April 19, 1949. J. E. WARD 2,467,570

NAIL PAINT APPLICATOR

Filed March 20, 1947

Fig. 1.

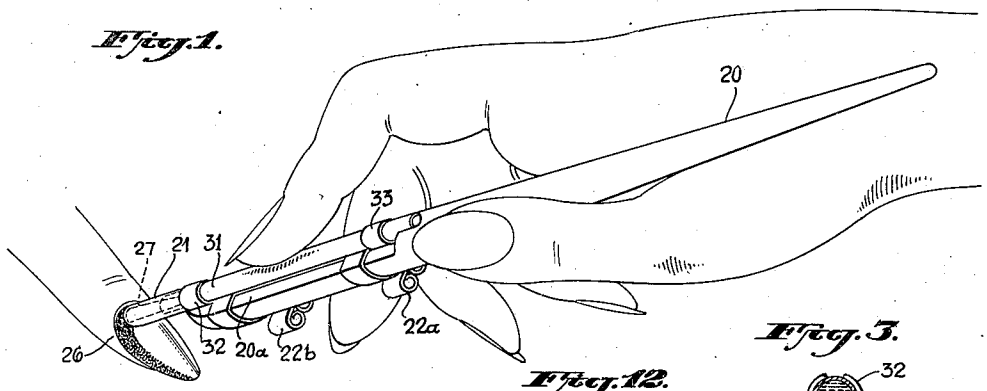


Fig. 12.

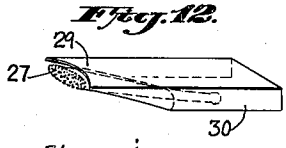


Fig. 3.

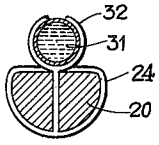


Fig. 2.

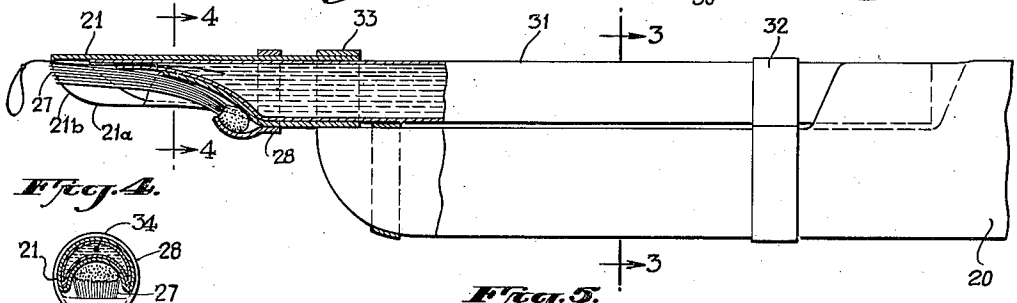


Fig. 4.

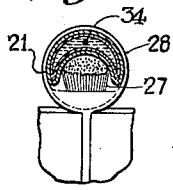


Fig. 5.

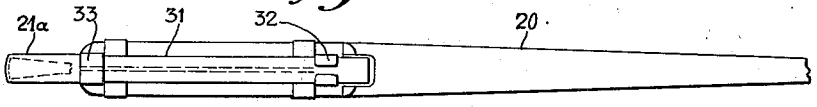


Fig. 6.

Fig. 9.

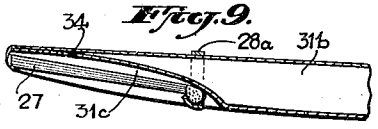


Fig. 10.

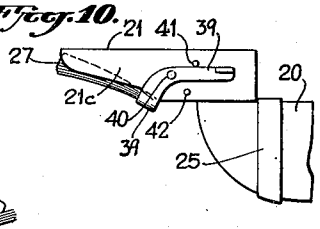


Fig. 7.

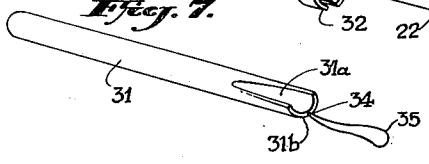


Fig. 11.

