June 21, 1966 G. SCHWARTZMAN 3,256,551

DISC APPLICATOR

Filed April 2, 1964

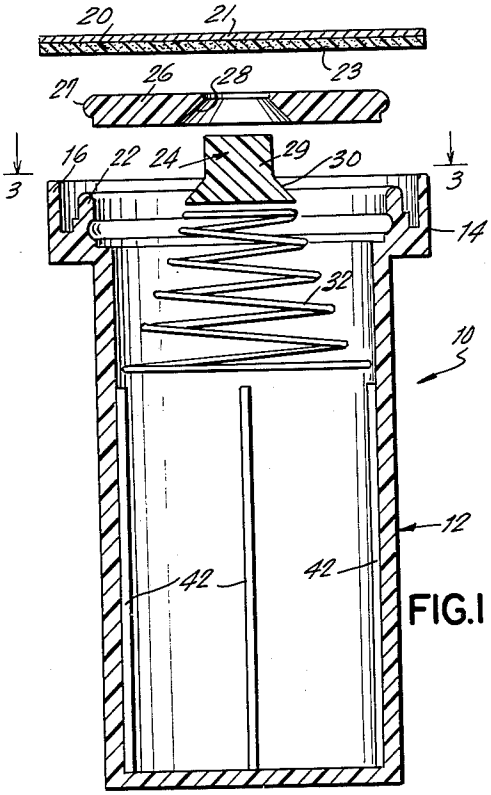


FIG.1

FIG.2

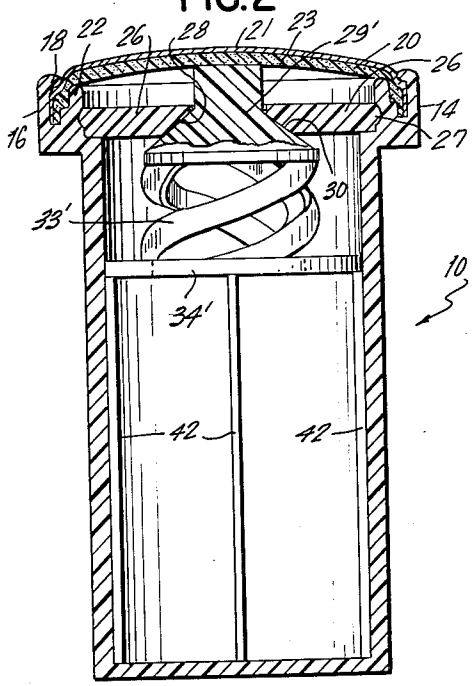
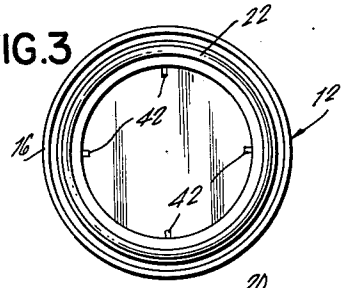


FIG.3



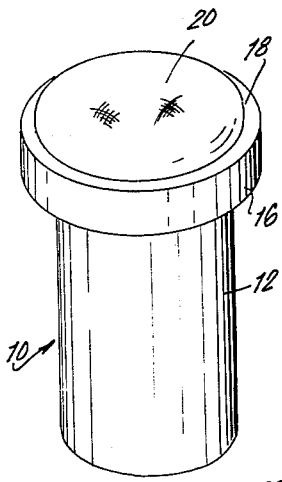


FIG.6

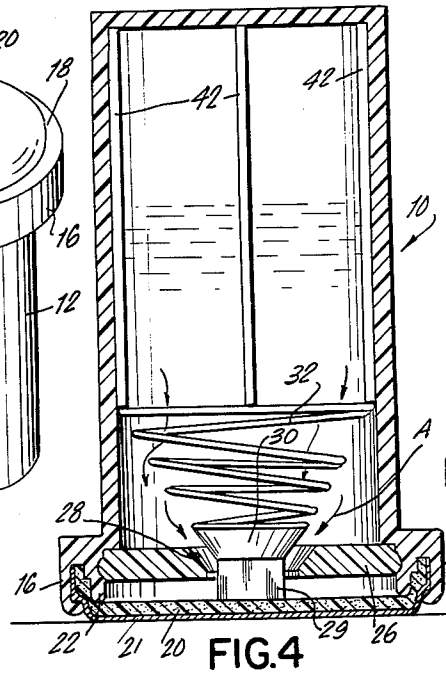


FIG.4

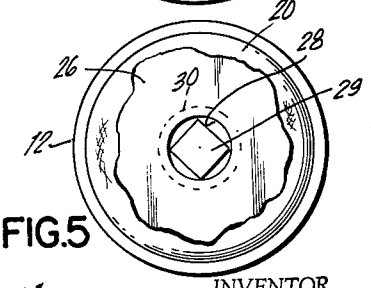


FIG.5

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DISC APPLICATOR

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This invention relates to a fluid applicator especially adapted for use in applying shoe polish or for applying cosmetics, other fluids, medications, or for serving as a marking device.

