

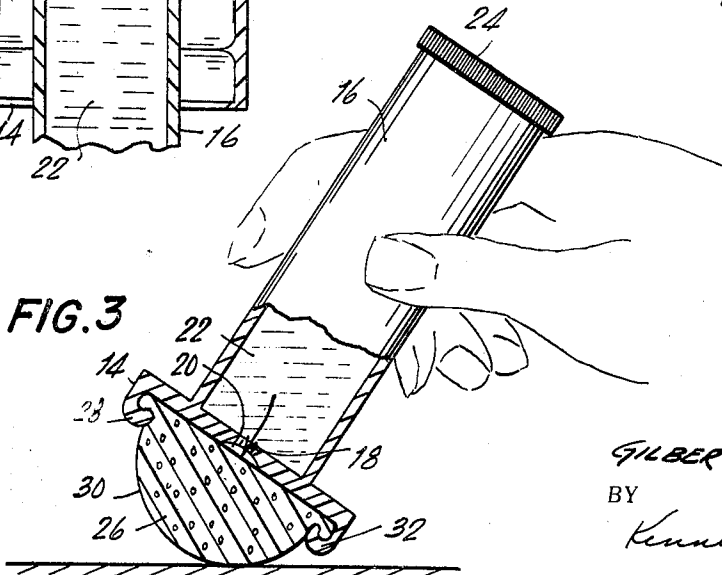
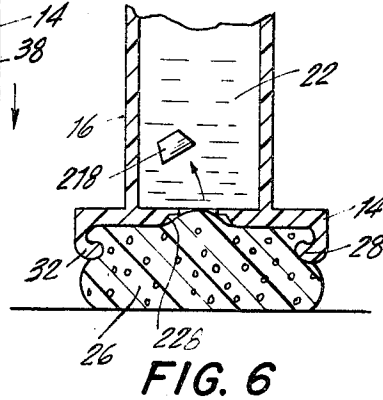
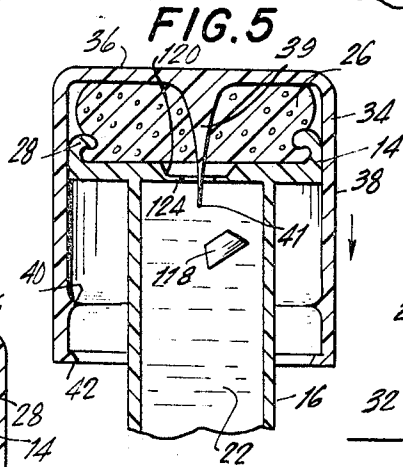
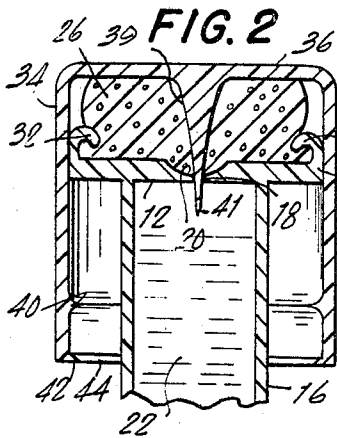
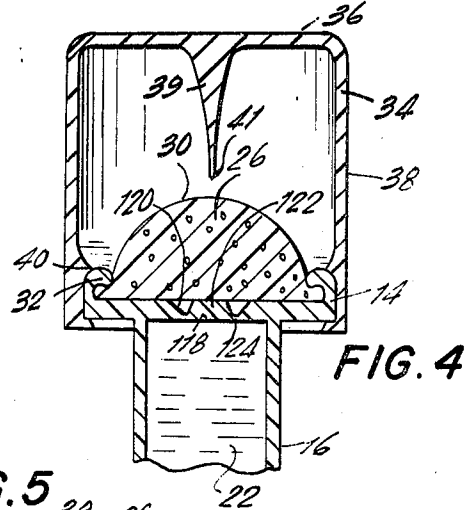
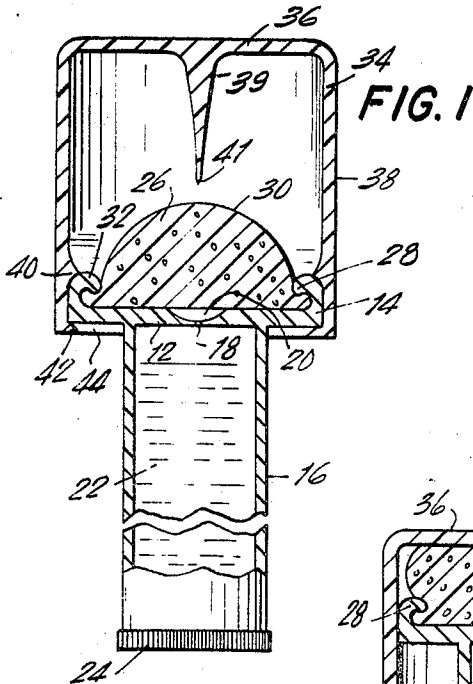
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CONTAINER APPLICATOR

