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(54) **HIGH-CAPACITY COSMETIC PEN**

(57) Disclosed is a high-capacity cosmetic pen, in which a front and a rear end of a pen body (1) are respectively sheathed with a front cover (2) and a rear cover, the pen body (1) is provided with a cosmetic liquid accommodation cavity (3), a front end of the cosmetic liquid accommodation cavity (3) is provided with a bristle assembly, the cosmetic liquid accommodation cavity (3) is also provided with a piston (7), the rear cover comprises a tail cover (8) and a tail cover sleeve (9), the tail cover (8) and the pen body (1) are axially clamped and can rotate oppositely along the circumferential direction, the tail cover sleeve (9) is sheathed outside the tail cover (8) and is radially and axially fixed with the tail cover (8); the tail cover (8) is also provided with a threaded rod (10)

and at least one threaded sleeve rod (11), wherein one end of the threaded rod (10) tightly abuts against the piston (7), the other end is sheathed in the threaded sleeve rod (11) via thread engagement, and the threaded sleeve rod (11) is sheathed in the tail cover (8) via the thread engagement at the same time. There can be one or more threaded sleeve rods (11) of the high-capacity cosmetic pen according to requirements, compared with a pen with the same outer diameter and with the same outer diameter and height, and using the threaded sleeve rod (11) of two layers or three or more layers can compress the space occupied by the travel of the screw rod so as to increase the maximum travel of the piston and enlarge the capacity of the cosmetic pen.

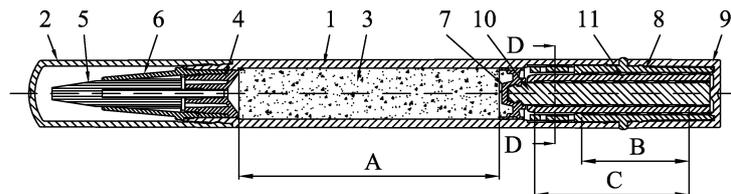


FIG. 2

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Description

[0001] This disclosure relates to a cosmetic container, and more particularly to a high-capacity cosmetic brush.

[0002] As shown in FIG. 1, a conventional cosmetic brush includes a main body 1, a front cover 2, and a rear cover 3. The main body 1 includes a liquid storage cavity 4 disposed between the front cover 2 and the rear cover 3. The cosmetic brush further includes a liquid conveying pipe 5, a brush sleeve 6, and a brush hair 7. A piston 9 is disposed in the liquid storage cavity 4. A threaded rod 8 is disposed in the rear cover 3 and connects to the piston 9. When in use, the rear cover 3 is rotated to drive the threaded rod 8. The threaded rod 8 pushes the piston to move in the liquid storage cavity 4 to push the cosmetic liquid to flow to the liquid conveying pipe 5. To ensure the full use of the cosmetic liquid, the moving distance B of the threaded rod 8 must be greater than the length A of the liquid storage cavity 4. This reduces the storage capacity of the liquid storage cavity 4.

[0003] Disclosed is a cosmetic brush that comprises two or three threaded sleeves and has a relatively large material storage capacity.

[0004] Disclosed is a cosmetic brush, comprising: a main body; a front cover; a rear cover; a brush assembly; and a piston. The main body comprises a front part, a rear part, and a liquid storage cavity disposed between the front part and the rear part. The front cover is disposed on the front part and the rear cover is disposed on the rear part; the brush assembly is disposed in the front part; the piston is disposed in the rear part; the brush assembly and the piston are disposed at two ends of the liquid storage cavity, respectively; the rear cover is rotatably disposed relative to the main body; the rear cover is provided with a rear cover sleeve, and the rear cover sleeve is fixed on the rear cover; the rear cover comprises a threaded rod and a plurality of threaded sleeves; the plurality of threaded sleeves is telescopic and is hinged to one another via screw threads, and comprises an innermost threaded sleeve and an outermost threaded sleeve; the threaded rod comprises a first end and a second end; the first end of the threaded rod abuts against the piston, and the second end of the threaded rod is in threaded connection to an innermost threaded sleeve of the at least one threaded sleeve; the at least one threaded sleeve are hinged to one another via screw threads; an outermost threaded sleeve of the at least one threaded sleeve is in threaded connection to the rear cover; and the at least one threaded sleeve is unable to rotate along with the rear cover circumferentially.

[0005] As an improvement, the outermost threaded rod can comprise a plurality of axially-distributed grooves, and the rear cover can comprise a plurality of axially-distributed ribs corresponding to the grooves.

[0006] As an improvement, the piston can comprise a polygonal depression; the first end of the threaded rod can comprise a polygonal terminal corresponding to the polygonal depression; the polygonal terminal can be in-

serted and clamped in the polygonal depression.

[0007] As an improvement, the brush assembly can comprise: a liquid conveying pipe communicating with the liquid storage cavity, a brush hair encircling the liquid conveying pipe, and a brush sleeve sleeving the brush hair.

[0008] As an improvement, the second end of the threaded rod can comprise a first protruding connector comprising first external screws; the inner surface of the threaded sleeve can comprise first internal screws corresponding to the first external screws.

