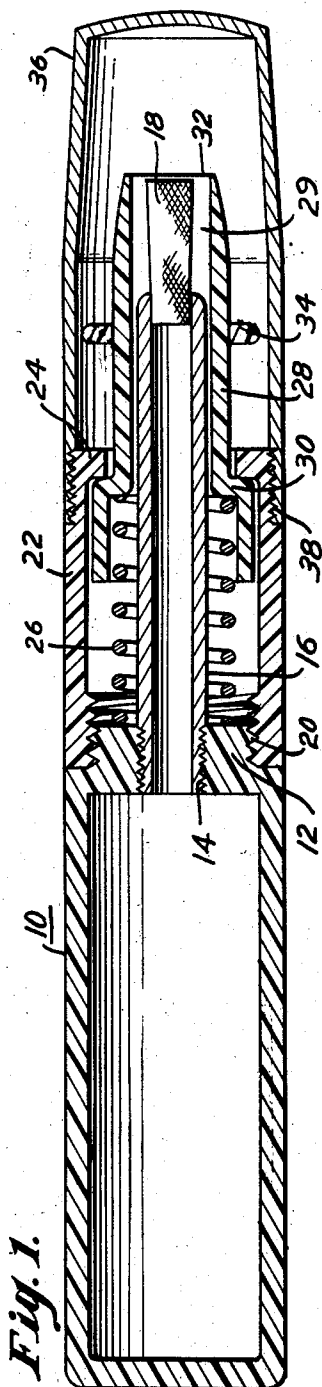
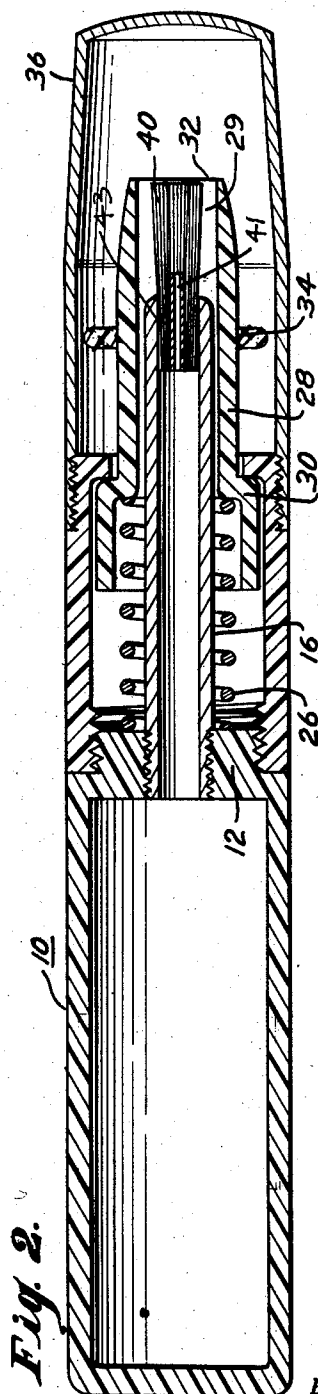
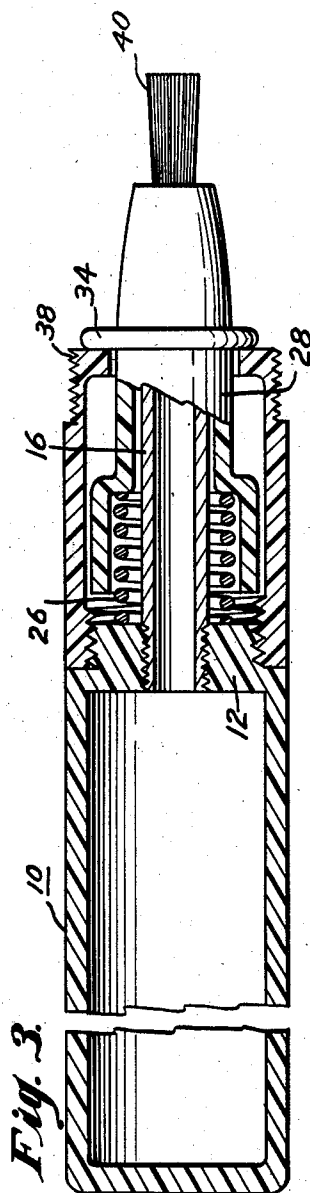


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DISPENSER FOR DISPENSING LIQUID BY BRUSH, SWAB
OR ROD APPLICATION
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DISPENSER FOR DISPENSING LIQUID BY BRUSH, SWAB OR ROD APPLICATION

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3 Claims. (Cl. 15—136)

My invention relates to a dispenser for dispensing by brush, swab or rod application a liquid, such as a lacquer or lacquer-remover comprising a solvent.

