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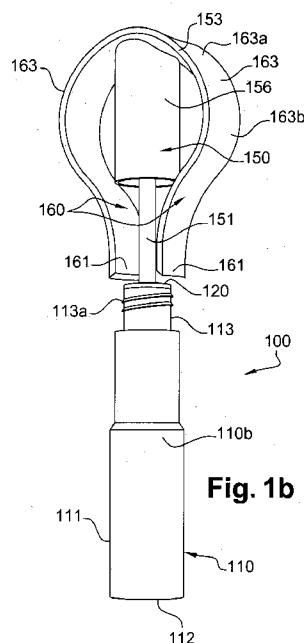


Fig. 1b

(57) Abstract: The present invention pertains to a method for applying a cosmetic composition comprising the steps of : - providing a user with a cosmetic applicator (150) comprising a stem (151) having a distal end carrying an applicator member (152) and a proximal end carrying a handling member (153) comprising two lateral flexible legs (160) having a terminal portion (161) extending over a proximal portion of the stem so that at least an end of each terminal portion of each leg can be pressed against the stem and pinch said stem, - pressing the two legs between two fingers of a hand of the user so as to pinch the stem, - bring the applicator member in contact with the body part, while pinching the stem between the lateral flexible legs, - move the applicator member so as to transfer at least part of the cosmetic product.



DESCRIPTION

METHOD AND APPLICATOR FOR THE STORAGE AND APPLICATION OF A COSMETIC PRODUCT

TECHNICAL FIELD

The present invention relates to the application of a cosmetic product, in particular to human keratin fibers, notably the eyelashes.

In the context of the present application, the terms « cosmetic product », mean a product according to Regulation (EC) No 1223/2009 of the European Parliament and of the Council of 30 November 2009 on cosmetic products.

BACKGROUND ART

The concerned cosmetic product is more specifically mascara to be deposited on eyelashes, but it could also be another pasty or less viscous product, such as a care product or a base product.

There exist numerous applicators and assemblies for depositing mascara onto eyelashes.

An assembly for the storage and application of a cosmetic product generally comprises, on the one hand, a container that contains the cosmetic product and is provided with an opening for accessing said cosmetic product, and on the other hand, an applicator capable of coming into contact with the product contained inside the container and of being charged therewith.

More specifically, the applicator comprises a rod or stem having two opposite ends. The first end, called distal end, carries an applicator member. The second end, called proximal end, carries a handling or gripping mean.

The handling mean often also constitutes a cap for removably and sealingly closing the opening of the container. This is often achieved by way of an internal threading able to cooperate with a complementary threading of the container, said

complementary threading being often located on an outer surface of a neck of the container.

Of course, closure of the reservoir can be achieved by other alternate means.

When the cap-forming handling means closes the container, the stem and applicator member rest inside the reservoir.

In order to apply the cosmetic product onto its body part, the user will first open the container, generally by unscrewing the handle-forming cap, then seize said handle in order take the applicator member out of the container.

Generally the user holds the handle with two or three fingers, one of them being the thumb, the other generally being the index or sometimes the middle finger.

The container is generally equipped with a wiping element, generally called wiper, that is designed to wipe the stem and remove excess product on the applicator member. This wiping member comprises a lip, for example, made from an elastomeric material, delimiting a generally circular wiper orifice whose diameter could be approximately that of the stem.

The user then proceeds with a make-up step by bringing the applicator member in contact with the appropriate body part (for example, eyelashes, lips, eyebrows, nails...) in order to transfer some cosmetic product from the applicator member to said body part.

There exist a lot of applicator members in the industry.

An applicator member generally comprises an elongated core carrying applicator elements that protrude from said core along a generally perpendicular direction, in particular along a radial direction.

According to a first embodiment, an applicator member can be formed by helically winding two arms of a metal wire (core) around tufts of bristles (applicator elements) extending radially from said metal wire.

Depending on the desired make-up or application result, the core and / or the bristles may have various configurations and / or be submitted to various treatments.

In particular, the core may, for example, be straight or curved, aligned with the stem or inclined with said stem.

Regarding the bristles, they may be, for example, straight or wavy, all made from the same material or be a mix of bristles made from different materials.

The bristles may also be of various lengths so as to define a more or less complex outer envelope. As such, the bristles may be trimmed in order to define grooves, helix, concavities and other shapes.

According to a second embodiment, the core and / or the applicator elements can be molded, integrally or separately, from one or several thermoplastic elastomeric materials. As example of elastomeric materials, one can cite ether ester copolymers, such as Hytrel ®, or styrene based elastomers, such as SEBS.

As for the twisted applicator, the core may be molded according to various configurations (straight, curved ...).

Molded applicator elements can be arranged around the core (even partially) according to specific patterns (rows and / or rings, staggered ...) and / or have various shapes.

The present application is not limited by the type of applicator member or the type of applicator elements.

Depending on the surface of the body part, the application or make up step may require very precise gestures.

Erroneous gestures may result in the cosmetic product being applied outside the desired body part area and may lead to a less appealing result.

Such precise gestures may be difficult to achieve.

