

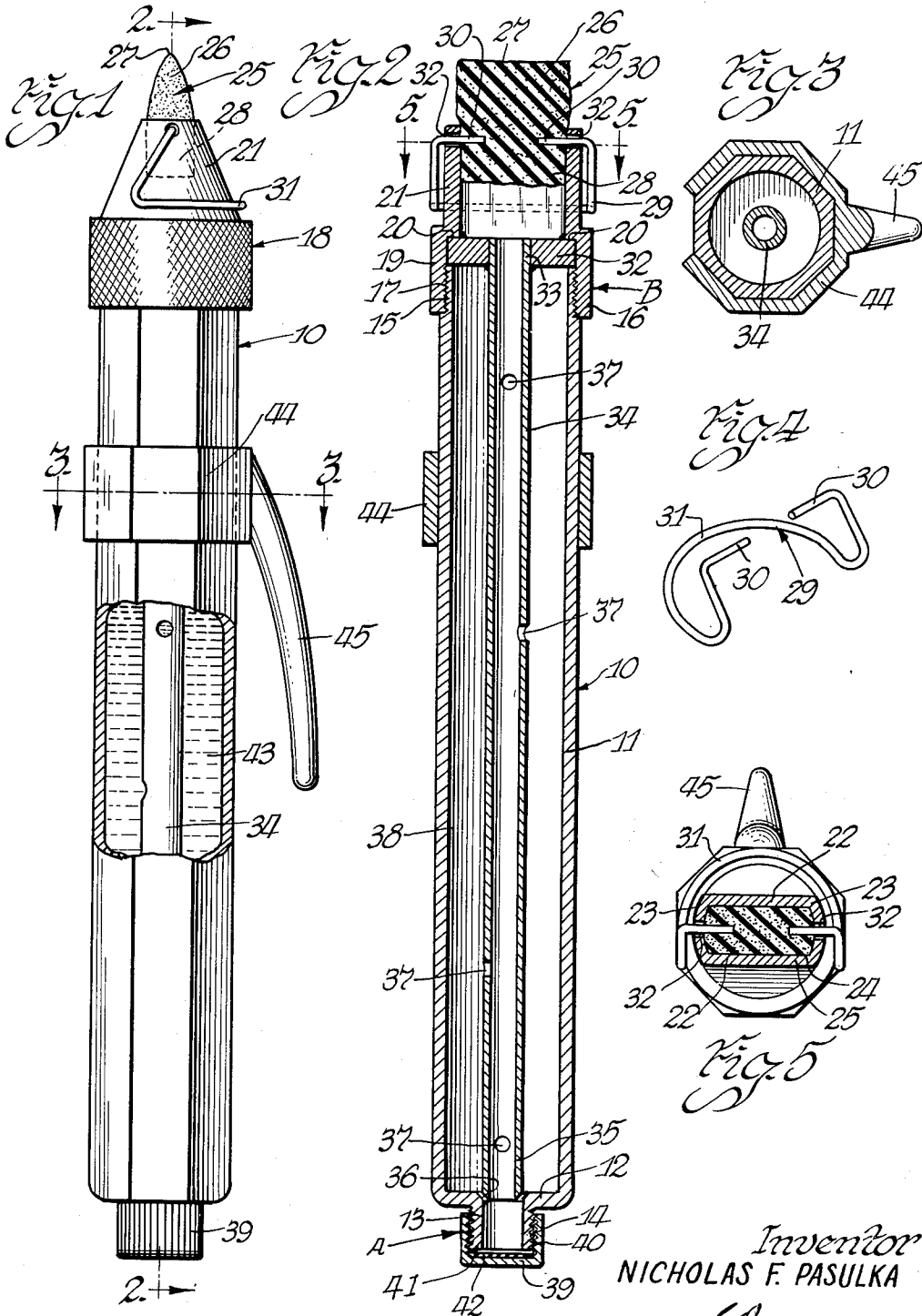
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LIQUID COSMETIC APPLICATOR

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LIQUID COSMETIC APPLICATOR

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This invention is directed to a novel applicator adapted for applying a liquid material in relatively small and limited quantities to surfaces.

