



(11) **EP 4 772 068 A1**

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
08.07.2026 Bulletin 2026/28

(21) Application number: **24857534.2**

(22) Date of filing: **28.08.2024**

(51) International Patent Classification (IPC):
A45D 40/26 (2006.01) **A45D 33/36** (2006.01)
A46B 9/08 (2006.01) **A46B 9/10** (2006.01)
A46B 5/00 (2006.01)

(52) Cooperative Patent Classification (CPC):
A45D 33/36; A45D 40/26; A46B 5/00; A46B 9/08;
A46B 9/10

(86) International application number:
PCT/BR2024/050388

(87) International publication number:
WO 2025/043317 (06.03.2025 Gazette 2025/10)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL
NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA
Designated Validation States:
GE KH MA MD TN

(30) Priority: **28.08.2023 CN 202322306062 U**

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(54) **360-DEGREE ROTATABLE AND REPLACEABLE COSMETIC BRUSH, KIT COMPRISING SAID COSMETIC BRUSH, AND USES FOR SAID BRUSH**

(57) The present invention refers to a 360-degree replaceable rotatable cosmetic brush that comprises a handle internally provided with a connecting rod; a limiting sleeve between the handle and the connecting rod; a connecting sphere at the top end of the connecting rod, and a movable cap on the outside of the connecting sphere.

In a preferred embodiment, the present invention further comprises an activated articulation system comprising elements that promote retraction and expansion of the brush head. With the present invention, the quick assembly of the cosmetic brush can be achieved. The present invention allows the assembly of different cosmetic brushes. The brush head is easily attached and can be adjusted according to a user's preference. In addition, a handle can be furnished with several brush heads, making this device more practical.

The present invention further refers to a kit comprising the aforementioned brush and its uses, including particular indication for users with motor and/or visual impairments.

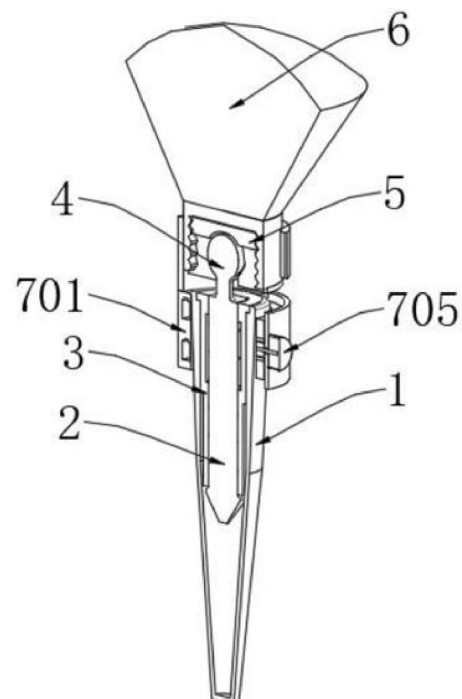


FIG. 2

Description

FIELD OF TECHNIQUE

[0001] The present invention refers to the field of cosmetic brushes technique, in particular to a 360-degree rotatable and replaceable cosmetic brush.

[0002] Further, the present invention refers to a kit that comprises the aforementioned cosmetic brush and several models of brush heads that can be attached to this brush in addition to uses indicated for different users.

STATE OF THE ART

[0003] With the continuous improvement of people's living standards, people's demands regarding clothes and clothing are becoming higher and higher, and especially for women, proper makeup can reflect women's attitude towards life and mental outlook. Among the tools for women's makeup, there are several types of cosmetic brushes, which can be combined according to individual makeup habits. Cosmetic brushes with different functions meet women's makeup needs in different areas. However, the connection of a connecting tube of existing cosmetic brushes with a bristle head of the same is individually combined, and the bristle head can only be thrown away when it is damaged or cannot be cleaned.

[0004] In addition, the separate assembly of the cosmetic brushes results in a larger space needed to store different types of cosmetic brushes, which brings problems for women when packing the cosmetic brushes. In addition, cosmetic brushes of the state of the art do not have the function of being rotary, which is not convenient for using different application techniques according to the way one uses them.

[0005] Therefore, the present invention is related to a 360-degree rotatable and replaceable cosmetic brush.

[0006] Below, state-of-the-art documents related to cosmetic brushes are mentioned:

Document PI 0602185-9 describes a brush applicator for applying a cosmetic product that has a rod and bristles supported by the rod, of which at least 500 bristles have in cross-section a greater dimension that is strictly less than 6.5/100 mm.

[0007] Document PI 0917467-2 reveals a cosmetic applicator brush comprising a handle and a brush head, with the head being in two halves made of different bristles.

[0008] Further, document PI 0804496-1 discloses a makeup brush that includes a handle section having a support part formed in a central portion of its inner surface to support and secure one end of an applicator rod; the applicator rod extending from the central portion of the inner surface of the handle section for a predetermined distance and having one end secured by the support part of the handle section and the other end defined with a groove in which a brush is fitted; the brush having one end fitted in the groove which is defined on the applicator rod;

and a hollow tube fitted to the applicator rod and having a distal end portion which surrounds an intermediate portion of the brush.

[0009] Document CN207898192 reveals a cosmetic brush that includes a brush, handle, and clearance mechanism into which the brush can be disassembled with the handle and be connected. The handle has a recess to make the gap mechanism stay in the recess, the gap mechanism includes drive division, vibration part and gap cover, the side wall on the handle is connected to the gap cover for the cover to be established on the brush, and the drive division is fixed in the recess, and the vibration part is connected to the drive division, and the vibration part is used to perform vibratory cleaning on the brush towards the brush configuration.

[0010] Document CN207898186 describes a cosmetic brush that includes handle, connecting piece and cosmetic brush unit, being provided with handle and connecting chamber, provided with mounting slot that passes through the connecting piece, the connecting piece is connected and the intracavity, and the cosmetic brush unit connection is in the mounting slot, the quantity of mounting slot is a plurality of, and a plurality of mounting slot correspondences are connected in the connecting piece, and the quantity of cosmetic brush unit corresponds to a plurality of with the quantity of mounting slot, and each cosmetic brush unit corresponds to be connected in each mounting slot.

