Sept. 26, 1967 D. D. ANDERSON 3,343,551

MASCARA APPLICATOR

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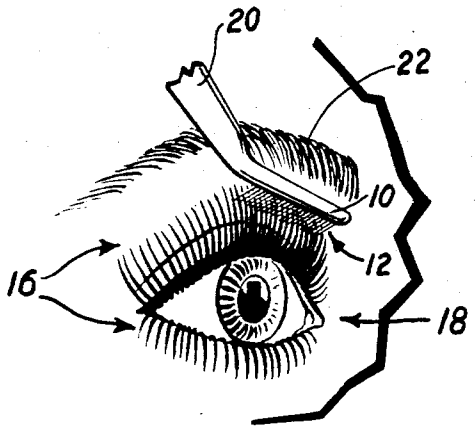


FIG. 2

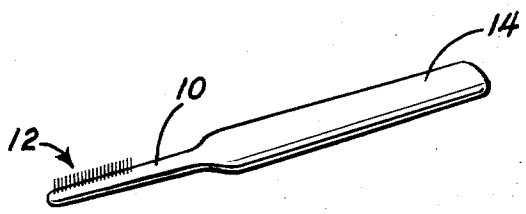


FIG. 1

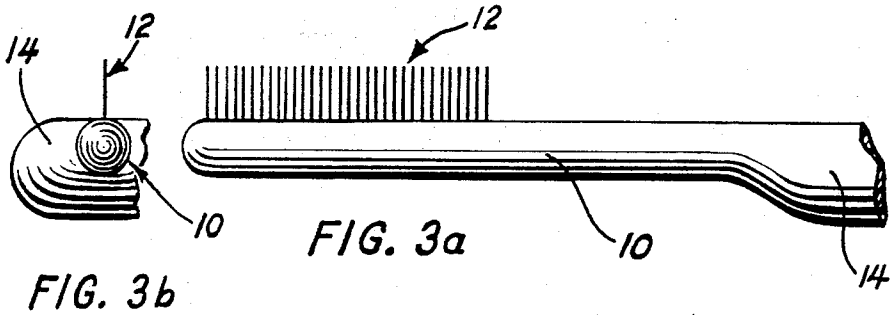


FIG. 3b

FIG. 3a

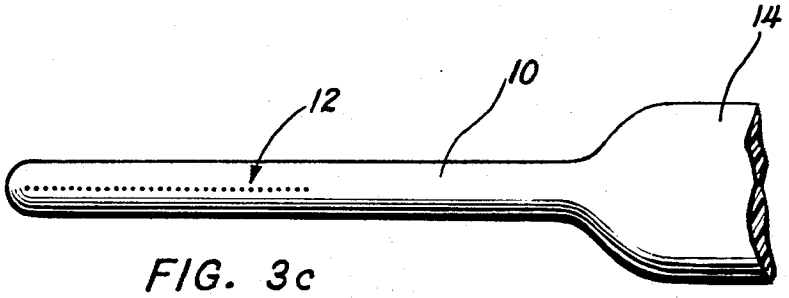


FIG. 3c

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MASCARA APPLICATOR

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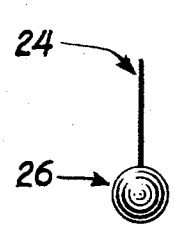