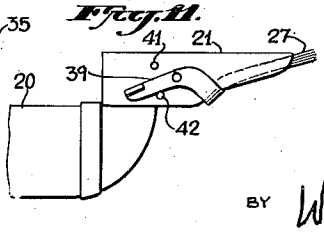
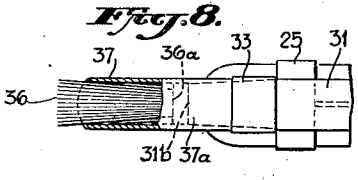


Fig. 8.



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NAIL PAINT APPLICATOR

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Application March 20, 1947, Serial No. 735,913

20 Claims. (Cl. 132—74.5)

1

This invention relates to a manicure device, and more particularly to a fountain applicator for fluid such as paint which is adapted for treating the finger nails.

Devices of this character have heretofore been suggested which have attempted to provide means for avoiding the smearing of nail paint upon the flesh surrounding the nail.

Also, applicators of this character have heretofore been suggested which have been termed "fountain" applicators but which have had the serious disadvantage of having the fluid therein clog frequently. Fountain applicators have been employed previously for applying various cosmetic preparations in addition to nail paint, such as lip rouge, lacquer and the like. Many preparations of this type require a highly volatile solvent or vehicle in order to induce quick drying. Such preparations have a tendency to dry and to harden adjacent the outlet of the container, thereby clogging same.

Furthermore, such devices heretofore suggested employing the preparations of the above type have not only been subject to a hardening or drying of the preparations near the outlet of the container but the air entering the outlet of the container has tended to harden the entire contents or to make same too viscous. This, of course, makes it necessary frequently to replace the hardened or the extra viscous fluid, thereby causing considerable waste.

Also, applicators which have been employed in the past have failed to provide a proper guard or guide to assist in moving a brush attached thereto in a proper mannner whereby a smearing of fluid is avoided. A person having unsteady hands employing previous devices may never be able to accomplish a satisfactory application of, for example, nail paint.

According to the present invention, apparatus is provided which will eliminate the above noted difficulties.

The invention in one aspect thereof comprises a brush which is partially enclosed by an arcuate shield. The latter is so constructed and arranged that it overhangs or overlaps the sides of the brush. The sides of the shield which so overhang or overlap preferably are in spaced relation to the sides of the brush. The tips of both the shield and the brush preferably are in alignment and in contact with one another. That is, the brush extends up to the tip edge of the arcuate shield. A removable and expendable cartridge or container or fluid such as nail paint is employed with the above shield and brush and is associated

2

therewith in such a manner that the outlet of the container is interposed, preferably between the shield and brush. The volume of material which the container can hold preferably is sufficient for a single application of such fluid, for example, to ten finger nails. After one complete application, the container may be disposed of, thereby avoiding a clogging of fluid in such a container which normally is caused by long exposure to air. The container preferably is provided with a minute orifice which may be opened by withdrawing therefrom a small fibrous member such as a thread. The extremity of the container which is associated with the shield and the brush preferably is formed into an arcuate contour somewhat similar to the contour of the shield, thus facilitating the insertion of such an extremity in between the shield and the brush. The fibrous member preferably extends from this extremity.

Various further and more specific objects, features and advantages of the invention will clearly appear from the detailed description given below taken in connection with the accompanying drawings which form a part of this specification and illustrate, by way of example, preferred arrangements of apparatus for carrying out the invention. The invention consists in such novel combinations of features and apparatus as may be shown and described in connection with the device herein disclosed.

In the drawings:

Figure 1 is a perspective view illustrating one embodiment of the present invention in operation;

Fig. 2 is a side view, partly in section and with parts broken away, of the embodiment shown in Fig. 1;

Fig. 3 is a sectional view taken along line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken along line 4—4 of Fig. 2;

Fig. 5 is a top plan view of the device illustrated in Fig. 2;

Fig. 6 is a perspective view illustrating the novel shield shown in Fig. 1 attached to a rigid support therefor, said shield and support being shown in spaced relation to a handle or pen stock with which it is associated;

Fig. 7 is a perspective view of a flexible container for a nail treating fluid such as nail paint or cuticle remover or the like;

Fig. 8 is a top view, partly in section and with parts broken away, of a stiff cuticle brush com-

prising a second embodiment of the present invention;

Fig. 9 is a side view, partly in section and with parts broken away, of a flexible container having associated therewith a brush for the application of the contents of the container;

Fig. 10 is a side elevation with parts broken away, illustrating a third embodiment of the invention;

Fig. 11 is a view of the embodiment shown in Fig. 10 in a different operating position; and

Fig. 12 is a perspective view of a somewhat different type of shield which may be employed with the present invention.

