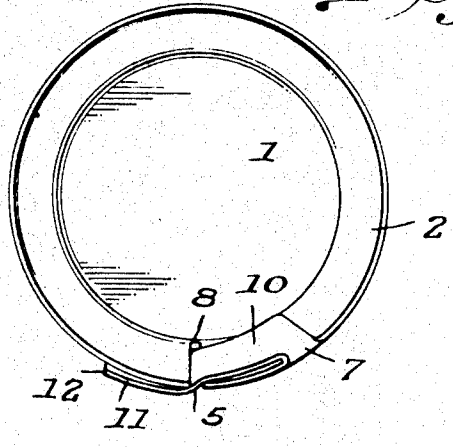

Fig. 7.

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Fig. 8.

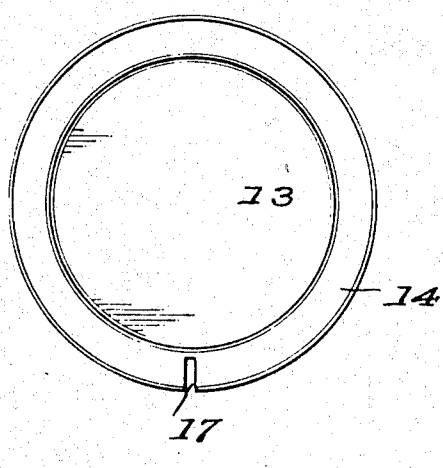


Fig. 12.

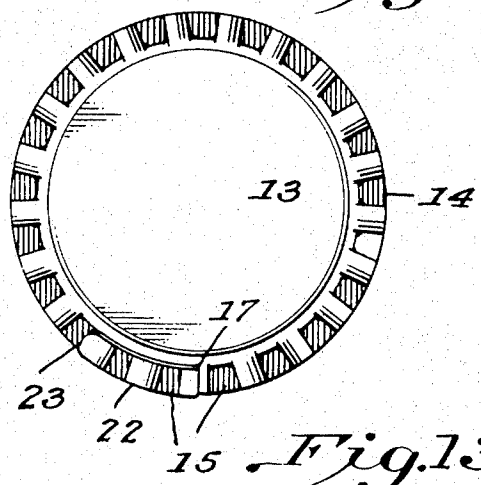


Fig. 9.

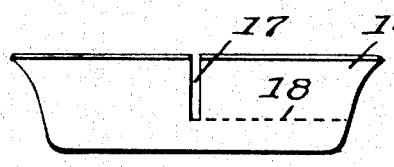


Fig. 13.

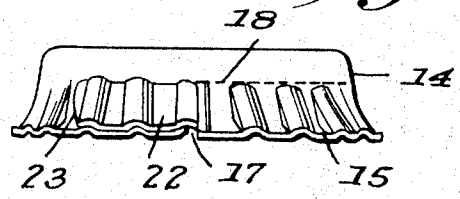


Fig. 14.

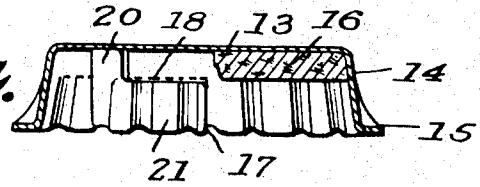


Fig. 10.

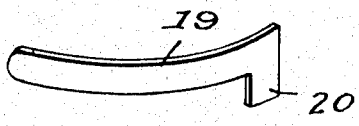


Fig. 15.

