



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

(43) Date of publication:
04.04.2018 Bulletin 2018/14

(51) Int Cl.:
A45D 40/26 (2006.01) **A45D 34/04** (2006.01)

(21) Application number: **15897551.6**

(86) International application number:
PCT/CN2015/090090

(22) Date of filing: **21.09.2015**

(87) International publication number:
WO 2017/004895 (12.01.2017 Gazette 2017/02)

(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 MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA

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(30) Priority: **03.07.2015 CN 201510385662**

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(54) **SMEARING DEVICE HAVING SPECIALLY-SHAPED HEAD**

(57) A smearing device having a specially-shaped head comprises a container (1), a cover (2), a brush rod (3), a smearing body (4), and an inner plug (5). The smearing body (4) is fixedly connected to the tail end of the brush rod (3), and the radial section of the smearing body (4) is of a special non-circular shape. The inner plug (5) comprises a fixed portion (51) fixedly disposed at an opening of the container (1), and a rotating portion (52) disposed at the lower end of the fixed portion (51), rotating in a circumferential direction and fixed in other directions. A material scraping hole (521) allowing tight penetration of the brush rod (3) and used to wipe excessive cosmetics on the smearing body (4) is formed in an axial direction of the rotating portion (52). The radial section shape of the material scraping hole (521) and the radial section shape of the brush rod (3) match the section shape of the smearing body (4) separately. When the cover (2) is opened or closed, the cover (2) can drive the brush rod (3) and the rotating portion (52) to rotate relative to the fixed portion (51). By designing the brush rod (3) and the material scraping hole (521) of the inner plug (5) to match the specially-shaped smearing body (4) and designing the inner plug (5) to be of a rotatable upper-lower layer structure, the problems of non-thorough material scraping and material gathering of a specially-shaped head can be resolved.

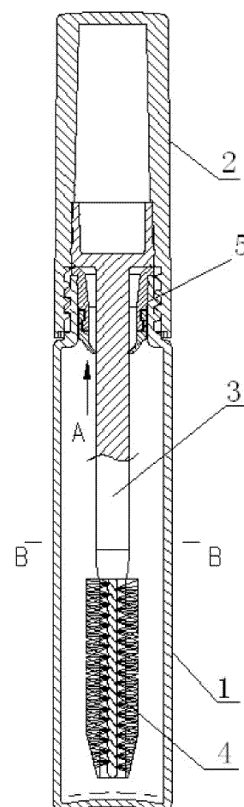


FIG. 1

Description

[0001] The present disclosure relates to a cosmetic applicator, and in particular, to a cosmetic applicator comprising a special-shaped head.

[0002] Cosmetics such as mascara, lipsticks, eyeliner and the like are often used for making up the eyes and the lip through special cosmetic applicators. Such cosmetic applicators usually include a container containing the cosmetics, a cap for opening or closing the opening of the container, a brush rod extending from the cap to the interior of the container, an applicator body formed at the tail end of the brush rod and an inner plug arranged at the opening of the container and used for wiping off excessive cosmetics from the applicator body. For different applicator bodies, the cosmetic applicator may be a mascara applicator, a lipstick applicator, an eyeliner applicator and the like, and their applicator bodies respectively are a mascara brush head, a cotton head and an eyeliner brush head.

[0003] Cosmetic applicators with different applicator bodies have different functions and effects, for example, the applicator body of the mascara applicator is provided with a special-shaped head, such as a triangular brush head, a quadrangular brush head, a pentagonal brush head, an elliptical brush head, a dovetail-shaped brush head and the like. It is necessary to wipe off excessive mascara on bristles of the brush rod when the brush rod is withdrawn from the container, but the existing cosmetic applicator is generally provided with a circular-section brush rod to match with an inner plug with a circular through hole, and when the inner plug with the circular through hole is used for wiping off excessive cosmetics, a problem that the excessive cosmetics cannot be wiped off completely and are stacked occur, specifically, the inner plug with the circular through hole cannot completely wipe off cosmetics stacked between two arc parts of the dovetail-shaped brush head.

[0004] In view of the technical problems mentioned above, it is one objective of the present invention to provide a cosmetic applicator. The shape of the brush rod and the shape of the axial hole of the inner plug are designed to match the shape of the applicator body, and the inner plug is a rotatable structure, thus uniformizing the distribution of the cosmetics on the surface of the applicator body when the applicator body is taken out from the axial hole of the inner plug.

