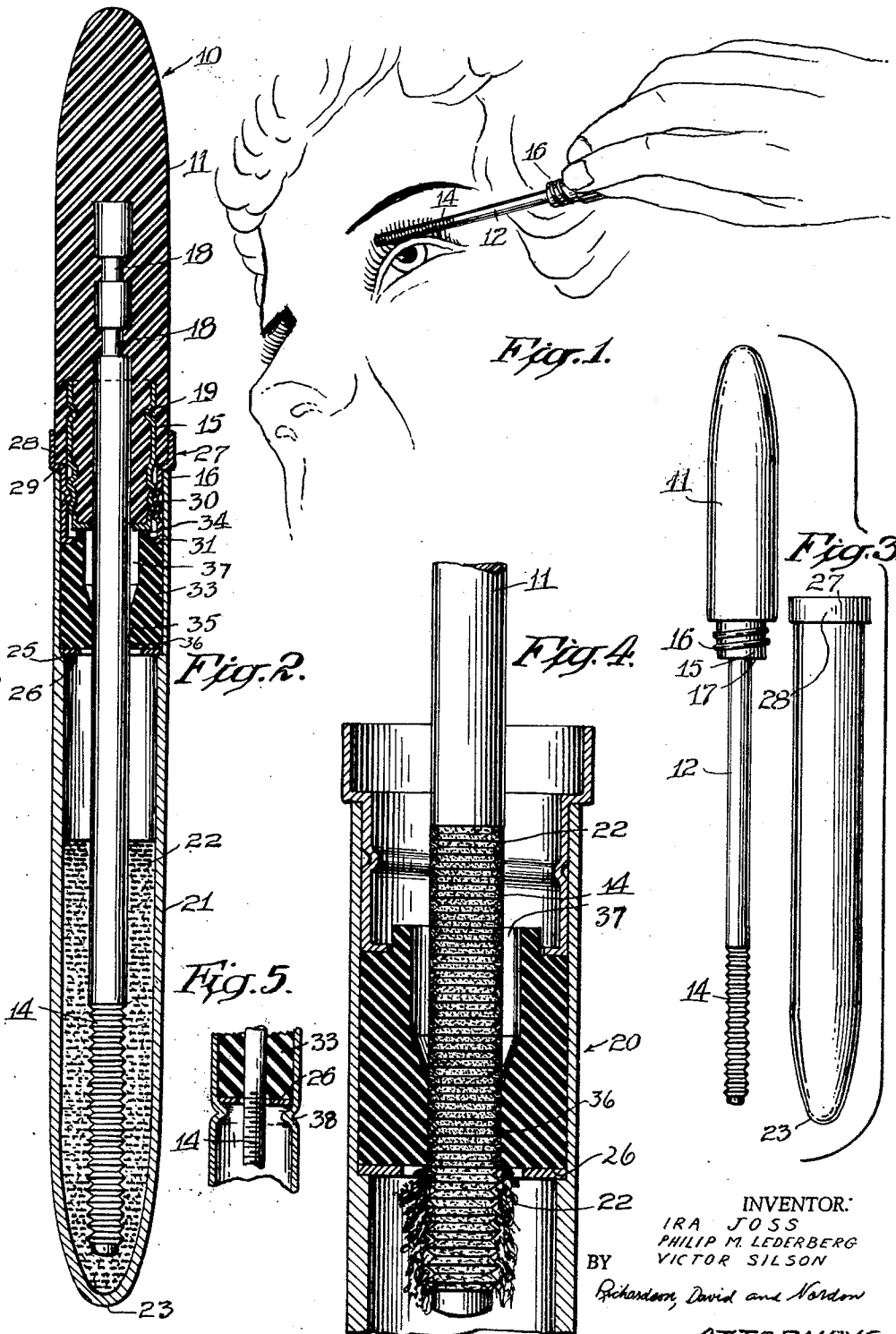


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MASCARA APPLICATOR

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The present invention relates to a dispenser for fluent or semi-fluent materials such as mascara, and more particularly to a dispenser of this type including a reservoir for the material and an applicator rod which is positively wiped so that it withdraws only an accurately metered amount of material from the reservoir.

