Dec. 21, 1954 G. H. HUTAFF, JR 2,697,532

BOTTLE CAP

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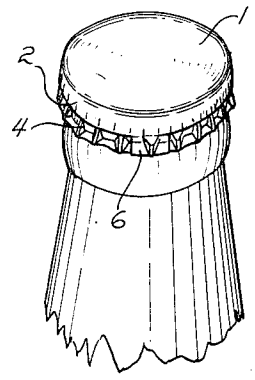


Fig. 1

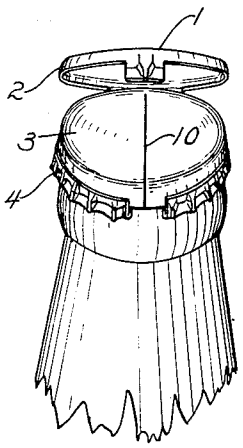


Fig. 2

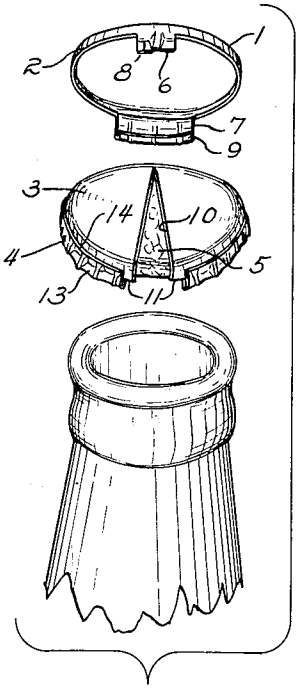


Fig. 3

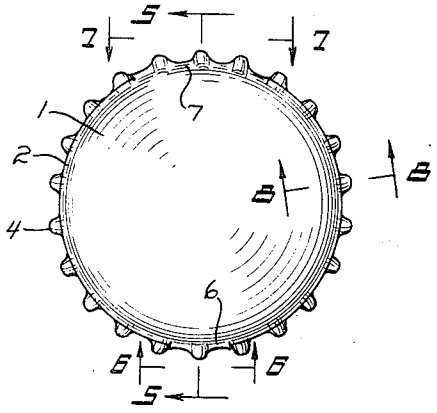


Fig. 4

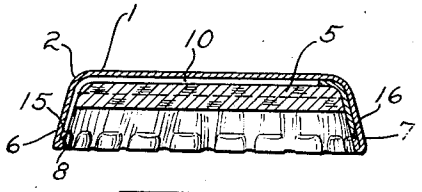


Fig. 5

Fig. 7

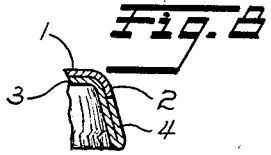


Fig. 8

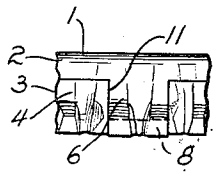
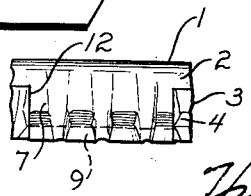


Fig. 6



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Fig. 9

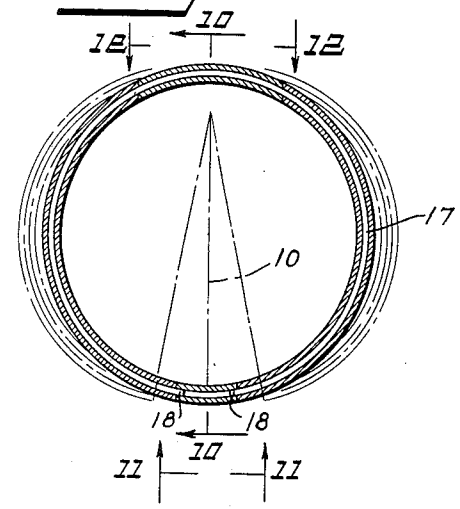


Fig. 10

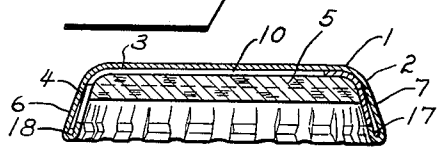


Fig. 11

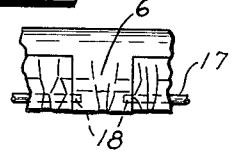
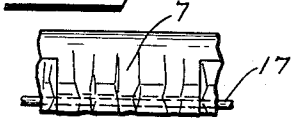


Fig. 12



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2,697,532

BOTTLE CAP

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

Application June 15, 1951, Serial No. 231,822

13 Claims. (Cl. 215—39)

My invention relates to new and useful improvements in bottle caps and more particularly to bottle caps of the crown type designed to be crimped on the mouth of a bottle or like container.

