United States Patent

Sakurai

[15] **3,640,417**

[45] **Feb. 8, 1972**

[54] **HEAT-SHRINKABLE SLEEVE FOR CLOSING A RECEPTACLE**

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[73] Assignee: **Gilbreth International Corp.**, Philadelphia, Pa. a part interest

[22] Filed: **Mar. 12, 1970**

[21] Appl. No.: **11,762**

[52] **U.S. Cl.** ..... **215/83**, 215/38 A, 215/46 A

[51] **Int. Cl.** **B65d 55/02**

[58] **Field of Search** ..... 215/83, 38 A, 46 A

[56] **References Cited**

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Primary Examiner—George T. Hall

Attorney—Caesar, Rivise, Bernstein & Cohen

[57] **ABSTRACT**

A closure for container which permits, when on display, the customer to look into and smell the products packaged therein and nevertheless prohibits him to touch the products directly with a finger. The container is sealed at its mouth portion by a flat, porous top member and has provided at the outer periphery of the container a U-shaped tongue for use in removing the entire closure when the container is to be opened.

7 Claims, 9 Drawing Figures

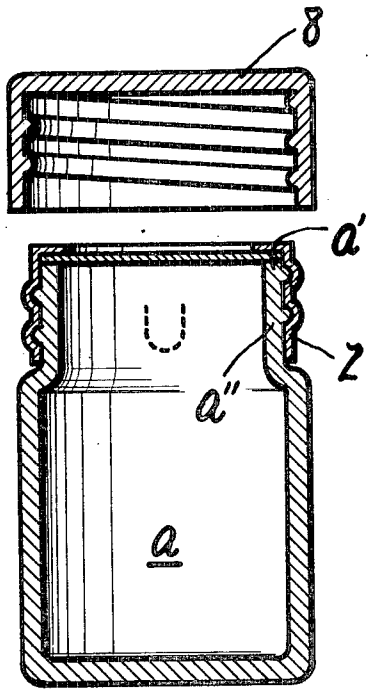


Fig. 1

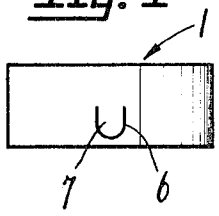


Fig. 2

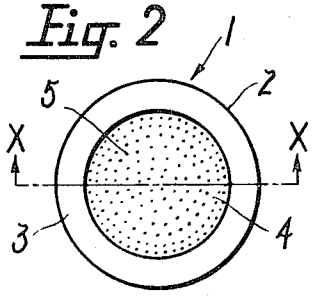


Fig. 3

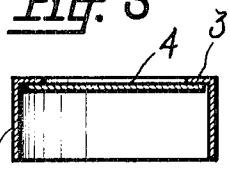


Fig. 4

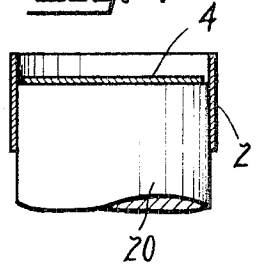


Fig. 5

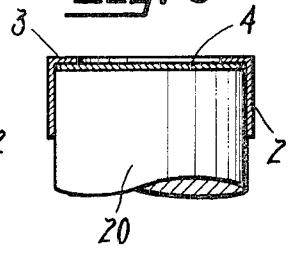


Fig. 6

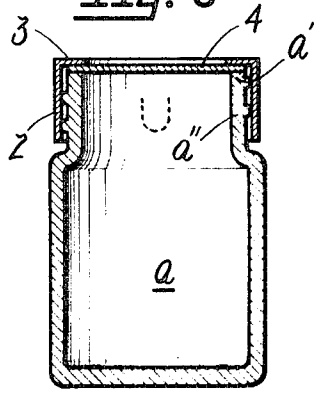


Fig. 7

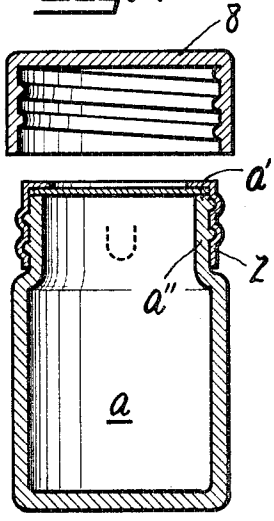


Fig. 8

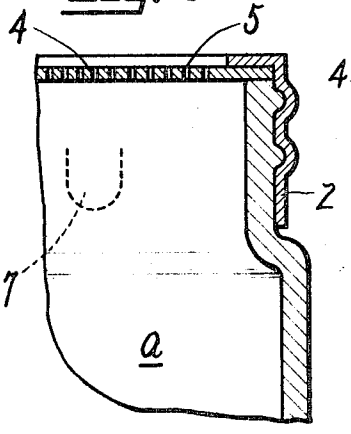
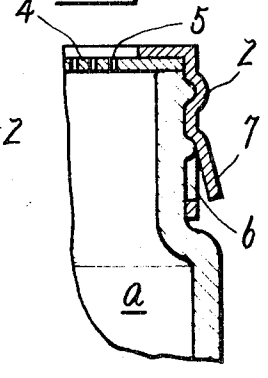


Fig. 9



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HEAT-SHRINKABLE SLEEVE FOR CLOSING A RECEPTACLE

This invention relates to improvements in the closures for containers of the character which is used for the packaging of cream cosmetics, foodstuff and the like. This application is a continuation of my copending Pat. application Ser. No. 674,583, filed Oct. 11, 1967, now abandoned.

In the merchandising of cream products, it is likely that the customer wants to look into, smell and even actually try the contents of the container displayed at the shop. Once, however, the caps or closures have been removed from the containers, the goods may lose their commercial value and must be discarded uselessly, which would impose considerable worth of damage on the dealers and manufacturers of the goods.

