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2,341,102

BOTTLE

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FIG. 1

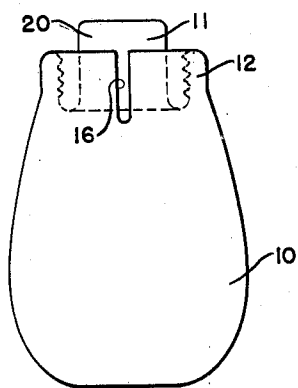


FIG. 2

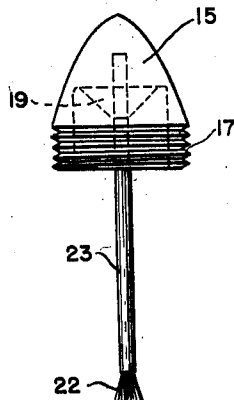


FIG. 3

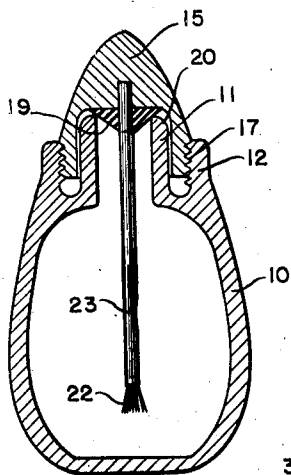


FIG. 4

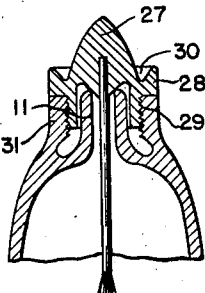
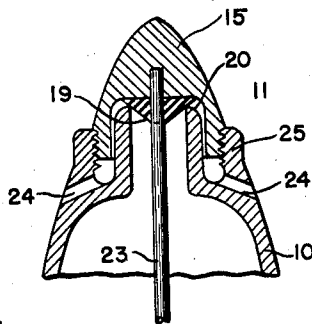


FIG. 5

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2,341,102

BOTTLE

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4 Claims. (Cl. 215—31)

This invention relates to containers for liquid, such as nail polish, or other compositions that cause caps or stoppers to stick to bottles.

In the use of nail polish bottles having threaded caps it is practically impossible to keep the threads on the bottle from getting liquid on them. When the cap is replaced it becomes, in effect, cemented to the bottle, and sometimes cannot be removed by hand. The same situation is encountered with cough medicine bottles and other bottles from which limited quantities of sticky contents are used at different times. This difficulty is experienced with bottles that have either stoppers or screw caps, but is worse with screw caps because of the greater surface areas that stick together.

It is an object of this invention to provide an improved bottle structure having the surface with which the stopper or cap engages to hold it on the bottle located in such relation to the bottle mouth that such surface does not become coated with liquid which runs down the outside of the bottle neck.

Another object of the invention is to provide a bottle with a cap that extends over the neck of the bottle with a clearance between the outside surface of the neck and the inside surface of the cap, and to hold such a cap on the bottle by means independent of the bottle neck. One feature of the invention relates to a conical pad that contacts with the lip at the mouth of the bottle to seal the bottle and help center the cap in a position where it does not touch the outside of the bottle neck.

In the preferred embodiment of the invention the bottle has a sleeve or annular ridge that is an integral part of the bottle and that extends up along at least a portion of the length of the neck of the bottle, and that is spaced from the neck to leave an annular hollow into which the cap extends. The inside surface of the sleeve preferably has threads that engage external threads on the bottle cap and there are drains through the sleeve at the bottom of the hollow so that no matter how much liquid flows down the outside of the neck, none of the liquid reaches the threads.

Other objects, features, and advantages of the invention will appear or be pointed out as the description proceeds.

In the drawing, forming a part hereof,

Fig. 1 is a side elevation of a bottle embodying the invention,

Fig. 2 is a side elevation of a cap that is used with the bottle of Fig. 1,

Fig. 3 is a vertical, sectional view of the bottle of Fig. 1 with the cap of Fig. 2 attached, and

Fig. 4 is a fragmentary view similar to Fig. 3, but showing a modified form of the invention.

Fig. 5 is a view similar to Fig. 4, but on a reduced scale and showing another modified form of the invention.

The bottle shown in Fig. 1 comprises a lower portion 10 that holds the liquid, and a neck 11 with a mouth at its upper end. A sleeve or annular ridge 12 that is an integral part of the bottle extends from the lower portion 10 along at least a part of the length of the neck 11.

The neck 11 is shown as cylindrical, but it may have other shapes. When the bottle is one with a screw cap, however, the neck 11 is of circular cross section. The sleeve 12 is spaced from the neck 11 and leaves an annular hollow into which the skirt of a cap 15 extends, as shown in Fig. 3. The inside wall of the sleeve 12 is preferably threaded, and if threaded is of generally cylindrical form. The neck 11 is shown longer than the sleeve 12. This is desirable for a number of reasons and is essential in bottles from which liquid is to be poured.

In order to prevent the annular hollow between the sleeve and neck from eventually becoming filled with liquid that runs down the outside of the neck, slots 16 (Fig. 1) are provided in the sleeve 12 on one or both sides of the bottle.

The cap 15 has outside threads 17 that fit the threads in the inside of the sleeve 12. The inside diameter of the cap 15 is larger than the outside diameter of the neck 11 so that there is a clearance between the neck and the skirt of the cap 15, and this clearance is wide enough to prevent liquid on the neck 11 from coming in contact with the cap.

