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(54) **COSMETIC APPLICATOR**

(57) The invention relates to a Cosmetic applicator (1) having a bristle carrier (2) and bristles (3) which are anchored thereto in one piece or in a form-fitting manner, which taper towards their free bristle end, and the bristle longitudinal axis of which in each case forms a straight line, characterized in that the bristles (3) in each case have predominantly or completely a bristle longitudinal axis which is inclined towards the free end of the bristle carrier (2).

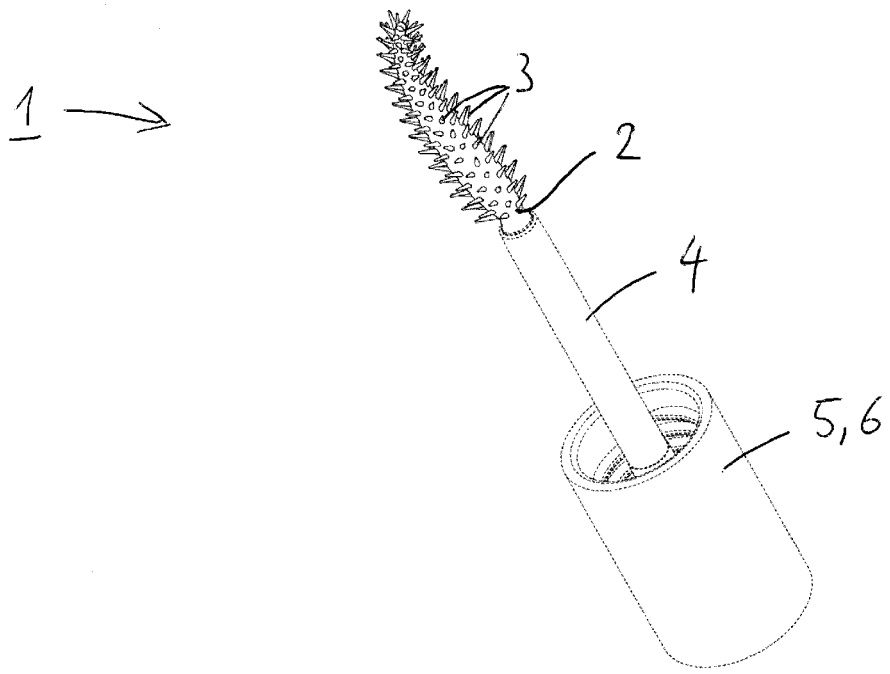

Fig. 1

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Description

[0001] The invention relates to a cosmetic applicator according to the generic concept of claim 1.

TECHNICAL BACKGROUND

[0002] In principle, there are many possible fields of use for applicators that are suitable for applying mass to keratinous fibres. However, such applicators are particularly frequently used for the application of make-up and care products. The following explanations therefore refer in particular to the preferred applicators for applying make-up. However, this does not exclude other possible applications even if such are not preferred but of secondary relevance only.

[0003] To apply make-up to a desired area, the bristles of the applicator must first be wetted with the make-up. In the case of an applicator designed as an eyelash brush, the bristles are dipped into a container of mascara. The make-up adhering to the bristles is then applied to the desired area. To do this, the bristles of the applicator are brought into contact with the eyelashes with rotating and stroking movements.

STATE OF THE ART

[0004] There are particular difficulties with conventional cosmetic applicators when applying make-up to the upper and lower sides of eyelashes. The upper and lower sides of the eyelashes correspond to the areas of the outer circumference of the individual eyelashes that essentially face the face or the cornea of the eye. There are two options for applying make-up to these areas of the eyelashes with conventional make-up applicators.

[0005] On the one hand, the bristle carrier can be moved tangentially to the eyelashes. In order to apply make-up to these areas of the eyelashes, the cosmetic applicator must then be wiped against the eyelashes while pressing lightly against them transversely to the longitudinal direction of the eyelashes. However, there is a risk that unwanted clumps will form between the eyelashes and negatively affect the make-up result. Because the make-up is applied to these areas by simply wiping along the lashes and without any rotational movements, too much make-up may be pressed into the spaces between the lashes. It is possible to remove the make-up from the spaces by rotating the eyelashes. However, this is relatively time-consuming.

[0006] Another way to apply make-up to the upper and lower sides of the lashes is to bring the cosmetic applicator to the respective row of lashes to be made up at an acute angle. Then the bristles of the cosmetic applicator can be pressed against the eyelashes while performing a rotational movement of the cosmetic applicator. In doing so, the bristles enter the spaces between the individual eyelashes and simultaneously brush against the upper or lower side of the eyelashes. However, since the cosmetic applicator is held in such a way that the free end of the bristle carrier points towards the eye, there is always the risk that the free end of the bristle carrier is unintentionally brought into contact with the cornea of the eye. This is not only unpleasant, but may also be irritating to the eye. Since the eyelashes in the marginal area of a row of eyelashes are usually particularly short, this danger exists especially when applying make-up to these areas.

[0007] In addition, conventional make-up applicators can only absorb the amount of make-up that sticks to the outer circumferential surface of their bristles. Accordingly, the make-up applicators must be dipped several times into the make-up container and then wiped on the eyelashes in order to apply enough make-up to the eyelashes.

THE PROBLEM UNDERLYING THE INVENTION

[0008] In view of the above, it is the object of the invention to provide a cosmetic applicator which makes the make-up application process less time-consuming and at the same time reduces the risk of inadvertently bringing the cosmetic applicator into contact with the cornea of the eye.

THE SOLUTION ACCORDING TO THE INVENTION

[0009] According to the invention, this problem is solved with the features of the main claim directed to the cosmetic applicator.

[0010] Accordingly, the solution to the problem is provided by a cosmetic applicator having a bristle carrier and bristles integrally or positively (by form fit) anchored thereto. The bristles taper towards their free bristle end. Preferably, the longitudinal axis of the bristles is at least substantially straight. The cosmetic applicator is characterized in that the bristles each have predominantly or completely a longitudinal bristle axis which is inclined towards the free end of the bristle carrier.