The removal of the conventional crown cap ordinarily necessitates the use of a separate tool which may become misplaced or is not readily available, and it is the primary object of my invention to provide a crown cap having incorporated therein means which permits the removal of such cap with ease and dispatch without resort to a separate or independent tool or opener.

Another object of the invention resides in the provision of a bottle cap having upper and lower interlocked nestable portions, each portion having oppositely disposed depending flange portions which interfit and collectively constitute a continuous circular bottle crimping skirt for the two-part bottle cap when the parts are in interlocked nested relation.

A further and most important object of the invention is to provide a two-part bottle cap of the character described which simulates a conventional crown cap in appearance and wherein the upper and lower nestable portions of said cap are firmly held in interlocking engagement one with respect to the other for application to the mouth of a bottle as a unitary structure and with the purpose in view of having said two-part cap readily handled in conventional bottle capping machines.

A still further object of the invention resides in providing a two-part bottle cap of the nestable type set forth and with each part having upturned depending flange portions which collectively constitute a continuous circular double-thickness bottle crimping skirt for the bottle cap.

Another object resides in the provision of a bottle cap having upper and lower nestable portions, the lower portion being weakened by a centrally disposed slit and also being equipped with a depending flange, and the upper portion having depending tabs on opposite sides thereof adapted to interlock with the flange of said lower portion for holding the portions in nestable relation.

A further object of the invention is the provision of a split wire reinforcing element in association with the two-part cap to aid in holding the cap parts in their assembled relation.

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 shown and described the preferred embodiments of my 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 is a perspective view of a preferred form of my improved cap, showing the same in place on a bottle-neck.

Fig. 2 is a view similar to Fig. 1, illustrating the position of the parts in opening or separating the upper portion of the cap to permit removal of the lower portion thereof.

Fig. 3 is an exploded view in perspective, the cap portions being shown separated.

Fig. 4 is an enlarged top plan view of the cap shown in Figs. 1, 2 and 3.

Fig. 5 is a vertical section taken on line 5—5 of Fig. 4, looking in the direction of the arrows.

Figs. 6 and 7 are fragmentary side elevations of the cap shown in Fig. 4 taken on lines 6—6 and 7—7 respectively, looking in the direction of the arrows.

Fig. 8 is a fragmentary vertical section taken on line 8—8 of Fig. 4, looking in the direction of the arrows.

Figs. 9 through 12 illustrate a modified form of my invention wherein a split ring is shown in combination with the upper and lower cap portions.

Fig. 9 is a top plan view, full lines illustrating the parts in assembled relation, and dotted lines showing the position and relation of the parts when separated in the opening operation.

Fig. 10 is a vertical section taken on line 10—10 of Fig. 9 looking in the direction of the arrows.

Figs. 11 and 12 are fragmentary side elevations of the cap shown in Fig. 9 taken on lines 11—11 and 12—12 respectively, looking in the direction of the arrows.

In carrying out the invention, the cap is formed of upper and lower portions adapted to be normally nested and held in interlocked relation with each other, and whereby said two-part cap may be applied to the mouth of a bottle or other receptacle as a unitary structure by the usual well-known forms of capping machines.

In Figs. 1 to 8 inclusive of the drawings, I have illustrated one form of my invention wherein 1 designates the upper cap portion with its depending flange 2, and 3 the lower cap portion with its depending flange or skirt generally indicated at 4. A conventional cork or like sealing member is shown at 5. Integrally formed with the upper cap portion 1 are depending tab portions 6 and 7, said tab portions extending to a point considerably below the flange of the upper cap portion and being bent inwardly and upwardly at their free ends as shown at 8 and 9 respectively. The lower cap portion 3 is provided with a centrally disposed slit 10 which extends across a major portion of the crown of the lower cap portion 3 and downwardly through its flange at one side of the cap. Portions of the depending flange of the lower cap portion 3 are removed as shown at 11 and 12 to accommodate tab portions 6 and 7. With the exception of these cut out areas, the depending flange of lower cap portion extends a substantially greater distance than the flange of upper cap portion 1 and is bent outwardly and upwardly as shown at 13 to provide a seat or abutment 14 for the depending flange 2 of upper cap portion 1. Also, in the assembled relation of the upper and lower cap portions, the upwardly directed edges of the inwardly and upwardly bent tab portions 6 and 7 abut the lower edges of the single-thickness portion of flange 4 at the cut-out areas 11 and 12 of the lower cap portion 3, and this as indicated at 15 and 16 in Fig. 5 of the drawing, thus providing an interlocking connection between the upper and lower cap portions when said parts are in assembled nestable relation.