[0009] As an improvement, the threaded sleeve can comprise a second protruding connector comprising second external screws; the inner surface of the rear cover can comprise second internal screws corresponding to the second external screws.

[0010] As an improvement, the rear cover can comprise a plurality of circumferentially-disposed ratchets; and the ratchets can be disposed between the main body and the rear cover.

[0011] Advantages of the cosmetic brush according to embodiments of the disclosure are summarized as follows. When two or three threaded sleeves are employed, compared with conventional cosmetic brushes with the same height and diameters as that of the cosmetic brush of the embodiment, the threaded sleeves of the cosmetic brush of the embodiment occupy less space but have larger extension distance, and the storage capacity of the cosmetic brush is greatly increased.

FIG. 1 is a schematic diagram of a cosmetic brush in the related art;

FIG. 2 is a schematic diagram of a cosmetic brush as described in the disclosure;

FIG. 3 is a sectional view taken from line D-D in FIG. 2;

FIG. 4 shows a use state of a cosmetic brush as described in the disclosure;

FIG. 5 shows another use state of a cosmetic brush as described in the disclosure;

FIG. 6 is a top view of a piston of a cosmetic brush as described in the disclosure;

FIG. 7 is a sectional view of a threaded rod of a cosmetic brush as described in the disclosure;

FIG. 8 is a sectional view of a threaded sleeve of a cosmetic brush as described in the disclosure; and

FIG. 9 is a schematic diagram of a rear cover of a cosmetic brush as described in the disclosure.

[0012] In the drawings, the following reference num-

bers are used:

In FIG. 1: 1. Main body; 2. Front cover; 3. Rear cover; 4. Liquid storage cavity; 5. Liquid conveying pipe; 6. Brush sleeve; 7. Brush hair; 8. Threaded rod; 9. Piston; A. length of the liquid storage cavity; B. Moving distance of the threaded rod.

[0013] In FIGS. 2-9: 1. Main body; 2. Front cover; 3. Liquid storage cavity; 4. Liquid conveying pipe; 5. Brush hair; 6. Brush sleeve; 7. Piston; 8. Rear cover; 9. Rear cover sleeve; 10. Threaded rod; 11. Threaded sleeve; 12. First protruding connector; 13. First external screw; 14. First internal screw; 15. Second protruding connector; 16. Second external screw; 17. Second internal screw; 18. Depression; 19. Terminal; 20. Ratchet.

[0014] To further illustrate, examples detailing a cosmetic brush are described below. It should be noted that the following examples are intended to describe and not to limit the description.

[0015] As shown in FIGS. 2-9, a cosmetic brush comprises a main body 1, a front cover 2, a rear cover, a brush assembly, a piston 7. The main body 1 comprises a front part and a rear part. The front cover is disposed on the front part and the rear cover is disposed on the rear part. The main body 1 comprises a liquid storage cavity 3 (the capital letter A represents the length of the liquid storage cavity) disposed between the front part and the rear part. The brush assembly is disposed in the front part. The piston 7 is disposed in the rear part. The brush assembly and the piston are disposed at two ends of the liquid storage cavity 3, respectively. The rear cover 8 is rotatably disposed relative to main body 1. The rear cover 8 is provided with a rear cover sleeve 9. The rear cover sleeve 9 is fixed on the rear cover 8 axially and radially.

[0016] The rear cover 8 comprises a threaded rod 10 and at least one threaded sleeve. The threaded rod comprises a first end and a second end. The threaded sleeve can be one or more as needed. The first end of the threaded rod abuts against the piston, and the second end of the threaded rod is in threaded connection to the at least one threaded sleeve. When a plurality of threaded sleeves is provided, the threaded sleeves are telescopic and are hinged to one another via screw threads, and the second end of the threaded rod is in threaded connection to the innermost threaded sleeve. The outermost threaded sleeve is in threaded connection to the rear cover. The at least one threaded sleeve is unable to rotate along with the rear cover circumferentially.

[0017] The outermost threaded rod comprises a plurality of axially-distributed grooves (not shown in the figures), and the rear cover comprises a plurality of axially-distributed ribs (not shown in the figures) corresponding to the grooves. This prevents the rotation of the at least one threaded sleeve along with the rear cover circumferentially. The piston comprises a polygonal depression 18. The first end of the threaded rod comprises a polygonal terminal 19 corresponding to the polygonal depression 18. The polygonal terminal 19 is inserted and clamped in the polygonal depression 18, thus preventing

the threaded rod from revolving on its axis circumferentially. The threaded rod can only move axially.

[0018] The brush assembly comprises a liquid conveying pipe 4 communicating with the liquid storage cavity, a brush hair 5 encircling the liquid conveying pipe, and a brush sleeve 6 sleeving the brush hair. Optionally, the brush assembly can be in other forms, for example, comprise an applicator.

[0019] The second end of the threaded rod comprises a first protruding connector 12 comprising first external screws 13; the inner surface of the threaded sleeve comprises first internal screws 14 (the capital letter C represents the axial length of the first internal screws) corresponding to the first external screws 13. The threaded rod engages with the threaded sleeve via the first external screws and the first internal screws.