More particularly, my invention has for its object, the provision of a novel fountain-type liquid material applicator adapted for hair dyes and colorings and the like and which includes an elongated grippable barrel or container, an air vent tube mounted centrally therein; a removable head normally retaining a liquid pervious body and manually controllable means for selectively admitting limited quantities of air into said vent tube to cause outflow of the desired amounts of liquid material.

A further object of my invention is the provision of a manually controllable applicator for liquid having the aforesaid features and advantages and which is relatively easily and economically manufactured, assembled and disassembled.

A further object and accomplishment of my invention is the provision of a novel applicator having an easily replaceable removably mounted pervious porous head and a yieldable easily replaceable spring for holding said porous applicator head in the outlet passage of the unit, so that such porous head will not be pulled and worked out of its normal position by friction caused during its use.

Other and important objects of my invention will be apparent from the following description and appended claims.

This invention (in one preferred form) is illustrated and described in the following with reference to numerals borne on accompanying drawing.

On the drawings:

Fig. 1 is an elevational view of my novel applicator device with the porous head mounted in position.

Fig. 2 is a cross sectional view thereof taken on a vertical plane indicated by line 2—2 of Fig. 1.

Fig. 3 is a cross section thereof taken on line 3—3 of Fig. 1 and looking from above.

Fig. 4 is a perspective view of the removable retaining spring normally mounted in the applicator as illustrated in Figs. 1 and 2.

Fig. 5 is a cross section looking from above taken on line 5—5 of Fig. 2.

Referring to the drawings, wherein like reference characters designate like elements throughout the various views, there is shown an elongated, barrel-like container 10 which is preferably, but not necessarily, made of plastic. It is to be understood that the container 10 could be made of other suitable material such as glass or metal without departing from the spirit and scope of the invention. As best shown in Figure 2, the wall 11 of the container 10 is directed radially, inwardly to form radial shoulder 12. Integrally formed with and extending from the shoulder 12, is a nipple 13 having external threads 14, formed thereon. The end portion 15 of the container 10 opposite the nipple 13 is slightly reduced in diameter from the main body of the container to form an annular shoulder 16. External threads 17 are formed on the

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reduced diameter end portion 15 for a purpose which will be explained hereinafter.

A coupling member, designated generally by numeral 18, has a counter-bored section 19, provided with internal threads which are engageable with the threads 17 for removably securing the coupling member 18 to the container 10. Extending longitudinally from an inwardly extending annular shoulder 20, integrally formed with the counterbored section 19, is a wedge-shaped end portion or nozzle 21. As best shown in Figure 5, the spaced marginal edges of the inwardly tapered walls 22, and the spaced marginal edges of the walls 23, joining the tapered walls 22 define a substantially rectangular opening 24—which is smaller in area than the main part of the member 18. Positioned within the opening 24 in the nozzle 21, as shown in Figures 1, 2 and 5, is a porous or liquid pervious applicator or body 25. It has been found that a good quality sponge will work satisfactorily.

It will be noted that in normal use a portion 26 of the porous applicator 25 extends outwardly from the coupling member 18 and is preferably wedge-shaped so as to terminate in a relatively sharp edge 27, as shown in Figure 1. The cross sectional area of the portion 28, which is disposed within the nozzle 21 in normal use is slightly greater than the opening 24 before being positioned within the nozzle whereby the applicator 25 frictionally engages the interior of the walls 22 and 23.

Often times when using the device it is desirable and sometimes necessary to replace the porous applicator 25 quickly and easily without need for disassembling the other parts of the device. Furthermore, it is important that the porous applicator 25 will not be pulled and worked out of its normal position in the nozzle 21 by friction caused during its use. In order to accomplish these objectives a retaining element 29, shown detached from the device in Figure 4, having aligned, facing end portions 30 is provided. The end portions 30 are resiliently urged toward each other by means of an integrally formed, intermediate bowed spring section 31, having a diameter substantially equal to the outer diameter of the nozzle 21. The end portions 30 are insertable in aligned apertures 32 formed in the nozzle walls 23, and are capable of imbedding themselves in the porous applicator 25. The intermediate bowed spring section 31 not only resiliently maintains the end portions, 30 in engagement with the applicator 25 but also frictionally engages the outer surface of the nozzle 21 and is then kept clear of the working edge 27 of the applicator 25. It will be obvious from the foregoing that an applicator 25 can readily be removed from the coupling member 18 without the need of unscrewing the coupling member from the container 10 by merely spreading the end portions 30 apart against the resilient action of the intermediate bowed spring section 31 until they are clear of the porous applicator. The applicator 25 can then be pulled out of the coupling member 18. To secure a new applicator 25 to the coupling member 18 the above steps are simply reversed.

