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[54] **ADJUSTABLE COSMETIC APPLICATOR**

[75] Inventors: **Martin M. Vasas; Arthur H. Moore,** both of Fairfield, Conn.

[73] Assignee: **The Bridgeport Metal Goods Manufacturing Company,** Bridgeport, Conn.

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[52] **U.S. Cl.** **401/127**

[51] **Int. Cl.** **A46b 11/00**

[58] **Field of Search** ..... 401/121–127; 206/15 AC

[56] **References Cited**

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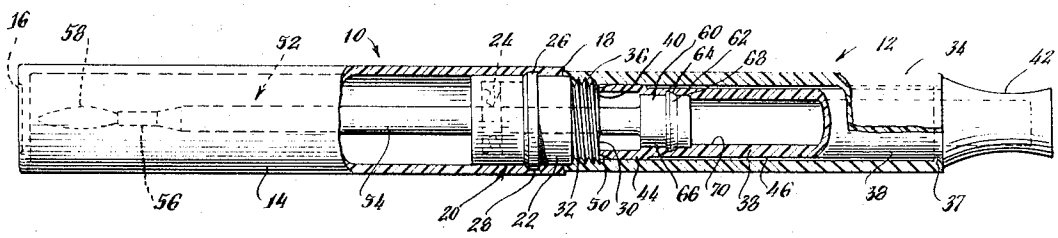
Primary Examiner—Lawrence Charles

Attorney—Armand Cifelli

[57] **ABSTRACT**

An adjustable cosmetic applicator in which the length of the brush is selectively adjustable in accordance with the user's preference. The cosmetic applicator includes a body having a cylindrical shell forming a reservoir for liquid cosmetic with a closure member in the open end thereof, and a cap which includes a brush which is housed in the body when not is use. The cap includes a cylindrical sleeve in which a plunger is slidably engaged. The brush assembly is seated within the plunger and the length of the brush extending past the sleeve is selectively adjustable by sliding the plunger in either direction within the sleeve.