[0011] The advantage of bristles that taper towards the free end is that the facing areas of the outer circumference of two lashes are reliably and evenly wetted with make-up. If the free ends of the bristles are as thin as possible, the bristles can be easily inserted into the spaces between the individual lashes. Once the bristles have entered the spaces between the individual lashes, on the other hand, it would be better if the bristles were as wide as possible. Wide bristles ensure that both lashes, even if a free space is formed between the lashes, come into even contact with the bristle, resulting in a more even make-up application. By making the bristles as thick as possible in the area of the bristle carrier and as thin as possible in the area of the free ends, with a (preferred) fully or essentially steady transition in between, the two advantages can be combined. The bristles taper towards the free end of the bristles and thus combine the two advantages mentioned.

[0012] The inclination of the individual longitudinal bristle axes towards the free end of the bristle carrier results in an angle of less than 90° being enclosed between each bristle and the bristle carrier. This acute-angled area, which is formed by the outer circumferential surface of a bristle and the projection of this bristle onto the bristle carrier, shows a novel application behavior due to its acute angle, and can ideally serve as a reservoir for make-up after the cosmetic applicator has been pulled out of the make-up container. This is because the make-up located in this acute-angled area tends to be better retained. This means that when the cosmetic applicator is pulled out of the cosmetic container, the make-up on the bristles and the bristle carrier flows less towards one of the ends of the cosmetic carrier. Instead, the make-up tends to better remain stored on the cosmetic applicator and can be applied to the eyelashes by stroking and rotating movements along the eyelashes. The cosmetic applicator then needs to be dipped into the make-up container less frequently, reducing the time needed to achieve the desired make-up result.

[0013] Depending on how pronounced the inclination of the longitudinal bristle axes is, the positive application behavior and preferably also the mass storing effect can be enhanced and consequently the storage capacity is increased. If, for example, the area enclosed between each bristle and the bristle carrier forms an angle of more than 80°, the associated storage effect only takes place in the lowest area close to the bristle carrier. As the inclination of the bristle carrier increases (i.e. the angle of the enclosed area becomes more acute), the area serving to store make-up increases progressively.

[0014] An advantage of the inclination of the bristles' longitudinal axes towards the free end of the bristle carrier, which can be noted in any case, is that this facilitates the application of make-up to the eyelashes.

[0015] Thus, the side of the bristles that forms an obtuse angle between itself and the bristle carrier can be used to apply make-up to the upper and lower sides of the eyelashes. This is much more difficult with straight bristles, because in the case of straight bristles, a cosmetic applicator must be held in such a way that an acute angle is enclosed between the eye and the bristle carrier. Accordingly, the inclination of the longitudinal axes of the bristles can reduce the risk of the cosmetic applicator coming into contact with the eye.

[0016] Ideally, the bristles are anchored to the bristle carrier by emerging from it in one piece or even in one piece and one material, i.e. by the core and bristles having been injected in one shot and from the identical material or by 3D printing. Alternatively, for at least a part of the bristles, the manufacturing process (due to its additional stretching and therefore positive influence on the properties of the bristles), which the applicant has been practicing and publishing for years as so-called moltrusion, can be considered. In this process, an internally hollow bristle carrier is used, which can also integrally form a part of the bristles itself. In a second shot or by subsequent injection, another, second plastic melt is injected into its interior. This second plastic melt breaks through the hollow bristle carrier in many places in the radial direction and then shoots through the self-created opening, which acts like a spinneret, into the initially empty bristle chamber (molding tool cavity) behind it, where it solidifies.

PREFERENTIAL DESIGN OPTIONS

[0017] There are a number of ways in which the invention can be designed to further improve its effectiveness or utility.

[0018] Thus, it is particularly preferred that said inclination of the bristles is in the range of 25° to 35°.

[0019] Here, the inclination of 25° to 35° means the angle between a longitudinal bristle axis and a hypothetical straight line which intersects the longitudinal bristle axis at the level of the outer circumferential surface of the bristle carrier and which is arranged orthogonally to the outer circumferential surface of the bristle carrier. With such an inclination of the longitudinal axes of the bristles, the acute angle between the bristles and their projection on the outer circumferential surface of the bristle carrier is 65°-55°. With such an inclination, a good storage effect due to capillary effects is usually achieved. At the same time, it ensures that the bristles can penetrate particularly well into the spaces between the eyelashes.

[0020] In another preferred embodiment, the bristles are completely or substantially organized in rows of individual bristles. The individual bristles then preferably stand one behind the other along a line parallel to the central longitudinal axis of the bristle carrier.

[0021] Such rows ensure an even application of make-up. For example, a single row can be targeted to a row of eyelashes in such a way that the individual bristles reliably penetrate the spaces between the eyelashes. Furthermore, such an arrangement of the bristles makes it possible to comb the eyelashes. Accordingly, the eyelashes are not only applied with make-up, but also evenly aligned. Ideally, the number of individual rows as well as the distance between the individual rows is such that the bristle carrier is evenly equipped with such rows of bristles all around. It is particularly advantageous if the individual bristles of a row are spaced apart at least essentially as far as the majority of the eyelashes of a human eye are spaced apart on average.

[0022] In a further preferred embodiment, the bristles of directly adjacent bristle rows in the circumferential direction are positioned in such a way that a bristle of the following bristle row is anchored to the bristle core at the level of the centre of two directly adjacent bristles of the preceding bristle row.

[0023] Such an embodiment ensures that all, or at least as many as possible, eyelashes come into contact with the bristles as a result of a rotational movement of the cosmetic applicator along the eyelashes. Accordingly,

such an embodiment promotes the uniformity of the make-up application to the eyelashes.

A bristle is anchored to the bristle core "at the level of the centre of two immediately adjacent bristles" if the region of the longitudinal axis of that bristle which intersects the outer circumferential surface of the bristle core lies in a hypothetical plane which is centered or substantially centered between the two immediately adjacent bristles of the preceding bristle row.

[0024] The "bristle core" corresponds to the bristle carrier. Ideally, the bristles of directly adjacent rows of bristles in the circumferential direction have different stiffness and/or different degrees of material hardness, preferred according to Shore A.

[0025] Ideally, the stiffer bristles have a stiffness that is so great that the bristles do not deform elastically or only insignificantly when they come into contact with the eyelashes. The rows of bristles with the stiffer bristles can then be used to reach into the spaces between the individual lashes. The even application of make-up to the areas of the individual lashes that are opposite each other is thus ensured.

