Feb. 3, 1942. B. F. CONNER 2,271,747

CONTAINER CLOSURE WITH APPLICATOR ROD

Filed Aug. 25, 1939

Fig. 1

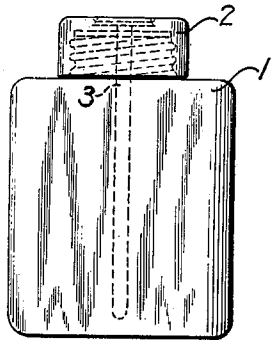


Fig. 2

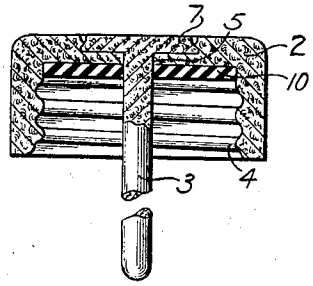


Fig. 8

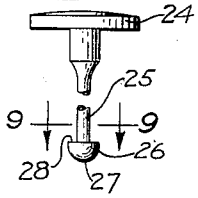


Fig. 3

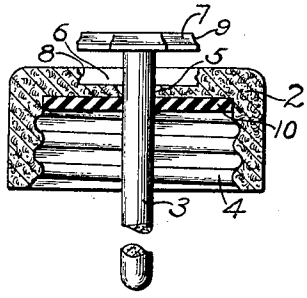


Fig. 9



Fig. 4

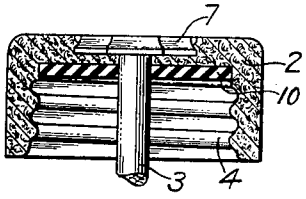


Fig. 10

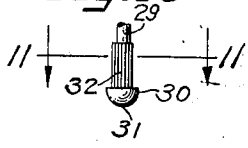


Fig. 5

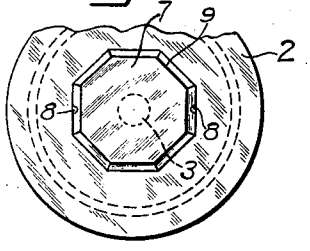


Fig. 11



Fig. 6

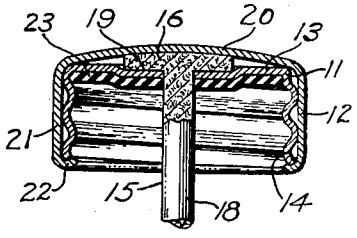


Fig. 12

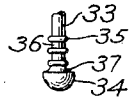


Fig. 7

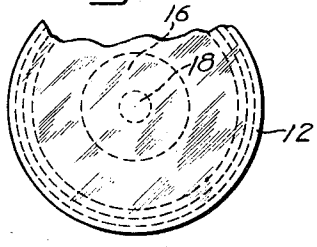
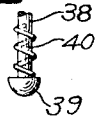


Fig. 13



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CONTAINER CLOSURE WITH APPLICATOR ROD

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Application August 25, 1939, Serial No. 291,825

12 Claims. (Cl. 15—140.3)

The primary object of the invention is to provide a combined container closure and applicator rod in which there is an apertured closure part through which a solid applicator rod molded from a material of the synthetic resin class extends, means being provided for preventing separation of the applicator rod and closure part.

Another object is to provide a combined container closure and applicator rod in which the latter is of rigid construction and is so shaped that when used the liquid being applied thereby is more slowly fed to the applicating portion of the rod.

A further object of the invention is to provide a combined container closure and applicator rod in which the latter is of rigid construction and is so shaped as to retain a relatively large quantity of liquid thereon when withdrawn from the container.

From the following description further objects and advantages of the invention will be apparent to those skilled in the art.

In the accompanying drawing I have shown alternative embodiments of the invention, but it will be understood that the drawing is intended for illustrative purposes only and is not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

In the drawing:

Fig. 1 is an elevational view of a bottle provided with a combined closure and applicator rod incorporating the principles of one phase of the invention.

Fig. 2 is an enlarged sectional view of the closure and applicator rod shown in Fig. 1.

Fig. 3 is a view similar to Fig. 2 but showing the parts prior to assembly.

Fig. 4 is a view similar to Fig. 3 but showing the parts assembled.

Fig. 5 is an enlarged fragmentary top plan view of the construction shown in Fig. 4.

Fig. 6 is an enlarged sectional elevation showing an alternative construction of combined closure and applicator rod.

Fig. 7 is a fragmentary top plan view of the construction shown in Fig. 6.