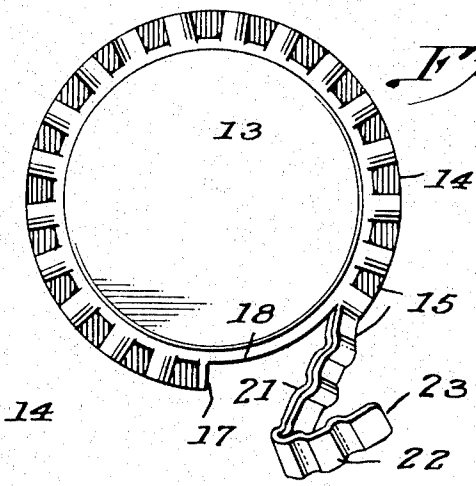
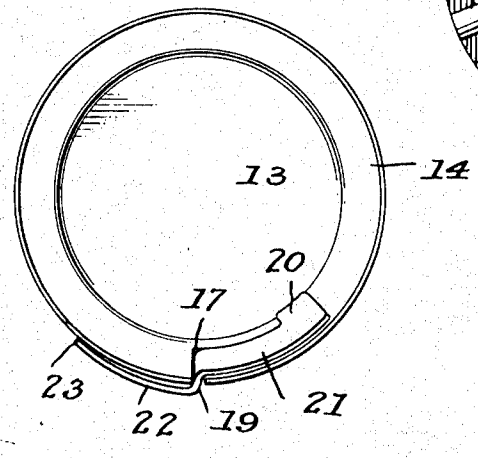


Fig. 11.



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UNITED STATES PATENT OFFICE

2,157,239

BOTTLE CAP

George H. Hutaff, Jr., Wilmington, N. C.

Application February 1, 1938, Serial No. 188,170

10 Claims. (Cl. 215—46)

My invention relates to new and useful improvements in a bottle cap and more particularly to a bottle cap of the so-called "crimped" type formed of relatively thin material and adapted to be connected to the beaded mouth portion of a bottle or other container by suitable capping mechanism.

The principal object of the present invention resides in the provision of a cap of the character described which may be readily removed from the mouth of the bottle or other container without the use of the usual bottle cap remover or other implement, the cap being formed in such a manner that a portion of the flange thereof may be easily torn by manipulation of the fingers of the person desiring to remove the cap, the tearing of the flange releasing the cap from the bead usually formed around the mouth portion of the bottle or other container so that the cap may be easily removed.

Another object of the invention resides in forming a cap of the character described with an opening in the flange portion thereof, the opening extending from the bottom edge of the flange and terminating below the top of the cap, a weakened line being formed circumferentially of the flange, from one edge portion of the opening, by perforations or indentations, the weakened line being below the inner face of the usual cork insert placed in the cap.

Still another object of the invention resides in the provision of a tear strip which is adapted to be passed through the opening of the flange with one end portion thereof extending circumferentially with the inner face of the flange while the other end portion extends circumferentially with the outer face of the flange, this tear strip either being formed integral with the flange or as a separate part thereof.

With the above and other objects in view, which will appear as the description proceeds, my invention consists in the novel details of construction, and arrangement of parts, described in the following specification and illustrated in the accompanying drawings, and while I have illustrated and described the preferred embodiments of the invention, as they now appear to me it will be understood that such changes may be made as will fall within the scope of the appended claims.

In the drawings:

Fig. 1 indicates a bottom plan of the cap before the tear strip is formed and the flange crimped.

Fig. 2 is a side elevation of the cap shown in Fig. 1.

Fig. 3 is a side elevation showing the initial formation of the tear strip and an opening and weakened line of indentations or perforations formed in the flange.

Fig. 4 is a bottom plan of the cap with the tear strip turned to extend parallel with the flange, the tear strip extending through the flange opening with a portion extending interiorly of the flange and another portion extending exteriorly thereof.

Fig. 5 is a top plan of the completed cap with the flange crimped.

Fig. 6 is a side elevation of the cap shown in Fig. 5.

Fig. 7 is a top plan showing a portion of the flange torn by the tear strip.

Fig. 8 is a bottom plan of a slightly modified form of the invention before the flange is crimped.

Fig. 9 is a side elevation of the cap shown in Fig. 8.

Fig. 10 is a perspective of a tear strip.

Fig. 11 is a bottom plan of the cap shown in Fig. 8 with the tear strip in position.

Fig. 12 is a top plan of the completed cap showing the flange and tear strip crimped.

Fig. 13 is a side elevation of the completed cap shown in Fig. 12.