This is particularly true for applicator comprising a long stem or rod, since the slightest trembling movements at the proximal end while holding the cap will be amplified at the distal end carrying the applicator unit.

This is also particularly true for young people and less experienced people starting to apply make-up or other cosmetic products and who need some time to exercise and learn the required gestures.

This is also particularly true for elder people who may have more difficulties in holding a relatively small handle-forming cap that is inherently not designed for less abled people.

A solution would be to reduce the length of the stems. However, this is difficult and not always possible.

Indeed, cosmetic products and in particular make up product comprise volatile components, generally a solvent such as water or isododecane, and as such the opening of

the container must be of a limited size. This is also true when the container is equipped with a wiper since the orifice of the wiper must be adapted to the width of the stem and the size of the applicator element.

In addition, in order for the applicator element to be able to be charged with the product and reach most of the product in the whole inner space of the container, it is usually necessary to keep the outer wall of the container close to the applicator element and the stem. Otherwise an important amount of the product would not be available to the consumer and be wasted.

This often results in the shape of the container being cylindrical and elongate. It follows that the stem must be of a subsequent appropriate length that can rarely be diminished and mostly depends on the overall capacity of the container.

There is consequently a need for an assembly for the storage and application of a cosmetic product that helps and assists people in correctly and precisely applying a cosmetic product onto a body part.

Document DE202014102575U1 discloses a tweezer mascara applicator comprising two stems each carrying an applicator member at their respective distal end. Both stems are linked at their proximal end to a hinge so as to be pivotably movable one relatively to the other as a tweezer.

The tweezer mascara applicator additionally comprises a multi-armed clamping element that is designed to removably engage and lock itself with complementary lateral parts (latches) of the reservoir in order to ensure closure of said reservoir.

The arms of the multi-armed clamping element are also used to pinch the two stems and maintain them together in a stowed position, thereby allowing the user to easily insert the tweezer applicator inside the reservoir in a closure position.

The system according to DE202014102575 intends to replace a common cylindrical screw cap and does not play any role during application of the cosmetic product onto the body part.

DISCLOSURE OF INVENTION

It has been surprisingly found that a similar device could also be used in order to improve the ergonomy and the precision in applying cosmetic product on a body part.

To this end, the present application proposes and claims a method for applying a cosmetic composition, in particular mascara, onto a body part, in particular keratin fibers more specifically eyelashes and/or eyebrows, comprising the steps of :

- providing a user with an cosmetic applicator comprising a stem having a proximal end and an opposite distal end, said distal end carrying an applicator member and said proximal end carrying a handling member, the handling member comprising two lateral flexible legs, each leg having a terminal portion extending over a proximal portion of the stem so that at least an end of each terminal portion of each leg can be pressed against the stem and pinch said stem,
- pressing the two lateral flexible legs between two fingers of a hand of the user so as to pinch the stem between the ends of the terminal portions of said flexible legs,
- bring the applicator member, first loaded with the cosmetic product in contact with the body part, while pinching the stem between the lateral flexible legs,
- move the applicator member so as to transfer at least part of the cosmetic product from the applicator element onto body part.

Indeed, it appears that when pinching the stem between the two lateral legs, the stem is a lot more stable and the application of the product is facilitated. In addition, the flexible legs do not prevent closure of the container since they are not to be inserted into the container (contrary to the stem and applicator member), and as such can be ergonomically shaped.

The present application also proposes an applicator for implementing the above method, said applicator comprising a stem having a proximal end and an opposite distal end, said distal end carrying an applicator member and said proximal end carrying a handling member, the handling member comprising two lateral flexible legs, each leg having a terminal portion extending over a proximal portion of the stem so that at least an end of each terminal portion of each leg can be pressed against the stem and pinch said

stem, characterized in that the flexible lateral legs pinch the stem more than halfway along a visible part of said stem toward the distal end.

Indeed, by pinching further toward the applicator member, the stability of the handling is greatly increased.

By “visible” part of the stem, it is to be understood the part of the stem that extends beyond and outside of the handling member.

Indeed, in case of the handling member also forming a cap having an internal threading, said handling member generally comprises a hollow center part, intended to receive the complementary closure part, or neck, of the container, the stem partly extending in the center of said hollow part. The part of the stem extending inside said hollow part is not considered to be “visible” according to the present application.

Preferably, at least the end of the terminal portion that comes into contact with the stem in the pinching configuration comprises an inner concave surface. The inner concave surface allows for a better pinching of the stem and limits or even prevents any risk of misalignment and slipping of the legs. The curvature of the inner concave surface will be adapted to the curvature of the stem.

Advantageously, at least one lateral flexible leg comprises an arcuate upper portion connecting to the terminal portion, said arcuate upper portion, when moving along the direction of the stem from an end of the handling member toward the distal end of the stem, shows a first sub-portion that goes away from the stem then a second sub-portion that goes back closer to the stem.

The arcuate upper portion allows for properly supporting the fingers when seizing the applicator and pressing the terminal portion of the legs against the stem.

Additionally, the lateral flexible leg comprises a substantially flat middle sub-portion extending between the first sub-portion and the second sub-portion.

