Aug. 8, 1939. L. A. VON TILL 2,168,594

CLOSURE CAP

Original Filed April 21, 1930

Fig. 1.

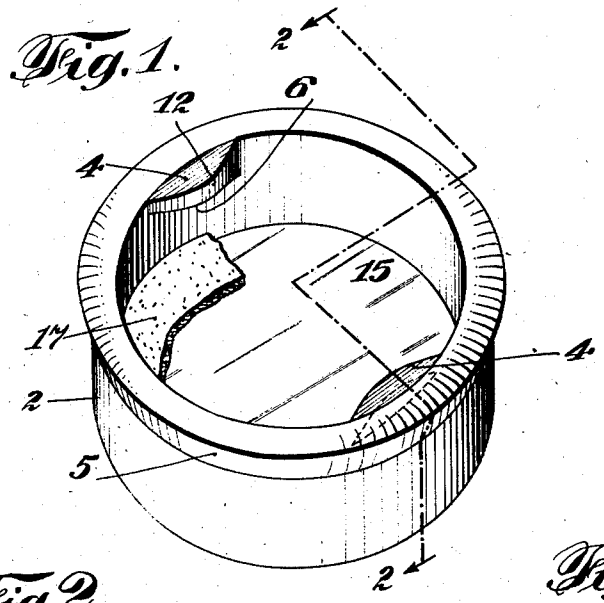


Fig. 2.

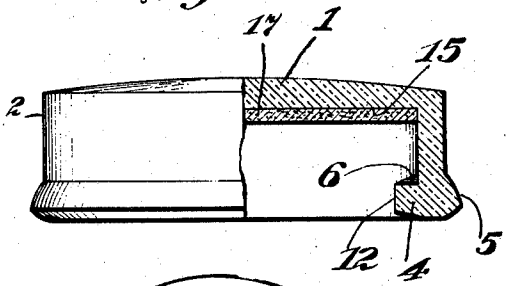


Fig. 3.

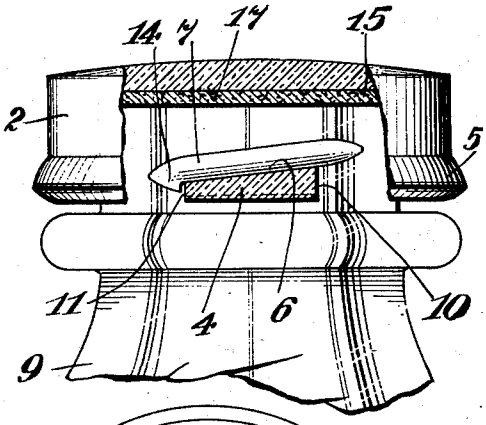
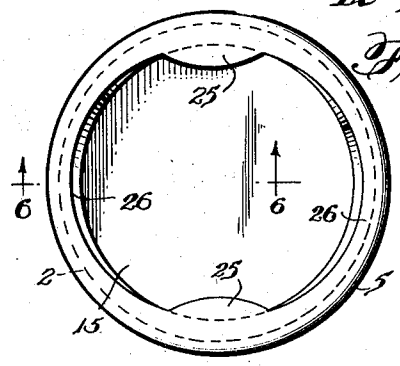


Fig. 5.



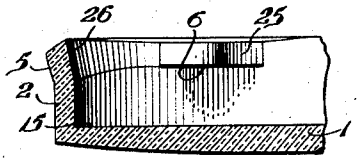


Fig. 6.

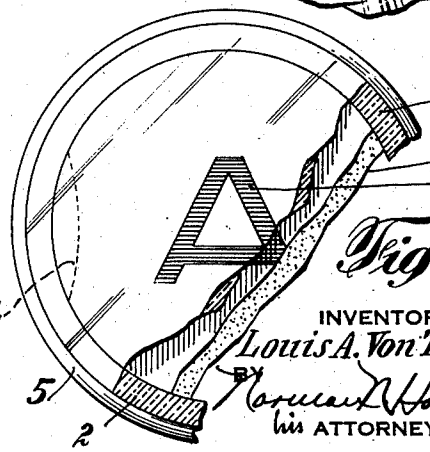


Fig. 4

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Patented Aug. 8, 1939 2,168,594

UNITED STATES PATENT OFFICE

2,168,594

CLOSURE CAP

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Application April 21, 1930, Serial No. 445,896
Renewed February 8, 1939

5 Claims. (Cl. 215—44)

The present invention relates to closure caps and more particularly to a closure cap formed of a moldable material.