[0011] Thus, there is no state-of-the-art solution equivalent to the one presented herein by this invention that combines technical differentials, ease of use, and assembly.

SUMMARY OF THE INVENTION

[0012] The present invention refers to a 360-degree replaceable rotatable cosmetic brush that comprises a handle internally provided with a connecting rod; a limiting sleeve located between the handle and the connecting rod; a connecting sphere located at the upper end of the connecting rod; a movable cap outside the connecting sphere; a brush head connected to the movable cap on the external part of the cap; a support mechanism comprising a casing located on an outer periphery of the handle and on an outer periphery of the brush head; two sets of sliding mode fasteners inside the casing; the fasteners being provided with toothed rails on one side wherein the fasteners are close to each other; a gear positioned between the two sets of toothed rails and the casing comprising a knob on one of its sides.

[0013] Preferably, the handle is provided with a snap-in slot at an upper end of the same, and a snap-on ring is provided on an outer periphery of an upper end of the limiting sleeve, and the snap-in slot is installed in correspondence with the snap-on ring.

[0014] Preferably, multiple sets of limiting rings are provided on an outer periphery of the connecting rod, and a lower portion of the connecting rod is provided in a

conical shape.

[0015] Preferably, a lower portion of the limiting sleeve is smaller than an upper portion of it, and the limiting sleeve is provided with multiple sets of first rectangular slots at a lower end of same.

[0016] Preferably, a limiting strip is provided on an outer periphery of a lower end of the movable lid, and the movable lid is provided with a second rectangular slot at a lower end of the same.

[0017] Preferably, the movable lid comprises external threads; the brush head comprises internal threads in an internal periphery of a lower portion of the same; and the movable lid and the brush head are in threaded connection with each other.

[0018] Preferably, an upper portion of the casing is provided with an arc-shaped cross-section with an opening; a lower portion of the casing is provided with an arc-shaped cross-section; sliding slots are included on both the upper and lower sides of the lower portion of the casing; the sliding slot is provided with a limiting slot on one side thereof; the fastener is provided with limiting blocks at the upper ends of two sides thereof; the fastener is slidably connected with the sliding slot; and the limiting slot is slidably connected with the limiting block.

[0019] Preferably, the two sets of toothed rails are engaged with the gear; the button includes a rotary shaft on one side of same; and one end of the rotary shaft extends through and into the casing and is connected to an inner periphery of the gear.

OBJECTIVES OF THE INVENTION

[0020] One objective of the present invention is to propose a rotatable and replaceable makeup brush at 360 degrees in relation to the problem existing in the state of the art.

[0021] Another goal of this invention is to provide a cosmetic brush with quick assembly.

[0022] Another goal of this invention is to provide cosmetic brushes with different functions that are easily adapted and can be replaced.

[0023] Yet another purpose of the present invention is to provide a cosmetic brush whose head can be adjusted according to the user's preference.

[0024] Another objective of this invention is to provide a cosmetic brush suitable for users with specific motor needs, including users with motor and/or visual disabilities, being considered as accessible brushes for makeup.

[0025] Another objective of this invention is to provide a cosmetic brush suitable for professionals in the field, preferably in kit form, which comprises at least one cosmetic brush of this invention and several models of brush heads.

[0026] Further, another objective of the present invention is to provide cosmetic brushes that can be used from their initial form, with the fixed handle, to their more flexible form with activation of an articulation system,

for better adaptation to the needs of each of its users.

[0027] Finally, another goal achieved with the present invention is to provide a cosmetic brush that can contain several heads. Thus, it offers space savings while traveling, making this device more practical and more widely applicable.

BRIEF DESCRIPTION OF THE DRAWINGS

[0028]

Figure 1 is a schematic view of a general structure of the present other objective of the of the present invention is to provide a cosmetic brush.

Figure 2 is a schematic view of a general section of the present other objective of the present invention is to provide a cosmetic brush.

Figure 3 is a structural schematic view of the present other objective of the present invention is to provide a cosmetic brush without a support mechanism.

Figure 4 is an exploded schematic view of Figure 3.

Figure 5 is a schematic view of a section of Figure 4.

Figure 6 is a structural schematic view of the support mechanism of the present other objective of the present invention is to provide a cosmetic brush.

Figure 7 is a schematic view of a partial section of Figure 6.

Figure 8 is a schematic view of a partial section of Figure 6.

Figure 9 illustrates several models of the cosmetic brush of the present invention in its initial retracted form.

Figure 10 illustrates the same models as Figure 9 in their most flexible form with the articulation system activated.

Figure 11 illustrates the cosmetic brush handle of the present invention in (A) initial retracted position and (B) extended position.

Figure 12 illustrates the model of Figure 11 in partial section.

Figure 13 illustrates the cosmetic brush of the present invention in the initial position.

Figure 14 illustrates three models of the cosmetic brush of the present invention in an extended position.

[0029] Numerical references: 1 handle; 2 connecting rod; 3 limiting sleeve; 4 connecting sphere 5 movable cap; 6 brush head; 7 support mechanism; 701 casing; 702 fastener; 703 toothed rail; 704 gear; 705 button; 8 fitting groove; 9 snap ring; 10 limiter ring; 11 limiting strip; 12 sliding slot; 13 limiting slot; 14 limiter block.

DETAILED DESCRIPTION OF THE INVENTION

[0030] The technical solutions of the present other objective of the present invention are to provide a cosmetic brush are further described below in connection

with the attached drawings.

[0031] As shown in Figures 1 to 8, a 360-degree rotatable and replaceable cosmetic brush proposed by the present other objective of the present invention is to provide a cosmetic brush comprises a handle 1 that is internally provided with a connecting rod 2. Multiple sets of limiting rings 10 are provided on an outer periphery of the connecting rod 2.

[0032] A limiting sleeve 3 is limited via the limiter ring 10, and the handle 1 and connecting rod 2 are mounted and secured via the limiting sleeve 3. A lower portion of the connecting rod 2 is provided in a tapered shape, allowing the connecting rod 2 to be easily inserted into the limiting sleeve 3. Limiting sleeve 3 is provided between handle 1 and connecting rod 2.