A disk 32 is rigidly fastened to one end 33 of a longitudinally extending air vent tube 34 made of plastic, glass, or other suitable material which is coaxially disposed within the container 10. The disk 32 is positioned within the counter-bored section 19 and is caused to seat upon the annular shoulder 20 to which it is rigidly connected by any suitable means. When the coupling member 18 is screwed on the container 10 the disk 32 is caused to abut the end portion 15 of the container tightly and thus prevent the liquid contained within the container from escaping around the threads 17. As best shown in Figure 2, the tube 34 extends substantially the full length of the container 10 and the end 35 of the

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tube 34 opposite the end 33 is beveled and loosely seats against the inner peripheral surface 36 of the radial shoulder 13. A series of staggered apertures 37 are formed in the tube 34 to provide liquid communication between the interior of the tube and the space 38 between the outer surface of the tube and the interior surface of the container 10.

Numeral 39 designates a cap or closure having internal threads 40 which are engageable with the threads 14 on the nipple 13 with sufficient looseness so as to not be air tight and thus providing a spiral space between the mating threads for the passage of air. Seated within the cap 39 and normally bearing against the lower marginal edge 41 of the nipple 13, as viewed in Figure 2, is a seal or disk 42 of rubber or equivalent material.

When it is desired to fill the container 10 with liquid material, designated by numeral 43, the coupling member 18 together with the air vent tube 34, which is rigidly fastened to the coupling member, is unscrewed and removed from the container. The container 10 is held upright or with the open end thereof upward. The liquid material 43, for example hair dye, is poured in, and the coupling member 18 and the tube 34 is remounted.

When the container 10 is held with the applicator 25 downwardly, the liquid material 43 will slowly flow through the liquid inlet ports 37 into tube 34 and its flow from the end 33 into the coupling member 18 and finally through the porous applicator 25 will depend upon the intermittent admission of air into the vent tube through the tube end 35. When the cap 39 is tightly screwed on the nipple 13, no air will be emitted beneath the seal 42 and the lower marginal edge 41 of the nipple and consequently no liquid will flow from the tube end 33 into the porous applicator 25. As the cap 39 is unscrewed very slightly, air will enter the spiral path between the threads 14 and 40 of the nipple 13 and cap 39, respectively, through the interior of the nipple into the tube end 35 to thus permit and cause a substantially corresponding volume of liquid material to flow into the applicator 25. It will thus be obvious that by controlling the volume of air by intermittently tightening or loosening the cap 39 flowing to the tube 34, the user effectively regulates the volume of liquid flowing into the applicator 25. It will also be noted that the liquid inlet port 37 nearest the disk 32 is spaced therefrom to prevent it from being clogged due to accumulation of impurities and sediment from the liquid dye. In other words, in use, with the applicator 25 being disposed downwardly, any solids and impurities in the liquid material will settle upon the disk 32 rather than pass through the inlet ports 37.

As shown in Figures 1, 2, and 3, the container 10 preferably has a collar 44 mounted thereon which is preferably formed of plastic or metal and which may be optionally removable by sliding it off the end of the container. The collar 44 carries a curved integral finger of extension 45, which is adapted to be used to part the hair and to move the hair in different positions and directions to make it more accessible to the application of dye thereto.

It will be understood that the user or operator will usually contact the edge 27 of the applicator 25 to a tuft of hair or limited area, applying the desired pressure, and apply the dye or other liquid material to the parts desired.