It is customary to pack articles such as cosmetics and other preparations, purchased chiefly by women, in highly decorated, artistic containers, in order to present a neat and fancy package which attracts the prospective customer's attention. Generally, these containers are provided with equally attractive closures. The closures employed are usually made either of glass or of metal.

Glass closures, such as stoppers, should be ground to fit the neck of the bottle and are, therefore, expensive. In addition, such closures provide a poor seal and are difficult to remove, since they have a tendency to "freeze" in the neck of the container. Closure caps for jars constructed of glass present similar or additional difficulties and, due to their fragile character, are frequently broken. Certain compounds, particularly bleaching solutions and other chemically active preparations, have a corrosive effect upon metal, making metal closures impractical for such solutions. Frequently, the lacquer or enamel used to decorate the cap is attacked, thereby rendering the cap unsightly and unfit for use.

The present invention aims to overcome these difficulties by providing strong and durable closure caps constructed of a thermo-plastic moldable material. Caps formed of this composition are not affected by corrosion. They are extremely light in weight and yet mechanically strong. These caps can be produced in any desired color or combination of colors and are, therefore, very attractive when placed upon a package.

An object of the invention is to provide a strong and durable closure cap formed of a thermoplastic moldable material which may be slightly flexible.

Another object of the invention is to provide a non-corrosive closure cap which is light in weight and yet mechanically strong, and which is not affected by chemically active preparations.

Another object of the invention is to provide a closure cap formed of a moldable material having reinforced lugs which facilitate the removal of the cap but still permit a tight seal to be formed therewith.

Another object of the invention is to increase the attractiveness of sealed packages and to promote the sales thereof by providing a cap which can be produced with any desired artistic effect or combination of colors.

Another object of the invention is to provide a closure cap which can be manufactured inexpensively of a decorative material, and which is adapted to eliminate the necessity for lacquer or other decorative coatings.

Another object of the invention is to provide a closure cap which can be manufactured of a transparent material and which is adapted to retain a decorated liner plate.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawing, forming a part of the specification, wherein;

Fig. 1 is a perspective view of the cap in inverted position, illustrating a preferred embodiment of the present invention;

Fig. 2 is a side elevational view of the cap partly in section;

Fig. 3 is a side elevational view, partly in section, showing the cap applied to a container;

Fig. 4 is a top plan view, partly in section, showing a cap of the present invention constructed of transparent material having a decorated liner plate therein;

Fig. 5 is a perspective view, showing a slightly different type of reinforcing shoulder for a cap of the present invention; and

Fig. 6 is a fragmentary sectional view taken along line 6—6 of Fig. 5.

The caps of the present invention are preferably made of a molding compound which comprises a colloidal cellulose acetate, suitable plasticizers, coloring materials and solvents. Such a molding composition may be made in various colors and degrees of hardness best suited for any particular type of cap. The process for preparing these compounds for the molding operations may be the same as that in general use for phenolic, resinous, or gum base materials. Other processes may, of course, be used if found suitable.

Referring to the drawing, and more particularly to Figs. 1, 2 and 3, there is shown a closure cap having a cover portion 1 and a depending skirt 2 provided with a pair of gripping lugs 4. The lugs are reinforced and strengthened by providing a substantially outwardly flared shoulder 5 on the lower portion of the skirt wherein the lugs are formed. The shoulder 5 increases the thickness of the skirt and, preferably, extends above the up-

per faces 6 of the lugs 4. The skirt of the cap is thereby strengthened to withstand the strains created by the lugs when they engage suitable threads 7 on the container 8.

The lugs are of greater depth at the tail end 10 than at the forward part 11. The upper surfaces 6 of the lugs are, therefore, slightly inclined. This taper permits the lugs 4 to slide readily into engagement with the threads 7 formed on the upper part of the container 8 and to distribute the sealing pressure over substantially the entire length of the lug. The projecting faces 12 of the lugs are substantially arcuate and present smooth surfaces toward the side wall of the container. The forward portions 11 of the lugs are adapted to lock against the stops 14 on the threads 7 when the cap has reached its final position on the container. This prevents undue strain on the parts in the application of the caps.

