May 14, 1957 D. C. SMITH ET AL 2,791,789

BRUSH HAVING BRISTLES SERVING AS A VALVE

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Fig. 1.

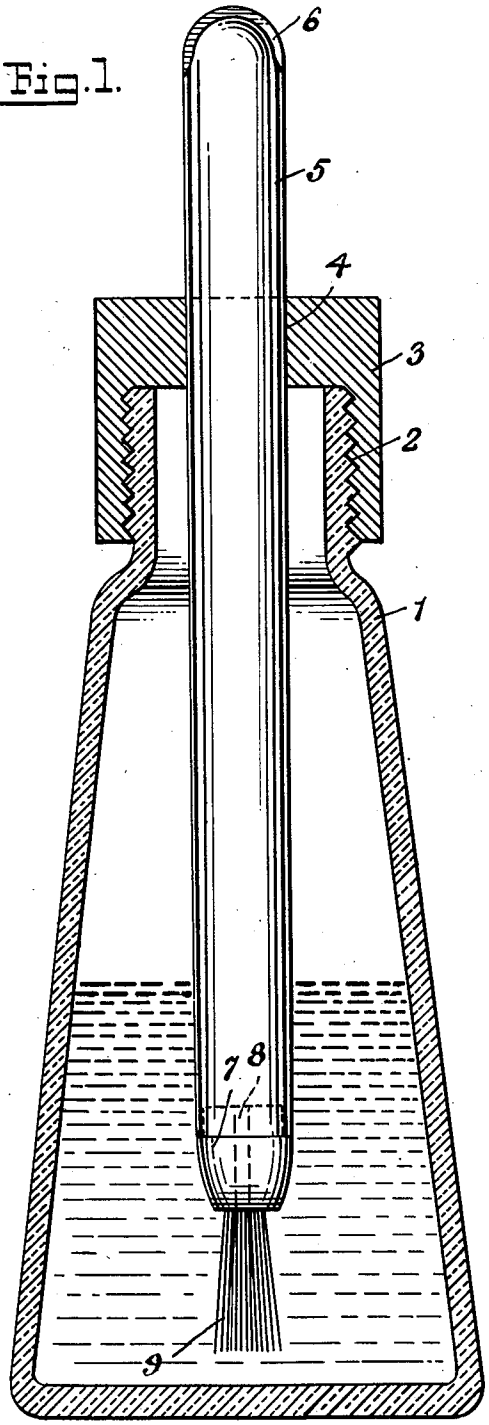


Fig. 2.

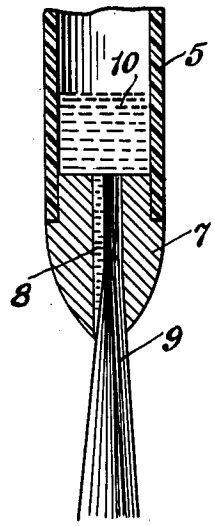
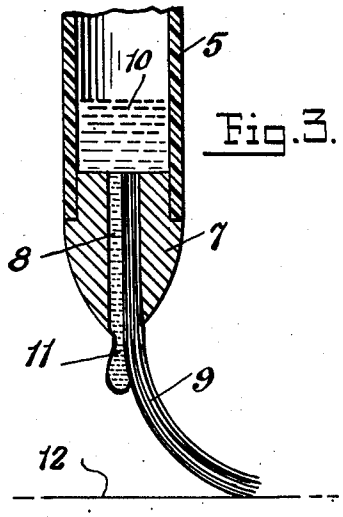


Fig. 3.



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BRUSH HAVING BRISTLES SERVING AS A VALVE

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1 Claim. (Cl. 15—136)

This invention relates to brushes or applicators for liquids and especially those of the viscous type, such as nail enamels, mucilage, glue, paint or other products of similar characteristics.

It is an object of the invention to provide a brush or applicator which when used for nail enamel or the like, can be charged with a sufficient quantity of the liquid to enable all of the finger nails on both hands to be coated without requiring redipping of the brush into the bottle to which it is attached.

It is an other object of the invention to provide, in a device of this character, means by which drip or loss of the fluid from the brush is effectively prevented while the device is not in use. It is still another object of the invention to provide means by which the feed of the fluid to the bristled end of the brush will be facilitated when the bristles are applied against the surface to be coated.

More particularly, the invention contemplates the provision of a tubular, compressible stem closed at one end and adjustable through a bottle closure, the opposite end of the stem carrying bristles and having an opening or port so arranged with respect to the bristles that the bristles act to normally close said port to an extent to prevent drip therefrom. When the bristles are flexed, as by the application of the same against a surface, such as the finger nail, the bristles will be forced away from the port so that the liquid can flow therethrough and reach and coat the bristles for application by the same to the finger nail or other object intended for the reception of the coating.

