

Dec. 22, 1970

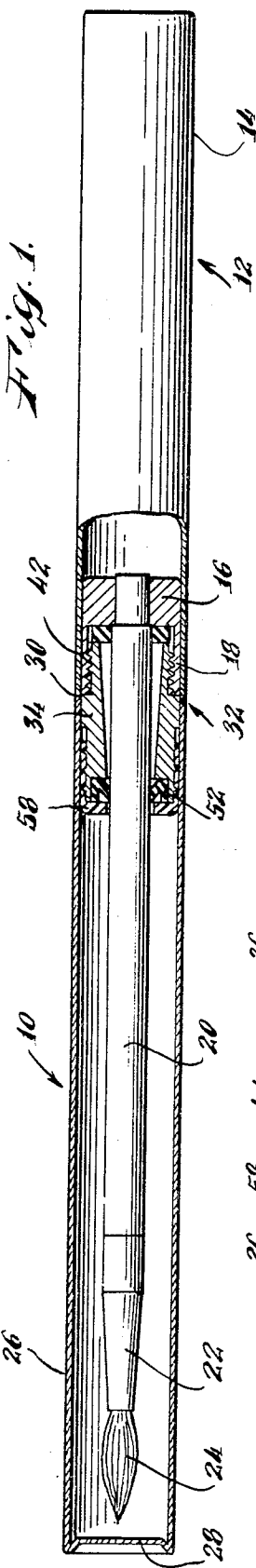
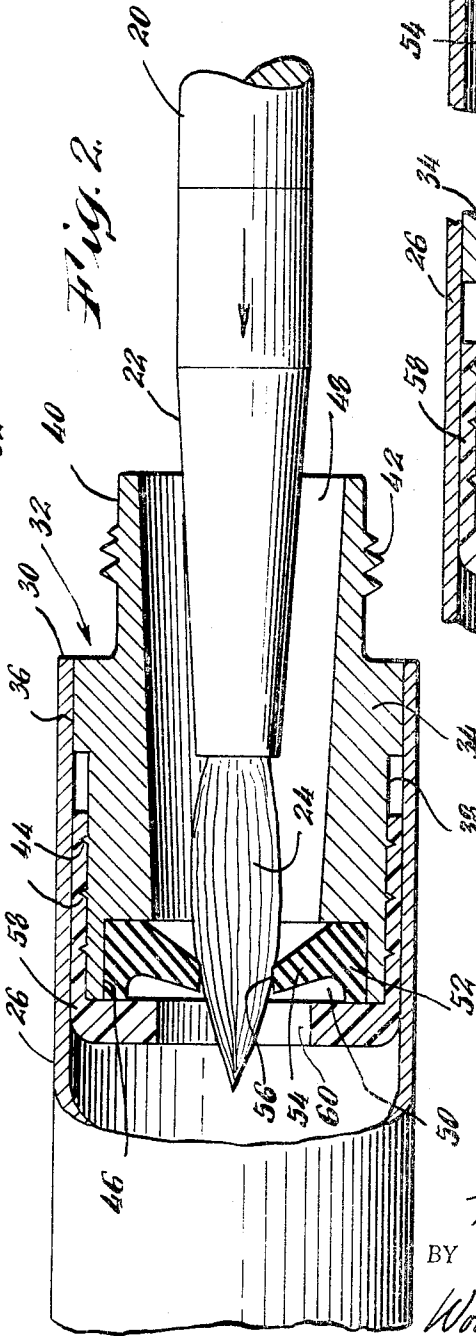
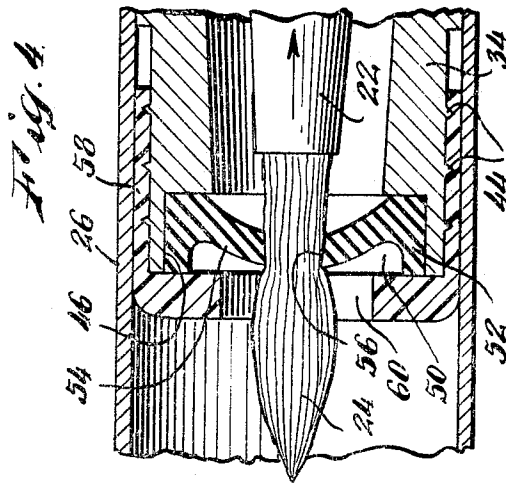
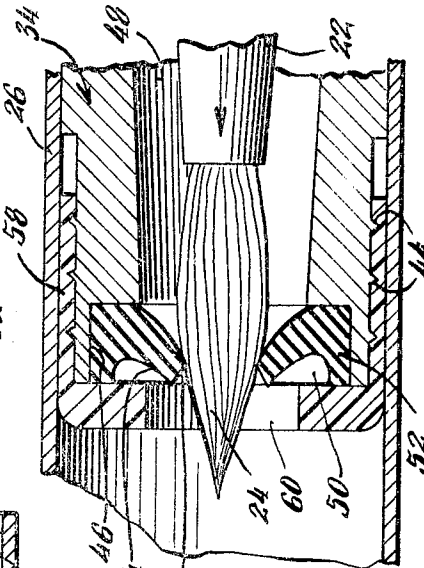
M. M. VASAS