12 Claims, 4 Drawing Figures



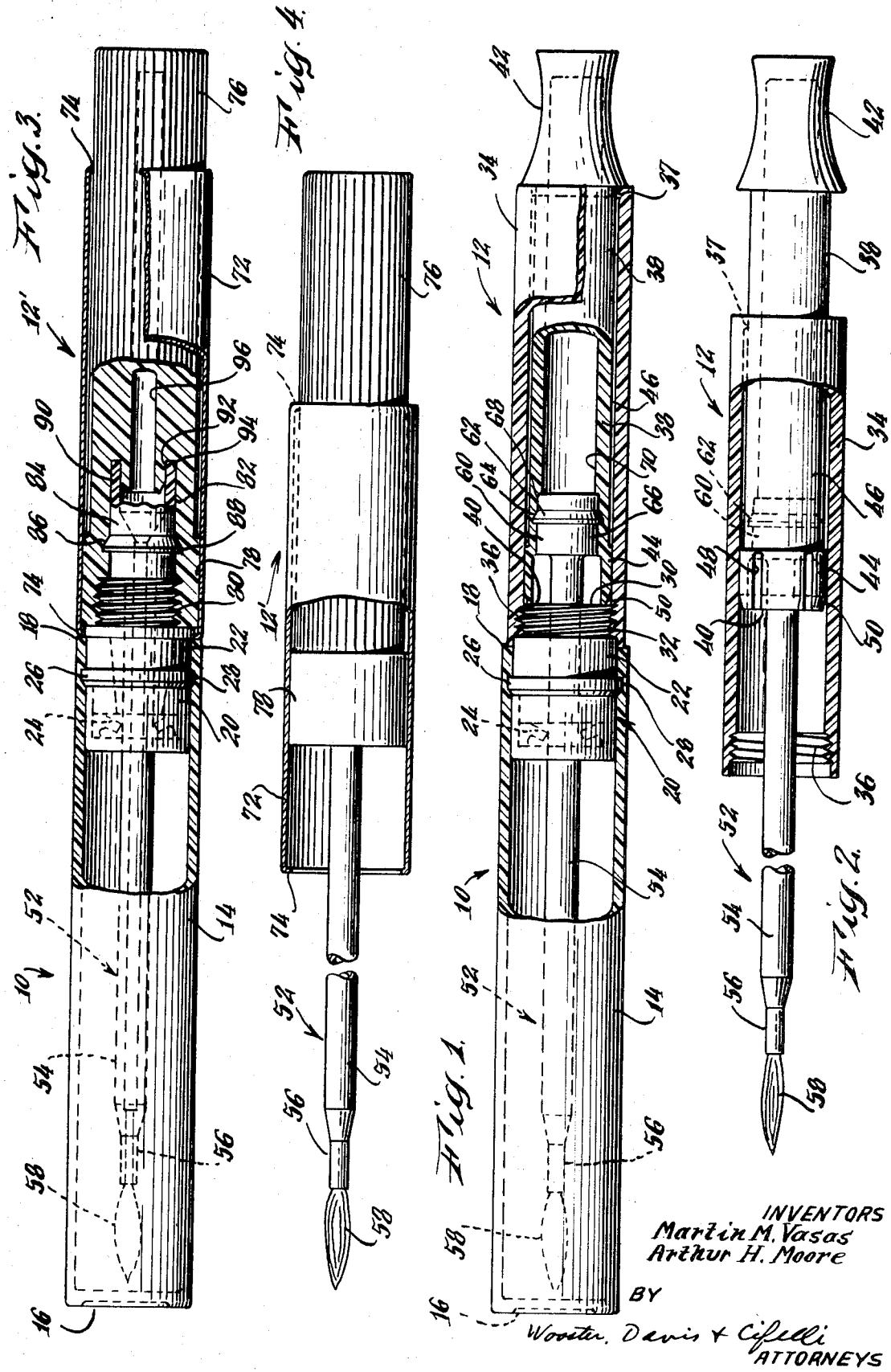


Fig. 3.

Fig. 4.

Fig. 1.

Fig. 2.

INVENTORS
Martin M. Vasas
Arthur H. Moore

BY
Wooster, Davis & Cifelli
ATTORNEYS

ADJUSTABLE COSMETIC APPLICATOR

BACKGROUND OF THE INVENTION

This invention relates to cosmetic applicators having a self-contained brush for application of liquid cosmetics, and more particularly, to such a cosmetic applicator in which the length of the brush is adjustable.

Heretofore, cosmetic applicators of the self-contained brush type have included brushes which are of fixed length. That is, the length of the brush shaft extending from the portion of the applicator which is grasped during use is set at the time of manufacture. Although the brush lengths are designed to be the appropriate length for the average user, differences in the sizes of the hands of the users as well as the techniques of application vary greatly and render the fixed brush length applicators inconvenient and awkward to use. Furthermore, to manufacture such fixed bush h os different sizes would be commercially impractical as it would substantially increase the different number of products to be manufactured, marketed and displayed, and still result in only a few fixed sizes which would not necessarily meet the individual preference of the user.

SUMMARY OF THE INVENTION

The present invention solves this problem of previously known cosmetic applicators by providing an adjustable length brush, the length of which may be selectively adjusted along a wide range to meet the individual preference of the user. This is accomplished by providing a brush-holding cap assembly which includes a cylindrical sleeve and a plunger slidably engaged therein in which the brush assembly is seated. The length of the rush extending from the sleeve may then be selectively adjusted by sliding the plunger in either direction within the sleeve.

It is, therefore, a general object of the present invention to obviate and minimize the disadvantages of previously known cosmetic applicators.

It is a more specific object of the present invention to provide a cosmetic applicator having an adjustable length brush.

It is another object of the present invention to provide a cosmetic applicator in which the length of the brush may be selectively adjusted within a wide range of lengths.

It is a further object of the present invention to provide an adjustable length cosmetic applicator which may be easily adjusted by the user.

It is still another object of the present invention to provide an adjustable length cosmetic applicator which is simple in structure and easily assembled.

