



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
10.09.2008 Bulletin 2008/37

(51) Int Cl.:
A46B 7/02 (2006.01)

(21) Application number: **07425082.0**

(22) Date of filing: **15.02.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

Designated Extension States:
AL BA HR MK RS

(71) Applicant: **PENNELLI FARO S.R.L.**
26041 Casalmaggiore CR (IT)

(72) Inventor: **Serposi, Gianluca**
c/o PENELLI FARO S.R.L.,
26041 Casalmaggiore (IT)

(74) Representative: **Guareschi, Antonella**
Studio Ing. Fabrizio Dallaglio,
92/C, Viale Mentana
43100 Parma (IT)

(54) **Retractable cosmetic brush**

(57) A cosmetic brush (1) of the type comprising a base (2) with a cap (3) at its top and in which the bristles (15) can be introduced and retained by a member (5) provided within the case formed by the base (2) and the cap (3), wherein the cap (3) has annular teeth (3b) on its inner base, which are concentric with the axis of the cap (3) and cooperate with a gear (6c) of a smaller size, formed on a cover (6) so that mutual rotation thereof causes the member (5) to perform a linear motion, which causes said bristles (15) to move in and out of said case. The member (5) may be also moved using a key (20) adapted to be introduced in the screw (6a).

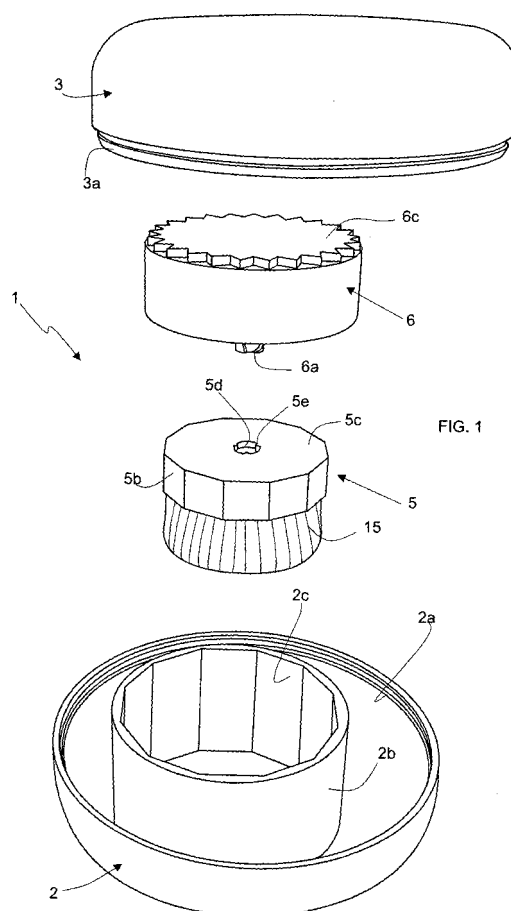


FIG. 1

Description

[0001] This invention relates to a retractable cosmetic brush whose construction allows bristles to be reaccommodated or held within the brush case.

[0002] According to a variant, the invention relates to a retractable cosmetic brush which also has bristles movable and displaceable in the brush case, with the addition of a container for a product, such as powder or else.

[0003] The present object is characterized by the content of the annexed claims.

[0004] These and other features will be more apparent from the following description of a few embodiments, which are shown by way of example and without limitation in the accompanying drawings, in which:

- Figure 1 is an exploded view of a retractable cosmetic brush according to a first embodiment,
- Figure 2 shows the brush of Figure 1 from a different point of view,
- Figure 3 is an exploded view of a retractable cosmetic brush according to a second embodiment,
- Figure 4 shows the brush of Figure 3 from a different point of view,
- Figure 5 shows an exploded configuration of a third variant embodiment of the retractable brush of the present invention,
- Figure 6 shows the brush of Figure 5 from a different point of view.

[0005] Referring to Figures 1 and 2, numeral 1 generally designates a cosmetic brush of the invention according to a first embodiment; the brush 1 is shown in an exploded view, with all its components aligned and displaced with respect to their assembled configuration.

[0006] The brush 1 as shown and described hereinbelow has such a construction that its bristles 15 can be reaccommodated or retained within the case of the brush 1, which case is composed of a base 2 and a cap 3, both of circular shape.

