June 29, 1954 H. G. LEMOINE 2,682,070

FOUNTAIN BRUSH FOR APPLYING LACQUERS

Filed May 6, 1948

Fig. 1

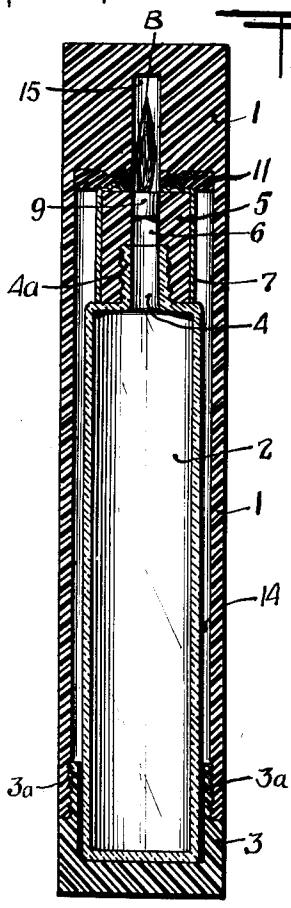


Fig. 2

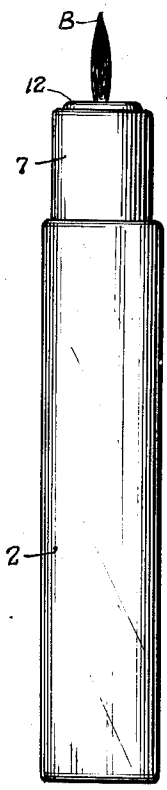


Fig. 3

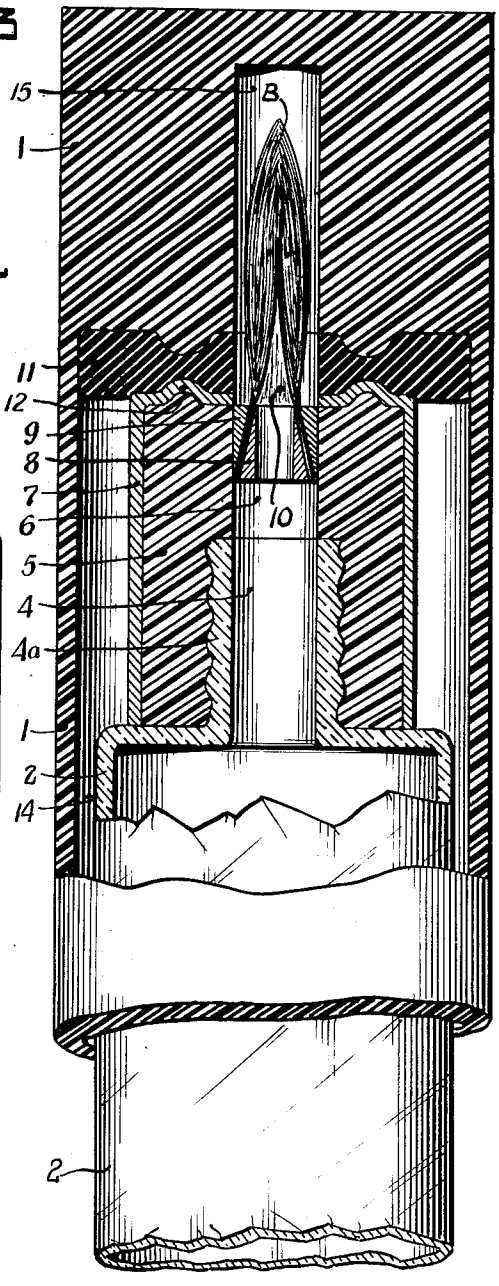
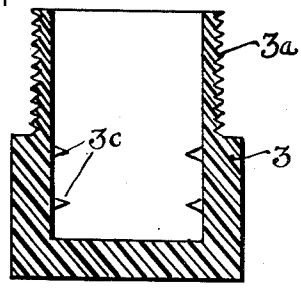


Fig. 4



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FOUNTAIN BRUSH FOR APPLYING LACQUERS

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10 Claims. (Cl. 15—133)

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My invention relates to a new and improved liquid-dispensing device of the fountain brush type for the applicative dispensing of liquid preparations such as nail polishes, nail enamels, nail lacquers, perfumes and other highly volatile liquid preparations.