BRIEF DESCRIPTION OF THE DRAWINGS

These as well as other objects and advantages of the present invention will become apparent to those skilled in the art by reference to the appended claims and the following description when read in conjunction with the attached drawings in which:

FIG. 1 is an elevational view of one embodiment of the present invention, portions thereof being broken away to more clearly illustrate its internal construction;

FIG. 2 is an elevational view of the cap and brush assembly of the embodiment of FIG. 1 with portions thereof partially broken away to illustrate its internal construction;

FIG. 3 is an elevational view of the second embodiment of the present invention, portions thereof being broken away to more clearly illustrate its internal construction; and

FIG. 4 is an elevational view of the cap and brush assembly of the embodiment of FIG. 3 with portions thereof broken away to illustrate its internal construction.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIGS. 1 and 2, there is illustrated one embodiment of the adjustable cosmetic applicator of the present invention including a reservoir body 10 and a cap 12. The body 10 comprises a cylindrical reservoir 14 having a closed end 16 and an opened end 18. Mounted within the open end 18 is a closure member 20 which may comprise a metallic plug 22 and a resilient diaphragm 24 seated against the metallic plug 22. The metallic plug includes an aperture therethrough to allow a brush to be inserted into the cylindrical shell 14 and may include an annular rib 26 which engages a complementarily shaped annular recess 28 in the inner surface of the cylindrical shell 14. Alternatively, the metallic plug 22 may be dimensioned so as to provide a friction fit within the cylindrical shell 14. The metallic plug 22 includes a reduced diameter neck 30 which is provided with external threads 32.

A more detailed description of the closure member 20 will not be included inasmuch as the specific structure of the closure member does not form part of the present invention and any suitable closure member may be utilized. One such suitable closure member is set forth in U.S. Pat. No. 3,549,266 which is assigned to the same assignee of the present invention.

The cap 12 includes a cylindrical sleeve 34 which is provided with internal threads 36 adjacent one of the open ends thereof adapted to threadably engage the external threads 32 of the metallic plug 22. At the other open end the sleeve 34 is provided with an annular flange 37 extending radially inward. Slidably engaged within the cylindrical sleeve 34 is a hollow cylindrical plunger 38 having an open end 40 and an enlarged head 42 closing the other end thereof. At the open end 40, the plunger 38 has an enlarged cylindrical diameter section 44 having a diameter slightly less than the internal diameter of sleeve 34. This enlarged cylindrical section 44 terminates in an elongated cylindrical section 46 having a slightly reduced diameter from that of the enlarged cylindrical section 44 which terminates in the head 42. The enlarged cylindrical section 44 includes a plurality of slots 48 extending axially from the open end of the plunger 38 and may have a tapered end 50 at the open end thereof. The slots 50 allow the cylindrical section 44 to be compressed inwardly upon insertion of the plunger 38 into the cylindrical sleeve 34. The tapered end 50 facilitates this insertion.

The plunger 38 carries a brush assembly 52 which includes a brush shaft 54 terminating at one end in a ferrule 56 which holds a brush tip 58 formed of fine bristles, such as sable. The other end of the brush shaft terminates in a cylindrical plug 60 which is seated within the plunger 38. The cylindrical plug 60 includes an annular rib 62 which is tapered away from the brush so as to allow easy insertion of the brush assembly 52 into the plunger 38. This annular rib 62 seats within a complementarily shaped recess 64 formed in the internal

surface of the plunger 38 in the elongated cylindrical section 46 just beyond the enlarged cylindrical section 44.

In order to stabilize the brush assembly and rigidly secure it within the plunger 38, the internal bore 66 of the elongated cylindrical section 46 adjacent the enlarged cylindrical section 44 is dimensioned to frictionally engage the surface of plug 60. Furthermore, a shoulder 68 is formed between the bore 66 and the slightly smaller bore 70 of the remainder of the elongated cylindrical section 46 to form a seat against which the plug 60 abuts.

