S. N. TEVANDER.

BOTTLE CAP.

APPLICATION FILED FEB. 1, 1919.

1,335,538. **Patented Mar. 30, 1920.**

Fig. 1.

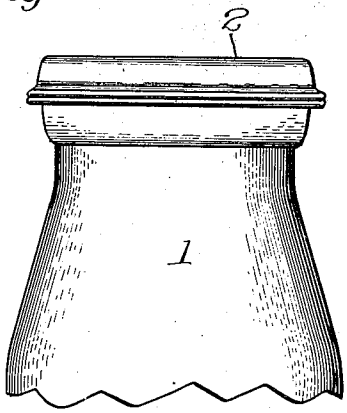


Fig. 2.

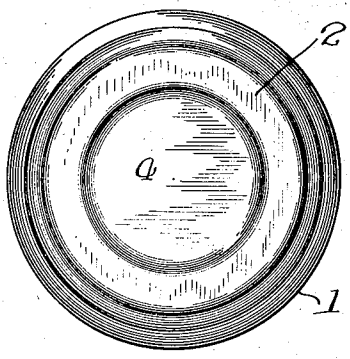


Fig. 3.

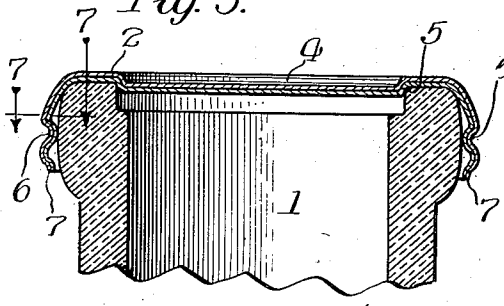


Fig. 4.

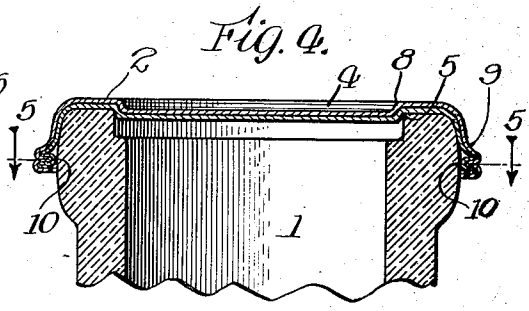


Fig. 5.

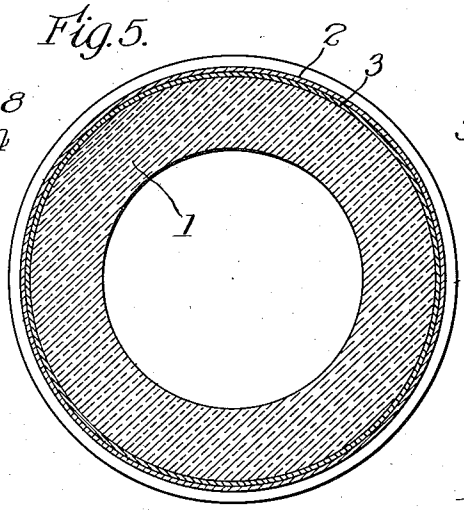


Fig. 6.

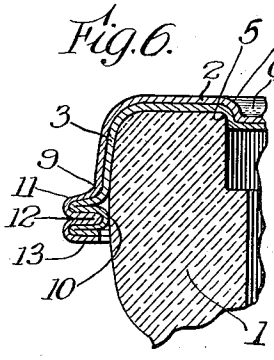
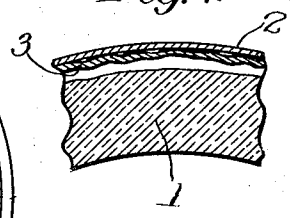


Fig. 7.



Witnesses:
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UNITED STATES PATENT OFFICE.

SWAN NILS TEVANDER, OF MAYWOOD, ILLINOIS.

BOTTLE-CAP.

1,335,538. Specification of Letters Patent. Patented Mar. 30, 1920.

Application filed February 1, 1919. Serial No. 274,409.

To all whom it may concern:

Be it known that I, SWAN N. TEVANDER, a citizen of the United States, and a resident of the city of Maywood, county of Cook, and State of Illinois, have invented a new and useful Improvement in Bottle-Caps, of which the following is a specification.

My invention relates to bottle closures such as are used for making air tight seals and for sanitary and certified milk purposes, and for closures generally of a superior type.

The objects of the invention are to make a cheap cap, one that may be applied to ordinary standard shape bottle nozzles, that will be air tight, sanitary, that will stand high pressures within the bottle without loosening the seal, that will meet the requirements for certified milk, that may be used for a temporary cap, that may be applied to the bottle with little or no danger of breaking the bottle, that will accommodate itself to the small irregularities in the shape of the nozzle and yet make a tight seal and may be applied to the bottles with simple machinery.

The invention is set forth in the claims.