As illustrated in Figs. 1 and 2, the novel device is associated with a suitable means for adapting same for easy manual use. A rigid handle **20** is provided which may be in the general contour of a pen stock or shaft. The latter may be grasped as shown in Fig. 1.

A novel shield, to be described more fully hereinafter is provided as at **21** and is preferably removably associated with the pen stock **20**. Suitable means for detachably securing the shield to the pen stock or handle are provided, for example, comprising a shield support or shield base **22** (Fig. 6). The latter comprises a rigid elongated flat plate which is adapted for being held within a slot **23** of the pen stock **20**. Ferrules or bands **24** and **25** (Fig. 6) may be secured to the shield support at suitable intervals therealong in order to hold the shield support within the slot **23**. Thus the shield with its base **22** may be easily detached from the pen stock and may be replaced with cuticle brush means to appear hereinafter. Feet or supports **22***a*, **22***b* (Fig. 1) comprising, for example, short cylindrical members rigidly secured to ferrule **24** may be provided upon which the device may rest when temporarily not in use.

In order to prevent a smearing of a fluid such as nail paint upon a cuticle **26** and in order to provide a safe and dependable guide for fluid application to assist persons having unsteady hands and, of course, those having normally steady hands, the above mentioned shield **21** is provided for a brush **27**, comprising a plurality of elongated fibrous members or hairs secured to a common base. The latter is preferably mounted beneath the arcuate shield as viewed in Figs. 1 and 2 whereby it is partially enclosed by the shield.

The novel shield preferably is a cylindrical surface. The term "cylindrical surface" as employed herein has its normal geometrical meaning. The directrix of the cylindrical surface which defines the novel shield described herein, is preferably an open curve.

One example of the novel shield is shown in section in Fig. 4 wherein it comprises a section of a circular cylinder. The cylinder is not limited to a circular one. In general, the novel shield is an arcuate member which is adapted for overlapping or overhanging the brush **27** as shown in Fig. 2. The brush **27** is, of course, substantially in alignment with the arcuate shield. It is longitudinally narrower than the shield whereby the above mentioned overlapping or overhanging takes place. As shown in Figs. 2 and 5, shield portions **21***a* overlap or overhang the brush **27**. This is important because there are thus provided members which are spaced from the brush which members (**21***a*) may be employed for thrusting back the cuticle or the flesh surrounding the nail whereby a fluid may be applied to the nail without the fluid touching the flesh. When a colored paint is employed, the overhanging portions **21***a* are effective to prevent a smearing of the paint upon the cuticle. Thus, it provides a rigid and easily handled guide for the movement of the brush and serves the additional function of a guard for pushing back the flesh where desired.

It is desirable for the free end (as opposed to the butt end) of the brush **27** to be coterminous with the shield. In other words, the tips of the brush and the shield should be substantially in alignment with one another.

It may become desirable and necessary to remove and replace the brush **27**. Suitable means are provided for conveniently removing and replacing said brush comprising, for example, a brush securing collar **28** (Figs. 2 and 6) which may be moved axially of the shield **21** and which may, in the position shown in Fig. 1 urge the base or butt end of the brush into a small recess formed adjacent the inner extremity of the shield. In order to remove the brush, it is necessary only to slide the collar **28** from the position shown and to lift the brush therefrom.

One extremity of the shield is beveled as at **21***b* (Fig. 2). This beveling permits and facilitates a contact between the tip of the brush and the nail. The shield, of course, may be constituted by a section of a cylindrical surface, the section being formed by a plane which is oblique to the axis of the surface.

As shown in Fig. 2, the butt end of the brush **27** is in spaced relationship to the peak of the shield. The significance of the position of said butt end is that it permits the insertion of an extremity of a fluid container between the brush and shield.