An object of this invention resides in the provision of means for facilitating the application of cosmetics, medications, shoe polish, other fluids, or the like from an applicator having a dauber integral therewith.

Another object of this invention resides in the provision of an applicator in the form of a container having integrally formed therewith means for holding a fabric dauber head on the container while also having a disc fused to the container for mounting valve means controlling fluid flow conveniently onto the fabric dauber head for applying fluid.

In the past daubers have been constructed which are provided with projecting portions which are inserted in the necks of containers. These projecting portions have all been of reduced cross sectional dimensions to allow for proper construction and operation of the valve assemblies of these daubers. The containers used with such projecting portions have necessarily been constructed with elongated necks. Modern packaging techniques and styles are eliminating such containers with elongated necks in an attempt to render packages more compact, streamlined and eye appealing. Further, in modern packaging there is an ever increasing use of various synthetic plastics such as polyethylene and polyurethane for the production of substantially unbreakable containers.

Accordingly, it is another of this invention to provide an applicator having a dauber which eliminates the necessity for a container having an elongated neck thereby saving on material costs.

It is highly desirable that packages for shoe polish, various medications, and cosmetics be spillproof and leakproof because of the permanent stains that can result if the material in the packages is released due to accident or inadvertence. Accordingly, it is an additional object of this invention to provide a spillproof, substantially shatter-proof, leakproof unitary applicator which can be easily assembled and filled.

A further object of the invention is to mount a valve assembly within a container to form an applicator in a manner so as to seal the container so that liquid can pass out of the container only through the valve assembly, yet which applicator is of a construction to permit easy filling thereof even after complete assembly.

An additional object of the invention is to provide a container for an applicator which includes ribs integral therewith for supporting a valve assembly.

A yet further object is to provide an applicator which includes a disk capable of being spin-welded to a container to seal a valve assembly in position.

Still another object of the invention resides in the provision of a valve assembly for a fluid applicator that is held in place by a disk spin-welded or fused to a container for preventing spillage or leakage.

Still further objects and features of this invention reside in the provision of a dauber which is inexpensive to manufacture, simple to use, capable of metering fluid of various viscosities in an effective manner so that the dauber is especially adapted for use in applying shoe polish, medications, cosmetics, oils, polishes and the like, and which dauber may be made in any convenient size as desired.

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 dauber, preferred embodiments of which have been illustrated in the accompanying drawings, by way of example only, wherein:

FIG. 1 is an exploded vertical sectional detail view of an applicator in accordance with the concepts of the present invention;

FIGURE 2 is a vertical cross-sectional view of an applicator in an assembled condition and illustrating a modified form of the invention having a different type of valve spring;

FIG. 3 is a top plane view of the container utilized in the applicator taken along the plane of line 3—3 in FIG. 1;

FIG. 4 is a vertical sectional view of the applicator illustrated in FIG. 1, shown in an operating position;

FIG. 5 is a top plane view of the applicator with a portion of the cover being broken away to show details of the valve; and

FIG. 6 is a perspective view of the applicator.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, reference numeral 10 is used to generally designate the fluid application comprising the present invention. This applicator includesa container 12 having a retaining ring 14 integrally molded therewith. The container 12 may be formed of polyethylene, polyurethane, or other suitable synthetic plastic materials. The retaining ring is of greater diameter than the rest of container 12, and includes a flange 16 provided with a swaged lip 18 for retaining a fabric cover 20 in position between the lip 18 and a rib 22 of circular configuration.

The cover 20 is constructed of two layers, the upper layer 21 of which is formed of a nylon knitted brushed fabric so as to achieve a felt-like applicator surface and appearance, while having the chemical inertness and strength of the nylon. Laminated and bonded to the nylon knitted brushed fabric is the lower layer 23 of coarse polyurethane foam.

The container is provided with a groove 25 therein into which the rib 27 on a disk 26 is adapted to be inserted. The disk 26 may be spin-welded to the container 12 or may be fused by heat or by a solvent. Alternatively an adhesive can be used to join the parts together. Of course, the spin-welded unitary construction is most preferred.