FIG. 4b

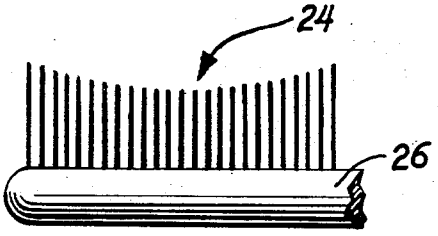


FIG. 4a

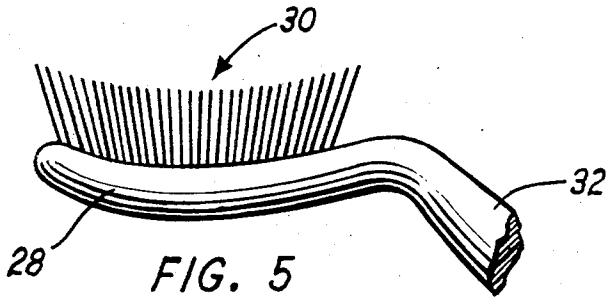


FIG. 5

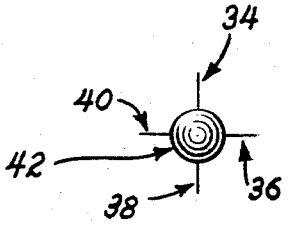


FIG. 6b

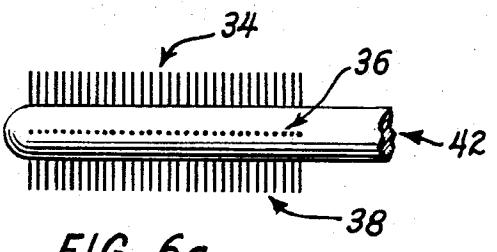


FIG. 6a

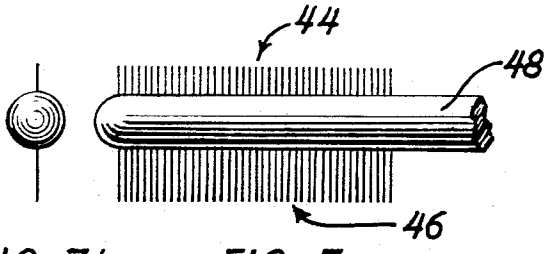


FIG. 7b FIG. 7a

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MASCARA APPLICATOR

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2 Claims. (Cl. 132—88.7)

This invention relates to a cosmetic device and, more specifically, to an improved mascara applicator capable of producing luxuriously natural-appearing eyelash beauty without the unflattering stuck-together appearance so often encountered with prior-art devices.

During recent years eye make-up has received increased emphasis and has become an almost indispensable part of the cosmetic treatment of the female face, the application of mascara to the eyelashes to curl, lengthen and color the hairs thereof and thereby provide a beautifying setting for the eyes having become commonplace for both casual and formal grooming. Unfortunately, the makers of prior-art devices for the application of mascara, such as brushes with spirally wound or multiple tufts or random strips of bristles, "wands" or cyclindrical rods with threaded extremities and the like, continue to produce only minor variations on the same old applicator concepts with, in one instance, the addition of a small comb, which allegedly functions to separate lashes already stuck together with mascara.

None of these awkwardly-inefficient concepts was born of creative consideration of the actual functional requirements of a mascara applicator. The prior-art applicators tend not to separate the lash hairs but rather to deposit mascara crudely, causing the lashes to stick together in unattractive matted clumps. The small comb device also performs ineffectively its allegedly corrective separating operation. These prior-art devices make it virtually impossible, particularly in the hands of the inexpect, to consistently achieve the lengthened and curled-appearing, individually-mascara-coated eyelash hairs essential to the desired naturally luxurious fringed look.

The ineffectual performance of these prior-art devices has also encouraged a number of dangerous and time-consuming corrective practices, such as piercing and tugging at mascaraed clumps of lashes with sharply-pointed implements, e.g., toothpicks, in order to achieve some degree of lash separation.

Moreover, some of the prior-art devices are otherwise inherently quite unsafe to use. Further, they are difficult to properly clean after use because of accumulated, hardened, retained mascara. Still further, as a result of these cleaning difficulties, they are replaced more frequently than otherwise would be necessary and may be unsanitary as well.

It is therefore an object of the present invention to provide a mascara applicator free of such deficiencies of the prior-art devices. It is a more specific object of the present invention to provide a mascara applicator which by its design produces a physical separation of the eyelash hairs when the mascara is being applied. It is another object of the present invention to provide a mascara applicator which permits the stroking and/or sweeping of the individual eyelash hairs to give the desired lengthened, curled effect. It is a further object of the present invention to provide a mascara applicator which is readily cleaned, continually reusable, and sanitary. It is a still further object of the present invention to provide a mascara applicator which is safe to use, even by the inexpert, and obviates the need for unsafe, time-consuming corrective practices. These and other objects of the present invention will become apparent as a detailed description proceeds.

The objects of the present invention are achieved by a mascara applicator comprising in combination an elongated supporting base; a plurality of individual, substantially-equally-spaced resilient monofilaments discretely mounted in at least one upstanding longitudinal row on the base so that the monofilaments of a particular row extend therefrom in a single plane; and an elongated handle portion extending from an extremity of said base.