[0005] The following technical solutions are adopted in the present disclosure.

[0006] In accordance to one embodiment of the present disclosure, there is provided a cosmetic applicator, comprising: a container, the container comprising an opening and a cap covering the opening, the container being configured to contain cosmetics; a brush rod extending from the cap to an interior of the container; an applicator body fixedly disposed on a tail end of the brush rod, and a radial section of the applicator body being non-circular; and an inner plug. The inner plug comprises a

fixed part fixedly arranged in the opening of the container, and a rotating part arranged at a lower end of the fixed part and capable of circumferentially rotating, the rotating part comprises an axial hole, side walls around the axial hole are capable of wiping off excessive cosmetics on a surface of the applicator body after the brush rod closely passes through the axial hole; and a shape of a radial section of the axial hole and a shape of a radial section of the brush rod match with a shape of a section of the applicator body; and the cap can drive the brush rod and the rotating part to rotate in relation to the fixed part when the cap is to be opened or closed.

[0007] In a class of this embodiment, the shape of the radial section of the brush rod, of the axial hole and of the applicator body is an ellipse, triangle, square or regular pentagon.

[0008] In a class of this embodiment, the applicator body is a mascara brush head for applying mascara, or a cotton head for applying lipsticks or an eyeliner brush head for applying eyeliner.

[0009] In a class of this embodiment, the applicator body is the mascara brush head, and the radial section of the applicator body is dovetail-shaped.

[0010] In a class of this embodiment, the mascara brush head comprises iron wires and a plurality of nylon bristles winding around the iron wires to form a dovetail shape, and a tail end of each nylon bristle is provided with uniformly distributed arcs in a circumferential direction.

[0011] In a class of this embodiment, an inner circumferential wall of one end of the cap is in threaded seal connection to an outer circumferential wall of the opening of the container.

[0012] In a class of this embodiment, the lower end of the fixed part comprises a hook, the upper end of the rotating part comprises a snap ring corresponding to the hook, and the snap ring is capable of circumferentially rotating in relation to the hook, but being fixed in relation to other directions.

[0013] In a class of this embodiment, the tail end of the brush rod comprises a jack, one end of the applicator body comprises an inserted rod, and the inserted rod is corresponding to the jack.

[0014] Advantages of the cosmetic applicator of the present disclosure are summarized as follows: the cosmetic applicator comprises the applicator body with a non-circular radial section, the shapes of the brush rod and the axial hole of the inner plug are designed to match with the shape of the special-shaped applicator body, and the inner plug is designed to be of a rotatable two-layer structure, so the problem that the cosmetics cannot be intercepted by the inner plug is solved. Its working principle is as follows: in the prior art, the radial section of the applicator body is non-circular, and the brush rod and the axial hole of the inner plug are circular, so the side walls around the axial hole of the inner plug cannot intercept and uniformize the cosmetics on the surface of the applicator body; in the present disclosure, in order to

achieve the objective of wiping off the cosmetics, the brush rod and the axial hole of the inner plug are designed to be special-shaped to match the applicator body, specifically, the inner plug is designed to be of a rotatable two-layer structure, the upper layer is the fixed part fixedly arranged in the opening of the container, and the lower layer is the rotating part capable of rotating circumferentially in relation to the fixed part and the container; therefore, when the combination of the cap and the brush rod rotates, the lower layer of the inner plug can rotate synchronously without influencing the use. As a preferable design scheme, the brush rod, the axial hole of the inner plug and the applicator body may be designed in a non-circular special shape, such as ellipse, triangle, square, regular pentagon and the like, but not limited thereto, and may be further designed in other irregular shapes to meet requirements of different-shape applicator bodies of the cosmetic applicator. The applicator body may be further designed to be special-shaped heads with different functions according to actual requirements, such as a mascara brush head for applying mascara, a cotton head for applying lipsticks an eyeliner brush head for applying eyeliner and the like, so as to form cosmetic applicators with different functions, such as a mascara applicator, or a lipstick applicator, an eyeliner applicator and the like. As a special requirement of the mascara applicator, the radial section of the mascara brush head may be designed in a dovetail shape, which is formed by removing parts of two opposite sides of a circle.