The use of paints and lacquers, such as finger nail polish and other liquid cosmetics, comprising a dye and a volatile solvent for coloring or decorating purposes is widespread. Usually liquid cosmetics are packaged in containers which have a removable cap thereon, a brush being connected to the cap so as to be immersed within the container when the cap is in its closed position. When a woman desires to use the cosmetic she removes the cap and applies the cosmetic by means of the brush connected to the cap. In order to replenish the material on the brush she must constantly dip the brush into the bottle.

With the means above described, there is present the danger that the bottle or container will be overturned, spilling the contents thereof. Moreover, the use of a separate container and brush is clumsy and difficult to handle.

An object of my invention is to provide a dispenser comprising a combination liquid container and liquid applicator, such as a brush, swab or rod, wherein the container is always attached to the liquid applicator and serves as a handle therefor.

For the purpose of illustrating the invention, there are shown in the accompanying drawings forms thereof which are at present preferred, although it is to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized and that the invention is not limited to the precise arrangements and organizations of the instrumentalities as herein shown and described.

Figure 1 is a longitudinal sectional view through one embodiment of the dispenser of my invention with the removable cap operatively engaged in closed position and with the discharge end of the liquid applicator within the retreat-chamber.

Figure 2 is a longitudinal sectional view of another embodiment of the dispenser of my invention with the removable cap operatively engaged in closed position and with the discharge end of the liquid applicator within the retreat-chamber.

Figure 3 is a longitudinal sectional view, partly in perspective, of the embodiment of the dispenser of my invention shown in Figure 2, with the cap removed, the discharge end of the liquid applicator, comprising a brush, in projected position, and the retreat-head urged backwards by external pressure.

The accompanying drawings, in which like reference characters refer to like parts, constitute a diagrammatic representation of my invention and are incorporated into my application for Letters Patent and made a part thereof.

Referring to Figure 1, the embodiment of the dispenser of my invention shown therein, comprises a liquid-container designated 10, preferably fabricated of plastic, such as translucent or colored polyethylene or methyl

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methacrylate. The wall of liquid-container 10 is generally form-retaining. In a preferred embodiment, the wall is generally form-retaining but pressure-deformable, or comprises a rigid thick plastic wall, whose thickness is reduced somewhat over a limited area to provide a pressure-deformable wall portion and permit the exertion of pressure on the contents of liquid-container 10. However, the wall 10 may be made of rigid form-retaining material, and other means, set forth below, utilized to exert pressure on the liquid in the container or to cause the flow of liquid through the liquid applicator.

The uppermost portion of liquid-container 10 is thickened and forms a supporting wall 12 having a cylindrical opening therethrough. The surface of the cylindrical opening within supporting wall 12 carries female threads 14 which are operatively engaged with a swab-carrying threaded pipe or tube 16, removably inserted therein. Pipe 16 is preferably fabricated of metal, although if desired, it can be fabricated of plastic or other solid material. The interior of pipe 16 is in unrestricted liquid communication with the interior of liquid-container 10. Swab 18, comprising a felt pad or pad of other cloth or fabric, is retained within pipe 16 at the end remote from that engaged with threads 14 of supporting wall 12. Swab pad 18 normally impedes the free-flow of liquid from liquid-container 10, even when the dispenser is inverted, but discharges liquid from the liquid container 10 at an even rate when the dispenser is inverted and pressure is exerted on the pressure-deformable wall of liquid container 10. Swab pad 18 may also dispense liquid from liquid-container 10 through capillary action withdrawing liquid from pipe 16 and uniformly discharging it on being applied with pressure to an external surface while the dispenser is inverted.

The outermost portion of the supporting wall 12 is provided with male threads 20 adapted to operatively engage with cooperatively threaded female threads on head stop or enclosure 22. Head stop 22 is formed of rigid non-deformable plastic, metal or the like and is provided at its outermost end with a stop-shoulder 24 comprising a circular inward-directing projection. In place of a circular inward-directing projection, stop-shoulder 24 can comprise a series of inward-directing tabs, fingers, lugs or the like.

Coil spring 26, comprising a helical spring, is positioned about pipe 16 and rests against supporting-wall 12. The uppermost reciprocally movable portion of coil spring 26 urges reciprocally mounted retreat-head 28 to the retreat position shown in Figure 1.