Briefly, the dispenser of the invention comprises a tubular reservoir in which the mascara or other fluent or semi-fluent material is retained. The reservoir is closed at one end and has an open mouth at the other end. A resilient wiping member is located within the reservoir, near its mouth. An applicator rod connected to a handle may be inserted into the supply of material within the reservoir and withdrawn therefrom at will. The free end portion of the applicator rod is provided with a series of circumferentially extending grooves which pick up material within the reservoir, the excess being wiped off by the wiping member as the rod is withdrawn from the reservoir. The wiper member is provided with an integrally formed circular lip which engages a portion of the handle to seal the reservoir against leakage, the reservoir being closed by the handle when the dispenser is not in use. For use, the applicator rod is withdrawn from the reservoir while grasping the handle member and the metered amount of mascara in the grooves is applied to the eyelashes using the grooved portion of the rod as combination comb and applicator brush. A recess is provided in the wiping member for receiving and retaining displaced mascara which is dislodged from the grooves during application of the material to the eyelashes, the dislodged material being received and retained in the recess when the applicator rod is reinserted in the reservoir.

An object of the invention is to provide a device of this character which is simple in construction, effective in operation, and which may be produced in quantity at low cost.

A further object of the invention is the provision of a dispenser of this character in which a unitary resilient wiper member is provided with a resilient annular lip portion so that it also serves as a sealing member for closing the reservoir when the dispenser is not in use.

A feature of the invention resides in its adaptability to the application of modern metal forming and plastic molding techniques which result in a low production cost in quantity production.

Various additional objects, features and advantages of the invention will become apparent upon reading the following specification together with the accompanying drawing forming a part hereof.

Referring to the drawing:

FIGURE 1 is a perspective view showing the applicator unit in use for applying mascara to the eyelashes.

FIGURE 2 is a longitudinal sectional view showing the complete dispenser in its closed condition.

FIGURE 3 shows the applicator unit and the reservoir unit separated from each other.

FIGURE 4 is an enlarged fragmentary view in longitudinal section, showing the upper end portion of the reservoir unit with the applicator rod partially withdrawn.

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FIGURE 5 is a fragmentary view in longitudinal section, showing a modified form of construction for the upper end portion of the reservoir unit.

Referring to FIG. 2, the applicator unit, which is designated generally as 10, comprises a handle portion 11 and a metallic applicator rod portion 12. The handle 11 is advantageously formed of molded plastic material. The applicator rod 12 is preferably secured in the applicator unit 10 by being molded as an insert in the handle 11. One end portion of the rod 12 is thus fixedly imbedded in the handle 11. The other, or free end portion of the rod 12 has a series of circumferentially extending grooves 14 formed therein. The grooves 14 may be defined by the convolutions of a helical thread, cut or rolled in the free end portion of the rod 12. Alternatively, the grooves 14 may be defined by a series of closely spaced separate annular grooves formed in the rod 12 near its free end.

A threaded metallic shell 15 is molded as an insert in the handle 11 along with the upper end of the applicator rod 12. The shell 15 may be formed by a deep drawing operation, including the provision of threads 16 at its lower end portion. The shell 15 has a flat centrally apertured base portion 17 through which the rod 12 extends. At its upper end, the rod 12 is provided with constrictions 18 which anchor the rod 12 securely in the molded handle 11. The shell 15 is provided with a circumferentially extending annular pressed ridge or corrugation 19 which holds the shell 15 securely positioned in the molded handle 11.

