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(54) **HIGH PERFORMANCE GRIP FOR MASCARA APPLICATOR**

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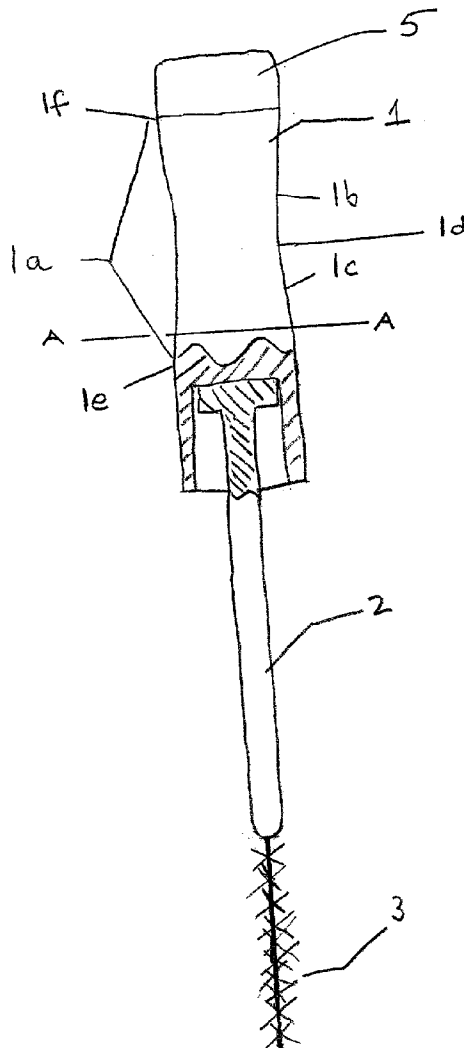
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(57) **ABSTRACT**

A cosmetics applicator having a grip made from one or more deformable elastomers and having a dual-tapered portion such that two tapered sections meet at a narrowest point along the dual-tapered portion, and wherein the cross section of one or both tapered sections is elliptical; an elongated wand extending beyond the distal end of the grip; and a brush extending from the distal end of the wand.



