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COSMETIC APPLICATOR CASE AND REPLACEABLE CARTRIDGE THEREFOR

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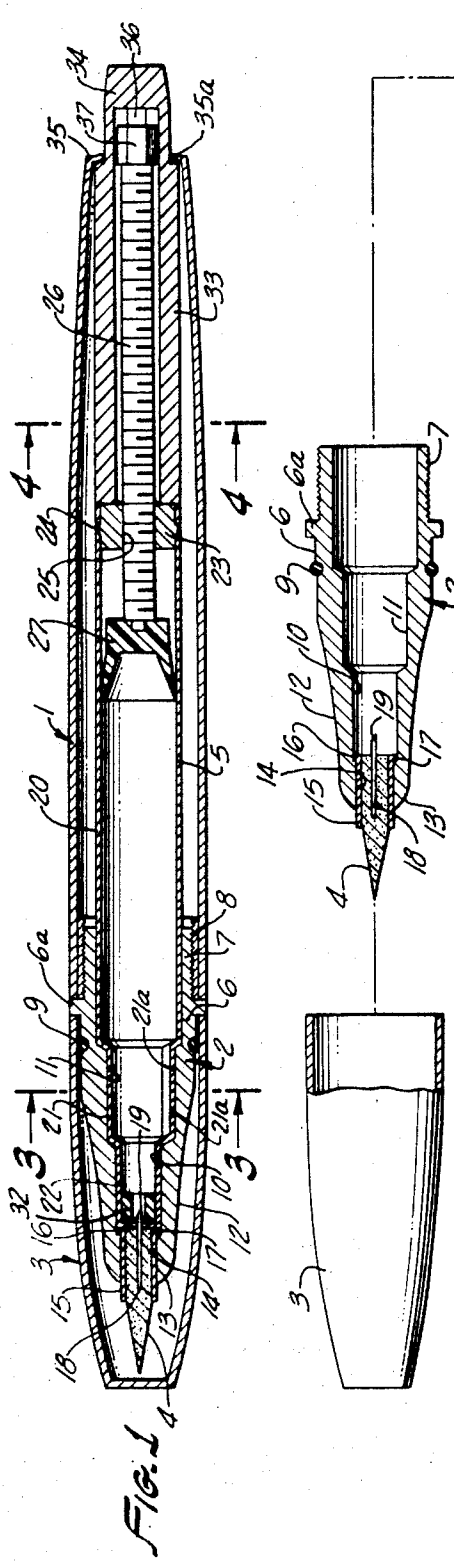