[0020] The threaded sleeve comprises a second protruding connector 15 comprising second external screws 16; the inner surface of the rear cover comprises second internal screws 17 (the capital letter B represents the axial length of the second internal screws) corresponding to the second external screws 16. The threaded sleeve engages with the rear cover via the second external screws and the second internal screws.

[0021] The rear cover 8 comprises a plurality of circumferentially-disposed ratchets 20. The ratchets 20 are disposed between the main body and the rear cover, and can prevent the rear cover from rotating reversely.

[0022] When in use, clockwise rotate the rear cover sleeve 9, the rear cover 8 rotates with the rear cover sleeve 9, and the threaded sleeve 11 and the threaded rod 10 move in the rear cover to push the piston to move in the liquid storage cavity 3, as shown in FIG. 4. The cosmetic liquid is squeezed out. When the moving distance of the piston equals to the length B of the second internal screws of the rear cover, the piston temporarily stops moving. Continue clockwise rotating the rear cover sleeve 9, the threaded sleeve 11 rotates synchronously, the threaded rod 10 moves axially in the threaded sleeve 11, to push the piston to continue moving in the liquid storage cavity 3 until the moving distance of the piston reaches the length C of the first internal screws 14 of the threaded sleeve, as shown in FIG. 5. Thus, the cosmetic liquid is completely squeezed out.

[0023] Optionally, the threaded sleeve can be one or more. When two or three threaded sleeves are employed, compared with conventional cosmetic brushes with the same height and diameters as that of the cosmetic brush of the embodiment, the threaded sleeves of the cosmetic brush of the embodiment occupy less space but have larger extension distance, and the storage capacity of the cosmetic brush is greatly increased.

55 Claims

1. A cosmetic brush, **characterized by** comprising:

a main body (1), the main body comprising a front part, a rear part, and a liquid storage cavity (3) disposed between the front part and the rear part;
 a front cover (2);
 a rear cover (8);
 a brush assembly;
 a piston (7);

wherein:

the front cover is disposed on the front part and the rear cover is disposed on the rear part;
 the brush assembly is disposed in the front part;
 the piston (7) is disposed in the rear part;
 the brush assembly and the piston (7) are disposed at two ends of the liquid storage cavity (3), respectively;
 the rear cover is rotatably disposed relative to the main body;
 the rear cover (8) is provided with a rear cover sleeve (9), and the rear cover sleeve is fixed on the rear cover;
 the rear cover comprises a threaded rod (10) and at least one threaded sleeve (11);
 the threaded rod comprises a first end and a second end; the first end of the threaded rod abuts against the piston, and the second end of the threaded rod is in threaded connection to an innermost threaded sleeve of the at least one threaded sleeve; the at least one threaded sleeve are hinged to one another via screw threads; an outermost threaded sleeve of the at least one threaded sleeve is in threaded connection to the rear cover; and the at least one threaded sleeve is unable to rotate along with the rear cover circumferentially.

2. The brush of claim 1, **characterized in that** the outermost threaded rod comprises a plurality of axially-distributed grooves, and the rear cover comprises a plurality of axially-distributed ribs corresponding to the grooves.
3. The brush of claim 1 or 2, **characterized in that** the piston comprises a polygonal depression (18); the first end of the threaded rod comprises a polygonal terminal (19) corresponding to the polygonal depression; the polygonal terminal is inserted and clamped in the polygonal depression.
4. The brush of claim 1, **characterized in that** the brush assembly comprises: a liquid conveying pipe (4) communicating with the liquid storage cavity, a brush hair (5) encircling the liquid conveying pipe, and a brush sleeve (6) sleeving the brush hair.
5. The brush of claim 1, **characterized in that** the sec-

ond end of the threaded rod comprises a first protruding connector (12) comprising first external screws (13); an inner surface of the threaded sleeve comprises first internal screws (14) corresponding to the first external screws.

6. The brush of claim 1, **characterized in that** the threaded sleeve comprises a second protruding connector (15) comprising second external screws (16); an inner surface of the rear cover comprises second internal screws (17) corresponding to the second external screws.
7. The brush of claim 1, **characterized in that** the rear cover (8) comprises a plurality of circumferentially-disposed ratchets (20); and the ratchets are disposed between the main body and the rear cover.