With these and other objects to be hereinafter set forth, in view, we have devised the particular arrangement of parts to be described and more particularly pointed out in the claim appended hereto.

In the accompanying drawing, wherein an illustrative embodiment of the invention is disclosed,

Fig. 1 is a vertical sectional view through a bottle in which the improved applicator or brush has been applied;

Fig. 2 is a vertical sectional view through the bristled end of the applicator, and

Fig. 3 is a similar sectional view, showing how the liquid reaches the bristles when the bristles are flexed by application of the same to a surface to be coated.

Referring to the drawing, 1 indicates a bottle or similar receptacle such as is commonly used for containing finger nail enamel or other slightly viscous liquid. In the form shown, the bottle 1 is provided with an externally screw-threaded neck 2, on which is threadably received a closure cap 3 to normally close the bottle. The cap 3 is provided with a centrally located opening 4, through which snugly, but slidably, fits the tubular stem 5 of the brush or applicator.

The stem 5 is preferably, but not necessarily, composed of flexible and compressible material, such as plastic, rubber or the like, and while it is readily compressible between the fingers, it is of sufficient stiffness to provide a rod-like tubular member capable of constituting the handle or shaft of the brush or applicator.

One end of the tubular stem 5 is closed or sealed as indicated at 6, such sealing being preferably, but not necessarily, effected by bringing the walls of the tube or stem 5 at the end of the stem together by fusion. This sealed and closed end 6 of the stem 5 is disposed externally of the cap 3 as shown in Fig. 1.

The opposite end of the stem 5 may be in the form of a plug 7, tending to close said end except for a port or passage 8 extending through said plug, and serving as a communicating passage between the hollow interior of the stem 5 and atmosphere. Mounted in the plug portion 7 and preferably to one side of the longitudinal center line of the plug, is a bristle bunch 9, which is in such a position relative to the outer end of the passage or port 8 that the bristles thereof normally extend over and close said end of the port 8, at least to such an extent as to normally prevent drip from the discharge end of said port from the interior of the stem. It will be noted from Fig. 3 that when the bristles are being applied against a surface 12 which might be a finger nail in the event that finger nail enamel is being used, the bristles 9 will be flexed and be thus caused to be sprung away from the discharge end of the port 8. When this occurs, the liquid 10, then contained within the hollow interior of the stem 5, will readily flow down and out of the port 8, as indicated at 11 in Fig. 3, to charge the brush with the liquid.

In the use of the brush or applicator, the stem may be filled or partly filled with the fluid, by squeezing the stem and releasing the pressure on it to cause the liquid to flow up through the port 8 and into the interior of the stem. This filling action may be facilitated by pushing the brush downwardly through the opening 4 in the cap until the bristles are flexed against the bottom of the bottle and caused to be sprung away from the end of the port 8, thus allowing the liquid to be drawn upwardly through said port and into the interior of the stem.

The liquid-charged stem is then removed with the cap remaining attached to it, and the enamel applied. As the bristles are flexed in the manner shown in Fig. 3, during use of the brush, the fluid 10 will readily flow downwardly and out of the discharge end of the port 8 to keep the bristles constantly charged with the liquid, so that all of the finger nails on both hands can be readily coated without requiring dipping of the brush. When pressure on the bristles is ceased, the bristles will then spring back to their normal position as shown in Fig. 2, to thereupon close the discharge end of the port 8 to an extent as to prevent the flow or drip of the liquid 10 out of the same.

Having described one embodiment of the invention, it is obvious that the same is not to be restricted thereto, but is broad enough to cover all structures coming within the scope of the annexed claim.

What we claim is:

An applicator of the character described comprising, a receptacle having a closure cap formed with a central aperture, a handle member of tubular flexible material slidable through the aperture, said handle member being closed at one end and having a plug fitted in its other end, said plug having a central axial passage of less diameter than the internal diameter of the handle member, a bunch of bristles having one end anchored in the passage and only partially blocking the same whereby viscous fluid located within the handle can flow through said passage in contact with the anchored portions of the bristles, the bunch of bristles flaring as it leaves the end of the plug whereby the flared portions of the bristles by their spreading serve to operate as a valve to close the end only of the axial passage, the handle member being slidable through the closure cap to enable the bristles to be flexed by contact against the bottom of the receptacle to thereby cause opening of the end of the passage to allow

contents of the receptacle to be drawn into the handle, said bristles also permitting outflow of the contents of the handle through the passage upon pressure of the ends of the bristles against a surface on which the fluid is to be applied.

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