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H. SPERBER
NAIL POLISH APPLICATOR

3,073,319

Filed May 9, 1960

Fig. 1

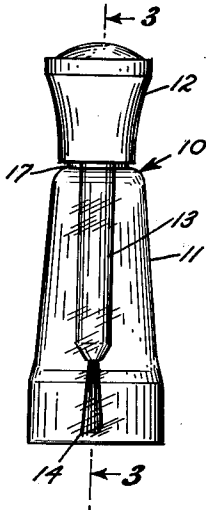


Fig. 2

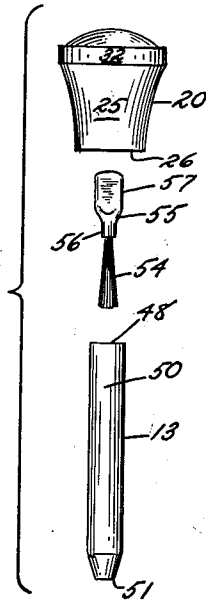


Fig. 3

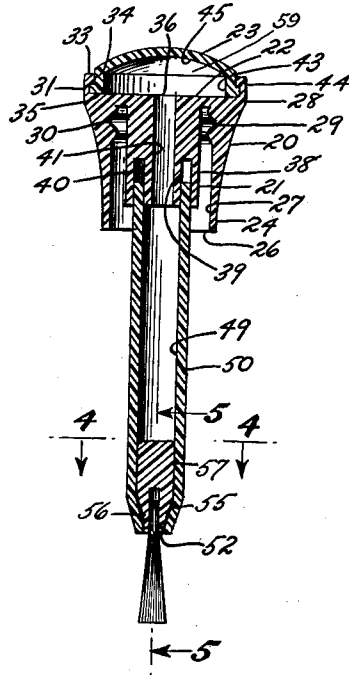


Fig. 4

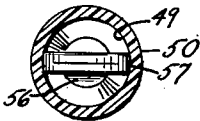


Fig. 5

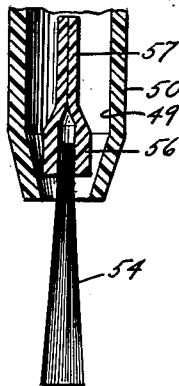


Fig. 6

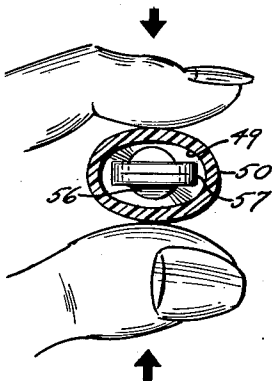
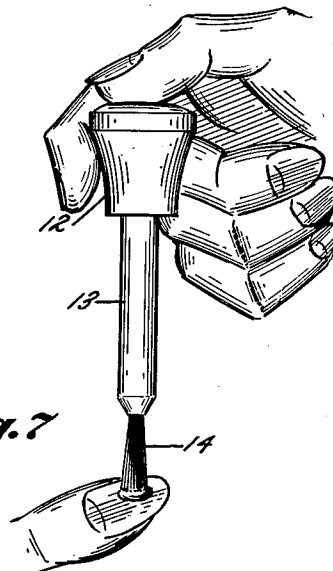


Fig. 7



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NAIL POLISH APPLICATOR
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1 Claim. (Cl. 132-73)

This invention relates generally to the field of small bottles, and dispensing closures therefor, and more particularly to an improved nail polish applicator having means for providing a reservoir permitting continuous feeding of nail polish to a point of application as desired by the user.

Devices of this type are generally known in the art, and have suffered from a serious disadvantage in that the bulk of the same have not been capable of providing a completely hermetic seal when secured within the open end of a bottle, with resultant loss of volatile solvent through the closure. Such devices have also exhibited a tendency to become cemented in closed position, making removal of the dispensing closure difficult after the device has been used several times.

It is therefore among the principal objects of the present invention to provide an improved nail polish applicator of the class described in which the above-mentioned disadvantages have been substantially eliminated.

Another object of the invention lies in the provision of an improved nail polish dispenser which may be formed completely of flexible synthetic resinous material, and in which the component parts may effect a hermetic seal with respect to the neck of a container of volatile liquid.

Still another object of the invention lies in the incorporation of a unitized dispensing closure which may be manufactured at a cost comparable with existing prior art devices, thereby permitting consequent wide sale, distribution and use.

Still another object of the invention lies in the provision of an improved nail polish applicator dispensing device which may be formed completely from a material to which lacquer-like materials will not adhere, thereby preventing an accumulation of nail polish from preventing removal of the dispenser from the neck opening of a container when desired.

A feature of the invention lies in the provision of novel applicator brush construction maintained within a hollow tube by resilient frictional forces, thereby making assembly of the device an extremely facile operation.

