Aug. 9, 1966 G. SCHWARTZMAN 3,264,676

SPIN WELDED PACKAGE

Filed April 2, 1964

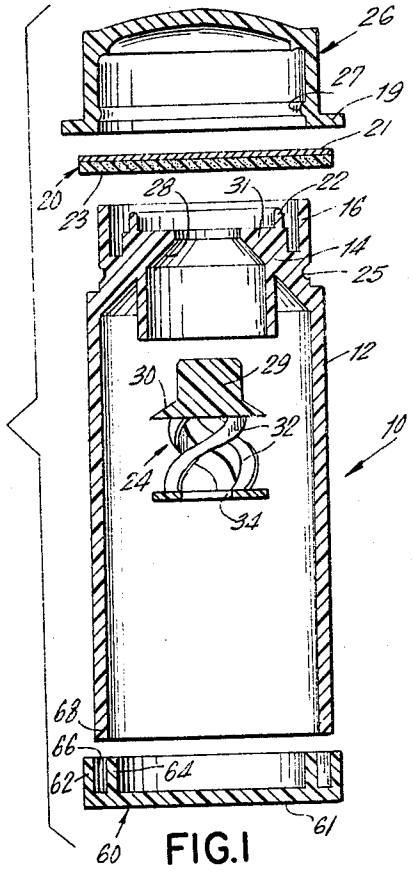


FIG.1

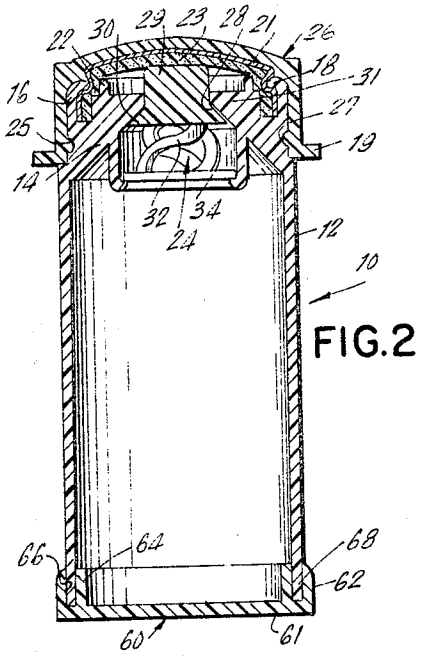


FIG.2

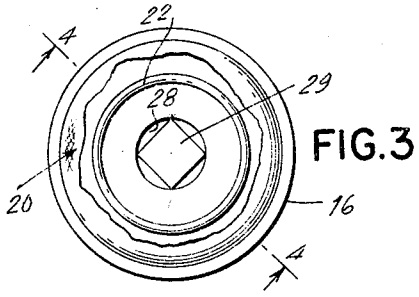


FIG.3

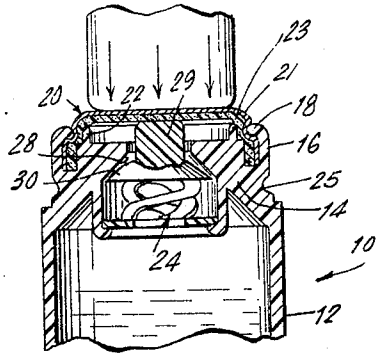


FIG.4

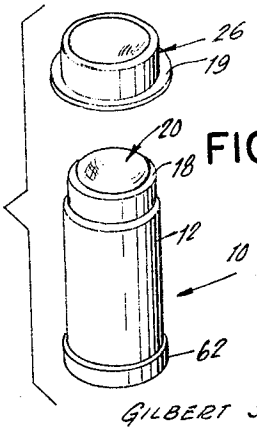


FIG.5

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SPIN WELDED PACKAGE

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

An object of this invention resides in the provision of an applicator in the form of a cylinder having integrally formed therewith means for holding a fabric dauber head on the container while also having a base fused to the cylinder to form a container for various types of liquids including, but not necessarily limited to, shoe polish, marking inks and pigments, cosmetics and medications.

Another 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.

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 space saving, 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 object 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 shatterproof, 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 this invention is to provide a container formed of synthetic plastic materials including a base having inner and outer flanges for receiving the lower edge of a cylinder for not only insuring a leakproof spin welded connection between the base and cylinder, but which flanges provide for a weighted bottom having an enlarged supporting surface thus allowing the material of the base to serve a plurality of purposes.