It has been discovered that the mascara applicator must also be carefully designed and dimensioned in the light of the length, thickness, stiffness and spacing of human eyelash hairs. For example, about 10 to 60 monofilaments, preferably about 20 to 50, typically about 25 to 40, are mounted in each row so that at least about 1/32 inch of each monofilament projects from the base, preferably about 1/16 to 1/2 inch, optimally about 3/32 to 12/32 inch. Each of the monofilaments should have a cross-sectional area of about 3 to 20 mils, preferably about 4 to 15 mils, optimally 5 to 12 mils, and should be spaced from adjacent monofilaments in the same row by about 2 to 30 mils, preferably about 4 to 20 mils, optimally about 6 to 15 mils.

Greater diameter filaments would permit fewer monofilaments but would undesirably result in less separation and may result in dangerous stiffness. Greater spacing would also undesirably result in less separation. Monofilaments spaced too closely would tend to peel off mascara already applied, rather than depositing it, resulting in clumps on the lashes or accumulations on the monofilament base.

As already indicated, it is essential that the monofilaments should be resilient, both for perfection of mascara application and as a safety consideration. In practice, a stiffness (modulus of elasticity) of about 100,000 to 1,000,000 p.s.i. is considered satisfactory, preferably about 200,000 to 800,000 p.s.i. In one particular embodiment nylon monofilaments are employed such as "Tynex 3" or "Herox 2" nylon level filaments (E. I. du Pont de Nemours & Company, Wilmington 98, Delaware), preferably "Tynex 3" filaments having a stiffness of about 550,000 p.s.i. and a diameter of about 5 to 12 mils. The exposed or free ends of the monofilaments are preferably neither sharpened nor pointed and should be free of undue irregularities.

The base and handle portions may be of conventional materials such as wood, metal or plastic, preferably plastic, e.g., polyethylene, polypropylene, nylon, polystyrene, cellulose acetate, cellulose acetate-butyrate, polyvinyl chloride, or the like. The base and handle portions are preferably integrally formed, e.g., by molding, or they may be manufactured separately and secured to one another by conventional means. In one embodiment a separate mounting for each row of monofilaments may be employed and these mountings are inlaid, adhered, welded, fused or otherwise secured to the base portion, also by conventional techniques.

The present invention and the advantages associated therewith will become more apparent from the following detailed description of specific embodiments, read in conjunction with the accompanying drawings which form a part of this specification, wherein:

FIGURE 1 is a perspective view of one embodiment of the mascara applicator of the present invention, drawn to approximate scale, which embodiment features a single row of monofilaments and a handle portion having an axis parallel or coincident to that of the base portion;

FIGURE 2 illustrates the use of another embodiment of the mascara applicator when applying mascara to the human eye, the embodiment featuring a handle portion offset at an angle to the base portion;

FIGURES 3*a*, 3*b* and 3*c* are plan, end and elevation views on a fourfold magnified scale of a portion of the embodiment of FIGURE 1;

FIGURES 4*a* and 4*b* are plan and end views on a four-

fold magnified scale of a portion of an embodiment wherein the length of the monofilaments extending from the base is varied so that the free ends terminate so as to form a concave curvature;

FIGURE 5 is a plan view on a fourfold magnified scale of a portion of still another embodiment wherein the base is concavely curved in a direction of the monofilaments;

FIGURES 6*a* and 6*b* are plan and end views on a fourfold magnified scale illustrating a portion of an embodiment where multiple rows of monofilaments, spaced at 90° angles, are employed; and

FIGURES 7*a* and 7*b* are plan and end views on a fourfold magnified scale of a portion of still another embodiment featuring multiple rows wherein the length of the monofilaments in each row differs.

In the description the term "upstanding" is employed merely to describe the monofilaments in relation to the base and not the "up" direction in the absolute sense. Thus, as shown in FIGURE 1, the upstanding monofilaments would in fact be downward-depending if the applicator were rotated 180° about its longitudinal axis.

