Aug. 29, 1944. L. G. COPEMAN 2,356,825

CLOSURE MEMBER AND METHOD CF APPLYING SAME

Original Filed Dec. 2, 1932

Fig. 1.

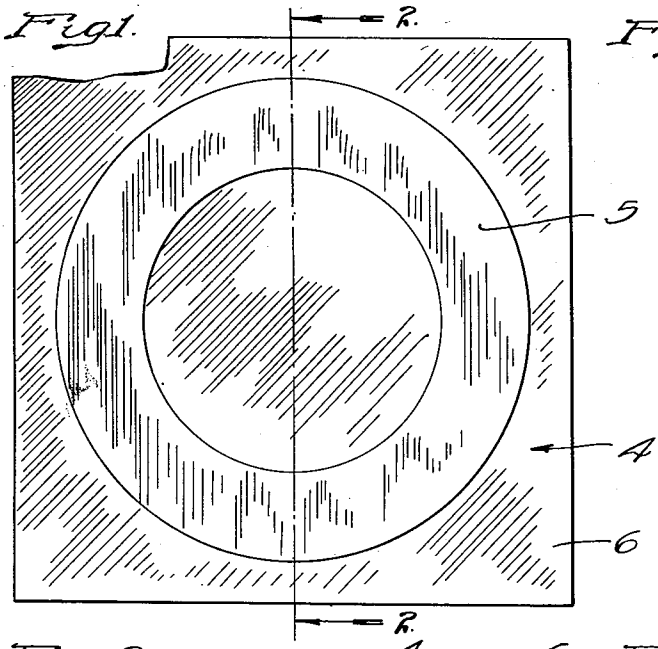


Fig. 2.



Fig. 3.

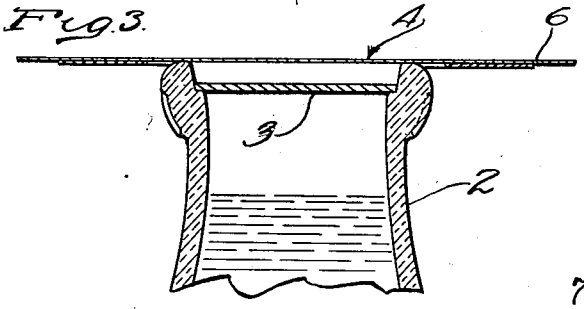


Fig. 4.

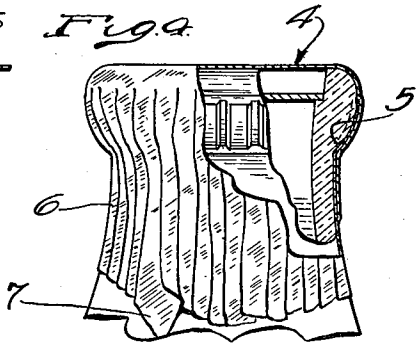


Fig. 5.

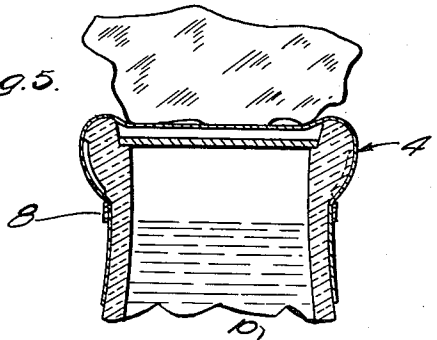


Fig. 6.

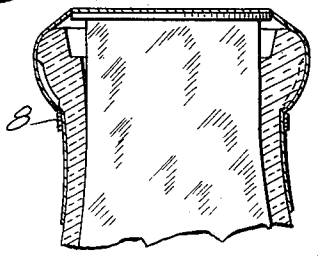
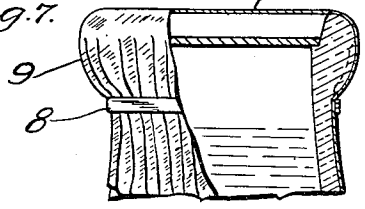


Fig. 7.