FIG. 1 is a schematic diagram of a cosmetic applicator of the present disclosure;

FIG. 2 is a section view taken from line B-B in FIG. 1 along the arrow A;

FIG. 3 is a section view taken from line B-B in FIG. 1;

FIG. 4 is a structural diagram of an inner plug of a cosmetic applicator in accordance with one embodiment of the present disclosure;

FIG. 5 is a structural diagram of an inner plug with an elliptical axial hole in accordance with one embodiment of the present disclosure;

FIG. 6 is a structural diagram of an inner plug with a regular pentagonal axial hole in accordance with one embodiment of the present disclosure;

FIG. 7 is a structural diagram of an inner plug with a triangular axial hole in accordance with one embodiment of the present disclosure;

FIG. 8 is a structural diagram of an inner plug with a square axial hole in accordance with one embodiment of the present disclosure;

FIG. 9 is a structural diagram of an applicator body in accordance with one embodiment of the present disclosure; and

FIG. 10 shows a radial section of the applicator body in FIG. 9.

[0015] In the drawings, the following reference numbers are used: 1-container; 2-cap; 3-brush rod; 31-jack; 4-applicator body; 41-iron wire; 42-nylong bristle; 43-inserted rod; 5-inner plug; 51-fixed part; 52-rotating part; 511-hook; 522-snap ring; and 521-axial hole.

[0016] For further illustrating the invention, experiments detailing a cosmetic applicator is described below. It should be noted that the following examples are intended to describe and not to limit the invention.

[0017] As shown in FIG. 1, FIG. 2, FIG. 3 and FIG. 4, a cosmetic applicator comprises a container 1, a cap 2 and a brush rod 3, and further comprises an applicator body 4 and an inner plug 5. The container is used for containing cosmetics, one end of the container is opened, the cap is used for opening or closing an opening of the container, and the brush rod is formed after extending from the cap to the interior of the container; the applicator body is fixedly connected to the tail end of the brush rod, and the radial section of the applicator body is non-circular special-shaped; the inner plug comprises a fixed part 51 fixedly arranged in the opening of the container, and a rotating part 52 arranged at the lower end of the fixed part and circumferentially rotating but locked in other directions, the rotating part comprises an axial hole 521, the axial hole is used for wiping off excessive cosmetics on the applicator body after the brush rod closely passes through the axial hole, and the shape of the radial section of the axial hole and the shape of the radial section of the brush rod match with the shape of the section of the applicator body; and the cap can drive the brush rod and the rotating part to rotate in relation to the fixed part when the cap is to be opened or closed. In the foregoing structure, the cosmetic applicator comprising a special-shaped head comprises the applicator body with a non-circular radial section, the shapes of the brush rod and the axial hole of the inner plug are designed to match with the shape of the special-shaped applicator body, and the inner plug is designed to be of a rotatable two-layer structure, so the problem that the cosmetics cannot be intercepted by the inner plug is solved. Its working principle is as follows: in the prior art, the radial section of the applicator body is non-circular, and the brush rod and the axial hole of the inner plug are circular, so the problem that the side walls around the axial hole of the inner plug cannot intercept the cosmetics on the applicator body may be generated; and in the present disclosure, in order to achieve the objective of completely wiping off the cosmetics, the brush rod and the axial hole of the inner plug are designed to be special-shaped to match with the applicator body, the inner plug is designed to be of a rotatable two-layer structure, the upper layer

is the fixed part fixedly arranged in the opening of the container, and the lower layer is the rotating part capable of rotating circumferentially corresponding to the fixed part and the container; therefore, when the combination of the cap and the brush rod rotates, the lower layer of the inner plug can rotate synchronously without influencing the use.

[0018] Preferably, the shapes of the radial sections of the brush rod, the axial hole and the applicator body are ellipse, or triangle, or square or regular pentagon. As a preferable design scheme, the brush rod, the axial hole of the inner plug and the applicator body may be designed in a non-circular special shape, such as ellipse, triangle, square, regular pentagon and the like, but not limited thereto, and may be further designed in other irregular shape to meet requirements of different-shape applicator bodies of the cosmetic applicator. FIG. 5 illustrates a structure of an inner plug with an elliptical axial hole; FIG. 6 illustrates a structure of an inner plug with a regular pentagonal axial hole; FIG. 7 illustrates a structure of an inner plug with a triangular axial hole; and FIG. 8 illustrates a structure of an inner plug with a square axial hole.