[0007] As shown in the figures, the brush 1 comprises a base 2 with a cap 3 fitted thereon, namely by means of an annular protrusions 3a which fits into a corresponding groove 2a in the base: due to the annular shape of such fit, the cap 3 and the base 2 may rotate relative to a common axis.

[0008] The base 2 has a tube 2b extending therein; such tube being of hollow cylindrical shape, and more precisely with its inner walls having a series of facets 2c adapted to receive and guide corresponding facets 5b of a member 5 which have the bristles 15 of the inventive brush 1 attached thereto.

[0009] The member 5 further has a hole 5d formed at the center with respect of the base 5c, with teeth 5e adapted for engagement in a downwardly extending screw 6a, which is attached to the base 6b of a cover 6 coupled (in the assembled condition) to the previously described cylindrical tube 2b.

[0010] According to the above, following coaxial fit between:

- the bristle carrying member 5 and the screw 6a
- the facets 5b and the corresponding facets 2c
- the cover 6 and the outside of the tube 2b,

rotation of the cover 6 causes an apparent rotation of the screw 6a (which is also coaxial with the cover 6), the effect whereof on the bristle member 5 is a positive straight-line displacement imposed by the above mentioned facets.

[0011] It shall be further noted that, in the illustrated embodiments, the above assembly or the tube 2b is offset with respect to the axis of rotation of the outer case of the brush 1, which is formed by connection of the base 2 and the cap 3.

[0012] The above has to be considered because, following assembly, the cover 6 will be rotated by rotation of the cap 3, because such cap 3 has teeth 3b on its inner base, in an annular arrangement, concentric with the axis of the cap 3, which ring gear 3b will interact, or cooperate, with a smaller gear 6c, directly formed on the upper base of the cover 6.

[0013] Thus, the cover 6 will be directly set into rotation by rotation of the cap 3.

[0014] Therefore, the bristles 15 may be introduced in the case or extracted therefrom for convenient use thereof..

[0015] Referring to Figures 3 and 4, numeral 1 generally designates a cosmetic brush of the invention according to a second embodiment; the brush 1 is shown in an exploded view, with all its components aligned and displaced with respect to their assembled configuration.

[0016] The brush 1 has the above described construction, with the bristles 15 movable and displaceable in the case composed of the base 2 and the cap 3, with the above components, with the addition of a container 10 for any type of product, usually in free or compact powder form.

[0017] This container 10 is screwed to the base 2 which is now designed to allow screw fit as it does not have a closed bottom, as better shown in Figure 4.

[0018] Such screw fit allows a more convenient transportation of the product and the brush and further allows the bristles 15 to be directly dipped in the product upon extraction thereof by rotation of the cap 3 as mentioned above, by keeping the container well tightened to the base 2: product application will only require loosening of the screw connection between the two components, i.e. the container 10 and the base 2: the unscrewing rotation causes a rotary or rotary and translational motion of the bristles 15 of the brush 1 within the container 10, thereby allowing homogeneous collection of the product.

[0019] Figures 5 and 6 show a third variant embodiment, in which a key 20 is meant to be introduced in a hole 40 in the cap 3 and to be directly fitted in the shank of the screw 6a to allow manual rotation of the cover 6

and position adjustment of the bristles 15.

[0020] In other words, by directly rotating the screw 6a, the cap 3 and the base 2 may be held still, if such cap does not have teeth 3b engaged with the ring gear 6c.

[0021] In the above embodiments, the tube 2b is offset with respect to the axis of rotation of the case composed of the base 2 and the cap 3; nevertheless, the tube 2b may also be centered with respect to such axis, or be coaxial with the base 2 and cap 3.

[0022] Furthermore, to prevent extraction of the member 5 and the bristles 15 due to excessive rotation of the cap 3, a stop (not shown) is fitted on the inner facets of the tube 2b.

[0023] According to a further embodiment, not shown, in view of improving the above described mechanism and preventing the tuft of bristles 16 from being perforated, a solution (not shown) may be provided to move the screw up and down outside the tuft member 5 and the tube 2b, now without facets 2c; in other words, the member 5 would rotate using a thread between the member 5 and the tube 2b.