[0033] A lower portion of the limiting sleeve 3 is smaller than an upper portion of same, and the limiting sleeve 3 is provided with multiple sets of first rectangular slots at a lower end thereof. With the multiple sets of first rectangular slots provided in the limiting sleeve 3, the limiting sleeve 3 can be expanded outwards, thus ensuring the attachment of the handle 1 and the connecting rod 2, limiting the position of the connecting rod 2 in the handle 1 and preventing the connecting rod 2 from being dislodged from the handle 1.

[0034] Handle 1 is provided with a fitting groove 8 at an upper end of the same, and a snap ring 9 is provided on an outer periphery of an upper end of the limiting sleeve 3, and the fitting groove 8 is installed in correspondence to the snap ring 9. The installation between the handle 1 and the connecting rod 2 is made more stable by the installation of the fitting groove 8 and the snap ring 9.

[0035] The connecting rod 2 is provided with a connecting sphere 4, which is spherical, at an upper end thereof. The connecting sphere 4 is externally provided with a movable cap 5. The movable cap 5 is internally provided with a spherical slot, and the connecting sphere 4 is movable within the spherical slot and is rotatable by 360 degrees. A limiting strip 11 is provided on an outer periphery of a lower end of the movable cap 5, and the movable cap 5 and brush head 6 can be easily disassembled via the limiting strip 11.

[0036] In addition, the movable cap 5 is provided with a second rectangular slot at its lower end, through which the connecting sphere 4, which is larger than the opening at the lower end of the movable cap 5, can be smoothly installed, and different connecting spheres 4 can be adapted. The movable cap 5 is externally connected to the brush head 6. The movable cap 5 is provided with external threads, and the brush head 6 is provided with internal threads on an internal periphery of the bottom of the cap. The movable cap 5 and the brush head 6 are in a threaded connection to each other.

[0037] Through the internal and external threads, the device can allow the brush head 6 to be easily replaced, and the device has a function of being replaceable.

[0038] A support mechanism 7 is provided on an outer periphery of handle 1 and an outer periphery of brush

head 6, wherein brush head 6 can be supported and fixed, so as to facilitate the user to apply makeup according to makeup application techniques.

[0039] The cosmetic brush of the present invention comprises a hinge system comprising a support mechanism 7 comprising a casing 701. An upper portion of the enclosure 701 is provided having an arc-shaped cross-section with an opening, whereby the brush head 6 can be easily attached. A lower portion of the enclosure 701 is provided having an arc-shaped cross-section, and sliding slots 12 are provided in both the upper and lower sides of the lower portion of the casing 701. The sliding slot 12 is provided with a limiting slot 13 on one side thereof, and the limiting slot 3 performs the limiting function. Two sets of fasteners 702 are supplied slidably within the casing 701. The fastener 702 is slidably connected with the sliding slot 12. Tightening of the casing 701 is accomplished by sliding the fastener 702 into the sliding slot 12. The fastener 702 is provided with limiting blocks 14 at the upper ends of two sides of the fastener, and the limiting slot 13 is connected in a sliding manner with the limiting block 14. The length of the limiting slot 13 is shorter than the length of the sliding slot 12. By means of the limiter block 14, the fastener 702 slides inside the limiting slot 13 and the fastener 702 is prevented from being displaced.

[0040] The fasteners 702 are provided with toothed rails 703 on one side where they are close to each other. A gear 704 is placed between the two sets of toothed rails 703, and the casing 701 is provided with a knob 705 on one side thereof. The two sets of toothed rails 703 are engaged with the gear 704. The button 705 is provided with a rotating shaft on one side of the knob, and one end of the rotating shaft extends through and into the casing 701 and is connected to an inner periphery of the gear 704. The rotation of the rotating shaft is driven by the rotation of the button 705, which in turn drives the upper and lower sets of toothed rails 703 engaged in the gear 704 to move in opposite directions, thus tightening the casing 701 and the fastener 702. It should be noted that the support mechanism 7 as a whole can be slightly deformed under pressure, and the movable cap 5 and the snap ring 9 have the function of being slightly deformed by pressure.

[0041] In the current embodiment, the device is first assembled when it is used. First, the limiting sleeve 3 is fitted on the outside of the limiting sleeve 3, next the handle 1 is fitted on the outside of the limiting sleeve 3, and the fitting groove 8 is installed in correspondence to the snap ring 9. Then, the movable cap 5 is fitted to the outside of the connecting sphere 4 and, next, the brush head 6 is screwed onto the movable cap 5 on the outside thereof via threads. If the brush head 6 needs to be replaced, simply unscrew the brush head 6 from the movable cap 5 and then screw a new brush head 6 onto the movable cap 5. At this time, the device's brush head 6 is in a 360-degree rotation state. If brush head 6 needs to be attached, support mechanism 7 is fitted from the lower end of handle 1, and support mechanism 7 is fitted to the

top of handle 1 and the bottom of brush head 6, and then the rotating shaft is rotated by turning button 705. The rotation of the rotating shaft can drive the rotation of the gear 704, thereby driving the two sets of toothed rails 703 engaged in the gear 704 to rotate in opposite directions. When the upper toothed rails 703 slide clockwise within the sliding slot 12, the lower toothed rails 703 move counterclockwise within the sliding slot 12. Due to the limiting function of the limiting slot 13, the limiter block 14 on both sides of the toothed rails 703 allows the housing casing and the fastener 702 to be tightened, to firmly hold the handle 1 and fasten the brush head 6. When the support mechanism 7 needs to be removed, it can be removed from under the handle 1 by loosening the casing 701 and the fastener 702 by turning the button 705.

[0042] Thus, the cosmetic brush of the present invention can present its initial form as illustrated in Figure 9 and also its more flexible form when the articulation system is activated as illustrated in Figure 10.

[0043] The articulation system included in the cosmetic brush of the present invention can be activated or deactivated with a simple pushing movement, whereby the brushes adapt to the user's needs.

[0044] Figures 11 to 14 illustrate the brush handle and cosmetic brush of the present invention in the initial form (retracted) and in the extended form obtained with a simple movement.

[0045] In a preferred embodiment of the present invention, the handle comprised in the aforementioned brush is more robust and anatomical, with a square base so that, in addition to facilitating use, the brushes can be left on any surface, ensuring stability and without rolling from side to side as can be seen from Figures 9 and 10.