[0019] Preferably, the applicator body is a mascara brush head for applying mascara, or a cotton head for applying lipsticks or an eyeliner brush head for applying eyeliner. The applicator body may be designed to be special-shaped heads with different functions according to actual requirements so as to form cosmetic applicators with different functions, such as a mascara applicator, or a lipstick applicator, an eyeliner applicator and the like.

[0020] Preferably, the applicator body is the mascara brush head, and the radial section of the applicator body is dovetail-shaped, as shown in FIG. 9. As a special requirement of the mascara applicator, the radial section of the mascara brush head may be designed in a dovetail shape, which is formed by removing parts of two opposite sides of a circle.

[0021] Preferably, the mascara brush head comprises iron wires 41 and a plurality of nylon bristles 42 winding around the iron wires to form a dovetail shape, and the tail end of each nylon bristle is provided with uniformly distributed arcs in a circumferential direction. Therefore, consumers are easy to make up.

[0022] Preferably, an inner circumferential wall of one end of the cap is in threaded seal connection to an outer circumferential wall of the opening of the container.

[0023] Preferably, the lower end of the fixed part comprises a hook 511, the upper end of the rotating part comprises a snap ring 522 corresponding to the hook, and the snap ring circumferentially rotates in relation to the hook, but is locked in other directions. Due to matching between the hook and the snap ring, a function that the fixed part and the rotating part circumferentially rotate and are locked in other directions may be achieved.

[0024] Preferably, a jack 31 is formed in the tail end of the brush rod, an inserted rod 43 is arranged at one end of the applicator body, and the inserted rod is inserted in the jack. Due to matching between the inserted rod and

the jack, fixed connection between the applicator body and the brush rod may be achieved.

[0025] To sum up, the cosmetic applicator comprising a special-shaped head, provided by the present disclosure, comprises the applicator body with a non-circular radial section, the shapes of the brush rod and the axial hole of the inner plug are designed to match with the shape of the applicator body, and the inner plug is designed to be of a rotatable two-layer structure, including an upper layer and a lower layer, so the problem that the cosmetics cannot be intercepted by the inner plug is solved.

[0026] While particular embodiments of the invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from the invention in its broader aspects, and therefore, the aim in the appended claims is to cover all such changes and modifications as fall within the true spirit and scope of the invention.

Claims

1. A cosmetic applicator, comprising:

- a container (1) comprising an opening and a cap (2) covering the opening, the container being configured to contain cosmetics;
- a brush rod (3) extending from the cap to an interior of the container;
- an applicator body (4) that is fixedly disposed on a tail end of the brush rod and that includes a radial section that is non-circular; and
- an inner plug (5);

wherein

the inner plug comprises a fixed part (51) that is fixedly arranged in the opening of the container, and a rotating part (52) that is arranged at a lower end of the fixed part and that is capable of circumferentially rotating; and

the rotating part comprises an axial hole (521), side walls around the axial hole are capable of wiping off excessive cosmetics on a surface of the applicator body after the brush rod closely passes through the axial hole; and a shape of a radial section of the axial hole and a shape of a radial section of the brush rod each match a shape of a section of the applicator body; and

when the cap is opened or closed, the cap drives the brush rod and the rotating part to rotate in relation to the fixed part.

2. The applicator of claim 1, characterized in that shapes of radial sections of the brush rod, of the axial hole and of the applicator body are an ellipse, triangle, square or regular pentagon.