An annular zone 15 is provided on the underside of the cover portion to present a flat surface for pressing the periphery of a suitable waxed liner 17 against the rim of the container. The composition of the cap may be adapted to form a tight seal with the rim of the container without the interposition of a sealing disc or compound.

A cap is shown in Fig. 4, constructed of a transparent material with a suitable liner therein having the manufacturer's trade-mark, or other decorations 18, on the top side thereof. These decorations may be printed upon the liner or upon a sheet of material intermediate the liner and the cover part of the cap. Such marking is clearly visible through the cover part of the cap and eliminates other marking to identify the manufacturer's product.

In Figs. 5 and 6, a slightly different cap construction is shown. The lower portion of the skirt 2 of the cap is relatively thicker at the lugs 4, as shown at 25, whereby the skirt of the cap is strengthened at the portions where the greatest strains are exerted. The relatively thin portions 26 merge into the portions 25 and increase the resiliency of the cap intermediate the lugs to diminish the sealing strains. These portions permit the cap to adjust itself readily for irregularities in the container. It will be noted that the lower portion of the skirt of this type of cap is slightly elliptical when viewed from the top or bottom. The relative lengths of the portions 25 and 26 may vary but in all cases the portions 25 provide a stronger cap and the thin portions 26 increase the resiliency of the cap without decreasing its strength.

It will be seen that the present invention provides a closure cap formed of a moldable material which can be manufactured at a reasonable cost. The material can be decorated before it is molded by adding pigments thereto to create various colored, mottled or opaque effects. Other features of the cap are its sanitary, odorless and tasteless properties which permit the caps to be used for any type of product. The caps take a very high, permanent polish, are non-corrosive and do not deteriorate with age. The caps are light in weight, yet mechanically strong. To guard against breakage of the lugs, the present invention provides a resilient, reinforcing shoulder extending about the lower end of the skirt. The caps are particularly applicable for packages requiring a decorative cap. They are adapted to withstand rough handling and excessive sealing strains to which they may be subjected.

As various changes may be made in the form, construction and arrangement of the parts of the above embodiment without departing from the spirit of the invention, all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. A closure cap comprising a cover portion, a depending skirt, a reinforcing shoulder in the lower portion of said skirt, and a plurality of inwardly extending lugs on the interior of the skirt integral with said reinforcing shoulder, the lower portion of the skirt being thicker at portions adjacent said lugs than at portions intermediate thereto.

2. A closure cap formed of a substantially resilient moldable material comprising a cover portion, a depending skirt, a plurality of lugs formed on the interior of said skirt, and a reinforcing zone extending about the portion of the skirt in which the lugs are formed, said zone being thicker at portions adjacent said lugs than at portions intermediate thereto to increase the resiliency of the skirt.

3. As an article of manufacture, a molded closure cap comprising a cover portion, a depending skirt, a plurality of inwardly extending thread engaging lugs formed on the bottom of the skirt of the cap and an outwardly extending shoulder formed at the bottom of said skirt on the exterior thereof, portions of said skirt intermediate said lugs being reduced in thickness to increase the resiliency of the cap.

4. As an article of manufacture, a transparent closure cap comprising a cover portion, a depending skirt, a plurality of inwardly extending thread engaging lugs formed on the interior of the skirt at the bottom thereof, a reinforcing zone formed at the bottom of said skirt adjacent said lugs, said zone being of less thickness intermediate said lugs than at said lugs, and a decorated disc on the interior of the cap below the cover portion thereof adapted to be seen through the cover portion of the cap.

5. A closure cap formed of a moldable material comprising a cover portion, a depending skirt, a plurality of inwardly extending lugs on the interior of said skirt, and a reinforcing shoulder at the lower edge of said skirt and substantially adjacent to said lugs, said skirt at said shoulder being substantially thicker at portions adjacent to said lugs to reinforce the lugs and thinner at portions intermediate said lugs to increase the flexibility of the skirt.

LOUIS A. VON TILL.