FIG. 1

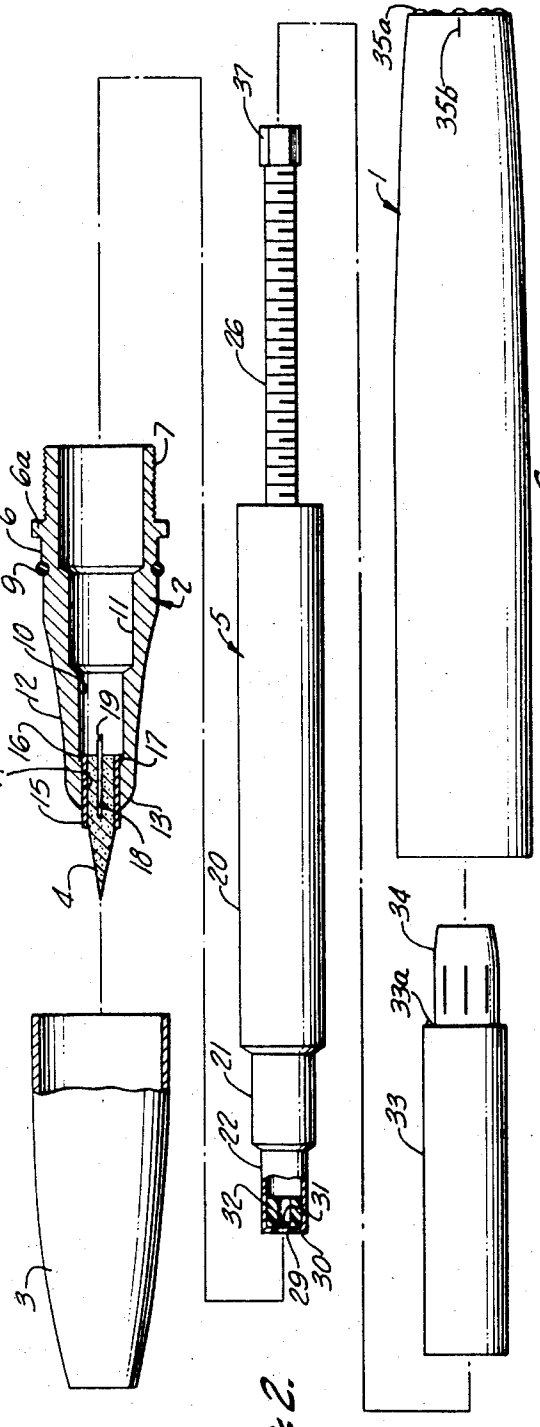


FIG. 2

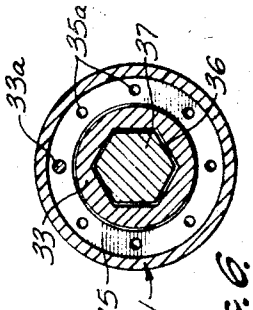


FIG. 6

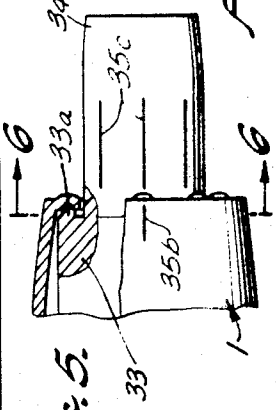


FIG. 5

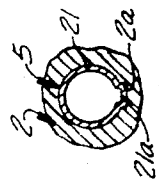


FIG. 3

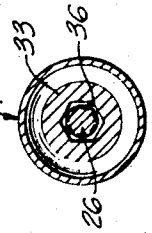


FIG. 4

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COSMETIC APPLICATOR CASE AND REPLACEABLE CARTRIDGE THEREFOR

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ABSTRACT OF THE DISCLOSURE

A cosmetic applicator in which a replaceable cartridge is contained within an outer casing having a nose section at one end containing an applicator element, the cartridge being mountable within the casing and having a reservoir for the cosmetic, and having a piston actuatable to discharge a predetermined amount of the cosmetic each time it is actuated, the piston having a screw stem formed with a head end slidably engaged by a rotatable actuator body having a manually engageable end part projecting from an end of the case, and means being provided on the case and actuating body for indicating the movement required for discharging a predetermined amount of the cosmetic.

The present invention relates to applicator devices and more particularly to a device useful to apply fluent cosmetic materials and the like.

Various refill cartridge-type cosmetic applicators have heretofore been provided whereby an outer case which is adapted to be carried in a woman's purse has means for removably supporting and containing a cartridge having therein various cosmetic materials, such as mascara, lip rouge and the like.

An object of the present invention is to provide such a device wherein the applicator means, namely, a brush, lining device or other typical applicator element carried by a portion of the case and wherein a replaceable cartridge is adapted to be disposed in the case and upon being engaged in a support for an end of the cartridge, the cartridge is opened to allow the flow of cosmetic material therefrom into the applicator element.

Another obect is to provide a cosmetic applicator wherein a replaceable cartridge is provided with a thin diaphragm or membrane sealing the cosmetic material within the cartridge and wherein the case or portion thereof adapted to receive the end of the cartridge is provided with means which will pierce the diaphragm and provide a flow passage from the cartridge reservoir into the applicator element.

Another object is to provide a cartridge for use with a case wherein the cartridge contains a reservoir of the fluent material, the cartridge also having a follower or piston within the reservoir acting to pressurize the fluent material to cause the same to be displaced from the reservoir into the brush, and wherein actuation of the cartridge is effected by a member carried by the case and cooperating with a follower operator which is constituted by a portion of the cartridge.

By virtue of the construction of a cosmetic applicator in accordance with the preceding objective, it will be appreciated that a cartridge having a minimum number of parts is provided, the actuating instrumentalities being in part carried by the case and in part included in the cartridge.

Other objects and advantages of the invention will be hereinafter described or will become apparent to those skilled in the art, and the novel features of the invention will be defined in the appended claims.

In the accompanying drawings:

FIG. 1 is a longitudinal sectional view through an applicator assembly including a replaceable cartridge made in accordance with this invention;

FIG. 2 is an exploded detail view with certain of the parts being shown in elevation and partially broken away, and illustrating the various components of the assembly of FIG. 1;

FIG. 3 is a fragmentary transverse sectional view as taken on line 3—3 of FIG. 1;

FIG. 4 is a transverse sectional view as taken on the line 4—4 of FIG. 1;

FIG. 5 is a fragmentary detail view partly in elevation and partly broken away and illustrating on an enlarged scale the actuator end of the case construction; and

FIG. 6 is a transverse sectional view as taken on the line 6—6 of FIG. 5.

