Feb. 18, 1936. W. T. MASON ET AL 2,030,884

BOTTLE CAP AND PROCESS OF MAKING SAME

Filed June 7, 1934

FIG. 1.

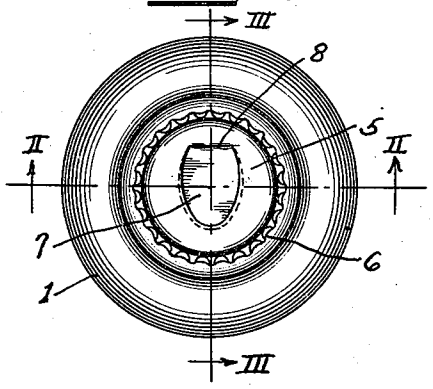


FIG. 2.

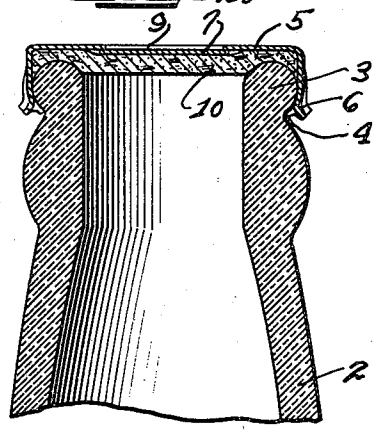


FIG. 3.

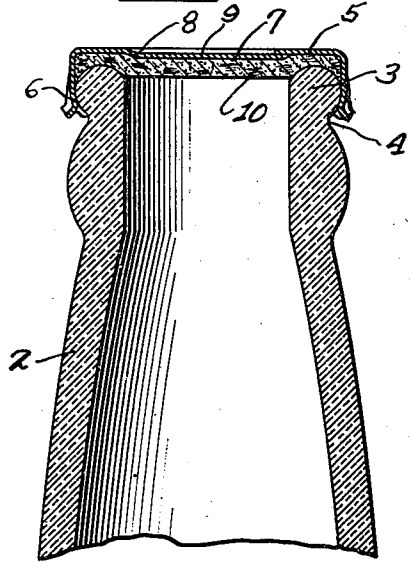


FIG. 4.

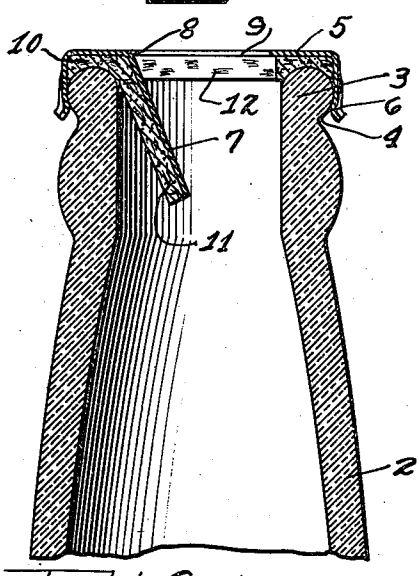


FIG. 5.

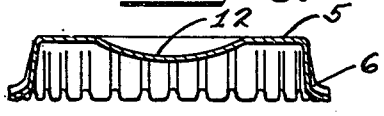
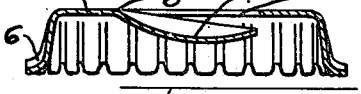


FIG. 6.



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Patented Feb. 18, 1936

2,030,884

UNITED STATES PATENT OFFICE

2,030,884

BOTTLE CAP AND PROCESS OF MAKING SAME

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Application June 7, 1934, Serial No. 729,353

9 Claims. (Cl. 113—80)

This invention relates to an improved type of bottle cap and more particularly to a cap and the process of making the same, said cap having a crimped margin and a plain top portion from which a tab or tongue is punched leaving a hinged portion to connect the tab with the cap. The tab forming portion during the punching process is first expanded inwardly and is then cut and flattened out to make the tab larger than the hole from which it is punched allowing the margins thereof to seat against the inner side of the cap by means of a cork disc secured within the cap and by means of the pressure from within the bottle on which the improved cap is engaged.

It is an object of this invention to provide an improved bottle cap from which a closure tab is struck and enlarged to overlap the inner side of the margin of the hole resulting from the formation of the tab.

It is also an object of this invention to provide an improved type of bottle cap having a hinged tab forming an integral part thereof and projecting into the cap to overlap the margin of the cap opening from which the tab has been removed.

It is a further object of this invention to provide a process for making a bottle cap, consisting of inserting a metal disc in a punch to deflect and crimp the margin of the disc and also deflect a portion of the disc inwardly and expand said portion, and then partially cut the expanded portion and flatten the same to form a tab larger than the opening from which it is punched.

It is furthermore an object of this invention to provide a bottle cap having a cork disc secured therein and also having a tab punched therefrom and enlarged to project into the cap adjacent the inner side of the disc to serve both as a closure means for the opening in the cap and as a cutter when forced inwardly to cut an opening in the disc to form an outlet for the contents of the bottle on which the cap is engaged.

It is an important object of this invention to provide a bottle cap in which a tab struck from the cap is expanded during the formation of the cap and is then cut and flattened out to overlap the inner margin of the opening provided in the cap and be retained in closed position by means of a cork plate or disc secured in the cap for seating against the mouth of a bottle on which the cap is engaged.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawing.

The invention (in a preferred form) is illustrated in the drawing and hereinafter more fully described.

On the drawing:

Figure 1 is a top plan view of a bottle having engaged thereon an improved bottle cap embodying the principles of this invention.

Figure 2 is an enlarged fragmentary vertical detail section taken on line II—II of Figure 1.

Figure 3 is a vertical detail section taken on line III—III of Figure 1.