A yet further object is to provide an applicator which includes a base capable of being spin welded to a cylinder after a valve assembly has been inserted into position for controlling fluid flow out of the container.

Still another object of the invention resides in the provision of a valve assembly for a fluid applicator that is held in place by an integral portion of the container being swaged over a ring of the valve assembly in a convenient manner allowing for high speed mass production.

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 constructed in accordance with the concepts of the present invention;

FIG. 2 is a vertical cross-sectional view of an applicator in an assembled condition and illustrating the valve assembly in a closed position;

FIG. 3 is a top plan view of the container utilized in the applicator with a portion of the cover being broken away showing details of the valve assembly;

FIG. 4 is a partial sectional view of the applicator taken along the plane of line 4—4 in FIG. 3, shown in an operating position with the valve open; and,

FIG. 5 is a perspective view of the applicator with the cap removed to show details 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 applicator comprising the present invention. This applicator includes a cylinder **12** having a retaining ring **14** integrally molded therewith. The cylinder **12** may be formed of polyethylene, polyurethane, or other suitable synthetic plastic materials. The retaining ring **14** 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 cylinder is provided with a groove **25** therein into which the rib **27** on a cap **26** is adapted to be inserted. The cap **26** may alternatively be threadedly detachably secured to the cylinder **12**. The cap **26** is provided with detent means **19** for facilitating removal thereof and is of any desired ornamental exterior configuration.

The retaining ring **14** includes a web **31** having 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 an integral molded plastic valve assembly **24**. The valve assembly **24** further includes a spring **32** formed in helical strips, the lower portion being integrally formed with an enlarged circular mounting ring **34**. The mounting ring is held in place within a tubular projection **42** extending a short part of the length of the cylinder **12**, which projection is swaged at its lowermost end to hold the ring **34** with spring strips **32** always under at least some compression. The other end of the spring **32** engages the valve head **29** and thus the spring **32** which is in a continuously stressed condition under compression will continuously urge the valve head **29** into and through the opening **28** and against the valve seat for the purpose of closing the opening and preventing

fluid flow from the cylinder **12** into the space between the web **31** and the cover **20**.

The cylinder **12** is closed in a fluid tight manner by the base **60** including a disc **61** which has integrally formed therewith a pair of spaced cylindrical flanges **62** and **64** defining a recess **66** for receiving end **68** of cylinder **12**. The base **60** is spin welded to the cylinder with the flanges **62** and **64** being integrally fused with the cylinder end **68** to form a weighted bottom for the applicator because of the mass of flanges and end **68**. Further, the bottom is of a highly ornamental appearance while providing an enlarged supporting surface.

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.

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 claim be construed broadly and in a manner consistent with the spirit and scope of the invention herein.

I claim:

A fluid applicator comprising a double ended cylinder having a dispensing end and a bottom end and having a retainer ring integrally formed therewith adjacent said dispensing end, a cover secured to said ring and defining an applicator surface at said dispensing end, a tubular projection inwardly disposed within said cylinder concentric therewith, a web integral with said cylinder at said dispensing end thereof and integral with said projection forming a relatively thickened portion, said cylinder having a groove therein at said relatively thickened portion,

said web having a tapered opening therein forming a valve seat, a valve assembly including a valve head movable with respect to said valve seat, said valve head including a conical portion engageable with said valve seat to control fluid flow through said opening, said valve head extending through and beyond said opening and engaging said cover so that upon depression of said cover, said conical portion will be displaced from engagement with said valve seat permitting fluid flow through said opening, said valve assembly including an enlarged circular mounting ring and helical spring means integral with end engaging said valve head and integral with and engaging said mounting ring, means on said projection to hold said mounting ring with said spring means continuously under compression urging said valve head against said valve seat, a cap provided with an inner annular rib, said cap being received over said cover with said rib seating in said groove, and a base spin welded to said bottom end of said cylinder, said base including a disc and a pair of spaced cylindrical flanges integral with said disc and defining a groove therebetween, one of said flanges being of a greater diameter than said cylinder, said bottom end of said cylindrical being received in said groove so that said base forms an enlarged supporting surface.

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