Dec. 24, 1935. T. A. HUTCHISON ET AL 2,025,286

BOTTLE CLOSURE WITH BRUSH

Filed April 6, 1933

Fig. 1.

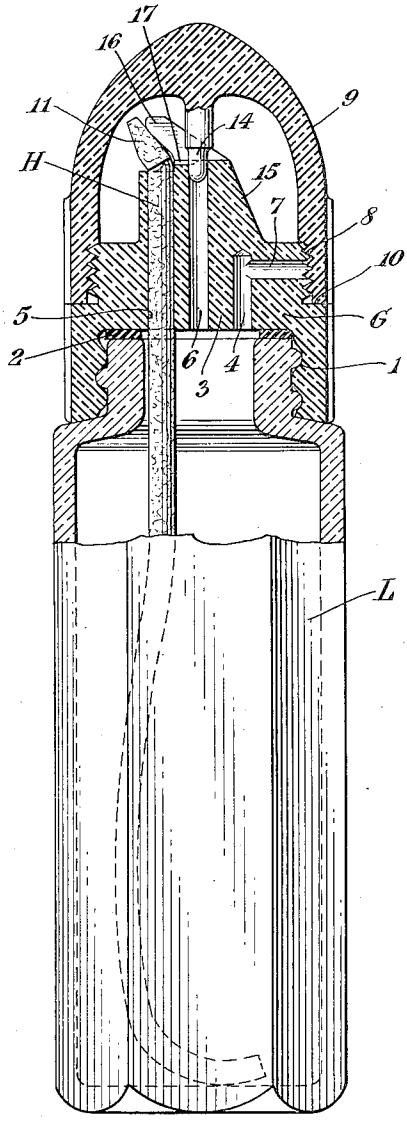


Fig. 2.

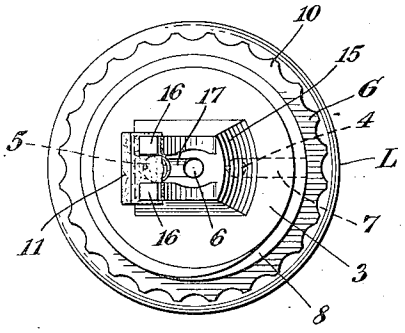


Fig. 3.

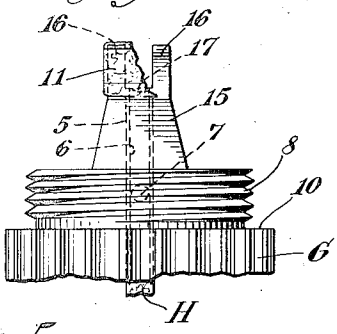


Fig. 5.

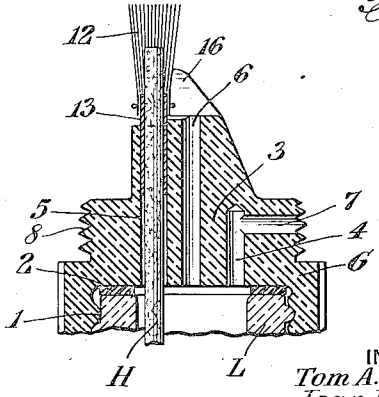
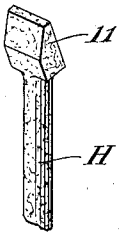


Fig. 4.



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BOTTLE CLOSURE WITH BRUSH

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New York, N. Y.

Application April 6, 1933, Serial No. 664,755

11 Claims. (Cl. 91—67.4)

This invention relates to a bottle closure with brush, the invention being in the nature of an improvement upon the structure shown and described in our pending application Serial No. 644,676.

An object of the present invention is to improve in general the efficiency, practicability and attractiveness of the device.

A further object is to so construct the device that the paint material held by the brush element will be just sufficient at all times for the painting operation.

A further object is to so construct the device as to prevent likelihood of caking, crystallization or solidification of the brush element.

A further object is to so construct the device that a certain quantity of paint material will always be maintained present in the brush element and so that the quantity present may be readily augmented as required.

A further object is to provide efficient means for permitting ingress of air into the bottle as may be required to facilitate the egress of paint material to the brush element.

A further object is to provide efficient sealing means for sealing the bottle against possibility of spilling of the paint material when the device is not in use.

A further object is to provide a brush element of such construction and manner of mounting as to be highly efficient for its purpose.

A further object is to so construct the device that it will include an efficient form of support or back rest for the brush element.

A further object is to so construct the device that the brush element thereof may be either formed wholly of felt or other wick like material, or of a combination of wick like material and bristles.