A flexible removable and disposable cartridge or container may be associated with the novel shield and brush as at **31** (Fig. 2). Said container may be, for example, of elongated cylindrical contour and may be fabricated from paper or plastic or some suitable material.

It is desirable to support the container **31** in alignment with the shield **21** and the brush **27**, and for the container to rest adjacent a pressure surface **20***a* (Fig. 1) against which it may be pressed by, for example, the forefinger as illustrated in said Fig. 1.

Suitable means are provided for supporting the container **31** in this manner comprising aligned sleeve members **32** and **33**. These are substantially coaxial with the shield **21**.

Adjacent the inner extremity of the shield **21**, there may be attached a so-called conduit member or a tubular hollow member. This conduit is adapted for receiving and guiding the outlet extremity of the container **31** whereby the latter may be moved easily between the shield **21** and the brush **27**.

It is desirable for that extremity of the container **31** which is to be adjacent the shielded brush to be formed into an arcuate or concave shape as shown at **31***a* in Fig. 7. Thus the insertion of the container is facilitated, and the concave portion **31***a* is adapted for receiving the portion of the shield which supports the butt end of the brush.

In order to provide a suitable orifice for the container **31** which may be readily opened and which will be sufficiently small to avoid a flooding of material therefrom, a fibrous member such as a thread **35** is sealed into extremity **31***b*. The thread may be looped and sealed by wax into said extremity. Any suitable frangible fluidproof or sealing material may be employed at extremity **31***b* into which thread **35** extends.

Withdrawal of the fiber **35** provides a small

opening as at 34 (Fig. 4) from which the nail paint or the like may be extruded by means of finger pressure. Of course, it is possible for the contents of the container to pass through the outlet by virtue of gravity or capillary action.

A consideration of Fig. 2 indicates that the contents of the cartridge 31 may be extruded therefrom or may flow therefrom upon the brush at a point intermediate the extremities thereof. This is a preferred embodiment of the invention. However, of course, it may be possible to feed a fluid from such a container into a conduit at a point somewhat removed from the brush and the conduit may lead the fluid to the brush and shield.

A feeding of fluid directly from a disposable cartridge to a point intermediate the brush extremities, as shown in Fig. 2, has the great advantage of providing a direct flow of liquid or fluid onto a brush which is guided by a shield. The latter may assist in moving the fluid along the brush, for example, by capillary action. Moreover, a hardening or caking of material in a conduit is avoided because the disposable container itself constitutes the conduit for leading fluid up to the shield and brush. A caking or hardening of fluid in the brush 27 may be overcome easily by soaking the brush in a suitable chemical. However, the clearing of a small conduit in which paint or the like has hardened cannot be easily accomplished without suitable reaming tools. The use of such tools is an inconvenience and should be avoided. The device above described avoids such a necessity and provides a positive and direct feed of paint or the like to the device.

The portion of the brush which may contact the finger nail is of importance and comprises the bottom or undersurface of the brush as viewed in Fig. 2 and, of course, the tip of the brush. Not all of the bottom surface of the brush (Fig. 2) may contact the finger nail but a sufficient portion thereof may accomplish this to provide a positive painting contact whereby a suitable quantity of liquid may reach the nail promptly. Because of the above mentioned guard or guide members 21*a*, this paint can not reach the cuticle and the latter may be pressed back to avoid contact with the paint. Moreover, the cuticle may be pressed back and the paint may be applied up to the normal border of the cuticle or scarf flesh.

In the embodiment of Fig. 8 a cuticle brush is provided which comprises a stiff, hard group of bristles which may be held in alignment with the pen stock 20 in substantially the same position as the shield 21. A group of stiff bristles is shown as at 36 which extend considerably beyond a ferrule 37 which holds the bristles. Said ferrule is in substantially the same position as the shield 21. A tubular portion 37*a* is formed at the inner extremity of the member 37 and into which a removable cartridge of cuticle treating fluid may be inserted, and may be opened in a manner similar to that of container 31. Fluid can flow to the brush through the base thereof as at 36*a*.

In accordance with one form of the invention it is possible to secure the brush 27 (Fig. 9) directly to a container 31*b* within a concave portion thereof as 31*c* which is similar in shape to the above described arcuate shield of Figs. 1 and 2. Such a container 31*b* must have sufficient rigidity to support the brush and to provide a shield which can perform the functions of shield 21. However,

it may have sufficient flexibility, at least long a part thereof, to enable extrusion of the contents by, e. g., finger pressure.