3. The applicator of claim 1, **characterized in that** the applicator body is a mascara brush head for applying mascara, or a cotton head for applying lipsticks, or an eyeliner brush head for applying eyeliner. 5
4. The applicator of claim 3, **characterized in that** the applicator body is the mascara brush head, and the radial section of the applicator body is dovetail-shaped. 10
5. The applicator of claim 4, **characterized in that** the mascara brush head comprises iron wires (41) and a plurality of nylon bristles (42) winding around the iron wires to form a dovetail shape, and a tail end of each nylon bristle is provided with uniformly distributed arcs in a circumferential direction. 15
6. The applicator of claim 1, **characterized in that** an inner circumferential wall of one end of the cap is in threaded seal connection to an outer circumferential wall of the opening of the container. 20
7. The applicator of claim 1, **characterized in that** the lower end of the fixed part comprises a hook (511), an upper end of the rotating part comprises a snap ring (522) corresponding to the hook, and the snap ring is capable of circumferentially rotating in relation to the hook. 25
8. The applicator of claim 1, **characterized in that** the tail end of the brush rod comprises a jack (31), one end of the applicator body comprises an inserted rod (43), and the inserted rod is corresponding to the jack. 30
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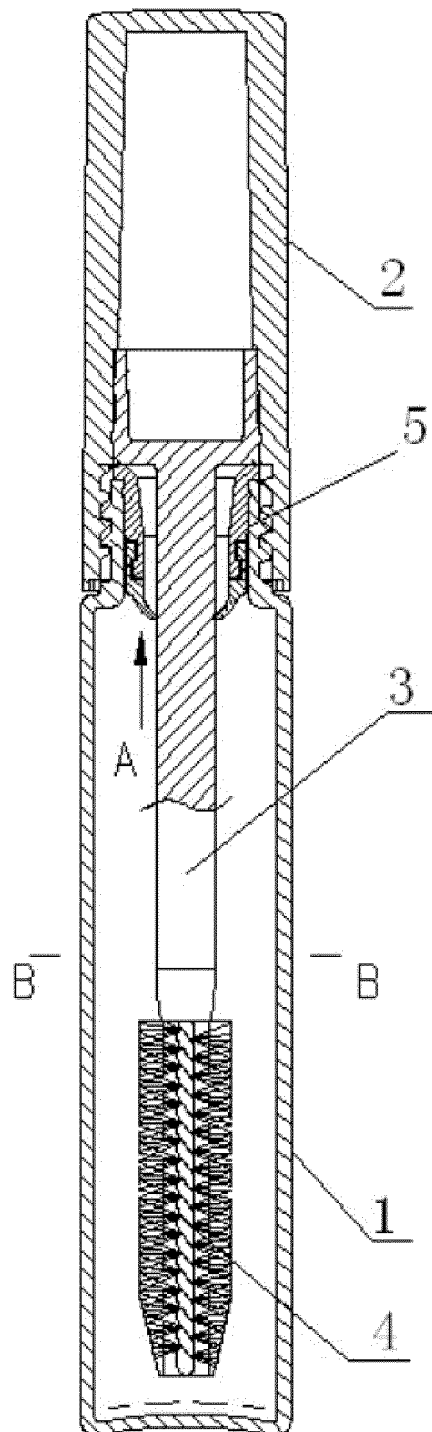