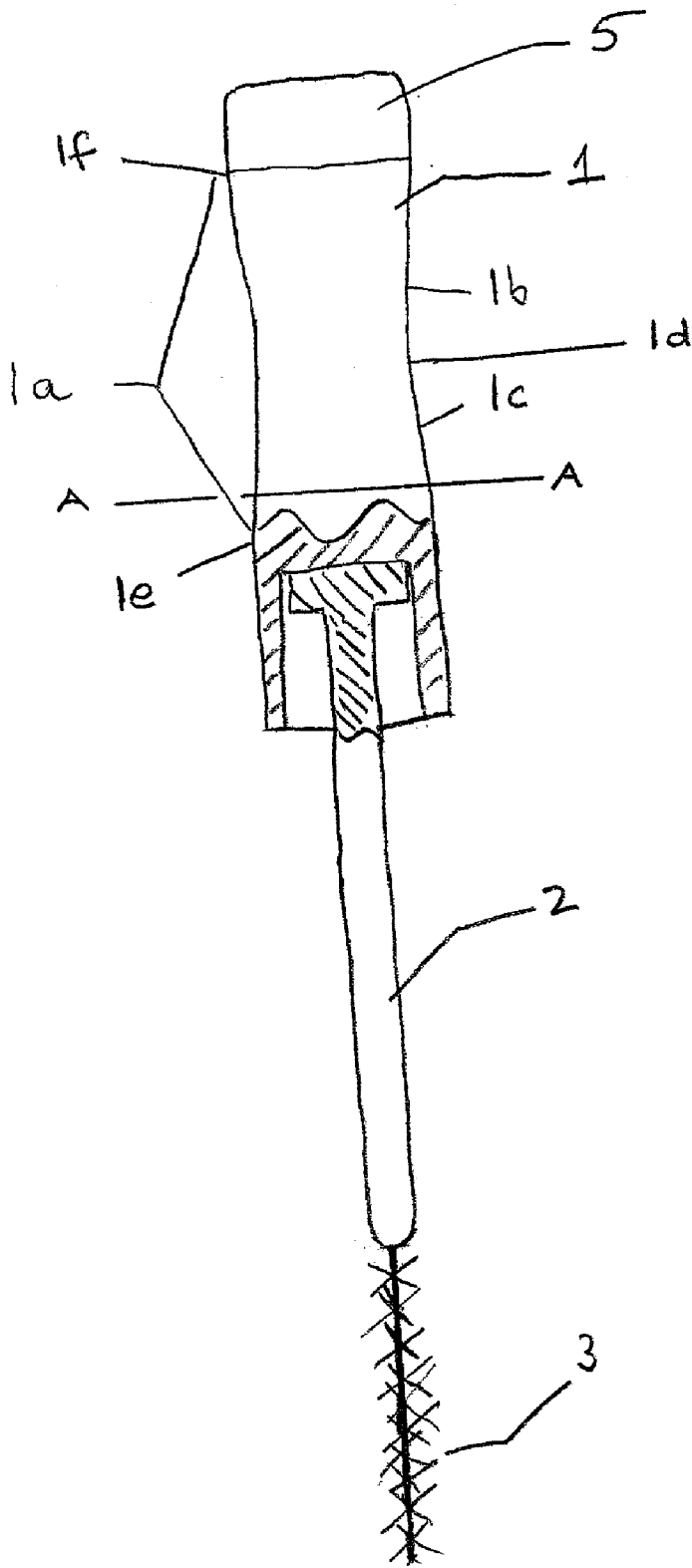


FIG 1

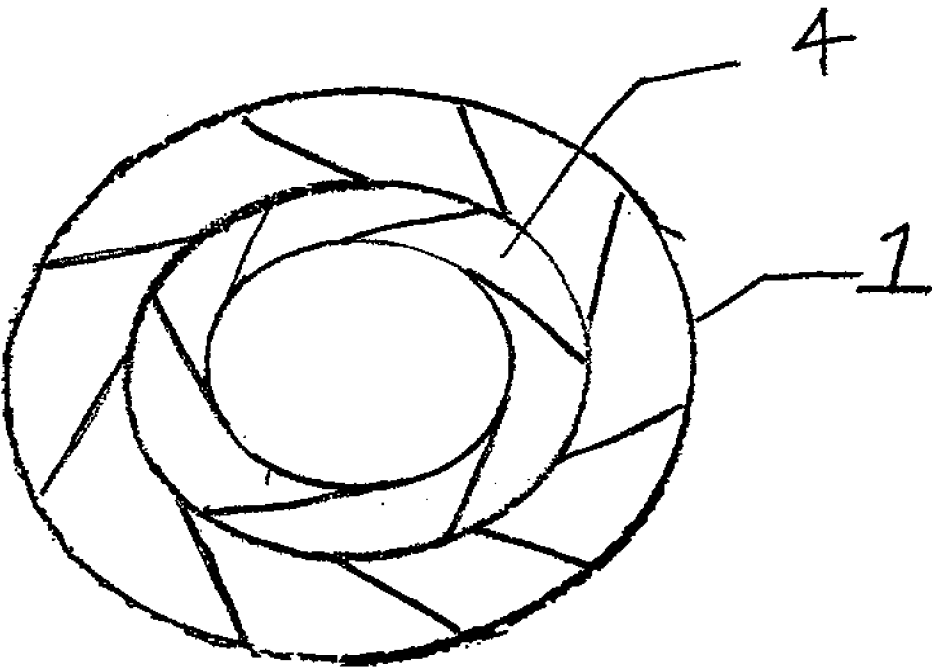


FIG. 2

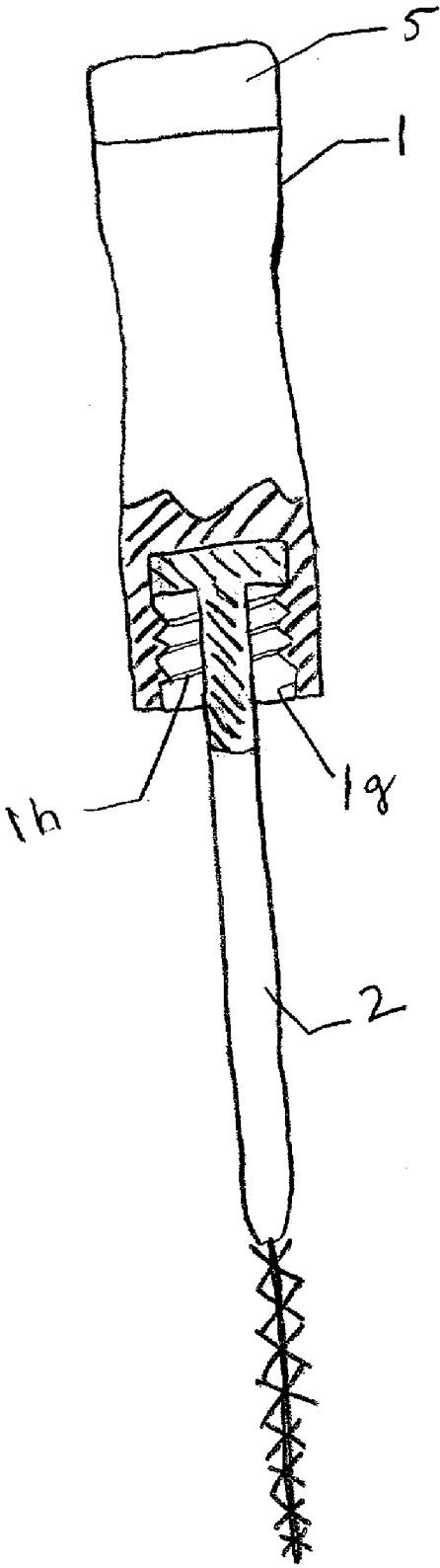


FIG. 3

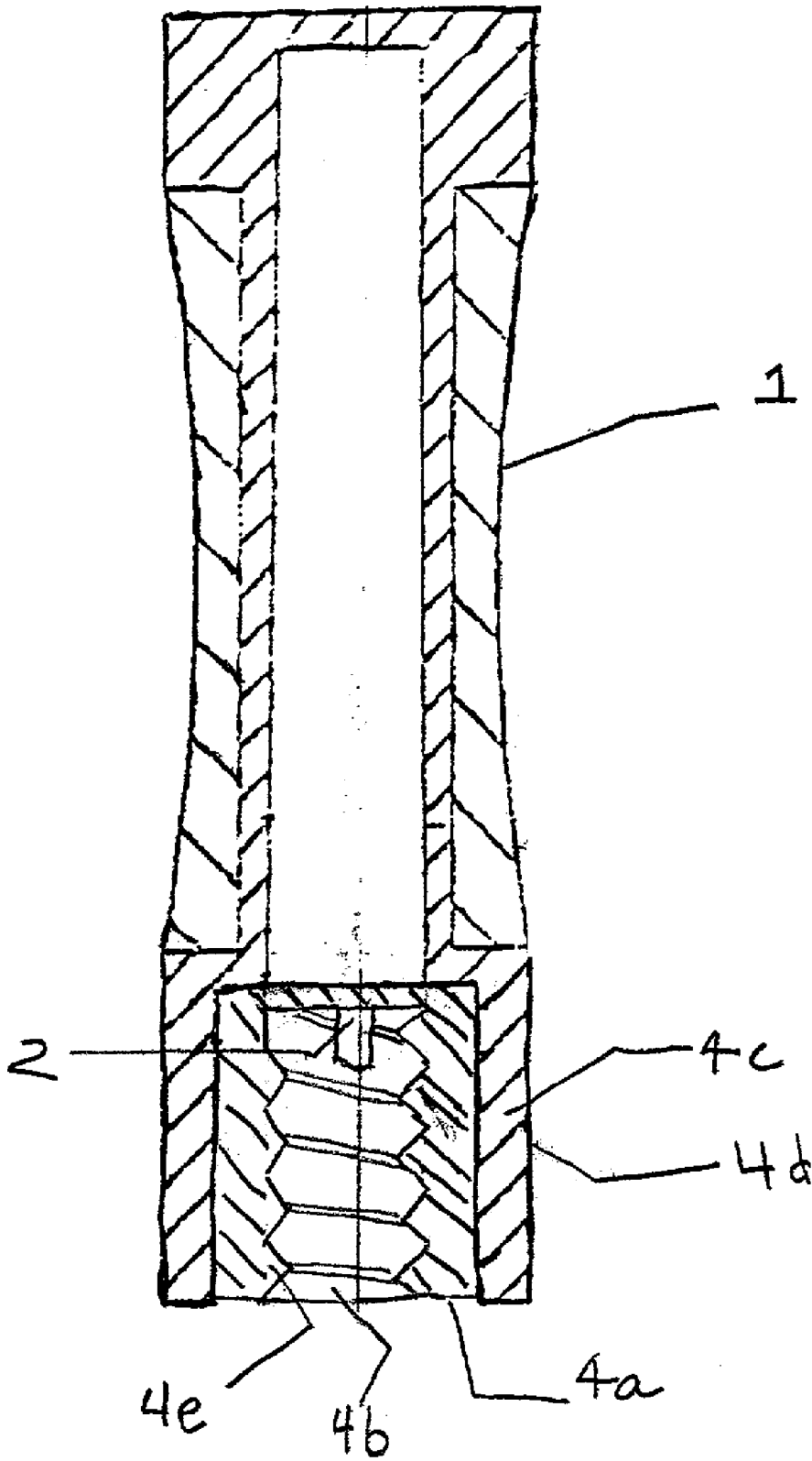


FIG. 4

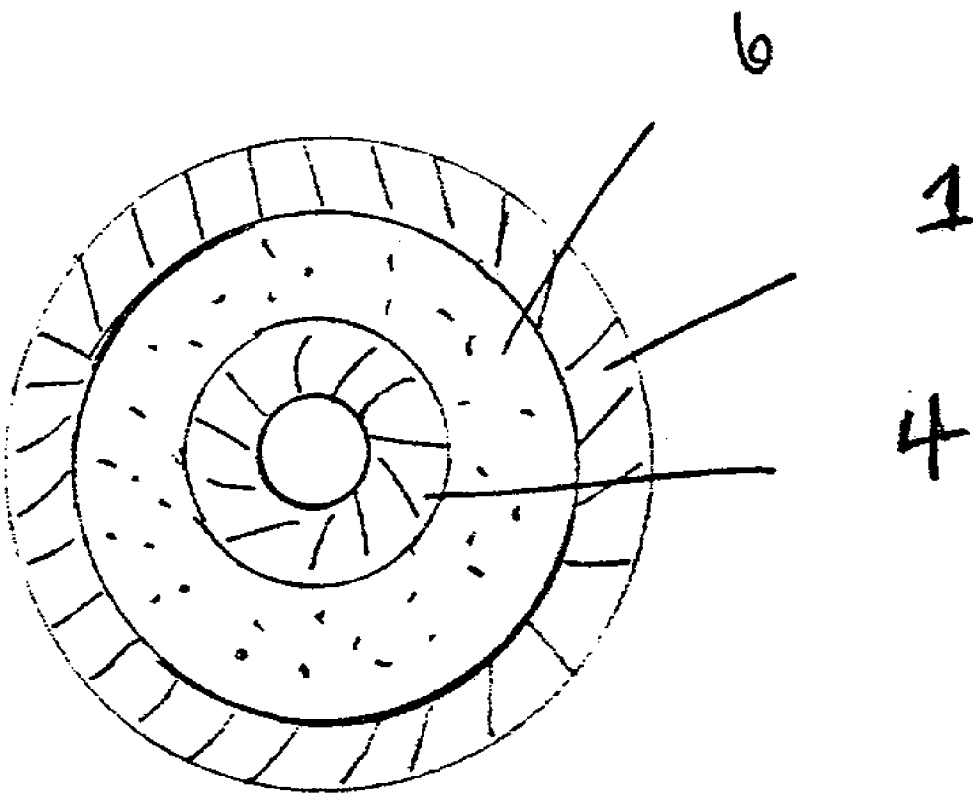


FIG. 5

HIGH PERFORMANCE GRIP FOR MASCARA APPLICATOR

FIELD OF THE INVENTION

[0001] The present invention relates to cosmetics applicators and more particularly to applicator grips that improve the user's ability to apply mascara to the eyelashes.

BACKGROUND

[0002] Mascara applicators are commonly composed of a brush located at the distal end of an elongated wand and a handle-closure located at the proximal end of the wand. The handle is typically a right cylinder with a uniform diameter because this shape allows the user to easily rotate the brush during application. The handle is plastic or metal and if plastic, then the handle may have a metal overshell. Either way, the surface of the handle, with which the user has contact, is rigid and