In such assembled relation, upper cap portion 1 tightly engages lower cap portion 3, the walls of slit 10 being in close contact and the cap portions in combination with cork element 5 adequately sealing the contents of the capped receptacle. In this connection, it is well to note that the cap portions and their flanges and tabs are so dimensioned that, when the parts are in assembled relation, the free edge portions of the two-part cap, as heretofore referred to (14, 15 and 16), are in proper abutting relation, and that when placing the upper cap portion upon the lower cap portion, the tabs 6 and 7 with their inwardly and upwardly bent portions snap into proper position to bring about the abutting edge relation at the points 15 and 16, thus firmly locking the cap parts together as a unitary device to be handled by the conventional bottle capping machine in applying said two-part cap to a bottle or similar receptacle.

When it is desired to remove the cap, either tab portion 6 or 7 is engaged by the fingers and pulled outwardly and upwardly. By this operation, the upper cap portion will become separated from the lower cap portion and the resiliency of the material will cause a spreading of the slit 8, whereupon the lower cap portion may be easily removed with the fingers, if it has not already fallen off.

It has heretofore been pointed out that the depending flange of lower cap portion 3 is bent outwardly and upwardly, and further that the free ends of tab por-

tions 6 and 7 are inwardly and upwardly bent, and in this connection, it will be noted that these upturned flange-portions which are aligned one with the other, constitute a continuous circular double-thickness bottle crimping skirt portion for the bottle cap when the cap portions are in their assembled interlocked relation.

In Figs. 9 to 12 inclusive, I have illustrated another form of my invention which is substantially the same as the embodiment just described but includes an additional element 17, said element consisting of a split wire reinforcing ring which is positioned in the U-shaped trough formed by bending the tabs of the upper cap portion inwardly and upwardly and the flange of the lower cap portion outwardly and upwardly. This wire element 17 serves as an additional means for holding the upper and lower cap portions in their proper nestable relation, and by reference particularly to Figs. 11 and 12, it will be noted that the free ends of said wire reinforcing ring are positioned on that side of the cap carrying the narrower tab portion 6. In this connection, and as will be clearly seen in Fig. 9 of the drawing, the split wire ring as positioned in the U-shaped trough above referred to, extends for almost its entire length continuously through the trough as formed by the lower cap portion and also the trough of the wider tab portion 7 as carried by the upper cap portion, thus providing a hinge-like connection between said upper and lower cap portions.

Also, as shown in Figs. 9 and 11, the free ends of said split wire ring 17 extend outwardly from the lower cap portion trough on each side of the narrower tab portion 6 as indicated at 18—18, so that at these points said free ends enter the trough of said tab portion 6 from opposite sides thereof, but only for a very slight distance or at least sufficiently to retain the cap parts in proper nested relation, while at the same time permitting said narrower tab portion 6 to be easily released for its outward and upward movement in removing the cap from a bottle or like container to which it might be applied in its sealing relation.

I claim:

1. A two-part bottle cap having upper and lower nestable portions, each portion having spaced apart upturned depending flanges arranged in interfitting aligned relation and collectively constituting a continuous circular double-thickness bottle crimping portion for said bottle cap.

2. A two-part closure cap for bottles and analogous containers comprising upper and lower nestable portions adapted to be held in interfitting relation one with the other, said cap portions on opposite sides of each cap portion having depending skirt portions, all of said skirt portions assuming an aligned relation and adapted to grip the upper end portion of the neck of a bottle or like container when the said closure cap is in use, and the skirt portions of the upper cap portion having interlocking relationship with the lower cap portion at points between and adjacent to the depending skirt portions of said lower cap portion, whereby said cap portions are firmly held together.