[0026] The rows of bristles with the softer bristles, on the other hand, bend elastically or at least more elastically as a result of contact with the eyelashes than those with the harder bristles. As a result, it may be that these bristles do not or not only penetrate into the free spaces between the eyelashes, but also increasingly lay across the free spaces between the eyelashes transversely to the longitudinal axis of the eyelashes. These bristles can then be used to apply make-up to the top and bottom of the lashes.

[0027] Preferably, the local mean diameter of the bristle carrier decreases from the proximal to the distal end - preferred at least after the first proximal quarter of the bristle carrier. The bristle carrier preferably has an - at least essentially or fully - circular cross-section or an oval (optionally a kind of oval) cross-section.

[0028] Due to said cross-section of the bristle carrier, the bristles can be arranged evenly over the entire outer circumferential surface of the bristle carrier. This results in an even application of make-up to the eyelashes.

[0029] However, the cross-section area of the bristle carrier is not constant, but decreases starting from the proximal end of the bristle carrier towards its distal end, preferably continuously.

[0030] The decreasing cross-section area of the bristle carrier has the effect that the make-up is wiped off in a different intensity, so that the slimmer distal end of the applicator will be loaded more intensely with mascara mass than the thicker proximal end. It is indeed desirable to have as much make-up as possible on the bristles during the make-up process. This is also achieved, as described above, by using the special retaining effects between the inclined bristles and the bristle carrier. On the other hand, no or only little make-up should accumulate on the areas of the bristle carrier where there are no bristles. Otherwise, there would be a risk of undesirable make-up accumulation and clumping on the eyelashes.

[0031] The "proximal" end is the end of the bristle carrier that is adjacent to the rest of the cosmetic applicator. The "distal" end corresponds to the free end of the bristle carrier.

[0032] In another preferred embodiment, the central longitudinal axis of the bristle carrier is curved first in a first and then in a second different or, better still, opposite direction.

[0033] In this way, the course of the bristle carrier adapts at least substantially to the curvature of a row of eyelashes. This facilitates and accelerates the application of make-up to the entire row of eyelashes.

[0034] Ideally, the average diameter of the bristles of the bristle set, which are preferably substantially circular, decreases from the proximal end of the bristle carrier to the free distal end of the bristle carrier.

[0035] Depending on requirements, either the area of the thicker bristles or the area of the thinner bristles can then be used for the variable application of make-up.

[0036] For example, in the case of thin, densely arranged eyelashes, it is advisable to use the thinner bristles.

[0037] The make-up result can also be varied, depending on whether the thicker or thinner bristles are mainly used for applying the make-up. When using the thinner bristles, a finer make-up application can be made. On the other hand, the thicker bristles are better suited for applying a thick layer.

[0038] Preferably, the inclination of the bristles of immediately adjacent rows of bristles in the circumferential direction of the bristle carrier is completely or at least substantially the same.

[0039] Thus, a rotational movement of the bristle carrier with simultaneous contact of the bristles with a row of eyelashes results in several bristles with the same orientation being brought into contact with individual eyelashes (sections of eyelashes) one after the other. As a result of a rotational movement, the bristles with the same orientation then sweep along the individual eyelashes or sections of eyelashes at the same angle. This spreads the make-up evenly on the outer circumferential surfaces of the individual lashes.

[0040] In another preferred embodiment, the inclination of the bristles increases from the proximal end of the applicator core towards the free distal end of the applicator core.

[0041] The storage effect described above is greater in the area of the more inclined bristles. Thus, this area can be used to absorb a lot of make-up.

[0042] In addition, this bristle area can be used to apply make-up to the top and bottom of the eyelashes without having to orient the bristle carrier towards the eye in such a way that there is a risk of the free end of the bristle carrier coming into contact with the cornea of the eye.

[0043] The "applicator core" corresponds to the bristle carrier.

[0044] Ideally, the length of the bristles decreases from

the proximal end of the applicator core to the free distal end of the applicator core.

[0045] The shorter bristles are particularly suitable for applying make-up to short eyelashes.

[0046] In addition, shorter bristles are stiffer, so the shorter bristles are also particularly suitable for penetrating the spaces between the individual lashes.

FIGURE LIST

[0047]

Fig. 1 shows the cosmetic applicator in isometric view.

Figs. 2-5 show the cosmetic applicator in various lateral perspectives.

Fig. 6 shows the cosmetic applicator in plan view.

Fig. 7 shows a bottom view of the cosmetic applicator.

PREFERRED EMBODIMENT

[0048] The mode of operation of the invention is explained by way of example with reference to Figs. 1-7. Figures 1-7 show different perspectives of a cosmetic applicator 1 according to the invention.

[0049] The cosmetic applicator 1 comprises a bristle carrier 2 which is equipped with a plurality of bristles 3, preferably at least 150 bristles. For better illustration, the bristles 3 in Figs. 1-7 are provided with reference signs by way of example. Furthermore, the cosmetic applicator 1 comprises a handle 4 and a grip 5, which optionally also serves as a closure cap 6 of a make-up container not shown.

[0050] To apply make-up to a desired area, the cosmetic applicator 1 is dipped into a make-up container. The cosmetic applicator 1, the bristles 3 of which are at least partially covered with make-up after being pulled out of the make-up container, is then moved to the desired area. This is typical for eyelashes treatment. In order to apply the make-up to the eyelashes, the cosmetic applicator 1 is finally pressed against the eyelashes with rotating and stroking movements. Here, the make-up flows off or is drawn off the bristles 3 onto the eyelashes, and is evenly distributed onto them by the further movement of the bristles 3 along the eyelashes.

[0051] The bristles 3 are integrally connected to the bristle carrier 2. The bristles 3 therefore merge inseparably into the bristle carrier 2 at their ends facing the bristle carrier 2. The bristles 3 are arranged on the bristle carrier 2 in such a way that the bristle carrier 3 is provided with bristles 3 over its entire outer circumferential surface, with free spaces existing between the individual bristles 3. The bristles 3 are arranged in rows. A row consists of approx. 13-15 bristles 3, which are preferably arranged at an even distance from each other along a curve from the free end of the bristle carrier 2 to the end of the bristle carrier 2 facing the handle 4. Each two adjacent rows are such that the individual bristles 3 of the two rows - in relation to the longitudinal axis of the bristle carrier 2 - are not at the same height. Rather, one bristle 3 of one row is arranged centrally between the next two bristles 3 of the adjacent row in relation to the longitudinal axis of the bristle carrier. The bristles 3 of the next but one row, on the other hand, are at the same height - in relation to the longitudinal axis of the bristle carrier 2 - as the bristles 3 of the first row. In total, the bristle carrier 2 is provided with preferably 8 to 10, or at least 6 such rows of bristles 3. The arrangement of the bristles 3 in such rows ensures an even application of the make-up to the eyelashes.