Fig. 8 is an elevational view of an alternative form of applicator rod incorporating the principles of another phase of the invention.

Fig. 9 is a sectional view taken on the line 9—9 of Fig. 8.

Fig. 10 is an elevational view of another alternative form of applicator rod.

Fig. 11 is a sectional view taken on the line 11—11 of Fig. 10.

Figs. 12 and 13 are elevational views of further alternative forms of applicator rods.

Referring to Figs. 1–5, a container is indicated at 1, a closure at 2, and an applicator rod at 3. The closure and applicator rod are preferably molded from a material of the synthetic resin class, and as is apparent from the drawing, the rod is of solid construction. The closure is provided with means such as a screw thread 4 for securing it to the container and has an aperture 5 therein through which the applicator rod extends. Means are provided for preventing the withdrawal of the rod from the aperture in the closure, and in the illustrated construction the closure is recessed at 6 to receive an integral complementary enlarged end portion 7 of the rod. Projecting from the side wall of the recess 6 are integral nibs 8 which when the closure is formed by molding project only approximately .003 of an inch (being exaggerated in the drawing) so that the closure can be stripped from the mold without damage to the nibs. The edges of the enlarged end of the rod are beveled as at 9.

A lining gasket 10 is preferably provided, the gasket having a hole therethrough for tightly receiving the applicator rod so as to serve as a seal against leakage and evaporation. The gasket is secured within the closure in any desired manner after which the closure and rod are assembled by merely forcing the edges of the enlarged end of the rod beyond the nibs 8 as shown in Figs. 3 and 4, the two thus being positively held against separation.

In the alternative embodiment illustrated in Figs. 6 and 7 a container closure of the double walled type is shown. The closure comprises inner and outer parts 11 and 12, preferably made from sheet metal. The inner part 11 includes an apertured top 13 and an integral depending threaded skirt 14. A solid applicator rod 15, preferably molded from a material of the synthetic resin class, comprising an integral enlarged end portion 16 and stem portion 18 is provided. As shown in Fig. 6, the stem portion 18 extends through the aperture in the top 13, being seated in a recess 19 therein. The outer closure part 12 comprises a top 20 and an integral depending skirt 21. The inner and outer closure parts are secured together in any desired manner as, for example, by curling the lower edge of the skirt 21 inward as at 22. A sealing gasket 23, similar to that shown in Figs. 1–5, is secured within the closure.

In the case of some liquids it is necessary to apply a relatively large amount at one time. This makes it desirable to provide an applicator rod such that a large quantity of liquid is retained thereon when the rod is withdrawn from the liquid supply so as to eliminate the necessity for repeatedly dipping the rod in the liquid supply. When a large quantity of liquid is retained on the rod it is usually desirable to feed it slowly to the applicating surface so that it may be applied in a thin film. In Figs. 8–13 are shown alternative constructions of applicator rods constructed to retain a substantial quantity of liquid when withdrawn from the liquid supply. These constructions are shown in connection with rods of the type adapted to be used in the assemblies of Figs. 6 and 7, but it will be understood that the principles of this phase of the invention are susceptible of application in many other constructions and that rods incorporating the same may be made from any desired material, but they are preferably molded from a material of the synthetic resin class.

In accordance with the broader aspects of this phase of the invention the lower end of the rod is provided with an enlarged liquid applicating portion having a lower applicating surface and an upper surface meeting therewith in a sharp line of joinder to form a liquid retaining shoulder and to cause the retained liquid to be fed relatively slowly to the applicating surface. More specific aspects will be apparent from a consideration of Figs. 8–13 and the description of the constructions shown therein.

Referring to Figs. 8 and 9, the applicator rod includes an enlarged head **24**, a stem portion **25**, and an integral enlarged liquid applicating lower end portion **26**. The portion **26** has a lower liquid applicating surface **27** which is preferably made partispherical as shown. The upper surface **28** is preferably made planar and substantially horizontal, that is, extending normally to the axis of the stem portion **25**. With the upper and lower surfaces made in this manner, they meet in a sharp line of joinder to form a liquid retaining shoulder of the upper surface, the sharp line of joinder serving to retard the flow of liquid to the applicating surface.

In Figs. 10–13 there are shown constructions wherein the stem portions of the applicator rods are recessed adjacent the applicating surfaces, the recesses functioning to retain liquid which feeds from the recesses as the liquid on the applicating surfaces is exhausted. In Figs. 10 and 11 the applicator rod includes a stem portion **29** and an integral enlarged applicating portion **30** having a liquid applicating surface **31**. The stem is provided with longitudinally extending grooves or recesses **32** adjacent the enlarged applicating portion **30**.

