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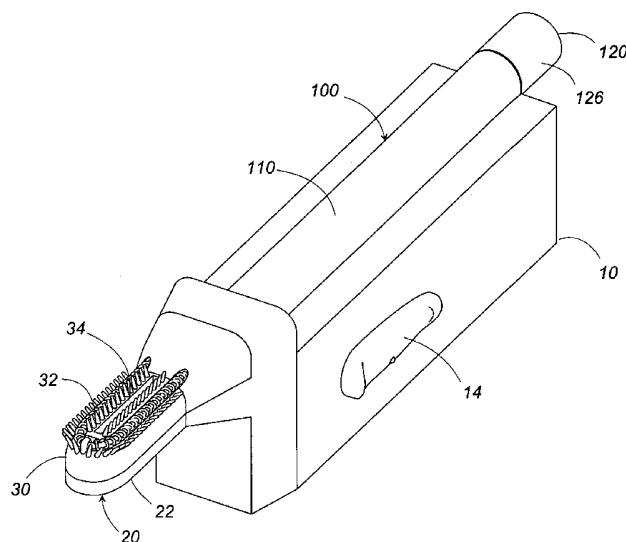
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(54) Title: A COSMETIC PRODUCT AND METHOD OF APPLYING A MASCARA COMPOSITION



(57) Abstract: A cosmetic product includes a liquid to semi-solid mascara composition and a treatment device, whereby the mascara composition is applied to the eyelashes. The mascara composition is liquid to semi-solid at room temperature, and is applied to the eyelashes with sufficient viscosity. The treatment device includes an applicator for receiving, applying, and heating the viscous mascara composition to the eyelashes. After being delivered to the eyelashes, the mascara composition is heated by a heater (40) included in the applicator to evaporate volatile components, thereby leaving a solid film of the mascara composition on the surface of the eyelashes. A cartridge (100) detachable to the applicator is equipped with a feeder for delivering an adequate amount of the mascara composition to the applicator.

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DESCRIPTION

A COSMETIC PRODUCT AND METHOD OF APPLYING A MASCARA COMPOSITION

TECHNICAL FIELD

The present invention relates to a cosmetic product including a mascara composition and an eyelash treatment device, whereby the mascara composition is applied to the eyelashes by delivering the mascara composition from a reservoir to an applicator, and is heated to make a solid film of the mascara composition on the surface of the eyelashes. The product provides improved performance of a mascara composition, while also being safe for the general consumer to use. The present invention further relates to a method of applying a mascara composition to the eyelashes.

BACKGROUND ART

Mascara products are used to enhance the beauty of a person's eyes by coating the eyelashes to primarily thicken, lengthen, color, and define the individual eyelashes. For the last 60 years, mascara products have been provided in the form of mascara applicators having an applicator brush attached to a handle, the applicator brush portion dipped in a package, such as a tube, containing a liquid to semi-solid mascara composition. Mascara compositions typically take the form of emulsions or dispersions of waxes and pigments in water or other volatile carriers. Mascara composition and delivery systems are limited by emulsion or solution chemistry and film forming technologies that are applied wet and then dried to create a film of mascara that sets and holds the eyelashes.

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These mascara compositions which are liquid to semi-solid have a low viscosity profile and low yield point, such that they are inherently prone to smearing and smudging after application to the eyelashes. The solid components dispersed in the composition, such as waxes, may also be difficult to apply, as clumping and globbing may occur due to lack of film smoothness of the solid components.

From another aspect, solvents and carriers of the composition that do not evaporate in timely manner may also provide smearing and smudging after application to the eyelashes. The so-called waterproof mascaras intend to solve such problem by employing volatile hydrocarbon solvents. While such volatile hydrocarbon solvents provide wear benefits, the application and beauty benefits may be compromised. Further, the volatile hydrocarbon solvents may cause odor and safety concerns.

One solution for providing a mascara composition having improved application and improved wearability, is to apply heat to the composition upon which it is applied to the eyelashes, for shortening the evaporation time required after application.

Meanwhile, there have been proposed in the art eyelash curling devices, such as WO 99/22782 including an applicator brush and heater combination. However, the applicator brush is designed to curl the eyelashes by application of heat, while applying the mascara composition of liquid or semi-liquid condition fetched from a reservoir.

There have also been proposed in the art assemblies containing a reservoir and an application device wherein the reservoir contains a heating device, such as EP 1462025, EP 1466579, EP 1466580, EP 1466541, and EP 1468628. The

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embodiments disclosed in these references provide heat to the entire reservoir.

It is generally known that heating of mascara compositions of liquid or semi-liquid condition may deteriorate the physical and chemical stability of the composition. There is a need of providing a dedicated heating device which comprises a delivery means for the mascara composition which heats only the quantity of the mascara composition delivered to the eyelashes, and without affecting the remainder of the mascara composition.

None of the existing art provides all of the advantages and benefits of the present invention.

DISCLOSURE OF THE INVENTION

The present cosmetic product comprises a mascara composition and an eyelash treatment device, whereby the mascara composition is applied to the eyelashes by a delivery system. The product provides improved performance of a mascara composition, while also being safe for the general consumer to use.

The eyelash treatment device comprises a heater for providing enough heat to the mascara composition, yet safe for application to the eyelashes, even in accidental situations where the user inadvertently touches the device with the eyelids or eyeballs. The eyelash treatment device comprises an applicator for receiving, applying, and heating the mascara composition.

Once the mascara composition is delivered and heated to evaporate volatile components, the mascara composition is solidified on the surface of the eyelashes to provide a solid film covering the eyelashes, which provides enhanced wearability.

The mascara composition may be any known in the art. Mascara compositions that particularly benefit from the present invention are those having

slower drying time.

The device of the present invention is specifically designed to give a structure that is configured to deliver the mascara composition and to hold the mascara composition for applying it to the eyelashes uniformly. The device includes an applicator equipped with a comb arranged along the length of the applicator, and a heater. The comb is arranged along the length of the applicator to be coated with the mascara composition. Whereby the mascara composition can be successfully delivered to the eyelashes from the entire length of the comb, leaving the solidified mascara film on the eyelashes upon being heated by the heater.

Preferably, the device includes a cartridge detachable to the grip. The cartridge has a reservoir holding the mascara composition and is equipped with a feeder for feeding the mascara composition from within the reservoir to the applicator.

For this purpose, the cartridge is designed to have an outlet port for detachable connection with an inlet port formed on the side of the applicator. The applicator is formed in its surface with an opening which communicates with the inlet port to transfer the mascara composition on the surface of the applicator, i.e., the comb for delivering the composition to the eyelashes.

These and other features, aspects, and advantages of the present invention will become evident to those skilled in the art from a reading of the present disclosure with the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

While the specification concludes with claims particularly pointing out and

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distinctly claiming the invention, it is believed that the present invention will be better understood from the following description of preferred, nonlimiting embodiments and representations taken in conjunction with the accompanying drawings in which:

FIG. 1 is a perspective view of an eyelash treatment device in accordance with a preferred embodiment of the present invention;

FIG. 2 is an exploded perspective view of the above device;

FIG. 3 is a front view of the device;

FIG. 4 is a side view of the device;

FIG. 5 is a top view of the device;

FIG. 6 is a cross-section taken along line 6-6 of FIG. 5;

FIG. 7 is a cross-section taken along line 7-7 of FIG. 5;

FIG. 8 is a cross-section taken along line 8-8 of FIG. 5;

FIG. 9 is a cross-section taken along line 9-9 of FIG. 5;

FIG. 10 is an exploded perspective view of a cartridge utilized in the device;

FIGS. 11 and 12 are views explaining how to apply the mascara composition while curing the eyelashes with the use of the device.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

While the description concludes with claims particularly pointing out and distinctly claiming the invention, it is believed that the present invention will be better understood from the following description.