INVENTOR.
LLOYD G. COPEMAN
BY
Barnes, Kisselle & Laughlin
ATTORNEYS

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CLOSURE MEMBER AND METHOD OF APPLYING SAME

Lloyd G. Copeman, Lapeer, Mich., assignor to Copeman Laboratories Company, Flint, Mich., a corporation of Michigan

Continuation of application Serial No. 645,403, December 2, 1932. This application December 5, 1939, Serial No. 307,622

17 Claims. (Cl. 215—38)

This invention relates to a closure member and method of applying same, and has to do particularly with a novel manner of effecting a positive sanitary seal; and further has to do with improvements over the closure member disclosed in my Patent No. 1,916,857, issued July 4, 1933.

This application is a continuation of my application, Serial No. 645,403, filed December 2, 1932.

The sanitary sealing of the top of a milk bottle or similar article, in addition to the dated closure cap, has presented a rather important and expensive problem to the industry and during the last several years many different types of closure members and large and expensive applying machines have been developed.

It is the object of the present invention to provide a sanitary sealing member which is preferably used as an additional sanitary sealing means over and above the standard stopper, bottle cap, or other usual closure member. More specifically, the present invention resides in a closure member which has for its purpose the sanitary sealing of the entire top of the milk bottle or other container against exterior contamination rather than the retaining of the contents within the container. In its preferred form the closure member constitutes a plain sheet of paper, preferably standard non-waterproofed Cellophane, said paper or Cellophane being partially coated on one side with a layer of latex or similar material applied in a liquid state and containing a solvent. In this case the paper or sheet of Cellophane is merely placed on top of the milk bottle or other container and the edges of the sheet pressed down around the neck of the bottle, with the result that the overlapping folds of paper or Cellophane will be instantly stuck together by the latex and that the entire outer annular edge of the paper will in turn be temporarily sealed to the milk bottle or other container.

Another important feature of the invention is the fact that the Cellophane or similar material to be placed upon the milk bottle or other container is in a moist or limp condition when applied, with the result that when this Cellophane or similar material dries out, the portion covering the open end of the bottle becomes very tight and taut presenting a very effective seal and a very neat appearance. Other features of the invention include broadly, resilient means for holding the Cellophane or similar wrapping in position to prevent rupturing of the seal when the container is subjected to rough usage and to varying temperature conditions.

In the drawing:

Fig. 1 is a plan view of a closure member in the form of a sheet and with an annular ring of adhesive material, such as latex, applied thereto.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

Fig. 3 illustrates the step of applying the sheet and closure member to the top of a milk bottle.

Fig. 4 illustrates the next step of converging and overlapping the edges of the sheet around the neck of the bottle, the portion in section showing the location of the sealing means which is latex.

Fig. 5 illustrates the manner in which the taut top portion will automatically sag when moist articles such as ice contact with the top thereof, this same figure showing the Cellophane resiliently held in position by an exterior rubber band.

Fig. 6 is a sectional view similar to Fig. 5 except that the exterior closure member is distorted in the opposite direction by the expansion caused by the freezing of the contents of the bottle.

Fig. 7 is a fragmentary sectional view illustrating the manner of sealing the top of a bottle by means of a resilient contracting member.

While the present invention is illustrated in combination with a standard milk bottle, it will be understood that the same is as readily applicable as a closure member to other containers including cork stoped bottles and the like.

When used in connection with a milk bottle 2 and a closure cap 3 of any standard make, my auxiliary closure member 4 is preferably formed of Cellophane, and preferably of standard non-moisture proof Cellophane made from materials such as wood pulp, caustic soda, and carbon bisulphide. The Cellophane or similar material may be cut into squares as shown in Fig. 1, and an annular ring 5 of latex or similar aqueous dispersion of rubber applied thereto. The important thing here is to have a coating or sealing material carried by a solvent so as to be applied in liquid form. The annular ring 5 of coating or sealing material is of such width and so positioned that the sealing member 4 may be placed on top of the bottle, as shown in Fig. 3, and the outer edges 6 crushed downwardly and converged about the neck of the bottle, as shown in Fig. 4.