A band 28*a* may be employed for securing the brush to the container 31*b*. The container outlet instead of being located at the tip thereof preferably is located at 34*a* which is above and intermediate the extremities of the brush. The container 31*b* may be removably secured to the pen stock 20 by suitable means.

In order to expedite and also to facilitate the spreading of nail paint or in order to aid in cleaning the brush 27, it may be desirable to extend said brush beyond the tip of the shield. This may be done when it is desired to paint relatively large areas of nail which are not closely adjacent to the cuticle or flesh. Also, it may be desirable to make a small adjustment in the position of the tip of the brush and the tip of the shield.

Suitable means are provided for the above purpose comprising, for example, a movable support for the brush which, as shown in the embodiment of Fig. 10, is pivotally mounted upon the shield 21. Such a support is illustrated at 39 and is pivotally mounted at 40, the brush 27 being secured by suitable means to a central portion of the support 39. The latter, in the form shown, is substantially a U-shaped member with the brush secured at the center thereof. As shown in Fig. 10, the movable support 39 is in its normal position wherein the use thereof most commonly may occur.

In order to define the limits of motion of the member 39, suitable limit stops as at 41 and 42 may be provided against which the member may abut in its extreme postions. Another form of the shield is shown in Fig. 12 and includes a member 29 of arcuate cross-section having sides 30 which are not in curved alignment therewith as are analogous portions 21*a* of shield 21. The shield of Fig. 12 is somewhat in the shape of a channel member having a bottom of arcuate cross-section. Sides 30 overlap or overhang the brush 27 and preferably are in spaced relation thereto as are said portions 21*a* of Fig. 2.

The term "cylindrical surface" is intended to cover the shields of both Figs. 1 and 12.

With reference to the term "nail fluid," it is to be understood that this is a generic expression having reference particularly to nail paint and to cuticle fluid or the like.

While the invention has been described with respect to certain preferred examples which have given satisfactory results, it will be understood by those skilled in the art after understanding the invention that various changes and modifications may be made without departing from the spirit and scope of the invention, and it is intended, therefore, in the appended claims, to cover all such changes and modifications.

What is claimed is:

1. In a device of the class described, a rigid elongated handle member adapted to be grasped in the manner of a pen, an arcuate shield secured to one extremity of said handle, a brush member secured beneath said shield whereby the sides of the latter overhang the former longitudinally thereof, and means for holding a removable cartridge of paint in alignment with said shield whereby an outlet of said cartridge is interposed between said shield and brush.

2. In a device of the class described, an elongated handle member having a pressure surface along one side thereof, an arcuate shield attached to one end of said handle, said shield having a tubular hollow base, means on said base for holding a brush, and means for removably holding a pliable cartridge of paint in association with said tubular base whereby the opening thereof is held between said brush and shield, said pliable cartridge being pressable against said pressure surface to extrude the contents upon said brush.

3. In a device of the class described, the combination comprising, a stem of elongated contour, a brush secured substantially coaxially to said stem, an arcuate shield also secured to said stem and overhanging the sides of said brush, a passage member leading to the base of said shield and brush, and means for holding a portion of a removable flexible cartridge in said passage.

4. In a nail paint applicator, the combination comprising, a shaft member comprising a handle, an arcuate shield mounted upon one extremity of said shaft member, a conduit secured to said shield, a brush secured beneath said shield, the latter overlapping and extending beyond the sides of the brush but being substantially coterminous therewith, and means for detachably holding a cartridge of fluid with the opening thereof inserted into said conduit and interposed between said shield and brush.

5. In a nail paint applicator, a shaft member comprising a handle, a brush secured to one extremity of said shaft, an arcuate shield attached to said extremity and covering said brush, said shield overlapping said brush at the sides thereof, and a removable pliable cartridge of paint detachably mounted upon said shaft.

6. In a nail paint applicator, a shaft member comprising a handle, a brush secured to one extremity of said shaft, an arcuate shield attached to said extremity and covering one side of said brush, said shield overlapping said brush at the sides thereof and being substantially coterminous therewith, and a pliable cartridge of paint detachably mounted upon said shaft with the outlet thereof adjacent said brush.

