April 19, 1955 J. F. TOCCO 2,706,572

BOTTLE CAPS

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Fig. 1.

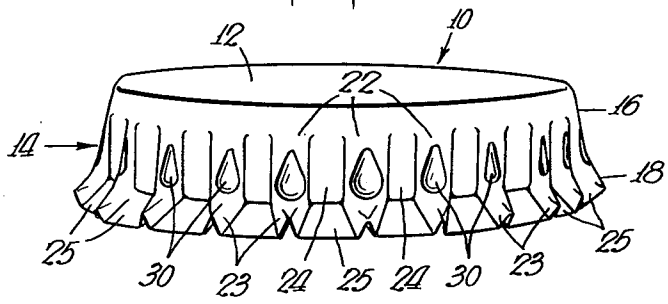


Fig. 2.

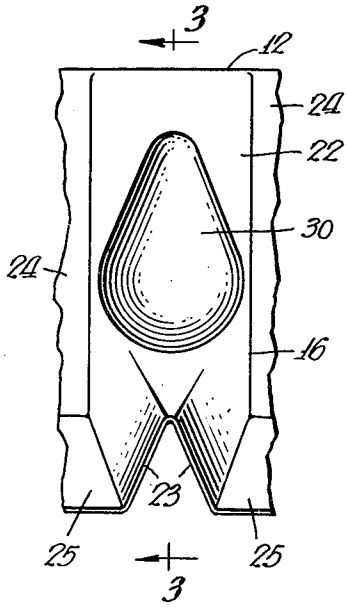


Fig. 3.

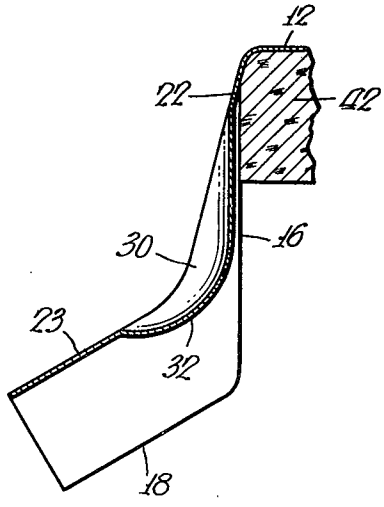
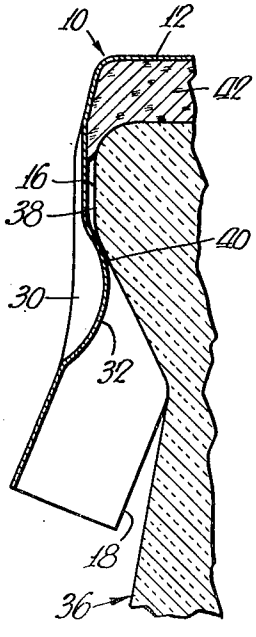


Fig. 4.



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BOTTLE CAPS

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3 Claims. (Cl. 215—39)

The present invention relates generally to improvements in crimped type bottle crowns or caps, and it has particular relation to the weakening of the ridges of the crimp on this type of bottle cap above its outwardly flaring skirt whereby removal thereof is greatly facilitated and danger of breaking the lip of the bottle is substantially eliminated.

It is well known that, while crimped type bottle crowns or caps are used extensively, they are frequently exceedingly difficult to remove with the ordinary household types of conventional bottle openers. In the opening of bottles capped with the crimped type crowns, the latter on many occasions breaks the neck of the bottle showering glass fragments into its contents or becomes only partially removed whereupon the gas charge tends to leak out through a small aperture spraying the attendent or room with a foamy spray of its liquid contents. Many attempts have been made to overcome these two outstanding disadvantages without success. However, with the present invention there is devised an improved type of crimped bottle cap, which is easily removable, and which obviates both of the aforementioned disadvantages.

An object of the present invention is to provide a crimped type bottle crown or cap that is weakened along its vertically crimped portion to facilitate its removal without causing a fracture of the bottle neck or the formation of a small gas escape port through which the contents of the bottle may be forced out in the form of a fine spray before the same can be entirely removed.