These liquid ingredient preparations include a liquid or ingredients which evaporate readily, so as to generate a vapor pressure which is sufficient for the purposes of my invention when such liquids are warmed by heat radiated from the hand of the user. Such volatile liquids include acetone, methyl acetone, ethyl formate, methyl-ethyl ketone, and other lacquer solvents. These lacquer solvents are set forth at pages 559–560 of "The Chemistry and Manufacture of Cosmetics" by de Navarre, published in 1941 by D. Van Nostrand Company Inc. Ethyl alcohol and other volatile ingredients of perfumes supply the necessary vapor pressure at low temperature.

According to my invention, I provide a bottle or other deep container cup for such liquid preparations with a dispensing brush or tuft of fibers or bristles which contact with one another at the front or applicative end-portion of said brush. At the rear or mounted end-portion of said brush, I preferably hold and confine said fibers so as to provide and surround a recess of tapered shape in said brush at the rear end portion thereof, said recess being optionally of substantially conical shape. Said recess optionally tapers to a point at the front end of said recess.

I connect the rear end of said brush in a liquid-tight and gas-tight manner in fluid communication with the front end of the interior space of a bottle or other hollow container or magazine shell, which is sealed save at its front end. This bottle is made of glass or other material which has low heat conductivity, and which is highly permeable to heat radiation especially through a thin wall thereof. This bottle is optionally and preferably transparent, in order to have maximum permeability to heat radiation.

When this bottle is held in the hand and inverted, the heat of the hand is quickly transmitted by radiation through the permeable wall of the bottle to the air and vapor and liquid in the interior of the bottle.

The radiated heat rapidly produces enough vapor pressure in the interior of the bottle to enable the liquid to be rapidly applied through the brush when the brush bristles are pressed

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and wiped against one's finger-nail or the like. I have observed that if the bottle is made of metal which is a good conductor of heat, such bottle must be held in the hand during a longer period than when the bottle is made of poorly conductive material. That is, when the bottle is made of metal which is a good conductor of heat and which is relatively impermeable to radiated heat, the entire bottle must be heated before the necessary excess vapor pressure is secured in the interior of the bottle.

When a glass bottle equipped with said brush is inverted and held in the hand in a manner to supply radiated heat to the volatile ingredient or ingredients of the liquid preparation, without subjecting the brush to pressure, some of the liquid preparation will drop from the brush during a short period in the form of one or a few separated drops, as at intervals of five seconds. At the end of this period, the excess pressure in the interior of the bottle will have become zero, and no more liquid will drop from the brush, even if it continues to be held in the hand.

When the bottle is thus inverted and held, the brush becomes partly or completely saturated with the liquid preparation, which can then be forced out of the brush by wiping pressure of the brush against a finger nail.

In ordinary use, the liquid which has been fed to the brush from the magazine shell will be sufficiently dispensed so that when its applicative wiping pressure is stopped none of the liquid preparation will thereafter drop out of the brush. The brush does not provide a perfect air seal. When the container is held upright and deprived of the warmth of the user's hand, enough air will enter through the brush into the interior of the container to provide air pressure in the container which is equal to external atmospheric pressure.

Other objects of my invention will be stated in the annexed description and drawings which illustrate a preferred embodiment thereof in which drawings:

Fig. 1 is a vertical sectional view which shows the container or bottle and its brush applicator located in an enclosing outer casing.

Fig. 2 is an elevation which shows the bottle and its brush applicator removed from the outer casing.

Fig. 3 is an enlarged vertical sectional view, partially in elevation, which illustrates certain parts of the assembled device on a larger scale than Fig. 1.

Fig. 4 is a vertical sectional view which illustrates a modified form of base for the bottle.