A product in accordance with the present invention is a combination of a mascara composition and an eyelash treatment device.

Mascara Treatment device

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Now referring to FIGS. 1 to 9, there is shown an eyelash treatment device in accordance with a preferred embodiment of the present invention. The device uses a mascara composition which is prepared in the form of a viscous body such as gel or paste to be a liquid to semi-solid at room temperature, namely 25 °C, and such that it is successfully applied to the eyelashes with sufficient viscosity. At the room temperature, the viscous state of the mascara composition is fluid enough to be applied to the eyelashes, however, is viscous enough to stay on the applicator upon application, and on the eyelashes after application.

The device includes an elongated hand grip **10** carrying at its one longitudinal end an applicator **20** for applying the mascara composition to user's eyelashes. The applicator **20** is elongated to have a length extending along a length of the grip **10**, and includes a comb **32** for successfully delivering the mascara composition. Also included in the applicator **20** is a heater **40** configured to heat the mascara composition for evaporating volatile components contained in the mascara composition, leaving a solidified film on the surface of the eyelashes. The heat is also utilized in combination with the comb **32** to curl the eyelashes. The mascara composition is prepared to be a liquid to semi-solid and is held in a cartridge **100** detachable to the applicator **20**. The cartridge **100** is configured to include a feeder **120** for feeding the mascara composition to the surface of the applicator **20**, details of which will be discussed later.

As best shown in FIG. 8, the applicator **20** is composed of a base **22** coupled to a front end of the grip **10**, and a comb head **30** mounted on the base **22**. The comb head **30** is formed on its top rounded surface with the comb **32** composed of a plurality of comb teeth **32** arranged along the length and also

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along the width of the applicator. The comb head **30** is formed in its width center of the top rounded surface with an elongated opening **34** which extend along the length of the applicator **20** to spread the mascara composition from within the cartridge **100** on the top face of the applicator **20**. The mascara composition climbs-up to the comb **32** by the action of a surface tension to be ready for being delivered to the eyelashes as the comb teeth **32** smoothen the eyelashes. The opening **34** communicates with a channel **26** in the applicator **20** by way of a plurality of runners **36** spaced along the length of the applicator **20**, as shown in FIG. 6. The channel **26** is formed between the base **22** and the comb head **30** to extend from an inlet **24** at the rear end of the applicator to be supplied with the mascara composition from within the cartridge **100** coupled to the inlet **24**.

The comb head **30** is made of a dielectric plastic material and carries on its upper surface the heater **40** composed of a resistor coil **42** wound around a U-shaped core **44** of dielectric material to give two parallel rows running in the length of the applicator **20**. The coil **42** is electrically connected through wires **46** to a voltage source, i.e., a battery **12** within the grip **10** and is energized by manipulating a switch handle **14** on the side of the grip **10**. It is noted that the heater **40** is exposed on the top surface of the applicator **20** for efficiently applying the heat to the eyelashes, while it is sufficiently isolated from the opening **34**, the runners **36**, and the channel **26**, as best shown in FIG. 8, in order to minimize heating effect on the mascara composition remaining within the applicator, thereby solidifying only the mascara composition being applied to the eyelashes, and keeping the remaining mascara composition within the applicator free from being solidified or deteriorated. In this connection, the comb head **30**

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is made of the dielectric material with low thermal conductivity.

The grip **10** is formed in its top surface with a slot **12** for detachably holding the cartridge **100** containing the liquid to semi-solid mascara composition. The cartridge **100** is composed of a cylindrical reservoir **110** filled with the mascara composition, and the feeder **120** realized by a screw-in piston **122**. The piston **122** is inserted within the reservoir **110** together with a screw **124** which is held in threaded engagement with a dial **126**. The dial **126** is rotatable relative to the reservoir **110** to move the piston **122** linearly within the reservoir **110**, thereby forcing the mascara composition out through an outlet **112** at the front end of the reservoir **110**, and feeding the mascara composition on the top surface of the applicator **20** through the inlet **24**, the channel **26**, the runners **36**, and the opening **34**. In this way, the mascara composition is allowed to spread on the top surface of the applicator **20** after being squeezed out from the cartridge by manipulation of the feeder **120**.

In operation, the applicator **20** is firstly placed in a position with the comb head **30** just below the eyelashes, as shown in FIG. 11. Then, the applicator **20** is raised and twisted to some extent for smoothing the eyelashes with the comb teeth **32**, as shown in FIG. 12, thereby applying the semi-solidified or viscous mascara composition to the eyelashes, while lifting the same. In this condition, the top face of the comb head **30** comes close to the eyelashes for heating and curling the eyelashes, thereby solidifying the mascara composition to leave a solidified film of the mascara composition on the surface of the eyelashes. Thus, the above single operation can give the effect of forming the mascara film as well as curling the eyelashes.

The heater **40** is controlled to give an elevated temperature of about 50 °C

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to 100 °C for solidifying the mascara composition by evaporating volatile components, for example, alcohol and water contained in the mascara composition supplied from the cartridge.

Mascara Composition

All percentages, parts and ratios are based upon the total weight of the compositions of the present invention, unless otherwise specified. All such weights as they pertain to listed ingredients are based on the active level and, therefore do not include carriers or by-products that may be included in commercially available materials.

All ingredients such as actives and other ingredients useful herein may be categorized or described by their cosmetic and/or therapeutic benefit or their postulated mode of action. However, it is to be understood that the active and other ingredients useful herein can, in some instances, provide more than one cosmetic and/or therapeutic benefit or operate via more than one mode of action. Therefore, classifications herein are made for the sake of convenience and are not intended to limit an ingredient to the particularly stated application or applications listed.

The mascara composition has a viscosity of between about 1000mPas and about 10,000,000 mPas at 25°C, and is further designed to have a rheology profile which gives suitable rheology during the temperature band to which the eyelash heating device is heated. The temperature band may be selected to provide suitable balance of applicability of the mascara composition and eyelash curling/lifting benefit. Typically, the temperature band is between about 50°C and about 100°C.

The present mascara composition comprises a thickening agent and an aqueous or oily carrier. The components for the composition are selected in order to provide the desired rheology profile and other desired characteristics. When the composition comprises an aqueous carrier, it is easy to remove with soap and water. When the composition comprises an oily carrier, particularly when containing a volatile oil, it provides waterproof benefit.

Thickening Agent

The present composition comprises a thickening agent which provides the rheology, hydrophobicity, and film forming properties to the composition. Thickening agents may be selected from solid hydrophobic components, film forming polymers, and mixtures thereof.

Solid hydrophobic components useful herein as a thickening agent include waxes and fats.