[0046] The cosmetic brush of this invention is indicated for all users, especially for users with motor disabilities, allowing greater autonomy and independence and facilitating movements to apply makeup. Further, in a preferred embodiment, the brush of the present invention comprises specific symbology in high relief, which facilitates the identification of the type of brush x product to be used in makeup.

[0047] The present other objective of the present invention is to provide a cosmetic brush presents the following technical advantages compared to previous techniques:

- With the present other objective of the present invention is to provide a cosmetic brush, through the cooperation of the handle, the connecting rod, the limiting sleeve, the connecting sphere, the movable cap and the brush head, the quick assembly of the cosmetic brush can be achieved;
- The brush head has the function of being rotatable through the connecting sphere and the movable cap, and through the threaded connection between the movable cap and the brush head, cosmetic brushes with different functions can be adapted and are convenient to be replaced;

- In addition, with the provision of a support mechanism, the brush head is convenient to be fixed and can be adjusted according to a user's preference, and is quickly installed, allowing makeup to be more efficient;
- With the present other objective of the present invention is to provide a cosmetic brush, it is easy to do quick disassembly and replacement;
- Additionally, one handle can be provided with multiple brush heads, and space saving can be achieved when traveling, making this device more practical and more widely applicable;
- The kit comprising at least one cosmetic brush of this invention and several models of brush head is indicated, in particular, for professionals in the area;
- This invention is indicated for users with specific motor and/or visual needs due to the possibility of tilting the brush head in relation to the rod, making the brush a versatile instrument and adaptable to particular uses.

[0048] The above specific embodiment is just a preferred embodiment of the present other objective of the present invention is to provide a cosmetic brush, and based on the relevant suggestions of the technical solution and the above embodiment of the present other objective of the present invention is to provide a cosmetic brush, persons skilled in the art would carry out a variety of alternative improvements and combinations of the above specific embodiment.

Claims

1. 360-degree rotatable and replaceable cosmetic brush **characterized by** comprising a handle (1) internally provided with a connecting rod (2); a limiting sleeve (3) located between the handle (1) and the connecting rod (2); a connecting sphere (4) located at the upper end of the connecting rod (2); a movable cap (5) positioned outside the connecting sphere (4); a brush head (6) connected to the movable cap (5) on its outer side; a support mechanism (7) comprising a casing (701) on an outer periphery of the handle (1) and on an outer periphery of the brush head (6); two sets of fasteners (702) slidably positioned inside the casing (701); the fasteners (702) provided with toothed rails (703) on one side where the fasteners are close to each other; a gear (704) positioned between the two sets of toothed rails (703), and the casing (701) provided with a button (705) on one of its sides.
2. Cosmetic brush, according to claim 1, **characterized by** the handle (1) being provided with a fitting groove (8) at an upper end thereof, and a snap ring (9) being located on an outer periphery of an upper end of the limiting sleeve, and the fitting groove (8)

installed in correspondence to the snap ring (9).

3. Cosmetic brush, according to claim 1, **characterized by** multiple sets of limiting rings (10) being located on an outer periphery of the connecting rod (2), and a lower portion of the connecting rod (2) in a conical shape.
4. Cosmetic brush, according to claim 1, **characterized by** a lower portion of the limiting sleeve (3) being smaller than an upper portion of the same, and the limiting sleeve (3) being provided with multiple sets of first rectangular slots at a lower end of the same.
5. Cosmetic brush, according to claim 1, **characterized by** a limiting strip (11) being provided with an outer periphery of a lower end of the movable cap (5), and the movable cap (5) being provided with a second rectangular slot at its lower end.
6. Cosmetic brush, according to claim 1, **characterized by** the movable cap (5) being provided with external threads; the brush head (6) being provided with internal threads on an internal periphery of a lower portion thereof; and the movable cap (5) and the brush head (6) being in threaded connection with each other.
7. Cosmetic brush, according to claim 1, **characterized by** an upper portion of the casing (701) being provided with an arc-shaped cross-section with an opening; a lower portion of the casing (701) being provided with an arc-shaped cross-section; sliding slots (12) being provided on both the upper and lower sides of the lower portion of the casing (701); the sliding slot (12) being provided with a limiting slot (13) on one side thereof; the fastener (702) being provided with limiting blocks (14) at the upper ends of two sides of the same; the fastener (702) being slidably connected with the sliding slot (12); and the limiting slot (13) being slidably connected with the limiting block (14).
8. Cosmetic brush, according to claim 1, **characterized by** the two sets of toothed rails (703) being connected to the gear (704); the button (705) being provided with a rotating shaft on one side thereof; and one end of the rotating shaft extending through and into the casing (701) and being connected to an inner periphery of the gear (704).
9. Cosmetic brush, according to claim 1, **characterized by** the brush head (6) presenting different models according to the user's need.
10. Cosmetic brush, according to claim 1, **characterized by** comprising an articulated system.
11. Cosmetic brush, according to claim 10, **characterized by** presenting its initial form retracted when the articulation system is not activated.
12. Cosmetic brush, according to claim 10, **characterized by** presenting its most flexible form when the articulation system is activated with a simple pushing motion.
13. Kit **characterized by** comprising at least one cosmetic brush as defined in any of claims 1 to 12 and several brush heads and may also include rules of use.
14. Use of the cosmetic brush as defined in any of claims 1 to 12 **characterized by** being for travel use.
15. Use of the cosmetic brush as defined in any of claims 1 to 9 **characterized by** being for professionals in the makeup field.
16. Use of the cosmetic brush as defined in any of claims 1 to 12 **characterized by** being indicated for users with specific motor and/or visual needs.