unyielding. The shape and materials used make the typical mascara brush easy and cost effective to manufacture. This, however, comes at the expense and hardship of the user who, during the delicate and exacting task of precisely applying cosmetic around the eye, must manipulate a one-size-fits-all, unyielding applicator handle. In order to assure the proper placement of mascara product the user must exert a firm grip with her fingers on the applicator handle while also maintaining a relaxed, focused state of mind. The discomfort that arises in the fingers of the user clenching a hard handle that does not have the optimal diameter will adversely affect the results of the process and make the experience unpleasant or frustrating. The present invention seeks to eliminate this hardship.

[0003] Furthermore, it has long been recognized that mascara application comprises two separate operations. The first operation includes the steps of taking up product onto an applicator, transporting the product to the eyelashes and depositing the product onto the eyelashes. The second operation comprises the steps of declumping the product, spreading the product evenly over that lashes and separating the lashes from each other. Put another way, the applicator must function as both a brush and a comb. Recognition of these two distinct operations has inspired much of the innovation in mascara applicator design. However, almost none of this innovation involves the grip of the applicator and specifically does not allow the user to choose a size of applicator grip that is just right for her. In reality each consumer will approach the task of mascara application differently. Ultimately, how the consumer uses the applicator will depend on the type of lashes that she has and on her ability to control the applicator to execute fine movements around the eyes. The needs, preferences and abilities of the consumer are highly individual and are better met with an applicator that is sized just right for each individual.