A further object is to so construct the device that it will include a removable cover adapted when in covering position to provide an efficient seal for air inlet and liquid outlet openings of the device.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of principles constituting the invention; and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawing which is to be taken as a part of this specification, and in which we have shown merely a preferred form of embodiment of the invention:—

Fig. 1 is a vertical sectional view through a device constructed in accordance with this invention.

Fig. 2 is a top plan view of the structure appearing in Fig. 1 but with the cover element removed.

Fig. 3 is a side elevational view of the upper end portion of the device of the previous figures, the cover again being removed.

Fig. 4 is a detail perspective view of the upper end portion of the brush element illustrated in Figs. 1 to 3, and

Fig. 5 is a fragmentary sectional view corresponding with the upper portion of Fig. 1, with the cover removed and a modified form of brush element being illustrated.

Referring to the drawing for describing in detail the structure illustrated therein, the reference character L indicates a bottle or other like container, usually but not necessarily, of glass. This bottle is designed to contain a quantity of liquid to be used by means of the brush element present, such liquid being for instance a liquid finger nail polish or the like.

At the mouth of the bottle is a closure member G usually, though not necessarily, formed separate from the bottle and attached thereto as by means of co-operative threads as at 1, a gasket as 2 being employed to provide a tight seal.

The closure G is intended to be so firmly attached to the bottle as to be substantially immovable with respect to the bottle at all times.

The top wall portion as 3 of the closure G is formed with an opening as 4 therethrough being intended to serve as a vent opening for the admission of air into the container so that liquid from within the container may flow outwardly through the top wall 3 by way of either or both of the outlet openings 5 and 6.

The liquid outlet opening 6 extends vertically through the center of the wall 3. The liquid outlet opening 5 is arranged at one side of the opening 6 in close proximity and in parallel relation to the opening 6. The air inlet opening 4 is arranged at the diametrically opposite side of the opening 6 and is spaced as far from the opening 6 as is permissible within the limits of the parts concerned, that is so that it will not be closed or interfered with by the neck of the bottle or the gasket 2.

The vent opening 4 does not extend vertically through the entire thickness of the top wall 3. It opens through the bottom surface of said top wall at its lower end but its upper end portion

extends horizontally as at 7 and opens radially of said top wall 3, the extension 7 preferably, though not necessarily, lying in the radial plane of a line intersecting the centers of the openings 4, 5 and 6, as clearly indicated in Fig. 2.

The circumferential marginal edge surface of the top wall 3 is formed with threads as at 8 to receive a threaded cover 9 which when threaded onto the closure member overlies the outer open end of the extension 7 and provides a desirable seal for said opening, the extension 7 opening outwardly through the threaded surface 8.

The lower annular edge surface of the cover 9 abuts firmly against an upwardly facing ledge or shoulder as 10 of the closure G and forms a good tight seal therewith thus more efficiently sealing the extension 7 against the outer atmosphere when the cover is attached.

Within the opening 5 is positioned a brush element or "applicator" H. This is preferably made of a wick like material, either felt or woven or knitted or braided absorbent cotton or the like. It is of a length to extend from a short distance above the upper end of the opening 5 downwardly through said opening and into the interior of the bottle and it serves not only as a means by which to apply paint onto a finger nail or other object from the contents of the bottle but also as a wick or capillary suction means for feeding the paint material from the bottle to the exposed outer end for the painting operation.

The lower end of the applicator H may extend entirely to the lower end of the bottle, as illustrated, or it may stop short of the lower end of the bottle, as desired.

The upper exposed end of the applicator may be of the same cross sectional contour as the remainder of the applicator but it is preferably enlarged to form a head as 11 serving the double purpose of limiting the inward movement of the applicator into the opening 5 and providing a desirably broad surface to serve as a brush for the better and smoother application of the paint onto the user's finger nail or other object.

If desired a bristle brush portion as shown at 12 in Fig. 5 may be applied onto the upper end portion of the applicator, in lieu of the head 11. Such bristles may be applied directly onto the felt or like material of the applicator, but preferably are fastened onto a separate tubular sleeve as 13 which may be inserted into the upper end portion of the opening 5 and through which the felt or like material of the applicator may extend as clearly illustrated in Fig. 5.

The cover 9 is preferably formed with a central plug as 14 interiorly thereof adapted for plugging into the upper end of opening 6 when the cover is screwed home on the closure G.

The upper surface of the top wall 3 of the closure G is preferably formed with an upwardly extending part as 15 through which the openings 5 and 6 are formed, said extension giving a desirably projecting contour to the upper end of the closure and placing the head portion 11 of the applicator in a position suitably spaced beyond the main body or top wall portion 3 of the closure so as to be more readily and conveniently used for the painting operation.

