May 25, 1943. G. GRUNBERG 2,320,323

BOTTLE STOPPER WITH APPLICATOR EXTENSION

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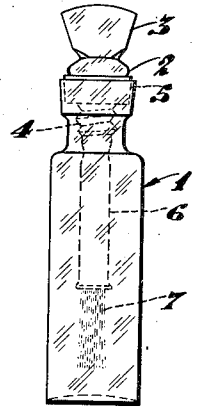


Fig. 1



Fig. 2

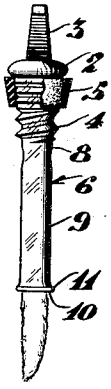


Fig. 3

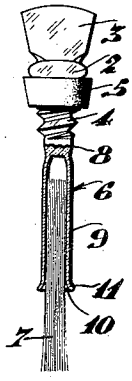


Fig. 4

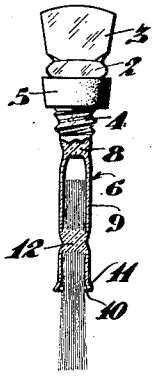


Fig. 5

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BOTTLE STOPPER WITH APPLICATOR EXTENSION

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3 Claims. (Cl. 15—140.3)

This invention relates to vials or small bottles in which an applicator is formed from an extension of the bottle stopper proper. More specifically the invention relates to an applicator extension for a bottle stopper, the extension being formed in part from a hollow glass tube with which may be associated an additional element for the application of certain types of liquids such as, for example, a small piece of disposable material or a brush.

Applicators which are rigidly secured to a bottle stopper are well known in the art and there are also instances in which a group of fibers forming a brush extension have been associated with the ends of such applicators. However, the construction of devices of this type presents certain problems particularly in connection with the difficulties which arise from obtaining a secure attachment between the applicator proper and the bottle stopper. Various other problems have arisen in connection with the attachment of the brush fibers or bristles to the applicator.

In the applicator art, generally, there is a demand for a type of applicator with which it is possible to associate a small piece of disposable material such as, for example, a small wad of absorbent cotton. In bottles adapted to contain antiseptic solutions such as iodine, it is sometimes desirable to soak a small piece of absorbent cotton or gauze in the iodine and then apply it directly to the wound. Since iodine imparts a stain to anything with which it comes in contact, it does not lend itself readily to pouring, and, since the conventional solid rod applicator will remove only a minute amount of iodine from a bottle at one time, the only practical way of saturating a small amount of cotton or gauze is by immersing it in the solution in the bottle. This can be very readily accomplished by means of the hollow ended applicator to which this invention is in part directed.

In brief, the invention contemplates the combination with a bottle or vial of a stopper with which is integrally associated an applicator extension formed from a solid rod at a point adjacent the stopper but terminating in a hollow tubular portion at the lower extremity of the applicator. Bristles or fibers to form a brush may be inserted in this hollow tubular portion and may be secured there by various types of adhesive. A preferred point of attachment is the region slightly above the opening in the end of the applicator. At this point bristles preferably made from glass fiber may be adhesively secured to the sides of the tube and to each other to form a substantially integral knot at the point of attachment. If desired these glass bristles may be permanently secured to the hollow portion of the applicator by softening the glass exterior of the tubular portion and fusing the softened portion circumferentially around the bristles to make a permanent joint between the tube and bristles.

One of the objects of the invention therefor has been to provide an applicator extension for a bottle stopper as an integral portion of the stopper itself and without joints or other points of weakness at which the applicator will be likely to break off.

Another object has been to provide an applicator having a hollow portion at the end thereof for the reception of a small piece of absorbent material.

Another object has been to provide a combined applicator extension and bottle stopper in which the lower end of the applicator extension is hollowed for the reception of brush bristles and the bristles are secured to the interior walls of the hollowed portion.

Another object has been to provide a structure of this type in which glass bristles are utilized and the bristles and side walls of the hollowed portion are fused together to form a solid unitary glass structure.

Other and further advantages will be apparent from the further and more detailed description when considered in conjunction with the drawing in which:

Figure 1 shows a front elevation of a bottle in combination with an applicator of the general type of the invention.

Figure 2 is a top plan view of the same bottle.

Figure 3 is an elevation of the stopper with an applicator extension associated therewith. A portion of the gasket which is an element of a preferred type of stopper is broken away to show the continuation of external threads on the shank of the stopper.

Figure 4 is an elevation of the same stopper and applicator extension showing bristles or fibers inserted in the hollow end of the applicator and secured in place adhesively. The hollow portion of the applicator has been broken away to show the interior construction.

Figure 5 is an elevation of the same applicator showing a plurality of glass bristles fused to one another and to the sides of the hollow portion of the applicator.