The combined device comprises an outer relatively thick walled rigid casing 1 in the nature of a cap or deeply cupped cover which is closed at its top or front end and which is open at its bottom or rear end. This outer casing 1 is made of material which has very low heat conductivity and very low permeability to radiated heat, in order to provide effective heat insulation for the bottle 2. As examples of some suitable materials which can be used for making the outer casing 1, I refer to the polymeric amides known as "nylon," phenolformaldehyde resins, ureaformaldehyde resins and the like. This casing 1 may have a black color, which is preferred. It may have another color.

At and adjacent its bottom open end, the casing 1 is of reduced thickness and it is provided with an internal thread. The rear bottom end-portion of the glass bottle 2 is fixed to a rear or bottom base 3, which is also rigid and made of material of low heat conductivity and low heat permeability. The bottom end-portion of the bottle 2 is fixed in the recess of the bottom rigid base 3 in any suitable manner. For example, I can use adhesive for this purpose. Said base 3 has a reduced end 3*a* whose external thread engages the internal thread at the bottom of casing 1, to provide a tight joint. When the parts are assembled as shown in Fig. 1, the end-wall of casing 1 preferably tightly abuts the shoulder of base 3, and the resultant joint is preferably gas-tight and liquid-tight.

At its top, the bottle 2 is provided with a neck 4*a* which has a bore 4. Said neck 4*a* has an external thread.

The respective threads of neck 4*a* and of flanges 3*a* are opposed, one being right-hand and the other being left-hand. Thus, the thread of neck 4*a* may be a right-hand thread, and the thread of flange 3*a* may be a left-hand thread. The thread of flange 3*a* is preferably of smaller pitch than the thread of neck 4*a*.

The rear or bottom end-portion of the rigid and hollow bushing 5 is of reduced thickness, and it is provided with an internal thread, whereby said rigid bushing 5 can be screwed on neck 4*a* to provide a liquid-tight and gas-tight joint. This bushing 5 has a bore 6, which is alined longitudinally with the bore 4 of neck 4*a* and in effect forms a head for the bottle that is removable therefrom for filling the bottle.

Fig. 2 shows that the bushing 5 is provided with a metal shell 7. This metal shell 7 may be omitted, without departing from the invention, in which case the bushing 5 has the combined shape of the bushing 5 and the shell 7 which is shown in Fig. 1. This bushing 5 may be made of the previously-mentioned resins.

As shown in detail in Fig. 3, the hairs, bristles or fibers of the brush-applicator B form a tuft and are clamped and held in the bore 6 of the bushing 5 by means of a hollow inner metal shell 8 and an outer metal shell 9. The inner shell 8 has a bore of less diameter than the bore 6. The outer wall of the inner shell 8 is of conical or frusto-conical shape. The inner wall of the outer shell 9 is of corresponding shape. The bottom end-portions of hairs or fibers of the brush B are thus clamped between the shells 8 and 9, which have a friction fit in the bore 6 of the bushing 5. If desired, the hairs or fibers of the brush B may be adhesively connected to the adjacent walls of the shells 8 and 9, and the shell 9 may

be adhesively or otherwise connected to the cylindrical wall of the bore 6. I thus provide a brush B which has an upwardly tapered recess 10 at its inner end, said recess 10 being wholly or substantially free or at least partially free from and wholly surrounded by the hairs or fibers of the brush B. The front end of this recess 10 is spaced rearwardly from the tip of the brush B, so that the fibers abut each other above the front end of the recess 10 which tapers to a point. This recess 10 is of substantially conical shape.

At its top, the inner face of the cross wall at the closed end of casing 1 abuts a washer type of gasket 11, which is made of resilient and compressible material, such as vulcanized rubber. The top or front wall of gasket 11 has an annular groove which interfits tightly with a corresponding annular rib or projection of the said inner face of the cross wall of casing 1. It is preferred to mold the gasket 11 to provide it with said front or top anular groove, although said gasket 11 may be molded into ordinary disk shape with front and rear planar faces. In such case the gasket 11 is pressed against the said lateral inner face of casing 1 to compress the gasket 11 into the shape shown in Figs. 1 and 3.

