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(54) Title: MASCARA APPLICATOR AND DISPENSER



Fig. 1

(57) Abstract: A mascara dispensing system including a motorized applicator unit with an applicator brush attached to a revolving running staff surrounded by a stabilizing sleeve is disclosed. The motorized applicator unit is configured to automatically revolve the applicator brush in a selectable direction and/or at a selectable rotational speed via a control pad or switch. The system also includes a container unit that holds a mascara formulation or a replaceable mascara cartridge. The container unit detachably couples to the motorized applicator unit through one or more securing features that provide a user feedback when opening and closing and that provide a substantially air-tight seal between the motorized applicator unit and the container unit. In accordance with further embodiments of the invention, the container unit includes a contoured insert feature that minimizes the amount of air or space between the container unit and the motorized applicator unit when they are coupled together.

WO 2009/023041 A1

MASCARA APPLICATOR AND DISPENSER

Related Application(s):

This Patent Application claims priority under 35 U.S.C. 119 (e) of the co-pending U.S. Provisional Patent Application, Serial No. 60/964,989, filed August 15, 2007, and entitled "MASCARA APPLICATOR AND DISPENSER." The Provisional Patent Application, Serial No. 60/964,989, filed August 15, 2007, and entitled "MASCARA APPLICATOR AND DISPENSER" is also hereby incorporated by reference.

FIELD OF THE INVENTION:

This invention relates generally to cosmetics. More specifically, this invention relates to systems and devices for applying and dispensing mascara.

BACKGROUND ON INVENTION:

Various techniques have been employed to package mascara and apply the mascara to eyelashes. Many of the prior art devices and systems includes an applicator unit with a handle and an applicator brush and a container unit with a storage compartment. In use, the applicator brush of the applicator unit fits through a neck portion of the container unit and is dipped into a mascara solution contained therein. The applicator unit and the container unit are typically configured to fit together not only for convenient storage, but also hygienic reasons.

There are a number of deficiencies with prior art mascara systems and devices. Prior art mascara systems and devices only allow a user to choose a single mascara formulation. Also, the applicator brush typically applies the mascara to uneven eyelashes causing the mascara to clump together and/or causing the eyelashes to stick together. To address some of the aforementioned deficiencies, Diaz in U.S. Pat. No. 6,565,276 disclosed a motorized mascara system with an applicator unit that includes a motorized handle. The motorized handle rotates the applicator brush and applies the mascara to the eyelashes in a controlled manner. The motorized handle includes a two-way motor and a switch for changing a rotational direction of the applicator brush. The system of Diaz also includes a container unit with mascara contained therein, wherein the container unit is configured to couple to the motorized handle through a set of threaded features.

There are also a number of hazards associated with the use and application of eye cosmetics, such as mascara. For example, when mascara is not stored properly and/or if the mascara container is not closed properly, dangerous bacteria or fungi can grow within the mascara. The bacteria or fungi once in the mascara can get into the user's eyes when the mascara is applied to eyelashes and lead to infection. Infection of the eyes can also occur though sharing of the mascara and/or mascara applicators.

SUMMARY OF THE INVENTION:

The present invention is directed to a mascara system and applicator that provides for easy and proper storage of the mascara and reduce the potential for contamination of the mascara that can result in the growth of bacteria or fungi. The mascara system and applicator of the present invention also provides safety features that reduce the chance of injury to eyes or eyelashes when the mascara is being applied. The system and applicator of the present invention also preferably allows for changing applicator tips and/or mascara formations without requiring replacement of the entire system or applicator.

The present invention is directed to a system for applying mascara to eyelashes uniformly and hygienically. The system includes a motorized applicator unit. The motorized applicator unit includes an applicator. The applicator includes an applicator brush and a revolving running staff. The motorized applicator unit further includes a motorized handle for automatically rotating the applicator brush and the revolving running staff in a selectable direction and/or at a selectable rotational speed. Preferably, the motorized applicator unit also includes a stabilizing sleeve coupled to the motorized handle and surrounding the revolving running staff. The stabilizing sleeve helps to stabilize positioning of the applicator brush as it revolves and provides a high degree of control while applying the mascara to the eyelashes. The motorized applicator unit also preferably includes a built-in safety clutch that is coupled to the revolving running staff. The built-in safety clutch prevents the revolving running staff from moving when a sufficient pressure and/or force is applied to the applicator brush. The built-in safety clutch thereby provides a degree of safety for the user in the event that the bush head contacts a portion of the user's eye and/or gets caught on a portion of the user's eyelash or surrounding hair, causing the brush to stop.

The system of the present further includes a container unit. The container unit is

configured to detachably couple to the motorized applicator unit and over the applicator brush, revolving running staff and stabilizing sleeve through one or more securing features. The securing features preferably include one or more twist and lock features, snap features and compression features. The securing features preferably provides a user feedback that encourages proper use of the mascara system, adds to the longevity to the mascara and reduces the risk contamination to the mascara. For example, the securing features make a nose, click or vibrate when the container unit is properly coupled to the motorized applicator unit.