Waxes are defined as lower-melting organic mixtures or compounds of high molecular weight, solid at room temperature and generally similar in composition to fats and oils except that they contain no glycerides. Some are hydrocarbons, others are esters of fatty acids and alcohols. Waxes useful in the present invention are selected from the group consisting of animal waxes, vegetable waxes, mineral waxes, synthetic waxes petroleum waxes, ethylenic polymers, hydrocarbon types such as Fischer-Tropsch waxes, silicone waxes, and mixtures thereof wherein the waxes have a melting point between 25°C and 100°C.

The specific waxes useful in the present invention are selected from the group consisting of beeswax, lanolin wax, shellac wax (animal waxes); carnauba, candelilla, bayberry (vegetable waxes); ozokerite, ceresin, (mineral waxes);

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paraffin, microcrystalline waxes (petroleum waxes); polyethylene, (ethylenic polymers); polyethylene homopolymers (Fischer-Tropsch waxes); C24-45 alkyl methicones (silicone waxes); and mixtures thereof.

Highly preferable commercially available waxes herein include stearyl palmitate by the tradename PURESTER 34, available from Strahl & Pitsch, ceresin by the tradename CERESIN 252 available from Strahl & Pitsch, and paraffin wax by the tradenames PARAFFIN SP-673P, PARAFFIN 206, and PARAFFIN 192 available from Strahl & Pitsch.

Useful herein are fats, namely glyceryl esters of higher fatty acids such as stearic and palmitic. Such esters and their mixtures are solid at room temperature and exhibit crystalline structure. The fats employed according to the invention are selected from the group consisting of fats derived from animals, vegetables, synthetically derived fats, and mixtures thereof wherein said fats have a melting point from about 55°C to about 100°C. Preferably, the fats are selected from the group consisting of glyceryl monostearate, glyceryl distearate, glyceryl tristearate, palmitate esters of glycerol, C18-36 triglycerides, glyceryl tribehenate, C18-36 acid triglycerides and mixtures thereof.

Highly preferable commercially available fats herein include glyceryl monostearate by the tradename CUTINA GMS-V available from Cognis Cutina.

Film forming polymers are useful as thickening agents herein, and are also useful for imparting wear and/or transfer resistant properties. The film forming polymers herein can be hydrophobic or hydrophilic, and can be provided in a lipophilic or aqueous carrier. When polymers provided in aqueous carriers are employed in the composition, a water-in-oil form is selected. Polymers of hydrophilic nature are also compatible with a water-in-oil form composition.

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Examples of suitable film forming polymeric materials include:

- a) sulfopolyester resins, such as those with tradename AQ sulfopolyester resins, such as AQ29D, AQ35S, AQ38D, AQ38S, AQ48S, and AQ55S available from Eastman Chemicals;
- b) polyvinylacetate/polyvinyl alcohol polymers, such as tradename Vinex resins available from Air Products, including Vinex 2034, Vinex 2144, and Vinex 2019;
- c) acrylic resins, including water dispersible acrylic resins available from National Starch under the trade name "Dermacryl", including Dermacryl LT;
- d) acrylates and their derivative polymers, including acrylates copolymer with tradename Luvimer available from BASF, Avalure series available from Noveon, Daitosol 5000AD available from Daito Kasei Kogyo, ethylene.styrene/acrylates copolymer such as Syntran series available from Interpolymer, acrylates/ammonium methacrylate copolymer with tradename Ultrasol 2075C available from Presperse, octyl acrylates copolymer with tradename Daitotol SJ available from Kobo, acrylates silicone copolymer with tradename Daitotol ASC available from Kobo, AMP-acrylates/allyl methacrylate copolymer with tradename Fixate G100 Polymer available from Noveon, acrylate/dimethicone copolymer with tradename KP545 available from ShinEtsu;
- e) styrene, such as sodium polystyrene sulfonate with tradename Flexan available from National Starch;
- f) urethanes, such as polyurethane-1 polymer with tradename Luviset PUR available from BASF;

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- g) polyvinylpyrrolidones (PVP), including tradenames Luviskol K17, K30 and K90 available from BASF PVP K-30, PVP K-120 available from ISP, tricontanyl PVP with tradename Ganex WP 660 Resin available from ISP, water soluble copolymers of PVP, including PVP/VA S-630 and W-735 and PVP/dimethylaminoethylmethacrylate Copolymers such as Copolymer 845, Copolymer 937, and Styleze CC-10 available from ISP, VP/DAM available from Daiichi Kogyo Seiyaku, PVP/acrylates/lauryl methacrylate copolymer with tradename Styleze 2000 available from ISP;
- h) high molecular weight silicones such as dimethicone and organic-substituted dimethicones, especially those with viscosities of greater than about 50,000 mPas;
- i) high molecular weight hydrocarbon polymers with viscosities of greater than about 50,000 mPas such as polybutene, polybutene terephthalate, polydecene, polycyclopentadiene, and similar linear and branched high molecular weight hydrocarbons, including isooctane with tradename Permethyl 97A available from Presperse;
- j) organosiloxanes, including organosiloxane resins, fluid diorganopolysiloxane polymers and silicone ester waxes.

Also useful herein are latex polymers including copolymer PVP/hexadecane or the copolymer PVP/eicosene marketed by ISP under the tradenames Ganex V-216® and Ganex V-220®, respectively. Ganex V-216® is a PVP/hexadecane copolymer comprising approximately 15-23% of pyrrolidone units with a weight average molecular weight of 7300. Ganex V-220® is a copolymer PVP/eicosene which comprises approximately 20-28% of pyrrolidone units and a weight average molecular weight of 8600.

Aqueous Carrier

The composition of the present invention may comprise an aqueous carrier to form a water-in-oil emulsion or an aqueous gel. Use of water allows the inclusion of useful components such as film forming polymers which are hydrophilic and/or aqueous carrier-based, hydrophilic conditioning agents, and other water soluble or water dispersible components described below.

In the present invention, deionized water is typically used. Water from natural sources including mineral cations can also be used, depending on the desired characteristic of the product.

Oily Carrier

The composition of the present invention may comprise an oily carrier. The oily carrier may comprise volatile oils for imparting waterproof benefit to the composition when dried. Volatile and non-volatile components useful as oily carrier include but are not limited to, hydrocarbons (such as isobutane, hexane, decene, acetone), halogenated hydrocarbons (like Freon), linalool, hydrocarbon esters (such as ethyl acetate, dibutyl phthalate), volatile silicon derivatives, especially siloxanes (such as phenyl pentamethyl disiloxane, phenethyl pentamethyl disiloxane, methoxypropyl heptamethyl cyclotetrasiloxane, chloropropyl pentamethyl disiloxane, hydroxypropyl pentamethyl disiloxane, octamethyl cyclotetrasiloxane, decamethyl cyclopentasiloxane), and mixtures thereof.

Pigments

The compositions of the present invention may comprise pigments selected from the group consisting of inorganic pigments, organic pigments, and organic lake pigments, pearlescent pigments, and mixtures thereof. The

present invention comprises mascara compositions devoid of pigments however, as such compositions may also provide the benefits of the present invention.

When employed, the pigments are present in proportions depending on the color and the intensity of the color that it is intended to produce. When employed, the level of pigments in the composition is from about 3 % to about 25 %, preferably from about 5 % to about 15 %. The pigments may optionally be surface-treated with treatments that include, but are not limited to, silicones, perfluorinated compounds, lecithin, and amino acids.

