Dec. 19, 1944. A. J. MAREK 2,365,350

METHOD OF PRODUCING BOTTLE CLOSURES

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Fig. 1.

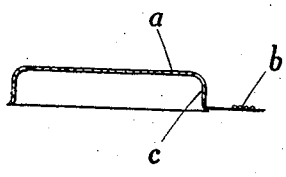



Fig. 2.

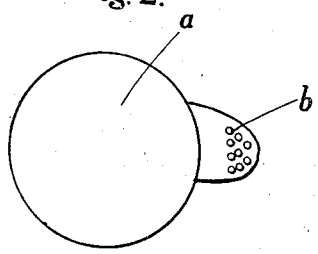



Fig. 3.

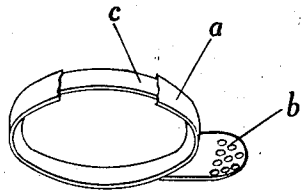



Fig. 4.

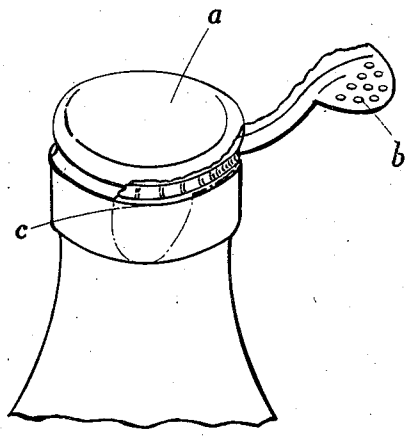
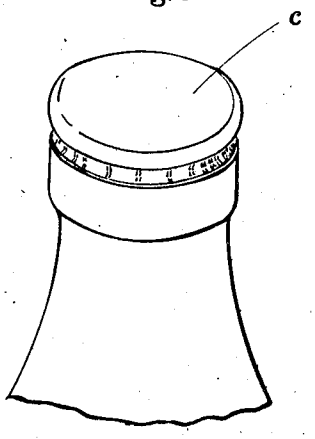



Fig. 5.




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Fig. 7.

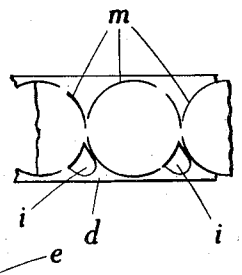



Fig. 8.

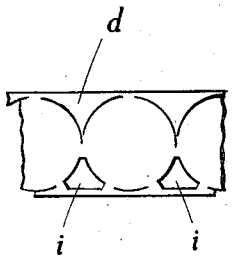



Fig. 6.




Fig. 9.




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# UNITED STATES PATENT OFFICE

2,365,350

## METHOD OF PRODUCING BOTTLE CLOSURES

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Application January 27, 1940, Serial No. 316,016
In Great Britain February 13, 1939

2 Claims. (Cl. 113—121)

This invention relates to a method of making caps or closures for bottles or other containers and has for its chief object the provision of an improved method of making a cap of that type which is composed of metal, e. g., metal foil, and is provided with a tab for facilitating the removal of the cap from the bottle or the like.

According to the invention the cap is made up of two portions, namely, an outer metallic portion provided with a tab and an inner portion or lining composed of parchment, paper or the like, the inner portion being shaped and formed so that it is substantially co-extensive with the outer portion but does not extend beneath the said tab. By this arrangement, the outer metallic portion can readily be removed from the bottle or the like by the aid of the tab whilst the inner portion remains in position on the bottle. Preferably both of the inner and the outer portions are cup-shaped.

Whilst the improved form of cap produced in accordance with the present invention may be made in various ways, the invention is concerned with the provision of certain simple and convenient methods of manufacturing caps of the character above defined. According to one convenient mode, the caps, or the flat discs from which the cup-shaped caps are to be formed, may be stamped or punched out of a pair of juxtaposed strips one of which is of metal or metal foil and the other of paper, parchment or the like. In order, however, to provide for the absence of paper, parchment or the like from beneath the tab, the strip from which the inner portions are to be stamped may have openings therein or portions stamped, cut or otherwise removed therefrom so that when the strip is brought into juxtaposition with the metallic strip from which the outer portions are to be stamped, the said openings or cut-away portions register with the parts of the metallic strip which are to form the tabs thereby rendering it possible with one stamping operation to stamp out the inner portion and the outer portion with the former overlying or extending beneath the other portion at all parts except the tab.

Alternatively, the metal caps, after being stamped or punched out and formed with their tabs in any known manner, may be fed to a die and the discs of paper, parchment or the like may be punched out and applied thereto to form the said substantially co-extensive lining.

In order that the said invention may be clearly understood and readily carried into effect, the same will now be more fully described with reference to the accompanying drawings, in which—

Fig. 1 is a sectional view of the form of the improved cap produced in accordance with the invention;

Fig. 2 is a plan view of the said cap;

Fig. 3 is a perspective view of the cap with a part of the outer portion thereof shown broken away to reveal the inner lining;

Fig. 4 shows the cap in position on the mouth of a bottle and in the process of having the outer portion being torn away;

Fig. 5 shows the lining remaining in position on the mouth of the bottle after the outer portion of the cap has been removed;

Figs. 6, 7 and 8 are explanatory views illustrating one mode of manufacturing the improved form of cap; and

Fig. 9 is a view illustrating another mode of manufacturing the said cap.