When the outer edges 6 of the closure member are contracted or converged inwardly, the latex, of course, will contact with the bottle and seal the top of the bottle from the atmosphere. The

folds formed by the overlapping portions of the outer edges of the closure member will, of course, contain latex so that when the outer edges of the closure member are contracted, the folds will be immediately stuck together by the thin layer of latex. The latex or other aqueous dispersion of rubber used is preferably relatively thin but it may be used with a rubber content up to 60%.

A very important feature of this step is the dampening of the Cellophane by the initial applying of the latex. The Cellophane becomes quite limp, such as when one moistens a sheet of paper. This permits the Cellophane to be easily wrapped around the neck of the bottle or other container, and to be easily handled. The latex, of course, will secure the Cellophane to the bottle in its limp moistened condition and when the Cellophane dries out the portion extending across the top of the bottle becomes very taut, in fact it is like a tightened drum head. This makes for a very good seal in addition to the seal formed by the latex, and obviously presents a very neat appearance on top of the bottle. If during the handling of the milk bottle or other container, ice or other similar materials contact with the Cellophane top, as shown in Fig. 5, the Cellophane merely again becomes limp and when the ice is removed the Cellophane will again dry out and become taut. On the other hand, if the milk or other liquid within the bottle freezes and expands, the Cellophane will be readily distorted and will again straighten out and become taut upon melting of the frozen contents.

Materials other than latex or aqueous dispersions of rubber may be used such, for instance, as many different rosin compounds. The particular advantage of the latex, however, is that while it forms a seal for the bottle, its adhesion to the Cellophane is much greater than its adhesion to the bottle with the result that the Cellophane becomes a backing for the latex and upon removal of the Cellophane the latex readily peels away from the bottle leaving a very clean and sanitary container opening.

While the cutting of the Cellophane or similar material in sheets, as shown in Fig. 1, would undoubtedly be the cheapest arrangement, there is some probability of the person breaking the seal grasping the corner which is positioned with the grain of the Cellophane; this might cause the Cellophane to split, making removal more difficult. In many cases it might be desirable to have only one corner 7 protruding, such corner being against the grain of the Cellophane so as to permit the same to be readily and quickly removed without tearing.

In the modification of the invention as shown in Figs. 5 and 6 wherein non-moisture-proof Cellophane or similar material is used, as previously described, instead of using the inner coating of latex I preferably use a rubber band 8. In this case the Cellophane or similar material is preferably first moistened and placed around the top of the bottle and the rubber band 8 snapped in place. When the Cellophane dries out it will become taut exactly the same as illustrated in Fig. 4. The rubber band 8 is advantageous as compared to wire or other non-resilient retainer means because it will give considerably and prevent rupturing of the Cellophane when subjected to impact or to distortion due to being subjected to ice from the outside or from expansion from the inside as illustrated in Figs. 5 and 6 respectively.

If desired a moistureproof Cellophane such as illustrated at 9 in Fig. 7 may be used, but in this case the closure member does not present as neat an appearance and the top 10 does not become taut as in the other case where the Cellophane dries out and apparently shrinks. In this modification as shown in Fig. 7, the rubber band 8 will provide a fairly effective seal and will permit the Cellophane at the top of the bottle to be subjected to impact and distortion without breakage.

As a further modified form, I contemplate the use of a non-moistureproof Cellophane which may be moistened on both sides, allowed to dry, and latex then applied to the one side in an annular ring, as shown in Fig. 1, or the sheet of Cellophane may be moistened solely on the top side and latex applied to the bottom side. The reason for the premoistening of the Cellophane is that the moistening seems to leave a gummy substance on the surface of the Cellophane which makes the same substantially waterproof. It has been found that if a sheet of non-moisture-proof Cellophane is coated with latex on one side and the same left out in the rain, the rain will pass right through the Cellophane and tend to loosen the latex. However, if the latex is not disturbed during this moistening step and is allowed to again dry out then subsequent moisture applied to the Cellophane will not pass through the same. Therefore, the gist of this modification is that the non-moisture-proof Cellophane is premoistened on one side or both sides to obtain a waterproofing effect without in any way affecting the bond between the latex and the Cellophane.