3,549,266

COSMETIC APPLICATOR

Filed Oct. 2, 1967

2 Sheets-Sheet 1



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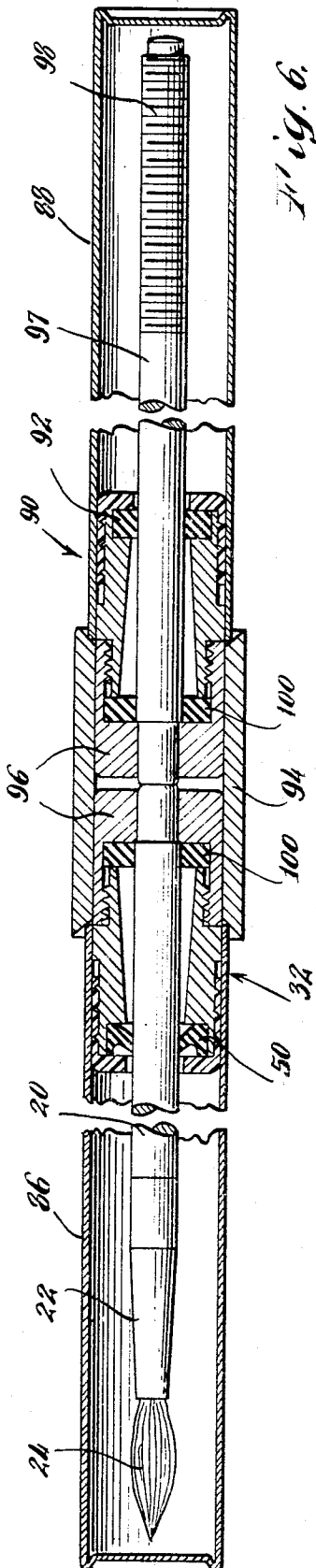
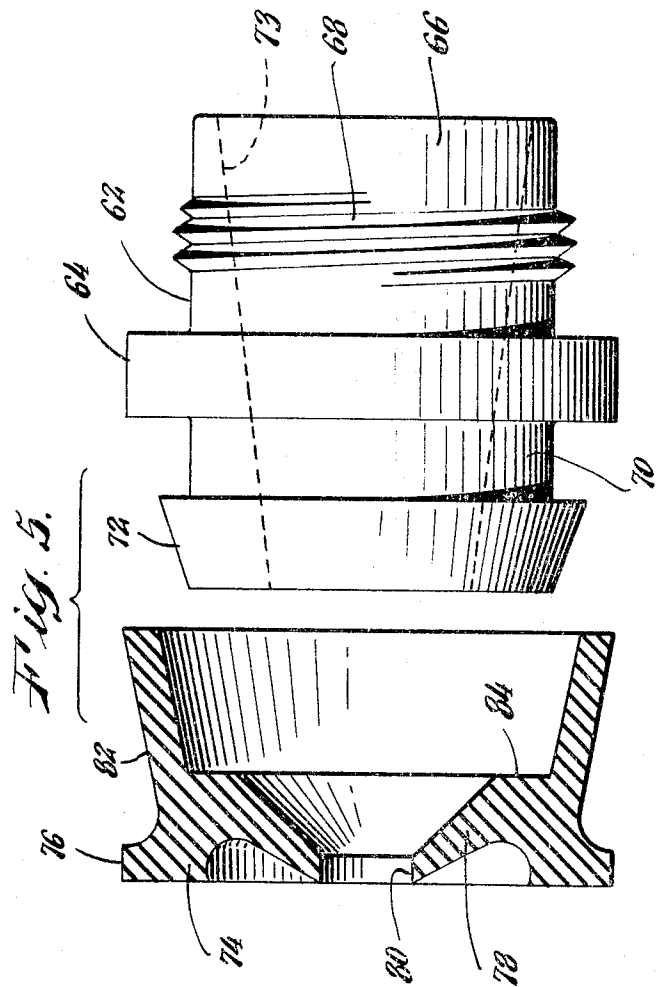
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COSMETIC APPLICATOR