Inorganic pigments useful in the present invention include those selected from the group consisting of rutile titanium dioxide, anatase titanium dioxide (both coded in the Color Index under the reference CI 77891); black, yellow and red iron oxides (CI 77499, 77492 and 77491); bismuth oxychloride (CI 77163); manganese violet (CI 77742); ultramarines (CI 77007); chromium oxide (CI 77288); chromium hydroxide (CI 77289); ferric ferrocyanide (CI 77510); zinc oxide (CI 77947); and mixtures thereof.

The organic pigments useful in the present invention include carbons black, and the dyes and the analogous lakes selected from the group consisting of D&C Red 6 (CI 15850); D&C Red 7 (CI 15850:1); D&C Red 21 (CI 45380:2); D&C Red 22 (CI 45380); D&C Red 27 (CI 45410:1); D&C Red 28 (CI 45410); D&C Red 30 (CI 73360); D&C Red 33 (CI 17200); D&C Red 34 (CI 15880:1); D&C Red 36 (CI 12085); D&C Orange 4 (CI 15510); D&C Orange 5 (CI 45370:1); D&C Orange 11 (CI 45425); FD&C Yellow 5 (CI 19140), FD&C Yellow 6 (CI 15985); D&C Yellow 10 (CI 47005); FD&C Green 3 (CI 42053); D&C Green 5 (CI 61570); FD&C Blue 1 (CI 42090); Cochineal Carmine (CI 75470); Guanine (CI 75170) and mixtures thereof.

The pearlescent pigments useful in the present invention include those selected from the group consisting of mica (or a similar plate-like substrate) coated with any of the following materials alone or in combination: titanium dioxide, bismuth oxychloride, iron oxides, ferric ferrocyanide, chromium oxide, chromium hydroxide, and any organic pigment of the above-mentioned type and mixtures thereof.

Emulsifiers

The compositions of the present invention in emulsion form comprises an emulsifier, which is typically a lipophilic surfactant, preferably by weight of the entire composition at from about 1 % to about 15 %. The lipophilic surfactant herein has an HLB value of less than about 8.

The HLB value is a theoretical index value which describes the hydrophilicity-hydrophobicity balance of a specific compound. Generally, it is recognized that the HLB index ranges from 0 (very hydrophobic) to 40 (very hydrophilic). The HLB value of the lipophilic surfactants may be found in tables and charts known in the art, or may be calculated with the following general equation: $HLB = 7 + (\text{hydrophobic group values}) + (\text{hydrophilic group values})$. The HLB and methods for calculating the HLB of a compound are explained in detail in "Surfactant Science Series, Vol. 1: Nonionic Surfactants", pp 606-13, M. J. Schick (Marcel Dekker Inc., New York, 1966).

Without being bound by theory, the species and levels of the lipophilic surfactant herein are believed to provide a stable water-in-oil emulsion in view of the other components of the present invention.

The lipophilic surfactant can be an ester-type surfactant. Ester-type surfactants useful herein include: sorbitan monoisostearate, sorbitan

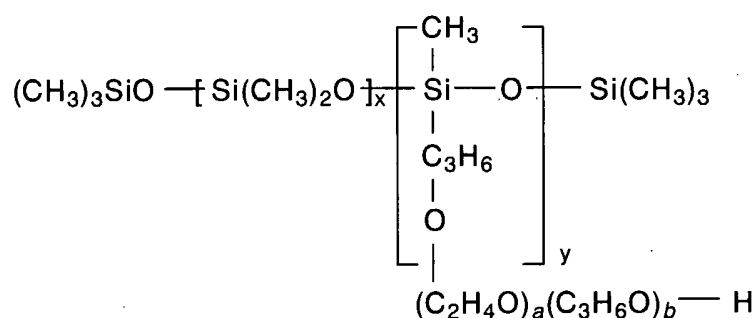
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diisostearate, sorbitan sesquiisostearate, sorbitan monooleate, sorbitan dioleate, sorbitan sesquioleate, glyceryl monoisostearate, glyceryl diisostearate, glyceryl sesquiisostearate, glyceryl monooleate, glyceryl dioleate, glyceryl sesquioleate, diglyceryl diisostearate, diglyceryl dioleate, diglycerin monoisostearyl ether, diglycerin diisostearyl ether, and mixtures thereof.

Commercially available ester-type surfactants are, for example, sorbitan isostearate having a tradename Crill 6 available from Croda, and sorbitan sesquioleate with tradename Arlacel 83 available from Kao Atras.

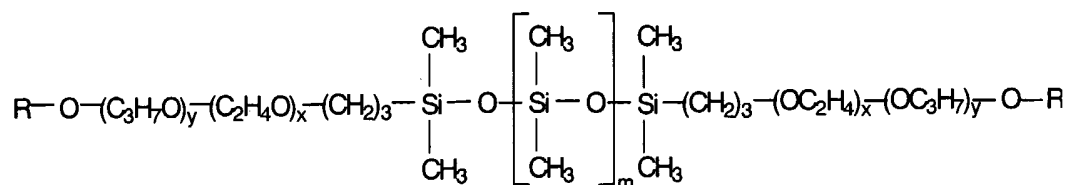
The lipophilic surfactant can be a silicone-type surfactant. Silicone-type surfactants useful herein are (i), (ii), and (iii) as shown below, and mixtures thereof.

(i) dimethicone copolyols having the formulation:



wherein x is an integer from 5 to 100, y is an integer from 1 to 50, a is zero or greater, b is zero or greater, the average sum of a+b being 1-100.

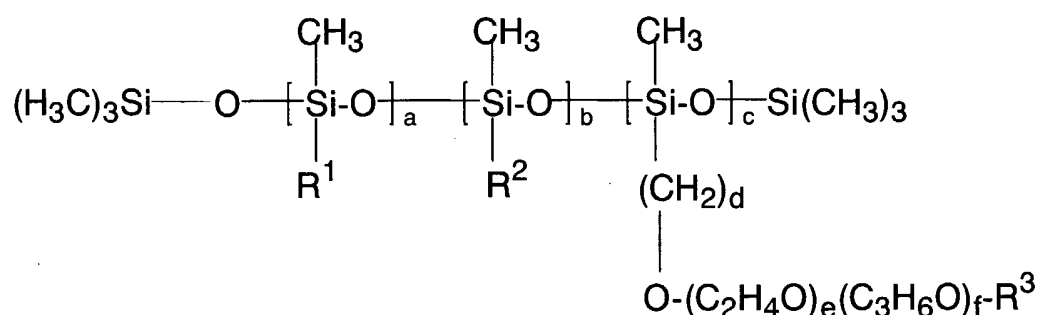
(ii) dimethicone copolyols having the formulation:



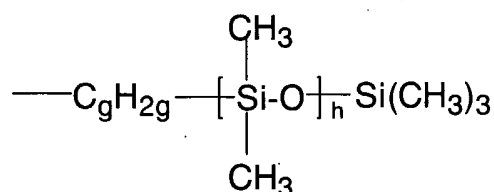
- 18 -

wherein R is selected from the group consisting of hydrogen, methyl, and combinations thereof, m is an integer from 5 to 100, x is independently zero or greater, y is independently zero or greater, the sum of x+y being 1-100.

(iii) branched polyether-polydiorganosiloxane emulsifiers herein having the formulation:



wherein R¹ is an alkyl group having from about 1 to about 20 carbons; R² is



wherein g is from about 1 to about 5, and h is from about 5 to about 20; R³ is H or an alkyl group having from about 1 to about 5 carbons; e is from about 5 to about 20; f is from about 0 to about 10; a is from about 20 to about 100; b is from about 1 to about 15; c is from about 1 to about 15; and d is from about 1 to about 5.