[0052] The individual bristles 3 protrude from the bristle carrier 2 in such a way that their longitudinal axis is not arranged orthogonally to the longitudinal axis of the bristle carrier 2. Rather, the individual bristles 3 are inclined towards the free end of the bristle carrier 2. This creates an acute-angled free space between each individual bristle 3 and the bristle carrier 2 on one side of the bristle 3, which is bounded on one side by the bristle carrier 2 and on the other side by the bristle 3. This acute-angled area is well suited for storing make-up after the cosmetic applicator 1 is pulled out of the make-up container, as capillary effects act due to the acute angle. These ensure that the make-up there is held in this area until it is transferred to the eyelashes. In addition, the side of the individual bristles 3 that forms an obtuse-angled free space between itself and the bristle carrier 2 can be used to apply the make-up to the upper and lower sides of the eyelashes. The advantage here is that the bristle carrier 2 can then be brought essentially tangentially to the row of eyelashes because of the inclination of the bristles 3. This reduces the risk of accidentally bringing the free end of the bristle carrier 2 into contact with the cornea of the eye.

[0053] The circular cross-section of the individual bristles 3 decreases continuously starting from the bristle carrier 2 towards the free end of the bristles 3. When applying make-up to the eyelashes, the thin free ends of the individual bristles 3 can easily penetrate into the spaces between the individual eyelashes and wet the opposing areas of the outer circumferential surfaces of the individual eyelashes with make-up. The thicker area of the bristles 3 ensures that the lashes rest against the bristles 3 and that the make-up is actually distributed along the lashes.

[0054] The bristle carrier 2 also has an essentially round, an elliptical or an oval cross-section. The last mentioned two options further vary the different modes of application use and that way offer more multi-use options. The bristle tapers continuously from the end of the bristle carrier 2 facing the handle 4 to the free end of the bristle carrier 2.

[0055] In addition, the longitudinal axis of the bristle

carrier 2 has a curvature, preferably so that the convex side of the bristle carrier 2 is essentially modelled on the curvature of an eye. Due to the tapered cross-section of the bristle carrier 2, the projection of a hypothetical line running from one end of the bristle carrier 2 to the other end of the bristle carrier 2 on its outer circumferential surface, lying in a plane, results in an S-shaped course.

[0056] One end of the bristle carrier 2 is attached to a handle 4. The bristle carrier 2 is one piece with the handle 4. The handle 4 is in turn attached to a grip 5 with its end facing away from the bristle carrier 2.

[0057] After applying make-up, the cosmetic applicator 1 can be pushed back into the make-up container, which is not shown. Since the handle 4 may be equipped with an internal thread, it can then be screwed onto a corresponding external thread of the make-up container. The handle 4 therefore also serves as a cap 6 for the make-up container.

MISCELLANEOUS

[0058] Protection is sought for, too, for a cosmetic applicator 1 having a bristle carrier 2 and bristles 3 which are anchored thereto in one piece or in a form-fitting manner, which taper towards their free bristle end, and the bristle longitudinal axis of which forms a non- or non-fully straight line being special in that the bristles 3 in each case have predominantly a bristle longitudinal axis which is inclined towards the free end of the bristle carrier 2.

LIST OF REFERENCE NUMBERS

[0059]

1	Cosmetic applicator
2	Bristle carrier/ bristle core/ applicator core
3	Bristles
4	Handle
5	Grip
6	Sealing cap

Claims

1. Cosmetic applicator (1) having a bristle carrier (2) and bristles (3) which are anchored thereto in one piece or in a form-fitting manner, which taper towards their free bristle end, and the bristle longitudinal axis of which in each case forms a straight line, **characterized in that** the bristles (3) in each case have predominantly or completely a bristle longitudinal axis which is inclined towards the free end of the bristle carrier (2).

2. Cosmetic applicator (1) according to claim 1, **characterized in that** said inclination of the bristles (3) is in the range of 25° to 35°.

3. Cosmetic applicator (1) according to claim 1 or 2, **characterized in that** the bristles (3) are organized in rows of individual bristles (3) standing one behind the other along a line parallel to the central longitudinal axis of the bristle carrier (2).

4. Cosmetic applicator (1) according to claim 3, **characterized in that** the bristles (3) of directly adjacent bristle rows in the circumferential direction are positioned in such a way that a bristle (3) of the following bristle row is anchored to the bristle core (2) at the level of the centre of two directly adjacent bristles (3) of the preceding bristle row.

5. Cosmetic applicator (1) according to claim 3 or 4, **characterized in that** the bristles (3) of rows of bristles directly adjacent in the circumferential direction have a different stiffness and/or Shore hardness.

6. Cosmetic applicator (1) according to one of the preceding claims, **characterized in that** the local average diameter of the bristle carrier (2), which preferably has circular cross-sections, decreases from the proximal to the distal end at least after the first proximal quarter of the bristle carrier (2).

7. Cosmetic applicator (1) according to any one of the preceding claims, **characterized in that** the central longitudinal axis of the bristle carrier (2) is curved first in a first and then in a second opposite direction.

8. Cosmetic applicator (1) according to one of the preceding claims, **characterized in that** the average diameter of the bristles (3) of the bristle set decreases from the proximal end of the bristle carrier (2) towards the free distal end of the bristle carrier (2).

9. Cosmetic applicator (1) according to one of the preceding claims, **characterized in that** the inclination of the bristles (3) of directly adjacent bristle rows in the circumferential direction of the bristle carrier (2) is completely or at least substantially the same.

10. Cosmetic applicator (1) according to one of the preceding claims, **characterized in that** the inclination of the bristles (3) increases from the proximal end of the applicator core (2) towards the free distal end of the applicator core (2).

11. Cosmetic applicator (1) according to one of the preceding claims, **characterized in that** the length of the bristles (3) decreases from the proximal end of the applicator core (2) to the free distal end of the applicator core (2).

