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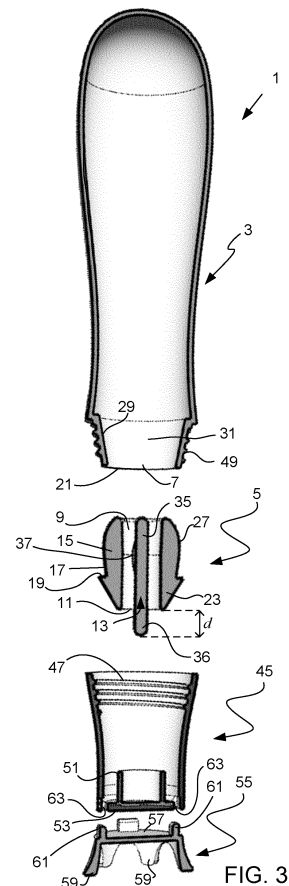
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(54) **A MARKING INSTRUMENT FOR APPLICATION OF A TOILET HYGIENE PRODUCT**

(57) A marking instrument for toilet hygiene comprising:
a hand deformable barrel containing a flowable hygiene solution; and
a nozzle having a conduit therethrough terminating in a nozzle outlet for directing the solution on to a surface, the conduit being in communication with an outlet of the hand deformable barrel; and
a standoff member extending a distance beyond the nozzle outlet;
wherein in use the standoff member is brought against a surface for the flowable hygiene solution to be dispensed upon, whereby upon squeezing the hand deformable barrel the solution flows through the conduit and out of the nozzle outlet to be deposited on the surface for marking, the standoff member maintaining a distance between the nozzle outlet and the surface for assisting uniform deposition of the hygiene solution upon the surface.



Description

TECHNICAL FIELD

[0001] The present invention concerns an apparatus for dispensing a toilet hygiene solution onto the surface of a toilet bowl for making desired marks thereon.

BACKGROUND ART

[0002] Any references to methods, apparatus or documents of the prior art are not to be taken as constituting any evidence or admission that they formed, or form part of the common general knowledge.

[0003] Toilet hygiene involves the use of toilet hygiene products such as germicidal blocks that are typically provided in cages that are suspended from the toilet rim at a position where they are rinsed by toilet flush water. Liquid cleaners and gels are also known for applying to the toilet bowl.

[0004] Applying liquid or gel cleaners and toilet blocks can be tiresome and there is a risk that users of the toilet bowl may not take the trouble to install the toilet blocks or dispense the liquid cleaner.

[0005] It would be advantageous if a toilet cleaning apparatus were provided that was capable of reliably dispensing a toilet hygiene gel and which was convenient to use and capable of making desired markings on the toilet bowl for encouraging users to make use of the apparatus.

[0006] It would be desirable that such a toilet cleaning apparatus could be readily used to make markings of a consistent thickness so that the markings are readily legible.

[0007] It is an object of the present invention to provide such an apparatus.

SUMMARY OF THE INVENTION

[0008] According to a first aspect of the present invention there is provided A marking instrument for toilet hygiene comprising:

a hand deformable barrel containing a flowable hygiene solution; and
 a nozzle having a conduit therethrough terminating in a nozzle outlet for directing the flowable hygiene solution on to a surface, the conduit being in communication with an outlet of the hand deformable barrel; and
 a standoff member extending a distance beyond the nozzle outlet;
 wherein in use the standoff member is brought against the surface for the flowable hygiene solution to be dispensed upon, whereby upon squeezing the hand deformable barrel the flowable hygiene solution flows through the conduit and out of the nozzle outlet to be deposited on the surface for marking,

the standoff member maintaining a space between the nozzle outlet and the surface for assisting uniform deposition of the flowable hygiene solution upon the surface.

[0009] Preferably the nozzle outlet is circular for dispensing the flowable hygiene solution onto the surface with cross-strokes and down-strokes of constant width.

[0010] Preferably the nozzle is formed with a generally cylindrical body, at least a portion of which is received into the outlet of the hand deformable barrel.

[0011] Preferably the nozzle includes a flange for abutment with an outer edge of the outlet of the hand deformable barrel.

[0012] In a preferred embodiment of the invention the generally cylindrical body is continuous with a frusto-conical tip that is coaxial with the cylindrical body, wherein a base of the frusto-conical tip extends beyond the generally cylindrical body to thereby form the flange.

[0013] The generally cylindrical body may have a convex side wall.

[0014] Preferably the hand deformable barrel includes a converging inner wall portion that converges toward the outlet of the hand deformable barrel.

[0015] In an embodiment the converging inner wall portion presents a frusto-conical lumen that narrows towards the outlet of the hand deformable barrel.

[0016] In an embodiment a portion of the convex side wall is retained by the frusto-conical lumen.

[0017] Preferably a portion of the standoff member is located within the conduit of the nozzle.

[0018] In an embodiment one or more spokes extend inwardly from a side wall of the conduit to the standoff member to thereby hold the portion of the standoff member within the conduit.

[0019] Preferably the conduit is circular in cross-section.

[0020] Preferably the standoff member is coaxial with the conduit.

[0021] Preferably the conduit is coaxial with the generally cylindrical body of the nozzle.

[0022] Preferably the marking instrument includes a cap dimensioned for placement over the nozzle to thereby prevent the flowable hygiene solution from drying.

[0023] In a preferred embodiment of the invention the cap locates over the outlet of the hand deformable barrel.