In order to overcome such problems, the present invention contemplates the provision of cosmetic or foodstuff containers which will permit the customer to readily look into and smell the products packaged therein and yet prohibit him to touch the products with a finger. This is accomplished according to the invention by sealing the mouth of the container with a flat, porous top member and having a U-shaped tongue at the outer periphery of the container.

The cap may be made o transparent, translucent or opaque thermoshrinking synthetic resins such that are disclosed by U.S. Pat. Nos. 2,168,651, 2,420,310, 1,877,500, 3,022,543 and 3,166,878. However, preferred examples are polyolefin having 50 percent shrinkage at 275° F. and polyvinyl chloride having 50 percent shrinkage at 325° F. so that the cylindrical body formed of such material will present a minimum of shrinkage in its axial direction and a maximum of shrinkage in its diametrical direction.

It is to be appreciated that tensile strength at a low temperature, elasticity and other physic-chemical details of the materials used will not be required in accordance with the present invention for an understanding of the basic concept thereof. The important aspect of the invention resides in the choice of two categories of material; one is thermoshrinking and the other thermoplastic. Experiments revealed that such material selection is not too critical to implement the invention.

These features of the invention will be more apparent from the following description taken in conjunction with the accompanying drawings in which:

FIG. 1 is a side view of the cap according to the invention;

FIG. 2 is a plan view of the cap of FIG. 1;

FIG. 3 is a vertical sectional view of the cap taken approximately on the line X—X of FIG. 2;

FIG. 4 is a fragmentary vertical sectional view of the top disc and the sidewall, respectively, of the cap attached to a cylindrical pattern prior to the formation of the overlapping periphery of the cap;

FIG. 5 is a similar to FIG. 4 but showing the upper edge portion of the sidewall bent over the top disc so as to form the overlapping periphery of the cap;

FIG. 6 is a vertical sectional view of each of the container and the cap prior to thermal adherence of the sidewall to the outer neck portion of the container;

FIG. 7 is a vertical sectional view of each of the inner and outer caps and the container, the inner cap being secured by fusion to the neck of the container;

FIG. 8 is a fragmentary vertical sectional view on enlarged scale of each of the inner cap and the neck of the container with the U-shaped tongue positioned in front; and

FIG. 9 is similar to FIG. 8 but illustrating the U-shaped tongue positioned at the right.