Fig. 14 is a transverse vertical section through the cap shown in Figs. 12 and 13, with parts broken away; and

Fig. 15 is a top plan of the completed cap with a portion of the flange torn away by the tear strip.

In Figs. 1 to 7 inclusive of the drawings 1 indicates the top portion of the cap, 2 the depending flange, it being understood that the flange will be crimped as shown at 3 when its formation is complete. Initially the flange is formed with the extension 4 extending a portion of its circumference, as shown more particularly in Fig. 2 of the drawings, and tc form the tear strip, which I have indicated by the numeral 5, a horizontal slit 6 is formed through a portion of the extension 4 as shown more particularly in Fig. 3 of the drawings, the inner edge of this slit terminating short of the end of the extension or strip to provide the portion 7 integral with the flange. A vertically extending opening 8 is formed from the free edge of the flange and its inner end terminates at a weakened line 9 formed by perforations or indentations. The strip 5, formed from the extension 4, is adapted to be folded to extend parallel with the flange as shown more particularly in Fig. 4 of the drawings, the strip extending through the opening 8 and providing the

portion 10 parallel with the inner face of the flange and the portion 11 parallel with the outer face thereof. The portions of the strip lie close to the surfaces of the flange so that the cap may be applied to the bottle neck by the usual capping mechanism. After the strip or extension 5 has been folded to extend parallel with the flange the flange and strip will be crimped as shown more particularly in Figs. 5, 6 and 7 of the drawings. The inner edge of the strip 5 will terminate on a line or plane with the weakened line 9 of projections or indentations so that a portion of the flange may be torn as will be described to release the cap from the bottle mouth.

As has been stated the cap is of such a formation that it may be applied to the bottle mouth by the usual capping mechanism and when it is desired to remove the cap the person engages the free end 12 of that portion of the strip 5, which extends exteriorly of the flange, and bends the same outwardly to provide a finger grip, so that the strip may be pulled as shown more particularly in Fig. 7 of the drawings and this pull on the tear strip will tear the flange along the weakened line 9 of perforations or indentations and remove a sufficient length of the flange to permit the cap to be readily removed from the bottle mouth. It will thus be seen that I have provided a novel construction wherein the cap may be removed without the use of a cap remover or other implement. This is of particular advantage for a person desiring to consume the contents of the bottle may remove the cap without unnecessary delay as would be caused in looking for and applying the ordinary cap remover. The strip provides a finger-engaging portion exteriorly of the flange, which may be so pulled as to cause the interior portion to tear the flange outwardly to remove a portion thereof as shown and described.

In Figs. 8 to 15 inclusive of the drawings, I have illustrated a slightly modified form of my invention wherein the tear strip is formed as a separate part from the cap, as distinguished from the integral formation disclosed in Figs. 1 to 7 inclusive. In this modified form of the invention the top portion of the cap is shown at 13 and the flange portion at 14. The flange with the tear strip will be crimped, as shown at 15, more particularly in Figs. 12 to 15 inclusive and a cork insert 16 will be positioned within the cap, as shown more particularly in Fig. 10 of the drawings. An opening 17 is formed in the cap flange and extends inwardly to a point beneath the cork insert 16. A weakened line 18, formed by perforations or indentations, extends circumferentially for a portion of the flange from the inner end of the opening 17, as quite clearly shown in Fig. 9 of the drawings, and this weakened line will be at a point just inwardly of the inner face of the cork insert 16.

The tear strip is indicated at 19 and at one end is provided with an extension 20. As shown the tear strip 19 will be slightly curved to conform to the circumferential curvature of the flange. Initially the strip 19 will be passed through the opening 17, in the flange, with the portion 21 extending parallel with the inner face of the flange and the portion 22 extending parallel with the outer face thereof. The outer edge of the extension 20 will engage the bottom surface of the top 1 and thereby cooperate with the opening 17 to hold the tear strip in proper position with the outer edge on a plane with the outer edge of the flange. The inner edge of the strip will be on a plane with the weakened line of perforations or indentations 18. After the strip has been thus positioned it will be crimped with the flange, as shown more particularly at 15 in Figs. 12 to 15 inclusive of the drawings. The portions of the tear strip will lie so close to the flange that the cap may be applied to the bottle mouth by the usual form of capping mechanism and the cork insert 16 will engage the inner face of the extension 20 to aid in holding the strip in position, the end of the extension being positioned between the outer edge of the insert and the inner face of the flange.