There is a pad 19 on the cap 15 in position to contact with a lip 20 at the mouth of the bottle. The pad 19 is shown with a generally conical shape which assists in centering the cap on the bottle and increases the sealing pressure of the pad 19 against the lip 20. The area of contact of the pad 19 with the lip 20 is limited so that when liquid on the lip 20 sticks it to the pad 19, the bond is easily broken.

The pad 19 can be an integral part of the cap 15, but the cap is preferably made of hard material, such as hard rubber or a molded plastic, and the pad of a more compressible substance such as cork or soft rubber.

The cap 15, being for use in a nail polish bottle is equipped with a brush 22 having a stem 23

that extends through the pad 19 and is anchored in the cap 15.

Fig. 4 shows a modified form of the invention in which holes 24 extending through a sleeve 25 take the place of the slots 16 of Fig. 1 for draining liquid from the space or hollow between the bottle neck and sleeve. Parts in Fig. 4 that are of the same construction as in Figs. 1-3 are indicated by the same reference characters as in Figs. 1-3. With the construction shown in Fig. 4, the threads of the sleeve 25 are continuous. The slot construction of Fig. 1 is a simpler design for casting when the bottle is made by a casting process.

Fig. 5 shows a second modified form of the invention in which a cap 27 is made with a flange 28 for preventing sticky fingers from touching threads 29 of the cap when removing the cap from the bottle or when replacing the cap. A groove 30 is provided in the top surface of the flange 28 for trapping liquid if enough of it accumulates to run down the side of the cap.

The annular space between the neck 11 and the ridge 31 of the bottle shown in Fig. 5 is enlarged at the bottom to provide space for a considerable quantity of liquid and there are no drain openings through the ridge 31.

The bottle of this invention may be made of glass, metal, plastic or ceramic material, or any suitable material. The preferred embodiment of the invention has been illustrated and described, but changes and modifications can be made and some features of the invention can be used without others without departing from the invention as defined in the claims.

I claim:

1. A bottle and cap construction for preventing the cap from becoming stuck to the outside surface of the bottle neck, said bottle having a neck at its upper end and a sleeve integral with the bottle and surrounding the neck so that there is an annular space between the outside surface of the neck and the inside surface of the sleeve, threads on the inside surface of the sleeve, a cap that fits over the neck of the bottle, said cap having an inside diameter larger than the outside diameter of the bottle neck along the entire length of the cap that fits over the neck, and said cap being of such length that with the top of the cap against the mouth of the bottle, the lower portion of the cap extends down into the space between the neck and the sleeve and terminates above the bottom of said annular space, said neck being impervious so that with the cap closing the mouth of the bottle no liquid can escape from within the bottle into said annular space if the bottle is overturned or shaken, and external threads on the cap that fit the threads on the inside surface of the sleeve to hold the cap securely in place and to clamp a portion of the cap against the mouth of the bottle.

2. A bottle and cap construction for preventing the cap from becoming stuck to the outside surface of the bottle neck, said cap comprising a closure that contacts with the mouth of the bottle to seal the bottle and that extends along the outside of the neck, said cap having an inside

diameter larger than the outside diameter of the neck so that there is a clearance between the cap and the surface of the neck along the entire length of that portion of the cap that overlaps the neck of the bottle and liquid on the neck cannot stick the cap to the neck, a sleeve extending up around at least a portion of the length of the neck and comprising an integral part of the bottle, and complementary threads on the inside of the sleeve that fit the threads on the outside of the cap to position the cap on the bottle, and a drain passage opening through the sleeve below said complementary threads and at the bottom of the hollow between the neck and sleeve for preventing any liquid that runs down the outside of the neck from filling up said hollow and getting on the bottle threads.

3. A bottle and cap construction for preventing the cap from becoming stuck to the outside surface of the bottle neck, said bottle having a neck at its upper end and a sleeve integral with the bottle and surrounding the neck so that there is an annular space between the outside surface of the neck and the inside surface of the sleeve, threads on the inside surface of the sleeve, a cap having a lower portion with an inside diameter larger than the outside diameter of the neck so that the cap fits over the neck of the bottle with a clearance between the cap and neck along the entire length of the overlapping surface of the cap and neck, said cap being long enough to extend down into the space between the neck and sleeve, external threads on the lower portion of the cap that fit the threads on the inside surface of the sleeve and hold the cap securely in place, a shoulder of substantial radial extent on said cap at the upper end of the threaded portion, and an upper portion on said cap above the shoulder for gripping the cap when screwing said cap to, or unscrewing it from the bottle.

4. A bottle having a neck at its upper end, a sleeve integral with the bottle and surrounding the neck so that there is an annular space between the outside surface of the neck and the inside surface of the sleeve, threads on the inside surface of the sleeve below the threads giving the annular space between the neck and sleeve a greater radial extent at its lower end so that small accumulations of liquid in the annular space will not flow over the threads if the bottle is laid on its side, a cap that fits over the neck of the bottle, said cap having an inside diameter larger than the outside diameter of the bottle neck along the entire length of that portion of the cap that fits over the bottle neck, said cap being of such length that with the top of the cap against the mouth of the bottle, the lower portion of the cap extends down into the space between the neck and the sleeve and terminates above the bottom of said annular space, and external threads on the cap that fit the threads on the inside surface of the sleeve and hold the cap securely in position on the bottle.

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