FIG. 1

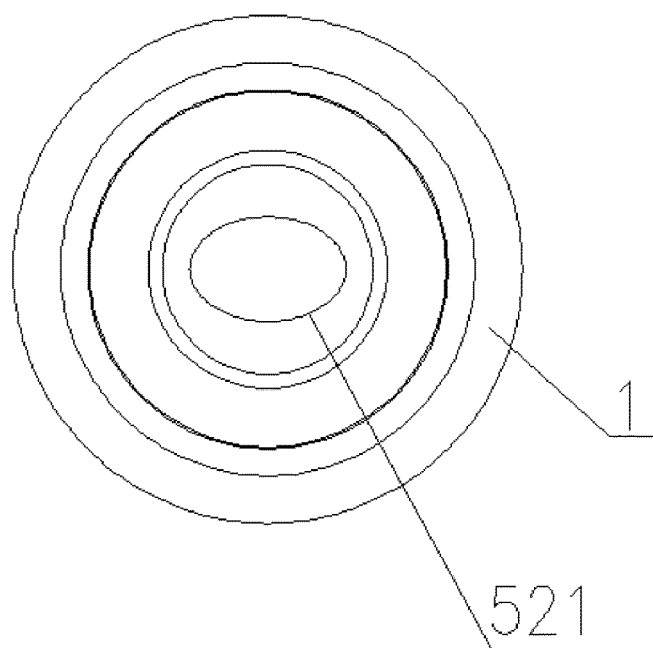


FIG. 2

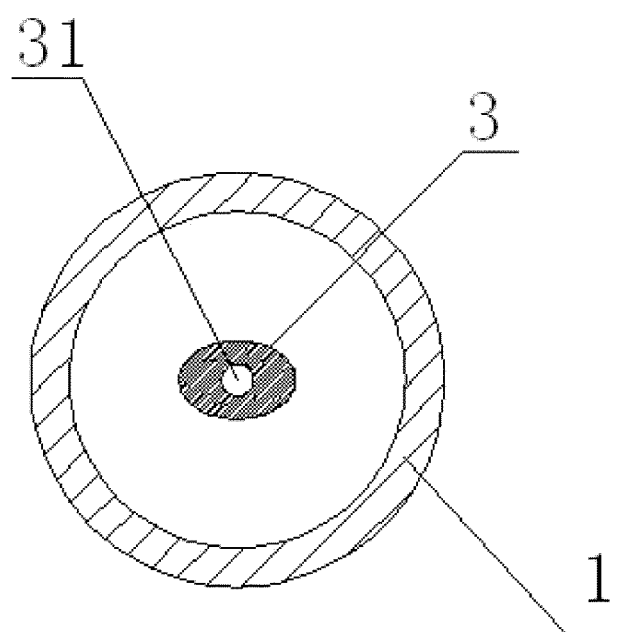


FIG. 3

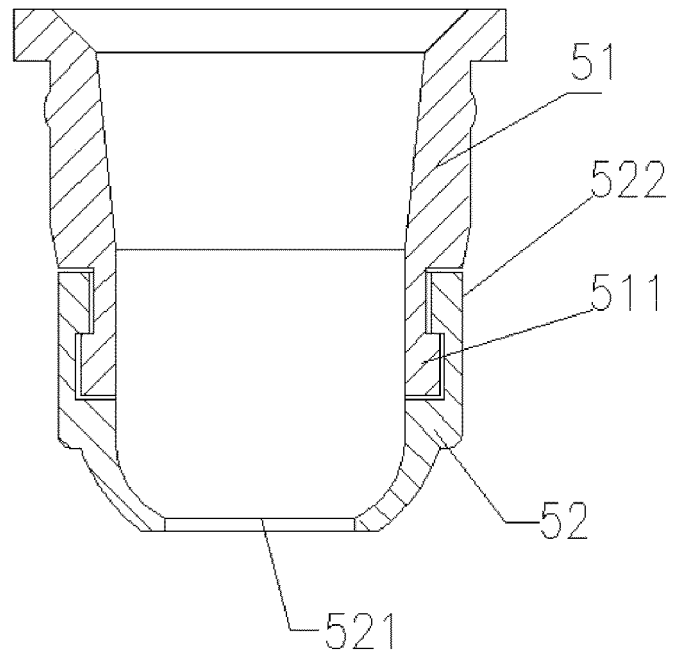


FIG. 4

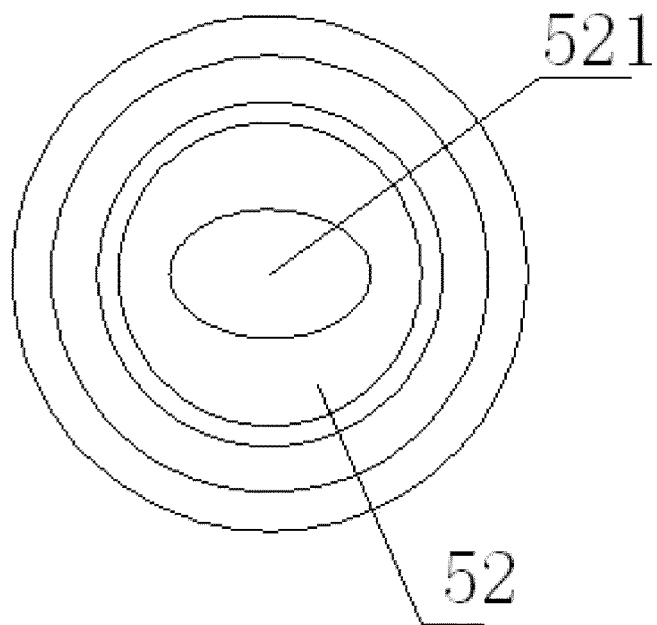


FIG. 5

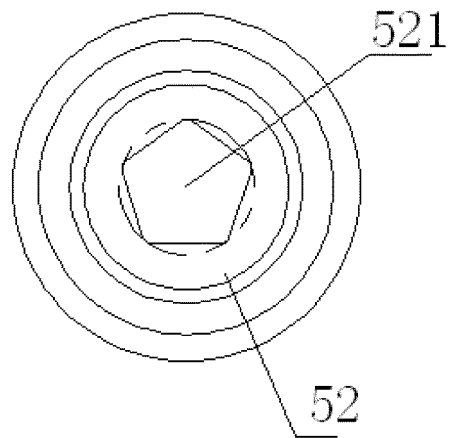


FIG. 6

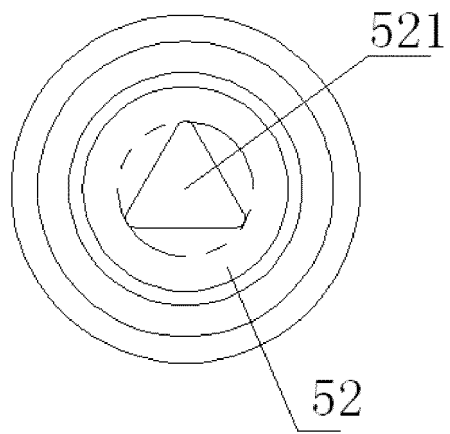


FIG. 7

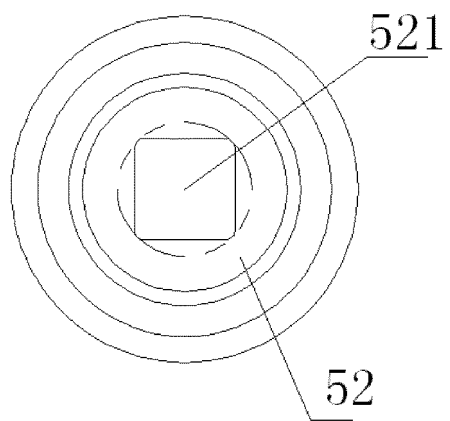


FIG. 8

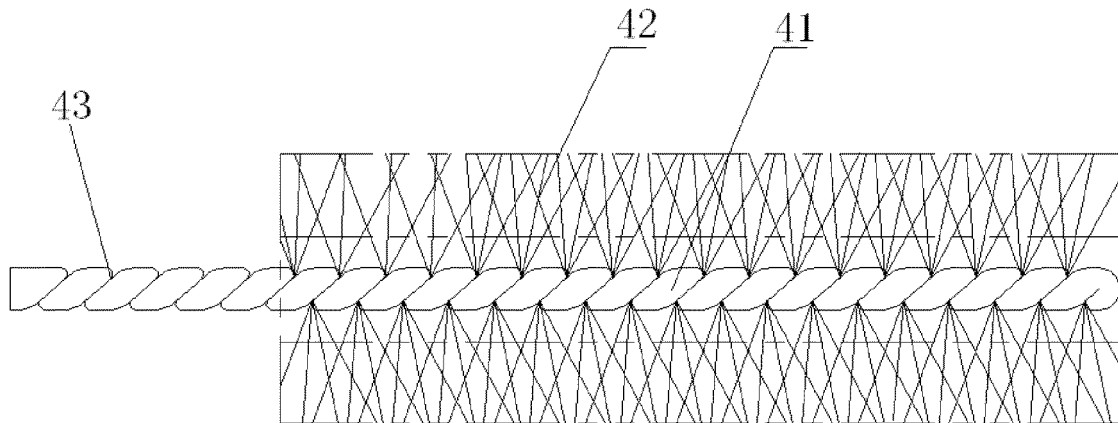


FIG. 9

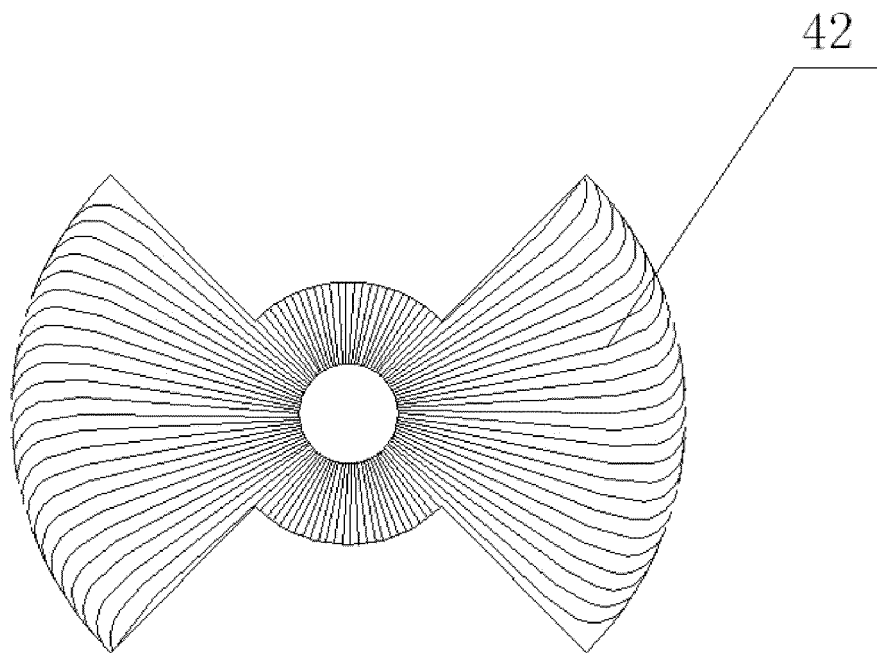


FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2015/090090

A. CLASSIFICATION OF SUBJECT MATTER

A45D 40/26 (2006.01) i; A45D 34/04 (2006.01) i

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 40/26; A45D 34/04

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)

CNPAT, CNKI, WPI, EPODOC: surplus, non-circular, dysmorphism; spare, excessive, wip+, scrap+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2014016983 A1 (RND GROUP L.L.C), 16 January 2014 (16.01.2014), description, paragraphs [0003]-[0019] and [0034]-[0066], and figures 1-6, 7a-7c, 8a, 8c and 8d	1-8
E	CN 204764007 U (SHYA HSIN PACKAGING INDUSTRY (CHINA) CO., LTD.), 18 November 2015 (18.11.2015), claims 1-8	1-8
E	CN 204764006 U (SHYA HSIN PACKAGING INDUSTRY (CHINA) CO., LTD.), 18 November 2015 (18.11.2015), description, paragraphs [0027]-[0033], and figures 1-7	1-3, 6-8