In retreat position, retreat-head 28 is urged by coil spring 26 to its outermost position in which shoulder 30 of retreat-head 28 is positioned against stop shoulders 24 of head stop 22. Retreat-head 28 is provided with an inner retreat chamber 29 having an opening 32 at its terminus. When the retreat-head 28 is in retreat position, swab 18 is completely disposed within retreat chamber 29. Swab 18 can project through opening 32 only when reciprocally mounted retreat-head 28 is urged backwards by the application of greater external pressure upon it than is exerted by coil spring 26. Retreat-head 28 is provided with collar 34 for permitting its reciprocal movement from retreat position to a position where at least a portion of swab 18 projects through opening 32. The backward movement of retreat-head 28 is terminated by the engagement of the reverse side of collar 34 with stop-shoulders 24 on head stop 22.

In order to permit ready assembly of the retreat-head 28 in relation to the stop-shoulders 24, the retreat-head collar 34 may be formed separately, as a ring or collar, and press-fitted over the outer diameter of the retreat-head 28 after it has been extended through the aperture in the stop-shoulders 24. Alternatively, if desired, the

outer diameter of the retreat-head 28 may be reduced slightly between the zone of the collar 34 and the outer end 32 thereof, to form a slight shoulder just in back of the collar 34, and the portion immediately adjacent to such shoulder screw-threaded, and the inner diameter of the ring-like collar 34 similarly screw-threaded and the two thus assembled to each other by screw-threading against the tight shoulder.

If desired, the collar 34 may be omitted entirely and the retraction of the retreat-head 28 accomplished by merely putting two fingers around it like the index finger and the middle finger. For this purpose the outer surface of retreat-head 28 may be slightly knurled or otherwise roughened.

I may also form a bayonet type interlock between the shoulder 30 and the inner surface of the head-stop 22 (which bayonet means is not shown) whereby the retreat-head 28 may be retained in the retracted position by a slight turning thereof in retracted position to cause the bayonet means to interlock and to retain it in the retracted position against the force of the spring 26.

Threaded removable rigid cap 36 carries female threads which cooperatively engage with male threads 38 on head stop 22. When cooperatively engaged, as shown in Figure 1, removable cap 36 covers opening 32 of retreat-head and eliminates the possibility of leakage of liquid from the dispenser while it is being transported.

The embodiment shown in Figures 2 and 3 generally resembles that shown in Figure 1, except that in place of swab 18, brush 40 is carried by pipe 16. The bristles of brush 40 are coaxial with pipe 16 and extend outwardly therefrom through aperture 43 in pipe 16. Within the rearmost portion of the bristles of brush 40 is a very small-diametered and thin-walled tube of metal, plastic or the like designated 41. The outer end of tube 41 is disposed in line, or somewhat in front of pipe 16, so as to form a passageway through the center of the bristles to the point where the pipe 16 terminates. The diameter of tube 41 is small enough in relation to the viscosity of the liquid so as not to permit an altogether free flow thereof, but to act as a fluid passageway. Brush 40 effects the even transfer of liquid from liquid-container 10 by pressure-spreading of the brush bristles when the liquid-container 10 is inverted and/or by pressure on a pressure-deformable portion of liquid-container 10.

The operation of the dispenser of my invention can be understood by reference to Figures 2 and 3. Figure 2 shows the dispenser of my invention when in non-use, such as when being transported about. Cap 36 is operatively engaged with threads 38 and covers opening 32 of retreat-head 28. Coil spring 16 urges retreat-head 28 to retreat position, with shoulders 30 of retreat-head 28 engaged against stop-shoulders 24 of head stop 22. As heretofore noted, in this position of the retreat head the brush 40 is completely disposed within retreat-chamber 29.

In retreat position the bristles of brush 40 are protected against injury and are in vapor contact with liquid contained in liquid-container 10 which may serve to maintain them in pliable and useful condition.

Liquid-container 10 can be filled with the liquid to be dispensed, such as nail polish, by unscrewing removable cap 36 from threads 38 and head stop 22 from threads 20 (head stop 22 carrying retreat-head 28). After head stop 22, retreat-head 28 and coil spring 26 have been removed, pipe 16 can be unscrewed from threads 14. The liquid can then be inserted through the threaded conduit in supporting wall 12 into liquid-container 10. After liquid-container 10 has been filled with liquid, threaded pipe 16, coil spring 26, head stop 22 and removable cap 36 are replaced in position as shown in Figure 2.

