

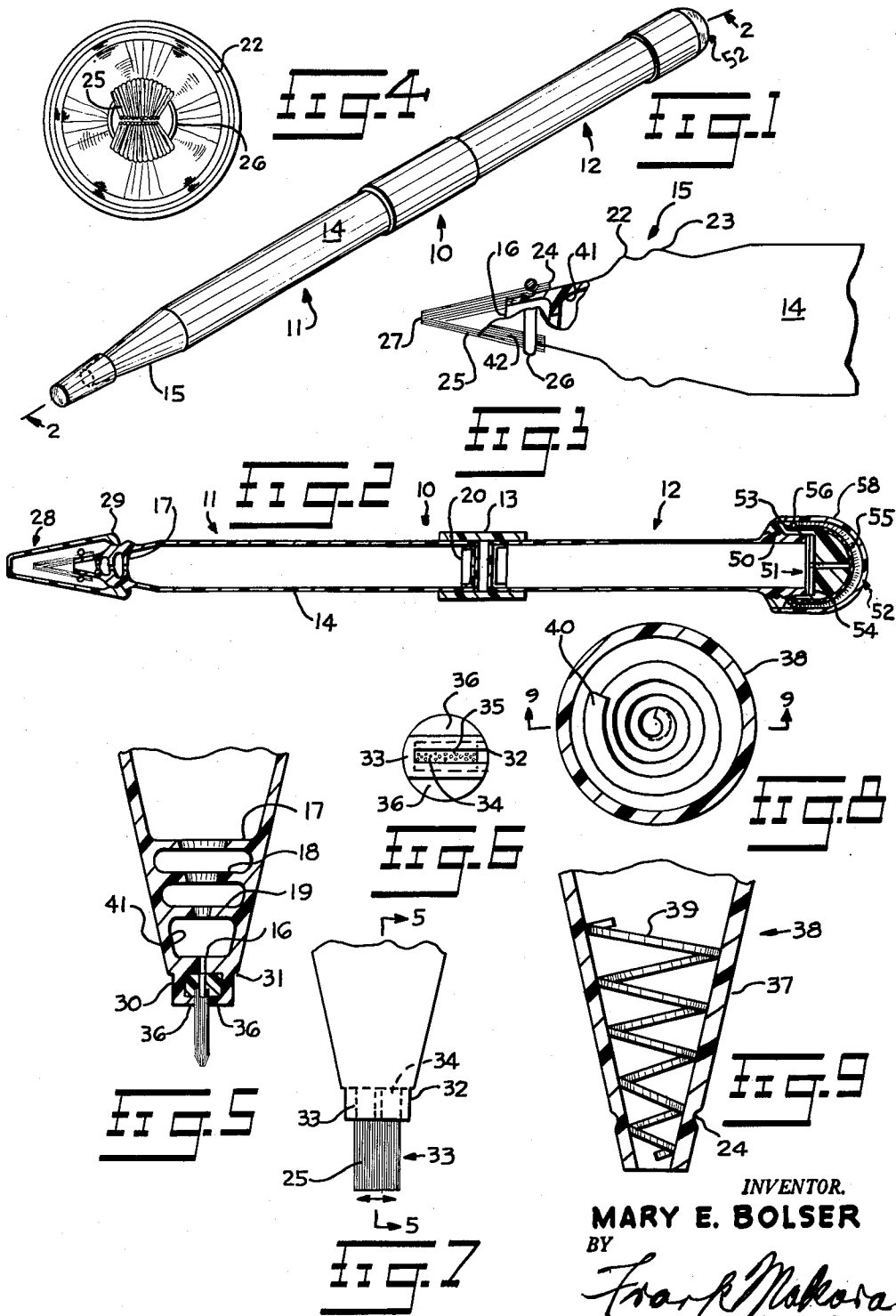
July 10, 1962

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3,043,316

APPLICATOR FOR FLUIDS

Filed Feb. 2, 1960



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3,043,316

APPLICATOR FOR FLUIDS

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Filed Feb. 2, 1960, Ser. No. 6,234

2 Claims. (Cl. 132-74.5)

This invention relates to an applicator for applying nail polish to one's fingernails. More particularly it relates to a compact applicator for dispensing a controlled amount of fluid into a brush.

It is an object of this invention to provide an applicator for applying lacquer solutions to a person's fingernails.

It is another object to provide an applicator which is adapted to dispense a controllable amount of viscous solution into an applicator brush.

It is a further object to provide a brush applicator protected against leakage and adapted to be carried in a woman's purse.

It is another object to provide an applicator for nail polish lacquer having secured thereto means for solvent removal of applied lacquer.