Another object of the invention is the provision of indentations on the outside of the vertical portion of the ridges, which extend above the outwardly flaring skirt portion, thereby providing, in turn, protuberances on the inside of the cap at the point where actual contact is made with the underside of the lip of a conventional bottle. These indentations tend to strengthen the conventional ridges of such crown type caps at the point where they engage the lip of the bottle in such a manner as to improve their capping qualities, and, at the same time, tend to weaken said ridges near the juncture of the upper portion and the skirt portion to facilitate their removal when it is desired to open said bottles.

A further object of the invention is to provide a weakened bottle crown or cap of the crimped type, which will be highly sanitary and attractive in appearance, and which will have removal characteristics superior to the conventional crowns without detracting from its capping qualities.

Other and further objects and advantages of the invention reside in the detailed construction of the crimped crown or cap, which results in simplicity, economy and efficiency, and which will be apparent from the following description, wherein a preferred embodiment of the invention is shown, reference being had to the accompanying drawings, forming a part hereof, wherein like numerals indicate like parts, in which:

Figure 1 is a perspective view of a crimped type bottle crown or cap constructed in accordance with the principles of the invention;

Figure 2 is an enlarged fragmentary front elevational view of the cap shown in Figure 1, showing but one of the crimped formations to illustrate more clearly and in greater detail the structural features thereof;

Figure 3 is a fragmentary sectional view of the ridge formation shown in Figure 2, the same having been taken substantially along the line 3—3 thereof, looking in the direction of the arrows, including in cross-section the cork sealing disk that is mounted under each such conventional type of crowned cap; and

Figure 4 is another fragmentary sectional view of the bottle cap shown in Figure 1, the same being illustrated mounted in capping position on the neck of a conventional beverage bottle, showing in greater detail the relationship of the weakened crimping ridge with the rounded lip forming the edge of said bottle.

Referring now to the drawings, and particularly to Figure 1 thereof, there is shown a crimped type metal bottle crown or cap **10**, which has a relatively large flat circular top portion **12** adapted to fit snugly over the open top of the neck of a bottle. Formed integrally with the flat circular top portion **12** is a relatively narrow downwardly depending flange portion **14** consisting of a substantially vertical upper portion **16** and an outwardly and obliquely flaring skirt portion **18**. It will be noted in Figure 3 that the upper vertical portion **16** is substantially twice the length of the outwardly flaring skirt portion **18**.

The vertical upper flange portion **16** is provided with a crimped surface consisting of a series of alternately spaced and circumferentially arranged ridges **22** and depressions **24**. These ridges **22** and depressions **24** are continued downwardly through the outwardly and downwardly flaring skirt portion **18**, but not in the same regular formation. In Figures 1 and 2, it will be noted that the continuations **23** of the ridges **22** on the skirt portion **18** are narrower and higher, forming a substantially inverted V-shaped ridge whose sides tend to converge. It will also be noted that the continuations **25** of the depressions **24** onto the skirt portion **18** are wider, having sides that tend to diverge as they extend outwardly from the upper portion **16**.

Each of the ridges **22** is provided with an irregularly shaped depression **30**, which is relatively small and round at its top and increases in size along the line of its axis to become relatively large and round at its bottom. Such a depression is substantially apioid in shape, viz: that shape which is commonly recognized and referred to as being of a pear-shape or tear-drop design. It will be noted, as best shown in Figures 3 and 4, that these depressions **30**, which form projections or protuberances **32** on the inner or undersides of circumferentially arranged ridges **22** of said upper vertical wall portion **16** of the crown or cap **10**, are wider adjacent their lower arcuate ends or base portions for purposes to be hereinafter explained.

Referring now to Figure 4, there is shown a fragmentary view of the crown cap **10** mounted over the open-neck of a conventional beverage bottle **36**, which has an outwardly and circumferentially extended bead or ridge **38** adjacent its top, forming a so-called "lip" for receiving and securing removably thereto the crimped resilient crown or cap **10**. It will be noted in Figure 4 that the underside **32** of the weakening depression **30** engages the curved bottom edge **40** of the lip **38** of the bottle **36** when the cap **10** is mounted thereon. A conventional cork insert or disk **42**, which is mounted frictionaly within the top **12** of the cap **10**, serves as a gasket between the crown or cap **10** and the bottle **36** to effectively seal the contents of the bottle therein.