These objects and features, as well as other incidental ends and advantages, will more fully appear in the progress of the following disclosure, and be pointed out in the appended claim.

In the drawing, to which reference will be made in the specification, similar reference characters have been employed to designate corresponding parts throughout the several views.

FIGURE 1 is a view in elevation of an embodiment of the invention.

FIGURE 2 is an exploded view in elevation of the stopper element comprising a part of the embodiment.

FIGURE 3 is a longitudinal sectional view of the stopper element in assembled condition.

FIGURE 4 is an enlarged transverse sectional view as seen from the plane 4-4 in FIGURE 3.

FIGURE 5 is a fragmentary enlarged sectional view as seen from the plane 5-5 in FIGURE 3.

FIGURE 6 is a sectional view corresponding to that seen in FIGURE 4, but showing a flexible tube element in distorted condition during the installation of a brush element at the lower end thereof.

FIGURE 7 is a view in perspective showing the stopper element in use.

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In accordance with the invention, the device, generally indicated by reference character 10, comprises broadly: a bottle element 11, a dispensing stopper element 12, a flexible tube element 13, and a brush element 14.

The bottle element 11, may be of conventional configuration and manufacture, preferably including an upper opening 17 of standard 15 mm. diameter.

The stopper element 12 is preferably formed from molded polyethylene to include an outer cylindrical member 20, an inner cylindrical member 21 and an annular sealing member 22, the members 20-22, inclusive, being preferably molded integrally. A flexible membrane member 23 is resiliently seated upon the member 22, as best seen in FIGURE 3.

The outer cylindrical member 20 includes a lower flange 24 having an outer surface 25, a lower edge surface 26 and an inner surface 27. The upper portion 28 thereof is provided with a continuous thread 29 selectively engageable with a corresponding thread (not shown) on the outer surface of the neck of the bottle element 11. The thread 29 preferably extends to the under surface 30 of the sealing member 22. The outer cylindrical member 20 also includes an upper flange member 31 having an outer surface 32, an upper surface 33, an inner surface 34 and an annular groove 35 adjacent to the upper surface 36 of the sealing member 22.

The inner cylindrical member 21 includes an outer surface 38, and an inner surface 39, there being an annular groove 40 extending from the inner surface 39 to the body of the member 21. A centrally disposed bore 41 extends from the upper surface 36 to the surface 39.

The flexible membrane 23 includes a cylindrical base portion 43 having an annular lip 44 thereon and a centrally disposed flexible portion 45 which may be of reduced thickness.

The flexible tube element 13 is adapted to be seated in the annular groove 40, and is bounded by an upper edge surface 48, an inner surface 49, and an outer surface 50. The lower end 51 thereof is conically tapered as best seen in FIGURES 3 and 5 and includes an opening 52 of relatively reduced diameter.

The brush element 14 includes a plurality of bristles 54 seated in a polyethylene tubular base member 55. As best seen in FIGURES 4, 5 and 6, the lower portion 56 of the base 55 is of generally circular cross section, while the upper portion 57 is flattened to a degree wherein the width of the same is just slightly greater than the inner diameter of the tube element 13. The brush element 14 is seated within the tube element 13 as shown in FIGURE 6, wherein the tube element 13 is squeezed to an oval cross section wherein the brush element may be dropped thereto to become lodged in the lower end 51. Subsequent release of the tube element causes the inner surface 49 to resiliently engage the flattened portion 57, wherein frictional forces retain the same in the position shown in the drawing.

The device is used as illustrated in FIGURE 7, wherein polish is supplied to the brush element under pressure as required. It will be observed that the sealing member 22 prevents the escape of volatile solvents into the chamber 59 defined by the membrane 23, since all passage of liquid or volatile solvent must be through the tube element 13, the lower end of which is normally immersed below the surface of the nail polish (not shown).

I wish it to be understood that I do not consider the invention limited to the precise details of structure shown and set forth in this specification, for obvious modifications will occur to those skilled in the art to which the invention pertains.

I claim:

A nail polish applicator for use with a bottle having

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an externally threaded neck opening, comprising, a dispensing stopper means including an outer cylindrical element, an inner cylindrical element, and an annular sealing member, all integrally formed from a flexible synthetic resinous material, said inner cylindrical element having a continuous bore extending therethrough, an elongated hollow tube extending downwardly from said inner cylindrical element and connected to communicate with said bore, said outer cylindrical element having an annular flange thereon and a flexible membrane disposed in sealed relation within said annular flange to form a compressible chamber communicating with said bore in said inner cylindrical element, said elongated hollow tube being of flexible synthetic resinous material and resiliently flattenable, a brush element having a tubular base and a plural-

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ity of bristles extending outwardly thereof, a portion of said base being flattened and having a width slightly greater than the internal diameter of said hollow tube in undistorted condition, and maintained within said elongated tube by frictional contact therewith.

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