When it is desired to remove the cap from the bottle mouth the person engages the free end 23 of the tear strip or that portion 22 extending parallel with the exterior face of the flange and bends the same outwardly to a position that a secure finger grip is provided. Then a pull is given to draw the portion 22 outwardly, as shown more particularly in Fig. 15 of the drawings, and this pulling action tears away a portion of the flange along the weakened line 18 for a sufficient distance to permit the cap to be readily removed from the bottle mouth without the use of the usual form of cap remover or other implement and with the same advantages as pointed out in connection with that form shown in Figs. 1 to 7 inclusive of the drawings.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. A bottle cap of the character described including top and flange portions, the flange having an opening formed in its free edge, and a tear strip extending through the flange opening with a portion extending parallel with the interior of the flange and a portion extending parallel with the exterior thereof.

2. A bottle cap of the character described including top and flange portions, the flange having an opening from its free edge and terminating at a weakened line extending circumferentially of a portion of the flange, and a tear strip extending through the flange opening with a portion extending parallel with the interior of the flange and a portion extending parallel with the exterior thereof.

3. A bottle cap of the character described including top and flange portions, the flange having an opening from its free edge and terminating at a weakened line extending circumferentially of a portion of the flange, and a tear strip extending through the flange opening with a portion extending parallel with the interior of the flange and a portion extending parallel with the exterior thereof, the inner longitudinal edge of the tear strip being on a plane with the weakened line of the flange portion.

4. A bottle cap of the character described including top and flange portions, the flange having an opening from its free edge, and a strip formed integral with the flange and adapted to be folded to extend through the opening with a portion extending parallel with the inner face of the flange and a portion extending parallel with the outer face thereof.

5. A bottle cap of the character described including top and flange portions, the flange having an opening from its free edge and terminating at a weakened line extending circumferentially of a portion of the flange, and a strip formed integral with the flange and adapted to be folded to extend through the opening with a portion extending parallel with the inner face of the flange and a portion extending parallel with the outer

face thereof, said folded strip being adapted to be bent to provide a finger grip to tear the flange along the weakened line thereof.

6. A bottle cap of the character described including top and flange portions, the flange having an opening from its free edge, and a separate tear strip positioned through the opening in the flange with a portion extending parallel with the inner face of the flange and a portion extending parallel with the outer face thereof.

7. A bottle cap of the character described including top and flange portions, the flange having an opening from its free edge and terminating at a weakened line extending circumferentially of a portion of the flange, and a separate tear strip positioned to extend through the opening in the flange with a portion extending parallel with the inner face of the flange and the weakened line and another portion extending parallel with the outer face of the flange.

8. A bottle cap of the character described including top and flange portions, the flange having an opening from its free edge, and a separate tear strip positioned to extend through the flange opening with a portion extending parallel with the inner face of the flange and a portion extending parallel with the outer face thereof, an extension being formed on that end of the strip which extends parallel with the inner face of the flange to engage the inner face of the top portion of the cap.

9. A bottle cap of the character described including top and flange portions, the flange having an opening from its free edge, a separate tear strip positioned to extend through the opening in the flange with a portion extending parallel with the inner face of the flange and a portion extending parallel with the outer face of the flange, and an insert positioned in the cap and engaging a portion of the tear strip.

10. A bottle cap of the character described including top and flange portions, the flange having an opening from its free edge, a tear strip positioned to extend through the opening in the flange with a portion extending parallel with the inner face of the flange and a portion extending parallel with the outer face thereof, an extension formed on that portion of the strip which extends parallel with the inner face of the flange and adapted to engage the inner surface of the top portion of the cap, and an insert positioned interiorly of the cap and engageable with the extension on the tear strip to cooperate with the opening in the flange to properly position the strip.

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