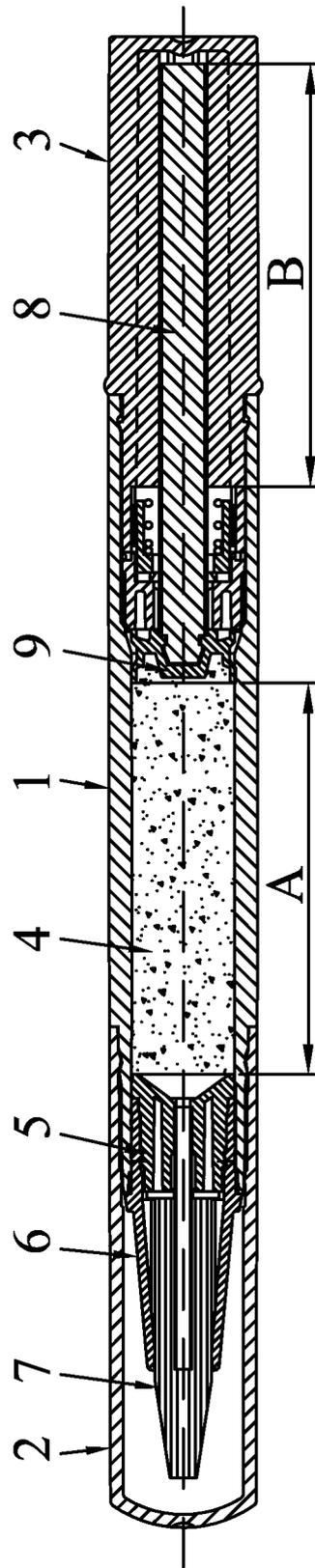


FIG. 1

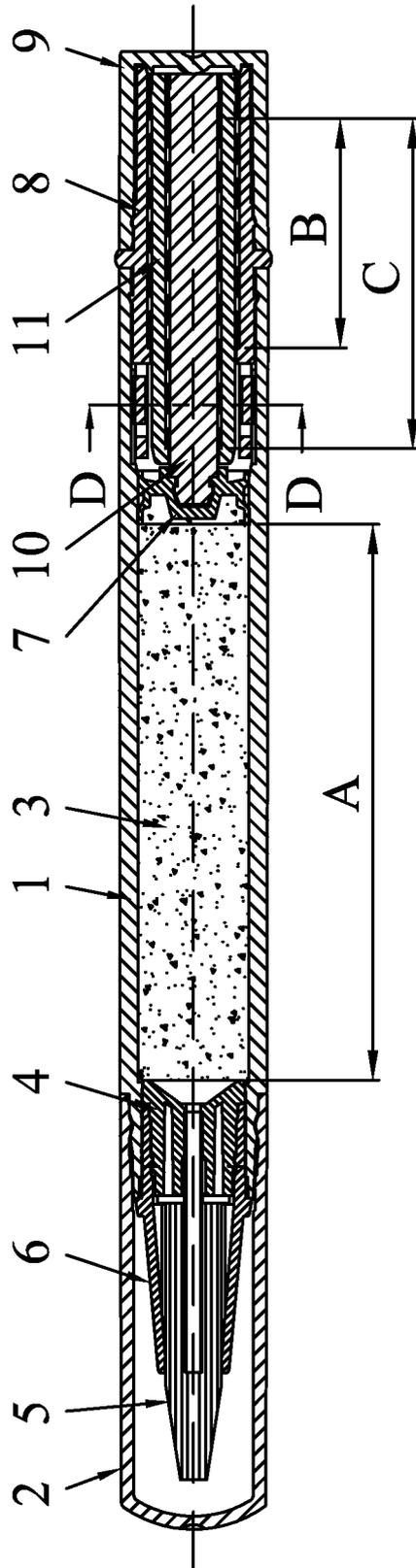


FIG. 2