Claims

1. A retractable cosmetic brush (1) of the type comprising a base (2) with a cap (3) at its top and in which the bristles (15) can be introduced and retained by a member (5) provided within the case formed by the base (2) and the cap (3), **characterized in that:**

a. said base (2) has a hollow cylindrical tube (2b) extending in said base (2) and having a plurality of inner facets (2c) which are adapted to guide the bristles (15) retained in a member (5) having corresponding bristles (5b);

b. said member (5) being movable in response to the rotation of a screw (6a) which extends from a cover (6) fitted on the outside of the cylindrical tube (2b),

c. said cap (3) having annular teeth (3b) on its inner base, which are concentric with the axis of the cap (3) and cooperate with a gear (6c) of a smaller size, formed on a cover (6),

once such couplings have been made, a rotation of the cap (3) causes a rotation of the cover (6) which in turn causes a rotation of the screw (6a), thereby having the effect of causing a displacement of the member (5) and of moving said bristles (15) in or out of said case.

2. A brush (1) as claimed in claims 1 and 2, **characterized in that** the gear (6c) has a smaller diameter than the ring gear (3a) and is offset with respect to it.
3. A retractable cosmetic brush (1) of the type comprising a base (2) with a cap (3) at its top and in which

the bristles (15) can be introduced and retained by a member (5) provided within the case formed by the base (2) and the cap (3), **characterized in that:**

a. said base (2) has a hollow cylindrical tube (2b) extending in said base (2) and having a plurality of inner facets (2c) which are adapted to guide the bristles (15) retained in a member (5) having corresponding bristles (5b);

b. said member (5) being movable in response to the rotation of a screw (6a) which extends from a cover (6) fitted on the outside of the cylindrical tube (2b),

said screw (6a) being directly rotated by a key (20) which is adapted to be introduced and to operate in said screw (6a), after passing through an aperture (40) formed in the cap (3); once said couplings have been made, said rotation of the screw (3) causes a displacement of the member (5) which moves said bristles (15) in or out of said case.

4. A brush (1) as claimed in claim 1 or 3, **characterized in that** said base (2) is closed at its bottom and only has an opening for allowing bristles (15) to come out of it.

5. A brush (1) as claimed in claim 1 or 3, **characterized in that** said base (2) is open and can be screwed at its bottom to a container adapted to contain any type of free or compact powder product.

6. A brush (1) as claimed in claim 1 or 3, **characterized in that** said base (2) and said cap (3) can be coupled by means of an annular protrusion (3a) which is adapted to fit in a corresponding groove (2a) of the base: due to the annular, i.e. circular shape of such fit, the cap (3) and the base (2) may rotate relative to a common axis.

7. A brush (1) as claimed in claim 1 or 3, **characterized in that** said tube (2b) is offset with respect to the axis of rotation of the outer case of the brush 1, which is formed by connection of the base, (2) and the cap (3).

8. A brush (1) as claimed in claim 3, **characterized in that** said tube (2b) is centered with respect to the axis of rotation of the outer case of the brush 1, which is formed by connection of the base (2) and the cap (3).

9. A brush (1) as claimed in claim 1 or 3, **characterized in that** said tube (2b) has a stop element extending from the inner facets, which is adapted to prevent release of the member (5) due to excessive rotation of the cap (3) or the key (20).

10. A brush (1) as claimed in claim 1 or 3, **characterized in that**, to prevent the tuft of bristles (16) from being perforated, the screw may be moved up and down outside the tuft member (5) and the tube (2b) without inner facets (2c), and said member (5) would rotate using a thread between the member (5) and the tube (2b).