The twist and lock features are similar to those used on small light bulbs to fix the small light bulb into a light bulb socket. In accordance with the embodiments of the invention, the twist and lock features include protruding or nodule features on the container unit and/or on the motorized applicator unit. The protruding features are configured to fit into or slide into contoured grooved or slotted features on the container unit and/or motorized applicator. In operation the system is closed for storage by placing the protruding or nodule features into the contoured grooved or slotted features or by sliding the protruding or nodule features into the contoured grooved or slotted features. Then the container unit and motorized applicator are pressed together and twisted relative to each other. Twisting the container unit and the motorized applicator relative to each other causes the protruding or nodule features and the contoured grooved or slotted features to snap or pop into a locked position, thereby holding the container unit and the motorized applicator firmly together. Twist and lock features preferably provide a tactile and/or audible indication that the system is properly closed or sealed for storage. For example the twist and lock features make a popping or clicking sound that can be heard and or a detent that can be felt by the user when the system is properly closed or sealed for storage.

Preferably, the securing feature provides an air tight seal between the container unit and the motorized handle when they are coupled together, which helps to prevent air-born contaminants from entering the mascara while the system is being stored. The container unit also preferably includes a contoured insert feature that minimizes the amount of air or space between the container unit and the motorized applicator unit when they are coupled together and, thereby, minimizes drying of the mascara and further reduces air-born contaminants from entering the mascara while the system is being stored.

In accordance with the embodiments of the invention the motorized handle includes a touch control panel or switch. The touch control panel or switch is configured for controlling one or more of a rotational direction of the applicator brush and a speed of rotation of the applicator brush. The motorized handle also preferably includes a power supply, which is either a replaceable battery or a permanently sealed battery. The motorized handle, in further embodiments of the invention, is configured to plug into an outlet through a power cord and/or configured to be recharged through a cord plugged into a power outlet.

In accordance with the embodiments of the invention, the container unit includes a compartment for holding a mascara. The compartment is configured to directly hold mascara or alternatively is configured to receive and hold a replaceable mascara cartridge and/or a replaceable mascara cartridge with a brush. The container unit also preferably includes a wiping sleeve for removing excess mascara from the applicator brush when the motorized applicator unit and container unit are separated.

In still further embodiments of the invention, a system includes a motorized applicator unit, such as described above and below and a set or plurality of container units or replaceable cartridges. The container units and/or cartridges each contain a suitable mascara formulation and/or mascara formulation with a brush are each configured to detachably couple to the motorized applicator unit or a container unit, respectively. The container units or cartridges preferably include identifiers. The identifiers provides an indication of a color or other physical property of the mascara formulation contained therein. Suitable identifiers include, but are not limited to, geocentric shapes, color markers and labels. The system in accordance with the embodiments of the invention also includes a tray for holding and displaying the container units or the cartridges. The system can also include any number detachable and replaceable applicators or applicator brushes.

BRIEF DESCRIPTION OF FIGURES:

FIG. 1 shows a mascara system, in accordance with the embodiments of the present invention.

5 FIG. 2 shows a mascara with a flexible running staff and a stabilizing sleeve, in accordance with the current invention.

FIGS. 3A-B show eyelashes with mascara applied using a tradition mascara applicator and the mascara applicator of the present invention.

10 FIG. 4 shows a mascara system with packaging that allows a user to demonstrate and observe rotation of the revolving running staff and the applicator brush without removing or opening the packaging, in accordance with the embodiments of the present invention.

15 FIGS. 5A-B show an exploded and a cross-sectional view of a mascara systems, in accordance with the embodiments of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS:

Referring to FIG. 1, a system 100 in accordance with the embodiments of the invention includes a motorized applicator unit 121 and a container unit 101 that detachably couples to the motorized applicator unit 121. The motorized applicator unit 121 includes an applicator brush 107 and a revolving running staff 113.

Preferably, the container unit 101 is configured to detachably couple to the motorized applicator unit 121 and over the brush applicator 107 through one or more securing features 109. Suitable securing features include, but are not limited to, snap features and compression features and/or protrusion or nodule features with matched contoured grooved or slotted features, also referred to herein as twist and lock securing features. Preferably, the securing features provides a user feedback that encourages proper use of the mascara system, adds to the longevity to the mascara and reduces the risk contamination to the mascara. For example, the twist and lock features provides a tactile and/or audible indication that the container unit 101 motorized applicator 121 are properly sealed for storage.