The embodiment of the invention chosen for the purposes of illustration and description herein is that preferred for achieving the objects of the invention and developing the utility thereof in the most desirable manner, due regard being had to existing factors of economy, simplicity of design and construction, and the improvements sought to be effected. It will be appreciated therefore that the particular structural and functional aspects emphasized herein are not intended to exclude, but rather

to suggest, other adaptations and modifications of the invention as fall within the spirit and scope of the invention.

I claim:

1. In a device for selectively applying minute quantities of a liquid material to one or more objects, an open-ended barrel; a disk closing one end of said barrel; a coaxially disposed tube mounted within said barrel and having a length substantially equal to the length of said barrel, the annular space between said tube and barrel being adapted to contain the liquid to be applied, said tube extending through and having one end thereof rigidly connected to said disk and having an air inlet port at the end thereof opposite said disk, a liquid outlet port at its opposite end, and a plurality of spaced liquid inlet ports disposed along the entire length of and intermediate the ends of said tube providing liquid communication between said annular space and the interior of said tube whereby the liquid to be applied may flow from said annular space to the interior of said tube simultaneously from a multitude of different points of said annular space; an air passageway leading from said tube air inlet port to the exterior of said barrel, said passageway including a reduced diameter portion of said barrel; manually adjustable means carried by said barrel for controlling the volume of air entering said tube through said passageway to thereby control the outflow of liquid from said liquid outlet port; a coupling member removably mounted on one end of said barrel adjacent said tube liquid outlet port and disk, said member having an opening therein; a pervious applicator normally positioned within said opening and projecting therefrom, said applicator being adapted to receive liquid from said tube liquid outlet port through said coupling member; and quick detachable means for maintaining said applicator in its normal position.

2. The device as set forth in claim 1, in which said quick detachable means includes retaining element carried by said coupling member exteriorly thereof and having end portions thereof yieldably urged toward each other into frictional engagement with said applicator.

3. In a fountain type applicator for liquids, an elongated container; a disk closing one end of said container; an air tube having one end extending through and rigidly connected to said disk, said air tube being mounted in said container, having a length substantially equal to the length of said container and having a plurality of spaced liquid inlet ports disposed along the entire length of said tube for permitting liquid flow between the interior of said tube simultaneously from a multitude of points within said container, said air tube having a liquid outlet port in the end of said air tube extending through and rigidly connected to the disk closing one end of the container and an air inlet port at the opposite end of said tube; a closure element releasably mounted on one end of said container adjacent said tube air inlet port, said closure element being adjustable to control the admission of air into said tube and the volume of liquid flowing therefrom; a coupling member threaded on the disk end of said container having an opening therein; a liquid pervious body positioned within said opening and projecting from said coupling member, said body being adapted to receive liquid from said tube liquid outlet port, through said coupling member; and quick detachable means securing said body to said coupling, said means including a retaining element having aligned facing end portions insertable through aligned apertures formed in said coupling member into embedding relationship with said body, said member having an intermediate bowed spring section yieldably urging said end portions toward each other to maintain said end portions in imbedding relationship with said body.

4. In a fountain type applicator for liquids, an elongated container; an annular disk closing one end of said container; an air tube having one end extending through and rigidly connected to said disk and being mounted in

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and having a length substantially equal to the length of said container, said air tube having a liquid outlet port at the end of the air tube positioned in the disk which closes one end of said container, an air inlet port at the opposite end of said tube and a plurality of liquid inlet ports in the air tube and being positioned within said container between the air inlet and liquid outlet port therein; a closure mounted at the end of said container adjacent said air inlet port, said closure being adjustable to control the admission of air into said tube through said air inlet port and the volume of liquid flowing from said tube liquid outlet port; a coupling member threaded on the disk end of said container having an opening therein; a liquid pervious head positioned within said opening and projecting from said coupling member adapted to receive liquid from said tube liquid outlet port through said coupling member; and quick detachable means securing said head to said coupling, said means including a retaining element carried by said coupling member exteriorly thereof.

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5. The device as set forth in claim 4, in which said retaining element has aligned facing end portions and an intermediate spring section yieldably urging said end portions toward each other, said end portions being insertable in aligned apertures in said coupling member and being adapted to grip said head.

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