The metal shell 7 is provided with an annular rib 12 which interfits tightly with a corresponding annular groove or recess of the gasket 11. It is optional to mold the rear or bottom wall of the gasket 11 with said annular rib, or to mold said rear wall of gasket 11 into planar shape. As previously noted, if the metal shell 7 is omitted, the bushing 5 has the same shape as the combined bushing 5 and metal shell 7. The bottom face of the gasket 11 which is shown in Fig. 3 is preferably molded into initial planar shape. When the outer casing 1 and the bottom cap 3 are screwed together into their relative positions shown in Figs. 1 and 3, considerable longitudinal force is exerted in an axial direction against gasket 11 so that the annular rib of metal shell 7 is forced into the gasket 11, as illustrated in Figs. 1 and 3.

In such case, when the bottle 2 and its assembled bushing 5 and metal shell 7 are removed from casing 1, the rear or bottom face of gasket 11 resumes its planar shape. The abutting lateral faces of casing 1 and gasket 11 are fixed to each other by adhesive or in any other suitable manner. This gasket 11 provides a very tight joint, which is preferably liquid-tight and gas-tight, between shell 7 and the casing 1.

An air space 14 is provided between the bottle 2 and its bushing 5 and shell 7 and the inner longitudinal wall of the casing 1, in order to increase the heat-insulating effect.

When the parts are assembled, the brush B is located and housed in a front internal cylindrical recess or cavity 15 of the casing 1.

The recess 15 is preferably of the same diameter as the bores 4 and 6. When the device is assembled as shown in Fig. 1, the resilient and compressible gasket 11 is under considerable longitudinal pressure, and the entire brush B is located in recess 15. Said recess 15 is sealed liquid-tight and gas-tight by gasket 11.

Hence, when the assembled device is inverted and even shaken by ordinary transportation, the liquid in bottle 1 does not leak through brush B into recess 15, because the interior of the bottle is kept at the same temperature as the air in recess 15. In such case, the brush B will not be saturated with the liquid and said brush B will remain dry or substantially dry.

When the casing 1 is unscrewed from base 3 and removed from base 3, and bottle 2 is held in the hand and inverted, the heat of the hand causes the liquid rapidly to wet the brush B sufficiently so that said liquid can be deposited freely by the tip of brush B when brush B is wiped under pressure against the receptive surface.

The bristles of brush B may be sufficiently fine and abut one another in a sufficiently dense cluster to provide a liquid-tight or non-drip seal or an almost liquid-tight and non-drip seal in the front or tip-portion of brush B, when said bristles or fibers are in the normal unstressed shape shown in Figs. 1 and 3.

In the modification of Fig. 4, the internal cylindrical wall of the base 3 is provided with vertical rows of internally projecting teeth 3c. By molding the base 3 from nylon, as an example, I provide teeth 3c whose tips can be easily sheared off. The diameter of the outer wall of the bottle 2 is ordinarily more or less irregular. When the bottle 2 is forced longitudinally into final position in base 3, so that the bottom wall of the bottle 2 abuts the inner lateral wall of the base 3, some of these vertically alined teeth 3c will have their tips sheared off more or less, and a tight frictional grip will be secured between said teeth 3c and the wall of the bottle. Therefore, when the casing 1 is removed, the base 3 will remain firmly connected to the bottle 2.

As viewed at the top of Fig. 1, the bushing 5 is screwed into position on the bottle 2, by turning bushing 5 counterclockwise relatively to bottle 2, and casing 1 is screwed into the position shown in Fig. 1, by turning casing 1 clockwise relative to bottle 2 and base 3.

As casing 1 and base 3 approach each other longitudinally, the gasket 11 is gradually longitudinally compressed. This exerts a clockwise or unscrewing torque upon bushing 5, so that it is moved longitudinally towards gasket 11. Since the internal thread of bushing 5 is of steeper pitch than the engaging threads of casing 1 and base 3, the longitudinal sealing pressure on gasket 11, which is fixed to casing 1, is caused mainly by the longitudinal movement of bushing 5 relative to neck 4a.