The motorized applicator unit 121 includes a motorized handle 123 that is configured to automatically rotate the applicator brush 107 in a selectable direction and/or at a selectable speed. The motorized handle 123 includes a built-in motor 117 with a drive mechanism (not shown) for rotating the revolving running staff 113 and the applicator brush 107. The built-in motor 117 is preferably a multi-direction and/or a variable speed motor that responds to and/or is controlled by switch with a touch control panel or pad 119. The motorized applicator unit 121 also includes a stabilizing sleeve 111 coupled to the motorized handle 123 and surrounding the revolving running staff 113. The stabilizing running staff 111 helps to stabilize the positioning of the applicator brush 107 as it revolves and provides a high degree of control while applying the mascara to the eyelashes.

Referring now to FIG. 2, the motorized applicator unit 121 also preferably includes a built-in safety clutch 118 that is coupled to the revolving running staff 113. The built-in safety clutch 118 prevents the revolving running staff 113 from moving when a sufficient pressure and/or force is applied to the applicator brush and/or when the revolving running staff 113 is bent in a direction indicated by the arrow 130 away from its normal central position. The built-in safety clutch 118, thereby, provides a degree of safety for the user in the event that the brush head contacts a portion of the user's

eye and/or gets caught on a portion of the user's eyelash or surrounding hair.

Referring now to both FIG. 1 and FIG. 2, in accordance with the embodiments of the invention the revolving running staff 113 and the applicator brush 107 are configured to detachably couple to the motorized handle 123, such that the revolving running staff 113 and the applicator brush 107 can be replaced when the applicator brush 107 is worn out or when changing mascara formulations, mascara cartridges or container units, such as described below.

In accordance with further embodiments of the invention, the system 100 includes additional applicator units (not shown) with running staffs and applicator heads that are interchanged with the revolving running staff 113 and the applicator brush 107 shown. Accordingly, the system 100 of the present invention is capable of being used with any number of cosmetic products. For example, mascara cartridges, such as a mascara cartridge 127 described below, is manufactured with an applicator unit and sold separately from the motorized handle 121. In operation, a user attaches the applicator unit to the motorized handle 121 to dispense and apply mascara from a separate mascara cartridge.

In accordance with further embodiments of the invention, the motorized handle 123 includes a touch control panel or pad 119 for controlling one or more of a rotational direction of the applicator brush 107 and a speed of rotation of the applicator brush 107. The touch control panel or pad 119 is preferably circular, which allow the user to migrate through selections or setting on touch control panel or pad 119 without looking at the touch control panel or pad 119. In accordance with this embodiment, the motorized handle 123 includes an internal power supply, such as a battery that is configured to be recharged through a suitable charging unit 135. Alternatively, the motorized handle 123 is configured to be powered through a disposable and replaceable battery 517 (FIGS. 5A-B) that fits into a body portion of the motorized handle 123 and which is accessible by removing a cap feature 115. The battery 517 is in an alternative embodiment of the invention is permanently sealed within the body portion of the motorized handle 123. In further embodiments of the invention, the motorize handle 123 is powered through a cord that plugs into a power outlet (not shown) or a rechargeable battery.

The container unit 101 preferably includes a compartment 103 for holding a mascara and a wiping sleeve 105 for removing excess mascara from the applicator brush 107 when the applicator brush 107 is dipped into the mascara and separated from the container unit 101.

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In accordance with further embodiments of the invention, the system 100 includes one or more removable and replaceable mascara cartridges 125 with a compartment 127 for holding mascara. The mascara cartridges 125 are configured to fit into the compartment 103 of the container unit 101, such that a user can select or change mascara without replacing the container unit 101 and/or the motorized applicator unit 121. The system 100 can also include a display tray 150 with docking sites 131 and 133 for holding the mascara cartridges 125. The mascara cartridges 125 preferably include wiping sleeves 129 for removing excess mascara from the applicator brush 107 in a manner described previously. The system 100 can also include any number of replaceable revolving running staffs 113 and/or replaceable applicator brushes 107 that are provided separately or in combination with the mascara cartridges 125.

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In still further embodiments of the invention, the system 100 includes a plurality of container units, such as the container unit 101 described above. Each of the container units include a suitable mascara formulation. In accordance with this embodiment, the container units include caps 139 and are configured to fit into the docking sites 131 and 133 of the display tray 150. In further embodiments of the invention the container units 101, cartridges 127 and/or caps 139 include identifiers 143 and 141. The identifiers 143 and 141 provide an indication of a color or other physical property of the mascara formulation contained therein. Suitable identifiers include, but are not limited to, geometric shapes, color markers and or labels.

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FIG. 3A shows a view 300 of eyelashes 301 with mascara applied using a traditional mascara applicator. Note that eyelashes 301 are clumped together as a result uneven application of mascara to the eyelashes 301. By way of comparison, FIG. 3B shows a view 350 of eyelashes 301 with the mascara applied using the mascara applicator illustrated in FIG. 1, FIG 2, FIG. 4, FIG 5A and FIG 5B. Note that the eyelashes 310' are well separated and defined as a result of uniform application of mascara and styling of the eyelashes 310'.