The form shown in Fig. 12 comprises a stem portion **33** and enlarged liquid applicating portion **34**. The stem portion is provided with circumferential ribs **35** adjacent the portion **34**, the ribs serving to form liquid retaining recesses **36**. The upper surface **37** of the portion **34** is curved, rather than planar as in Figs. 8 and 10, but the curvature is preferably such that the upper and applicating surfaces meet in a sharp line of joinder to form a liquid retaining shoulder of the upper surface **37**.

In the alternative form of Fig. 13 a stem portion **38** having an enlarged liquid applicating portion **39** is provided. A helical rib on the stem portion adjacent the portion **39** serves to form a liquid retaining recess **40**.

Various changes and modifications within the scope of the appended claims will be apparent to those skilled in the art.

I claim:

1. In combination, a container closure part including integral means for securing the same to a container and having an aperture therethrough, a solid applicator rod molded from a material of the synthetic resin class extending through said aperture and having an integral enlarged end portion engaging said closure part to prevent withdrawal of said rod of from said aperture in one direction, and means engaging said enlarged end portion to positively prevent withdrawal of the rod from said aperture in the opposite direction.

2. In combination, a closure part having an aperture therethrough and a recess formed in the upper surface thereof around said aperture, said closure part including integral means for securing the same to a container, a solid applicator rod molded from a material of the synthetic resin class extending through said aperture and having an integral enlarged end portion positioned in said recess in the closure part to normally prevent withdrawal of said applicator rod from said aperture in one direction, and means engaging said enlarged end portion of the applicator rod to positively prevent withdrawal of the rod from said aperture in the opposite direction.

3. In combination, a closure part having an aperture therethrough and a non-circular recess formed in the upper surface thereof around said aperture, a solid applicator rod molded from a material of the synthetic resin class extending through said aperture and having an integral enlarged end portion complementary to and positioned in said recess in the closure part, and means engaging said enlarged end portion of the applicator rod to positively prevent removal of the rod from said aperture.

4. In combination, an applicator rod molded from a material of the synthetic class having an integral enlarged end portion, and a container closure having an aperture therein through which said applicator rod extends and including integral means engaging said enlarged end portion to prevent withdrawal of said applicator rod from said aperture.

5. In combination, an applicator rod molded from a material of the synthetic resin class having an integral enlarged end portion, and a container closure having a recess in its outer surface and an aperture therein through which said applicator rod extends with its enlarged end portion positioned in said recess, said container closure also having means integral therewith in forced positive engagement with said enlarged end portion to prevent withdrawal of the applicator rod from said aperture.

6. In combination, a container closure and a rigid liquid applicating rod, said rod consisting of a stem portion and an integral enlarged liquid applicating lower end portion, the latter portion having a lower liquid applicating surface and a substantially horizontally extending upper surface meeting therewith in a sharp line of joinder to form a liquid retaining shoulder.

7. In combination, a container closure and a rigid liquid applicating rod, said rod consisting of a stem portion and an integral enlarged liquid applicating lower end portion, the latter portion having a parti-spherical lower surface and an

upper surface meeting therewith in a sharp line of joinder to form a liquid retaining shoulder.

8. In combination, a container closure and a rigid liquid applicating rod, said rod consisting of a stem portion and an enlarged integral liquid applicating lower end portion, the said stem portion having a liquid retaining recess adjacent said lower end portion.

9. In combination, a container closure and a rigid liquid applicating rod, said rod consisting of a stem portion and an integral enlarged liquid applicating lower end portion, the said stem portion having ribs thereon forming liquid retaining recesses adjacent said enlarged lower end portion.

10. In combination, a container closure and a rigid liquid applicating rod, said rod consisting of a stem portion and an integral enlarged liquid applicating lower end portion, the said stem portion having longitudinally extending ribs thereon forming liquid retaining recesses adjacent said enlarged lower end portion.

11. In combination, a container closure and a rigid liquid applicating rod, said rod consisting of a stem portion and an integral enlarged liquid applicating lower end portion, the said stem portion having transversely extending ribs thereon forming liquid retaining recesses adjacent said enlarged lower end portion.

12. In combination, a container closure and a rigid liquid applicating rod, said rod consisting of a stem portion and an integral enlarged liquid applicating lower end portion, the latter portion having upper and lower surfaces meeting in a sharp line of joinder and said stem portion having a liquid retaining recess adjacent said enlarged lower end portion.

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