By “flat”, it is meant that said middle portion extends at a substantially constant distance from a longitudinal axis of the stem.

Preferably, both lateral flexible legs show an arcuate upper portion.

Even more preferably, the arcuate upper portion of both lateral flexible legs together form a generally circular or ovoid loop depending on the absence or the presence of a flat middle sub-portion.

This specific loop shape of the two flexible lateral legs roughly and generally imitates the inner periphery of the index or middle finger making a pinching "O" with the thumb.

In an advantageous manner, at least one of the lateral flexible leg, preferably both, present on at least a portion of its outer surface, a concave surface designed to generally conform with the outer shape of a finger. This way, the fingers can easily rest on the leg and be secured in position. Said concave outer surface of the legs further limits the movement of the fingers and improves stability during application.

Generally, the angle between the two lateral flexible legs will be of 180° . That is to say that the two legs are diametrically opposed. However if need be, it is possible to have a slightly smaller angle. Preferably, the smallest angle between the two lateral flexible legs is greater than 120° , preferably is equal to 180° .

In an embodiment, the handling member comprises a central cap, preferably a screw cap, attached to the stem, the lateral flexible legs being arranged on either sides of the central cap, said cap being designed to cooperate with a complementary closure part, preferably a threaded neck, of a container intended to contain the cosmetic product.

Preferably, the lateral flexible legs are removably assembled to the central cap. This way, the legs can be transferred and used with another standard storage and application assembly, whether it is a new identical product when the first product has been used or a different product.

In a specific embodiment, the legs may be removably assembled to the central cap by way of a central ring sized to fit over the central cap and be frictionally retained, for example.

BRIEF DESCRIPTION OF DRAWINGS

The subject of the present application will be better understood in view of the following detailed description made in reference with the attached drawings in which:

- Figures 1a, 1b and 1c show an assembly for the storage and application of mascara according to a first embodiment.
- Figures 2a, 2b, 2c show an assembly for the storage and application of mascara according to a second embodiment.

- Figure 3 and Figure 4 are detailed front and lateral view of the applicator from the assembly of figures 2a to 2c.
- Figure 5 is a lateral view similar to figure 4 taken along a longitudinal axis of the stem.

BEST MODE FOR CARRYING OUT THE INVENTION

Although illustrated specifically for the application of mascara, the present application is not limited to a mascara applicator and encompasses all kinds of applicators for cosmetic products that are arranged at the end of a stem and for which it is desirable to have a precise application.

In particular, the present application may also pertain to nail varnish applicators, eye brows applicators and even liner applicators.

More specifically, the application pertains to so called dip-in applicators.

Generally speaking, the stem has a visible portion (i.e. taking out the linking portion inside a hollow part of a cap) that is greater than 4cm in length, preferably greater than 5cm in length. On the other hand, the stem is preferably shorter than 10cm.

Figures 1a and 1b show an assembly 100 for the storage and application of a cosmetic product, namely a mascara.

The assembly 100 comprises, on the one hand, a container 110 that contains the cosmetic product and is provided with an opening 120 for accessing said cosmetic product, and on the other hand, an applicator 150 that is capable of coming into contact with the product contained inside the container.

The container 110 has a generally elongated hollow body extending along a longitudinal direction and comprising a peripheral wall 111 and a bottom wall 112. The opening 120 is opposed to the bottom wall 112. The opening 120 is located at the end of a neck 113.

The walls of the container 110 define a generally cylindrical inner volume and the container has a generally cylindrical outer shape although the outer shape may have various designs. In particular, as will be described below, the outer peripheral wall may have outer lateral protruding portions 110b that are substantially flush with the flexible

lateral legs 130 when the assembly is in a closed configuration. This way, there is no acute edge when in a closing position.

The neck 113 is provided with an outer threading 113a intended to cooperate with a complementary inner threading of a closing mean.

The applicator 150 comprises a stem 151 having two opposite ends.

The first end, called distal end, carries an applicator member 152.

The second end, called proximal end, carries a handling or gripping mean 153.

As illustrated on figure 1c, the applicator member 152 is a twisted core 154 applicator carrying bristles.

The applicator member 152 is formed by helically winding two arms of a metal wire (resulting in the twisted core 154) around tufts of bristles (applicator elements 155) extending radially from said metal wire.

As explained above, the applicator member could alternatively be a molded applicator. Such a molded mascara applicator is made from an elastomeric material such as SEBS or Hytrel® and similarly comprises an elongated core carrying applicator elements arranged around said core.

Such a molded applicator has been represented on figures 3 to 5.

The applicator elements 155 protrude from said core along a generally perpendicular direction, in particular along a radial direction.

As mentioned before, the present application is not limited to mascara applicator and can also pertain to nail varnish applicator. In this case, the applicator member shall be a tuft of bristles or brush attached at the end of the stem.

The handling mean 153 also constitutes a cap for removably and sealingly close the opening 120 of the container 110.

To this end, the handling mean 153 comprises a hollow center cap 156 that that is open at one end so as to receive the neck 113. The open end is equipped with an inner threading complementary to the threading of the neck 113.