A	CN 102763976 A (GEKA GMBH), 07 November 2012 (07.11.2012), the whole document	1-8
A	CN 102763972 A (GEKA GMBH), 07 November 2012 (07.11.2012), the whole document	1-8
A	CN 1863470 A (CHANG, C.), 15 November 2006 (15.11.2006), the whole document	1-8
A	WO 9632033 A1 (LVMH RECHERCHE), 17 October 1996 (17.10.1996), the whole document	1-8

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	
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"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search

30 December 2015 (30.12.2015)

Date of mailing of the international search report

25 January 2016 (25.01.2016)

Name and mailing address of the ISA/CN:

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HAN, Ya'nanTelephone No.: (86-10) **62414203**

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2015/090090

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 102939028 A (OREAL), 20 February 2013 (20.02.2013), the whole document	1-8

INTERNATIONAL SEARCH REPORT
 Information on patent family members

International application No.

PCT/CN2015/090090

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
US 2014016983 A1	16 January 2014	EP 2684485 A1	15 January 2014
		KR 20130014649 A	07 February 2013
		KR 101340364 B1	11 December 2013
		WO 2014010804 A1	16 January 2014
CN 204764007 U	18 November 2015	None	
CN 204764006 U	18 November 2015	None	
CN 102763976 A	07 November 2012	US 2012282008 A1	08 November 2012
		EP 2526814 B1	09 July 2014
		US 8894309 B2	25 November 2014
		DE 102011100302 A1	08 November 2012
		EP 2526814 A1	28 November 2012
CN 102763972 A	07 November 2012	EP 2520193 A2	07 November 2012
		US 8894308 B2	25 November 2014
		EP 2520193 B1	06 August 2014
		US 2013004227 A1	03 January 2013
		DE 202011100182 U1	27 September 2012
CN 1863470 A	15 November 2006	EP 1681957 A2	26 July 2006
		US 2007127974 A1	07 June 2007
		CN 100544633 C	30 September 2009
		WO 2005035142 A2	21 April 2005
WO 9632033 A1	17 October 1996	JP H11503345 A	26 March 1999
		US 5937869 A	17 August 1999
		EP 0820242 A1	28 January 1998
		FR 2732869 A1	18 October 1996
CN 102939028 A	20 February 2013	US 2012082503 A1	05 April 2012
		WO 2010131215 A2	18 November 2010
		FR 2945417 A1	19 November 2010
		US 9033605 B2	19 May 2015
		EP 2429332 A2	21 March 2012
		JP 2012526595 A	01 November 2012
		FR 2945417 B1	26 August 2011
		JP 5774581 B2	09 September 2015

Form PCT/ISA/210 (patent family annex) (July 2009)