5

10

15

20

25

30

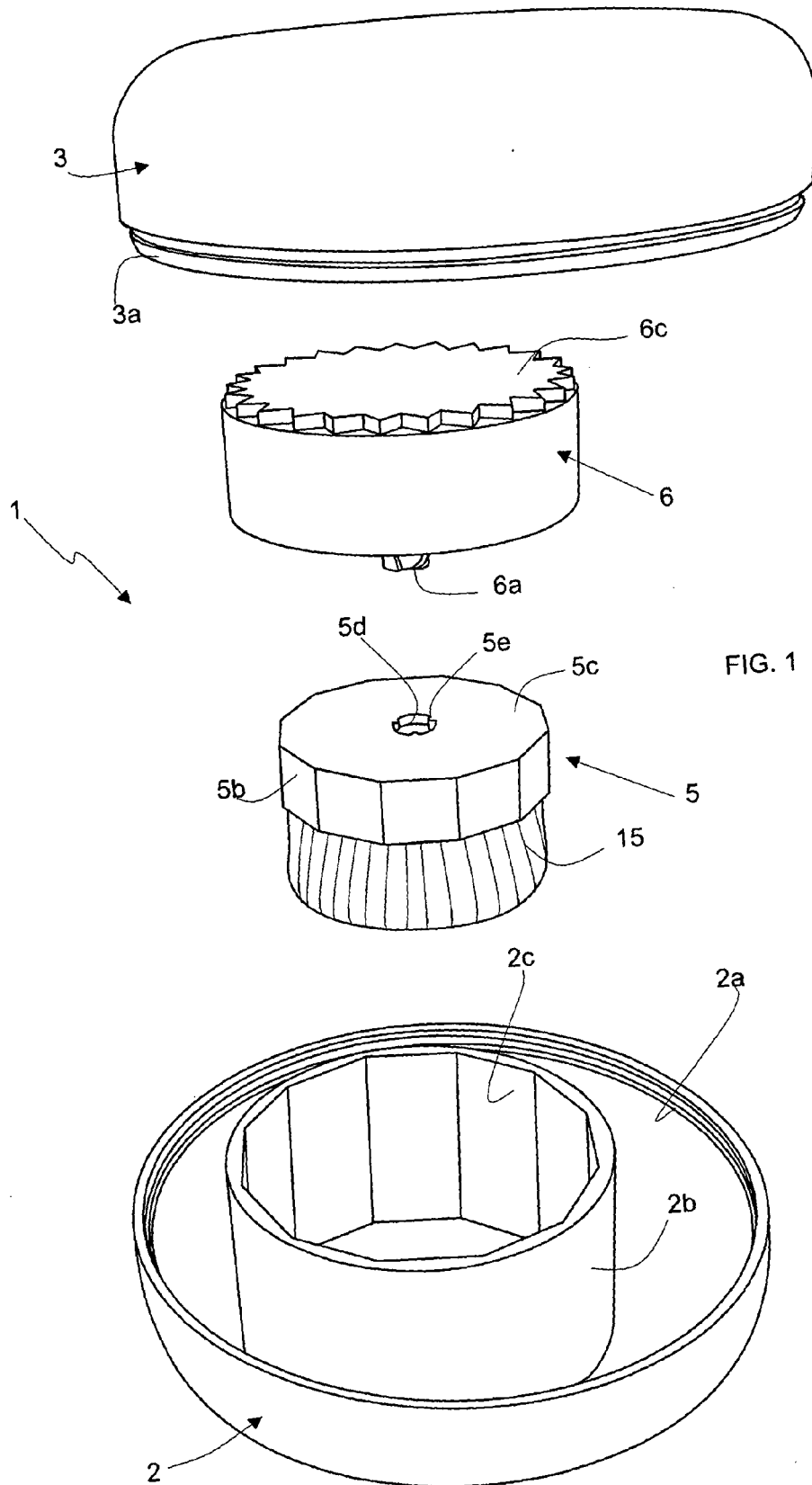
