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(71) Applicant: L'OREAL [FR/FR]; 14, rue Royale, 75008 PARIS (FR).

(72) Inventor: SANCHEZ, Marcel; L'OREAL R&IRIO, 9 Rue Pierre Dreyfus, 92110 Clichy (FR).

(74) Agent: BOURDEAU, Françoise; D.I.P.I., 9 Rue Pierre Dreyfus, 92110 Clichy (FR).

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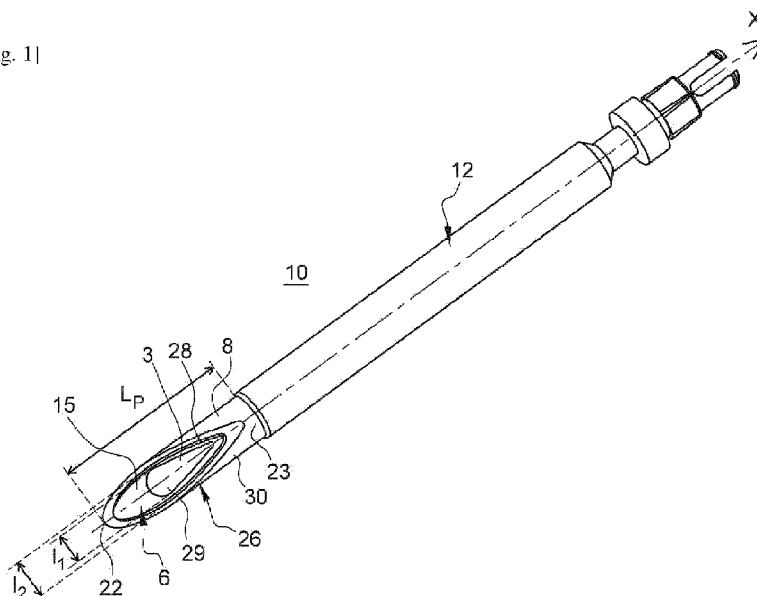
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(54) Title: COSMETIC APPLICATOR TIP FORMED AS A SINGLE PIECE WITH THE STEM

[Fig. 1]



(57) Abstract: The invention relates to a device with a longitudinal axis (X) for packaging and applying a cosmetic product (P), comprising: - an elongated body (12); - an applicator tip (26) disposed at a first end of the body (12), the elongated body (12) and the applicator tip (26) are formed as a single piece and the applicator tip comprises: - at least one wall (8) forming a cavity (6); - at least one window (3) extending along a longitudinal axis (Z); and - at least one opening (15) by which the cavity emerges towards the outside.

Description

Title: Cosmetic applicator tip formed as a single piece with the stem

[001] The present invention relates to applicator tips for applying a product onto keratinous materials, and in particular a cosmetic, make-up or care product.

[002] More generally, a cosmetic product is a product as defined in EC Regulation No. 1223/2009 of the European Parliament and of the Council dated 30 November 2009, relating to cosmetic products.

[003] Technological background

[004] Due to their structure, cosmetic packaging and application devices can leak product when they experience temperature and/or pressure variations.

[005] A temperature variation particularly occurs when a user is applying make-up, with their hand heating the body of the device.

[006] A pressure variation particularly occurs during air travel as a result of the constant changes in altitude of the aeroplane.

[007] In order to overcome this problem, devices have been developed, in which a cap is provided to protect the applicator tip when the device is not used, with the cap engaging with a valve by means of lugs in order to close the passage for the flow of product when the cap is in place on the tip.

[008] However, it has been noted that when the cap is opened, a leakage of product always occurs, even if it is minimal.

[009] Furthermore, it has also been noted that in such a device, the circulation of the product through the various elements is not optimal, which can hinder the fluidity of the make-up.

[0010] Application US 2019/0125059 describes an applicator for cosmetic products comprising an applicator head disposed on a stem having a longitudinal supply channel acting as a reserve for a cosmetic product.

[0011] Application WO 2019/068556 describes an applicator for cosmetic products comprising a stem provided with a recessed pattern adapted to accommodate a cosmetic product.

[0012] Application EP 3300624 describes an assembly for applying cosmetic material comprising an application element having a support body configured as a spoon shape with an axial recess.

[0013] Application US 10172435 describes a cosmetic applicator comprising an applicator head formed by a hollow sheath and an insertion member inserted into said hollow sheath.