When casing 1 is thus finally assembled with base 3, their fine interengaging threads provide an air seal, even if the rear end-wall of casing 1 does not abut the shoulder of base 3.

The same partial unscrewing movement of bushing 5 relative to neck 4a is secured if base 3 and bottle 2 are turned in unison relative to casing 1, in order to connect casing 1 and base 3.

When casing 1 and base 3 are in final assembled position, they are detached by turning casing 1 counterclockwise relative to base 3, as viewed at the top of Fig. 1. This exerts a counterclockwise torque on bushing 5, thus moving bushing 5 longitudinally away from gasket 11.

Due to the coarse thread of bushing 5, there is only slight rotary movement of bushing 5 relative to gasket 11, when bushing 5 is thus moved longitudinally forwardly or rearwardly relative to gasket 11.

Hence the assembly of bottle 2 and bushing 5 is automatically elongated when casing 1 and base 3 are connected to each other, and said assembly of bottle 2 and bushing 5 is automatically reduced in length when base 3 is separated from casing 1.

This compensates for irregularities in the respective lengths of bottle 2 and bushing 5, and it reduces wear on the gasket 11.

The internal diameter of bore 4 and bore 6, and the combined length of bores 4 and 6 and shell 8 are an important feature.

In effect, the bore 6 and the bore of shell 8 are extensions of the bore 4, so that it is not necessary to provide a bottle which has a long neck.

When the bottle 2 is enclosed in the casing 1 and base 3 to provide an air-tight seal, after some of the liquid preparation has been dispensed, the interior of the bottle 2 cools to the same temperature as in recess 15. The liquid preparation in the brush B is drawn back into the bottle by the lowering of pressure of the vapor and air in the bottle. A little liquid preparation may remain in brush B. However, while the bottle 2 remains enclosed in casing 1 and base 3, no liquid will drip from the brush B even if the assembled device is inverted, because the recess 15 is hermetically sealed. Some liquid preparation may enter the bore 4—6, if the assembled device is inverted but this bore is sufficiently long of sufficiently small diameter, so that the liquid will not enter the brush, and said liquid will preferably not even enter the shell 9.

If an easy flowing liquid preparation is in the bottle, such as a perfume, the diameter of the bore 4—6 and also of the shell 8 is made sufficiently small, and the length of such bore is sufficiently increased to help retain liquid therein against tendency to flow therethrough by gravity alone.

Also, in such case, the brush B may be made shorter and recess 15 can thus be made shorter.

I have described preferred embodiments of my invention, but numerous changes and omissions and additions can be made without departing from its scope. Thus, the invention is not necessarily limited to the use of base 3, which is fixed to the bottle 2, although this is a preferred element and as hereinbefore proposed, some other kind of container made of material other than glass but possessing the other herein specified physical properties essential to this invention may be substituted for the bottle 2, wherefore the appended claims are directed to and intended to cover all such substitutes and equivalents as come within the broadest interpretation of their terms.

I claim:

1. A leak-proof refillable fountain brush for personal use in applying volatile lacquer color to finger nails of the user, embodying in combination, a magazine shell for holding and feeding therefrom a highly volatile liquid lacquer, said magazine shell being open at one end and of slender elongate shape thereby to serve conveniently as a brush handle, a refill permitting leak-proof nozzle removably mounted on the open end of said magazine shell, an elongate tuft of brush bristles mounted on end in endwise relation to said nozzle in fluid communication therethrough with the interior of said magazine shell, and an elongate deeply cupped cover telescopically encompassing at least a major portion of the length of said magazine shell having a closed end containing a cavity adapted to house at least a portion of the length of said tuft of bristles, said cover at one point in its length having threaded engagement with said magazine shell and at another point in its length cooperating structurally with said nozzle to form an annular seal hermetically isolating said cover cavity from atmospheric

pressure, and means preventing said nozzle from moving relatively to said magazine shell when said cover is removed from the latter by unscrewing from its said threaded engagement therewith.