[0004] In the art of hair brushes, there are deformable, customizable grips (see, for example WO 00/47081). Hair brushes, however, are not the same as mascara brush applicators. One important difference is in the way that each is gripped. A hair brush has a relatively large grip that is designed to fit into the palm of the hand. The finger tips play little role in using the hair brush. In contrast, a mascara brush is much smaller than a hair brush and is designed to be gripped by the finger tips. A hair brush requires a coarse, powerful stroke while a mascara brush requires a fine,

delicate stroke. Also, hair brushes are not intended to pick up and deposit product on the hair. Therefore, mascara applicator design addresses different issues than hair brush design.

[0005] The present invention seeks to eliminate the hardships associated with conventional mascara applicators by allowing the user to choose the applicator diameter that is best for her hand. These goals are achieved in a novel grip design that includes portions of varying diameter and/or deformable portions. Each of these features will allow the user to hold the applicator at the diameter and position that yields the optimal applicator performance. With such a grip the precise and delicate activity of mascara application can be made easier and more relaxing for the user. It will also be appreciated that an improved application of the mascara product will result in improved performance of the mascara itself. As is true when performing any finely detailed work with a hand tool, the nature of the grip on the tool will dramatically impact the quality of the work. Mascara application may be thought of as this kind of detailed work, and the nature of the applicator grip will make a substantial difference in the results. Yet, up to now a grip that improves the consumer's ability to apply mascara has not been achieved.

[0006] Furthermore, the concepts developed below can be applied to other wand-type applicators, as are sometimes used for make-up and treatment products other than mascara. An example of this would be a wand-type hair dye applicator used for applying dye to a limited portion of the hair. This is done when streaking or highlighting the hair or when hiding a gray area and exact control of the applicator is required for best results. A further example would be an applicator suitable for applying a product to the skin, such as a cream or lotion. While suitable for various types of cosmetic application, the present invention exhibits its particular advantages when a cosmetic is to be applied with precision and control, as in mascara application.

OBJECTS OF THE INVENTION

[0007] Considering the foregoing remarks, one object of the present invention is to provide a wand-type mascara applicator that improves the consumer's ability to apply mascara to the eyelashes.

[0008] A further object of the present invention is to provide a mascara applicator that gives to the consumer a greater measure of control than conventional mascara applicators.

[0009] A further object of the present invention is to provide a mascara applicator that allows the user to choose a grip diameter that suits the user's own preferences and abilities.

[0010] A further object of the present invention is to provide a mascara applicator that allows the user to customize the grip diameter and shape to the user's own preferences and abilities.

[0011] A further object of the present invention is to provide a mascara applicator that reduces or eliminates discomfort in the fingers and hand of the user.

[0012] A further object of the present invention is to provide a cosmetics applicator that is suitable for applying products to the hair and skin.

SUMMARY OF THE INVENTION

[0013] The present invention is a mascara applicator comprising an elongated wand, an ergonomically shaped grip at the proximal end of the wand and a brush at the distal end of the wand. The diameter of the grip varies along its length so that the user may choose the best size for optimal performance. Furthermore, the grip may be deformable by the user's fingers without excessive pressure on the part of the user. The deformation is either temporary or permanent and allows customized adjustment of the grip size and shape to yield maximum applicator performance. Also, the grip may be made from a material that provides a so-called "soft-touch".

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is an elevation view and partial cross section of the applicator, particularly showing the dual-tapered shape of the grip.

[0015] FIG. 2 is a cross section through line A-A of FIG. 1, showing the generally elliptical shape of the grip.

[0016] FIG. 3 is an elevation view and partial cross section of the applicator, particularly showing the grip with screw threads.

[0017] FIG. 4 is a cross section of the primary closure, overshell and grip with most of the wand cut away for clarity.

[0018] FIG. 5 shows a cross section through line A-A of FIG. 1 in an alternate embodiment in which a viscous medium is located between the closure system and the grip.

DETAILED DESCRIPTION OF THE INVENTION

[0019] Referring to FIG. 1, the applicator comprises a grip (1), an elongated wand (2) and a brush (3). The wand is attached to the grip and extends beyond the distal end of the grip. The wand is attached to the grip by any suitable means such as adhesive or friction fitting if the grip is provided with a hole to receive the wand. The brush extends from the distal end of the wand.