35

40

45

50

55



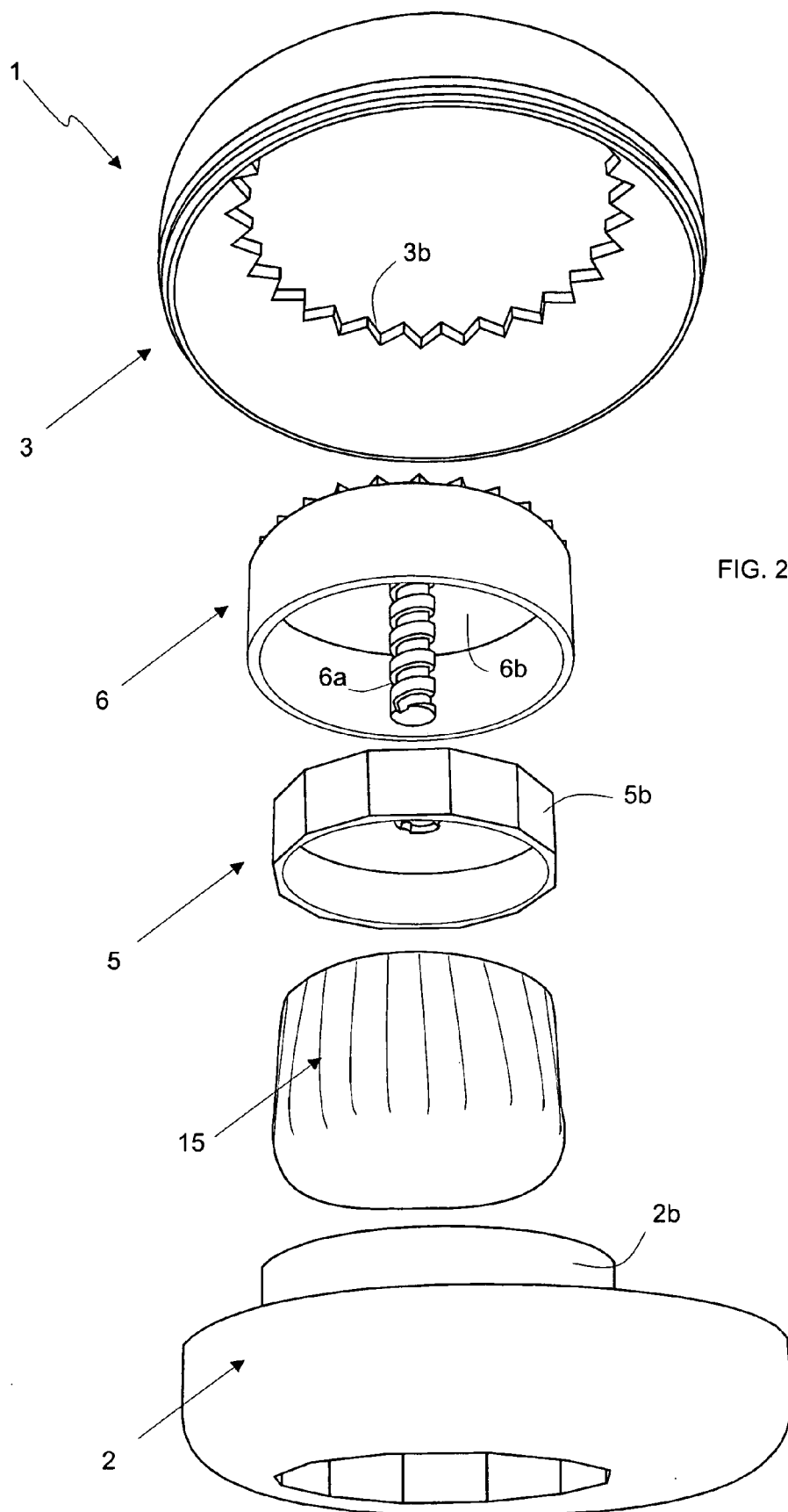