The stem 151 extends inside the open end (generally in the center of said open end) and is secured to the handling mean at a bottom wall of said open end.

As is shown on figure 1a, when the cap-forming handling means 153 closes the container 110, the stem 151 and applicator member 152 rest inside the reservoir.

According to the present application, the handling mean 153 further comprises two lateral flexible legs 160. The legs 160 are diametrically opposed with regard to the center cap 156.

More specifically the legs 160 are symmetrically arranged with regard to a median plane passing through a longitudinal axis of the stem 151.

Each leg 160 longitudinally extends towards the distal end of the stem 151.

Each leg 160 has a terminal portion 161 extending over a proximal portion of the stem 151 so that at least an end of each terminal portion 161 of each leg 160 can be pressed against the stem 151 and pinch said stem (see figure 1c).

Each leg 160 has the same length and comes in contact with the stem 151 at the same longitudinal position. This also helps for the overall stability when pinching the stem 151.

Each length 160 is elastically flexible between a resting position in which the terminal portion 161 is spaced from the stem 151 and a pinching position in which it comes in contact with said stem 151.

Each leg is preferably configured so that, in its resting position, the terminal portion 161 is spaced from the stem at a distance that is sufficient so that it can rest on the outer surface of the container when said container is in the closed configuration.

Advantageously, the resting position can be defined so that the terminal portion 161 is spaced from the stem 151 of a distance slightly smaller than the one defined above so that, when closing the container, said terminal portion 161 is slightly pushed further away from the stem and consequently slightly pinch the outer container.

According to the embodiment shown, the flexible lateral legs 160 are arranged so as to pinch the stem 151 more than halfway along a visible part of said stem toward the distal end. As explained before, the visible part of the stem 150 does not include the part of the stem extending inside the hollow threaded portion of the central cap 156.

Preferably, and as it is best visible on figure 3, at least the end of the terminal portion 161 that comes into contact with the stem 151 in the pinching configuration comprises an inner concave surface 162.

The inner concave surface 162 allows for a better pinching of the stem 151 and limits the risk of misalignment and slipping of the legs 160.

The curvature of the inner concave surface will be adapted to the curvature of the stem. The diameter of the stem 151 will typically be comprised between 3 to 6mm. Preferably the diameter of the stem will be of 4mm.

The lateral flexible legs 160 each comprises an arcuate upper portion 163 connecting to the terminal portion 161, said arcuate upper portion 163, when moving along the direction of the stem 151 from an end of the handling mean 153 toward the distal end of the stem 151, shows a first sub-portion 163a that goes away from the stem 151 then a second sub-portion 163b that goes back closer to the stem 151.

The arcuate portion 163 maximum distance to the stem 151 will preferably be greater than 1.3cm. Preferably, the maximum distance will be lower than 2.5cm. The maximum distance will preferably be between 1.5cm and 2.1cm.

The length of the arcuate portion 163, as projected on the stem 151 axis, will be greater than 4cm and preferably lower than 7cm.

The overall length of the leg 160, as projected on the stem 151 axis, will be greater than 6cm, and lower than 11cm.

On a generally note, the distances will be chosen to generally ergonomically conform with the fingers.

The arcuate upper portion 163 allows for properly supporting the fingers when seizing the applicator and pressing the terminal portion 161 of the legs 160 against the stem 151.

On the embodiment shown on figures 1a to 1c, the legs upper portion 163 of the legs 160 together forms a generally circular loop.

This specific loop shape of the two flexible lateral legs roughly and generally imitates the inner periphery of the index or middle finger making a pinching "O" with the thumb. Thus a greater length of the fingers used during the application can rest on the flexible legs and bring overall stability.

In an advantageous manner, at least one of the lateral flexible legs 160, preferably both, presents on at least a portion of its outer surface, in particular on the upper portion 163, a concave surface designed to generally conform with the outer shape of a finger.

This way, the fingers can easily rest on the leg and be secured in position. Said concave outer surface of the legs further limits the movement of the fingers and improves stability.

Figures 2a to 2c are similar to figures 1a to 1c but a slightly different embodiment of an assembly 200.

The assembly 200 differs from the assembly 100 in that the upper portions 163 of the legs 160 each comprises a substantially flat middle sub-portion 163c extending between the first sub-portion 163a and the second sub-portion 163b.

This flat middle portion 163c substantially extends, when not pinched, in a resting position, at a fixed distance from the longitudinal axis of the stem 151.

The sub-portions 163a, 163c and 163b of the two legs 160, together result in a generally ovoid loop that can sometimes better suits the consumer's ergonomics.

Length of the flat middle portion 163c may be greater than 2cm and lower than 4cm, preferably around 2,5cm.

As indicated, preferably, the lateral flexible legs are removably assembled to the central cap so as to be used with another standard assembly.

A consumer using an assembly 100, 200 to apply mascara on her eyelashes will proceed as described below.

From a closed assembly 100, 200, the consumer will unscrew the central cap 156 in order to open the container. In unscrewing, the lateral legs 160 may be of help as winglets on a screwhead, in allowing the consumer to exert a higher torque. This could be useful especially if the container has previously been tightly closed.

