

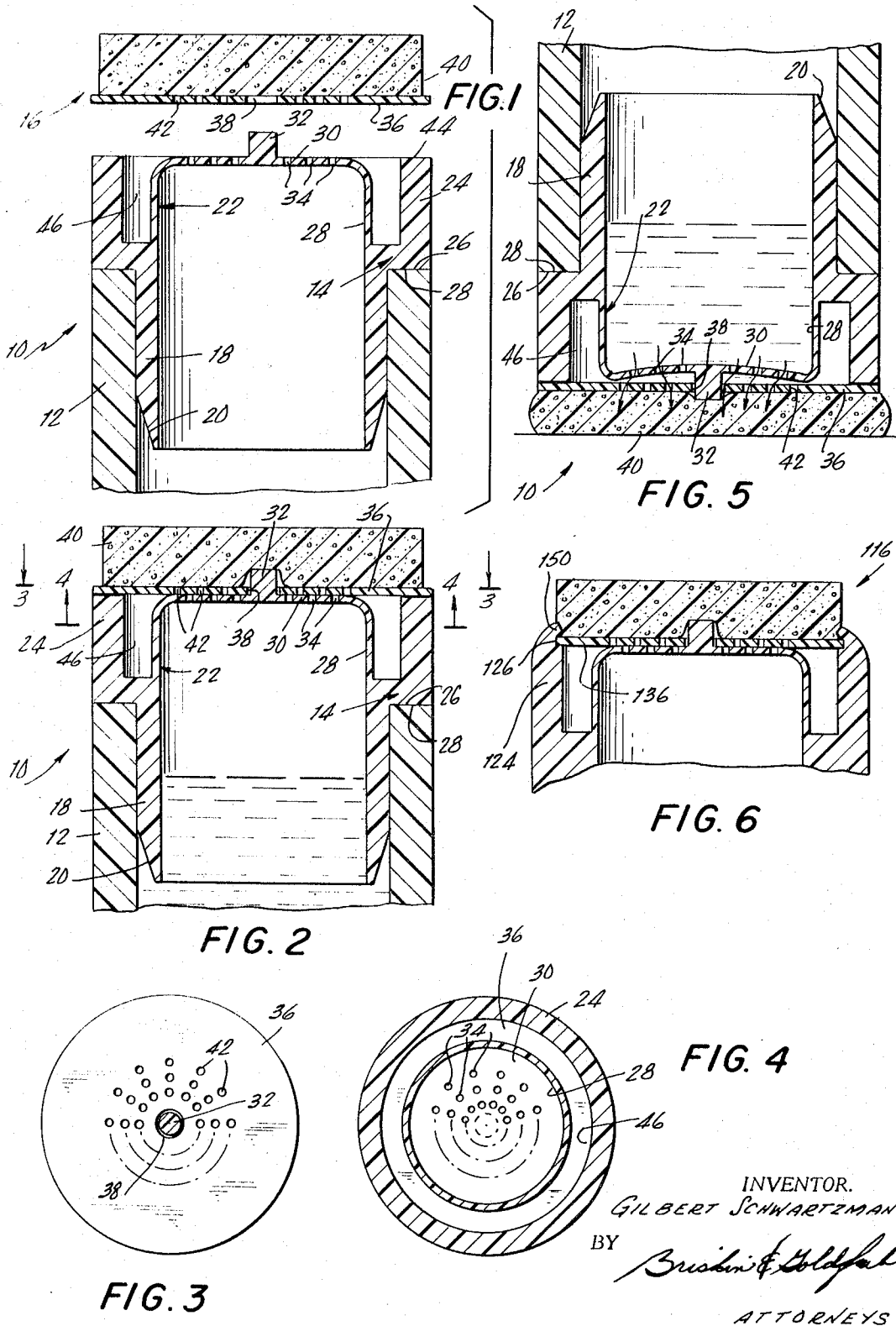
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APPLICATOR WITH BONDED OR SNAP FITTED COVER

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APPLICATOR WITH BONDED OR SNAP FITTED COVER

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7 Claims. (Cl. 401—205)

This invention relates to a fluid applicator having a two ply cover forming an applicator surface, and more particularly to a two-piece applicator for use in applying cosmetics, medications, shoe polish and other fluids on the person, clothing, shoes, or the like of the user.

In the past various types of fluid applicators have been devised which generally included three main parts. These parts included a retaining ring, a cover swaged or otherwise secured to the retaining ring, and a valve assembly. With the advent of modern day molding techniques and the utilization of polyethylene for forming valve springs, it now becomes within the concept of the present invention to make a two-piece fluid applicator having a novel valve arrangement eliminating the need for a separate valve assembly, and which allows for ease of manufacture and therefore reduced cost.

An object of the present invention resides in the provision of a two-piece fluid applicator which includes a resilient dome-shaped web integrally molded with the retaining ring which co-operates with the cover to control fluid flow.

A further object of the invention resides in the provision of a fluid applicator having a two-piece construction including the cover formed of a laminated disk and porous body and so arranged that the cover is either bonded or snap-fitted to the retaining ring so as to permit control of fluid flow as well as optimum application of fluid.

An additional object of the invention is to provide a valve construction for a two-piece applicator in which the valve is opened upon pressure applied on the resilient body forming a part of the cover of the applicator during utilization through depressing a resilient web away from the disk portion of the cover to permit fluid flow through apertures in the web.

Still further objects and features of the invention reside in the provision of a fluid applicator that is of a two-piece construction that is simple in construction and manufacture thereby permitting wide utilization and distribution, which is capable of being manufactured in various sizes so as to permit utilization for a great number of products, and which is capable of being made out of readily available materials.