[0014] Application DE 102012109380 describes an applicator comprising a dosage opening provided with a reservoir for a product.

[0015] Application KR 20050121164 describes a tip of a make-up tool disposed on a stem comprising a cavity for accommodating a cosmetic product.

[0016] Application US 6331085 describes a tip of an applicator comprising a distal end part with at least one concave shape retaining a material to be applied.

[0017] The aim of the present invention is to overcome these disadvantages by proposing a device that facilitates the passage of the product during a make-up operation, whilst providing progressive discharging of the product with the possibility of controlling its discharging irrespective of the conditions that it experiences, without generating a drip effect prior to use on the selected application zone.

[0018] In general, a requirement exists for the provision of an applicator that is capable of being filled with a relatively large amount of product, so that the user does not have to refill the applicator with product too often when applying make-up.

[0019] A requirement exists for the provision of a new applicator offering other possibilities in terms of the arrangement of the application elements and of the resulting make-up effects. In particular, the intention is to obtain make-up that is intense enough, whilst being located on the zones as desired by the user.

[0020] A requirement exists for improving these applicators and, in particular, filling them with product after wiping. Indeed, the container associated with the applicator is conventionally provided with a wiping component that wipes the applicator stem when it is extracted from the container. A compromise must be found with respect to the amount of product that is left on the application component for make-up.

[0021] A requirement exists for the provision of such applicators that are easy to manufacture and are inexpensive.

[0022] A requirement exists for increasing sensoriality with respect to the application of product when applying make-up, in particular by eliciting a fresh effect at the start of application.

[0023] Definition of the invention

[0024] The invention relates to a device with a longitudinal axis X for packaging and applying a cosmetic product P, comprising: - an elongated body forming a stem; - an applicator tip disposed at a first end of the elongated body, the elongated body and the applicator tip are formed as a single piece and the applicator tip comprises: - at least one side wall forming a cavity capable of retaining a product; - at least one window extending along a longitudinal axis Z, and at least one opening by which the cavity emerges towards the outside, with this opening having, in a plane transverse to the longitudinal axis Z of the window, a width that is greater than that of the window, and, in this same transverse plane, the width of the applicator tip is less than or equal to the width of the elongated body.

[0025] The applicator tip according to the invention facilitates a satisfactory make-up result, even in cases where the user is not very experienced.

[0026] As the opening is wider than the window, the cavity can be relatively easily filled with product, if applicable, through this opening. The applicator tip can also have relatively high autonomy by virtue of the product reserve that can be retained in the cavity.

[0027] The shape of the wall can be easily changed without hindering the production of the window or of the opening, which allows the applicator tip to be used in a variety of ways adapted for treating specific regions of the body or face.

[0028] Due to the presence of the window, a product load can still be kept even after vigorous wiping.

[0029] The product gradually discharges from the tip to the application surface for neat make-up.

[0030] As the device is formed as a single piece, its manufacture is facilitated and its production costs are reduced.

[0031] The invention also relates to a batch of devices as defined above, with each device comprising first and second opposite ends, and the devices of the batch being detachably connected to a common support by their first ends.

[0032] The invention further relates to a method for manufacturing a device as defined above comprising operations involving cluster moulding a batch of devices, optionally at least partially flocking the applicator tips and detaching each device from the common support.

[0033] **Main definitions**

[0034] A “*cross-section of a part with an X axis*” is a section perpendicular to the X axis of the part.

[0035] The “*longitudinal axis of a part*” denotes the line joining together all the barycentres of the cross-sections of a part.

[0036] A housing that is “*outwardly open*” means that it communicates with the outside.

[0037] The measurement and the comparison of the widths of the opening, of the window and of the applicator tip are carried out without flocking or before any flocking of the applicator tip.

[0038] The width of the cavity is measured inside the cavity.

[0039] The width of the window is measured inside the window.

[0040] The length of the opening is measured inside the cavity.

[0041] The width of the window is measured inside the window.

[0042] Product to be applied

[0043] For high viscosity compositions, the viscosity, measured at 25°C and at atmospheric pressure, advantageously can be greater than or equal to 4.5 Pa.s at a shear rate of 200 s⁻¹ and less than or equal to 50 Pa.s (using a Brookfield Rheomat RM 180 viscometer fitted with a No. 4 mobile, the measurement being carried out after 10 minutes of rotation of the mobile in order to stabilize the speed of rotation and the viscosity). For mascaras, the composition advantageously has a viscosity, measured under these conditions at 25°C, at a shear rate of 200 s⁻¹, ranging from 4 Pa.s to 18 Pa.s.