One or more suitable back rests as 16 are provided at the upper end of the extension 15 and continuing upwardly and in such relation to the open upper end of the opening 5 as to serve in supporting the head 11, or the brush 12 as the case may be, of the applicator for thereby holding said head, or brush, in a desirable and efficient position for best accomplishing the painting operation. In the instance illustrated the back rests consist of two spaced projections or fingers 16—16 spaced apart at opposite sides of the radial plane of a line intersecting the centers of the openings 5 and 6, and they constitute walls extending from the upper end of the opening 6 to the upper end of the opening 5, and to the relatively back surface of the head portion of the applicator, said walls defining a channel along which paint or the like from the opening 6 will flow naturally toward the opening 5 and onto the head portion of the applicator during the use of the device as presently referred to.

If desired a shallow additional channel as indicated at 17 may be provided in the upper end surface of the extension 15 connecting the upper ends of the openings 5 and 6 for improving and making more positive the direction of flow of liquid from the opening 6 to the applicator in opening 5.

The fingers 16 are preferably disposed, with respect to the opening 5, so that they will hold the head 11 of the applicator slightly inclined as indicated, thereby disposing the extreme edge portion of the applicator in a highly desirable position for use in the painting of a finger nail or the like.

While the applicator H is above referred to as, and preferably is, of the character of a wick extending into the liquid within the bottle and capable of drawing up said liquid, as by capillary attraction, into the head 11, yet it will be understood that the invention is not limited in this respect beyond the scope of the claims forming part thereof, since even if the applicator be made so short as not to extend through the opening 5 and into the bottle yet if the bottle be tipped up so that liquid from the bottle will come into contact with the lower end portion of the applicator then the applicator will feed a certain portion of this liquid upwardly into the head 11 for the painting operation.

In the use of this device, the operator, having removed the cover 9, tips over the bottle to a suitable degree, with the applicator on the lower side, convenient for the painting operation, but not necessarily so far as to cause any of the liquid to flow outwardly through the opening 6. The inclined position will facilitate the capillary movement of liquid toward the head 11 of the applicator, and the degree of inclination of the bottle may even be such as to introduce the liquid directly at the lower end of the opening 5 so that the movement of the liquid through the applicator to the head 11 will probably be in a sufficient amount for the painting operation. If however the head 11 does not by this time carry sufficient of the liquid for the painting operation the operator merely tips the bottle a little further and continues to increase the degree of inclination, until a small portion of the liquid flows out of the opening 6 and along the channel, between the fingers 16—16, directly onto the head 11.

It is to be particularly noted that this free quantity of liquid which has been delivered directly onto the head 11 is applied onto the relatively rear surface of said head and not directly onto the front or painting surface of said head. It percolates around and through the head before reaching the front or painting surface of the head, and is thereby prevented from forming an objectionable puddle on the work.

The tight seal of the cover 9 with the body of the closure, as hereinabove described, provides a

thoroughly sealed enclosure for the head 11, and this is an important consideration in combination with the character of the applicator illustrated and described. By reason of the wick like character of the applicator the applicator constitutes a sort of pump constantly feeding moisture into the enclosure within which the head of the applicator is sealed when not in use, and in the presence of this moisture the paint material is not likely to congeal or solidify or crystallize as would likely be the case if the head of the applicator were left exposed to a circulation of air.

It is pertinent to note in this connection that the openings 4 and 6 are tightly sealed when the cover 9 is in place, and this is necessary to prevent objectionable leakage in case the bottle should be accidentally up-ended. The presence of the applicator within the opening 5 constitutes a sufficient seal for opening 5 in this emergency.

In some instances it may be desirable to dispense with the function of the applicator as a capillary suction means for feeding liquid from the receptacle to the head or brush portion 11—12. The lower end of the opening 5 may even be closed to the receptacle, said opening being in that case only a depression or seat within which to position and hold the applicator so that the upper end of the applicator will occupy an appropriate position for the painting operation.

In this event the only liquid which will reach the applicator will be that which flows outwardly through the opening 6 and onto the head of the applicator.

As many changes could be made in this construction without departing from the scope of the invention as defined in the following claims, it is intended that all matter contained in the above description, or shown in the accompanying drawing, shall be interpreted as illustrative only and not in a limiting sense.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A device of the class described comprising a receptacle and a closure therefor having an air inlet opening and a liquid outlet opening spaced from the air inlet opening, an applicator at said liquid outlet opening to receive liquid therefrom for use, a second liquid outlet opening adjacent to said first liquid outlet opening to supply liquid for said applicator, and a single detachable cover having spaced parts operable respectively when the cover is attached to seal said air inlet opening and said second mentioned liquid outlet opening.