Once open, the consumer will extract the stem and the applicator member from the container. The stem and applicator member will pass through the wiper arranged in the neck of the container and said wiper will adjust the amount of product loaded on the applicator member.

Before making-up, that is to say proceeding with the transfer of cosmetic product from the application member onto the concerned body part by bringing the applicator member in contact with said body part and exercising appropriate moves (in particular, rotating and translating movements), the consumer will use the flexible legs 160 to get a firm and stable control of the applicator member.

In order to do this, the consumer will put a finger, namely the thumb and the index or middle fingers, on each leg 160, and exert a pressure so as to pinch the stem between the ends of the terminal portions of said legs 160.

This is shown in particular on figures 1c, 2c, 3, 4 and 5.

With the pinching position, the consumer will be able to proceed with the make-up in a precise manner.

Once making up is complete or if the consumer wants to reload the applicator member with some product, she will release the pressure exerted on the lateral legs 160.

CLAIMS

1. Method for applying a cosmetic composition, in particular mascara, onto a body part, in particular keratin fibers and more specifically eyelashes or eyebrows, the method comprising the steps of :

- providing a user with a cosmetic applicator (150) comprising a stem (151) having a proximal end and an opposite distal end, said distal end carrying an applicator member (152) and said proximal end carrying a handling member (153), the handling member comprising two lateral flexible legs (160), each leg having a terminal portion (161) extending over a proximal portion of the stem so that at least an end of each terminal portion of each leg can be pressed against the stem and pinch said stem,
- pressing the two lateral flexible legs between two fingers of a hand of the user so as to pinch the stem between the ends of the terminal portions of said flexible legs,
- bring the applicator member, first loaded with the cosmetic product in contact with the body part, while pinching the stem between the lateral flexible legs,
- move the applicator member so as to transfer at least part of the cosmetic product from the applicator element onto body part.

2. Applicator (150) for implementing the method of claim 1, said applicator comprising a stem (151) having a proximal end and an opposite distal end, said distal end carrying an applicator member (152) and said proximal end carrying a handling member (153), the handling member comprising two lateral flexible legs (160), each leg having a terminal portion (161) extending over a proximal portion of the stem so that at least an end of each terminal portion of each leg can be pressed against the stem and pinch said stem, characterized in that the flexible lateral legs pinch the stem more than halfway along a visible part of said stem toward the distal end.

3. Applicator (150) according to claim 2, characterized in that at least the end of the terminal portion (161) that comes into contact with the stem in the pinching configuration, comprises an inner concave surface.

4. Applicator (150) according to any of claims 2 or 3, characterized in that at least one lateral flexible leg (160) comprises an arcuate upper portion (163) connecting to the terminal portion (161), said arcuate upper portion, when moving along the direction of the stem (151) from an end of the handling mean (153) toward the distal end of the stem, shows a first sub-portion (163a) that goes away from the stem then a second sub-portion (163b) that goes back closer to the stem.

5. Applicator (150) according to claim 4, characterized in that the lateral flexible leg (160) comprises a substantially flat middle sub-portion (163c) extending between the first sub-portion (163a) and the second sub-portion (163b).

6. Applicator (150) according to any one of claims 4 or 5, characterized in that both lateral flexible legs (160) show an arcuate upper portion (163).