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2 Sheets-Sheet 2



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3,549,266

COSMETIC APPLICATOR

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Int. Cl. A46b 11/00

U.S. Cl. 401—122

9 Claims

ABSTRACT OF THE DISCLOSURE

A cosmetic applicator including a reservoir for liquid cosmetic and a brush which is housed in the reservoir when not in use. The open end of the reservoir is closed by a soft diaphragm of a rubberlike material which has a concave conical shape and a central aperture. The size of the aperture and the softness of the diaphragm permit the brush to be inserted without substantial splaying of the bristles. As the brush is withdrawn, the diaphragm serves as a wiper to remove excess liquid cosmetic.

BACKGROUND OF THE INVENTION

This invention relates to cosmetic applicators for application of liquid cosmetics with a self contained brush. The invention is most particularly concerned with an eye liner applicator, although it may also be applicable to other types of cosmetics and to liquids in general.

In copending United States patent application Ser. No. 578,754, filed Sept. 12, 1966, by Warren S. Ahrens and Daniel A. Viera and assigned to the same assignee as the present invention there is disclosed a brush type cosmetic applicator. As pointed out therein, there are many advantages to the use of a brush for applying certain types of cosmetics and accordingly brushes are preferred by many users for such purposes as, for example, eye lining. However, as is also pointed out in that application, one of the problems is to provide protective means to prevent the bristles of the brush from splaying and being deformed when inserted into the cosmetic container but at the same time providing means for sealing the container against leakage and for wiping excess cosmetic from the bristles when the brush is being removed from the container. One method of achieving these objectives is set forth in the above application and includes an annular resilient wiping means closing the opening of the cosmetic container. In order to permit insertion of the brush without damage to the bristles a sleeve like shield is mounted on the shaft of the brush. When the brush is inserted in the cosmetic container, the shield is first advanced downwardly along the shaft so as to enclose and protect the bristles. The end of the shield displaces the wiper sufficiently to permit the bristles of the brush to be inserted therethrough without damage.

While the aforementioned construction is useful and highly effective, it will be apparent that the user must remember to properly position the shield before inserting the brush. It would be desirable if this extra requirement of attention could be eliminated. It would also be desirable if the movable shield could be eliminated as this would simplify the construction of the cosmetic applicator and reduce its cost.

SUMMARY OF THE INVENTION

The objects of this invention are achieved by means of an improved closure for a cosmetic container. The closure includes a soft flexible rubber or rubberlike diaphragm at the opening of the container. The diaphragm is concave and defines a brush receiving aperture. The softness and resiliency of the diaphragm permit a brush

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to be inserted through the aperture without deforming or splaying the bristles. Upon being removed from the container, the edges of the aperture wipe the bristles free of any excess cosmetic.

BRIEF DESCRIPTION OF THE DRAWINGS

The manner in which the objectives of the invention are achieved will be more readily understood by reference to the attached drawings wherein:

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

FIG. 2 is an enlarged cross sectional view of the improved closure showing the eye liner brush being inserted therein;

FIG. 3 is a view similar to FIG. 2 illustrating the brush in a more advanced position entering the closure;

FIG. 4 is an illustration similar to FIGS. 2 and 3 illustrating the operation of the closure as the brush is withdrawn from the container;

FIG. 5 illustrates a modified form of a closure usable with this invention incorporating this invention; and

FIG. 6 is a cross sectional view of a modified eye liner applicator incorporating the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, there is illustrated an applicator including a body 10 and a cap 12. The cap comprises a cylindrical shell 14 having an open end within which is mounted a cup shaped insert 16 provided with internal threads 18 and supporting the end of a brush shaft 20. The shaft 20 terminates in a ferrule 22 and the usual brush tip 24 formed of fine bristles, such as sable.

The body 10 comprises a cylindrical reservoir 26 having a closed end 28 and an open end 30. Mounted within the open end 30 by a friction fit is a closure member 32 which is illustrated in enlarged detail in FIG. 2. The closure member 32 comprises a metallic plug 34 which is substantially cylindrical in shape. The plug 34 carries a raised circumferential flange 36 dimensioned to fit tightly within the open end 30. The flange 36 is positioned between an internal portion 38, which has a cylindrical outer diameter slightly smaller than the inner diameter of the reservoir 26, and a smaller diameter cylindrical neck 40 which carries an external thread 42 designed to mate with the threads 18 on cap 12. The internal portion 38 of plug 34 carries three raised circumferential ribs 44. The innermost end of the plug 34 is provided with a cylindrical recess 46 and a conical guideway 48 communicates with the recess 46 and extends along the longitudinal axis of the plug 34 to its outer end. Mounted within the recess 46 is a rubber diaphragm 50 of 70 durometers hardness. The diaphragm includes an outer cylindrical ring portion 52 which fits closely within the recess 46 and a flexible concave conical wiping portion 54 terminating in a circular aperture 56. The diameter of aperture 56 is slightly smaller than the widest diameter of the brush tip 24 with which it is designed to be used.