Figure 4 is a sectional view similar to that illustrated in Figure 3 showing the tab projecting downwardly into the mouth of the bottle after having cut through the cork washer or disc engaged within the cap.

Figure 5 is a diametric section of a partially completed bottle cap showing a portion thereof deflected inwardly and expanded to illustrate the first step in the formation of a closure tab.

Figure 6 is a similar section showing the expanded tab partially cut from the cap leaving a hinge connection prior to being flattened out and pressed against the inner face of the bottle cap to close the cap opening as illustrated in Figure 2.

As shown on the drawing:

The reference numeral 1 indicates a bottle provided with a neck 2 and a mouthpiece 3 in the form of a bead formed directly above an upper outer peripheral groove 4.

Engaged on the bottle mouthpiece 3 to close the mouth of the bottle is an improved metallic cap comprising a top plate 5 provided with an integral crimped flange 6 having portions thereof projecting into the groove 4 to hold the cap tightly engaged in position. Punched inwardly from the top plate 5 is a tongue or tab 7 which is integrally connected with the top by a hinge portion 8. During the process of punching out the tab 7 the tab portion is first deflected inwardly and expanded to form the cup shaped portion 12 simultaneously with the formation of the crimped flange 6 when a metal blank is acted upon in a suitable punch press. The partially formed cap is then engaged in a cutter which cuts the major portion of the margin of the cup shaped portion 12 and deflects the same inwardly as illustrated in Figure 6. The next step in the process consists in flattening out the expanded cup portion 12 to form the enlarged tab 7. The tab 7 is slightly larger than the hole from which

it is punched leaving the edge of the tab in the form of a knife or cutting edge adjacent the margin of the opening 9 to normally rest against the inner face of the cap top 5 as illustrated in Figures 2 and 3 and as shown by the dotted lines in Figure 1. This arrangement of having the tab 7 expanded during the punching out process to contact the inner surface of the apertured cap top will withstand any required amount of pressure from within the bottle thereby eliminating the need of an expensive inner member or mechanism for keeping the opening in the bottle cap normally closed.

Tightly seated within the cap against the inner face of the cap top 5 is a porous washer or disc 10 which is constructed of cork or other suitable material. The cork disc is made airtight and leakproof by impregnating the disc in paraffine or the like.

As clearly illustrated in Figures 2 and 3 the cork disc 10 seats upon the mouth bead 3 of the bottle, when the cap is in place, to prevent leakage of the contents of the bottle from beneath the cap.

To open a bottle which is closed by means of the improved cap it is only necessary to push inwardly on the tab 7 with a key or other suitable device thereby causing the cutting edge of the tab 7 to cut into the cork washer 10 to cut out a tab liner 11 from the cork disc or washer 10 leaving an opening 12 in the cork washer in register with the bottle cap opening 9 to permit the contents of the bottle to be emptied without removal of the cap from the mouth of the bottle.

It will, of course, be understood that details of construction may be varied through a wide range without departing from the principles of this invention, and it is, therefore, not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

We claim as our invention:

1. A bottle cap comprising a top plate provided with a crimped rim flange and having a tab punched inwardly therefrom and expanded, said tab being of a size greater than the size of the hole from which it is punched to overlap the inner side of the margin of the hole to close the same.

2. A bottle cap comprising a top plate provided with a crimped rim flange and having a tab struck therefrom and of a size greater than the hole from which it is punched to overlap the margin of the hole, and a washer disc secured in the cap to hold the tab pressed against the inner side of the margin of the hole.

3. A bottle cap comprising a top plate provided with a crimped flange and having an opening therein, a tab larger than the size of the opening and integrally connected with the top plate and disposed within the cap, a cork disc engaged in the cap to press the tab against the inner side of the margin of the hole, said tab having the edge thereof shaped to serve as a cutter to cut through the disc to form an opening therein registering with the opening in the top plate, when the tab is forced inwardly.

4. A bottle cap comprising a metal top plate having a hole therein and an integral rim flange, a tab larger than the hole and having a hinge connection with the top plate, and a disc washer secured in the cap against the inner side of the tab and the top plate to hold the tab in closed position pressed against the inner side of the margin of the hole.

5. The combination with a bottle cap having an opening therein, of a tab in the cap larger than the opening to overlap the margin thereof, hinge means connecting the tab to the cap, and sealing means in the cap for holding the tab pressed against the inner surface of the cap to close and seal the opening by the action of the pressure within the bottle on which the cap is engaged.

6. The process of forming a bottle cap consisting of bending and crimping the margin of a metal disc and inwardly deflecting and expanding a portion of the disc, then before using the cap cutting through the major portion of the edge of the deflected portion leaving a hinge portion to connect the deflected portion with the cap, and finally flattening out the deflected and expanded portion to form a closure tab of a size greater than the hole from which it was punched to prevent blowing out of the tab through the hole due to pressure within a bottle on which the cap is engaged.

7. The process of forming a bottle cap consisting of bending and crimping the margin of a metal disc and then deflecting and expanding a portion of the disc, and finally cutting the major portion of the expanded portion and flattening the same before engaging the cap on a bottle.

8. The process of forming a bottle cap consisting of crimping and expanding portions of a cap blank, and then cutting and flattening the expanded portion before using the cap on a bottle to form a closure tab larger than the opening from which it is cut to be actuated by the pressure in the bottle to close said opening.

9. The process of forming a bottle cap consisting of punching a blank form and crimping and expanding portions thereof, then before engaging the cap on a bottle cutting and flattenng the expanded portion to form a closure tab larger than the opening from which it is punched, and finally engaging a washer disc in the cap to hold the tab in closed position to overlap the margin of the opening.

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