Commercially available silicone-type surfactants are, for example, dimethicone copolyols DC5225C, BY22-012, BY22-008, SH3746M, SH3771M, SH3772M, SH3773M, SH3775M, SH3748, SH3749, and DC5200, all available from Dow Corning, and branched polyether-polydiorganosiloxane emulsifiers such as PEG-9 polydimethylsiloxylethyl Dimethicone, having an HLB of about 4 and a molecular weight of about 6,000 having a tradename KF 6028 available

from ShinEtsu Chemical.

Hydrophobic Conditioning Agents

The compositions of the present invention may further comprise a hydrophobic conditioning agent. Nonlimiting examples of hydrophobic conditioning agents include those selected from the group consisting of mineral oil, petrolatum, lecithin, hydrogenated lecithin, lanolin, lanolin derivatives, C7-C40 branched chain hydrocarbons, C1-C30 alcohol esters of C1-C30 carboxylic acids, C1-C30 alcohol esters of C2-C30 dicarboxylic acids, monoglycerides of C1-C30 carboxylic acids, diglycerides of C1-C30 carboxylic acids, triglycerides of C1-C30 carboxylic acids, ethylene glycol monoesters of C1-C30 carboxylic acids, ethylene glycol diesters of C1-C30 carboxylic acids, propylene glycol monoesters of C1-C30 carboxylic acids, propylene glycol diesters of C1-C30 carboxylic acids, C1-C30 carboxylic acid monoesters and polyesters of sugars, polydialkylsiloxanes, polydiarylsiloxanes, polyalkarylsiloxanes, cyclomethicones having 3 to 9 silicon atoms, polysiloxane crosspolymers such as vinyl dimethicone crosspolymer available as a dimethicone mixture fluid with tradename KSG series available from ShinEtsu, vegetable oils, hydrogenated vegetable oils, polypropylene glycol C4-C20 alkyl ethers, di C8-C30 alkyl ethers, and combinations thereof.

Hydrophilic Conditioning Agents

The compositions of the present invention may further comprise a hydrophilic conditioning agent. Nonlimiting examples of hydrophilic conditioning agents include lower alcohols such as ethanol and isopropanol; dihydric alcohols such as propylene and butylene glycol; polyols such as glycerin, polypropylene glycol and polyethylene glycol; ureas, pyrrolidone carboxylic acids, ethoxylated

and/or propoxylated C3-C6 diols and triols, alpha-hydroxy C2-C6 carboxylic acids, ethoxylated and/or propoxylated sugars, polyacrylic acid copolymers, sugars having up to about 12 carbons atoms, sugar alcohols having up to about 12 carbon atoms, and mixtures thereof.

Additional components

The compositions hereof may further contain additional components such as are conventionally used in topical products, e.g., for providing aesthetic or functional benefit to the composition or skin, such as sensory benefits relating to appearance, smell, or feel, therapeutic benefits, or prophylactic benefits (it is to be understood that the above-described required materials may themselves provide such benefits).

The CTFA Cosmetic Ingredient Handbook, Second Edition (1992) describes a wide variety of nonlimiting cosmetic and pharmaceutical ingredients commonly used in the industry, which are suitable for use in the topical compositions of the present invention. Such other materials may be dissolved or dispersed in the composition, depending on the relative solubilities of the components of the composition.

Examples of suitable topical ingredient classes include: sunscreen actives, anti-cellulite agents, antioxidants, radical scavengers, chelating agents, vitamins and derivatives thereof, abrasives, other oil absorbents, astringents, dyes, essential oils, fragrance, structuring agents, emulsifiers, solubilizing agents, anti-caking agents, antifoaming agents, binders, buffering agents, bulking agents, denaturants, pH adjusters, propellants, reducing agents, sequestrants, cosmetic biocides, and preservatives, such as propylparaben, methyl paraben, phenoxyethanol, benzyl alcohol, and EDTA and its salts.

Additional Usages

The cosmetic products herein may also be used for other usages in the personal care field, with necessary modifications to the composition and/or device suitable for the usage. Unlimited examples of such usages include coloring and treatment of eyebrows; treatment, styling, removing, and coloring of hair; treatment and tattooing of skin, and nail coloring.

EXAMPLES

The following examples further describe and demonstrate the preferred embodiments within the scope of the present invention. The examples are given solely for the purpose of illustration, and are not to be construed as limitations of the present invention since many variations thereof are possible without departing from its spirit and scope.

Examples C1-C3

Examples C1-C3 are mascara compositions having the following composition.

Component	Example C1	Example C2	Example C3
Paraffin wax	2	10	
Bees wax	2	5	
Carnauba wax	4	5	
Synthetic wax	6		
Polyethylene wax		2	
Ceresin		5	
Trihydroxystearin		2	
Quaternium-18 hectorite	5	8	
Propylene carbonate	1	3	
Glyceryl monostearate	7.5		
Stearic acid	2.6		
Triethanolamine	1.7		2

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Polyvinyl alcohol	1.5		2
Iron oxide	10	12	
Propylparaben	0.2	0.2	
Methylparaben	0.2		0.2
Ethyl alcohol	1		5
Water	35.3		39.8
Acrylate Copolymer emulsion	20		50
Acrylates/C10-30 alkyl acrylate crosspolymer			1
Volatile isoparaffin		37.8	
High molecular weight Dimethicone		10	

All documents cited in the Detailed Description of the Invention are, in relevant part, incorporated herein by reference; the citation of any document is not to be construed as an admission that it is prior art with respect to the present invention.

While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

CLAIMS

1. A cosmetic product comprising:

a) a mascara composition comprising:

- i) a thickening agent selected from the group consisting of solid hydrophobic components, film forming polymers and mixtures thereof; and
- ii) an oily or aqueous carrier;

wherein the mascara composition has a viscosity of between about 1000 mPas and about 10,000,000 mPas at 25°C; and

b) a mascara treatment device comprising:

a grip to be grasped by a user's hand; and

an applicator being supported by said grip and being configured to receive the mascara composition for applying said composition to eyelashes of the user;

said applicator being elongated to have a length and carrying:

a comb being formed on the surface of the applicator and arranged along the length of said applicator to be coated with the mascara composition for delivering to the eyelashes; and

a heater extending along said length for evaporating volatile components included in said mascara composition to make a solid film of said mascara on the surface of the eyelashes.

2. The cosmetic product as set forth in claim 1, wherein

said device is configured to include a cartridge detachable to said grip, said

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cartridge comprising:

a reservoir holding said mascara composition, and
a feeder configured to supply said mascara composition from said reservoir
to said applicator.

3. The cosmetic product as set forth in claim 2, wherein
said cartridge has an outlet port for detachable connection with an inlet port
formed on the side of said applicator,
said applicator being formed in its surface with an opening which
communicates with said inlet to transfer the mascara composition from within
said cartridge on the surface of said applicator.

4. A method of applying a mascara composition which is liquid to semi-solid
at room temperatures to the eyelashes, said method comprising steps of:
feeding the mascara composition to an applicator;
delivering the mascara composition from said applicator directly to the
eyelashes; and
heating said mascara composition volatile components included in said mascara
composition to make a firm solid film of said mascara composition on the surface
of the eyelashes.