3. A closure for bottles or the like including nested upper and lower cap portions adapted to be applied to the mouth of a receptacle as a unitary structure, each of said portions having a top and a depending flange, the lower cap portion having a slit extending through a part of the top thereof and also through the flange of said lower cap portion at one side thereof, said lower cap portion having the major portion of its flange bent outwardly and upwardly to provide a double-thickness crimping portion for the cap and a seat or contacting edge for the major portion of the depending flange of the upper cap portion when the cap portions are in nested relation, spaces being provided on opposite sides of the lower cap portion between the double-thickness crimping portion of said cap portion and with the single thickness flange of the lower cap portion at said spaces depending to a point above the lower edge of said double-thickness crimping portion, and said upper cap portion having a pair of depending tabs oppositely disposed upon said cap portion and fitting within the spaces provided upon said lower cap portion, the depending ends of said tabs being bent inwardly and upwardly to provide double-thickness crimping portions in line with the double-thickness gripping portions on the lower cap portion and with the edge of the inwardly and upwardly bent portion of each depending tab lying directly beneath the lower edge of the single-thickness flange of the lower cap portion when the cap portions are in nested relation, whereby the upper and lower cap portions are firmly locked together in their nested relation and ready for use incident to the capping operation.

4. A bottle cap having, in combination, upper and lower nestable cap portions adapted to be applied to the mouth of a bottle as a unitary structure, said cap portions having spaced apart interfitting upturned depending flanges in aligned relation when the cap portions are nested, said upturned flanges forming a continuous U-shaped trough upon the two-part bottle cap, and a split wire reinforcing ring positioned within said trough for securing the upper and lower cap portions in their nestable relation, said split wire reinforcing ring intermediate its length serving as a hinge-like connection between said upper and lower cap portions.

5. A bottle cap of the character described including upper and lower nestable portions adapted to be applied to the mouth of a bottle as a unitary structure, each of the portions having a top and a depending flange, a split wire reinforcing ring partially encircling the flange of the lower portion and also connected at a point intermediate its length to the upper portion for pivotally connecting the portions for swinging movement one relative to the other, and means carried by the upper portion and positioned between the split ends of the reinforcing ring when the cap portions are in nested relation, said means serving as a lever for lifting the upper cap portion upon its pivotal connection relative to the lower portion and in turn permit removal of said lower portion from the mouth of the bottle.

6. A bottle cap of the character described including upper and lower nestable portions adapted to be applied to the mouth of a bottle as a unitary structure, each of the portions having a top and a depending flange, said lower portion having a slit extending through a part of the top thereof and also through its flange at one side thereof, a split wire reinforcing ring partially encircling the flange of the lower portion and also connected intermediate its length to the upper portion and at a point approximately opposite the split in said lower portion flange, whereby said cap portions are pivotally connected together for swinging movement one relative to the other, and means carried by the upper portion and positioned adjacent the split in said lower portion flange when the cap portions are in nested relation, said means serving as a lever for lifting the upper cap portion upon its pivotal connection relative to the lower portion and in turn permit spreading of the split in the lower portion and removal of said lower portion from the mouth of the bottle.

7. A bottle cap of the character described including upper and lower nestable portions adapted to be applied to the mouth of a bottle as a unitary structure, each of the portions having a top and a depending flange, said lower portion having a slit extending through a part of the top thereof and also through its flange at one side thereof, means carried by both portions permitting interlocking engagement one with the other for firmly holding said cap portions in their nestable relation, and means carried by the upper cap portion and positioned adjacent the split in said lower portion flange when the cap portions are in nested relation to serve as a lever for lifting the upper cap portion relative to the lower portion and in turn permit spreading of the split in the lower portion and ready removal of said lower portion from the mouth of the bottle.

8. A two-part closure cap for bottles and like containers comprising upper and lower cap portions adapted to be held in interlocking nestable relation for application to the mouth of a bottle or similar container, both of said cap portions having depending flange sections which assume interfitting aligned positions with respect to each other when the cap portions are in their nestable interlocked relation and collectively constituting a continuous circular bottle crimping flange for said bottle cap or closure, said lower cap portion centrally slitted across the major portion thereof for ready removal from the bottle mouth when released by the upper cap portion, the depending flange sections of said upper cap portion having interlocking engagement with an edge of said lower cap portion to thereby maintain said cap portions in firm readily detachable relation and with the slitted lower cap portion held in its closed or sealing position as assumed for the purposes intended, whereby said two-

part cap may be applied as a unit to the mouth of a bottle or like container for sealing the same and where at least one of the depending flange sections of the upper cap portion is capable of being disconnected from its interlocked relation with the lower cap portion for releasing said cap portions from their nested relation to permit ready and easy removal of said lower cap portion from its sealed relation with the bottle mouth.