I claim:

1. The method of forming a sanitary sealing enclosure for milk bottles and the like, which comprises utilizing a sheet of non-moisture-proof Cellophane, one side of which has been moistened and allowed to substantially dry, applying a sealing substance carried by a liquid vehicle to the other side of said sheet, placing the sheet across the top of the container, pressing down and converging the sides of the sheet around the mouth of the container, said pressure being sufficient to cause the sealing substance as applied to contact with and seal the sheet to the container, and simultaneously tying together the overlapping folds of the sheet by depositing the sealing substance from the liquid vehicle.

2. The method of forming a sanitary sealing enclosure for milk bottles and the like, which comprises applying a sealing substance carried by a liquid vehicle to one side of a sheet of non-moisture-proof Cellophane which has been moistened and allowed to substantially dry, placing the sheet across the top of the container and then pressing down and converging the sides of the sheet around the sides of the mouth of the container, said pressure being sufficient to cause the sealing substance as applied to contact with and seal the pressed down portion of the sheet to the container.

3. The method of forming a sanitary sealing enclosure for milk bottles and the like, which comprises utilizing a sheet of non-moisture-proof Cellophane, one side of which has been moistened and allowed to substantially dry, applying a sealing substance consisting of an aqueous dispersion of rubber to the other side of said sheet, placing the sheet across the top of the container, pressing down and converging the sides of the sheet around the mouth of the container, said pressure

being sufficient to cause the sealing substance as applied to contact with and seal the sheet to the container, and simultaneously tying together the overlapping folds of the sheet by depositing the sealing substance from the aqueous dispersion of rubber.

4. A sanitary enclosure member for the tops of milk bottles and the like, comprising a sheet of non-moisture-proof Cellophane stretched across the top of the bottle after being moistened and converging downwardly around the bottle in overlapping portions, and a sealing material on said sheet for holding said overlapped portions together and for sealing the same direct to the wall of the bottle, said sealing material comprising a sheet of rubber deposited from an aqueous dispersion of rubber and having a greater affinity for the Cellophane sheet than the bottle whereby the Cellophane sheet forms a backing for the sealing material to assist in peeling the rubber from the bottle, and leave the latter clean and sanitary.

5. As a new article of manufacture, a temporary protecting and sealing device comprising a sheet of transparent backing material, a sheet of rubber deposited from an aqueous solution of rubber superimposed on at least a portion of said transparent backing material, said sheet of material being drawn over an article to protect the same and folded over said article in such a manner that portions of said coating of rubber contact themselves and as applied without additional treatment are bonded together at said points of contact, said sheet of deposited rubber being self-adherent and forming at said points of contact a single layer of rubber, said rubber adhering to said transparent material and cohering at the points of contact to assist in sealing said article and holding the material in position around said article, said sheet of rubber having a greater affinity for said backing material than said article, whereby removal of the backing material peels away any rubber contacting said article.

6. A protective device comprising a tapered cup-shaped member formed of paper and having the side wall thereof pleated, the pleated side wall having an internal zone of adhesive coating extending completely therearound and between the pleats, said adhesive being characterized by the quality of being adapted to adhere to itself when dry and unheated, but not adhering to a surface of the article to which the closure is applied which is not adhesively coated.

7. A protective member comprising a seamless paper cup having the side walls thereof pleated and coated with an adhesive extending between the pleats, the adhesive as applied being characterized by the quality of being adherent to itself when dry and unheated, but not to dissimilar adhesively uncoated surfaces.

8. A packing and shipping member for destructible or damageable objects, comprising a seamless paper cup having the side wall thereof pleated and an inner circumferential coating strip of latex extending therearound and into the pleats, said cup being assembled over an object and squeezed therearound whereby the pleats removably adhere to one another through said coating as applied and hold the member in place, said member serving as a buffer member between adjacent objects packed in a container.