12. Use of an applicator (1) according to one of the preceding claims for applying mascara mass on a human eye.

13. Method for applying mascara mass to a human eye by using an applicator (1) according to one of the preceding claims, **characterized in that** the regions closer to the distal end of the applicator (1) are brought into contact with the eyelashes for transferring more cosmetic mass to the eyelashes, and **in that** the regions closer to the proximal end of the applicator (1) are brought into contact with the eyelashes for transferring less cosmetic mass to the eyelashes.

Fig. 1

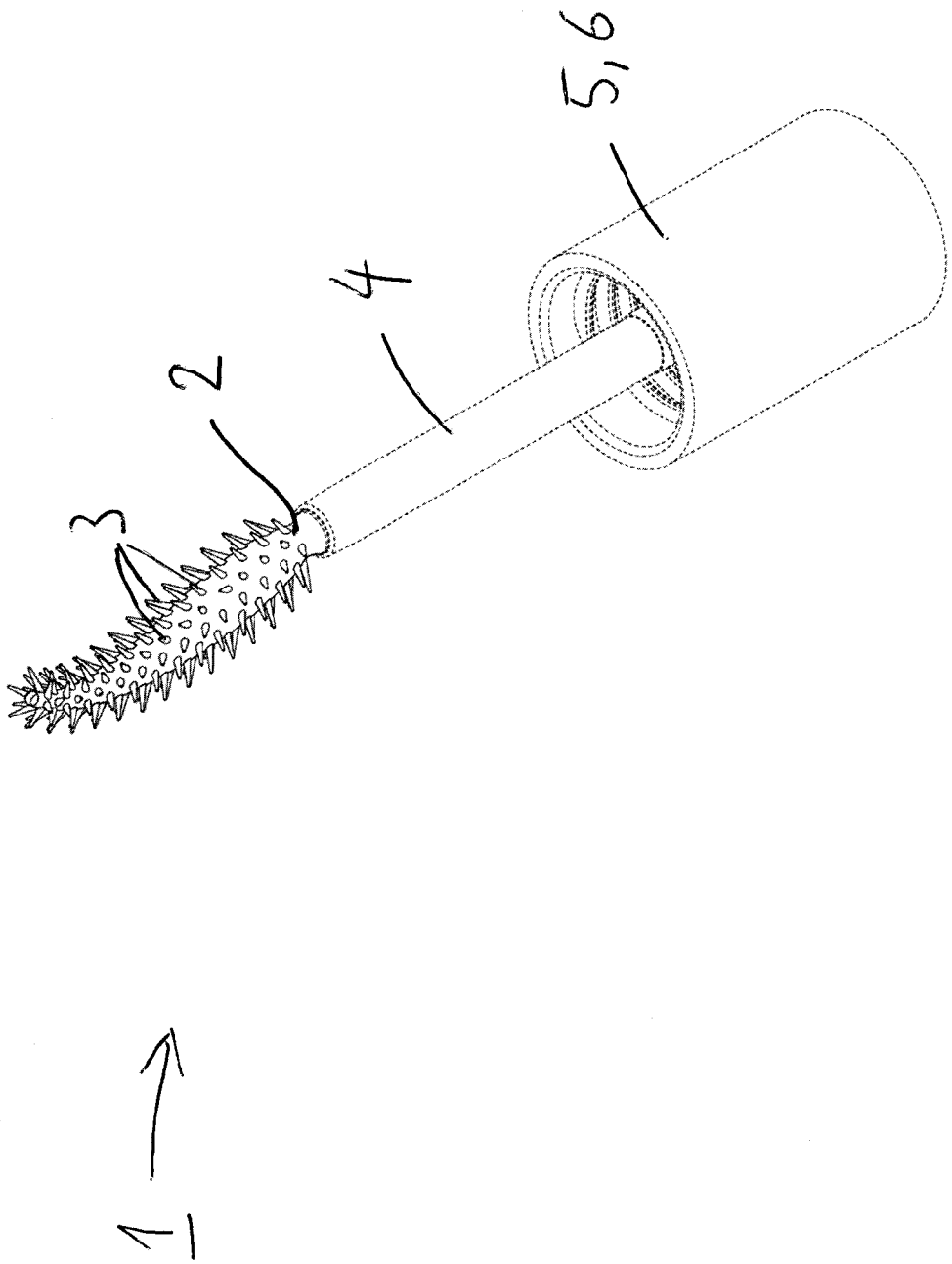


Fig. 2

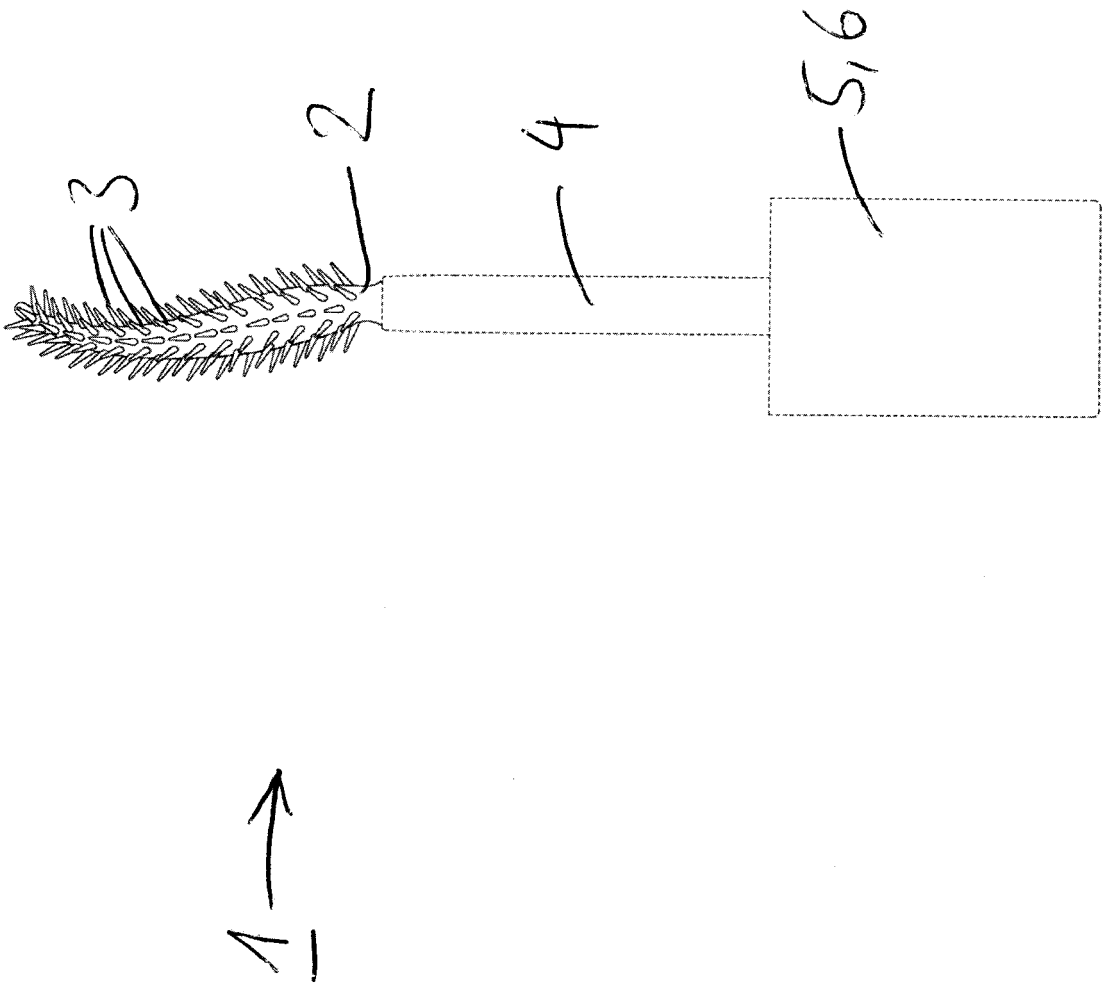


Fig. 3

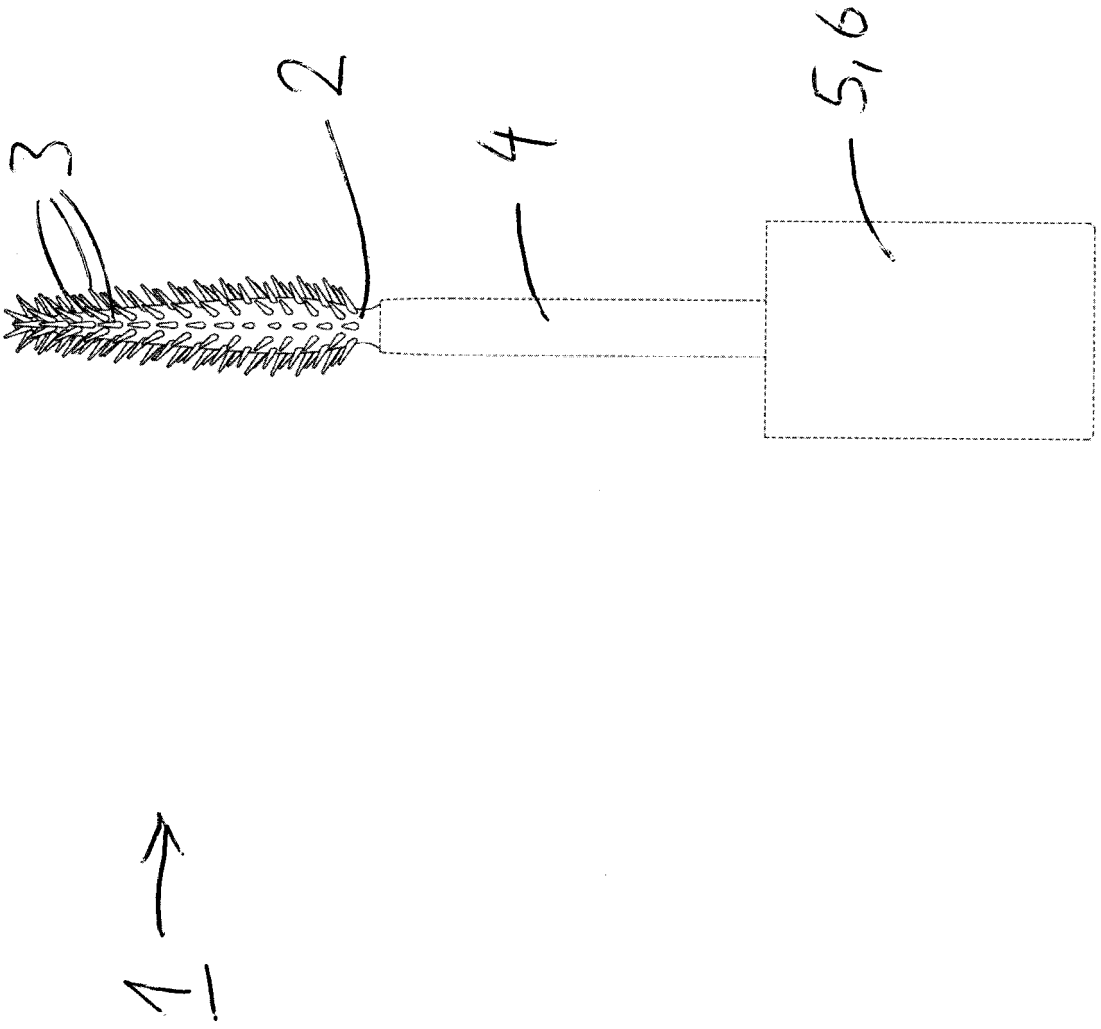
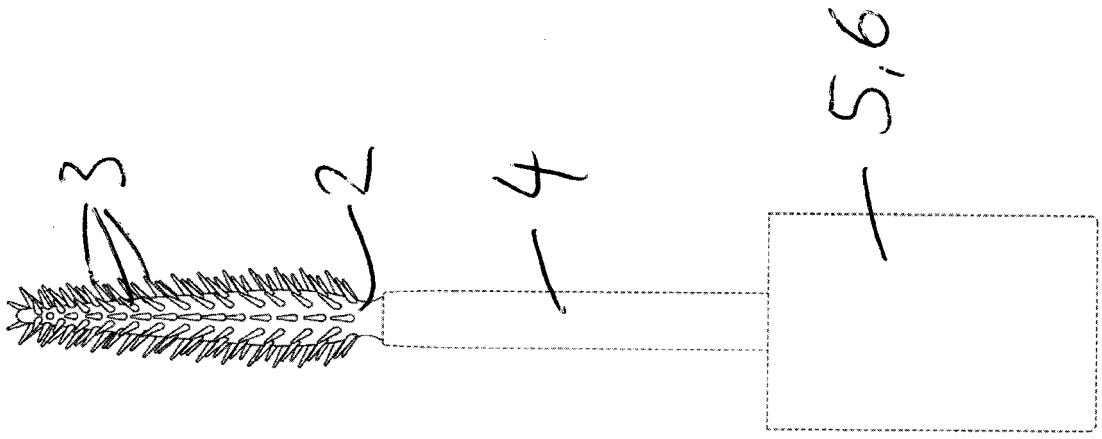