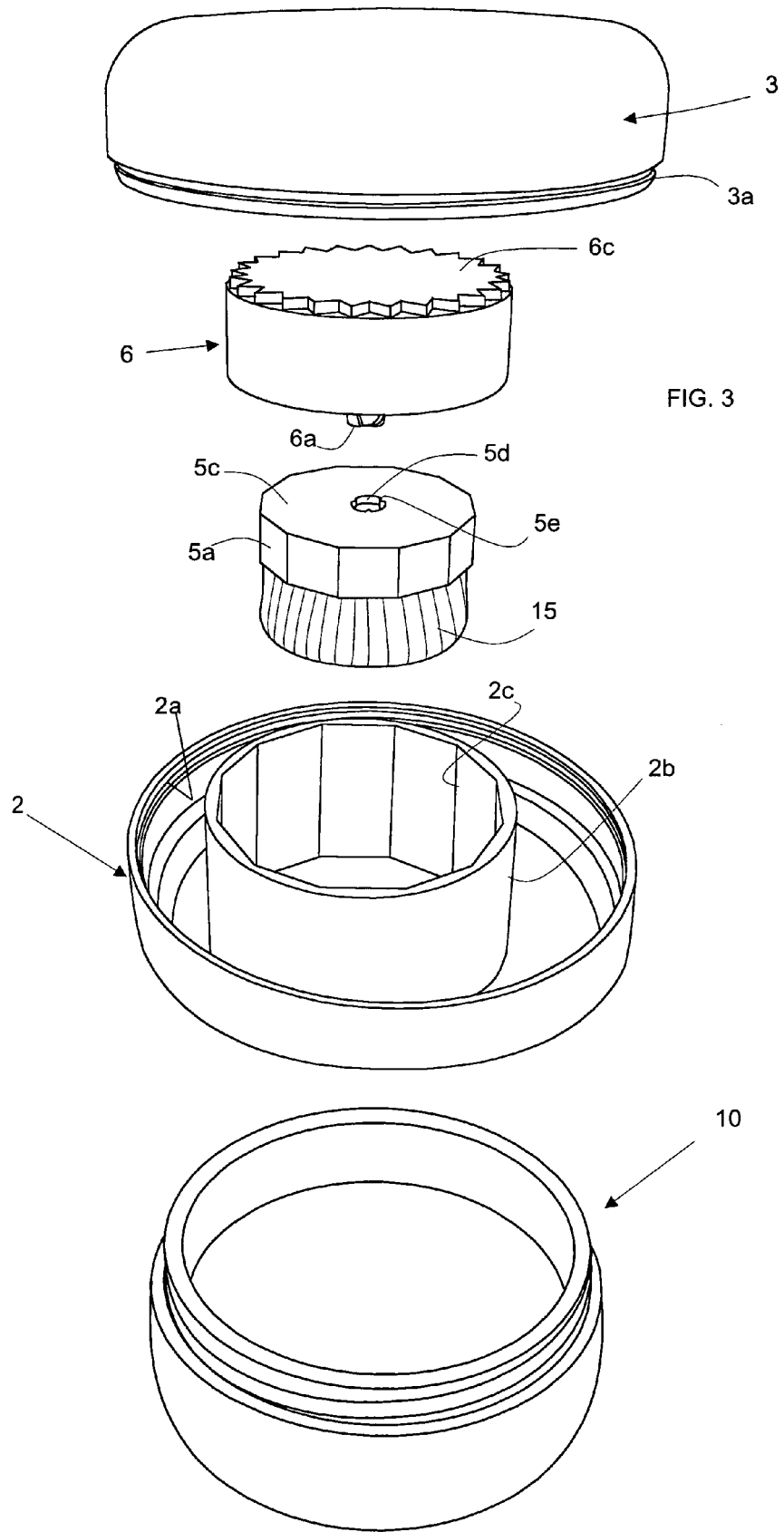