2. A device of the class described comprising a receptacle and a closure therefor having an air inlet opening and a liquid outlet opening spaced from the air inlet opening, an applicator at said liquid outlet opening to receive liquid therefrom for use, a second liquid outlet opening adjacent to said first liquid outlet opening to supply liquid for said applicator, and a single detachable cover having spaced parts cooperative with the closure when the cover is attached to seal both said air inlet opening and one of said liquid outlet openings and to provide a sealed enclosure for said applicator.

3. A device of the class described comprising a receptacle and a closure therefor having an air inlet opening and a liquid outlet opening spaced from the air inlet opening, an applicator at said liquid outlet opening to receive liquid therefrom for use, a second liquid outlet opening adjacent to said first liquid outlet opening to supply liquid for said applicator, and a single detachable cover having spaced parts co-operative with the closure when the cover is attached to seal both said air inlet opening and said second mentioned liquid outlet opening and to provide a sealed enclosure for said applicator.

4. A device of the class described comprising a receptacle and a closure therefor having an air inlet opening and a liquid outlet opening spaced from the air inlet opening, an applicator at said liquid outlet opening to receive liquid therefrom for use, said closure having an exteriorly threaded portion adapted for the attachment of a cover element, a separately formed cover element having an interiorly threaded portion adapted for threaded attachment to the threaded portion of the closure, and at least one of the mentioned openings of the closure extending through the threaded surface of the closure and adapted to be closed by the threaded portion of the cover when the cover is applied.

5. A device of the class described comprising a receptacle and a closure therefor having an air inlet opening and a liquid outlet opening spaced from the air inlet opening, an applicator at said liquid outlet opening to receive liquid therefrom for use, and said applicator consisting of a wick-like member extending through said liquid outlet opening having one of its end portions projecting outwardly beyond the outer end of said liquid outlet opening and enlarged to provide a head thereon, together with means engaging said head and holding said head inclined laterally for the purpose set forth.

6. A device of the class described comprising a receptacle and a closure therefor having an air inlet opening and a liquid outlet opening spaced from the air inlet opening, an applicator within said liquid outlet opening to receive liquid therefrom for use, the closure having a second liquid outlet opening spaced at one side of the first liquid outlet opening, said applicator consisting of a separately formed member continuing beyond the first liquid outlet opening, and a back rest provided upon the closure positioned to engage and support said applicator and to extend as a wall across the surface of the closure between the two liquid outlet openings adapted to serve in conducting liquid across said surface to the applicator from said liquid outlet opening.

7. A device of the class described comprising a receptacle and a closure therefor having an air inlet opening and a liquid outlet opening spaced from the air inlet opening, an applicator at said liquid outlet opening to receive liquid therefrom for use, said applicator consisting of a separately formed member continuing beyond said liquid outlet opening, and a back rest provided upon the closure consisting of a pair of fingers spaced apart and positioned to engage and support said applicator.

8. A device of the class described comprising a receptacle and a closure therefor having an air inlet opening and a liquid outlet opening spaced from the air inlet opening, an applicator at said liquid outlet opening to receive liquid therefrom for use, said applicator consisting of a separately formed member continuing beyond said liquid outlet opening, and a back rest provided upon the closure positioned to engage the applicator and to hold it in a relatively inclined position.

9. A device of the class described comprising a

receptacle and a closure therefor having an air inlet opening and a liquid outlet opening spaced from the air inlet opening, an applicator adjacent to but spaced from said liquid outlet opening, a back rest provided upon the closure positioned to engage and support the applicator, and said back rest being shaped to provide a pair of walls spaced apart and defining a channel extending between said liquid outlet opening and said applicator for conducting liquid from said liquid outlet opening to said applicator.

10. In a device of the character described, a receptacle closure having a liquid outlet passage extending axially therethrough, an applicator carried by the closure and laterally spaced from the outer end of said passage, spaced parts integrally formed with the closure for directing liquid from said passage upon the applicator, and means movably connected with the closure, receivable between said spaced parts to seal the outer end of said passage.

11. In a device of the character described, a receptacle closure having a liquid outlet passage, an applicator of flexible absorbent material, carried by said closure and projecting beyond the discharge end of said passage, in laterally spaced relation thereto, and means on said closure coacting with the applicator to retain the same in an obliquely inclined position relative to said passage.

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