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FIG. 4 show a mascara systems 400 with packaging 401 for displaying the motorized applicator unit 121 and the container unit 101. The packaging allows a user to demonstrate and observe rotation of the revolving running staff 113 and the applicator brush 107 without removing or opening the packaging by pressing or moving the touch pad or switch 119 through a depression or opening 119 in the packaging 401.

FIGS. 5A-B show an exploded view 500 and a cross-sectional view 550 of a mascara systems, in accordance with the embodiments of the present invention. The system includes a motorized applicator unit 521 and a container unit 501, similar to those described above.

The motorized applicator unit 521 includes a housing structure 510 with a stabilizing sleeve 511. The motorized applicator unit 521 further includes a motor body insert 519" that fits into the housing structure 510. The motor body insert 519" is coupled to a electrical control switch 519' and switch cover or pad 519 for operating the motor insert and rotating the flexible running staff 513 and the applicator brush 507 with the system assembled, such as shown in FIG. 5B.

The motor body insert 519" has a cavity for holding a battery 517 that powers the motor body insert 519". The system also includes a contact pad 514 for providing an electrical connection between the battery 517 the motor body insert 519" and an end cap 515 for holding the battery within the cavity of the motor body insert 519" with the system assembled, such as shown in FIG. 5B.

The container unit 501 includes a cap portion 502, an insert portion 505 and a contoured insert feature 527. As described previously, the container unit 501 is configured to hold mascara and dispense the mascara from the brush applicator 507, when the brush applicator 507 is inserted into the container unit 501 and removed from the container unit 501. The contoured insert feature 527 preferably includes a wiping sleeve 527" for removing excess mascara from the brush applicator 507 when the brush applicator 507 is removed from the container unit 501.

With the system assembled, the insert portion 505 fits into the cap portion 502 and the contoured insert feature 527 fits behind the insert portion 505 with the conical portion 527' of the contoured insert feature 527 positioned within an opening of the insert

5 portion 550, such as shown in FIG. 5B. The contoured insert feature 527 minimizes the amount of air or space between the container unit 501 and the motorized applicator unit 521 when they are coupled together and, thereby, minimizes drying of the mascara and helps to reduce air-borne contaminants from entering the mascara while the system is assembled, for storage, such as shown in FIG. 5B.

10 The cap portion 502, the insert portion 505 and the contoured insert feature 527 are held together by a ring structure 539 that screws into matched features 539' on the cap portion 502. Preferably the container unit 501 and the motorized applicator unit 521 are configured to detachably couple through twist and lock features 509 and 509'. The twist and lock features 509 and 509' preferably provide a substantially air-tight seal between the container unit 501 and the motorized applicator unit 521 and, thereby, further minimizes drying of the mascara while the system is assembled, such as shown in FIG. 5B. The system of the present further includes a container unit.

15 The container unit 501 is configured to detachably couple to the motorized applicator unit and over the applicator brush, revolving running staff and stabilizing sleeve through one or more securing features. The twist and lock features 509 and 509' of the present invention, for example, comprise protruding features or nodules and contoured grooved or slotted features. In operation the protruding features or modules are fitted into contoured grooved or slotted features, the container unit 501 motorized applicator 521 are pressed together and twisted relative to each other causing the protruding features or nodules and the contoured grooved or slotted features to snap or pop into a locked position. The twist and lock features 509 and 509' preferably provide a tactile and/or audible indication that the container unit 501 motorized applicator 521 are properly sealed for storage. For example, the twist and lock features 509 and 509' pop or click when the container unit 501 motorized applicator 521 are properly sealed for storage. The tactile and/or audible indication that the container unit 501 motorized applicator 521 are properly sealed for storage provides a user feedback that encourages proper use of the mascara system, adds to the hygiene of the mascara and this reduces the risk contamination to the mascara.

35 It will be clear to one skilled in the art that the container unit 501 and the motorized applicator unit 521 can be configured to detachably couple through any number of different securing features to provide user feedback. For example, the container unit

501 and the motorized applicator unit can include ribbed features capable of being press fitted together.

5 The present invention has been described in terms of specific embodiments incorporating details to facilitate the understanding of the principles of construction and operation of the invention. Such reference herein to specific embodiments and details thereof is not intended to limit the scope of the claims appended hereto. It will be apparent to those skilled in the art that modifications can be made in the embodiment chosen for illustration without departing from the spirit and scope of the invention. Specifically, it will be apparent to one of ordinary skill in the art that the system of the present invention could be implemented in several different ways and the apparatus disclosed above is only illustrative of the preferred embodiment of the invention and is in no way a limitation.