Referring now to the drawings, the numeral 1 designates an inner cap having a sidewall made of thermoshrinking synthetic resin. For the formation of the cap 1, it is necessary to use a cylindrical pattern 20 with its diameter slightly larger than the external diameter of the neck a'' of the container. Upon the top flat area of the pattern 20 is superimposed a thin transparent disc 4 made of thermoplastic synthetic resin and having provided therein a suitable number of pores formed through known mechanical or electrical processing. The pattern 20 is

inserted into a cylindrical body 2 of thermoshrinking synthetic resin with its upper edge 3 extending vertically from the top flat portion of the pattern, as shown in FIG. 4. Here, it is important to provide a U-shaped slit in the wall of the cylindrical body at its relatively low portion for the reasons described later. The extending upper edge 3 of the cylindrical body 2 is then bent radially and inwardly to a level flush with the outer face of the top disc 4, thereby forming a peripheral overlap of the inner cap 1. The lap portion 3 of the cylindrical body 2 is further adhered with heat integrally to the upper face of the disc 4 by any known method.

It is possible to form the cylindrical body from a flat sheet material of thermoshrinking nature.

The cap 1 thus closed at its top by the disc 4 is positioned atop the mouth a' of the container as best illustrated in FIG. 6.

To securely engage the sidewall 2 of the inner cap 1 with the outer periphery of the neck a'', said sidewall 2 should be heated at a temperature lower than the melting point but higher than the softening point of the material used. This will at the same time cause the U-shaped area 6 to protrude outwardly of the sidewall thereby to form a tongue 7 which is seen from FIG. 9. It will be appreciated that this tongue 7, which extends downwardly of the sidewall 2 of the cap 1, is no obstacle to the engagement of the inner cap 1 with the outer cap 8, as illustrated by FIG. 7. This outer cap 8 is so formed as to securely mate with the inner cap 1 attached to the neck a'' of the container. This however plays no important part of the present invention.

It will be appreciated that the porosity of the top flat portion 4 of the inner cap is intended to permit the customer to look into the smell the products in the container and yet prohibit him to actually touch the same. Another advantage of the cap according to the invention is that the top flat member 4 of the inner cap is completely free from shrinkage even when the sidewall 2 of the container is heated.

To open he container, the customer has only to pull the U-shaped tongue 7 upwardly with slight finger pressure to remove the entire inner cap.

It will also be appreciated that the robust outer cap 8 secured in place with the inner cap protect the contents from dispersion of its flavor while the goods are on display at the shop. The closure device according to the invention is leakproof and so permits the accommodation of liquid products.

Without further elaboration, the foregoing will be fully illustrate my invention, that others may, by applying current or future knowledge readily adapt the same for use under various conditions of service.

What is claimed as the invention is:

1. A closure for a container having an opening, said closure comprising a heat shrinkable cylindrical portion and a non-heat-shrinkable end portion, said cylindrical portion being secured integrally to said end portion to form a cup, said closure being secured about the opening of said container by applying heat to said cylindrical portion.

2. The closure of claim 1 wherein said heat-shrinkable cylindrical portion is comprised of a material which causes minimum shrinkage axially and maximum shrinkage diametrically when heat is applied.

3. A closure for a receptacle having an opening surrounded by a neck, said closure including an inner cap having a heat-shrinkable sleeve for securement to said neck and an outer cap which is adapted to be detachably secured to said neck over said inner cap, said inner cap including an end portion which is integrally secured to the said sleeve, said end portion being nonheat-shrinkable.

4. The closure of claim 3 wherein said end portion comprises a transparent disc.

5. The closure of claim 3 wherein said neck includes a helical thread and said outer cap is threaded, said sleeve having a small thickness so that it does not impede the detachable securement of said outer cap.

6. A closure of for a receptacle having an opening surrounded by a neck, said closure including an inner cap having

a heat-shrinkable sleeve for securement to said neck and an outer cap which is adapted to be detachably secured to said neck over said inner cap, said inner cap including a U-shaped slit which forms a tongue when said sleeve is secured to said neck, said tongue enabling removal of said inner cap by pulling said tongue.

7. A closure for a receptacle having an opening surrounded by a neck, said closure including an inner cap having a heat-shrinkable sleeve for securement to said neck and an outer cap which is adapted to be detachably secured to said neck over said inner cap, said inner cap further including an end portion which is secured to said sleeve, said end portion having a plurality of perforations.

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