These and other objects of this invention will become apparent upon reading the following descriptive disclosure taken in conjunction with the accompanying drawing in which;

FIG. 1 is a perspective view of a nail polish compact having an applicator for applying lacquer and having also solvent containing means for removal of applied lacquer,

FIG. 2 is a longitudinal section view taken on line 2-2 of FIG. 1,

FIG. 3 is a plan view of the applicator, broken away in part, and showing the manner of securing the brush bristles to the applicator,

FIG. 4 is a front view of the applicator showing the manner of effecting a linear arrangement of the free ends of the brush bristles,

FIG. 5 is a cross-section view of a modified brush applicator having a throw-away brush and taken on line 5-5 of FIG. 7 and showing in detail the multiple disc valve means for restricting viscous fluid flow,

FIG. 6 is an end view of the brush modification of FIG. 5 showing the location of the aperture for introducing fluid into the removable brush,

FIG. 7 is a side view of the brush applicator of FIG. 5,

FIG. 8 is a top plan view of a modified or spiral means of restricting and controlling fluid flow to the applicator brush, and

FIG. 9 is a cross-section view taken on line 9-9 of FIG. 8 and showing the spiral disposed in the conical nozzle of the applicator.

Turning to the drawing, there is shown in FIG. 1 a finger nail polish compact 10 having and applicator section 11 for applying pigmented nitrocellulose or other lacquer solution to a person's finger nails and a lacquer removal section 12 having solvent for removal of applied lacquer from one's finger nails. Thus the compact 10 is a convenient dual container means for both applying lacquer and for removal of lacquer, suitable for carrying in a woman's purse.

The applicator section 11 is preferably cylindrical and separately removable as is also the solvent containing section 12 from a coupling element or tube 13 of suitable diameter and adapted to receive said sections. The sections 11 and 12 are preferably press fitted into the coupler 13 and each section 11 and 12 is a separately self-contained unit which may be carried and used separately. Thus a plurality of applicator sections 11 each having a different colored lacquer may be individually used with a common coupler 13 and common solvent section 12.

The applicator section 11 comprises a container squeeze tube 14, preferably cylindrical, although ovaloid tubes are

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operably made for example from polyethylene. The tube 14 is provided with an integral conical nozzle 15 having means therein for restricting the flow of lacquer solution. The means for restricting the flow of the viscous lacquer solution is preferably a plurality of suitably spaced-apart integral suitably apertured discs disposed inside the nozzle 15.

As shown in FIGS. 2 and 5 the aperture of the discs preferably have a common axis and converge from top to bottom (FIG. 5) toward the exit orifice 16. Preferably the squeeze container 14 is molded as an integral unit, however it may be molded in two longitudinal half sections which are subsequently fused to form a fluid tight container.

As shown in FIG. 2 preferably about three apertured discs 17, 18 and 19 are used although applications having only one or more discs are operable. The discs 17, 18 and 19 are of suitable composition and resiliency so that they may be flexed during the flow of fluid therethrough and hence function as a single valve having many apertures.

The tubular container 12 is provided with an end cap 20 which may be press fitted into the container filling end and then fused thereto in a fluid tight manner. Other fluid tight conventional means may be used in lieu of cap 20 as for example conventional fusion closure of the container filling end.

The nozzle 15 of the applicator 11 is provided on its exterior surface preferably with a pair of annular suitably spaced-apart locking ridges 22 and 23. The exterior conical nozzle surface is also provided with an annular channel 24 adapted to retain brush bristles 25 by means of a wire 26.

As shown in FIG. 4, the bristles 25 are preferably disposed into two opposing groups so as to suitably converge into a linear edge 27 suitable for applying lacquer upon finger nails. In order to protect the used wet brush bristles 25 from damaging the purse in which the compact is stored when not in use, a suitable conical cap 28 having an annular inner rim having a locking ridge 29 is press fitted onto nozzle 15 until locking ridge 29 of the cap 28 is seated between ridges 22 and 23 of the nozzle 15. As shown in FIG. 3 the front annular ridge 22 is of lesser diameter than the rear annular ridge 23, thereby permitting the ridge 29 of the cap to be forced over it.

The cap 28 and the coupler 13 is preferably made of plastic material but they may be made of other material such as metal, glass, and the like.

A modified means of applying lacquer solution is shown in FIG. 5. In this modification, the container nozzle is provided with a cylindrical integral extended front wall 30 having a guideway channel 31 therein. The channel 31 has a rectangular side opening for easy insertion of a throw-a-way brush unit 32. The rear of channel 31 ends at an abutment wall 33 which is a part of the extended front wall 30. The throw-a-way brush 33 comprises a plurality of suitable bristles 25 disposed fixedly in a suitable rectangular base 34. The base 34 is provided with a central aperture 35 adapted to register with orifice 16 when the base 34 is fully inserted in channel 31. In order to retain the brush 33 in the channel 31, the front wall 30 is provided with a pair of parallel spaced-apart horizontally disposed ledges 36. As shown in FIG. 5 the brush unit 35 is slid into place in channel 31 upon the ledges 36 with the bristles 25 being disposed between the said ledges 36.