Like reference characters in the several views of the drawing and in the following description designate corresponding parts.

The assembly generally comprises an outer elongate hollow case **1**, a nose section **2**, a closure cap **3**, the nose having an applicator element **4** and there being within the nose **2** one end of an elongate cartridge body **5**, the other end of said body being disposed within the case **1**.

The nose **2** has a body **6** threaded at one end as at **7** to receive a complementally threaded bushing **8**. In addition, the body **6** is provided with a suitable O-ring or similar seal **9** so as to assist in the frictional holding thereon of the closure cap **3**, while at the same time sealing the closure cap to prevent desecration of the fluent material contained in the applicator **4**. Within the body **6** the nose is bored as at **10** and counterbored at **11**; while externally of the nose body it has a tapered extension **12** terminating in a generally conical end **13** having an opening **14** therethrough.

Mounted within the opening **14** and projecting outwardly therefrom is the applicator element **4**, which as shown in FIGS. 1 and 2, may be in the form of a porous pointed body retained within a bushing **15** having an inner flange **16** abutting within the bore **10** against a shoulder **17** to prevent outward passage of the applicator element **4**. Within the applicator element **4** is an elongated tubular member **18** constituting a conduit for the conduction of fluent material to the applicator element, this member **18** having an end **19** sharpened as by cutting the member at an angle, and this sharpened end constituting piercing means for opening a cartridge as will be hereinafter more fully described.

The cartridge body **5** has an elongated cylindrical section **20** merging with a reduced diameter cylindrical section **21** adapted to fit within the counterbore **11** of the nose **2**, there being at this end of the body **5** a further reduced diameter cylindrical section **22** adapted to fit within the bore **10** of the nose **2**.

At the other end of the cartridge body **5** it is provided with a lug **23** suitably mounted within the enlarged section **20** and having a marginal bead **24** engaging in a complemental groove in the tubular body so as to retain the plug in place. This plug is preferably composed of suitable plastic material so that it may be press fitted into the body.

Threadedly engaged within a threaded opening **25** in plug **23** is an elongate threaded actuator stem **26**. Within the cartridge body **5** the stem **26** has engagement with a follower or piston **27** in the form of a cup having sealing engagement with the cylindrical inner wall of the body section **20**. It will of course be understood that threaded movement of the stem **26** to the left, as viewed in FIG. **1**, will cause the cup **27** to apply pressure to the fluent material within the cartridge. However, until the cartridge has been assembled with the nose piece **2**, the fluent material will be trapped within the cartridge.

It will be noted in this connection that the reduced cylindrical end 22 of the cartridge is provided with an end opening 29 centrally located within an end flange 30 and within the reduced section 22 there is provided a suitable membrane 31 which in the illustrative embodiment is constituted by the end wall of a plastic cup 32. Therefore upon assemblage of the cartridge with the nose piece it will be noted that the bevelled end 19 with the piercing member 18 will penetrate the member 29, thereby opening end reservoir to passage of the fluent material therein through the member 18 and into the porous applicator tip 14.

Means are provided whereby the cup 27 may be moved to the left responsive to threaded movement of the stem 26 so as to cause the pressurizing of the fluent material into the applicator tip 14. Such means comprises a revolvable actuator body 33, having a reduced end piece 34 which projects through a marginal end flange 35 of the case 1 so as to be manually engaged and caused to rotate. Extended axially within the actuator 33 is a non-circular opening 36 which, in the illustrative embodiment, is hexagonal in cross section. On the free end of the actuator stem 26 is a correspondingly non-circular head 37, which in the illustrative embodiment is hexagonal in form. It will now be observed that manual rotation of the actuator end piece 34 will cause rotation of the threaded stem 26 with consequential movement of the stem to the left, as viewed in FIG. 1, so that pressure will be applied to the fluent material in the reservoir.

In order to restrain the cartridge against rotation along with the stem 26, it is preferred that the cartridge tightly fit within the nose piece 2, and in addition in the illustrative embodiment there is shown means whereby the cartridge and the nose piece are positively interlocked together to prevent relative rotation. As best seen in FIG. 3, such means comprises a longitudinally extended key section 21*a* formed in one wall of the reduced cylindrical section 21 of the cartridge 5. The nose piece 2 in the bore 11 is provided with a longitudinally extended keyway 2*a* with which the key 21*a* fits.