The diaphragm 50 is retained within recess 46 by means of a plastic cup member 58. The cup member is retained on the plug 34 by frictional engagement of its side wall with the ribs 44 and provides an additional friction fit between the plug 34 and the reservoir 26. The end wall of cup member 58 defines a circular opening 60 for permitting the brush to pass into the reservoir.

The manner in which the present invention operates will now be clear from an inspection of FIGS. 2, 3 and 4. As the brush is originally inserted into the plug 34, its tip is guided toward the aperture 56 by means of the tapered guideway 48. The tip then enters the aperture

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56, as shown in FIG. 2, in which position it will be noted that the ends of substantially all the bristles have passed through the aperture. As the brush is further inserted, as shown in FIG. 3, the force exerted by the bristles against the side of the aperture causes the thin conical wiping portion 54 to be expanded, increasing the size of the aperture 56 and allowing the brush tip to pass into the reservoir 26. In its normal carrying condition the brush tip 24 is completely immersed in the liquid cosmetic contained within the reservoir and the cap 12 is screwed to the body 10 by the engagement of threads 18 and 42 as illustrated in FIG. 1. In this position it will be noted that the aperture is considerably expanded and forms a fluid tight seal around the shaft 20. In order to apply eye liner the cap 12 is screwed from the body 10 and withdrawn, the shaft 20 sliding through the aperture 56. The wiping portion 54 returns to its unstressed condition, which is reached just prior to the withdrawal of tip 24. As the larger diameter portion of the tip 24 begins to be withdrawn from the aperture the wiping portion 54 is stressed in the opposite direction as illustrated in FIG. 4. A component of the withdrawal force acts compressively against the conical wiping portion 54, causing it to become relatively rigid. The inner edge of the aperture 56 then becomes a wiping member, wiping excess cosmetic fluid from the brush tip so that, when the brush is withdrawn completely from the body 10, the tip carries the proper amount of eye liner for cosmetic application.

It will be understood by those skilled in the art that the dimensions of the enclosure means of this invention may be varied to suit the individual application. However, for the disclosed eye liner, the diaphragm 50 had an outer diameter of .310 inch and an unstressed aperture size of .07 inch. The base of the cone formed by wiping portion 54 was .190 inch and the thickness of the inner edge of wiping portion 54 forming the aperture 56 was .020 inch.

A modified version of the closure of this invention is illustrated in FIG. 5. The operation of the FIG. 5 modification is substantially similar to that previously described. However, only two parts are required to form the closure, rather than three parts. In this modification there is provided a cylindrical plug 62 having a raised flange 64 dimensioned to fit within the open end 30 of the reservoir 26. The outer end of the plug 62 has a neck 66 provided with an external thread 68 for engaging the thread 18 of the cap, the internal portion 70 of the plug terminates in a truncated conical flange 72 having an outer diameter less than that of the flange 64. A conical guideway 73 extends axially through the plug. The rubber diaphragm 74 forming a part of this modification includes an inner cylindrical rim 76 of substantially the same diameter as the flange 64. The inner end of the diaphragm 74 is substantially similar to that previously described and includes a wiping portion 78 defining an aperture 80. The outer end, however, is in the form of a cup having a slightly conical sidewall 82 which terminates internally at a face portion 84. The inner diameters of the sidewall 82 at the widest and narrowest portions are substantially the same as the corresponding diameters of flange 72. However, the sidewall 82 is substantially longer than the flange 72.

The closure of FIG. 5 is assembled by slipping the diaphragm and is positioned against face portion 84, illustrated. The flange 72 enters the cup shaped end of the diaphragm and is positioned against face portion 84. The sidewall 82 is stretched outwardly at the approximate center of its length so that its outermost end tends to be pulled inwardly behind the flange 72. This securely retains the diaphragm to the plug and the sidewall 82 fits tightly against the inner surface of the reservoir 26.