In Figure 1 a small bottle or vial is shown generally at 1. The stopper is indicated at 2 and a finger tab integrally associated with the

stopper is shown at 3. Screw threads on the stopper adapted to mate with grooves (not shown) on the interior neck of the bottle are shown at 4. A gasket adapted to provide a tighter seal in a bottle of this type is shown at 5. The applicator is shown generally at 6 and a brush extension at 7.

The construction of the combined stopper and applicator can best be appreciated from a consideration of Figures 3 and 4. The particular stopper means shown in these figures is of the preferred type of the invention in that the invention contemplates preferably the construction of the bottle and stopper from glass or the like, and the provision of screw threads on the exterior of the stopper and interior of the bottle neck. The reason for utilizing screw threads of this type instead of the conventional screw threads which are exterior of the bottle and interior of the stopper is to provide a narrower and neater bottle. Since bottles of this type are conventionally used for nail polish, household drugs and the like, the element of style is of considerable importance in the manufacture of a commercial structure. Where glass threads are intended to mate with receiving grooves likewise made of glass, it is not advisable to provide an exact fit as one glass surface tends to adhere to another and it is sometimes very difficult to unscrew the stopper. For this reason, in a structure of this type it is desirable to have a comparatively loose fit of the threads and to provide an additional sealing element such as the gasket 5. When the stopper is properly positioned in the bottle as shown in Figure 1 and is screwed downwardly by means of the finger tab 3 this gasket 5 will become firmly positioned in the bottle neck and form a very tight seal.

Referring again to the stopper and applicator construction as shown in Figures 3 and 4 it will be observed that the portion of the applicator 8 directly associated with the screw threads is solid glass cane or the like while the lower portion of the applicator shown at 9 is a hollow tubular portion. It is desirable to have the stopper portion proper and the portion of the applicator depending therefrom formed from solid material in order to add increased strength to the structure while the hollowed portion has determined utility both for the reception of small quantities of material, such as cotton or gauze, and also for the reception of the fibers forming the brush extension 7. The hollow portion terminates in a mouth opening 10 which may be slightly enlarged as shown and may be reenforced by a rounded bead 11.

In Figure 4 a brush extension is shown inserted in the hollowed portion of the applicator with the bristles secured to the interior thereof by adhesive or the like.

In Figure 5 the bristles are formed from glass fibers and the bristles and side walls of the hollow portion are integrally fused as at 12.

In the use of the hollow ended applicator as shown in Figure 3 a small piece of disposable material such as absorbent cotton or gauze may be inserted in the hollow end by means of a pair of tweezers or the like. The end of the applicator is then immersed in the liquid in the bottle and upon removal of the applicator the saturated material can be removed from the hollow end and used as desired.

It will be apparent that various other types of bottle stoppers may be utilized without departing from the spirit of the invention and it will also be apparent that glass is not an essential material for the construction of the stopper and applicator. Various types of plastics will lend themselves equally readily to the construction. The brush fibers may be conventional animal bristles or they may be formed from synthetic materials including vegetable and mineral derivatives. Glass fibers may be used very advantageously particularly where it is desired to brush certain types of liquids which tend to dissolve ordinary adhesives. As previously described, these glass bristles may be fused integrally to the sides of the hollowed portion of the applicator.

The manufacture of the applicator is not difficult and may be accomplished by a molding operation or by the successive fusing of the various elements. one to the other.

Having fully described my invention I desire to be limited only by the ensuing claims:

1. In an applicator formed from glass or the like and adapted to be inserted in a bottle of liquid, a solid portion at the upper extremity thereof and a hollow tubular portion depending therefrom, said hollow tubular portion terminating in an opening at the lower extremity thereof, and a plurality of glass bristles positioned in the opening and fused to one another and to the sides of the hollow tubular portion.

2. A combined bottle stopper and applicator entirely formed from glass or similar material and comprising a bottle sealing portion, a finger tab upstanding therefrom and an applicator extension depending from the bottle sealing portion; said applicator extension including a hollow tubular portion depending from the bottle sealing portion and terminating in an opening at the lower extremity thereof, and a plurality of glass bristles positioned in the opening and fused to the sides of the hollow tubular portion at a point above the opening.

3. A combined bottle stopper and applicator entirely formed from glass or similar material and including a bottle sealing portion and an applicator extension depending therefrom; said applicator extension including a hollow tubular section terminating in an opening at the lower extremity thereof and a plurality of glass fiber bristles positioned in the opening, said bristles being secured to the sides of the hollow tubular section at a point above the opening thereof forming a substantially integral knot at the point of attachment.

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