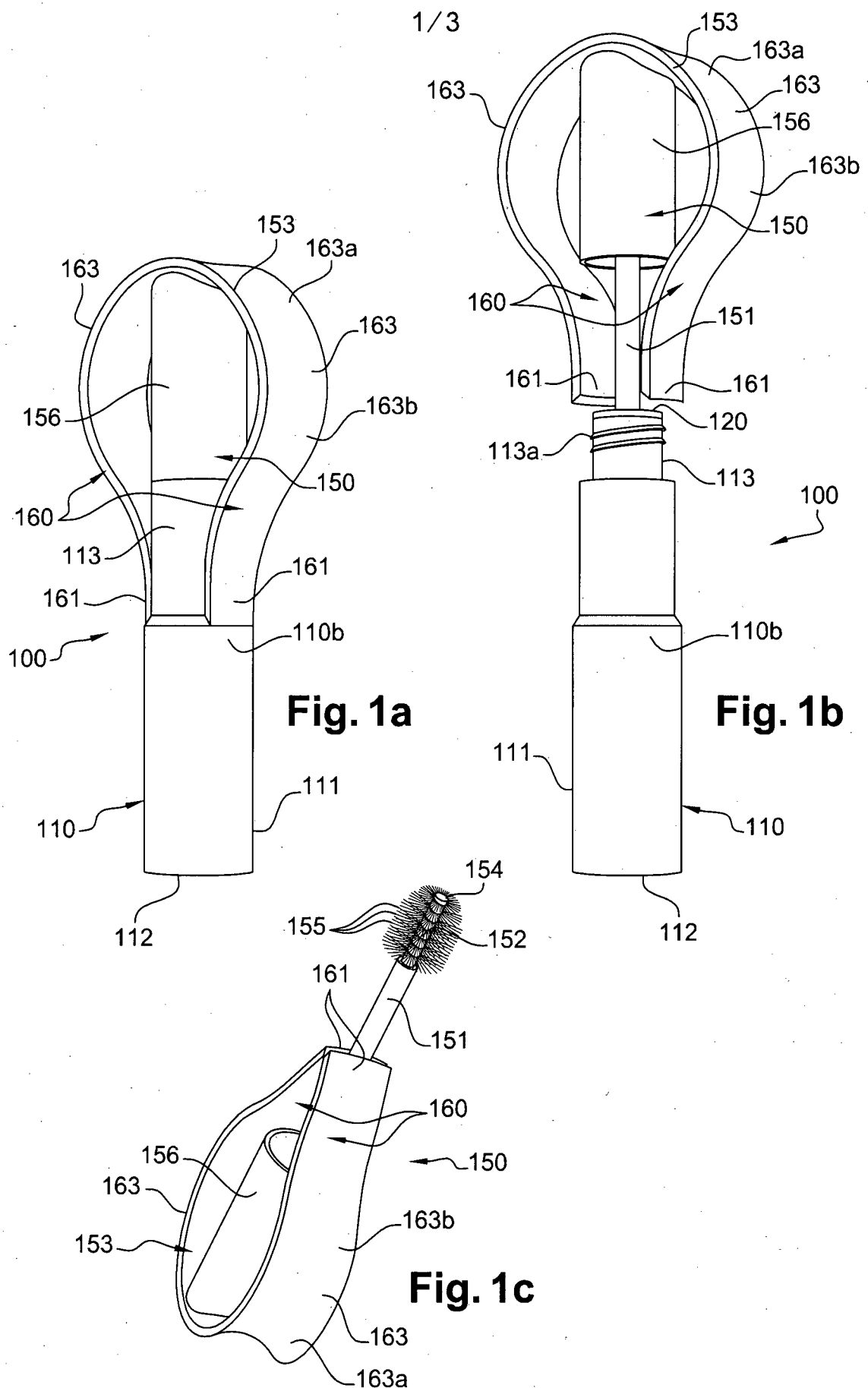
7. Applicator (150) according to claim 5, characterized in that the arcuate upper portion (163) of both lateral flexible legs (160) together form a generally circular or ovoid loop depending on the absence or the presence of a flat middle sub-portion.

8. Applicator (150) according to any one of claims 2 to 7, characterized in that at least one of the lateral flexible leg (160), preferably both, present on at least a portion of its outer surface, a concave surface designed to generally conform with the shape of a finger.

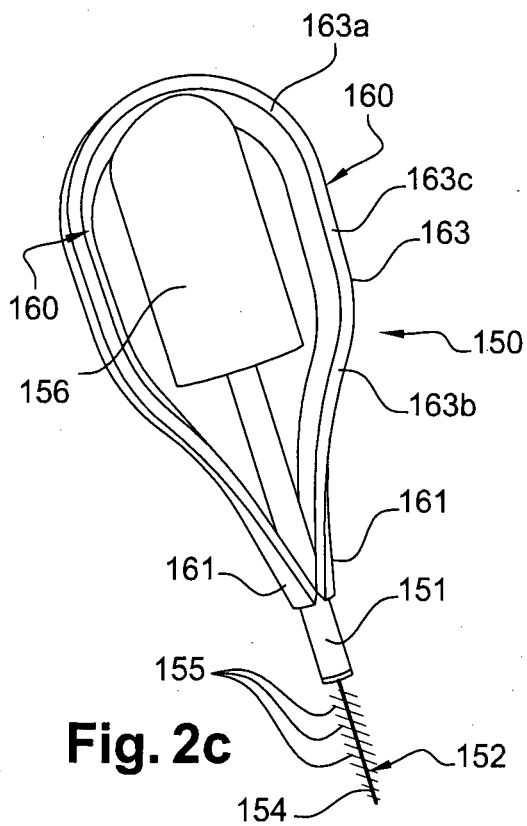
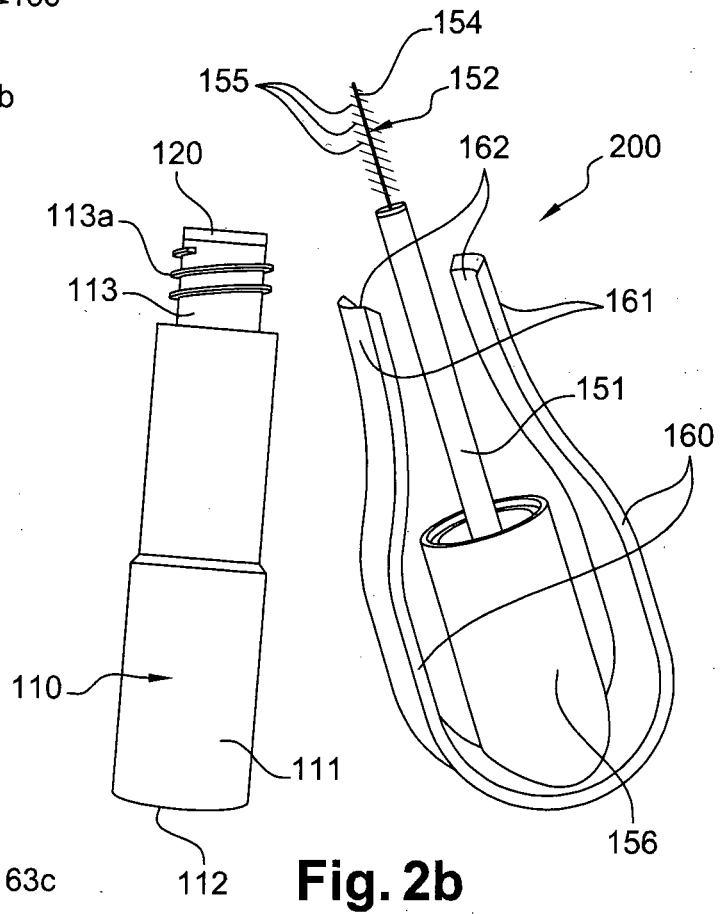
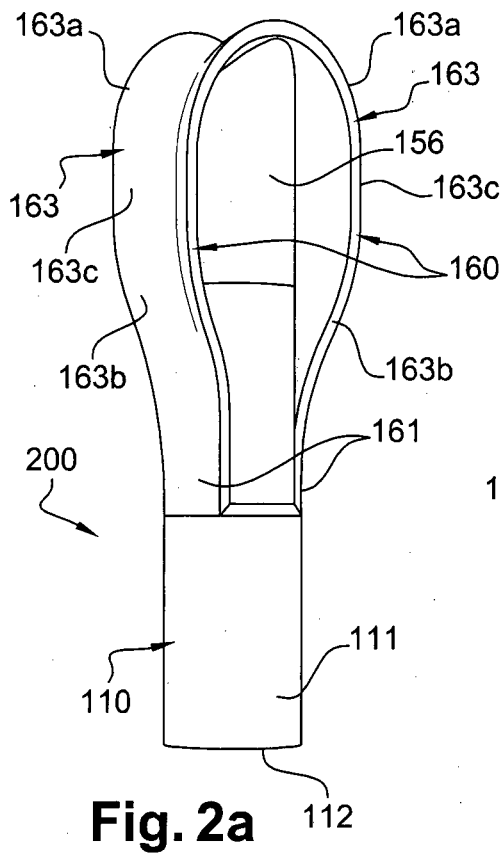
9. Applicator (150) according to any of claims 2 to 8, characterized in that the smallest angle between the two lateral flexible legs (160) is greater than 120°, preferable is equal to 180°.