Fig. 4



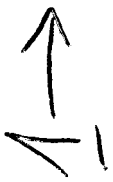


Fig. 5

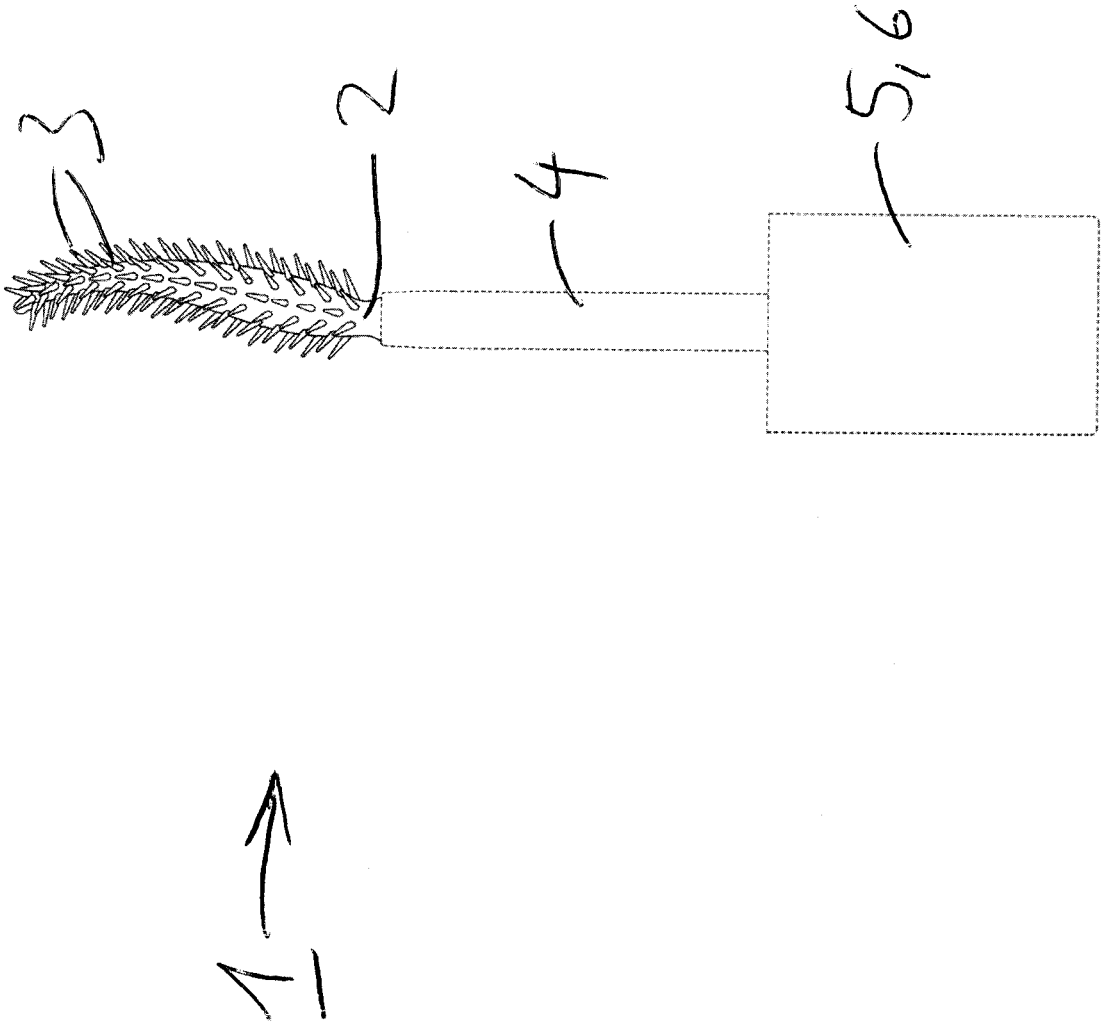


Fig. 6

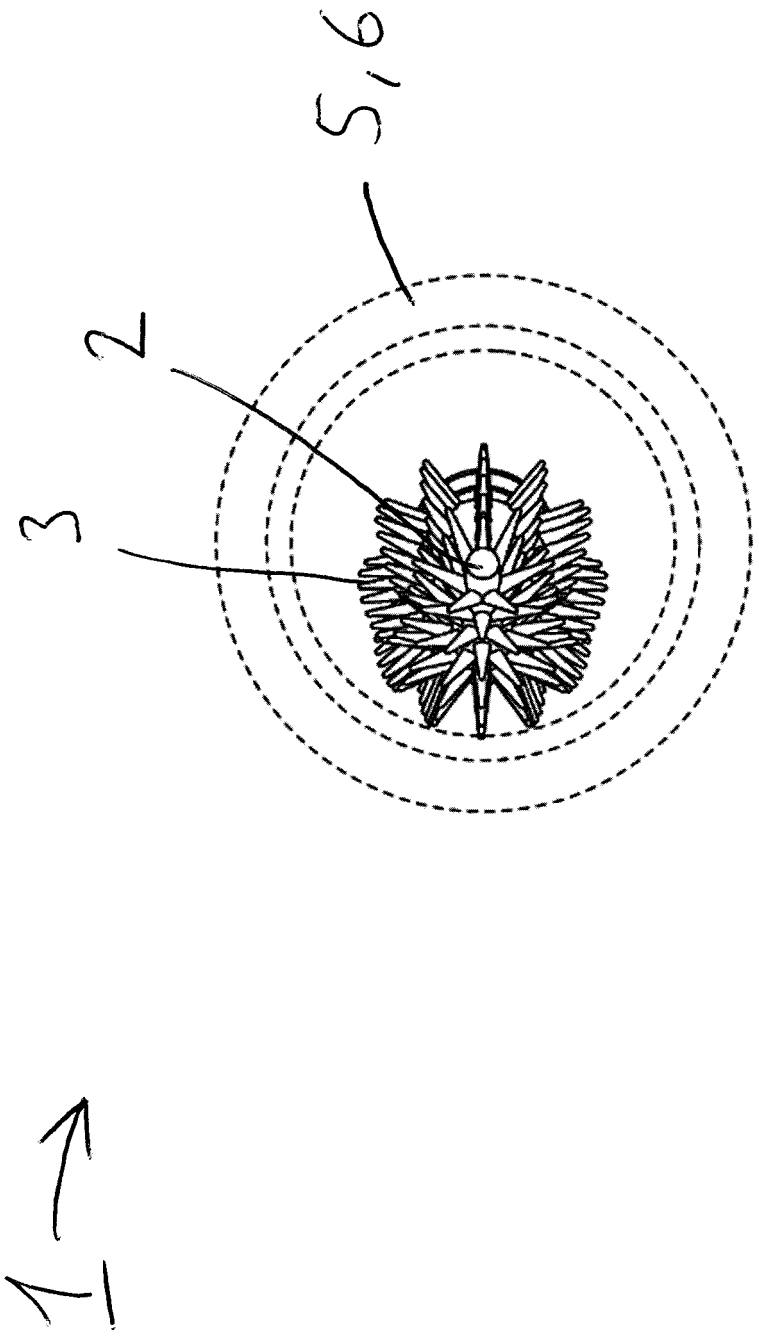
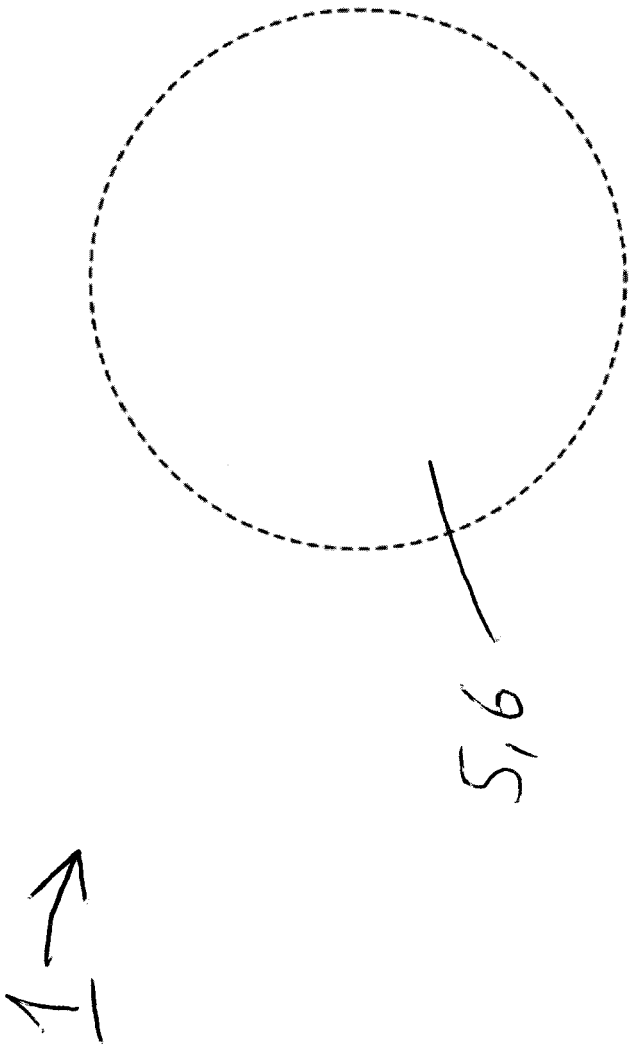


Fig. 7



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EUROPEAN SEARCH REPORT

Application Number
EP 23 15 4249

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2015/374115 A1 (WILSON DAVID EDWARD [US] ET AL) 31 December 2015 (2015-12-31) * figures 1-7 * * page 6, line 20 - line 25 * * page 10, line 28 - page 11, line 2 * * page 11, line 25 - line 29 *	1-13	INV. A46B9/02 A46D1/00
X	WO 2019/115243 A1 (OREAL [FR]) 20 June 2019 (2019-06-20) * figures 1-6 * * column 7, line 13 - line 25 *	1-13	
X	US 2006/289027 A1 (WYATT PETER J [US] ET AL) 28 December 2006 (2006-12-28) * paragraphs [0090], [0097]; figures 2-5 *	1-13	
X	US 11 160 357 B2 (CHANEL PARFUMS BEAUTE [FR]) 2 November 2021 (2021-11-02) * paragraph [0042]; figure 13 *	1-13	
			TECHNICAL FIELDS SEARCHED (IPC)
			A46B A46D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	23 June 2023	Kun, Karla

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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23-06-2023