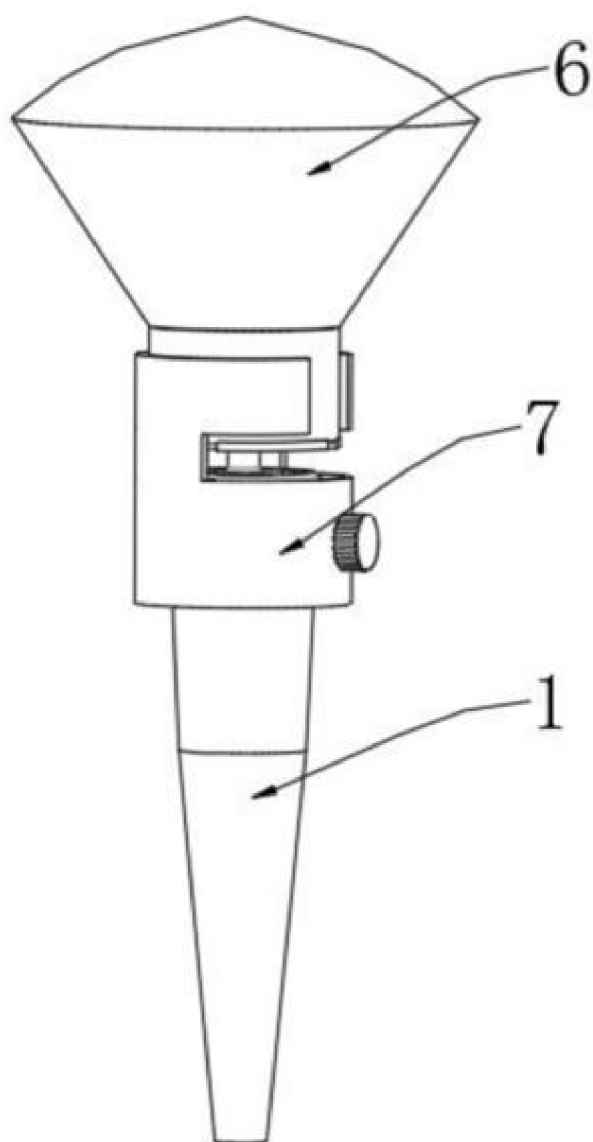


FIG. 1

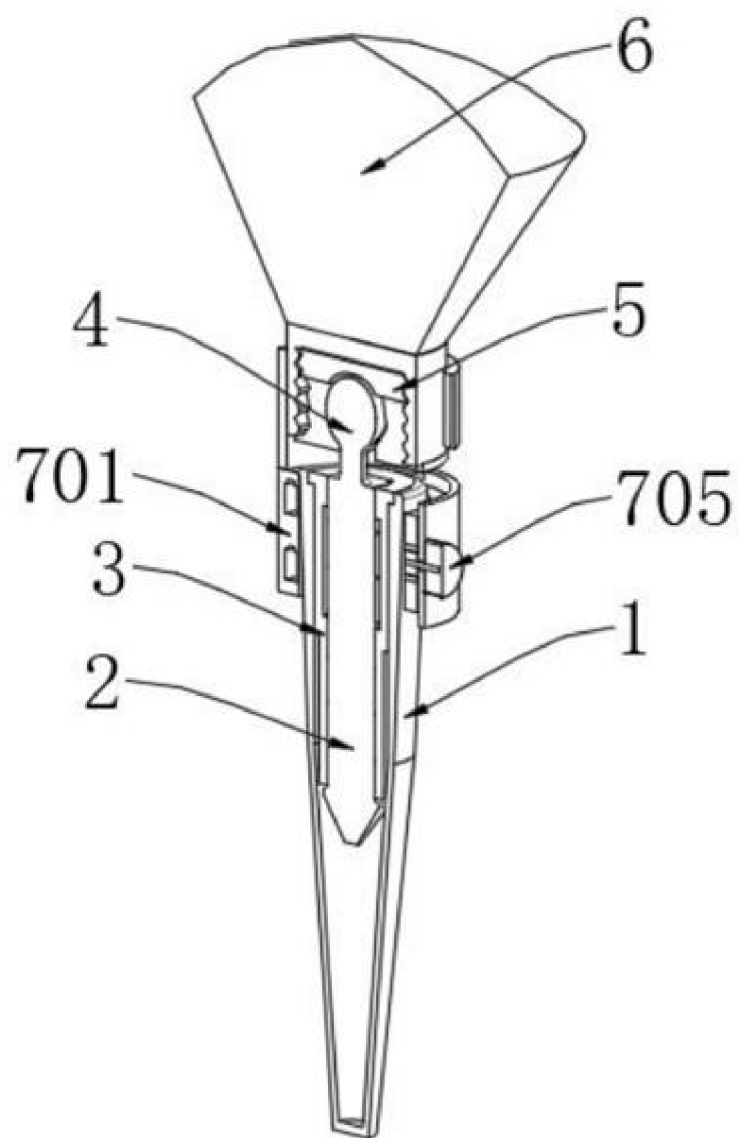


FIG. 2

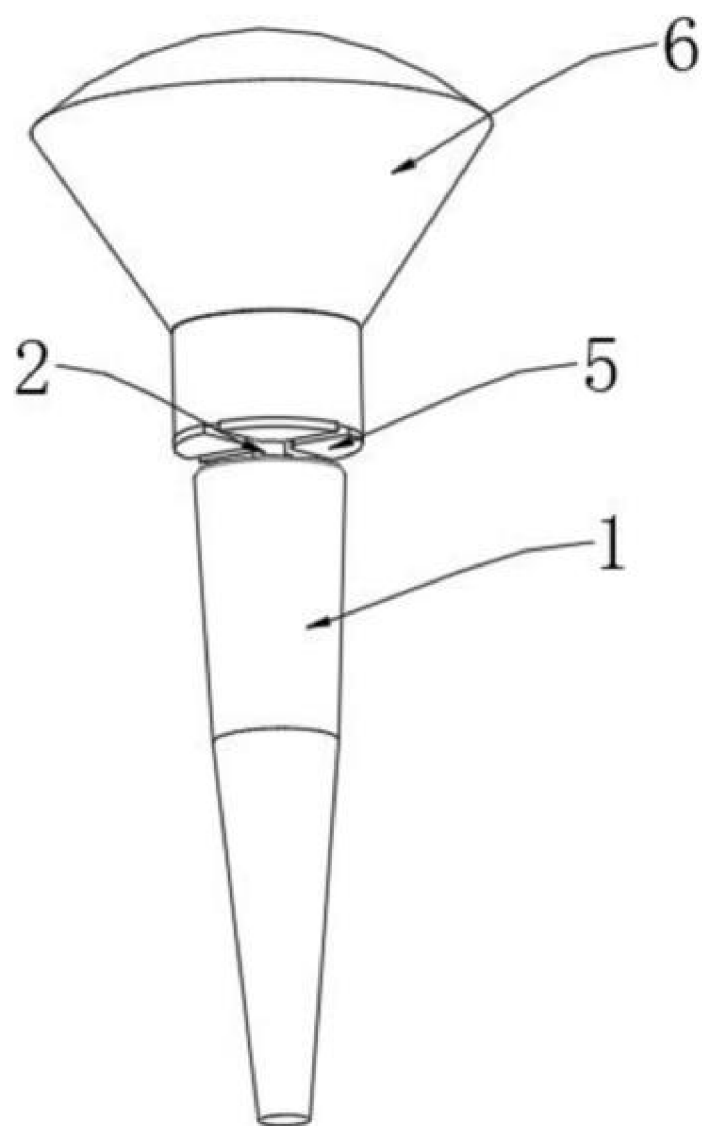


FIG. 3

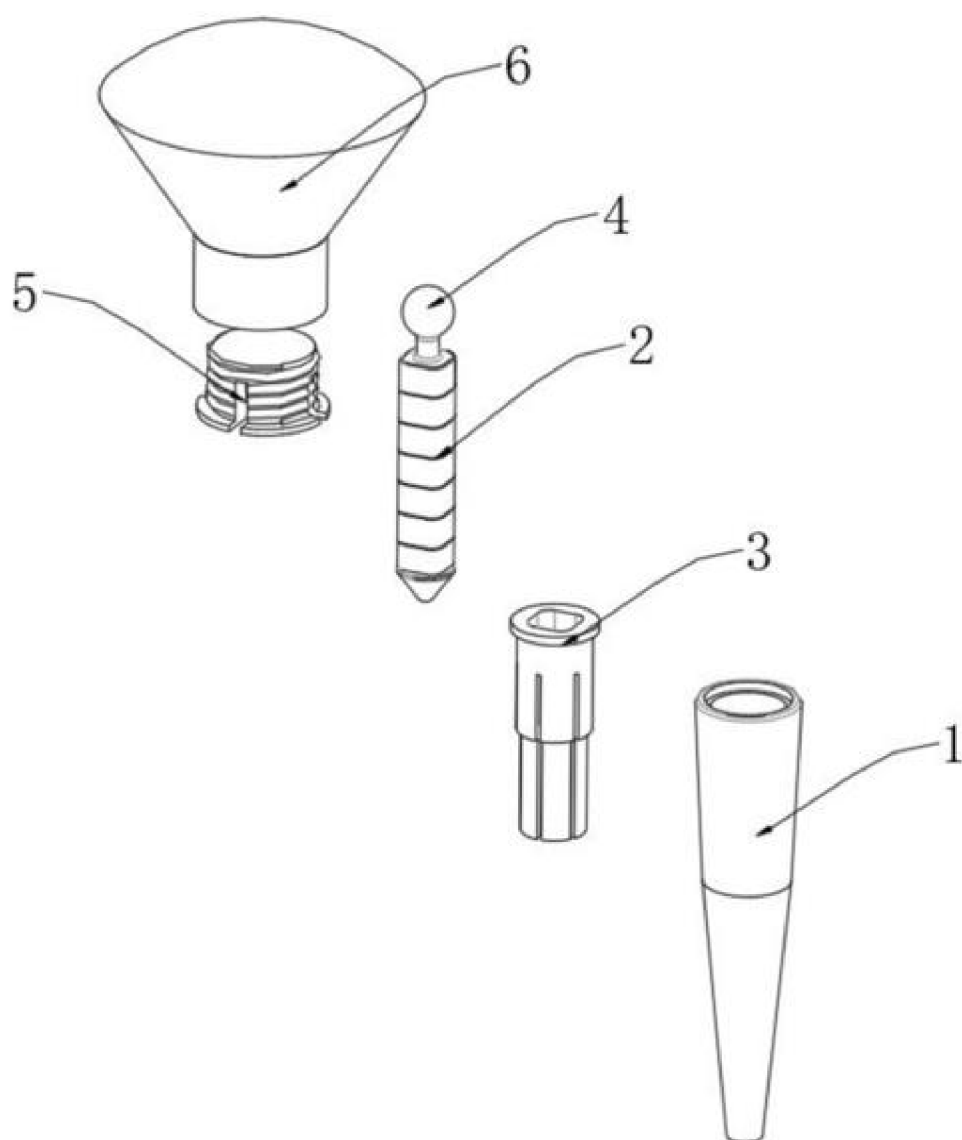


FIG. 4

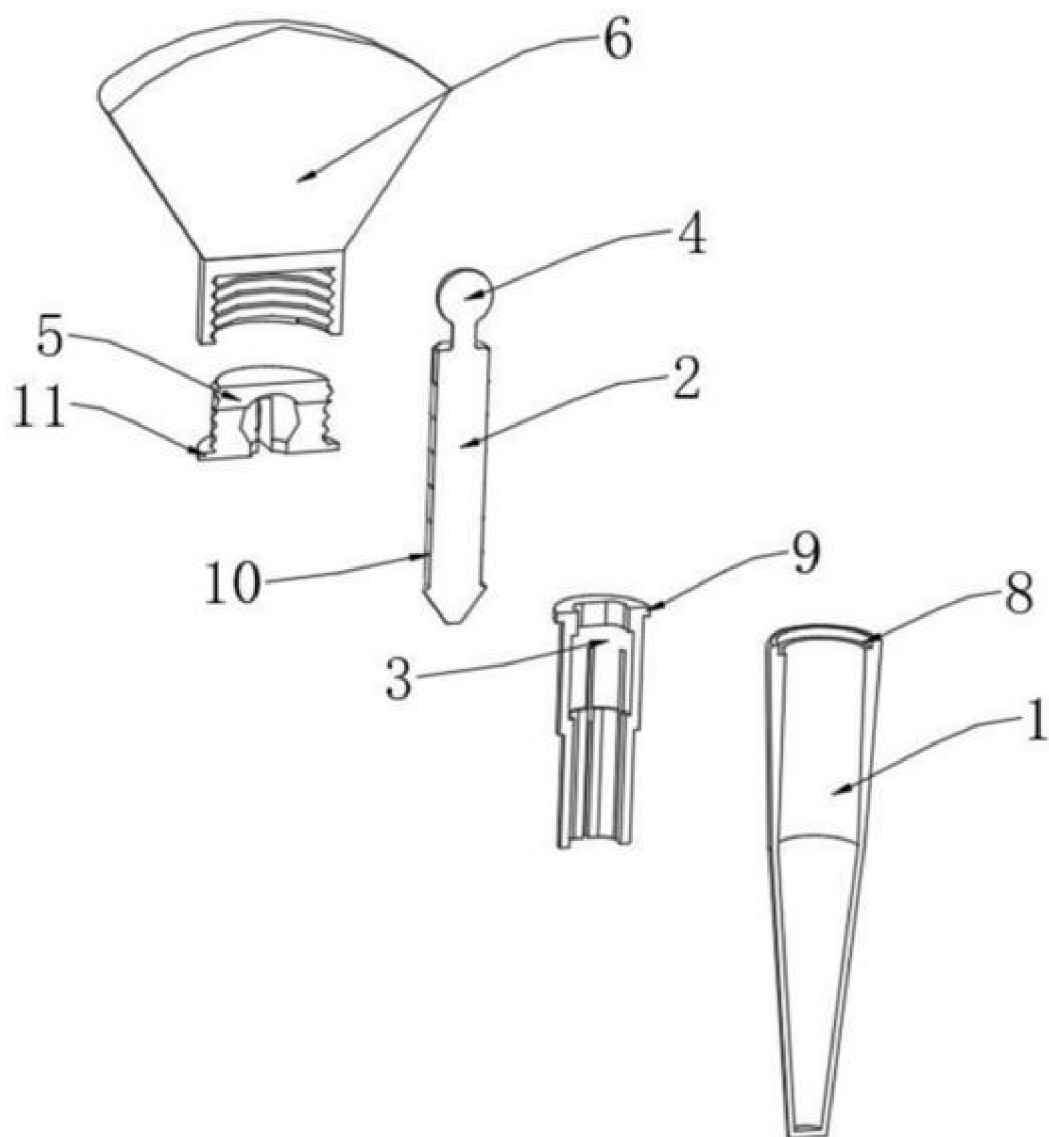


FIG. 5

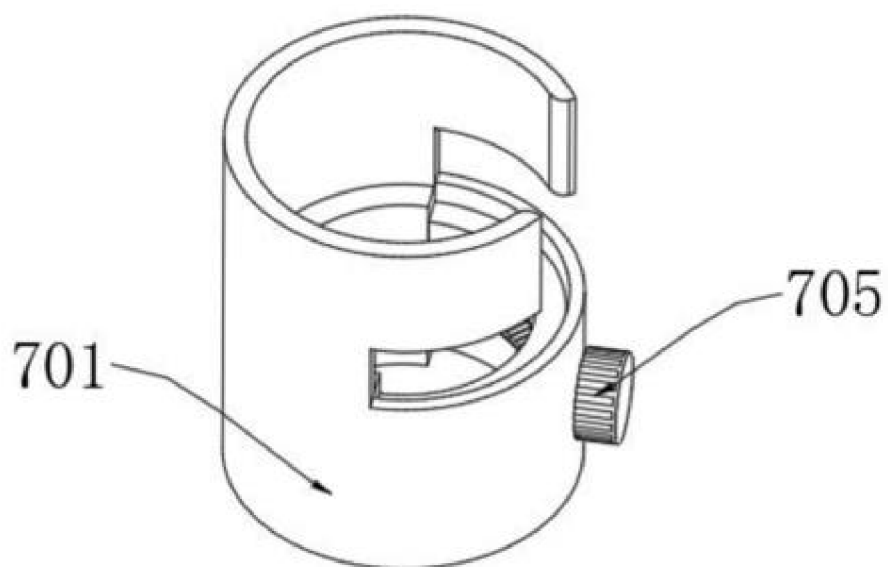


FIG. 6

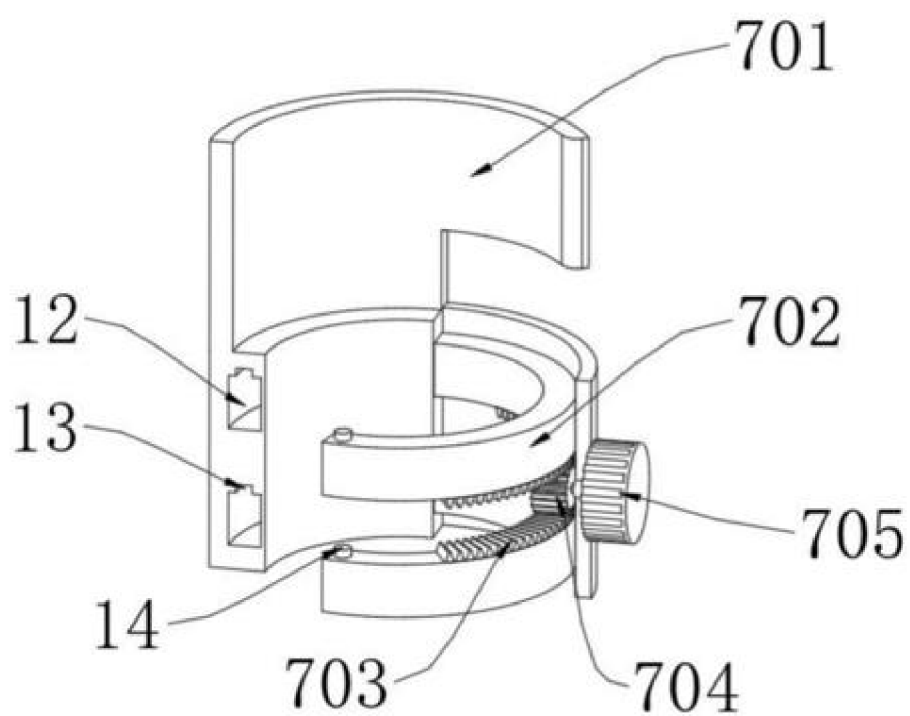


FIG. 7

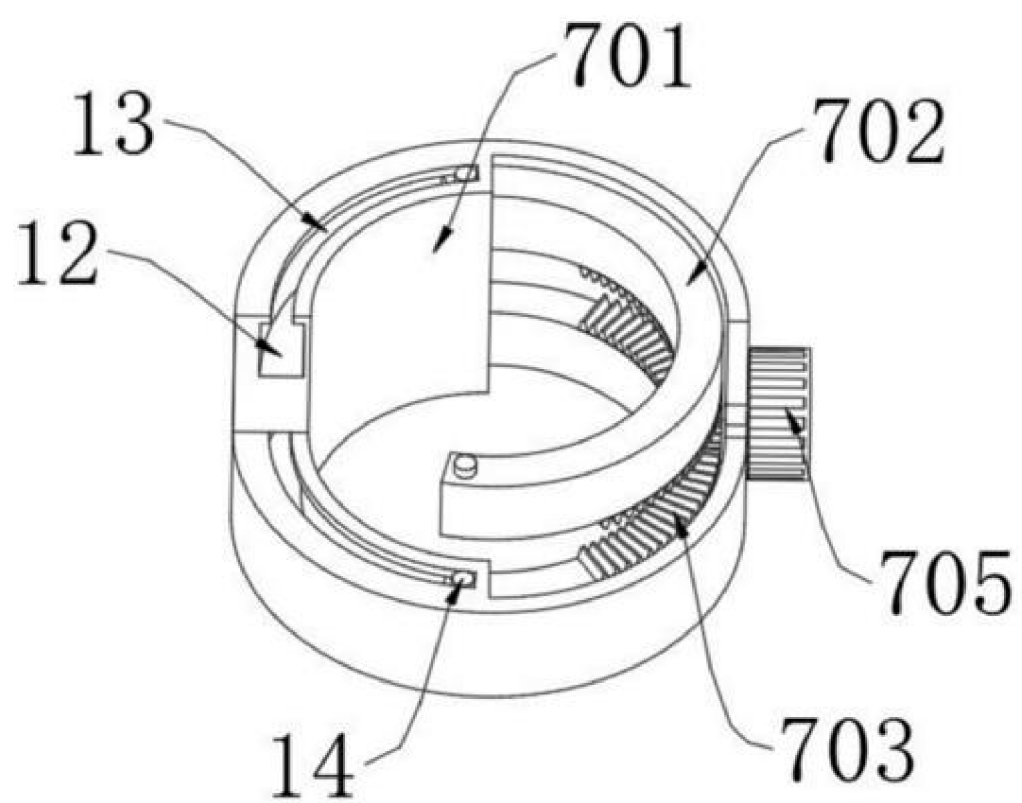


FIG. 8



FIG. 9



FIG. 10

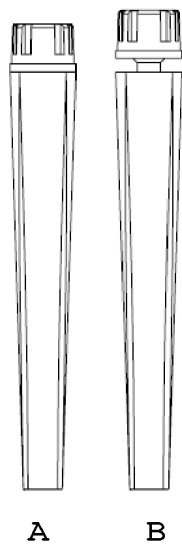


FIG. 11

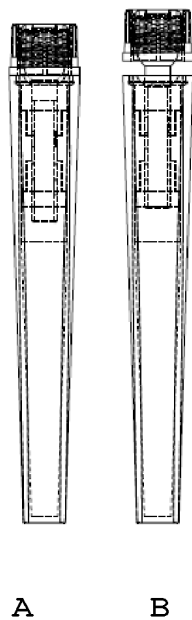


FIG. 12