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CLAIMS:

What is claimed is:

1. A system comprising a motorized applicator unit comprising:
 - a) an applicator brush with a applicator brush and a revolving running staff;
 - b) a motorized handle for automatically rotating the applicator brush in a selectable direction; and
 - c) a stabilizing sleeve coupled to the motorized handle and surrounding the revolving running staff.
2. The system of claim 1, further comprising a container unit that detachably couples to the motorized applicator and over the brush applicator through one or more securing features, wherein the one or more securing features provides an audible or tactile indication that the container unit and the motorized applicator sealed.
3. The system of claim 1, wherein the motorized handle includes and touch control panel for controlling one or more of a rotational direction of the applicator brush and a speed of rotation of the applicator brush.
4. The system of claim 1, wherein the motorized handle includes a power supply and a safety clutch.
5. The system of claim 4, wherein the power supply is rechargeable.
6. The system of claim 1, wherein the container unit includes a compartment for holding mascara.
7. The system of claim 6, wherein the container unit includes a wiping sleeve.
8. The system of claim 1, wherein the applicator brush is detachably couples to the motorized handle.

9. The system of claim 1, further include a removable and replaceable mascara cartridge.
10. A system comprising:
- 5 a) a motorized applicator unit comprising:
- i) an applicator brush with a applicator brush and a revolving running staff;
- 10 ii) a motorized handle for automatically rotating the applicator brush in a selectable direction; and
- iii) a stabilizing sleeve coupled to the motorized handle and surrounding the revolving running staff; and
- b) a container unit with a removable and replaceable mascara cartridge for holding a mascara, wherein the container detachably couples to the motorized applicator and over the brush applicator through one or more or a twist lock features and snap features.
- 15
11. The system of claim 10, wherein the motorized handle includes and touch control panel for controlling one or more of a rotational direction of the applicator brush and a speed of rotation of the applicator brush.
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12. The system of claim 10, wherein the motorized handle includes a power supply.
13. The system of claim 12, wherein the power supply is rechargeable.
- 25
14. The system of claim 10, wherein the container unit includes a wiping sleeve that wipes the applicator brush when the container unit is detachably coupled to the motorized applicator and through one or more or a twist lock features and snap features.
- 30
15. The system of claim 10, wherein the applicator brush is detachably couples to the motorized handle.
16. The system of claim 10, further include a safety clutch features configured prevent the revolving running staff form moving when a pressure is applied to

the applicator brush.

17. A system comprising:
- 5 a) a motorized applicator unit comprising:
- i) an applicator brush with a applicator brush and a revolving
running staff;
- 10 ii) a motorized handle for automatically rotating the applicator
brush in a selectable direction; and
- iii) a stabilizing sleeve coupled to the motorized handle and
surrounding the revolving running staff; and
- b) a plurality of container units each with a suitable mascara formulation
and each configured to detachably couple to the motorized applicator
and over the brush applicator
- 15 18. The system of claim 17, further comprising caps uniquely corresponding to the
plurality of container units, wherein the caps include identifiers indicating a
color of the mascara formulation contained therein.
- 20 19. The system of claim 17, wherein the plurality of container units are configured
to detachably couple to the motorized applicator through one or more or a
twist lock features and snap features.