5. The method of claim 4, wherein

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said mascara composition comprising at least a solid hydrophobic component;

said mascara composition having:

- i) a thickening agent selected from the group consisting of solid hydrophobic components, film forming polymers and mixtures thereof; and

- ii) an oily or aqueous carrier;

wherein the mascara composition has a viscosity of between about 1000 mPas and about 10,000,000 mPas at 25°C; and

wherein said method utilizes a treatment device which comprises:

a grip to be grasped by a user's hand; and

an applicator being supported by said grip and being configured to receive a mascara composition for applying said composition to eyelashes of the user, said applicator being elongated to have a length and carrying:

a comb being arranged along the length of said applicator for delivering the mascara composition to the eyelashes, and

a heater extending along said length for evaporating volatile components included in said mascara composition to solidify said mascara composition on the surface of the eyelashes.

6. A method of claim 5, wherein

said mascara composition is prepared in the form of a gel or paste at room temperatures,

said step comprising the steps of:

supplying said mascara composition to said applicator;

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moving said applicator to comb the eyelashes by said comb to apply the mascara composition to the eyelashes; and
heating the mascara composition on the surface of the eyelashes to evaporate volatile components included in said mascara composition to solidify said mascara composition on the surface of the eyelashes.

FIG. 1

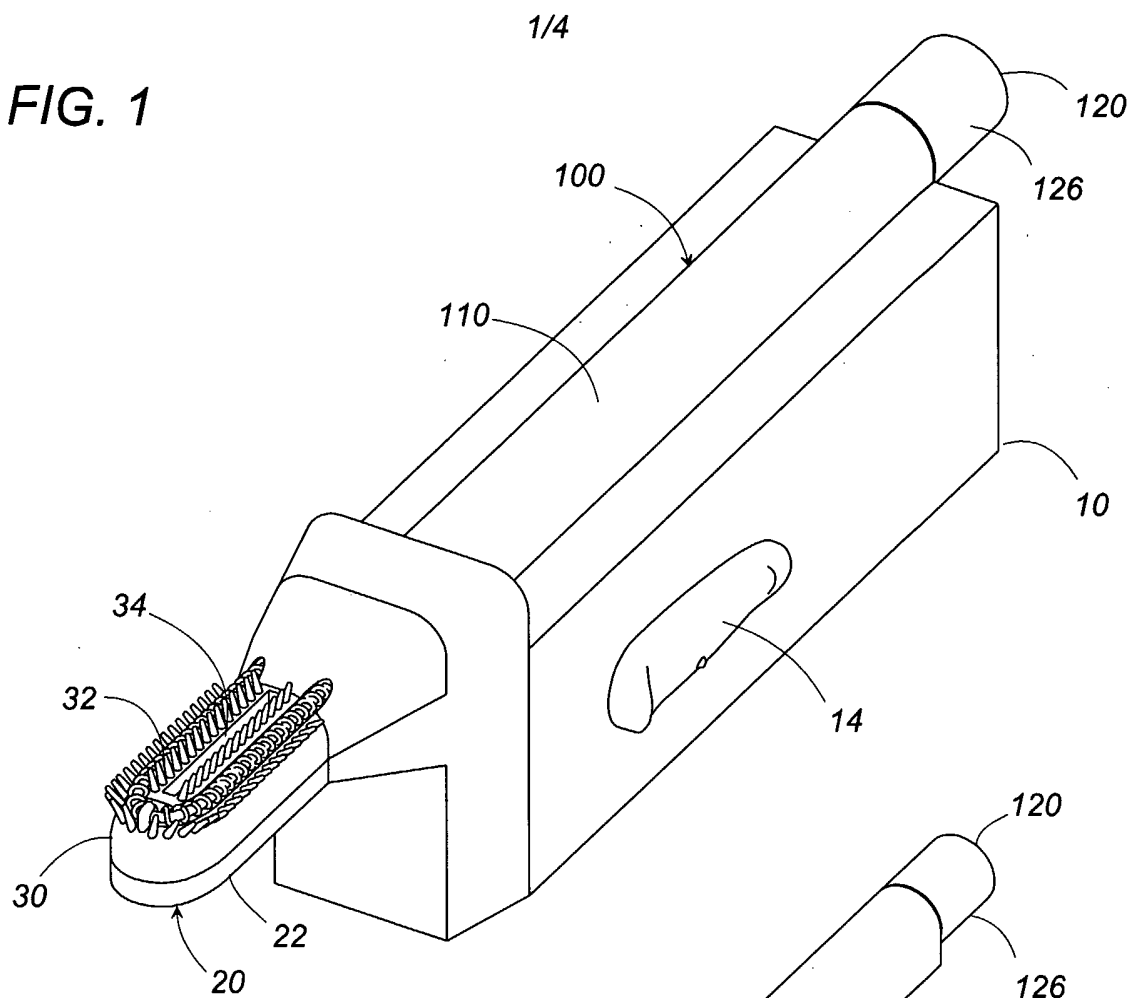


FIG. 2

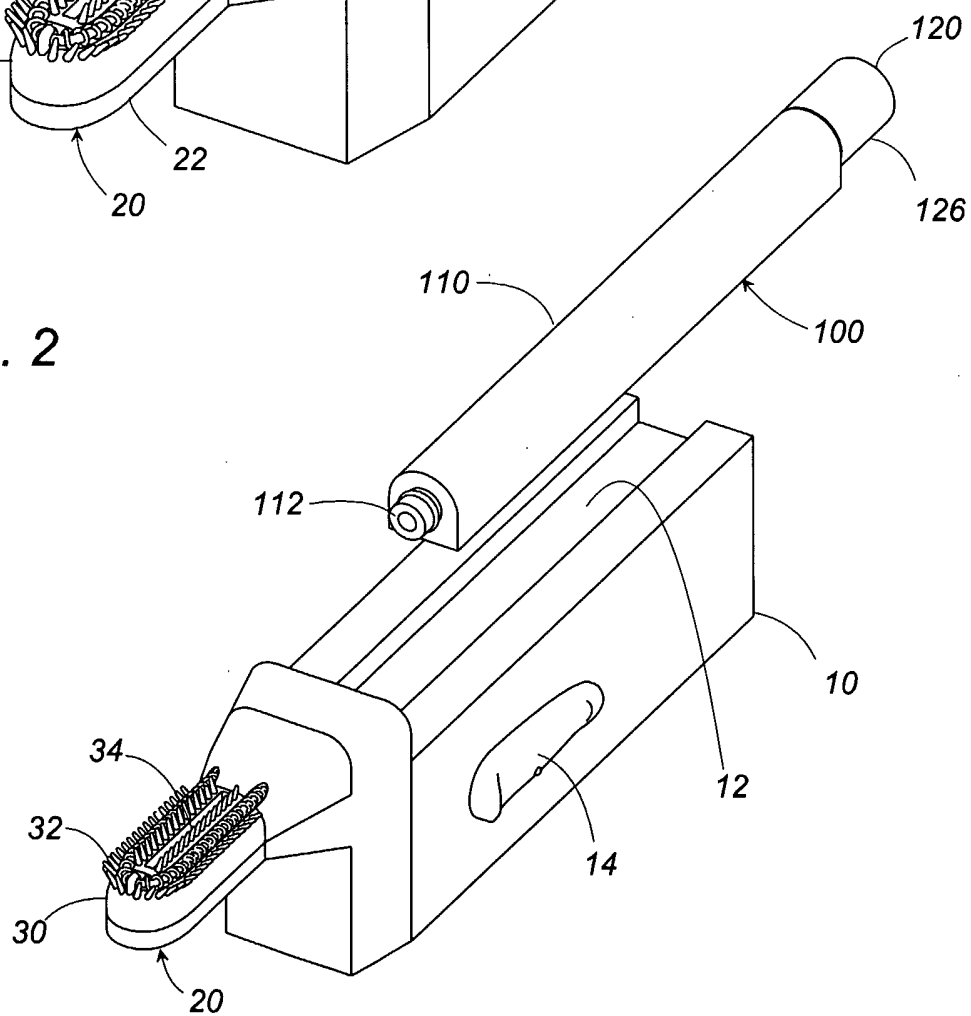


FIG. 3

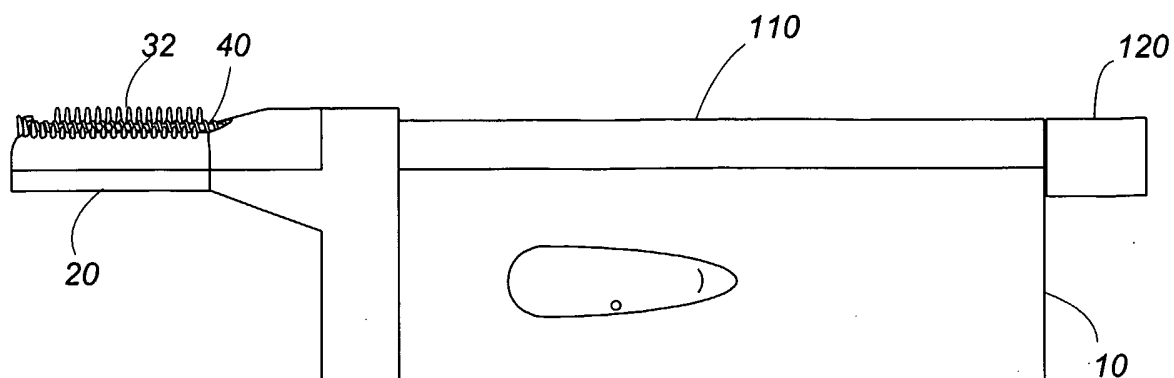


FIG. 4

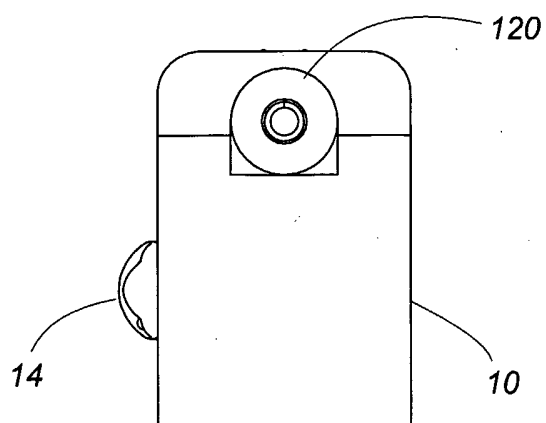
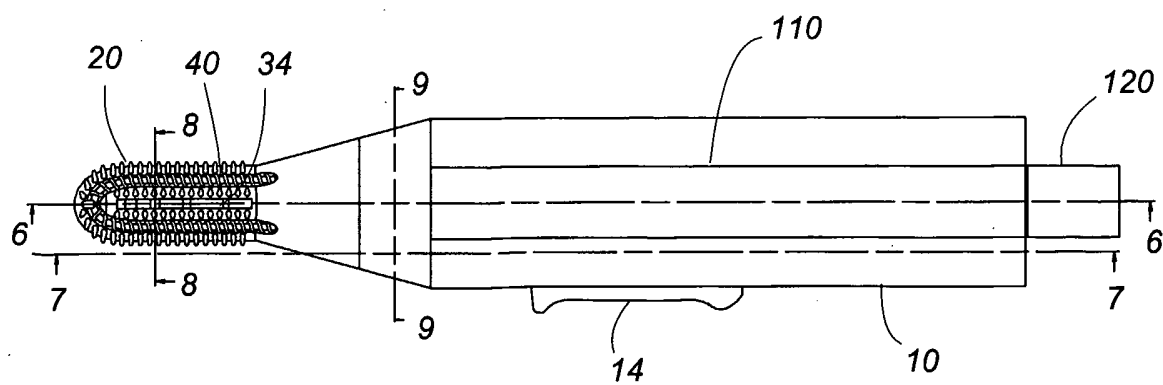