[0044] For more fluid compositions, such as lip glosses or lip inks, the viscosity advantageously can be less than 4.5 Pa.s, for example, ranging between 1 mPa.s (or 1 cps) and 4.5 Pa.s at a shear rate of 200 s⁻¹ (using a Brookfield Rheomat RM 180 viscometer fitted with a No. 4 mobile, the measurement being carried out after 10 minutes of rotation of the mobile in order to stabilize the speed of rotation and the viscosity).

[0045] Applicator tip

[0046] The applicator tip can be produced so as to allow the product to be delivered in the form of a homogeneous film with a substantially constant thickness, with instantaneous wetting of the treated surface, or even instantaneous saturation of this surface.

[0047] The applicator tip can also allow the product to be applied without subjecting said product to significant mechanical stresses that are likely to result in a modification of its rheology, for example, particularly its consistency. This can allow products to be applied for which conventional applicators, such as paintbrushes or brushes, are not fully satisfactory.

[0048] The width of the window and the shape of the window can be selected as a function of the type of product and of the flow rate that is desired during application.

[0049] The device according to the invention can allow a product to be applied irrespective of the relative position of the applicator tip relative to the surface on which the product must be applied, as the product can be retained in the window by capillary action.

[0050] The applicator tip can be arranged to apply a cosmetic and/or care product, in particular make-up, onto the skin or keratinous surfaces such as nails, hair, eyelashes or eyebrows.

[0051] The window can be substantially straight or, as an alternative, curved. In particular, the window can describe a portion of a circle or ellipse. Thus, the window can have a shape adapted to the shape of the wiper. As a variant, the window can be convex or extend as a wavy curve.

[0052] The window, respectively the opening, can have a substantially constant width over its entire length or, as a variant, it can have a non-constant width over its entire length.

[0053] The window can have linear edges or, as a variant, scalloped edges, in particular for applying product on eyelashes or eyebrows.

[0054] In one embodiment of the invention, the window, respectively the opening, is uninterrupted over its entire length. As a variant, the window, respectively the opening, is particularly interrupted by the presence of at least one material bridge connecting the two walls. The term “*window*” therefore encompasses, within the meaning of the present invention, a series of orifices disposed along an axis.

[0055] Advantageously, the window extends substantially parallel to the longitudinal direction of the stem. As a variant, the window does not extend parallel to the longitudinal direction of the stem, forming a curve, for example.

[0056] The applicator tip can be at least partially flocked, which can allow more product to be retained, for example, especially if the product is not very viscous.

[0057] The opening can comprise at least one at least partially flocked edge, in particular two substantially flocked edges, which can be parallel, if applicable.

[0058] The wall can be resiliently deformable or made from a rigid material. The device can be made from at least one of the following materials: thermoplastic or thermosetting material, elastomer, glass, wood or metal, provided that the elongated body and the applicator tip can be formed as a single piece.

[0059] The cavity can be produced by machining, in particular milling, or punching a blank.

[0060] Outside the cavity, the applicator tip may not have perforations or recesses on its application surface. Thus, the applicator tip may not have any outwardly concave edges at its end, nor any striations or grooves.

[0061] The applicator tip can have an enlarged cross-section between an applicator part defining the application surface and the elongated body.

[0062] **Wiper**

[0063] The device can comprise a wiper, which can comprise a foam block. Other types of wipers also can be used without departing from the scope of the present invention, for example, a flocked or unflocked lip wiper.

[0064] As a variant, the applicator tip can be permanently attached to the container and comprise a passage allowing the product contained in the container to flow into the cavity.

[0065] When using the device, the applicator tip is filled with product and then the product is applied to a body region.

[0066] Product can be filled, for example, by engaging the applicator tip in a container containing the product. In this case, the applicator tip is advantageously wiped when it is removed from the container.

[0067] As a variant, the application element can be filled with product by virtue of a channel connecting the cavity of the application element with a reservoir containing the product.

[0068] Preferred embodiments

[0069] Preferably, the application element according to the invention has one or more of the following features, taken individually or in combination:

[0070] - The opening has a length L_2 that is at least twice that L_1 of the window, with the lengths L_2 and L_1 being measured along the longitudinal axis Z of the window. These dimensions are optimal for ensuring that the applicator tip can pass through the wiper whilst providing a suitable amount of storage for the product.