The weakening indentations **30**, which are formed in the circumferentially arranged ridges **22** of the vertical upper wall portion **16** of the depending skirt **14**, do not in any way detract from the appearance of said crown or cap **10**. They may be easily and readily formed therein during the final stages of formation of the cap, and their inner projecting surfaces **32** will engage the underside **40** of the lip **38** of the bottle **36** when the crown is mounted in sealing position thereon. While these indentations or depressions **30** serve to weaken the structural ridges **22**, they also tend to spread the crimpage and offer greater surface area contact with the underside of the bottle lip **38**, increasing the effective seal between the crown **10** and the bottle **36**. However, when it is desired to remove the crown **10** from a sealed bottle **36** with a conventional type of household bottle opener (not shown), the pressure applied to the underside of the crown skirt **14** will cause an easy spreading of these crimps, since they have been weakened at their contact points with the bottle lip **38**. It will be apparent that, if the weakened portions were to be formed in the lower portion of the depending flange,

or even along the axis where the upper portion and the skirt portion meet, the first action of leverage of the bottle opener would merely distort upwardly the skirt portion without quickly and effectively breaking the seal between the upper portion **16** and the bottle lip **38**. Therefore, such weakened structures would afford no satisfactory advantages over the conventional crown or cap.

Although I have described in detail only one embodiment which my invention may assume, it will be readily apparent to those skilled in the art that the same is not so limited, but that various other modifications may be made therein without departing from the spirit thereof.

What I claim is:

1. A crimped type metal bottle cap having a relatively large flat circular top portion adapted to fit snugly over the open neck of a bottle and a downwardly depending flange portion consisting of an upper portion forming a substantially vertical wall and a flaring skirt portion extending substantially obliquely outwardly from the lower edge of said upper portion, said flange portion being provided with a plurality of alternately spaced ridges and depressions forming a resilient crimp adapted to be secured around the lip of a bottle, the upper portion of each said ridges being provided with a weakening indentation that increases in width in the line of its axis as it extends downwardly along said vertical wall portion which forms a protuberance on the inside thereof adapted to engage the underside of the lip of a bottle when the same is secured in capping position thereon.

2. A crimped type metal bottle cap having a relatively large flat circular top portion adapted to fit snugly over the open neck of a bottle and a downwardly depending flange portion consisting of an upper portion forming a substantially vertical wall and a flaring skirt portion extending substantially obliquely outwardly from the lower edge of said upper portion, said flange portion being provided with a plurality of alternately spaced ridges and depressions forming a resilient crimp adapted to be secured around the lip of a bottle, the upper portion of each of said ridges being provided with a weakening indentation that is substantially apioid in shape along said upper portion which forms a protuberance on the inside thereof having an enlarged base adapted to engage the underside of the lip of a bottle when secured in capping position thereon.

3. A crimped type metal bottle cap having a relatively large flat circular top portion adapted to fit snugly over the open neck of a bottle and a downwardly depending flange portion consisting of an upper portion forming a substantially vertical wall and a flaring skirt portion extending substantially obliquely outwardly from the lower edge of said upper portion, said flange portion being provided with a plurality of alternately spaced ridges and depressions forming a resilient crimp adapted to be secured over the lip of a bottle, the upper portion of each of said ridges being provided with a weakening indentation which is relatively small and round at its top and increases in size along the line of its axis to become relatively large and round at its bottom along said vertical wall portion which forms an irregular protuberance on the inside thereof having an enlarged arcuate base adapted to engage the underside of the lip of a bottle when the same is secured thereto in capping position thereon.

References Cited in the file of this patent

UNITED STATES PATENTS

867,903	Bartlett	Oct. 8, 1907
1,029,450	Krunka	June 11, 1912
1,135,094	Bartlett	Apr. 13, 1915
1,199,873	Bussmann	Oct. 3, 1916
1,433,552	Kalkbrenner	Oct. 31, 1922
1,861,603	Lindsay	June 7, 1932
2,151,129	Markle	Mar. 21, 1939

FOREIGN PATENTS

71,520	Austria	Apr. 10, 1916