2. A fountain brush for dispensing highly volatile liquids including a deep elongate cup adapted to contain a highly volatile dispensible liquid and having a barrel forming tubular wall extending from an open end of said cup to a closed end portion thereof housing a storage space for said liquid, a reinforcing base in fixed relation to said closed end portion of said cup, an external screw thread on said base, a closure head removably mounted on said open end of said cup, an annular external seat on said head facing away from said cup, a brush applicator including a tuft of bristles mounted on and projecting from said head concentric with said annular seat, and a deeply cupped protective cap having threaded engagement with said external thread and having a tubular wall encompassing both said cup and said tuft of bristles, said cap being sufficiently larger than said cup in girth to provide a heat insulative annular space extending therebetween from the open end to the closed end portion of said cup and having an internal annular shoulder disposed to be drawn sufficiently close to said annular seat by screwing said cap onto said threads thereby to isolate said storage space from fluid communication with ambient air inside said cap.

3. A fountain brush for finely controllable dispensing of highly volatile liquids, including the combination of, a deep elongate cup adapted to contain a highly volatile dispensible liquid and having a barrel forming tubular wall extending from an open end of said cup to a closed end portion thereof, said wall being made of material which has high heat permeability to radiant heat and sufficiently thin to permit the ready passage therethrough of heat radiated from a user's hand thereby quickly to heat and expand the vapor of a volatile liquid in said cup, a reinforcing base in fixed relation to said closed portion of said cup, an external screw thread on said base, a closure head removably mounted on the open end of said cup, an annular external seat on said head facing away from said cup, a brush applicator including a tuft of bristles mounted on and projecting from said head concentric with said annular seat, and a deeply cupped protective cap having threaded engagement with said external thread and having a tubular wall encompassing both said cup and said tuft of bristles, said cap being sufficiently larger than said cup in girth to provide a protective annular space extending therebetween from the open end to the closed end portion of said cup and having an internal annular shoulder disposed to be drawn sufficiently close to said annular seat by screwing said cap onto said threads thereby to isolate said storage space from fluid communication with air inside said cap and to inhibit heat exchange through said walls between the interior of said cup and ambient air.

4. In combination, a bottle which has a hollow front neck containing a passage therethrough and extending longitudinally forwardly of the body of said bottle, a hollow longitudinal bushing which is external to said neck and which extends forwardly of said neck, said bushing having a bushing-bore which is an extension of the passage of said neck, a brush which extends forwardly of said bushing, the rear end of said brush being fixed to the wall of the bore of said bushing, a base to which the rear end of said bottle is fixed having a base-thread, a casing which is external to said bottle, said casing having a casing-thread at its rear end, said casing-thread being adapted to engage said base-thread to provide an assembly of said casing and said base, said assembly enclosing said bottle, said casing having an inwardly facing cross wall, said casing having a longitudinal recess which extends forwardly from the inner face of said cross wall, a sealing gasket which has a gasket-bore, said recess and said gasket-bore being longitudinally alined with said bushing-bore, said brush extending through said gasket-bore into said recess in said casing, said bushing abutting said gasket and exerting longitudinal pressure against said gasket in said assembly, said neck having an external and longitudinal neck-thread, said bushing having a longitudinal and internal-bushing thread which engages said neck-thread to connect said bushing to said neck, the direction of said bushing-thread being opposed to the direction of said casing-thread.

5. In combination, a bottle which has a hollow front neck containing a passage therethrough and extending longitudinally forwardly of the body of said bottle, a hollow longitudinal bushing which is external to said neck and which extends forwardly of said neck, said bushing having a bushing-bore which is an extension of the passage of said neck, a brush which extends forwardly of said bushing, the rear end of said brush being fixed to the wall of the bore of said bushing, a base to which the rear end of said bottle is fixed having a longitudinal base-thread, a casing which is external to said bottle, said casing having a longitudinal casing-thread at its rear end, said casing-thread being adapted to engage said base-thread to provide an assembly of said casing and said base, said assembly enclosing said bottle, said casing having an inwardly facing cross wall, said casing having a longitudinal recess which extends forwardly from the inner face of said cross wall, a sealing gasket which has a gasket-bore, said recess and said gasket-bore being longitudinally alined with said bushing-bore, said brush extending through said gasket-bore into said recess in said casing, said bushing abutting said gasket and exerting longitudinal pressure against said gasket in said assembly, said neck having an external and longitudinal neck-thread, said bushing having a longitudinal and internal-bushing thread which engages said neck-thread to connect said bushing to said neck, the direction of said bushing-thread being opposed to the direction of said casing-thread, said bushing-thread having a steeper pitch than said casing-thread.