[0071] - The applicator tip is at least partially flocked. The application of the product is facilitated due to its distribution in the flocking hairs.

[0072] - The longitudinal axis Z of the window is parallel or inclined relative to the longitudinal axis X of the device. The product can be ejected from the window to avoid clogging the window.

[0073] - The window is completely separated from the opening. The circulation of the product is increased.

[0074] - The window is located opposite the opening. The product is driven towards the applicator tip more easily.

[0075] - The window extends in a straight direction or in a concave or convex curve.

[0076] - The width c of the opening is variable from one proximal end towards its other distal end. This geometry improves the displacement of the formula.

[0077] - The elongated body defines an inner chamber adapted to accommodate a reservoir of cosmetic product and a connection part connects the inner chamber and the applicator tip defining a passage for the flow of product extending along a longitudinal axis Y . The device integrates the product reservoir into the stem in order to be more compact.

[0078] - The connection part comprises a valve for opening/closing the passage for the flow of product P that is adapted to selectively open/close the passage for the flow of product P . This facilitates the flow of the product through the elongated body and improves sealing.

[0079] - The connection part comprises an impactor interposed between the applicator tip and the inner chamber and adapted to engage with the reservoir and allow product to flow between the reservoir and the applicator tip.

Description of the figures

[0080] Further features and advantages of the invention will become apparent from reading the following detailed description of non-limiting embodiments of the invention, and with reference to the accompanying schematic and partial drawings, in which:

[0081] [Fig. 1] shows a perspective, inclined bottom view of a first embodiment of a device according to the invention;

[0082] [Fig. 2] shows a bottom view of the applicator tip of figure 1;

[0083] [Fig. 3] shows a perspective, inclined view of the left-hand side of the device of figure 1;

[0084] [Fig. 4] shows a front view of a second embodiment of a device according to the invention;

[0085] [Fig. 5] shows a perspective, inclined view of the right-hand side of a third embodiment of a device according to the invention;

[0086] [Fig. 6] shows a perspective view of a batch of devices according to the invention.

[0087] Figure 1 illustrates a device 10 according to the invention.

[0088] The device 10 comprises an elongated body 12 formed as a single piece with an applicator tip 26.

[0089] The elongated body 12 is intended to be gripped by the hand of a user during the normal use of the device 10, namely during a make-up operation.

[0090] The elongated body 12 has a substantially cylindrical shape extending along a longitudinal axis X.

[0091] The body 12 can define an inner chamber adapted to accommodate a product reservoir. In this case, the device comprises a conduit for supplying product to the applicator tip 26.

[0092] The device 10 can be at least partially made from a material from the following list: elastomer material, thermoplastic PBT, PCTA, PET, HYTREL, thermoplastic elastomer, LDPE, PVC, PU, thermoplastic elastomer polyesters, in particular copolymers of butane terephthalate and esterified polytetramethylene oxide glycol, Hytrel[®], EPDM, PDM, EVA, SIS, SEBS, SBS, latex, silicone, nitrile, butyl, polyurethane, polyether block amide, polyester, with this list not being limiting.

[0093] The applicator tip 26 extends along a longitudinal axis Y, which is, in the described examples, parallel to the longitudinal axis X of the device 10.

[0094] The applicator tip 26 is supplied with product, in particular via its proximal end 23 if the device comprises a product reservoir, and the product can disperse longitudinally therein, along the X axis, until it reaches the applicator part 22 intended to come into contact with the skin.

[0095] The hollow body 12 has a rotationally symmetrical shape about the X axis, with a circular cross-section. The largest diameter of the hollow body 12 ranges between 4 and 16 mm, for example, and is 10 mm, for example. An applicator tip 26 is provided in the extension of the hollow body 12.

[0096] The applicator tip 26 defines a wall 8 forming a cavity 6 capable of holding product. As can be seen in figure 1, the wall 8 extends around the longitudinal axis X of the device 10 and has, over at least part of the length thereof, a cross-section perpendicular to the longitudinal axis X that is not rotationally symmetrical about the X axis. This allows a relatively fine line to be produced depending on the orientation of the applicator tip 26 relative to the skin to be made up.