[0020] A portion (1a) of the grip can be described as having two sections (1b, 1c). The two sections also meeting at a narrowest point (1d). For the purposes of the present invention, taper means a change in the diameter of the grip along the length of at least one of the sections (1b or 1c) from the narrowest point (1d) toward the end of the section. This is contrasted with no taper, which is a section where there is no variation in the diameter from the point (1d) to the end of the section. The diameter of the tapered sections may change continuously or stepwise. Preferably, the grip is dual-tapered. By dual-taper it is meant that both sections (1b, 1c) change in diameter. Such a grip is wider at the ends (1e, 1f) of sections (1b, 1c) than at the narrowest point (1d), somewhere between the ends. Alternatively the grip may be single tapered which means that the diameter of only one of the sections (1b or 1c) varies. The narrowest point (1d) will not necessarily be midway between the ends (1e, 1f), although this may be desirable. Alternatively, portion (1a) of the grip may comprise only one section, which tapers from one end of the section to the other end. In this case the narrowest point (1d) is at the narrower end of the section.

The one or two tapers, as the case may be, may begin at the end of the grip or a distance in from the end of the grip.

[0021] The tapered shape provides the user with a range of diameters so that the user may hold the grip at the diameter that is most comfortable. Furthermore, the preferred dual-tapered shape of the grip may allow the user to find the most comfortable diameter at two points along the length of the grip, on either of the two tapered sections (1b, 1c). This allows the user to choose the position that achieves a better balance of the applicator on her finger tips.

[0022] The cross section of one or both tapered sections (1b, 1c) may be generally elliptical (FIG. 2). Of course, a generally elliptical cross section includes a circular cross section, the circle being a specific type of ellipse. The elliptical shape provides the user with a continuous range of diameters so that by rotating the applicator around its long axis, the user may hold the grip at the diameter that is most comfortable. In the dual-tapered embodiment, the cross sectional dimensions of each tapered section need not be identical, even if both cross sections are elliptical. The dimensions of each ellipse may be different or the same. One section may be round and the other may be elliptical (but not round). Alternatively, one section may be elliptical and the other cylindrical. Alternatively, both sections may be elliptical, but the sections may be rotated with respect to one another.

[0023] The diameter of the grip at the widest point will be between 1.05 and 10.0 times greater than the diameter of the grip at the narrowest point (1d). Preferably, the diameter of the grip at the widest point will be between 1.1 and 5.0 times greater than the diameter of the grip at the narrowest point. Most preferably, the diameter of the grip at the widest point will be between 1.2 and 3.0 times greater than the diameter of the grip at the narrowest point. These dimensions provide a range of grip diameters that will accommodate the hands of most users while allowing the grip to be aesthetically matched to existing container diameters. For example, when the widest diameter is 0.65 inch then the narrowest diameter is most preferably between 0.22 and 0.54 inches.

[0024] The dual-tapered, elliptical shape of the present grip is a departure from and significant improvement over the conventional cylindrical applicator handle. This is because all users' hands are not the same size. The shape of the present grip enables the user to hold the applicator at a position where the diameter is most comfortable and the balance is simultaneously optimal. This combination creates the least tension in the hand and fingers of the user and avoids unsteadiness and cramping of the hand muscles. Furthermore, the dual taper reduces the chance that the user's fingers are going to come off of the grip when the user rotates the applicator between her finger tips. This is because the tendency will be for the finger tips to move toward narrowest portion of the grip.

[0025] The invention described so far gives the user a wide range of diameters along the length of the grip and simultaneously around the perimeter of the grip. This represents a significant improvement over existing mascara applicator grips. However, the user may prefer to make even finer adjustments to the diameter and shape of the grip so far described. To truly provide a customizable diameter, the grip (1) should be fashioned from one or more deformable materials. A deformable material, for purposes of the present

invention, is one that is deformable by the finger tips when the applied pressure is only slightly greater than that required to pick up and hold the applicator. When the grip is made out of such a material, then the grip dimensions may be changed by the user at the point where the finger tips contact the grip. This gives the user the ability to customize the grip to the optimal size at exactly the point she wishes to hold the grip. Unlike conventional applicators, with the present invention, the user chooses the diameter that suits her at the point where the balance of the applicator feels right to her. Deformable materials include, but are not limited to, deformable elastomers. Such elastomers may be non-vulcanized thermoplastic polymers or vulcanized rubber polymers. Suitable non-vulcanized thermoplastics include: polyetheramides (e.g., PEBAX polymers from ELF Atochem); polyesters (e.g., HYTREL polymers from DuPont); polyurethanes (e.g., PELLETHANE from DOW); polyolefins (e.g., SANTOPRENE® from Advanced Elastomer Systems); styrene-ethylene-butylene-styrene block copolymers, styrene-ethylene-propylene-styrene block copolymers, styrene-butadiene-styrene block copolymers, and styrene-isoprene-styrene block copolymers (e.g., KRATON® rubbers from Shell Oil and KRATON® composites like DYNAFLEX® from GLS Corp.). Suitable vulcanized rubber polymers include, but are not limited to, natural rubber, crosslinked polybutadiene, cross-linked polyacrylates, and blends thereof.