6. In combination, a bottle which has a hollow front neck containing a passage therethrough and extending longitudinally forwardly of the body of said bottle, a hollow longitudinal bushing which is external to said neck and which extends forwardly of said neck, said bushing being connected to the outer wall of said neck, said bushing having a bushing-bore which is an extension of the passage of said neck, a brush which extends forwardly of said bushing, the rear end of said brush being fixed to the wall of the bore of said bushing, a base to which the rear end of said bottle is fixed having a longitudinal base-thread, a casing which is external to said bottle, said casing having a longitudinal casing-thread at its rear end, said casing-thread being adapted to engage said base-thread to

provide an assembly of said casing and said base, said assembly enclosing said bottle, said casing having an inwardly facing cross wall, said casing having a longitudinal recess which extends forwardly from the inner face of said cross wall, a sealing gasket which has a gasket-bore, said recess and said gasket-bore being longitudinally alined with said bushing-bore, said brush extending through said gasket-bore into said recess in said casing, said bushing abutting said gasket and exerting longitudinal pressure against said gasket in said assembly, said casing and said base being made of material which has low permeability to radiant heat and having low heat-conductivity, the wall of said bottle being made of material which has high permeability to radiant heat relative to its heat conductivity, so that the interior of said bottle is heated more quickly by radiant heat than by conducted heat.

7. In combination, a bottle which has a hollow front neck containing a passage therethrough and extending longitudinally forwardly of the body of said bottle, a hollow longitudinal bushing which is external to said neck and which extends forwardly of said neck, said bushing being connected to the outer wall of said neck, said bushing having a bushing-bore which is an extension of the passage of said neck, a brush which extends forwardly of said bushing, the rear end of said brush being fixed to the wall of the bore of said bushing, a base to which the rear end of said bottle is fixed having a longitudinal base-thread, a casing which is external to said bottle, said casing having a longitudinal casing-thread at its rear end, said casing-thread being adapted to engage said base-thread to provide an assembly of said casing and said base, said assembly enclosing said bottle, said casing having an inwardly facing cross wall, said casing having a longitudinal recess which extends forwardly from the inner face of said cross wall, a sealing gasket which has a gasket-bore, said recess and said gasket-bore being longitudinally alined with said bushing-bore, said brush extending through said gasket-bore into said recess in said casing, said bushing abutting said gasket and exerting longitudinal pressure against said gasket in said assembly, said neck having an external and longitudinal neck-thread, said bushing having a longitudinal and internal-bushing thread which engages said neck-thread to connect said bushing to said neck, the direction of said bushing-thread being opposed to the direction of said casing-thread, said casing and said base being made of material which has low permeability to radiant heat and having low heat-conductivity, the wall of said bottle being made of material which has high permeability to radiant heat relative to its heat conductivity, so that the interior of said bottle is heated more quickly by radiant heat than by conducted heat.

8. The combination of, an elongate bottle adapted to contain a dispensible liquid having a highly volatile ingredient, said bottle having a slender girth to be grasped conveniently by a user's hand and having a wall sufficiently thin to be permeable to heat radiated from said hand, a head removably mounted on said bottle containing a passageway affording restricted communication between the interior and exterior of the bottle, said passageway being sufficiently long and narrow to help retain said liquid against tendency to flow therethrough by gravity alone in the absence of liquid expelling force differential between gas pressures inside of and outside of said bottle, said bottle being equipped with an external thread near its closed end most remote from said head, a brush applicator mounted on said head including a tuft of bristles forming a substantially non drip closure for said passageway in the absence of a liquid expelling force differential between said gas pressures, said tuft being sufficiently permeable to air to permit air to enter said bottle when gas pressure inside said bottle is less than atmospheric pressure, and a deeply cupped protective cap having threaded engagement with said external thread and having a wall encompassing both the bottle and said brush applicator, said cap being sufficiently larger than the girth of said bottle to afford a heat insulative annular space therebetween sealed by said threaded engagement, whereby upon occasional use of the bottle for dispensing its contained liquid when said cap is removed from said bottle and the bottle is grasped directly by the hand of the user sufficient heat is radiated from the user's hand inwardly through said thin bottle wall to evaporate the volatile ingredient of the bottle contained liquid thereby to generate in said bottle vapor pressure sufficiently greater than atmospheric pressure to force liquid from said passageway into said brush applicator.