7. In a nail paint applicator, the combination comprising, a concave shield, a brush secured upon said shield and within the concave portion thereof, the latter overlapping and extending beyond the longitudinal sides of the brush but being substantially coterminous with the free end thereof, and a support for holding a flexible cartridge of fluid with an opening therein between said shield and brush.

8. In a nail paint applicator, a concave shield of cylindrical contour having a beveled extremity, a brush supported within a concave portion of said shield, and support means for supporting an expendable container with the outlet thereof interposed between the shield and brush.

9. In a nail paint applicator, an arcuate shield of substantially cylindrical contour having a beveled extremity, and a brush supported within said shield, the latter overlapping and extending beyond the longitudinal sides of the brush and one extremity of the brush and shield being substantially even.

10. In a nail applicator, a concave shield, and a brush within the concave portion of said shield, the latter overlapping the brush at the sides thereof, the free end of the brush being substantially coterminous with one extremity of the shield.

11. In a nail fluid applicator, a concave shield, a brush mounted adjacent said field, the latter overlapping and extending beyond the sides of the brush but the free end of the brush extending to one edge of the shield, a flexible fluid container, and a support for detachably holding the container with the outlet thereof interposed between said brush and shield.

12. In a nail fluid applicator, a concave shield comprising a section of a hollow cylinder made by a plane which contains two elements of the cylinder, a brush situated in the concave portion of said shield, the sides of the latter extending beyond the sides of the brush, the free extremity of the brush extending to a tip of the shield, and means for moving said brush axially with respect to said shield for adjusting the position of the brush extremity relative to the shield edge.

13. In a nail fluid applicator, a concave shield comprising a concave cylindrical surface having a beveled extremity, a brush, a support for holding said brush within the concave portion of the shield, said support comprising a member movable relative to the shield for shifting said brush axially with respect to the shield, the latter extending beyond the sides of the brush, a flexible container for nail fluid, and a container support for detachably associating the container with the shield with an outlet thereof interposed between the brush and shield.

14. In a nail paint applicator, a concave shield comprising a concave cylindrical surface having a beveled extremity, a brush mounted in said concave shield, the brush being narrower than the shield whereby the latter overhangs the brush and the sides of the shield are in spaced relation to the sides of the brush, the tips of the brush and shield being substantially in alignment, and a flexible reservoir of paint having an arcuately formed extremity adapted for being interposed between said brush and shield, the extremity having an opening therein.

15. In a nail paint applicator, a shield comprising a concave cylindrical member having a beveled extremity, and a brush mounted upon said shield, the sides of the latter partially enclosing said brush and being in spaced relation thereto.

16. In a nail paint applicator, a concave cylindrical surface having a beveled extremity, a brush mounted upon said shield, the sides of the latter partially enclosing said brush and being in spaced relation thereto whereby the flesh surrounding a nail can be moved out of interference with the application of the paint, the tip of said brush being substantially even with the tip edge of said shield.

17. In a nail paint applicator, a shield comprising a concave cylindrical surface, and a brush mounted upon said shield, the top surface and two side surfaces of the brush being substantially enclosed by said shield, the tips of said shield and brush being in substantial alignment, the bottom surface and tip of the brush thus being exposed for the spreading of paint.

18. In a device of the class described, a shield comprising a concave cylindrical member having a beveled extremity the cylinder thereof being formed with an open directrix, a brush mounted upon the shield extending substantially axially thereof, the sides of the shield overlapping and partially enclosing said brush and being in spaced relation thereto, a flexible container having a removable fibrous member extending therein and adapted for opening a minute orifice therein when

removed therefrom, and means for supporting said container with the orifice thereof interposed between said brush and shield.

19. In a nail paint applicator, a brush, and a shield for partially enclosing the brush, said shield having side portions in spaced relation to the brush and substantially parallel thereto which overhang the brush by extending adjacent and beside same, the tips of said brush and shield being in substantial alignment.

20. An applicator as defined in claim 19 including, a flexible container having an outlet, and

means for supporting the container with the outlet thereof adjacent the brush.

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The following references are of record in the file of this patent:

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