[0097] The dimensions of the applicator tip 26 are such that the maximum thickness of the product line drawn on the skin is preferably less than or equal to 5 mm, better still less than or equal to 3 mm, when the applicator tip 26 is moved perpendicular to the skin. Depending on the orientation of the applicator tip 26 relative to the skin, the thickness of the line can be varied, for example.

[0098] In the example shown, the cavity 6 emerges into the opening 15 and the wall 8 defining the cavity 6 is concave about the X axis. The longitudinal axis X is distinct from and parallel to the longitudinal axis Y of the applicator part 22. When viewed from below, the cavity 6 is bordered by two walls 28, 29 that are symmetrical to each other relative to the X axis and diverge towards the applicator part 22.

[0099] In this example, the cavity 6 extends over only part of the length L_p of the region 30 of the application surface into which it emerges.

[00100] The width of the opening 15, measured at the top of the cavity perpendicular to its longitudinal axis X, can be variable. In the example shown in figure 1, the width of the opening continuously increases towards the distal end of the applicator tip 26.

[00101] Preferably, the region 30 of the application surface onto which the cavity 6 emerges is curved outwards.

[00102] On the side opposite the opening 15, the applicator tip 26 comprises a window 3 that preferably extends over more than half the length of the cavity 6, with the length being measured along the longitudinal axis Z of the window 3, which is coincident with the longitudinal axis Y of the applicator tip 26.

[00103] Figure 2 shows that the opening 15 has, in a plane transverse to the longitudinal axis Z of the window, a width l_2 that is greater than that l_1 of the window and, in this same transverse plane, the width of the applicator tip 26 is less than or equal to the width of the elongated body 12.

[00104] In figure 2, the length L_2 of the opening 15 is approximately 1.5 times greater than that L_1 of the window, with the lengths L_2 and L_1 being measured along the longitudinal axis Z of the window 3.

[00105] Figure 3 shows that the applicator tip 26 is separated from the elongated body by a constriction 27, preferably defined by a ratio ranging between 1.05 and 1.4, between the average diameter of a circle, in which the section of elongated body 12 perpendicular to the X axis is inscribed, and the average diameter of a circle, in which the section of the applicator tip 26 perpendicular to the X axis is inscribed.

[00106] In order to apply product onto the skin, the user brings the proximal end of the application element 2 into contact with the skin, so that the product P present in the cavity 6, between the lateral edges 28 and 29 of the window 3, can be deposited therein by bringing the applicator part 22 into contact with the skin.

[00107] In figure 4, the device is identical to that of figure 1, except that the applicator tip 26 defines curved side edges so as to define the cavity 6, the bottom of which is provided with a heart-shaped window 3. The window 3 can assume any other shape, for example, a line, a dot, an arc of a circle shape when viewed from the front of the device 10.

[00108] The window 3 can have a frustoconical or partially frustoconical shape as a longitudinal section, so as to provide a product reserve.

[00109] In figure 5, the applicator tip 26 assumes the shape of a pen nib, provided with a window 3 extending along a substantially straight axis and parallel to the X axis.

[00110] Figure 6 shows a batch 54 of devices 10. Each device 10 comprises a first proximal end 23, and a second distal end 24. The batch 54 comprises a row of devices 10. The distal ends 24 of the devices 10 are detachably connected to a common stem 56. Of course, within the same batch 54, the shapes of the devices can vary from one device to another. Among the advantages of the invention, it will be noted that it allows cosmetic devices to be manufactured with relatively complex shapes, from highly diverse elastic, plastic or even metal materials, as a single piece.

[00111] Optionally, the application zone and the stem can be transparent.

[00112] Instead of flocking, the stem can be coated with a flexible TPE polymer, which may or may not be transparent.

[00113] The diameter of the stem is advantageously greater than the diameter of the core supporting the application zone. Preferably, the difference between the two diameters ranges between 0.75 mm and 1 mm.

[00114] The invention is not limited to the specifically described embodiments. It is also possible, for example, to replace one window shape 3 with another, one cavity shape 6 with another or to change the shape of the elongated body 12 and the applicator tip 26.