In order to transfer liquid from the dispenser of my invention, removable cap 36 is first removed, and the dispenser inverted so that the liquid applicator end carrying brush 40 is held bottommost. Finger pressure is then exerted on collar 34 of retreat-head 28 to push it

to the position shown in Fig. 3, with the coil spring 26 being compressed as shown. Pressure is then applied by the palm of the user to the pressure-deformable portion of liquid container 10, and the liquid urged therefrom through brush 40.

Other means can be employed for providing pressure on the liquid in liquid-container 10, and urging the liquid through the brush. Thus, in place of a pressure-deformable wall on liquid-container 10, a piston extending through a gasket in the rear of liquid-container 10 can be used to pump liquid through brush 40.

On the release of finger pressure from collar 34, coil spring 26 urges retreat-head 28 to its retreat position shown in Figure 2, wherein the bristles of brush 40 are completely encompassed within retreat-chamber 29 of retreat-head 28.

The embodiment shown in Figure 1 functions in the identical manner as that shown in Figures 2 and 3 save that in place of the liquid applicator comprising a brush shown in the embodiment of Figures 2 and 3, swab 18 is utilized to spread the liquid on the external surface.

In place of swab 18 a rod, such as a fabric-coated wire, or a multi-pored fiber, can be utilized to transfer liquid from the liquid-container to the external surface.

The dispenser of my invention permits the facile application of liquids to surfaces, such as a cosmetic liquid like nail polish to integumentary surfaces, and avoids the danger of spillage and leakage. A controlled rate and even application of the dispensed fluid can be secured. Moreover, the dispenser is both sturdy and readily constructed.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is therefore desired that the present embodiments be considered in all respects as illustrative and not restrictive, reference being had to the appended claims rather than to the foregoing description to indicate the scope of the invention.

Having thus described my invention, I claim:

1. A liquid dispenser of relatively small size adapted to be held in the palm of the user for dispensing a liquid such as a lacquer or lacquer-remover comprising a solvent, said dispenser comprising an elongated liquid container, a pipe having one end secured to one end of said container and having its interior in direct communication with the interior of said container, an applicator mounted in the other end of said pipe and adapted to receive liquid from said pipe, an enclosure attached to and extending from said one end of said container in spaced relation with said pipe and extending for only a part of the length of said pipe, a retreat head mounted for reciprocable motion externally of said pipe and internally of said enclosure and comprising an open ended retreat chamber within which said applicator is positioned when the retreat head is in a retreat position and from which said applicator extends when the retreat head is reciprocated into said enclosure, and means yieldingly urging said retreat head to retreat position, said enclosure and said retreat head including cooperating means limiting the extent of motion of said retreat head in response to urging of said urging means to position said retreat head in said retreat position.

2. A liquid dispenser of relatively small size adapted to be held in the palm of the user for dispensing a liquid such as a lacquer or lacquer-remover comprising a solvent, said dispenser comprising an elongated liquid container having at least one generally form-retaining deformable wall, a pipe having one end secured to one end of said container and having its interior in direct communication with the interior of said container, an applicator mounted in the other end of said pipe and adapted to receive liquid from said pipe, an enclosure attached to and extending from said one end of said container in spaced relation with said pipe and extending for only a part of the length of said pipe, a retreat head mounted

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for reciprocable motion externally of said pipe and internally of said enclosure and comprising an open ended retreat chamber within which said applicator is positioned when the retreat head is in a retreat position and from which said applicator extends when the retreat head is reciprocated into said enclosure and means yieldingly urging said retreat head to retreat position, and liquid from said container being transferred to said applicator upon compression of said deformable container wall for application by said applicator when said retreat head is displaced from retreat position against the urging of said urging means.

3. A liquid dispenser of relatively small size adapted to be held in the palm of the user for dispensing a liquid such as a lacquer or lacquer-remover comprising a solvent, said dispenser comprising an elongated liquid container having at least one generally form-retaining deformable wall, a pipe having one end secured to one end of said container and having its interior in direct communication with the interior of said container, an applicator mounted in the other end of said pipe and adapted to receive liquid from said pipe, an enclosure attached to and extending from said one end of said container in spaced relation with said pipe and extending for only a part of the length of said pipe, a retreat head mounted for reciprocable motion externally of said pipe and in-

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ternally of said enclosure and comprising an open ended retreat chamber within which said applicator is positioned when the retreat head is in a retreat position and from which said applicator extends when the retreat head is reciprocated into said enclosure and means yieldingly urging said retreat head to retreat position, liquid from said container being transferred to said applicator upon compression of said deformable container wall for application by said applicator when said retreat head is displaced from retreat position against the urging of said urging means, and a cap detachably secured to said enclosure and covering said retreat head and the open end of the retreat chamber therein.

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