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2015374115 A1	31-12-2015	NONE	
WO 2019115243 A1	20-06-2019	FR 3074661 A1	14-06-2019
		WO 2019115243 A1	20-06-2019
US 2006289027 A1	28-12-2006	AU 2006247139 A1	23-11-2006
		AU 2006248034 A1	23-11-2006
		CA 2588834 A1	23-11-2006
		CA 2606922 A1	23-11-2006
		CN 101080253 A	28-11-2007
		CN 101180098 A	14-05-2008
		EP 1881799 A1	30-01-2008
		EP 1881812 A1	30-01-2008
		HK 1113554 A1	10-10-2008
		JP 2008521940 A	26-06-2008
		KR 20070074659 A	12-07-2007
		KR 20080003877 A	08-01-2008
		KR 20090007804 A	20-01-2009
		US 2006260633 A1	23-11-2006
		US 2006289027 A1	28-12-2006
		US 2009241980 A1	01-10-2009
		US 2012060859 A1	15-03-2012
		US 2013104926 A1	02-05-2013
		US 2015190314 A1	09-07-2015
		WO 2006124228 A1	23-11-2006
		WO 2006125122 A1	23-11-2006
US 11160357 B2	02-11-2021	CN 108778051 A	09-11-2018
		EP 3426091 A1	16-01-2019
		FR 3048594 A1	15-09-2017
		JP 2019512296 A	16-05-2019
		KR 20180115333 A	22-10-2018
		US 2019090622 A1	28-03-2019
		WO 2017153673 A1	14-09-2017

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82