These, together with the various ancillary objects and features of the invention, which will become apparent as the following description proceeds, are attained by this applicator, preferred embodiments of which are illustrated in the accompanying drawing, by way of example only, wherein:

FIG. 1 is an exploded vertical sectional view of an embodiment of a fluid applicator employing the concepts of the present invention and provided with a bonded cover.

FIG. 2 is an assembled view of the applicator of FIG. 1 shown in vertical cross-section.

FIG. 3 is a bottom plan view of the cover;

FIG. 4 is a transverse sectional view taken along line 4—4 in FIG. 2;

FIG. 5 is a vertical sectional view of the applicator in use and in a valve open position;

FIG. 6 is a transverse sectional detail view of a modified form of the invention having a snap-fitted cover.

With continuing reference to the accompanying drawing, wherein like reference numerals designate similar

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parts throughout the various views, reference numeral 10 is used to generally designate the fluid applicator comprising the present invention. This fluid applicator is adapted to be inserted on the neck 12 of any suitable container in which fluid is to be dispensed and applied. The fluid applicator 10 includes two main portions, a retaining ring 14 and a cover 16. The retaining ring is of a one-piece construction and is integrally molded in a single step out of polyethylene or like suitable material. The retaining ring 14 includes an elongated projecting portion 18 including a tapered end 20. Integrally as a part of the retaining ring is a dome-shaped web 22.

The retaining ring 14 further includes a peripheral cylindrical flange 24 of greater diameter than the projecting portion 18, the projecting portion being sized to fit the neck 12 of a suitable container so that the retaining ring forms a shoulder 26 for engaging the mouth 28 of the neck 12.

The web 22 is inwardly spaced from the flange 24 and is of a much thinner construction than the flange 24 and has a cylindrical side wall 28 substantially co-extensive with, parallel to, and spaced from the flange 24. The web 22 further has a flat top portion 30 having a cylindrical detent 32 extending upwardly therefrom and also has a plurality of rows of apertures 34 arranged in concentric rings about the detent 32, the apertures being annularly spaced from each other.

The cover 16 is of a laminated construction including a relatively thin relatively rigid disc 36 having a central opening 38 therein, which is of circular cross section and slightly larger in diameter than the detent 32 and adapted to allow the detent 32 to extend therethrough. Bonded to the disc 36 which may be made out of polystyrene, polyethylene or other suitable material is a layer 40 of porous resilient material, such as polyurethane foam. The layer 40 overlies the disc 36 and is secured thereto overlying the concentric rows of annularly spaced bores 42 which bores 42 are offset from the apertures 34.

In the form of the invention shown in FIGS. 1-5, the flange 24 is bonded to the top edge 44 of the flange 24. This may be accomplished by use of an adhesive, cohesive bonding using a solvent, or by spin-welding. The flange 24 lies in abutting relationship closing apertures 34 and preventing fluid flow.

In use, upon application of pressure on the foam layer 40 and therefore on the detent 32, the flat top portion is pressed inwardly allowing for fluid flow through apertures 34 and thence through bores 40. The space 46 forms a fluid reservoir while the dimensions of bores 42 will aid in controlling fluid flow. The detent is so constructed as to resiliently engage the foam layer 40 and center the flat top portion 30 to hold apertures 34 offset from bores 42.

In FIG. 6 there is shown a modified form of the invention whereon flange 124 is provided with a peripheral groove 126 for receiving in a snap fitted manner the disc 136 which is of slightly lesser diameter than disc 36. There is a layer 140 bonded to disc 136 of a size and in a manner so that the inner edge 150 of flange 124 abut the layer 140 and prevents undesired rotation of cover 116.

A latitude of modification, substitution and change is intended in the foregoing disclosure and in some instances, some features of the invention will be employed without a corresponding use of other features. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the spirit and scope of the invention herein.

I claim:

1. A fluid applicator comprising a retainer ring having a projecting portion extending downwardly therefrom and a peripheral flange extending upwardly therefrom, a dome

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shaped web flexible resilient integral with said retainer ring and having a flat top portion provided with a plurality of rows of apertures therethrough, said web having a side wall extending substantially coextensive with said flange, said flat top portion having an upwardly extending detent integral therewith, and a cover comprising a relatively thin rigid disk having a relatively thick resilient porous layer bonded thereto, said disk having a series of rows of bores therethrough offset from said rows of apertures, said disk having an opening therein through which said detent extends, said disk being secured to said flange with said disk normally abutting and overlying said flat top portion closing said apertures, said flat top portion being movable away from said disk upon application of force on said detent so as to permit fluid flow through said apertures and said bores.

2. A fluid applicator according to claim 1 wherein said disk is bonded to said flange.

3. A fluid applicator according to claim 1, wherein said flange is provided with a peripheral groove therein; said disk being snap-fitted in said groove with said flange abutting said layer.

4. A fluid applicator according to claim 1, wherein said flange is cylindrical in shape, said side wall being spaced from said flange and being substantially thinner than said flange said side walls having its inner surface extending flush with the inner surface of said projecting portion.

5. A fluid applicator according to claim 1, wherein said flange is cylindrical in shape, said side wall being spaced from said flange and being substantially thinner

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than said flange said side walls having its inner surface extending flush with the inner surface of said projecting portion, said disk being bonded to said flange, said rows of apertures and said rows of bores being annularly spaced in concentrically arranged rings.

6. A fluid applicator according to claim 1, wherein said flange is cylindrical in shape, said side wall being spaced from said flange and being substantially thinner than said flange said side walls having its inner surface extending flush with the inner surface of said projecting portion, said flange being provided with a peripheral groove therein, said disk being snap fitted in said groove with said flange abutting said layer.

7. A fluid applicator according to claim 1, wherein said detent resiliently engages said layer.

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