Reference will be had to the accompanying drawings in which Figure 1 shows an elevation of a milk bottle nozzle with my cap applied. Fig. 2 is a plan or top view of the nozzle with my cap applied. Fig. 3 is a section through the nozzle and cap showing the cap previously prepared and placed loosely on the nozzle ready for sealing. Fig. 4 shows the same view as Fig. 3, but after the cap has been sealed on. Fig. 5 is a plain section on line 5—5 of Fig. 4. Figs. 3, 4 and 5, are on a larger scale than Figs. 1 and 2. Fig. 6 is a view similar to Fig. 4 showing one side of the bottle nozzle and cap on a larger scale than the other figures. Fig. 7 is an enlarged plan section of a small piece on line 7—7 of Fig. 3.

I prefer to make my cap of thin tin or other suitable metal or material and line it on the inside with paper or other yielding or suitable material and make them in the form shown in Fig. 3, wherein 1 indicates the ordinary milk bottle nozzle and 2 indicates my metal cap lined with paper indicated by 3. The cap thus formed is embossed as shown by 4 in order to stiffen the cap and assist in making a tight seal over the inside edge 5 of the bottle nozzle.

On the outside skirt or flange of the cap I provide the reëntrant rib or crease 6 and terminate the flange or skirt in the inwardly inclined edge 7.

By suitable simple tools not here shown I press the cap down tightly on the bottle nozzle at the zone extending from 8 to 9 and while pressure is there applied with a suitable device, I compress or draw up the skirt or flange below 9 thus producing the crimping as shown in Figs. 4 and 6. In this crimping action the metal with its paper lining is forced to adjust itself as best it may but assumes the form of Fig. 6 and is compressed tightly to the outside of the nozzle making the rib 10 fit tightly to the nozzle all around the periphery. This rib 10 will accommodate itself to all the irregularities ordinarily found in the nozzles of bottles and make a tight fit. The flanges in a horizontal plane around the bottle as indicated by 11, 12 and 13 produced in the metal by the crimping action when the cap is sealed are so strong to resist expansion and are formed under such pressure against the nozzle that they hold the cap firmly to the bottle even when the bottle nozzle is straight on the outside. The paper lining forms a frictional elastic element between the glass and the metal so that a perfect seal is formed and by friction the cap is held firmly to the bottle. Most bottles have a straight or a slight bulging outside that my cap may embrace with more security than the form I have shown in the drawings.

In removing my caps they are pried off with a tool similar to the one in common use for the "crimped on" beer bottle caps. This tool being a lever one end of which rests on the cap, while a projection from one side of the lever engages the edge 13. This distorts the cap and shows that it has been removed and it cannot be again applied in the shape and neatness as at first, but so that an ordinary observer will notice that it has been once removed.

The cap after removal has had its flanges, 11, 12, and 13, expanded sufficiently in removing so that it may be placed on again by hand sufficiently tight for a cover for the contents while it is being used.

The caps as applied are so firmly fixed to the nozzle that even if a cap is again applied after careful removal and done in a manner causing the least distortion possible, one will

readily notice the difference by a torsional twist of the cap so that the bottle will not be refilled without normally being detected.

While I have shown in the drawings only the ordinary milk bottle my caps may be used on fruit jars, jelly and other glasses and cans of various kinds.

The yielding paper lining to the caps will flow slightly into small irregularities in the glass or other surface of the bottle or container which is capped and at all times keep a tight seal. While my cap clamps the periphery of the nozzle tightly it is sufficiently elastic, to take care of variations in expansion to permit the contents to be pasteurized after the cap is sealed on, thus guarding against accidental infection that sometimes takes place with the milk in bottling after it has been pasteurized in bulk as is the present practice.

The paper lining is really a packing material and any suitable substitute packing may be used but I prefer to use the paper. In some cases with my thin tin I can make a seal required with the tin alone as it is compressed in a manner that the thin tin rib will conform to the glass outline and make a tight seal in itself.

What I claim is:—

1. A cap having a down-turned paper-faced marginal flange provided with a series of normally open annular corrugations which are adapted to decrease in inner diameter when vertically compressed, and thereby directly engage solely by friction a suitable receptacle over which the cap is placed.

2. A cap having a down-turned paper-faced marginal flange provided with a series of normally open annular corrugations, one of which primarily fits a bottle covered by the cap and exerts great pressure against the same when the open corrugations are closed by vertical compression.

3. A metal cap for bottles and the like, having a peripheral down-turned, internally paper-faced flange provided with shallow annular primarily open corrugations one of which is inwardly convex in cross-section, and adapted to fit primarily around a bottle nozzle and to be forced inward against it with great force when the corrugations are vertically compressed.

In witness whereof I have hereunto subscribed my name on this 28th day of January 1919 in the presence of a subscribing witness.

SWAN NILS TEVANDER.

Witness:

LOUIS ALBERTO.