9. A bottle cap of the character described including upper and lower cap portions adapted to be applied to the mouth of a bottle as a unitary structure, each of the cap portions having a top and depending flange sections, a split wire reinforcing ring secured to certain of said depending flange sections and at a point intermediate the length of said split ring serving as a hinge between said cap portions, and a flange section carried by the upper cap portion and adapted to interlock with said lower cap portion at a point between the ends of said split ring to maintain said cap portions in connected relation, the ends of said split ring being detachably secured to said last mentioned flange section of the upper cap portion to prevent accidental movement thereof from its interlocking relation with the lower cap portion, whereby upon movement of said flange section in an outward direction it may be released from the ends of said split ring and its interlocking relation with the lower cap portion and serve as a lever for lifting the upper cap portion upon its pivotal hinge connection relative to the lower cap portion and for the purposes intended.

10. A bottle cap closure having upper and lower interlocked cap portions nested together and forming a unitary structure for application to the mouth of a bottle or other container, each of the cap portions having a top and also depending peripheral flange sections arranged in interfitting aligned relation and collectively constituting a continuous bottle crimping portion for said bottle cap, said lower cap portion being split diametrically across its top and downwardly at one end of the split across its flange to divide said lower cap portion into spreadable connected sections capable of independent movement to thereby permit relatively easy removal of the lower cap portion from its sealing relation with the container when released from its interlocked relation with the upper cap portion, and interlocking means at the periphery of said cap portions including a peripheral flange section formed on one of the cap portions for cooperative overlapping relation with a horizontal edge formed on the other cap portion, said flange section capable of movement in an outward direction to release the cap portions from their interlocking relationship and thus relieve the split lower cap from its normal applied gripping action upon the container.

11. A bottle closure having, in combination, upper and lower interlocked cap portions in nested relation and constituting a unitary structure for application to the mouth of a bottle or other container, each of the cap portions having a top and also depending peripheral flange sections arranged in interfitting aligned relation and collectively constituting a continuous bottle crimping portion for said bottle cap, and interlocking means between said cap portions at the periphery thereof and including a relatively narrow resilient flange section carried by the upper cap portion and adapted by inward snap action movement for detachable engagement with a downwardly facing horizontal edge of the lower cap portion at the periphery thereof upon movement in a substantially vertical direction of one cap portion toward the other and to thereby firmly hold said cap portions in interlocking relation one with the other to prevent separation of said cap portions in a vertical direction, said lower cap portion being split diametrically across its top and downwardly at one end of the split across the flange to divide said lower cap portion into spreadable connected sections capable of independent movement to thereby permit easy removal thereof from its sealing relation with the container when released from its interlocking relationship with said upper cap portion, and said resilient flange section also serving as a lever for detaching the closure cap from the container when said flange section is moved outwardly and lifted to disengage the same from its interlocking relation with said horizontal edge of the lower cap portion in releasing the lower cap portion for ready removal from its sealing relationship with the container.

12. A bottle cap having, in combination, upper and lower nesting cap portions, and oppositely disposed relatively narrow bottle neck crimping flange sections carried by one of said cap portions and each interlocking with a horizontal edge of the other cap portion at the periphery thereof for holding the cap portions in detachable interlocking relation as a unitary structure for application to the mouth of a bottle or other container, said lower cap portion having crimping flange sections and also being split diametrically across its top and downwardly at one end of the split across the flange to divide said lower cap portion into spreadable connected sections capable of independent movement to thereby permit relatively easy removal of the lower cap portion from its sealing relation with the container when released from its interlocked relation with the upper cap portion, said cap portions adapted to be assembled in interlocking relation by movement of the cap portions in a substantially vertical direction.

13. A bottle cap of the character described including upper and lower nesting cap portions detachably connected together, each of the cap portions having a top and also depending peripheral flange sections arranged in interfitting aligned relation and collectively constituting a continuous bottle crimping portion for said bottle cap, a split wire reinforcing ring secured to certain of the adjacent depending flange sections of each cap portion, and with that portion of said split ring intermediate the length thereof serving as a hinge between said cap portions, and detachable interlocking means between said cap portions including a flange section carried by the upper cap portion and oppositely disposed with respect to the hinge portion of said split ring, said last mentioned flange section adapted for interlocking engagement with a downwardly facing horizontal edge of said lower cap portion at a point between the ends of said split ring, whereby said cap portions are hingedly and detachably interlocked in sealing connected relation as a unitary structure for application to the mouth of a bottle or other container.

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