FIG. 2



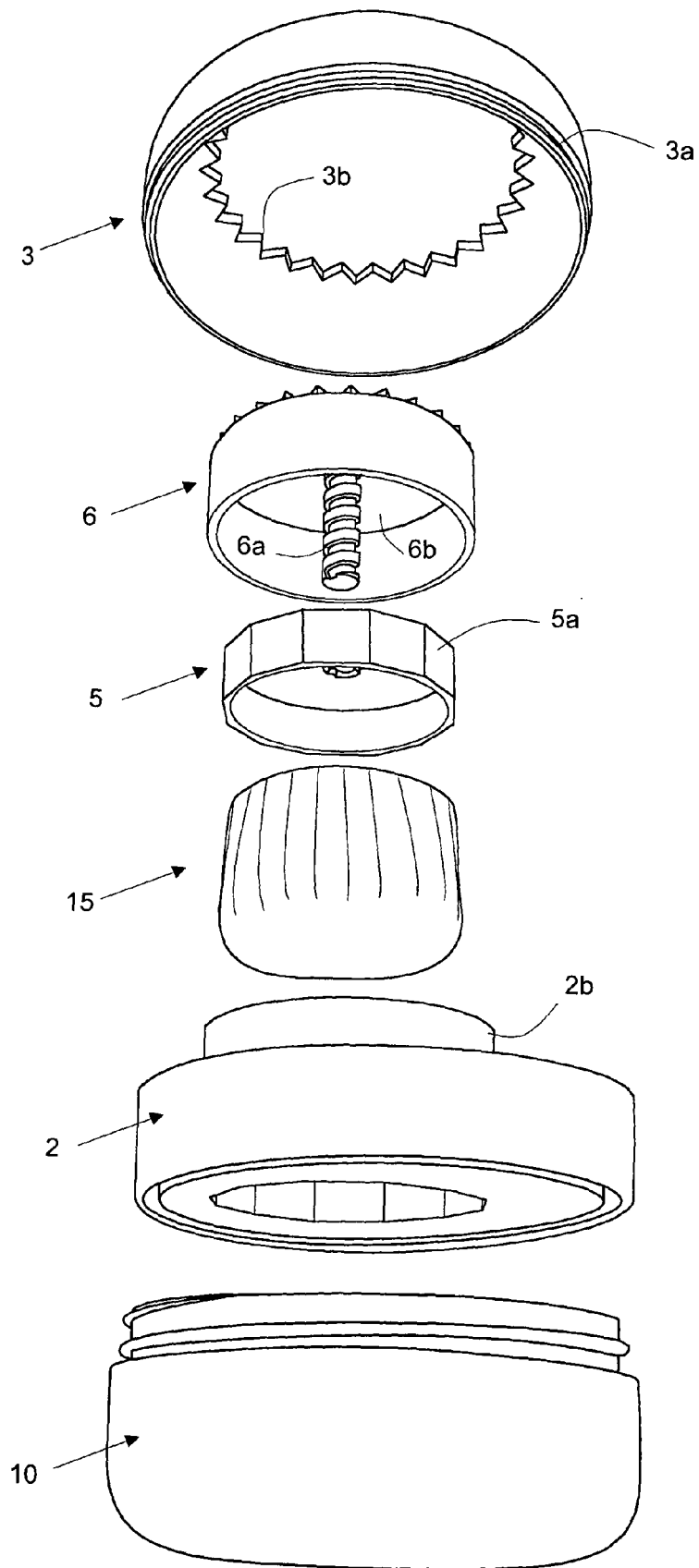


FIG. 4

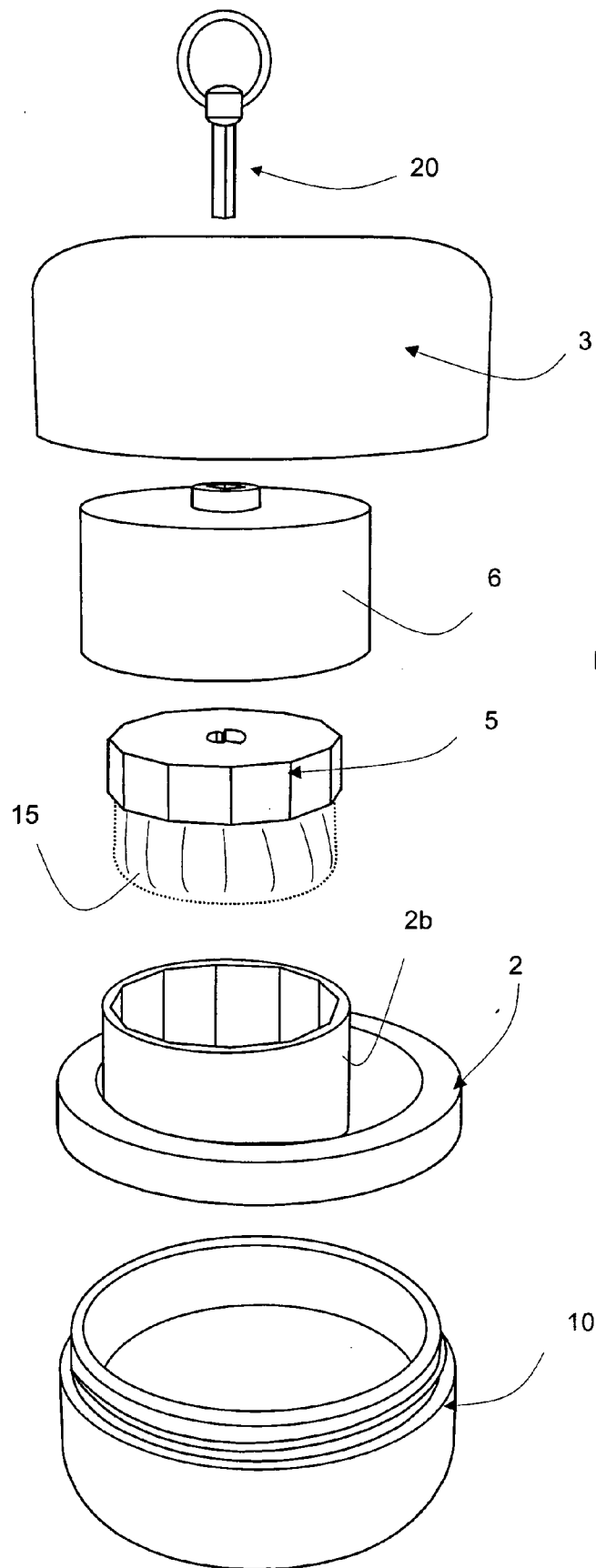


FIG. 5

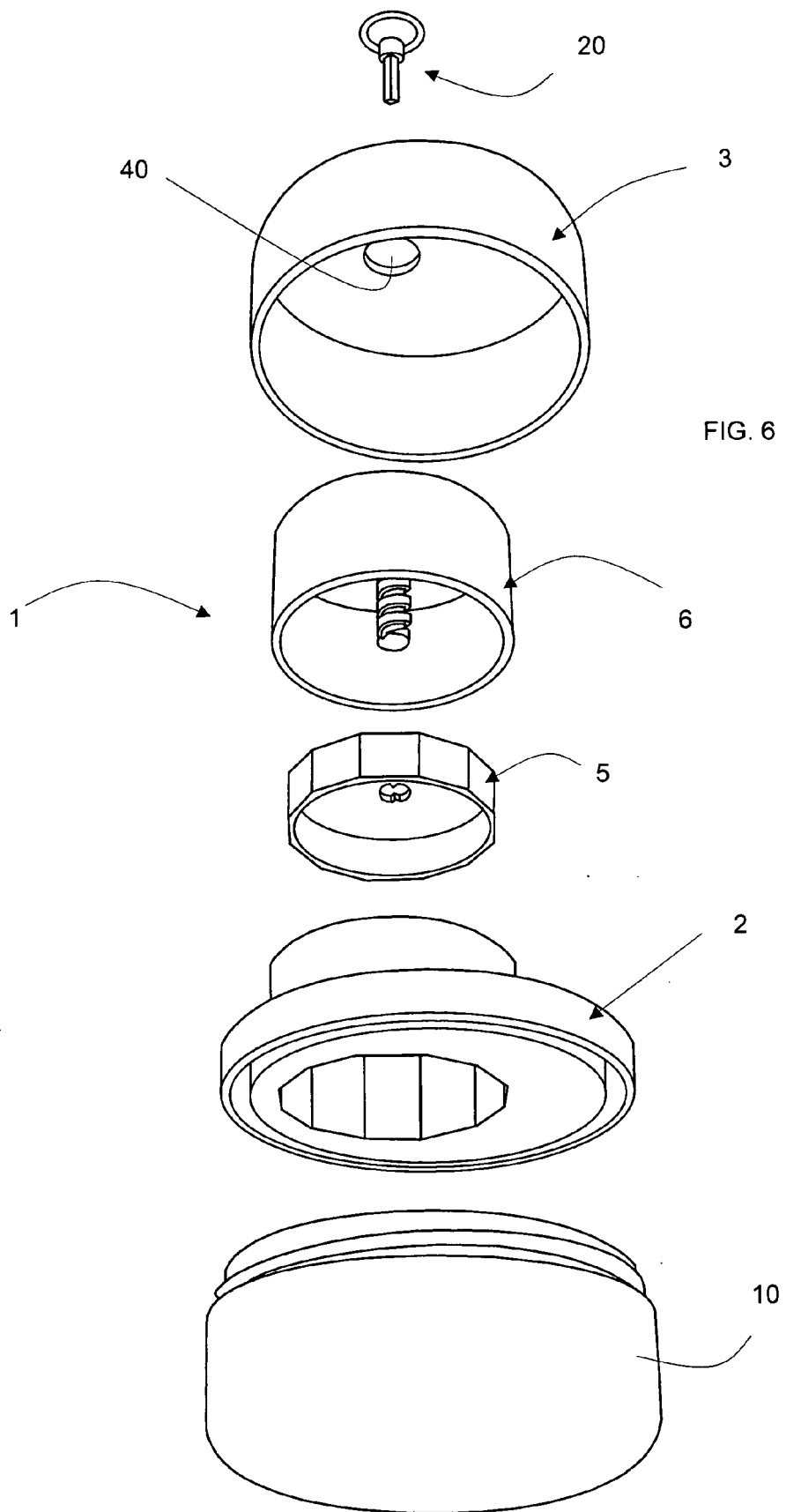


FIG. 6



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 42 5082

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 6 773 186 B1 (SHIH) 10 August 2004 (2004-08-10) * column 1, line 16 - column 4, line 4 * -----	1-10	INV. A46B7/02
A	CH 199 951 A (KÜNG -DALWARD) 15 September 1938 (1938-09-15) * the whole document * -----	1-10	
			TECHNICAL FIELDS SEARCHED (IPC)
			A46B A45D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 11 July 2007	Examiner WITKOWSKA-PIELA, A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

8

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 07 42 5082

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

11-07-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6773186	B1	10-08-2004	NONE	

CH 199951	A	15-09-1938	NONE	

EPO FORM P0459

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