FIG. 5



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FIG. 6

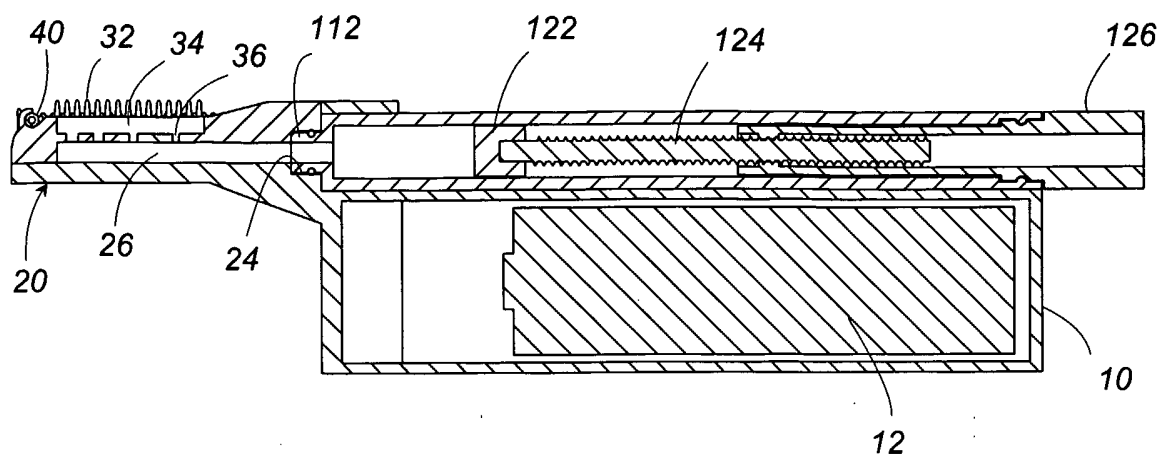


FIG. 7

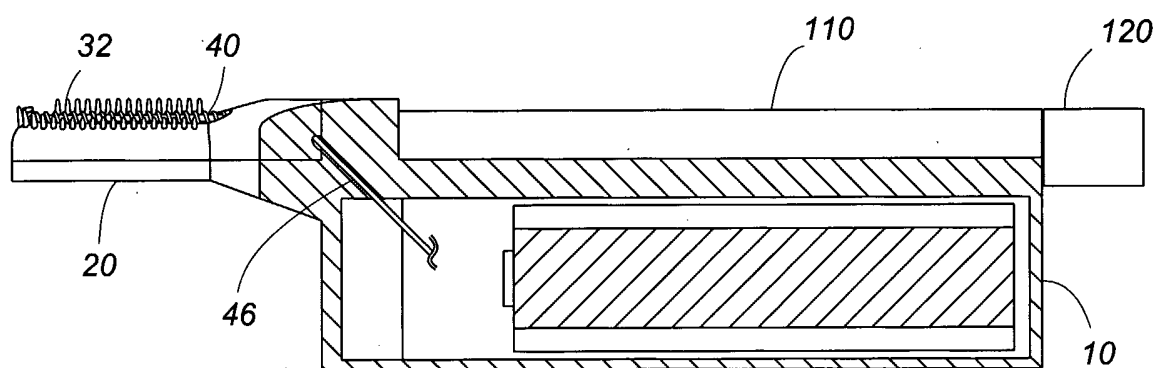


FIG. 8

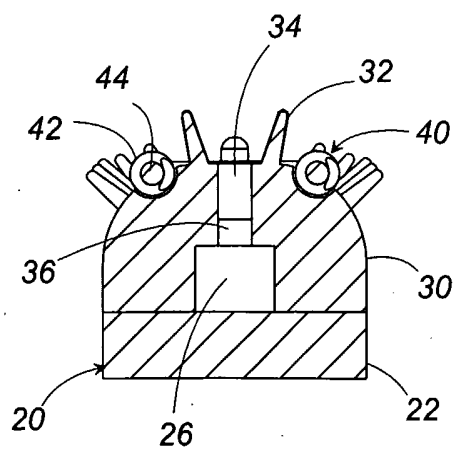
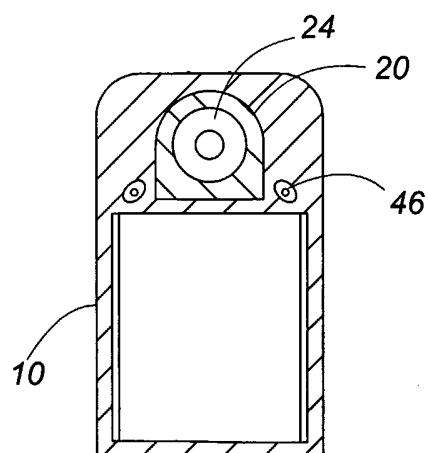


FIG. 9



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FIG. 10

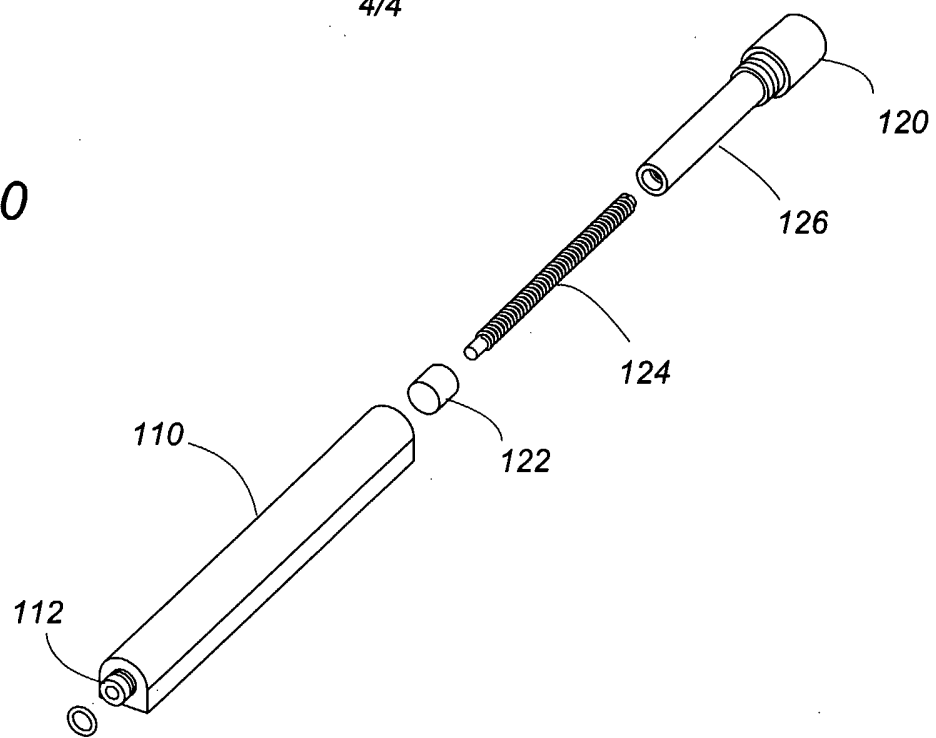


FIG. 11

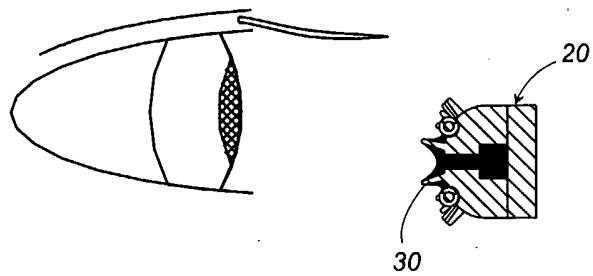
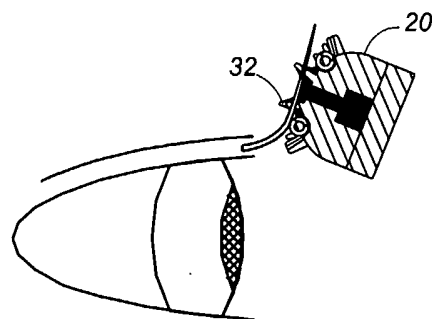


FIG. 12



INTERNATIONAL SEARCH REPORT

PCT/JP2005/022045

A. CLASSIFICATION OF SUBJECT MATTER
A45D2/48

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A45D A46B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 466 541 A (L'OREAL) 13 October 2004 (2004-10-13)	1,4-6
Y	paragraphs [0018], [0029], [0049], [0095], [0096]; claims; figures	2,3
Y	US 5 307 826 A (IOSILEVICH ET AL) 3 May 1994 (1994-05-03) column 1, line 7 - line 23 column 2, line 22 - column 3, line 34; claims; figures	2,3
Y	US 2003/075199 A1 (BERTAZZA LUCIANO ET AL) 24 April 2003 (2003-04-24) paragraphs [0001], [0010], [0021], [0022]; claims; figures	2,3
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Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

17 March 2006

Date of mailing of the international search report

27/03/2006

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INTERNATIONAL SEARCH REPORT

PCT/JP2005/022045

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 207 640 A (DAVID ERNEST * MANSFIELD) 8 February 1989 (1989-02-08) page 1, line 4 - page 5, line 9; claims; figures -----	1-6
A	EP 0 349 416 A (L'OREAL) 3 January 1990 (1990-01-03) column 1, line 8 - column 2, line 23; claims; figures -----	1-6

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PCT/JP2005/022045

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EP 0349416	A	03-01-1990	DE 68904608 D1 DE 68904608 T2 DE 68920593 D1 DE 68920593 T2 ES 2037444 T3 ES 2066341 T3 FR 2633498 A1 JP 2104306 A JP 2879573 B2 JP 11103932 A JP 11103931 A US 5002415 A US 5096319 A	11-03-1993 26-08-1993 23-02-1995 07-09-1995 16-06-1993 01-03-1995 05-01-1990 17-04-1990 05-04-1999 20-04-1999 20-04-1999 26-03-1991 17-03-1992