The disk 26 has an arcuate tapered opening 28 therein. Cooperating with the arcuate tapered opening 28, which serves as a valve seat, is the conical surface 30 of a molded valve head 29 forming a part of a valve assembly 24. The valve assembly 24 further includes a spring 32 formed in helical coils. The spring 32 is held in place on ribs 42 extending part of the length of container 12 for reinforcement thereof, which ribs can be effectively molded with the container 12. The other end of the spring 32 engages the valve head 29 and thus the spring 32 is in a continuously stressed condition under compression so that the valve head 29 is continuously urged into and through the opening 28 for the purpose of closing the opening and preventing fluid flow from the container 12 into the space between the disk 26 and the cover 20.

In the form of the invention shown in FIG. 2 the spring 33′ is provided with a circular ring 34′ and is integrally molded with the valve head 29′. The helical legs of spring 33′ are integral with the valve head 29′ and ring 34′ and ring 34′ rests on ribs 42.

In use the applicator is urged against a surface. The cover 20 pushes against valve head 29 opening the valve and allowing fluid in the container to flow outwardly as indicated by arrows "A."

The container is filled by using a hollow needle which

is urged through cover **20** and through opening **28** after depressing valve head **29**.

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 container having a retainer ring integrally formed therewith, a cover secured to said ring, said container having a groove therein, a disc secured to said container and having a peripheral rib extending into said groove,, said disc having an opening therein forming a valve seat, vertically extending ribs integral with said container and forming stop means in said container, and a valve assembly including a valve head movable with respect to said valve seat to control fluid flow through said opening, said valve assembly including spring means engaging said stop means and integrally formed with said valve head, said spring means urging said valve head against said valve seat, said spring means including an end ring disposed on said ribs.

2. A fluid applicator comprising a container having a retainer ring integrally formed therewith, a cover secured to said ring, said container having a groove therein below said ring, a disc secured to said container and having a peripheral rib extending into said groove integrally and fused to said container, said disc having a tapered opening therein forming a valve seat, vertically extending ribs integral with said container and forming stop means in said container, and a valve assembly including a tapered valve head movable with respect to said valve seat to control fluid flow through said opening, said valve assembly including helical coil spring means engaging said stop means and said valve head, said spring means urging valve head against said valve seat, said spring means including an end ring seated on said ribs.

3. A fluid applicator comprising a container having a retainer ring integrally formed therewith, a cover secured to said ring, said container having a groove therein below said ring, a disc secured to said container and having a peripheral rib extending into said groove and integrally fused to said container, said disc having a tapered opening therein forming a valve seat, vertically extending ribs integral with said container and forming stop means in said container, and a valve assembly including a tapered valve head movable with respect to said valve seat to control fluid flow through said opening, said valve assembly including spring means of a synthetic plastic material engaging said stop means and integrally formed with said valve head, said spring means urging said valve head against said valve seat, said spring means including an end ring disposed on said ribs.

4. A fluid applicator comprising a container having a closed end, having a retainer ring integrally formed therewith at the other end thereof, said retainer ring including a first flange having a lip integral with said retainer ring, said retainer ring further having a rib concentrically inwardly spaced from said flange, a cover secured to said ring, said container having a closed end, said retainer ring having an arcuate groove therein below said rib, a disc of greater diameter than said rib secured to said container and having a peripheral tongue extending into said groove and integrally fused to said container, said disc having a tapered opening therein forming a valve seat, vertically extending ribs integral with said container and forming stop means in said container and reinforcing said container, an a valve assembly including a tapered valve head movable with respect to said valve seat to control fluid flow through said opening, said valve assembly including spring means engaging said stop means and integrally formed with said valve head, said spring means urging said valve head against said valve seat.

5. A fluid applicator comprising a container having a closed end, having a retainer ring integrally formed therewith at the other end thereof, said retainer ring including a first flange having a lip integral with said retainer ring, said retainer ring further having a rib concentrically inwardly spaced from said flange, a cover secured to said ring, said container having a closed end, said retainer ring having an arcuate groove therein below said rib, a disc of greater diameter than said rib secured to said container and having a peripheral tongue extending into said groove and integrally fused to said container, said disc having a tapered opening therein forming a valve seat, stop means in said container, and a valve assembly including a tapered valve head movable with respect to said valve seat to control fluid flow through said opening, said valve assembly including spring means engaging said stop means and integrally formed with said valve head, said spring means urging said valve head against said valve seat.

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