

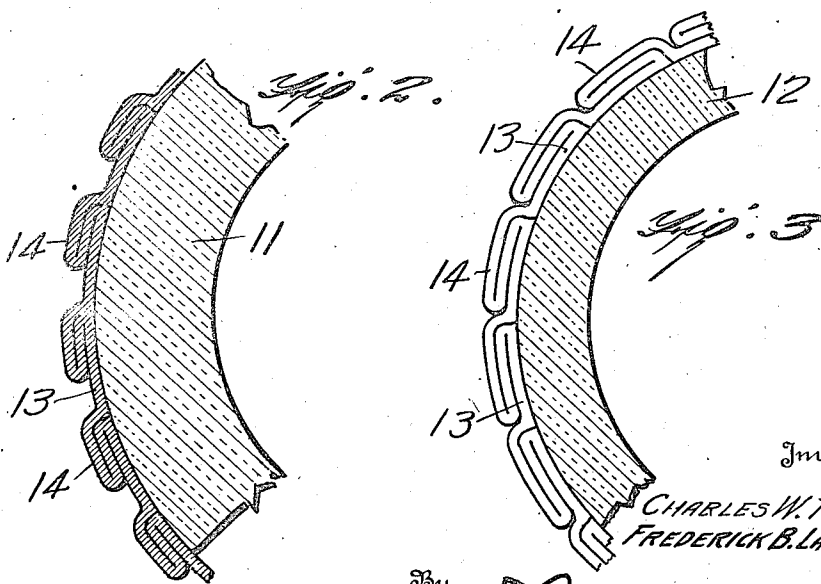
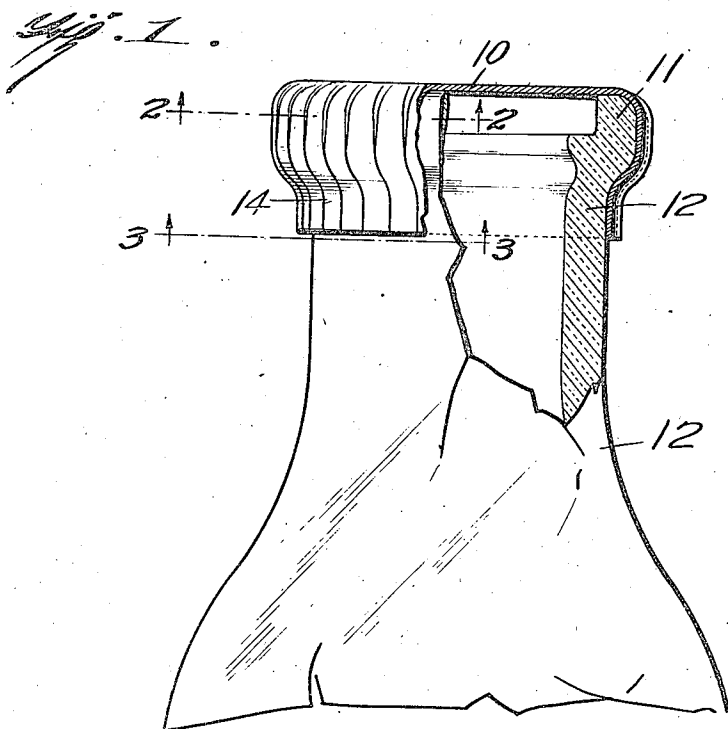
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C. W. TOOKE ET AL

CLOSURE FOR BOTTLES

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Inventors

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UNITED STATES PATENT OFFICE.

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CLOSURE FOR BOTTLES.

Application filed March 22, 1923. Serial No. 626,911.

To all whom it may concern:

Be it known that we, CHARLES W. TOOKE and FREDERICK B. LA FORGE, citizens of the United States, residing at Syracuse, in the county of Onondaga and State of New York, and Washington, in the District of Columbia, respectively, have invented certain new and useful Improvements in Closures for Bottles; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to closures for bottles, jars, or the like and, while having special reference to closures for milk bottles of the well-known commercial type, is obviously not limited in its application thereto.

An object of the present invention is to provide a closure of such material and form as will effectually close the top of such a jar or bottle against the accidental discharge of the contents and to protect the lip of the bottle from contamination and also protect the contents of the jar from contamination through contact with the closure itself.

A further object of the invention is to provide a closure composed of a sheet of material of such nature that it is softened by heat and rigidified by cooling, at the same time adhering to the jar or bottle, where heated, for the purpose of effecting a seal, the rigidifying material being odorless and tasteless to prevent contamination of the contents.

A further object of the invention is to provide an over all covering or cap for bottles, or other containers, which have already been sealed, the covering being composed of a sheet of a paper in which the rigidifying material has been incorporated, so that it may be shaped by heat and pressure, and upon cooling will retain its shape and position, without employing any other agency, as wire for example, to hold it in place.

With these and other objects in view, the invention comprises certain novel parts, elements and textures and physical and chemical properties applied as shown in the draw-

ings herewith and further described and claimed herein.

In the drawings:

Figure 1 shows a conventional milk bottle with the top or closure of the present invention applied thereto in sealed condition, part being broken away to show the relation of the closure to the bottle.