10. Applicator (150) according to any of claims 2 to 9, characterized in that the handling member (153) comprises a central cap (156), preferably a screw cap, attached to the stem, the lateral flexible legs (160) being arranged on either sides of the central cap, said cap being designed to cooperate with a complementary closure part, preferably a threaded neck (113), of a container (110) intended to contain the cosmetic product.

11. Applicator (150) according to any of claims 10, characterized in that the lateral flexible legs (160) are removably assembled to the central cap (156).



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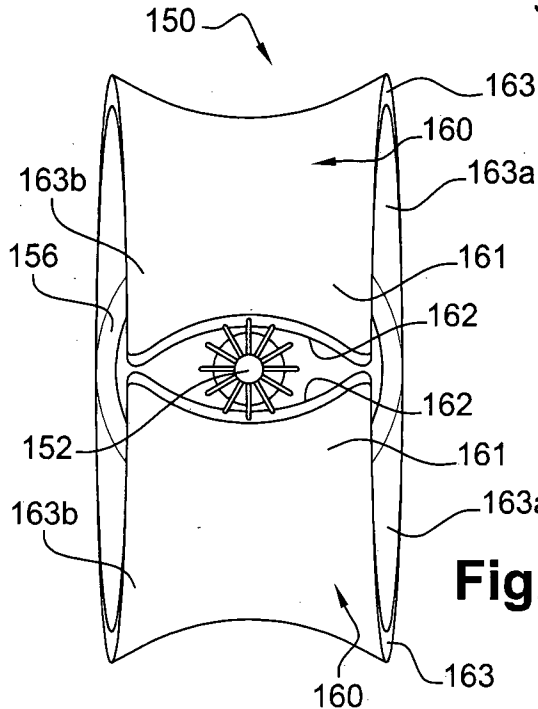