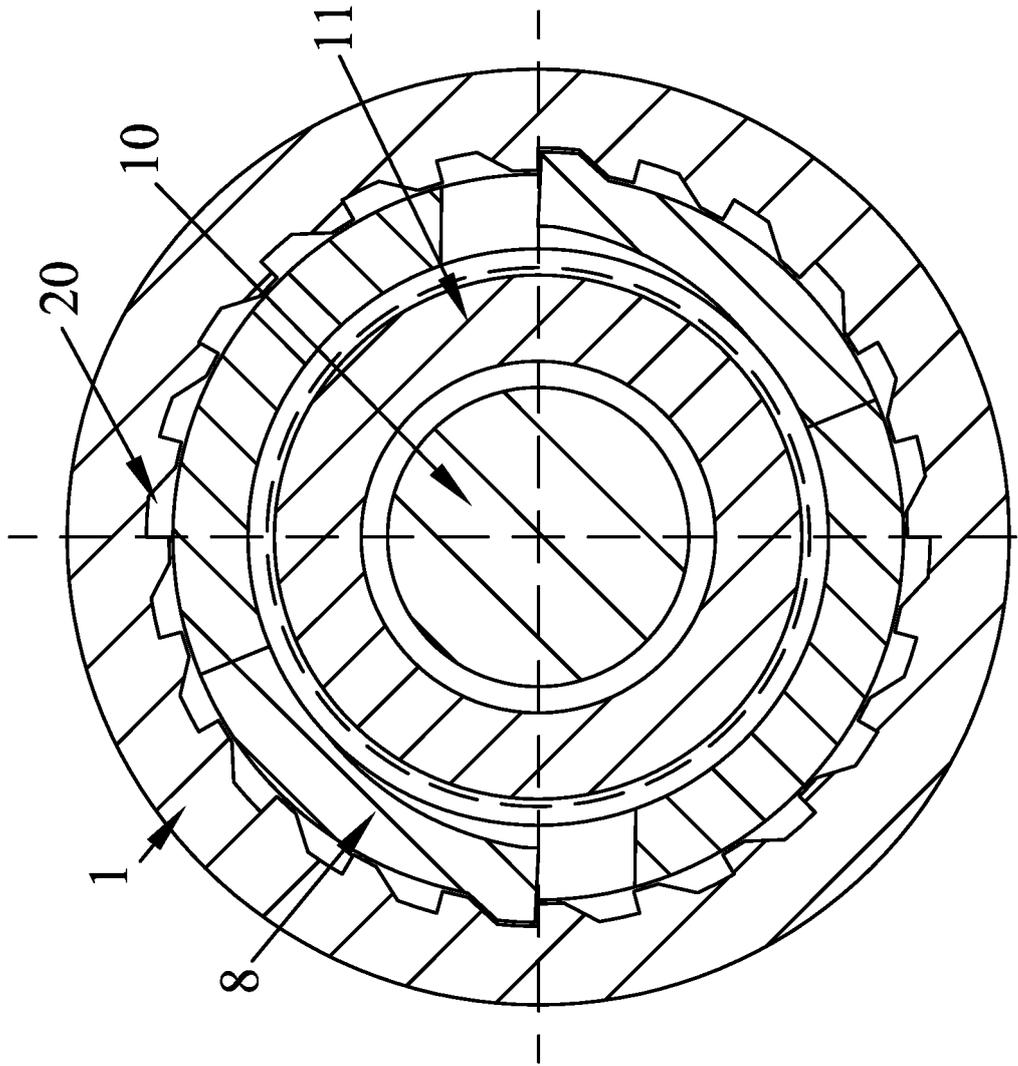


FIG. 3

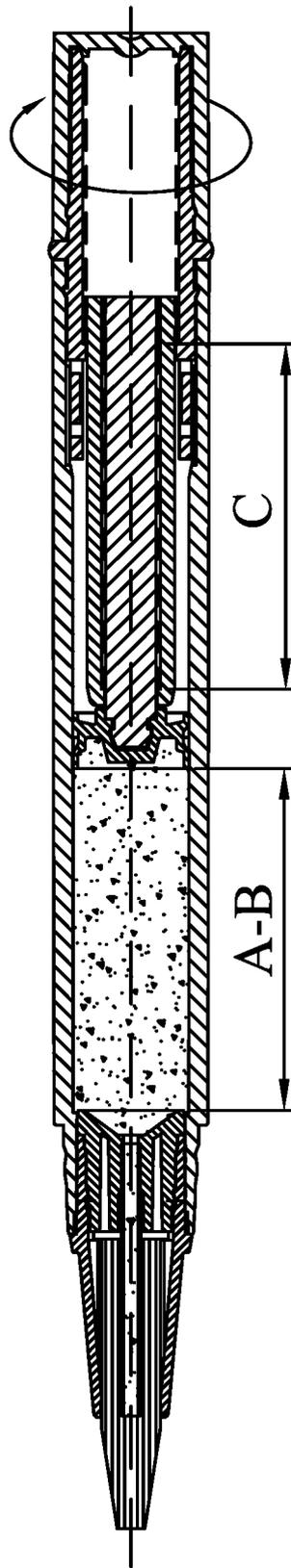


FIG. 4