The lower portion of the dispenser consists of a reservoir unit designated generally as 20. The reservoir unit 20 comprises an elongated tubular shell portion 21 which is shown partially filled with a fluent or semi-fluent material 22 to be dispensed. For purposes of illustration, the material 22 is assumed to be mascara. In any event, the fluent or semi-fluent material 22 will have a viscosity, surface tension and other characteristics such that it will enter and be retained in the grooves 14 of the applicator rod 12. The shell portion 21 is of unitary construction, being closed at its lower end at 23 and open at its upper end. The wall of the shell portion 21 is of reduced thickness adjacent to its open end, or mouth, thereby providing an annular shoulder 25 which supports a washer 26. The applicator rod 12 passes freely through the washer 26.

A ferrule 27 is secured in the open upper end of the shell 21, as by a force-fit. The ferrule 27 is provided with a flange 28 adapted to receive the lower end of the handle 11. Downward movement of the ferrule 27 is limited by a shoulder 29 which abuts against the edge of the open mouth of the shell 21. The ferrule 27 is interiorly threaded at 30 for cooperation with the threads 16 formed on the threaded handle shell 15 of the applicator unit 10. At its lower end, the ferrule 27 is provided with a flat annular surface 31 which presses downwardly on a resilient wiper member 33. At its upper end the wiper member 33 is provided with an integrally formed resilient annular lip 34 which projects axially toward the mouth of the shell 21 and which presses into sealing engagement with the flat base portion 17 of the threaded shell 15 of the applicator unit 10. The annular lip 34 of wiper member 33 is spaced laterally inwardly from the sides of the shell 21 and is spaced axially inwardly of the open mouth of shell 21. The lip 34 extends upwardly above the flat annular surface 31 at the bottom of the ferrule 27.

The wiper member 33 is longitudinally compressed between the flat annular surface 31 of ferrule 27 and the washer 26 which rests against the shoulder 25 of the

reservoir shell 21, thus being positively secured against longitudinal movement. The lower end portion 35 of the wiper member 33 has a longitudinal passage 36 formed therein which receives the applicator rod 12. The lower portion 35 of the wiper member 33 thus surrounds and yieldingly presses against the lateral surface of the applicator rod 12 of the applicator unit 10. The longitudinal passage 36 is coaxial with the shell 21 and with the apertures in the washer 26 and the annular surface 31 of the ferrule 27. This pressure is sufficient to clean the rod 12 as it is withdrawn from the reservoir unit 20 through the passage 36 in the resilient wiper member 33.

As shown in FIG. 4, when the rod 12 is drawn outwardly through the passage 36 of the resilient wiper member 33, all of the semi-fluent material 22 is stripped from rod 12 except for a predetermined accurately metered amount which remains in the grooves 14 at the lower end of the rod 12. The applicator unit 10 is then grasped in the hand using the handle 11 as shown in FIG. 1 and the material 22 in the grooves 14 of rod 12 is applied to the eyelashes, with the grooved portion of the rod serving as an applicator brush and providing a combing action when engaging the eyelashes. During the course of application of the mascara, as illustrated in FIG. 1, a certain amount of the mascara 22 may become dislodged from the grooves 14. The passage 36 of the resilient wiper member 33, is enlarged at its upper portion, defining an annular recess 37 above the pressure-exerting passage 36 in the lower end portion 35. The recess 37 opens toward the mouth of the shell 21 and provides a space for receiving and retaining any dislodged semi-fluent material 22 which is stripped from the rod 11 during its re-insertion into the reservoir unit 20.

In the modified form of construction illustrated in FIG. 5, instead of the shoulder 25 shown in FIG. 4 for supporting the washer 26, there is provided an annular indentation 38 which supports the washer 26. The indentation 38 can be readily formed in the reservoir shell 21 by a rolling operation. This avoids the need for having different wall thicknesses in the upper and lower portions of the reservoir shell 21 in order to provide supporting means for the washer 26.

While there have been shown what are believed to be the best embodiments of the invention, it will be apparent to those skilled in the art that changes and modifications can be made therein without departing from the spirit and scope of the invention as defined in the appended claims.