To assemble the adjustable cosmetic applicator, the plunger 38 is inserted in the end of the cylindrical sleeve 34 opposite the internally threaded end. This insertion is facilitated by the slots 48 which allow the enlarged cylindrical section 44 to be compressed and the tapered end 50. The plunger, which is slidably engaged in sleeve 34 by means of the end cylindrical section 44, is slid towards the open threaded end. The brush assembly 52 is then inserted through the open end 40 into the plunger 38 until the plug 60 is seated against the shoulder 68 and the annular rib 62 engages the complementarily shaped recess 64. The brush tip 58 is then inserted into the body 10 by passing it through the closure member 20 and into the liquid reservoir which will be contained in the cylindrical shell 14. The cap 12 is then secured to the body 10 by threadably engaging the external threads 32 of the closure member 20 with the internal threads 36 on the sleeve 34.

In use, the cap 12 is unscrewed from the body 10 and the brush assembly 52 is removed through the closure member 20. The user grasps the exterior of the sleeve 34 and applies the cosmetic. To satisfy the personal preference of the user, the length of the brush extending past the sleeve 34 may be adjusted by grasping the head 42 of the plunger 38 and sliding the plunger relative to the sleeve 34 in either direction as desired. Normally, the plunger will be in its most forward position with the head 42 stopping against the end of the sleeve 34 when the applicator is in its closed position with the cap 12 threadably secured to the body 10. In this position, the length of the brush from the sleeve is in its longest position, as will readily be apparent. The plunger may be slid until the end cylindrical section 44 engages the flange 37 so that the brush is in its shortest extended position. THe plunger 38 may also be adjusted to any position between those two extremes to satisfy the individual preference of the user.

Now, referring to FIGS. 3 and 4, a second embodiment of the present invention will now be described. In this embodiment, the body 10 including the cylindrical shell 14 and closure member 20 and the brush shaft 54 which terminates in the ferrule 56 holding the brush 58 are the same as described with respect to the embodiments of FIGS. 1 and 2; and, therefore, are designated by like reference numerals and will not be discussed in detail. The only differences between this embodiment and the prior embodiment reside in the structure of the cap and the plug of the brush assembly which seats in the plunger. The primary difference between the cap 12' of this embodiment and the previously described cap 12 is that the internal threads which engage the external threads 32 of the plug member 22 are provided in the plunger rather than the cylindrical sleeve.

More specifically, the cap 12' includes a cylindrical sleeve 72 which may be formed of any suitable material, such as metal or plastic, with the ends turned inwardly to form annular flanges 74 which act as stops to limit the movement of the plunger inserted therein. The plunger 76 is a substantially cylindrical member having an enlarged diameter section 78 at one end. That end is bored out to provide one section which has internal threads 80 for mating with the external threads 32 of the closure member 20 and a reduced diameter section 82 in which a plug 84 of the brush assembly 52 is adapted to seat. The enlarged diameter section 78 is dimensioned so as to frictionally engage the inner surface of the sleeve 72. This enlarged cylindrical section 78 cooperates with the flanges 74 of the sleeve 72 to limit the movement of the plunger 76 therebetween.

The plug 84 of the brush assembly may be the same as the plug 60 shown in FIGS. 1 and 2, however, it is illustrated in a slightly modified form in this embodiment. Similarly to the plug 60, the plug 84 includes an annular tapered rib 86 which seats in a complementarily shaped recess 88 in the reduced diameter section 82 of the bore of the plunger 76. However, instead of having a closed end which seats against a shoulder, in this embodiment the plug 84 terminates in an open cylindrical shell 90 which seats in an axially extending groove 92 formed in the plunger 76. The cylindrical shell 90 may include a tapered end 94 to facilitate insertion of the plug 84 into the plunger 76. This open shell design of the plug 84 causes the plug 84 to be more compressible upon insertion into the plunger 76. Finally, the plunger 76 may include a reduced diameter bore 96 to reduce the weight of the applicator and the plunger 76 may be fluted so as to provide a gripping surface when it is being used.