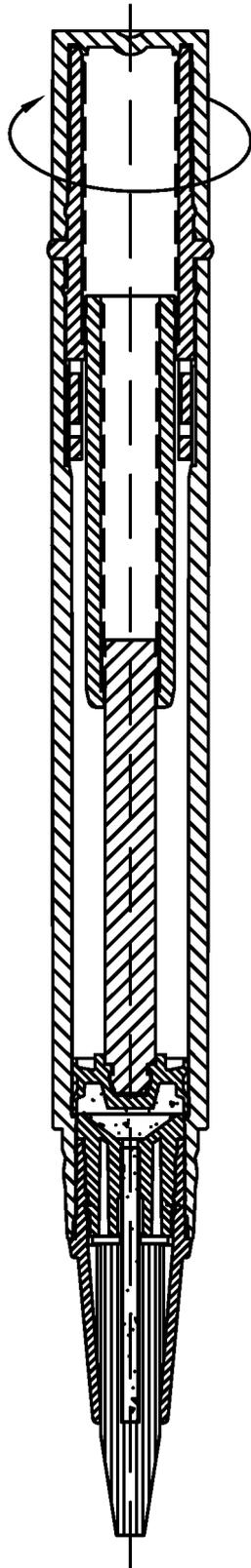


FIG. 5

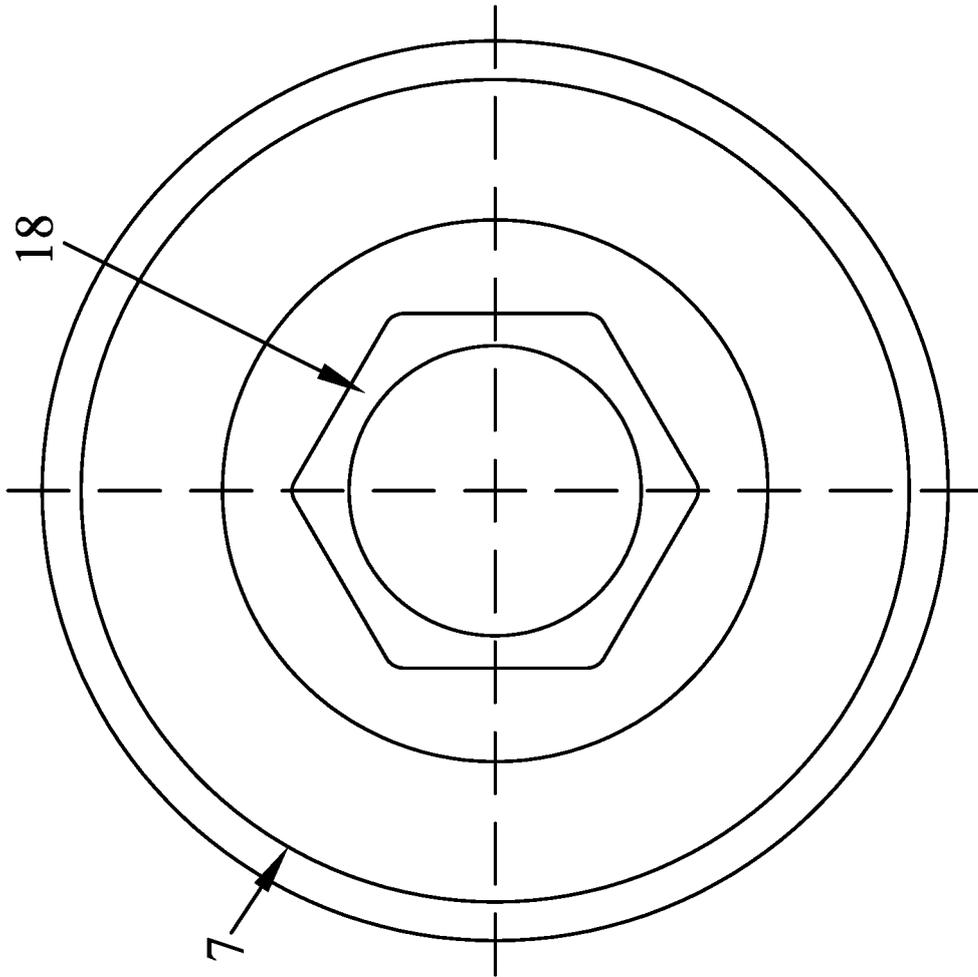


FIG. 6

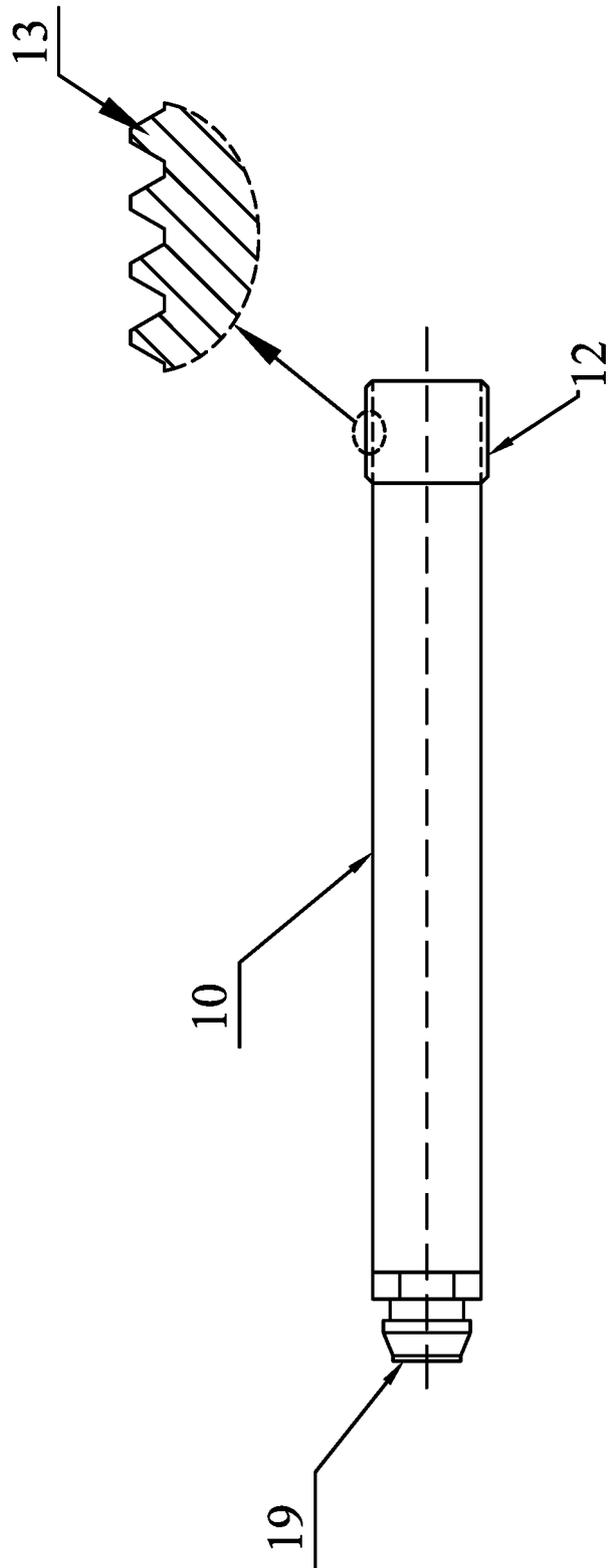