9. The combination of an elongate bottle adapted to contain a dispensible liquid having a highly volatile ingredient, said bottle having a slender girth to be grasped conveniently by a user's hand and having a wall sufficiently thin to be permeable to heat radiated from said hand, a head removably mounted on said bottle containing a passageway affording restricted communication between the interior and exterior of the bottle, said passageway being sufficiently long and narrow to help retain said liquid therein against tendency to flow therethrough by gravity alone in the absence of liquid expelling force differential between gas pressures inside of and outside of said bottle, said bottle being equipped with an external thread near its closed end most remote from said head, a brush applicator mounted on said head including a tuft of bristles forming a substantially non drip closure for said passageway in the absence of a liquid expelling force differential between said gas pressures, said tuft being sufficiently permeable to air to permit air to enter said bottle when gas pressure inside said bottle is less than atmospheric pressure, and a deeply cupped protective cap having threaded engagement with said external thread and having a wall encompassing both the bottle and said brush applicator, said cap wall being sufficiently thicker than said thin bottle wall to be relatively impermeable to heat radiated from the user's hand whereby upon occasional use of the bottle for dispensing its contained liquid when said cap is removed from said bottle and the bottle is grasped directly by the hand of the user sufficient heat is radiated from the user's hand inwardly through said thin bottle wall to evaporate the volatile ingredient of the bottle contained liquid thereby to generate in said bottle vapor pressure sufficiently greater than atmospheric pressure to force liquid from said passageway into said brush applicator, and a gasket interposed axially between said cap and said bottle head to be squeezed therebetween in a manner to make a fluid tight seal when said cap and said bottle are screwed together by means of said threaded engagement.

10. The combination of an elongate bottle adapted to contain a dispensible liquid having a highly volatile ingredient, said bottle having a slender girth to be grasped conveniently by a user's hand and having a wall sufficiently thin to be permeable to heat radiated from said hand, a head removably mounted on said bottle containing a passageway affording restricted communication between the interior and exterior of the bottle, said passageway being sufficiently long and narrow to help retain said liquid therein against tendency to flow therethrough by gravity alone in the absence of liquid expelling force differential between gas pressures inside of and outside of said bottle, said bottle being equipped with an external thread near its closed end most remote from said head, a brush applicator mounted on said head including a tuft of bristles forming a substantially non drip closure for said passageway in the absence of a liquid expelling force differential between said gas pressures, said tuft being sufficiently permeable to air to permit air to enter said bottle when gas pressure inside said bottle is less than atmospheric pressure, and a deeply cupped protective cap having threaded engagement with said external thread and having a wall encompassing both the bottle and said brush applicator, said cap wall being sufficiently thicker than said thin bottle wall to be relatively impermeable to heat radiated from the user's hand whereby upon occasional use of the bottle for dispensing its contained liquid when said cap is removed from said bottle and the bottle is grasped directly by the hand of the user sufficient heat is radiated from the user's hand inwardly through said thin bottle wall to evaporate the volatile ingredient of the bottle contained liquid thereby to generate in said bottle vapor pressure sufficiently greater than atmospheric pressure to force liquid from said passageway into said brush applicator, and a gasket at the end of said bottle most remote from said external thread interposed axially between said cap and said bottle head to be squeezed therebetween in a manner to make a fluid tight seal when said cap and said bottle are screwed together by means of said threaded engagement.

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