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CONTAINER APPLICATOR

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7 Claims

ABSTRACT OF THE DISCLOSURE

A fluid applicator comprising a fluid container having a retainer ring at its upper end and a peripheral flange of greater diameter than the container extending upwardly from the retainer ring. The retainer ring has a frangible weakened portion in the center thereof. A hemispherical dauber head of porous resilient material such as polyurethane foam is held to the retainer ring. A cap having means for piercing the retainer ring as well as the head is provided on the cap so that the contents of the container may be sealed in a fluid tight manner so as to provide for extended shelf life, yet which will facilitate dispersing the contents and the application thereof in a convenient manner. The cap is provided with means for cooperating with the swaged portions of the retainer ring for snap fitting the cap in place.

This invention relates to an applicator for applying fluids to various surfaces in a convenient manner.

In the past, applicators have been produced which have been provided with various types of constructions for facilitating the application of fluid. Various types of mechanical valves have been provided to protect and disperse the contents of the container with which the applicator is associated from evaporation and enhance the shelf life thereof. However, these mechanical valves having proved too costly for installation and use in certain types of disposable or throw-away applicators or one use devices. Certain of these applicators have been provided with a retainer ring having a projecting portion adapted to fit in the neck of a container.

In carrying out the present invention, the projecting portion of the retainer ring is elongated to form a fluid container and is provided with fluid tight sealing means at the lower end thereof for providing an air and fluid tight package for the contents which is so constructed and so arranged as to afford a complete seal for the contents while eliminating the need for mechanical valve arrangements.

The concept of this invention provides means for storing fluid in a container in a fluid type manner yet which facilitates the flow of fluid onto the dauber head when it is desired to use the container applicator.

It is therefore an important object of the present invention to provide a relatively inexpensive combination container applicator that may be used one or more times in a convenient manner for applying medications, cosmetics, polishes, pigments, oils and other viscous and non-viscous fluids in a convenient manner on any one of a multitude of different surfaces.

It is another object of the present invention to provide an applicator in which the sealed container thereof is opened substantially simultaneously with the perforation of the applicator head thereby facilitating and rendering more effective flow and dispensing of an optimum quantity of the fluid.

Still another object of the invention resides in the provision of an applicator in which the fluid tight seal of the container thereof is broken merely by depression of the dauber head when initially used.

Still further objects and features of this invention reside

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in the provision of a container applicator that is simple in construction, capable of being manufactured out of readily available materials, convenient and easy to use, and highly efficient in operation.

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 have been illustrated in the accompanying drawing, by way of example only, wherein:

FIG. 1 is a vertical sectional view illustrating the elements of the present invention and showing the cap in a closed position for storage of the container applicator;

FIG. 2 is a view similar to FIG. 1 but showing the cap in a depressed position for opening the container applicator and readying it for use;

FIG. 3 is a sectional detail view illustrating a manner in which the applicator is used;

FIG. 4 is a view similar to FIG. 1 of a modified form of the invention;

FIG. 5 is a view similar to FIG. 4 of the embodiment shown therein but shown with the cap in an actuated position opening the container applicator; and,

FIG. 6 is a sectional detail view of a modified form of the invention.

With continuing reference to the accompanying drawing, wherein like reference numerals designate similar parts throughout the various views, reference numeral 10 generally designates a container applicator constructed in accordance with the concept of the present invention. The container applicator includes a container ring 12 having a flange 14 extending upwardly therefrom and a projecting portion 16 extending downwardly therefrom. The projecting portion 16 is of lesser diameter than the flange 14. The retaining ring 12 is provided with a weakened portion 18 having a concavity 20 therein for rendering the weakened portion 18 frangible and easily broken.

The projecting portion 16 is elongated and is adapted to be filled with any type of fluid such as a medication 22 and is provided with a closure 24 of any suitable type at the lower end. The retainer ring and projecting portion are adapted to be integrally molded of any suitable materials such as polyethylene, polyurethane, polyvinyl chloride, polystyrene, or the like and the closure 24 may be spin welded or otherwise bonded to the projecting portion 16 in an air tight or fluid tight manner. Thus, the contents 24 are sealed and protected against evaporation and contamination, thus enhancing the shelf life thereof.

A body 26 of porous resilient material such as polyurethane foam is held in its place by the swaged peripheral edge 28 of the flange 14 in such a manner that the body 26 has a semi-hemispherical upper surface 30. The swaged end 28 is turned back over and compresses the peripheral edge of the body 26 and in turn is provided with an upwardly convex arcuate cam surface 32.

A cap 34 is provided and includes a top 36 having side walls 38 integrally formed at either end of a cylindrical configuration. The cap 34 has integrally formed with the top a downwardly extending projection 39 of a needle or conical shape provided with a pointed end 41 adapted to pierce the body 26.