FIG. 7

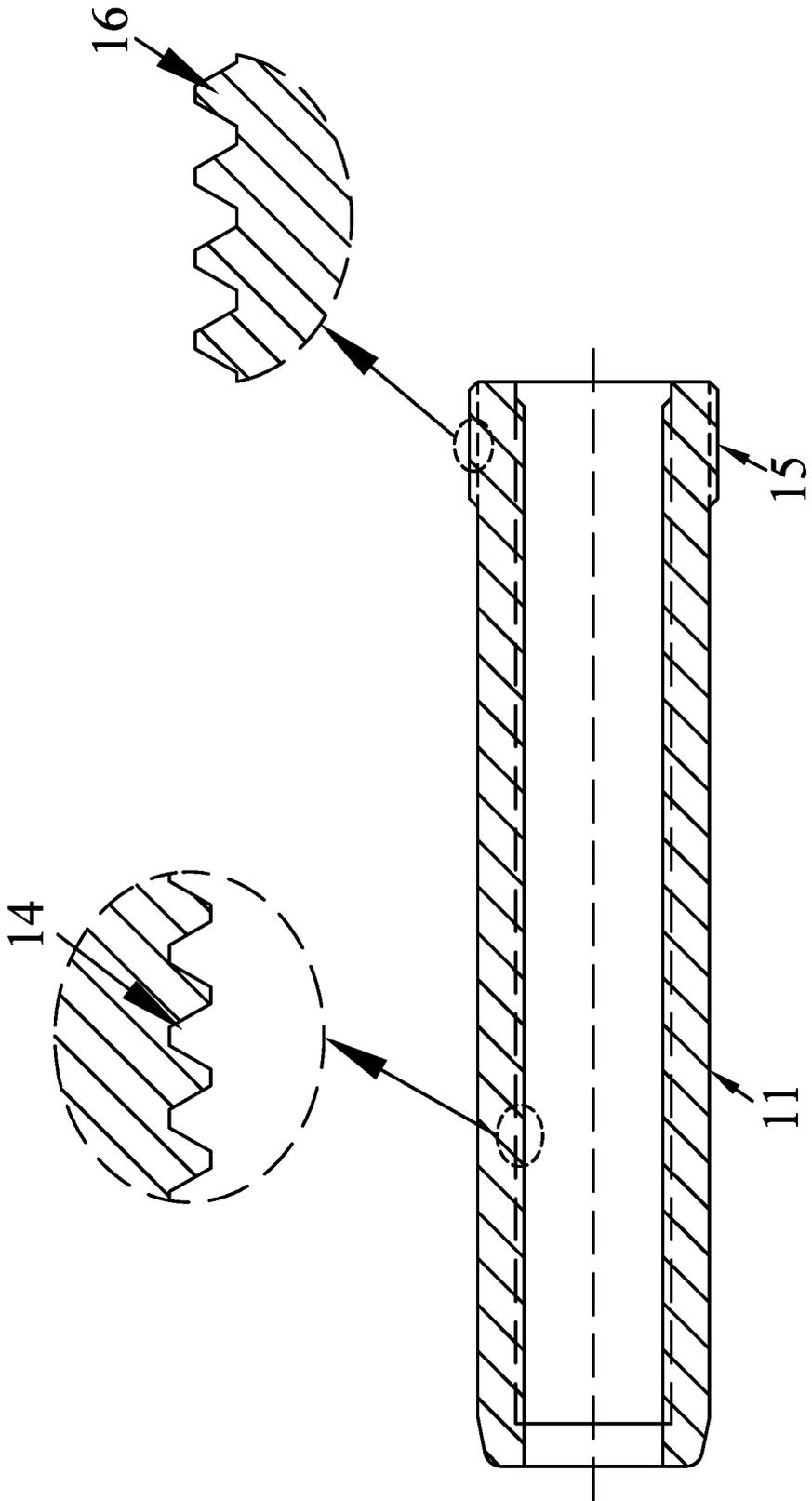
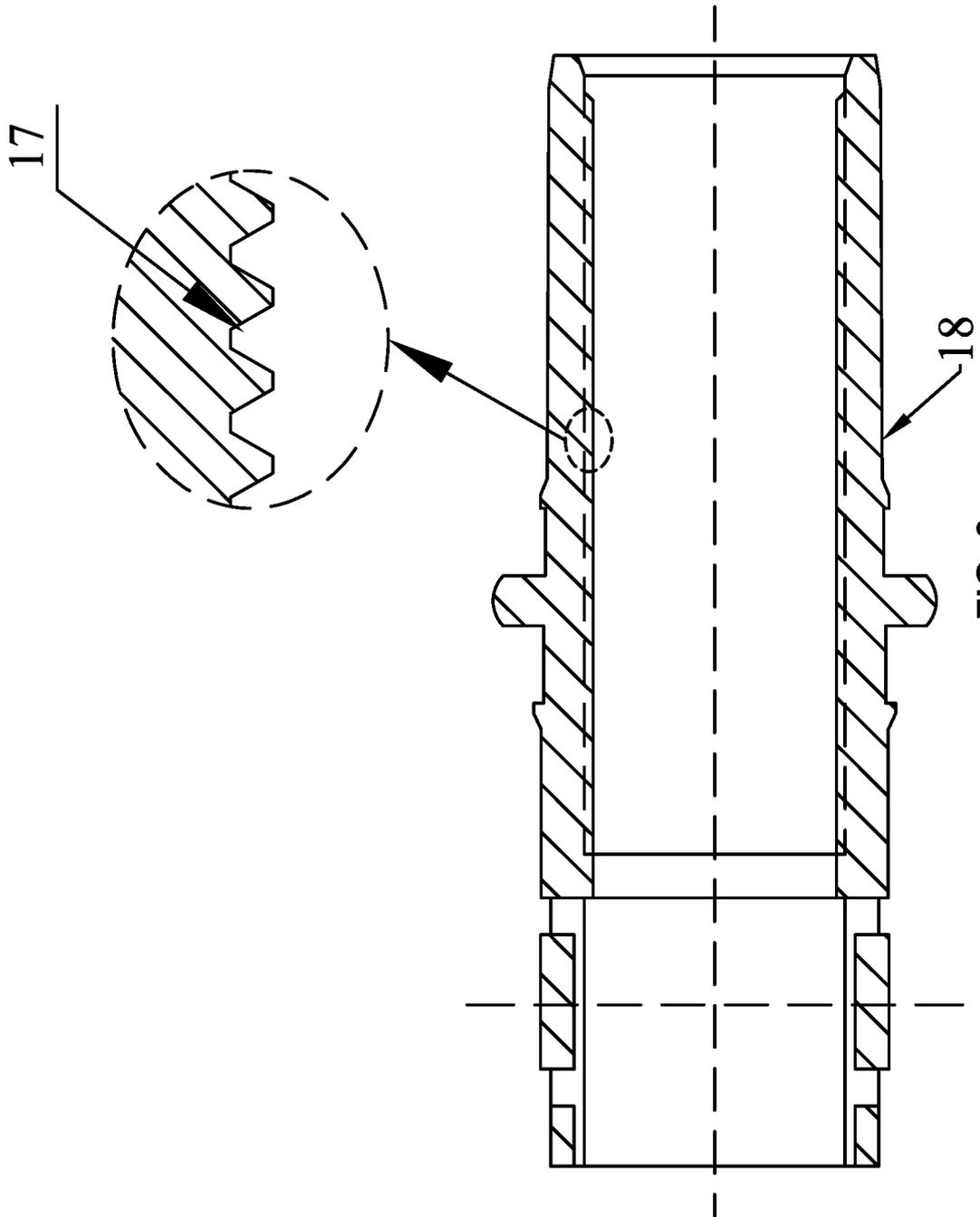