Claims

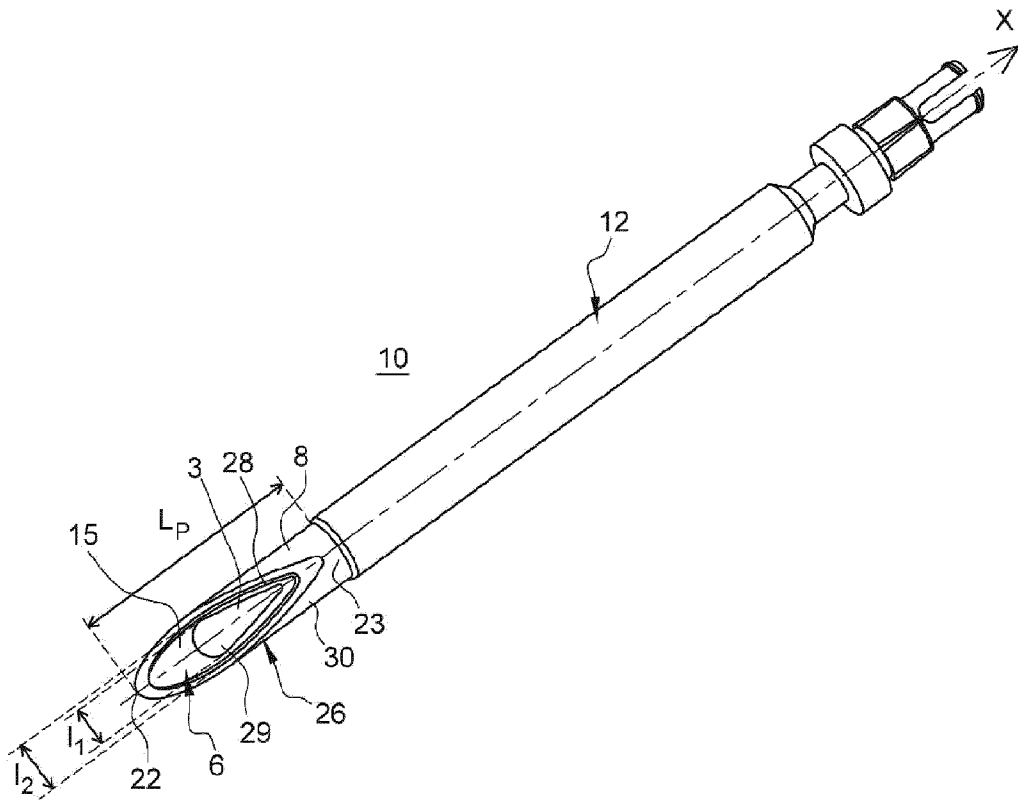
- [Claim 1] Device (10) with a longitudinal axis (X) for packaging and applying a cosmetic product (P), comprising: - an elongated body (12) forming a stem; - an applicator tip (26) disposed at a first end (18) of the elongated body (12), characterized in that the elongated body (12) and the applicator tip (26) are formed as a single piece and the applicator tip comprises: - at least one wall (8) forming a cavity (6) capable of retaining a product; - at least one window (3) extending along a longitudinal axis (Z); and - at least one opening (15) by which the cavity emerges towards the outside, with this opening having, in a plane transverse to the longitudinal axis (Z) of the window, a width (l₂) that is greater than that (l₁) of the window, and, in this same transverse plane, the width (l₂) of the applicator tip (26) is less than or equal to the width of the elongated body (13).
- [Claim 2] Device according to the preceding claim, characterized in that the opening has a length (L₂) that is at least twice that (L₁) of the window, the lengths L₂ and L₁ being measured along the longitudinal axis (Z) of the window.
- [Claim 3] Device according to any one of the preceding claims, characterized in that the applicator tip (26) is at least partially flocked.
- [Claim 4] Device according to any one of the preceding claims, characterized in that the longitudinal axis (Z) of the window (3) is parallel or inclined relative to the longitudinal axis (X) of the device.
- [Claim 5] Device according to any one of the preceding claims, characterized in that the window (3) is entirely separate from the opening (15).
- [Claim 6] Device according to any one of the preceding claims, characterized in that the window (3) is located opposite the opening (15).
- [Claim 7] Device according to any one of the preceding claims, characterized in that the window (3) extends in a straight direction or in a concave or convex curve.
- [Claim 8] Device according to any one of the preceding claims, characterized in that the width (c) of the opening (15) is variable from a proximal end towards its other distal end.
- [Claim 9] Device according to any one of the preceding claims, characterized in that the elongated body (12) defines an inner chamber adapted to accommodate a reservoir of

cosmetic product and a connection part connects the inner chamber and the applicator tip (26) defining a passage for the flow of product extending along a longitudinal axis.