The case 1 carries within the end thereof remote from the actuator end piece 34 the previously described bushing 8 which is engaged with threads 7 on the nose piece 2, and when the case 1 and bushing 8 are tightly threaded on the body 6 into engagement with a flange 6*a* thereon, the case 1 and the cartridge 5 will be substantially held in non-rotative relation so that the case may be held in one hand while the operating end piece 34 is revolved to inject the fluent material into the applicator end 4.

Means are provided for assisting in the injection of known quantities of the fluent material into the applicator 4, and as best seen in FIGS. 5 and 6, such means is illustrated as including a detent element 33*a* formed on the end of the actuator body 33 adjacent its juncture with the end piece 34. In addition, the end flange 35 of the casing 1 at a plurality of angularly spaced locations is provided with recesses 35*a* in which the detent 33*a* will progressively engage. Thus the actuating end piece 34 may be revolved in increments and engagement of the successive recesses 35*a* by detent 33*a* will indicate to the user an increment of rotation, such increment of rotation being that necessary to replenish the supply of fluent material in the applicator 4.

Also to assist in the visual indication of increments of rotation of the end piece 34, the case 1 adjacent the end flange 35 may be provided with a mark as indicated at 35*b*, which mark is aligned with one of the recesses 35*a*. In addition, the end piece 34 is provided with angularly spaced marks 35*c* spaced at angles corresponding to the spacing of the recesses 35*a* so that angular movement of the end piece 34 such as would move the end piece the distance between two adjacent marks 35*c* would be visually indicative of the displacement of a known volume of the fluent material from the reservoir into the applicator 4.

From the foregoing it will now be understood that the present invention provides a very simple cosmetic applicator case and replaceable cartridge therefor, wherein the cartridge and the case cooperate to enable the displacement from the cartridge reservoir of known quantities of the fluent cosmetic material, and wherein the cartridge itself is a very simple, easy to manufacture, construction which may be sold at a reasonable price as a refill once the original cartridge has been depleted of cosmetic. Moreover, it will be noted that certain of the structure, namely the actuator 33 and its end piece 34 employed in operation of the cartridge remain as a part of the case and need not be furnished as a part of the cartridge, but will cooperate with the refill cartridge upon installation of such a new cartridge.

While specific details of the invetnion have been herein shown and described, it should be understood that changes and alterations may be resorted to without departing from the spirit of the invention as defined in the appended claims.

I claim:

1. A cosmetic fluent material applicator comprising: an elongated assemblage of a nose and a case removably carried by said nose, applicator means projecting from said nose, a cartridge having one end removably engaged in said nose and the other end extending into said case, said cartridge having a reservoir of said fluent material, means at said one end of said cartridge for establishing communication between said applicator means and said reservoir, piston means in said reservoir for displacing said fluent material, an actuator stem having one end engaged with said piston and having its other end disposed in said case, and means for actuating said stem including coengaged separable members, one of said members comprising a head on said stem and the other comprising a member in said case having a body coengaged with said head, said body having an end part projecting from an end of said case for operation to effect actuation of said actuator means.

2. A cosmetic applicator as defined in claim 1, wherein said coengaged body and head are slidably interengaged and have a non-circular configuration, and including means carried by said cartridge and threadedly engaging said stem to cause longitudinal movement of said stem upon rotation of said members.

3. A cosmetic applicator as defined in claim 2, wherein said end of said case and said body have cooperable means indicative of increments of rotation of said members.

4. A cosmetic applicator as defined in claim 3, wherein said cooperable means comprise markings on said end of said case and said projecting end part indicative of increments of rotation of said members.

5. A cosmetic applicator as defined in claim 3, wherein said cooperable means comprise detent and recess means.

6. A cosmetic applicator as defined in claim 5, wherein said end of said case has an end flange extended about said projecting end part, and said detent and recess means comprise angularly spaced recesses on said end flange and a detent on said body progressively engageable in said recesses upon said rotation of said members.

7. A refill cartridge for a cosmetic fluent material applicator having a rotatable part, comprising: an elongated body having a reservoir for said fluent material, a piston at one end of said reservoir, a threaded stem engaged with said piston at one end of said stem, threaded means on said body for causing axial movement of said stem upon rotation thereof, and an actuator member at the other end of said stem providing means engageable by said rotatable part of said case upon assembly therewith.

8. A refill cartridge as defined in claim 7, wherein said actuator member is a non-circular head.

9. A refill cartridge as defined in claim 7, wherein said body is provided with a non-circular part engageable in

said case to prevent rotation of said cartirdge in said case.

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U.S. Cl. X.R.

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