9. A packing and shipping member for destructible or damageable objects comprising a cup having the side wall thereof pleated and a coating of latex extending into the pleats, said cup being assembled over an object and squeezed therearound whereby the pleats removably adhere to one another through said coating as applied and hold the member in place, said member serving as a buffer member between adjacent objects packed in a container.

10. A protective device comprising a cap-shaped member formed of paper and having the side wall thereof pleated, the pleated side wall having an internal zone of a coating characterized by the quality of being adherent to itself, when dry and unheated, but not to adhesively uncoated surfaces, said coating extending into and between the pleats, said cap fitting over the end of an article to be protected with the coated pleats adhering to each other.

11. A protective closure or cover adapted for use on a container such as a bottle or the like to protect the rim thereof and exclude dirt and foreign substances therefrom comprising a tapered cup-shaped member formed of paper and having the side wall thereof pleated, the pleated side wall having an internal zone of adhesive coating adjacent the edge thereof and extending completely therearound and between the pleats, said adhesive being of rubber latex and adapted as applied to adhere to itself and simultaneously to adhere removably to the article to which the closure is applied, said closure being inverted for positioning over a container and when pressed into sealing relation therearound with the pleats mutually adhering to removably retain the closure in position on the container.

12. A protective closure or cover adapted for use on a container such as a bottle or the like to protect the rim thereof and exclude dirt and foreign substances therefrom, comprising a tapered cup-shaped member formed of paper and having the side wall thereof pleated, the pleated side wall having an internal zone of adhesive coating adjacent the edge thereof and extending completely therearound and between the pleats, said adhesive being of a character adapted as applied to adhere to itself when dry and unheated, but not adherent to adhesively uncoated surfaces, said closure being inverted for positioning over a container and when pressed into sealing relation therearound with the pleats mutually adhering to removably retain the closure in position on the container.

13. As an article of manufacture, a protective closure adapted for use on a container rim comprising a seamless cup-shaped member having its side wall pleated, the pleated side wall having an internal circumferential zone of adhesive coating completely therearound and between the pleats, said adhesive being of the character of rubber latex and adapted as applied to adhere to itself and to removably adhere to the article to which the closure is applied, said closure being adapted to be inverted over a container and pressed into conformed relation therearound.

14. A protective sealing closure adapted to be associated with a container to prevent the access of dirt and foreign substances thereto comprising a cup-shaped member of paper adapted to be inverted over the container and having the wall thereof pleated and provided with an internal coating of adhesive extending between the pleats, said adhesive being of rubber latex adapted as applied to adhere to itself but not to dissimilar surfaces, said member being positioned on the container with the pleats mutually adhering to secure the member in place.

15. A protective member comprising a seamless paper cup having the side walls thereof pleated and internally coated with an adhesive extending between the pleats, said adhesive being of a type which, as applied, has retaining releasable engagement adapted for repeated removable and non-adherent engagement with dissimilar surfaces.

16. A bottle cap for milk bottles or the like, having a central portion adapted to extend across the mouth of the bottle and a skirt portion adapted to extend about the neck of the bottle, said skirt portion having complemental areas coated with an adhesive which when dry and cool is adapted to adhere to itself for securing together such coated areas upon contact thereof with each other, said adhesive being, when dry, substantially insoluble in water and practically incapable of adhering to uncoated portions of said cap.

17. A bottle cap for milk bottles or the like, having a central portion adapted to extend across the mouth of the bottle and a skirt portion adapted to extend about the neck of the bottle, said skirt portion being provided with spaced plaits adapted to be folded into contact with adjacent portions of the skirt during contracting of the skirt about the neck of the bottle, said plaits and said adjacent portions of the skirt having adjacent surfaces provided with complemental areas coated with an adhesive of a type adapted as applied to adhere to itself upon application of pressure alone for securing together such coated areas upon contact thereof with each other, said adhesive being, when dry, substantially insoluble in water and practically incapable of adhering to uncoated portions of said cap.

LLOYD G. COPEMAN.