Figure 2 is a transverse sectional view through the lip of the bottle and closure, as taken on line 2—2 of Figure 1.

Figure 3 is a sectional view through the neck of the bottle, showing the lower edge of the closure applied thereto, seen in inverted plan.

Like characters of reference indicate corresponding parts throughout the several views.

The present invention comprises the shape and form of the closure as applied to the bottle but more especially and particularly the structure of the closure itself. In its structural aspect the closure comprises a sheet, 10, which covers over the top or opening or lip, 11, of a bottle shown conventionally at 12. The material of the top which is of sheet form is crimped downwardly along the lip, 11, and under the lip against the bottle at the neck, 12, so proportioned that the outstanding folds from the crimping are laid down upon the surface of that part of the material engaging against the neck to form, if desired, a continuous seal as indicated at Figure 3. This continuous seal is represented by the several segmental sections, 13, which abut one with the other about the neck, 12, with the folds, 14, flattened down upon these segmental sections, 13.

For the purpose of making a seal between the segmental sections, 13, and the neck, 12, or for maintaining the folds, 14, in such folded position, it is necessary that the material of the cap be such as to respond to the requirements. For this purpose, a sheet of material is employed analogizing paper in that it is preferably made of paper stock, but into which or with which has been incorporated in any manner an odorless and tasteless resin. Preferably this resin is the resin resulting from the reaction of phenol with furfural. This resin is known and the present use is one of its utilities. The per-

centage of resin incorporated with the paper pulp depends upon the required rigidity. The resin referred to is odorless and tasteless so that the sheet of impregnated material may come directly in contact with the contents of the jar, as for instance milk, and will have no contaminating effect thereon. The resin referred to has a further advantage of having once been fused by heat and rigidified, it will not again fuse, so that once sealed in this manner, the top will not be released accidentally or otherwise by coming in contact with a hot surface or heat applied in any way. Merely as a matter of illustration, it may be stated that the furfural resin is introduced into the beater with the paper pulp and thoroughly incorporated therewith, so that it becomes a part of the paper sheet. This furfural resin fuses at a temperature approximately 150° C., and it is only necessary that the paper containing this resin be dried at a temperature lower than this. Dried at lesser temperature, the resin maintains its comminuted condition incorporated in the material of the paper. Applying heat thereto, however, causes the comminuted resin to fuse, forming when cooled a solid rigidified mass. By incorporating a larger percentage of the resin in the paper, the heating will cause the cap to adhere to the neck of the bottle, effectually excluding air from the contents of the bottle, and retaining the contents within the bottle. It is obvious that the heat necessary for the purpose of fusing is above 150° C., but it is also obvious that the heat will be applied only momentarily, long enough to heat through the thickness of the paper, which, upon its discontinuance will almost instantly rigidify. Any other known material which will perform the function required or desired in this case may be used in the present invention, which therefore includes not only the form, construction and application of the cap, structurally speaking, but a paper-like material for a cap, with the resin incorporated therein.

What we claim is:

1. A closure adapted for use by closing over the bead of a bottle neck and composed of a material adapted to be softened by heat to facilitate fitting over the bead of the bottle and rigidified by cold and incapable of being again softened by heat after such rigidification.

2. A bottle closure adapted for use by closing over the bead of a bottle neck and composed of paper stock embodying material adapted to be softened by heat to facilitate fitting over the bead of the bottle and

rigidified by cold and incapable of being again softened by heat after such rigidification.

3. A bottle closure adapted for use by closing over the bead of a bottle neck and composed of comminuted material impregnated with a material adapted to be softened by heat to facilitate fitting over the mouth of the bottle and rigidified by cold and incapable of being softened by heat after such rigidification.

4. A bottle closure adapted for use by closing over the bead of a bottle neck and composed of comminuted material impregnated with an odorless, tasteless material adapted to be softened by heat to facilitate fitting over the bead of the bottle and rigidified by cold and incapable of being again softened by heat after such rigidification.

5. A bottle closure adapted for use by closing over the bead of a bottle neck and composed of material adapted to be softened by heat above the normal boiling temperature of water to facilitate fitting over the bead of the bottle and rigidified by cold and incapable of being again softened by heat after such rigidification.

6. A bottle closure adapted for use by closing over the bead of a bottle neck and composed of comminuted material impregnated with an odorless, tasteless material adapted to be softened by heat above the normal boiling temperature of water to facilitate fitting over the bead of the bottle and rigidified by cold and incapable of being again softened by heat after such rigidification.

7. A bottle closure adapted for use by closing over the bead of a bottle neck and composed of paper stock impregnated with an odorless, tasteless material adapted to be softened by heat above the normal boiling temperature of water to facilitate fitting over the bead of the bottle and rigidified by cold and incapable of being again softened by heat after such rigidification.

8. A bottle closure adapted for use by closing over the bead of a bottle neck and comprising comminuted material impregnated with furfural resin.

9. A bottle closure adapted for use by closing over the bead of a bottle neck and comprising paper stock impregnated with furfural resin.

In testimony whereof we hereunto affix our signatures.

CHARLES W. TOOKE.
FREDERICK B. LA FORGE.