FIG. 8



INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2016/103482

5	A. CLASSIFICATION OF SUBJECT MATTER		
	A45D 34/00 (2006.01) i		
	According to International Patent Classification (IPC) or to both national classification and IPC		
10	B. FIELDS SEARCHED		
	Minimum documentation searched (classification system followed by classification symbols)		
	A45D		
15	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)		
	CNTXT;CNABS;VEN:rotate, cosmetic brush, multi+, whorl, pair, screw?, two, double?, several, helix		
20	C. DOCUMENTS CONSIDERED TO BE RELEVANT		
	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
25	PX	CN 205658538 U (SHYA HSIN PACKAGING INDUSTRY (CHINA) CO., LTD.), 26 October 2016 (26.10.2016), description, paragraphs 41-48, and figures 1-9	1-7
	Y	CN 201418469 Y (MEICHUAN TEX CO., LTD.), 10 March 2010 (10.03.2010), description, pages4-5, and figures 1-3	1-7
	Y	CN 204670587 U (ALLEN & THOMAS COSMETIC ACCESSORIES CO., LTD.), 30 September 2015 (30.09.2015), description, paragraphs 26-40, and figures 6-7	1-7
30	A	CN 103989307 A (LEE SHIN BIOTECH COSMETICS (SHANGHAI) CO., LTD. et al.), 20 August 2014 (20.08.2014), the whole document	1-7
	A	JP 2006296515 A (KATSUSHIKA KK), 02 November 2006 (02.11.2006), the whole document	1-7
	A	JP 2008125947 A (SUZUNO KASEI KK), 05 June 2008 (05.06.2008), the whole document	1-7
35	<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
40	* 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	“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	
45	“E” earlier application or patent but published on or after the international filing date	“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
	“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	“&”document member of the same patent family	
	“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		
50	Date of the actual completion of the international search	Date of mailing of the international search report	
	20 February 2017 (20.02.2017)	28 February 2017 (28.02.2017)	
55	Name and mailing address of the ISA/CN: State Intellectual Property Office of the P. R. China No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088, China Facsimile No.: (86-10) 62019451	Authorized officer CUI, Shuangkui Telephone No.:(86-10) 62085581	

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INTERNATIONAL SEARCH REPORT
 Information on patent family members

International application No. PCT/CN2016/103482

	Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
5	CN 205658538 U	26 October 2016	None	
	CN 201418469 Y	10 March 2010	None	
10	CN 204670587 U	30 September 2015	None	
	CN 103989307 A	20 August 2014	None	
	JP 2006296515 A	02 November 2006	JP 4761253 B2	31 August 2011
	JP 2008125947 A	05 June 2008	JP 5005323 B2	22 August 2012
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