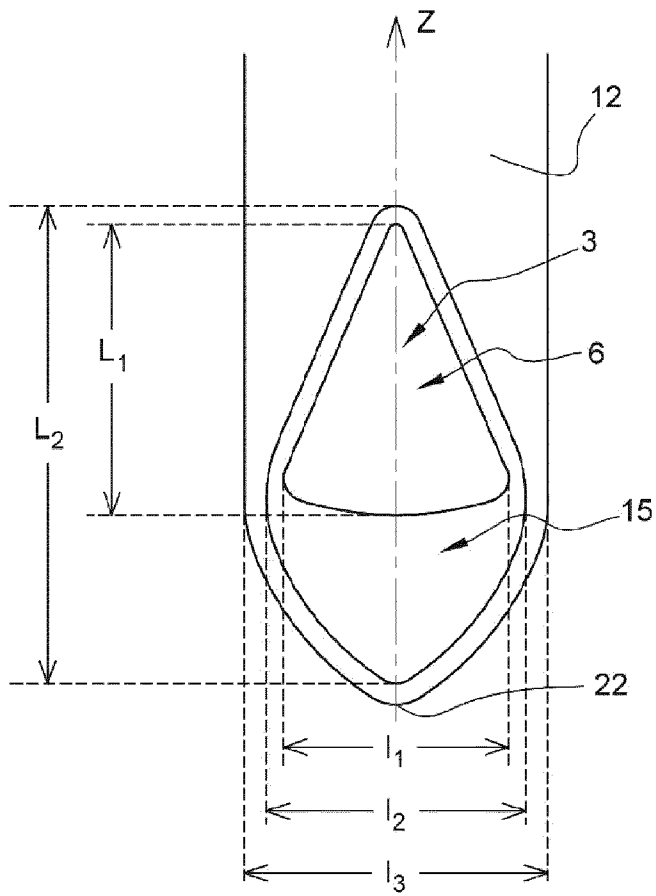
[Claim 10] Batch (54) of devices (10), with each device being a device according to any one of the preceding claims and comprising first and second opposite ends, characterized in that the devices of the batch (54) are detachably connected to a common support (56) at their first ends.

[Claim 11] Method for manufacturing a device according to any one of Claims 1 to 9, characterized in that it comprises operations involving cluster moulding a batch (54) of devices (10), optionally at least partially flocking the applicator tips (26) and detaching each device (10) from the common support (56).

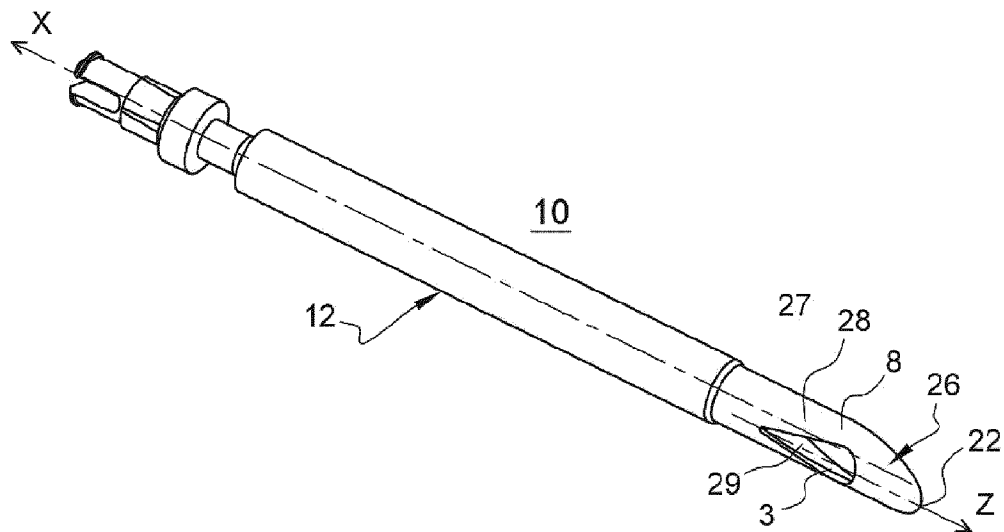
[Fig. 1]