The assembly of this embodiment is essentially the same as the embodiment of FIGS. 1 and 2. The plunger 76 may be inserted through either end of the sleeve 72 to slidably engage the interior thereof. The plug 84 of the brush assembly is then inserted into the open end of the plunger 76 until it seats therein with the annular rib 86 in the recess 88 and the cylindrical shell 90 in the axial groove 92.

The manner of use is the same as the FIGS. 1 and 2 embodiment, the only difference being that instead of the head 42 acting as the stop against movement in one direction, the enlarged cylindrical section 78 limits the movement of the plunger in both directions by its engagement with the flanges 74 of the sleeve 72. In addition, the plunger must be in its innermost position within the sleeve 72 in order to threadably engage the external threads 32 inasmuch as the internal threads 80 are carried therein rather than on the sleeve itself.

Thus, an improved cosmetic applicator has been provided which allows the length of the brush extending from the cap to be selectively adjusted to meet the users individual preference.

It is believed that the many advantages of the present invention will now be apparent to those skilled in the art. It will also be apparent that a number of variations and modifications may be made without departing from the spirit and scope. Accordingly, the foregoing description should be construed as illustrative only rather than limiting.

What is claimed is:

1. In a container including a liquid reservoir having an opening therein and a brush assembly including an elongated shaft and a brush at one end thereof insertable through said opening into said reservoir, the im-

provement comprising: cap means for carrying said brush assembly at the end of said elongated shaft opposite from said brush, said cap means including sleeve means for grasping said cap means; and

plunger means adjustably telescopically received in said sleeve means for sliding engagement therewith;

said plunger means including retaining means for retaining said opposite end of said brush assembly, the length of said brush assembly extending beyond said sleeve means being adjustable by sliding said plunger means within said sleeve means.

2. The improvement of claim **1** wherein said sleeve means includes screw threads formed therein for threadably engaging complementary screw threads provided on said liquid reservoir adjacent said opening.

3. The improvement of claim **1** wherein said plunger means includes screw threads formed therein for threadably engaging complementary screw threads provided on said liquid reservoir adjacent said opening.

4. The improvement of claim **1** wherein said brush assembly includes a plug having an annular rib thereon at said opposite end;

wherein said plunger means includes an open bore at one end in which said plug is received; and

wherein said retaining means includes a complementarily shaped recess for receiving said annular rib.

5. The improvement of claim **4** wherein said plug includes a solid flat back end, and said retaining means includes an annular shoulder formed in said open bore of said plunger means against which said back end abuts when said rib is received in said recess.

6. The improvement of claim **4** wherein said plug includes an open cylindrical shell back end and said retaining means includes an annular axially extending groove formed in said plunger means which receives and abuts against said open cylindrical shell back end when said annular rib is received in said recess.

7. The improvement of claim **1** wherein said sleeve means is a hollow cylindrical shell and said plunger means is a substantially cylindrical body having an enlarged diameter section at one end in slidable engagement with said sleeve means.

8. The improvement of claim **7** wherein said enlarged diameter section includes internal screw threads for threadably engaging external screw external screw threads provided at said opening of said liquid reservoir.

9. The improvement of claim **7** wherein said plunger means is hollow and open at the end adjacent said enlarged diameter section, and said enlarged diameter section includes a plurality of slots extending axially from said open end for allowing said enlarged diameter section to be compressed during insertion of said plunger means into said sleeve means.

10. The improvement of claim **7** wherein said sleeve means further includes a radially inwardly extending flange at one end thereof which cooperates with said enlarged diameter section to limit the movement of said plunger means in one direction to keep said plunger means within said sleeve means.

11. The improvement of claim **10** wherein said sleeve means further includes a radially extending flange at the other end thereof which cooperates with said enlarged diameter section to limit the movement of said plunger means in the other direction to keep said plunger means within said sleeve means.

12. The improvement of claim **10** wherein said plunger means includes an enlarged head at the end opposite said enlarged diameter section to limit the movement of said plunger means in the other direction to keep said plunger means within said sleeve means.

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