In FIGURE 1, the embodiment comprises polystyrene plastic elongated base **10** having mounted thereon a plurality of upstanding "Tynex 3" monofilaments, indicated by reference numeral **12**, which have a diameter of 8 mils and are of sufficient length to extend above the base by about 7/64 inch. While the small scale of the drawing precludes a clear showing of the individual, discretely-mounted monofilaments **12**, thirty-two are employed in the illustrated embodiment. The equal spacing between the bristles or monofilaments **12** is approximately 11 mils. The monofilaments **12** are mounted on base portion **10** by conventional means, e.g., cementing. Elongated handle portion **14** is formed or molded integrally with base **10** and is also of polystyrene plastic. Base **10** is approximately 1⅛ inches in length and handle portion **14** is about 2¼ inches in length, whereby the over-all length is approximately 3⅜ inches.

Referring to FIGURE 2, the monofilaments **12** are shown intermeshed with the eyelashes **16** of human eye **18**. As aforementioned, handle portion **20** is angled with respect to base **10** to provide convenience of handling and possible clearance away from eyebrow **22**. It should be noted that the monofilaments **12** mechanically separate and sweep the individual eyelash hairs as the mascara, which may be any type of mascara, including cake, liquid, cream and paste types, typically conventional cream mascara, is transferred from the applicator to the eyelashes.

The expanded scale views of FIGURES 3*a*, 3*b* and 3*c* point up the fact that monofilaments **12** are individually and discretely mounted on base **10**, which markedly contrast with the tufts of multiple bristles characterizing many prior-art devices. The individual and discrete mounting of the monofilaments of the present invention, in addition to facilitating the desired sweeping, coating, coloring and lengthening action during application of the mascara, may after use be readily cleansed so that the applicator may be sanitarily reused until the monofilaments themselves wear out over, likely, a period of years.

In FIGURES 4*a* and 4*b*, monofilaments **24** vary in length above base **26** so that the free ends thereof terminate concavely. Thus, the free ends of the monofilaments register approximately with the natural convexity of the human eyelash.

Still another embodiment is shown in FIGURE 5 wherein base portion **28** is concavely curved in a direction of monofilaments **30**, which are mounted thereon at varying angles and extend thereabove varying distances. Again, as in FIGURES 4*a* and 4*b*, the free ends of the monofilaments **30** terminate concavely. Handle portion **32** is integrally formed with base **28** and extends therefrom at a substantial angle, e.g., about 45°, although this angle may be varied as desired, e.g., from 0 to 60°.

In FIGURES 6*a* and 6*b* multiple rows of monofilaments **34**, **36**, **38** and **40** are mounted at 90° intervals on the periphery of elongated base **42**. Multiple rows permit a twirling or spinning action of the applicator, whereby the eyelash hairs are repeatedly swept or combed. While four rows are illustrated in FIGURES 6*a* and 6*b*, it should be understood that various numbers of rows may be employed, preferably, but not necessarily, equally spaced peripherally. It should be noted that the multiple rows are mounted so as not to produce a spiralling effect when the applicator is twirled. Spiralling tends to undo separation.

In FIGURES 7*a* and 7*b* still another embodiment is illustrated, i.e., multiple rows of monofilaments **44** and **46** mounted on base **48**, which rows differ in length. While only two rows are illustrated, it should be understood that other numbers of rows can also be employed. It should also be understood that the free ends of one or more rows may terminate concavely or with any other desired curvature. Still further, it should also be understood that the spacings, diameter of the monofilaments, stiffness and the like may likewise be varied.

From the above description it is apparent that the objects of the present invention have been achieved. While only certain embodiments have been illustrated many alternative modifications will be apparent from the above description to those skilled in the art. These and other alternatives are considered within the spirit and scope of the present invention, and coverage thereon is intended by this application.

Having described the invention, what is claimed is:

1. A mascara applicator comprising in combination:

(a) a single elongated base;

(b) a single upstanding longitudinal row on said base comprising about 10 to 60 individual, discretely-mounted, substantially-equally-spaced resilient monofilaments having a stiffness (modulus of elasticity) of about 100,000 to 1,000,000 p.s.i., the monofilaments of said row extending from said base in a single plane, each of said monofilaments having sufficient length to extend at least about 1/16 to ½ inch from said base and having a cross-sectional thickness of about 3 to 20 mils and being spaced from adjacent monofilaments in the said row by about 2 to 30 mils; and

(c) an elongated handle portion extending from said base so as to provide a means for manually manipulating the applicator.

2. The mascara applicator of claim **1** including a plurality of said single rows mounted on said base so that the single planes of each intersect at an angle of at least about 90° and have a common axis.

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