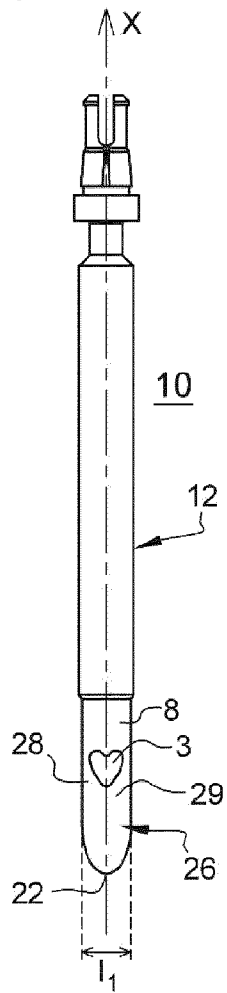
[Fig. 2]



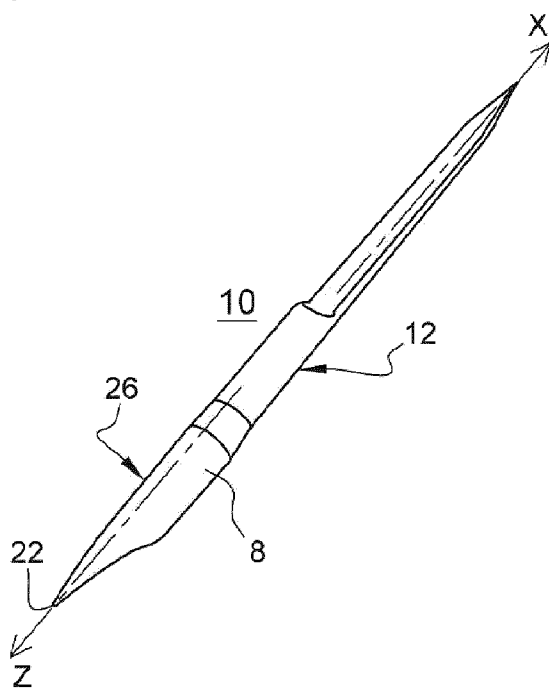
[Fig. 3]



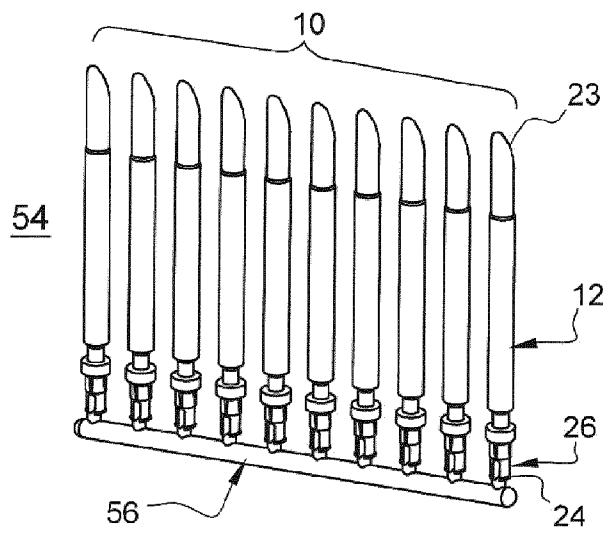
[Fig. 4]



[Fig. 5]



[Fig. 6]



INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2021/082656

A. CLASSIFICATION OF SUBJECT MATTER

INV. A45D34/04 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 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 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.
A	FR 3 013 194 A1 (OREAL [FR]) 22 May 2015 (2015-05-22) page 15, line 21 - page 21, line 28; figures 1-10 -----	1-11
A	US 2007/020027 A1 (GUERET JEAN-LOUIS [FR]) 25 January 2007 (2007-01-25) paragraph [0176] - paragraph [0187]; figures 48, 49 -----	1-11
A	FR 2 971 923 A1 (OREAL [FR]) 31 August 2012 (2012-08-31) page 9, line 1 - page 14, line 21; figures 1-25 -----	1-11
A	WO 2010/001347 A1 (OREAL [FR]; GUERET JEAN-LOUIS [FR]) 7 January 2010 (2010-01-07) page 12, line 20 - line 32; figure 6 -----	1-11



Further documents are listed in the continuation of Box C.



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Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2

NL - 2280 HV Rijswijk

Tel. (+31-70) 340-2040,

Fax: (+31-70) 340-3016

Authorized officer

Ehrsam, Sabine

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Information on patent family members

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