Fig. 3

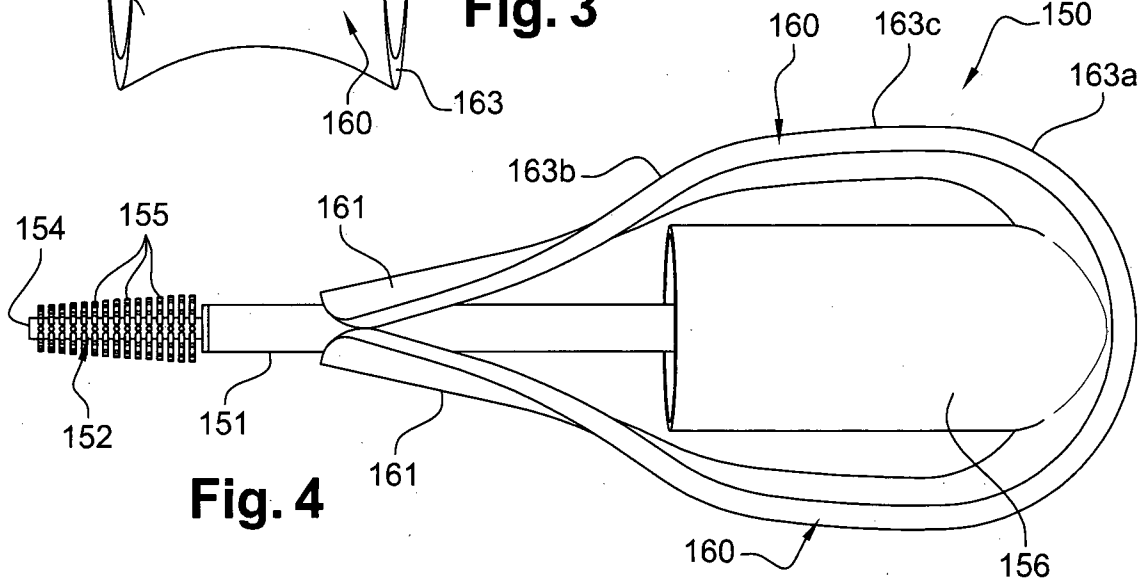


Fig. 4

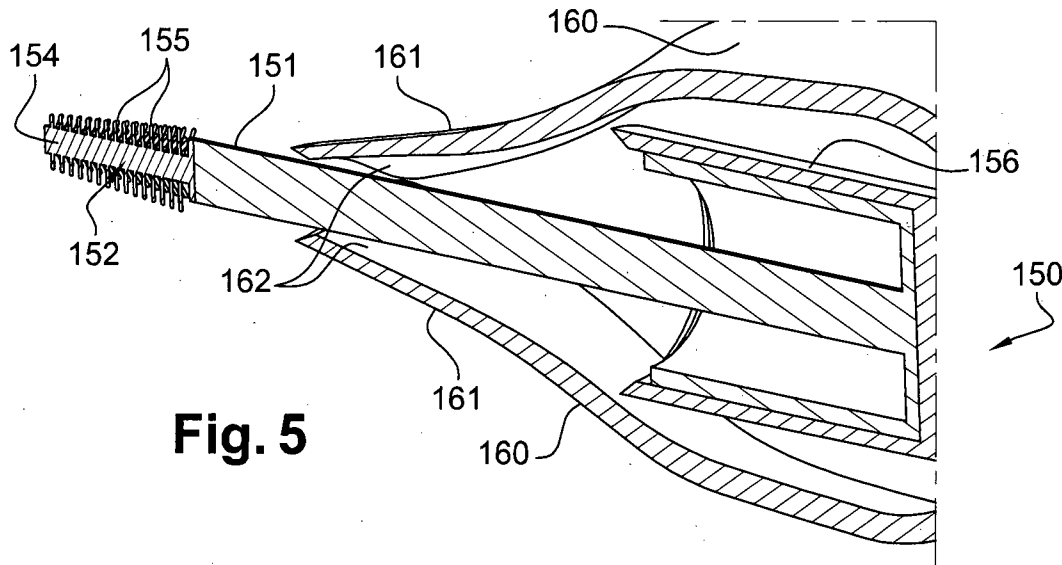


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No
PCT/JP2017/037288

A. CLASSIFICATION OF SUBJECT MATTER
INV. A45D40/26
ADD.

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

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 practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 20 2014 102575 U1 (GEKA GMBH [DE]) 8 September 2015 (2015-09-08) cited in the application	1-9
A	paragraph [0006] - paragraph [0058]; figures	10,11
X	----- WO 2014/116390 A1 (ELC MAN LLC [US]) 31 July 2014 (2014-07-31) page 6, line 9 - page 10, line 17; figures	1
A	----- US 2002/168214 A1 (CARULLO ANNE T [US] ET AL) 14 November 2002 (2002-11-14) figures	1-11
A	----- WO 2004/077987 A1 (LALINE INTERNAT SARL [TN]; GARGOUCH MOHAMED BEN SALAH [TN]) 16 September 2004 (2004-09-16) figures	1-11



Further documents are listed in the continuation of Box C.



See patent family annex.

* 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

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"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

19 December 2017

Date of mailing of the international search report

02/01/2018

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/JP2017/037288

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 202014102575 U1	08-09-2015	NONE	
WO 2014116390 A1	31-07-2014	AU 2013375212 A1	13-08-2015
		CA 2896712 A1	31-07-2014
		EP 2948021 A1	02-12-2015
		ES 2641163 T3	08-11-2017
		JP 5946593 B2	06-07-2016
		JP 2016503713 A	08-02-2016
		KR 20150096507 A	24-08-2015
		US 2014205357 A1	24-07-2014
		WO 2014116390 A1	31-07-2014
US 2002168214 A1	14-11-2002	NONE	
WO 2004077987 A1	16-09-2004	NONE	