What is claimed is:

1. A metering dispenser for fluent materials comprising, in combination: a tubular reservoir shell closed at one end and having an open mouth at the other end; a resilient wiper member fixedly positioned within said shell inwardly of said mouth, said wiper member having a longitudinal passage formed therein coaxial with said reservoir, said wiper member having an integrally formed resilient annular lip projecting axially therefrom toward said mouth, said lip being spaced laterally inwardly from the sides of said shell and axially inwardly of said mouth in proximity thereto; a handle member, said handle member being removably engageable with said shell to close said mouth; and an applicator rod carried by said handle member and extending therefrom for a distance such that its free end, when said mouth is closed by said handle member, is positioned near said closed end of said shell, said rod having a series of circumferentially extending grooves formed in the free end portion thereof, said rod being adapted for wiping engagement with said wiper member as the free end of said rod is inserted into or withdrawn from said shell; and means carried by said handle member and pressed into sealing engagement with said lip when said mouth is closed by said handle member.

2. A dispenser according to claim 1, wherein said passage is enlarged near said lip to define an annular recess

opening toward said mouth for receiving fluent material previously dislodged from said grooves when said rod is inserted into said shell.

3. A metering dispenser for semi-fluent materials comprising, in combination: a tubular reservoir shell closed at one end and having an open mouth at the other end; two longitudinally spaced centrally apertured supporting members fixedly positioned in said shell near said mouth; a resilient wiper member secured between said supporting members, said wiper member having a longitudinal passage formed therein coaxial with the apertures of said supporting members, a portion of said passage being enlarged to define an annular recess opening toward said mouth, said wiper member having an integrally formed resilient circular lip which extends through said central aperture of the one of said supporting members which is nearer to said mouth; a handle member removably engageable with the mouth of said shell to the close the same, said handle member comprising a portion which is pressed into sealing engagement with said lip when said mouth is closed by said handle member; and an applicator rod carried by said handle member and extending beyond said portion which enters into sealing engagement for a distance such that its free end, when said lip is in said sealing engagement, is positioned near said closed end of said reservoir shell, said rod having a series of circumferentially extending grooves formed in the free end portion thereof, said rod being adapted for wiping engagement with said wiper member as the free end of said rod is inserted into or withdrawn from said reservoir shell.

4. An applicator according to claim 3, wherein said wiper member is held compressed between said supporting members.

5. A metering dispenser for semi-fluent materials comprising, in combination: a tubular reservoir shell closed at one end and having an open mouth at the other end; supporting means on the inner wall of said shell, said supporting means being spaced inwardly from said mouth; a ferrule member fixedly positioned in said mouth, said ferrule member having a centrally apertured flat base portion and interior threads formed therein between said base portion and the edge of said mouth; a washer supported on said supporting means, said washer having a central aperture aligned with said aperture in said base portion of said ferrule member, a resilient wiper member secured between said washer and said base of said ferrule member, said wiper member having a longitudinal passage formed therein coaxial with the apertures of said ferrule member and said washer, said passage being enlarged to define a recess opening toward said ferrule member, said wiper member having an integrally formed resilient circular lip which extends through the aperture in said ferrule member; a handle member, exteriorly threaded means carried by said handle member and engageable with the threads of said ferrule member, said threaded means having a base portion which is pressed into sealing engagement with said lip when said threaded means is screwed home into said ferrule member; and an applicator rod carried by said handle member and extending beyond said threaded means for a distance such that its free end, when said lip is in said sealing engagement, is positioned near said closed end of said reservoir shell, said rod having a series of circumferentially extending grooves formed in the free end portion thereof, said rod being adapted for wiping engagement with said wiper member as the free end of said rod is inserted into or withdrawn from said reservoir shell.

6. An applicator according to claim 5, wherein said supporting means comprises an annular shoulder formed on the said inner wall of said shell.

7. An applicator according to claim 5, wherein said supporting means is constituted by the interiorly projecting portion of an annular indentation formed in the wall of said shell.

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