[0026] Additionally, the grip may have a so-called "soft-touch" or "velvet-touch" texture. The soft-touch has been described as a feel similar to baby powder. This feel can be achieved by the choice of material for the grip. For example, KRATON® is known to impart a soft-touch quality to the surface of articles into which the KRATON® is molded.

[0027] In one embodiment (see FIG. 3), the elastomeric grip (1) functions as a closure for a container. The closure function may be achieved by providing the grip with an inner surface (1g), the inner surface having screw threads (1h) or other features that cooperatively engage the neck finish of a container. In this embodiment the wand (2) is supported from the inner surface of the grip.

[0028] In an alternative embodiment the applicator further comprises a closure system (4). The closure system comprises a primary closure (4a). The inner surface (4b) of the primary closure forms the inner surface of the closure system. The primary closure has an outer surface that may or may not form the outer surface of the closure system. In the preferred embodiment the closure system has an overshell (4c) that fits over the primary closure. The overshell has an outer surface (4d) that forms the outer surface of the closure system when the overshell is present. The outer surface of the closure system contacts the grip (1). The inner surface of the closure system has screw threads (4e) or other features that cooperatively engage the neck finish of a container. The advantages of the two piece closure system will be made clear below.

[0029] The closure system is preferably made from one or more plastics. Suitable closure materials include polypropylene, polyethylene, polystyrene, phenolic, urea or acetal. These materials are those most commonly used for manufacturing closures. For example, the primary closure may be acetal and the overshell may be polypropylene.

[0030] In either embodiment (the one piece or two piece closure system) the wand (2) is supported from the inner

surface of the closure system (4). The grip (1) surrounds and is in contact with at least a portion of the primary closure outer surface or overshell outer surface, as the case may be. For example, the grip may be a sleeve that is open at both ends or closed at one end. The sleeve is slipped over the outer surface of the overshell and maintained there by friction, adhesive or ferrules (5) located at one or both ends of the grip. The ferrules are aesthetic, but may also overlap the ends of the grip to prevent the ends of the grip from curling, if that is a concern.

[0031] Alternatively, the grip may be over-molded onto the overshell outer surface. When over-molding, a person of ordinary skill in the art may easily combine a suitable closure material with a suitable grip material. For example, a polypropylene overshell with a KRATON® grip would be a suitable combination because KRATON® is known to exhibit good overmold adhesion to polypropylene. The superior adhesion achieved when overmolding KRATON® to polypropylene eliminates the need for separate fastening means such as adhesive or ferrules (5) discussed above. However, the ferrules may be retained for aesthetic reasons.

[0032] Overmolding is what makes the two-piece closure system preferred over the one piece closure system. Successful overmolding places restrictions on what the materials may be. For example, while it is preferred to use polypropylene when overmolding KRATON®, polypropylene may not be the best material for a mascara primary closure. For example, in water-proof mascaras that have a high volatile hydrocarbon content, polypropylene is a poor choice for the primary closure. This is because the volatile components evaporate through the polypropylene causing dryout of the product. With the two piece closure system it is possible to make the primary closure out of a more suitable material like acetal, which is an effective barrier to the volatile components, while providing an overshell that is suitable for overmolding. Such applicators are new in the art of cosmetics packaging.

[0033] The use of an elastomeric material for the grip (1) allows the grip to deform in response to pressure applied by the user. This deformation may be permanent or temporary. Temporary deformation is achieved by using an elastomer that is sufficiently resilient so as to return to its original shape relatively quickly after pressure is removed. Alternatively, permanent deformation creates a custom applicator grip for the user, so that the user will have optimal control of the applicator every time she uses it. A permanent deformation may be achieved by providing a deformable, viscous medium (6) between the closure system (4) and the elastomeric grip (1, see FIG. 5). The appropriate viscous medium will be elastic, but slow to return to its original shape. Examples of such materials are putty-like vinyl elastomers or silicone-based materials, such as SILLY PUTTY from Dow Chemical.