A modified means of restricting the viscous flow of the lacquer solution is to provide the interior surface of the nozzle 37 of a squeezable container 38 with a conical spiral element. Preferably the spiral element is a wall disposed at a right angle to said interior nozzle surface. The spiral wall may be a separate element 39 inserted

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in a press fit manner into the nozzle. Preferably however the spiral element is integral with the container 12 and molded as a unit to form a continuous spiral inclined plane 40. The width of the plane 40 is selected so as to retard viscous flow. The material of the spiral 40 is made of polyethylene as is also the container 38.

In practice the tubular container 11 or 38 is provided with the parallel valve discs 17, 18 and 19 or with its substitute a spiral plane 40. The tube 11 is filled with pigmented lacquer solution and closed by use of a plug 40. Whenever a small or controlled amount of lacquer is wanted to wet the bristles 25, the tubular container 11 is squeezed suitably thereby forcing any trapped air out of the end of the nozzle, for example, from the first chamber 41 and also the end cavity 42 (FIG. 3). Next the viscous fluid is squeezed out slowly into the interior of the bristles and then applied to the finger nails.

After application of the nail polish solution the pressure on the applicator container is relieved and air enters between the bristle sections into the cavity 42 and chamber 41 (FIG. 3) of the nozzle and into the body of the container, if the supply of lacquer solution therein warrants such migration of air. In any event a plug of air is trapped in the nozzle of the container due to the multiple discs or spiral wall means forming a chamber or plurality of chambers at the exit orifice of the applicator nozzle.

Where the modification of FIG. 2 is employed, the wet brush bristles may be covered with a cap 28 and the applicator placed in a purse without fear of soiling. Where however the modification of FIG. 5 is employed the brush 33, being inexpensive, is thrown away after use and a conventional cap may be press fitted on the cylindrical exterior of front wall 30.

In order to form a compact unit of universal use for applying and later removing finger nail polish lacquer solution, a container 12 for storing solvent for said solution is provided. The solvent may be acetone or ethyl acetate so that the container 12 may be made of glass or metal.

The container 12 is preferably a cylindrical vial having screw threads 50 molded on the exterior surface of the orifice. The open end of the container 12 is planar and a disc 51 made of aluminum foil adhered to a paper backing is placed upon the container opening forming a fluid tight removeable seal thereon.

A plastic hemispherical dome 52 having an annular depending skirt 53 having suitable screw threads molded to the inner surface of said skirt is threaded onto the threads 50 of the container 12. The dome 52 is provided with a suitable central aperture and a suitable cork disk 54 having a central aperture is press fitted into the cavity formed by the annular skirt 53.

A cover cloth of mohair 55 or other suitable pile fabric is peripherally secured over the exterior of the dome 52 by a wire 56. Lastly a removeable cover cap 58 is disposed in press fit relationship upon the cover cloth 55.

In using the solvent stored in container 12, first the cap 56 is removed and the dome 52 is unscrewed from the container 12. Next the metal aluminum sealing disc 51 is removed and the dome 52 is firmly screwed onto the container 12 so that the cork disc 54 is secured in a fluid tight manner to the container 12 opening. Upon turning

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the container so that the dome 52 is lowermost, the solvent solution in the container 12 flows by gravity through the cork disc aperture and the dome aperture into the mohair cloth wetting it. The solvent wet mohair cloth is then rubbed upon the finger nail lacquer to be removed until the lacquer dissolves. The mohair cloth is somewhat coarse so that it has a rubbing action on the dry used lacquer.

In lieu of a solvent container provided with an abrasive like mohair cloth to remove used dried lacquer, I may use a second applicator 11 filled with solvent and inserted into the coupler 13. Thus this invention embraces a compact made of two like applicators 11 one containing pigmented lacquer solution and the other containing a solvent for said solution.

Other modifications fall within the ambit and scope of this invention illustrated herein by a plurality of embodiments, but all these obvious modifications are intended to be claimed by the claims herein.

Thus as shown the valve discs 17, 18 and 19 may have apertures of equal diameter. Also the apertures of the discs 17, 18 and 19 may be divergent with the largest aperture being in disc 19 and the smallest aperture being in disc 17. Such modifications are all intended to be embraced in the claims herein.

I claim:

1. A non-dripping applicator for finger nail polish adapted for pressurized flow of viscous liquid comprising a resilient plastic cylindrical container for said fluid having an aperture at one end for introducing said fluid into said container and having a conical outlet nozzle having a centrally disposed orifice therein at the other end, a plurality of integral resilient circular centrally apertured valve diaphragm discs disposed in suitable parallel spaced-apart chamber forming relationship within said nozzle, said apertures of said valve discs being graduated in decreasing size toward said orifice, the apertures of said valve discs and said orifice being in axial relationship, and disposable bristle means secured exteriorly of said nozzle to axially receive the fluid coming from said nozzle orifice whereby finger pressurized flow depresses the valve discs toward the nozzle orifice and release of finger pressure creates a vacuum in the application thereby sucking in air which is trapped in said chambers to form an air plug.

2. The applicator of claim 1 comprising a holder means integral with nozzle and having a central chamber with a channeled bottom and a lateral aperture for slidably receiving said bristle means into said central chamber with the bristles extending outside of the applicator.

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