1/6

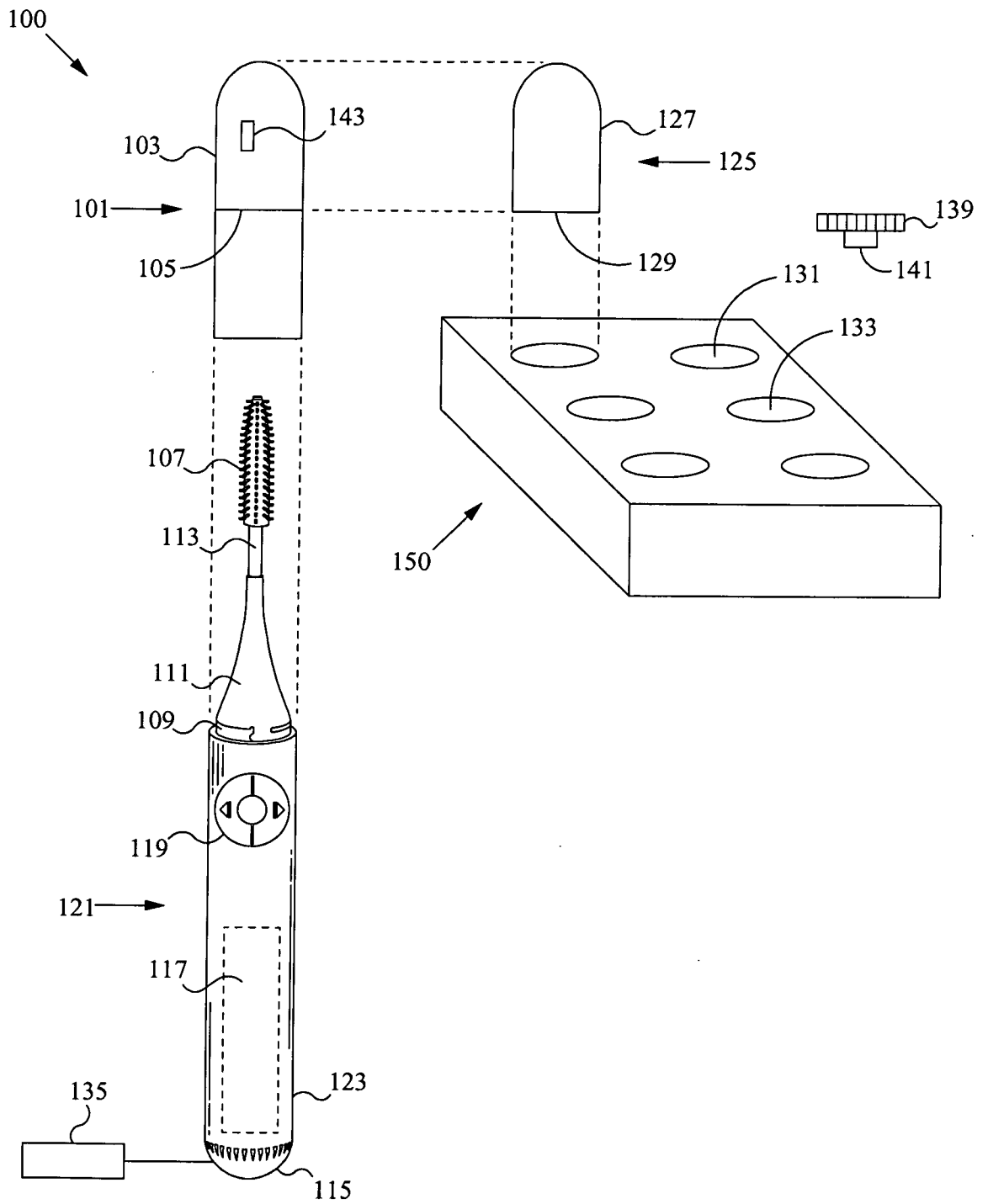


Fig. 1

2/6

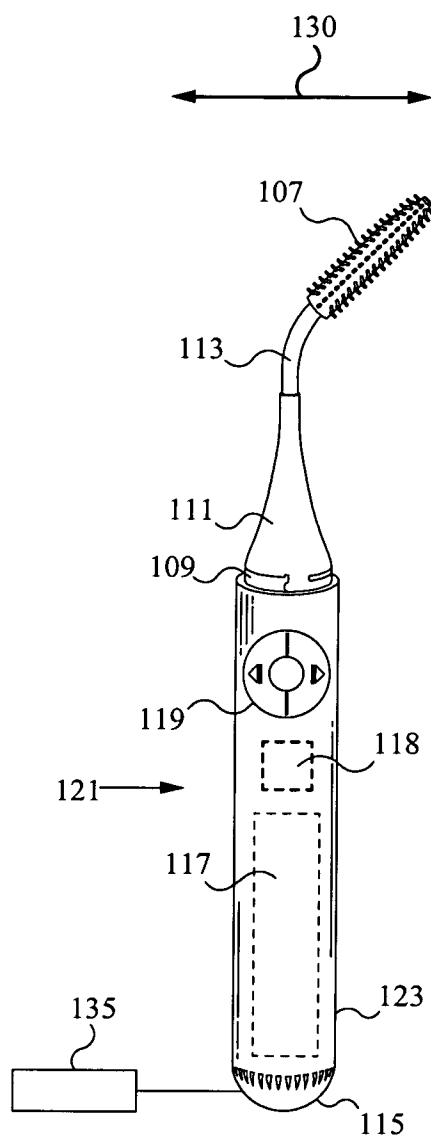


Fig. 2

3/6



Fig. 3A



Fig. 3B

4/6

400

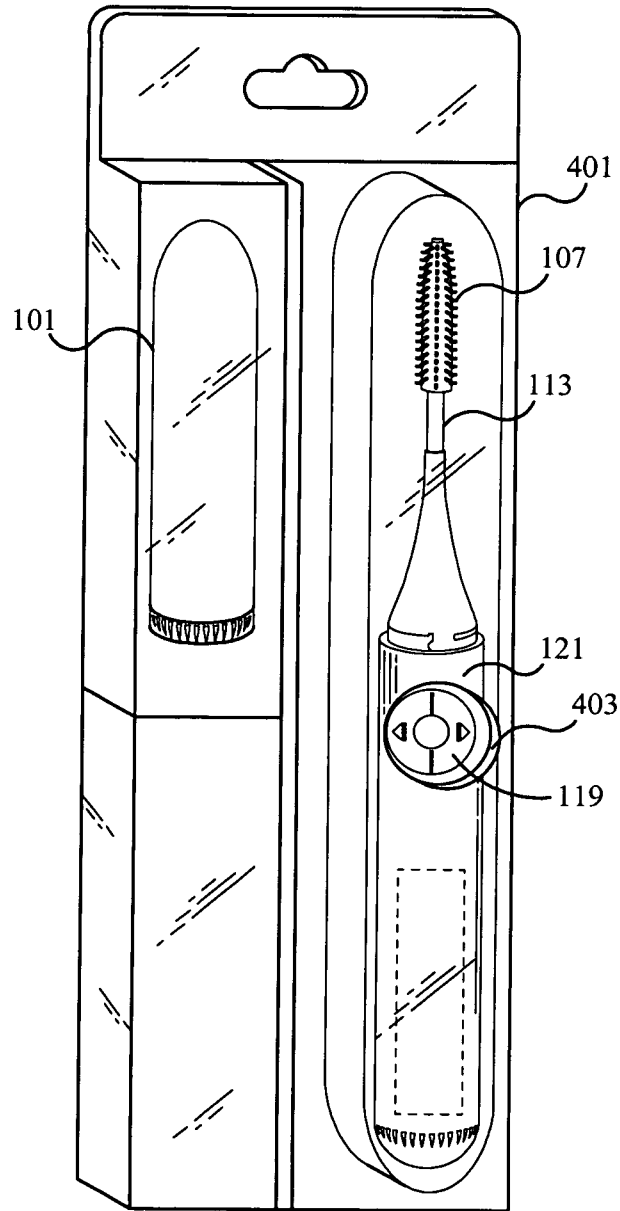


Fig. 4

5/6

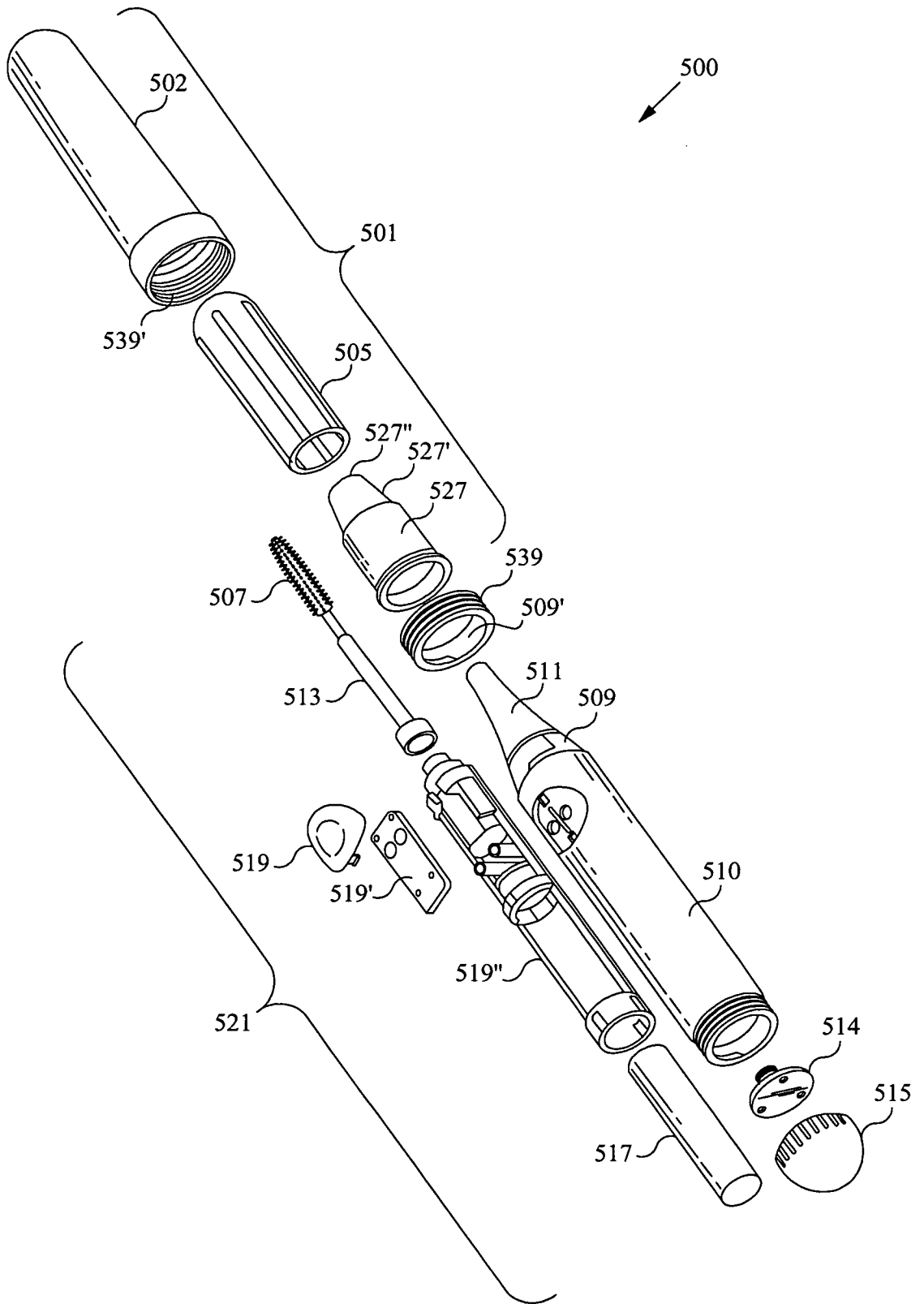


Fig. 5A

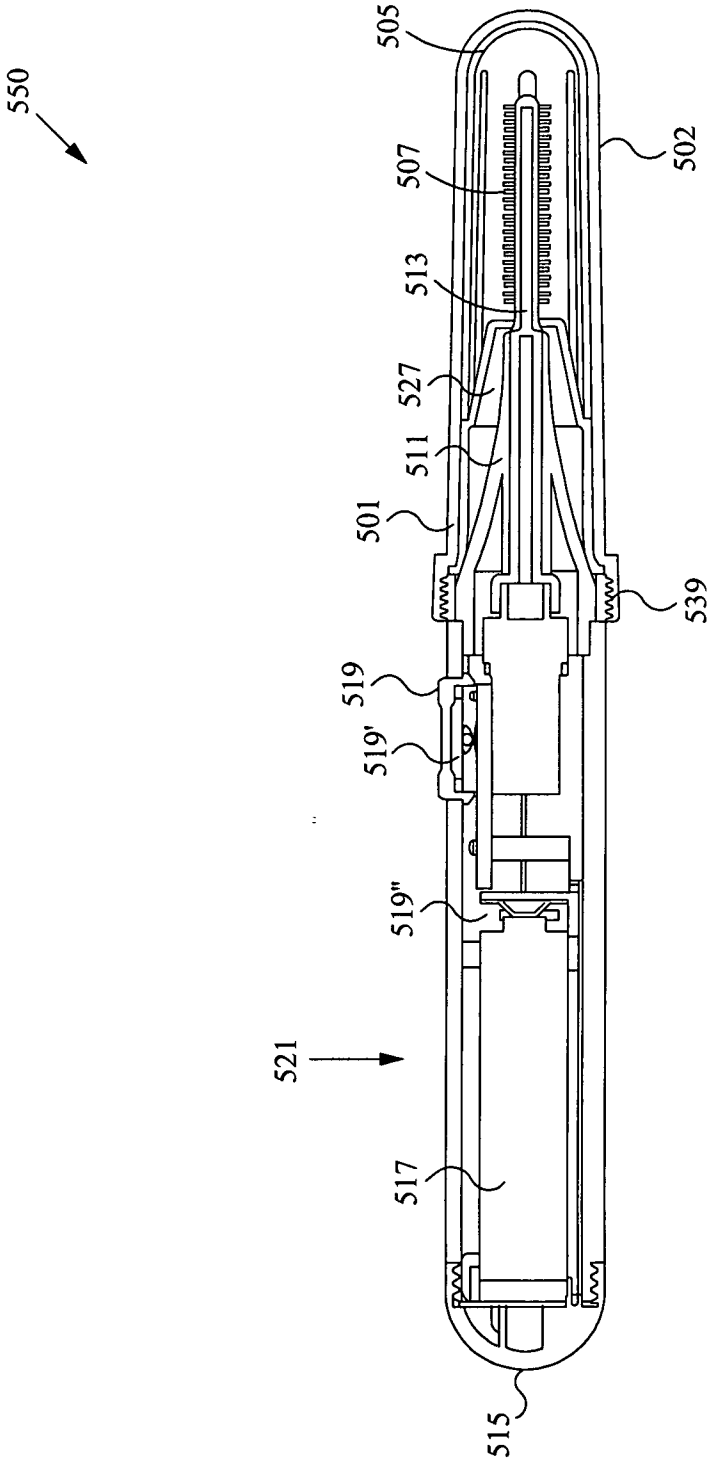


Fig. 5B

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 08/00159

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A46B 11/00 (2008/04)

USPC - 401/126

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)
USPC: 401/126; IPC(8): A46B 11/00 (2008/04)Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 401/127, 401/129, 401/ (text search - see terms below)

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

PubWEST (USPT, PGPB, EPAB, JPAB); Google/Patents

Search terms: motorized, electric, power supply, battery, powered, power-driven, shaft, rod, stick, wand, applicator, brush, bristle, stem, mascara, cosmetics, makeup, disposable, replacement, swap, interchangeable, changeable, color, color coded, lid, cap, cover

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---	US 6,565,276 B1 (Diaz) 20 May 2003 (20.05.2003), entire document especially FIGs. 1-2	1-7, 9-14, 16, 17, 19
Y		8, 15, 18
Y	US 5,466,081 A (Schrepf) 14 November 1995 (14.11.1995), col 3, lns 21-30	8, 15
Y	US 7,168,435 B2 (Vieu et al.) 30 January 2007 (30.01.2007), col 1, lns 37-40; col 9, lns 43-45	18

 Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"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

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Date of the actual completion of the international search

09 May 2008 (09.05.2008)

Date of mailing of the international search report

02 JUN 2008

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