[0034] The use of soft, deformable materials in an elliptical, dual-tapered shape to create a mascara grip that gives to the user greater control over the application process is new. This process includes the steps of evenly distributing product on the lashes and separating the lashes from each other. Greater control over these steps leads to improved application of the product which leads to enhanced performance of the mascara product. Discomfort in the hand of the user is reduced or eliminated and results are improved by

allowing the user to select the optimal diameter at which to hold the grip, make fine adjustments to that diameter, and simultaneously select the gripping position that gives optimal balance. Also eliminated is the discomfort associated with hard, conventional mascara applicator handles. Various modifications of the present invention will be apparent to those skilled in the art. Accordingly, no limitations of the present invention are intended by way of the accompanying description and drawings, except as set forth in the appended claims.

What is claimed is:

1. A mascara applicator comprising:
 - a grip having at least one tapered section;
 - an elongated wand attached to the grip and extending beyond a distal end of the grip; and
 - a brush extending from a distal end of the wand.
2. The applicator of claim 1 wherein the grip is dual-tapered, such that the two tapered sections meet at a narrowest point.
3. The applicator of claim 2 wherein the narrowest point is midway between the ends of the tapered sections.
4. The applicator of claim 2 wherein the cross section of the at least one tapered section is elliptical.
5. The applicator of claim 4 wherein the cross section of the at least one tapered section is circular.
6. The applicator of claim 1 wherein the diameter of the at least one tapered section at its widest point is between 1.05 and 10.0 times greater than the diameter at its narrowest point.
7. The applicator of claim 6 wherein the diameter of the at least one tapered section at its widest point is between 1.1 and 5.0 times greater than the diameter at its narrowest point.
8. The applicator of claim 7 wherein the diameter of the at least one tapered section at its widest point is between 1.2 and 3.0 times greater than the diameter at its narrowest point.
9. The applicator of claim 8 wherein the diameter of the grip at its widest point is between 0.3 and 1.0 inches.
10. A mascara applicator having:
 - a closure system having an outer surface and an inner surface;
 - a grip comprising one or more deformable elastomers supported by the outer surface of the closure system;
 - an elongated wand attached to the inner surface of the closure system and extending beyond a distal end of the grip; and
 - a brush extending from a distal end of the wand.
11. The applicator of claim 10 wherein the deformable elastomers are non-vulcanized thermoplastic polymers.
12. The applicator of claim 11 wherein the elastomers are selected from the group consisting of polyetheramides, polyesters, polyurethanes, polyolefins, styrene-ethylene-butylene-styrene block copolymers, styrene-ethylene-propy-

lene-styrene block copolymers, styrene-butadiene-styrene block copolymers and styrene-isoprene-styrene block copolymers.

13. The applicator of claim 10 wherein the deformable elastomers are vulcanized rubber polymers.

14. The applicator of claim 13 wherein the elastomers are selected from the group consisting of natural rubber, crosslinked polybutadiene and cross-linked polyacrylates.

15. The applicator of claim 10 wherein the grip is a sleeve that is slipped over the outer surface of the closure system and maintained there by friction, adhesive or ferrules.

16. The applicator of claim 10 wherein the closure system comprises a primary closure whose inner surface forms the inner surface of the closure system and an overshell whose outer surface forms the outer surface of the closure system.

17. The applicator of claim 16 wherein the grip is overmolded onto the outer surface of the overshell.

18. The applicator of claim 17 wherein the primary closure and the overshell materials are selected from the group consisting of polypropylene, polyethylene, polystyrene, phenolic, urea and acetal.

19. The applicator of claim 8 wherein the primary closure is acetal, the overshell is polypropylene and the grip is selected from the group consisting of styrene-ethylene-butylene-styrene block copolymers, styrene-ethylene-propylene-styrene block copolymers, styrene-butadiene-styrene block copolymers and styrene-isoprene-styrene block copolymers.

20. The applicator of claim 10 wherein the inner surface has screw threads.

21. The applicator of claim 10 further comprising a deformable viscous medium located between the closure system and the grip.

22. The applicator of claim 21 wherein the viscous medium is a putty.

23. The applicator of claim 22 wherein the viscous medium is a vinyl elastomer or silicone putty.

24. A mascara applicator comprising:

- a closure system having an outer surface and an inner surface;

- a grip comprising one or more deformable elastomers supported by the outer surface of the closure system and having at least one tapered section;;

- an elongated wand attached to the inner surface of the closure system and extending beyond a distal end of the grip; and

- a brush extending from a distal end of the wand.

25. A mascara applicator comprising:

- a grip comprising a soft touch material;

- an elongated wand attached to the grip and extending beyond a distal end of the grip;

- and a brush extending from a distal end of the wand.

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