The cap 34 has its side walls 38 provided with an upwardly concave and downwardly concave snap 40 projecting peripherally inwardly and of a contour so as to conform to the configuration of the cam surface 32. The lowermost edge of the cap has its inner surface provided with an inwardly projecting peripheral detent 42 of circular configuration for snapping under the lower surface 44 of the retainer ring.

In use, the cap 34 is normally snapped in place as

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shown in FIG. 1 with the snap 40 and detent 42 clampingly holding the cap in position. The container applicator has an extended shelf life due to the fact that the contents thereof are sealed in a fluid tight manner. When it is desired to use the fluid applicator, the cap is pushed downwardly penetrating the body 26 and then breaking the frangible weakened portion 18 allowing the fluid 22 to pass through the body 26 and onto the outer surface 30 of the applicator head. The piercing of the body 26 serves a dual function as since it also permits fluid flow in greater and optimum amounts at the center of the applicator.

The applicator is utilized by directing the fluid by gravity feed into the applicator body 26 and thence the applicator is moved over the surface to be coated with the fluid 22.

In FIG. 4 there is shown a modified form of the invention wherein the weakened portion 118 is defined by a valve opening 120 having a plug 122 of tapered truncated conical configuration either force-fitted therein, spin welded, or otherwise sealed, or integrally formed with the weakened portion being circumscribed by a circular portion 124 of reduced cross section. In use, the plug 122 is forced by the projection 39 outwardly and inwardly into projection portion 16 upon depression of the cap 34.

Referring now to FIG. 6, wherein there is shown a form of the invention in which the cap 34 is eliminated, wherein the plug 218 is seated in the valve opening 220 by force-fitting it or by integrally molding. The plug 218 is provided with a greatly weakened peripheral slit of circular configuration. Then, depression of the body 26 will cause a portion of the porous foam material 228 thereof to push the plug 218 into projection portion 16.

A latitude of modification, change and substitution 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 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 fluid container having a retaining ring at its upper end and a peripheral flange of greater diameter than the adjacent portions of said container extending upwardly from said retainer ring, said ring having a frangible weakened portion in the center thereof and in alignment with said container, swaged means on the ends of said flange, a semi-hemispherical shaped head of porous resilient foam overlying said ring and said frangible weakened portion, said swaged portion overlying the peripheral edge of said head holding said head on said retaining ring and having an arcuate upper cam surface, a cap fitted on said retaining ring, said cap including resilient side walls and a top, means on said side walls for engaging said cam surface, and a substantially conical shape piercing projection integral with and depending from said top and being of a greater length than the thickness of said head, said projection penetrating said head and piercing said frangible weakened portion when said cap is pushed downwardly with said means passing over said cam surface.

2. A fluid applicator comprising a fluid container having a retaining ring at its upper end and a peripheral flange

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of greater diameter than the adjacent portions of said container extending upwardly from said retainer ring, said ring having a central opening therein and in alignment with said container, a removable plug force-fitted in said opening, swaged means on the ends of said flange, a semi-hemispherical shaped head of porous resilient foam overlying said ring and said plug, said swaged portion overlying the peripheral edge of said head holding said head on said retaining ring and having an arcuate upper cam surface, a cap fitted on said retaining ring, said cap including resilient side walls and a top, means on said side walls for engaging said cam surface, and a substantially conical shape piercing projection integral with and depending from said top and being of a greater length than the thickness of said head, said projection penetrating said head and forcing said plug out of said opening when said cap is pushed downwardly with said means passing over said cam surface.

3. A fluid applicator according to claim 2, wherein said plug is of a truncated conical shape.

4. A fluid applicator comprising a fluid container having a retaining ring at its upper end and a peripheral flange of greater diameter than said container extending upwardly from said retainer ring, said ring having a frangible weakened portion in the center thereof and in alignment with said container, swaged means on the ends of said flange, a semi-hemispherical shaped head of porous resilient foam overlying said ring and said frangible weakened portion, said swaged portion overlying the peripheral edge of said head holding said head on said retaining ring and having an arcuate upper cam surface, a cap fitted on said retaining ring, said cap including resilient side walls and a top, said side walls having a cam-shaped concave snap projecting from the inner surface of said side walls, said snap engaging said cam surface, and a substantially conical shape piercing projection integral with and depending from said top and being of a greater length than the thickness of said head, said projection penetrating said head and piercing said frangible weakened portion when said cap is pushed downwardly with said snap passing over said cam surface.

5. A fluid applicator according to claim 4, including an inwardly extending detent extending inwardly of the lowermost edge of said side walls, said detent engaging said ring to hold the cap snugly on said ring.

6. A fluid applicator according to claim 5, wherein said side walls are cylindrical in shape, said snap being circular and extending about the periphery of said side walls.

7. A fluid applicator according to claim 6, wherein said detent is circular and extends about the periphery of said side walls.

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