In FIG. 6 there is illustrated a combined form of applicator which may be used for applying either eye liner or mascara. In this arrangement there are two cylindrical reservoirs 86 and 88. Reservoir 86 contains eye liner

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while reservoir 88 contains mascara. The open end of reservoir 86 contains a closure member 32, identical in all respects to that previously described with reference to FIGS. 1-4. Reservoir 88 contains a closure member 90. This closure member is similar to closure member 32 with one exception. In place of the rubber diaphragm 50 previously described there is provided a resilient rubber washer 92. A central sleeve member 94 is internally threaded at each end to engage the reservoirs 86, 88. It carries internal support elements 96 for supporting the shaft 20 of an eye liner brush and the end of a mascara applicator rod 97 which is supplied with the usual applicator thread or ridges 98 at its outer end. Surrounding the base of each of the brush shaft 20 and the applicator rod 97 is a rubber sealing ring 100. It will now be apparent that either the eye liner brush or the mascara rod may be selectively unscrewed and removed from its respective reservoir for use. When the brush is withdrawn the function of the diaphragm 50 is as previously explained. When the mascara rod is withdrawn excess mascara is removed from the thread or ridges 98 by means of the resilient washer 92.

It is believed that the construction and operation of the closure member of this invention will now be apparent to those skilled in the art. It will also be apparent that many variations and modifications may be made in this invention without departing from its spirit and scope. Accordingly, the foregoing description is to be construed as illustrative, rather than limiting.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a container including a liquid reservoir having an opening therein and soft, pointed brush means insertable through said opening into said reservoir, the improvement which comprises: closure means in said opening including a substantially disc-shaped flexible rubber-like diaphragm including a cylindrical outer portion and a thin-walled wiping portion in the shape of a truncated cone, the truncated portion of said cone defining a circular brush admitting aperture therein, said diaphragm being concave inwardly toward said aperture and having a substantially constant thickness along each intersection thereof with imaginary cylinders concentric with said aperture.

2. The improvement of claim 1 wherein said closure means further includes plug means closing said opening and defining a brush guideway therethrough, said diaphragm being positioned at the inner end of said guideway with its aperture aligned therewith.

3. The improvement of claim 2 wherein said plug means defines a recess and said diaphragm means is positioned within said recess.

4. The improvement of claim 2 wherein said diaphragm includes a resilient sidewall encircling a portion of said plug means.

5. The improvement of claim 1 wherein said diaphragm additionally includes a resilient sidewall encircling said diaphragm and extending outwardly therefrom in an axial direction.

6. The improvement of claim 5 wherein said sidewall flares outwardly from said diaphragm.

7. The improvement of claim 1 wherein said brush means includes a cap portion releasably engageable with said reservoir to retain said brush therein.

8. The improvement of claim 1 wherein said cap portion includes cosmetic applicator means extending outwardly therefrom in a direction opposite said brush means and a second reservoir adapted to receive said applicator means and releasably engageable with said cap portion.

9. In a container including a liquid reservoir having an opening therein and soft, pointed brush means insertable through said opening into said reservoir, the improvement which comprises: plug means closing said opening defining a brush guideway therethrough and a recess

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at its inner end; a flexible rubberlike diaphragm positioned within said recess at the inner end of said guideway defining a circular brush admitting aperture therein aligned with said guideway, said diaphragm being concave inwardly toward said aperture and having a substantially constant thickness along each intersection thereof with imaginary cylinders concentric with said aperture; and a resilient cup member having a resilient sidewall enclosing a portion of said plug means and said diaphragm to retain said diaphragm within said recess.

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References Cited

UNITED STATES PATENTS

565,328	8/1896	Buhler	401—122
2,724,850	11/1955	Howard et al.	401—17
3,084,374	4/1963	Ziegler	132—88.7X
3,195,545	7/1965	Lederberg et al.	401—122

ROBERT PESHOCK, Primary Examiner

U.S. Cl. X.R.

132—85

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,549,266 Dated December 22, 1970

Inventor(s) Martin M. Vasas

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 1, line 46; after "above" the word --mentioned-- should be inserted.

See specification; page 2, line 3, as filed.

Column 1, line 59; "woud" should be --would--.

See specification; page 2, line 17, as filed.

Column 3, lines 63 to 65; "The closure of FIG. 5 is assembled by slipping the the diaphragm and is positioned against face portion 84. illustrated. The flange 72 enters the cup shaped end of" should read --The closure of FIG. 5 is assembled by slipping the diaphragm 74 onto the end of plug 62 from the position illustrated. The flange 72 enters the cup shaped end of

See specification; page 7, lines 10 to 12, as filed
Column 4, line 65; "1" should be --7-- in accordance with the dependency of the claim as filed.

Signed and sealed this 30th day of March 1971.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

WILLIAM E. SCHUYLER, JR.
Commissioner of Patents