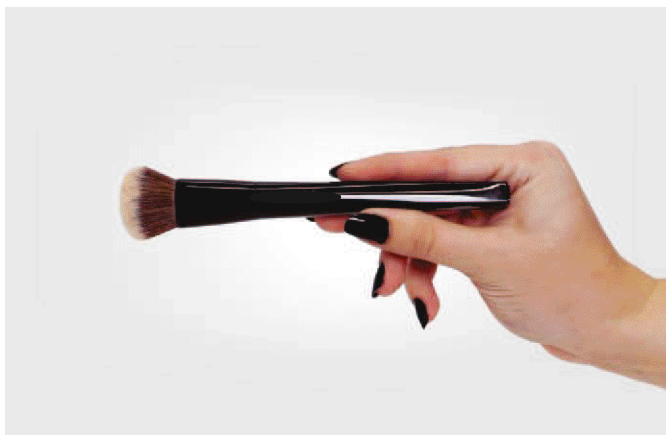


FIG. 13



FIG. 14

INTERNATIONAL SEARCH REPORT

International application No.

PCT/BR2024/050388

A. CLASSIFICATION OF SUBJECT MATTER

A45D 40/26(2006.01)i; **A45D 33/36**(2006.01)i; **A46B 9/08**(2006.01)i; **A46B 9/10**(2006.01)i; **A46B 5/00**(2006.01)i
CPC: A46B2200/1046, A45D2200/25, A45D40/262, A46B5/002, A46B5/0054

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)

A45D33/36; A46B9/08; A46B9/10; A46B5/00; A45D40/26
CPC: A46B2200/1046, A45D2200/25, A45D40/262, A46B5/002, A46B5/0054

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

Base de dados INPI-BR

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

Espacenet; Derwent Innovation; Google

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 101251987 B1 (PARK HYUN JIN) 08 April 2013 (2013-04-08) Abstract and drawings	1-16
A	US 10881194 B2 (WORTH BEAUTY LLC [US]) 05 January 2021 (2021-01-05) The whole document	1-16
A	EP 2725939 A2 (WORTH BEAUTY LLC [US]) 07 May 2014 (2014-05-07) The whole document	1-16
A	WO 2014010805 A1 (KIM AIDEN TAEYEON [US]) 16 January 2014 (2014-01-16) The whole document	1-16
A	US 2004182410 A1 (OREAL [FR]) 23 September 2004 (2004-09-23) The whole document	1-16
A	CA 2888672 A1 (AVON PROD INC [US]) 01 May 2014 (2014-05-01) The whole document	1-16

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Date of the actual completion of the international search 14 November 2024	Date of mailing of the international search report 02 December 2024
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PCT/BR2024/050388

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