In Figs. 1 to 5 of the accompanying drawings, *a* indicates the outer metallic portion of the cap, which portion is provided with a tab *b*, and *c* indicates the inner portion or lining which is composed of parchment, paper or the like and which underlies the outer portion at all parts except the tab. The cap is applied to the mouth of a bottle in the usual manner so that its skirt is pressed inwardly into an annular groove or recess formed in the neck of the bottle immediately adjacent and just below the mouth and, when the bottle is to be opened, the outer portion is torn away by raising the tab and pulling or tearing the skirt portion with a circular motion as indicated in Fig. 4 whereupon only the lining will remain as shown in Fig. 5. The said lining is then removed and can, if desired, be utilised as a re-closure until such time as the whole of the contents of the bottle have been used. It will be appreciated that such a closure is particularly suitable for use on milk and like bottles.

In manufacturing the improved form of cap according to one convenient mode, a flat strip *d* (Fig. 6) of paper or other material suitable for forming the cap linings is fed between a pair of rollers *e*, *e* and is brought by another pair of rollers *f*, *f* into juxtaposition with another flat strip *g* of metal or metal foil suitable for forming the outer portions of the caps, the two strips moving forward together to a third pair of rollers indicated at *h*, *h*. The strip *d* from which the inner portions of the cap are to be stamped is provided initially or during its passage to the rollers *f*, *f* with suitable openings or cut-away portions *i* disposed so that, when the strip is brought into position adjacent the metallic strip *g*, the said openings or cut-away portions register with the parts of the metallic strip which are to form the tabs *b* thereby rendering it possible with one stamping operation to stamp out the inner and outer portions of the cap with the former overlying or extending beneath the other portions at all parts except the tab. The stamping or cutting is effected whilst the two strips lie side by side and, if desired, two simultaneously

actuated tools may be provided and arranged so that one operates along the lines A—A to precut the paper whilst the other operates along the lines B—B to cut or stamp out the inner or outer caps or the discs or blanks therefor. If desired, the paper or like strip *d* may be scored, creased, weakened or partially cut along the circular or arcuate lines *m* shown in Fig. 7 in order to facilitate the subsequent cutting or stamping out of the blanks. Also, in some instances, in order to avoid the necessity of obtaining exact registration of the openings *i* with the parts of the metallic strip which are to form the tabs *b*, the said openings may, as is indicated in Fig. 8, be formed so that they are somewhat larger than the tabs.

According to another mode of manufacturing the improved form of cap, the outer portions *a* with their tabs *b* are fed one by one to a holder **2** (Fig. 9) disposed opposite a die **3** over or alongside of which is fed a strip **4** of paper or other material suitable for forming the inner portions of the cap and a stamping member or blanking tool **5** is periodically operated to cut or stamp out from the strip the discs required for forming the said inner portions. The said stamping member or blanking tool is in the form of a hollow plunger arranged for sliding movement on a punch **6** which, after the disc is cut or stamped out, is moved towards the holder **2** to form the disc into a shallow cup-shaped member within the die **3**, the arrangement being such that by the continued or further movement of the punch the shallow cup-shaped member is forced through the die and located in position in the outer portion of a cap held by the holder **2** so that the cup-shaped member forms a lining for the outer portion at all parts except the tab.

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

1. In the method of manufacturing closure caps formed of an outer metal portion having a top and a peripheral flange-like attaching skirt for securing the closure to a container neck, an inner portion of paper-like material having a top and a peripheral flange-like skirt co-extensive with that of the metal top and skirt, a rip tab projecting from the free edge of the metal skirt, the steps comprising punching an opening of a size at least as large as the rip tab on the metal portion in a strip of paper-like material, bringing said punched strip into juxtaposition with a strip of metal, punching blanks for the outer and inner portions from said juxtaposed strips together, with the rip tab of the outer portion in register with the previously punched opening in the paper-like strip and shaping the composite blank into a closure cap.

2. In the method of manufacturing closure caps formed of an outer metal portion having a top and a peripheral flange-like attaching skirt for securing the closure to a container neck, an inner portion of paper-like material having a top and a peripheral flange-like skirt co-extensive with that of the metal top and skirt, a rip tab projecting from the free edge of the metal skirt, the steps comprising punching an opening of a size at least as large as the rip tab on the metal portion in a strip of paper-like material and partly cutting a blank for the inner portion from said strip, bringing said punched strip into juxtaposition with a strip of metal, punching blanks for the outer and inner portions from said juxtaposed strips together, with the rip tab of the outer portion in register with the previously punctured opening in the paper-like strip and shaping the composite blank into a closure cap.

ANTHONY JOSEPH MAREK.