[0024] It is preferred that the cap includes an internal sealing member that locates about or adjacent an end of the standoff member upon the cap being fastened to the hand deformable barrel for preventing drying of the flowable hygiene solution.

[0025] In a preferred embodiment of the invention the marking instrument includes a number of legs for supporting an underside of the cap.

[0026] The legs may be part of a crown that is attachable to the cap.

[0027] The crown may include a transverse member from which the legs depend.

[0028] Preferably the crown includes attachment protrusions extending from the transverse member opposite the legs.

[0029] Preferably the cap is formed with one or more recesses complementary to the attachment protrusions.

[0030] In an embodiment the one or more recesses and the attachment protrusions are shaped for engaging each other.

[0031] It is preferred that the flowable hygiene solution comprises a gel with hydrophilic and adhesive properties.

BRIEF DESCRIPTION OF THE DRAWINGS

[0032] Preferred features, embodiments and variations of the invention may be discerned from the following Detailed Description which provides sufficient information for those skilled in the art to perform the invention. The Detailed Description is not to be regarded as limiting the scope of the preceding Summary of the Invention in any way. The Detailed Description will make reference to a number of drawings as follows:

- Figure 1 is a side view of a marking instrument according to a preferred embodiment of the present invention.
- Figure 2 is an exploded view of the marking instrument.
- Figure 3 is an exploded cross sectional view of the marking instrument.
- Figure 4 is a cross sectional view of the marking instrument.
- Figure 5 is a view of the top and side of a nozzle of the marking instrument.
- Figure 6 is a top view of the nozzle of Figure 5.
- Figure 7 is a cross section of the nozzle along the line A-A of Figure 6.
- Figure 8 is a cross section of the nozzle along the line B-B of Figure 6.
- Figure 9 is a cross section view of the instrument in use.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0033] Figure 1 is side view of a marking instrument 1 according to a preferred embodiment of the present invention shown standing upon a surface 2. The marking instrument 1 is for holding in one hand in use, in similar manner to holding a writing pen. Figure 2 is a corresponding exploded view of the marking instrument 1. The mark-

ing instrument 1 includes a hand deformable or "squeezy" barrel 3 which is made of a thin and pliable synthetic substance such as a polyethylene (PE) or polypropylene (PP) that is safe for human contact. Whilst the material composition of the pen can be standard oil based plastics such as PE and PP it may alternatively be made of recycled plastics and bioplastic materials. The barrel 3 contains a viscous, though flowable, hygiene solution 10 (shown in Figure 9). The solution is preferably of a type that is able to adhere to the surface of a toilet bowl and which will preferably persist in the face of at least one flush of the bowl.

[0034] The main factors for selection of the solution are that it be flowable, viscous and preferably has adhesive properties so that it is able to persist on the inner wall of the toilet bowl for at least one flush as discussed. The solution preferably incorporates a pigment so that it is coloured to increase its visibility once dispensed.

[0035] At an upper end the barrel 3 could be formed with loop for conveniently hanging the marking instrument 1 on a hook between uses. As may be seen in Figure 2, the marking instrument 1 further includes a nozzle 5. Barrels of other shapes to the barrel 3 that is shown in the Figures may also be used. For example other barrel shapes may be cylindrical, tear-drop, ball ended, oval or dumb-bell shapes. The shape that is used should preferably be comfortable to hold in a user's hand.

[0036] As shown in the exploded cross sectional view of Figure 3, the nozzle 5 covers an outlet 7 of the barrel 3 and has a conduit 9 formed therethrough that terminates in a nozzle outlet 11 for directing a flowable hygiene solution 10 from the barrel 3 on to a surface to be marked. The nozzle 5 includes a standoff member 13 that extends a distance "d" beyond the nozzle outlet 11. The nozzle outlet 11 is circular for dispensing the solution onto the surface with cross-strokes and down-strokes of approximately constant width.

[0037] It will be observed that the nozzle 5 is formed with a generally cylindrical body 15 which has convex sides and accordingly, in the present embodiment, is of a bulbous appearance. At least a portion 17 of the body 15 of the nozzle 5 is received into the barrel outlet 7.

[0038] The nozzle 5 is formed with a flange 19 that abuts an outer edge 21 of the barrel outlet 7 so that the nozzle 5 cannot be inadvertently pushed entirely into the barrel 3 during use.

[0039] An outer end of the generally cylindrical body 15 is continuous with a frusto-conical tip 23 that is coaxial with the cylindrical body 15. An outer diameter of a base 22 of the frusto-conical tip 23 extends radially beyond the cylindrical body 15 to thereby form the flange 19.

[0040] The generally cylindrical body 15 of the nozzle 5 is formed with a convex side wall 27. Preferably the barrel 3 includes a converging inner wall portion 29 that converges toward the outer edge 21 of the barrel outlet 7. In the presently described embodiment the converging inner wall portion 29 presents a frusto-conical lumen 31 that narrows towards the barrel outlet 7 and which is de-

fined by outer edge 21. The portion 17 of the convex side wall 27 toward the flange 19 is retained by the frusto-conical lumen 31 so that the nozzle 5 is retained by the barrel 3 and cannot inadvertently detach from barrel 3 during use.

[0041] A proximal portion 35 of the standoff member 13 is located within the conduit 9 of the nozzle 5. A number of spokes 37 extend radially inward from a side wall 22 of the conduit 9 to the standoff member 13 to thereby hold the proximal portion 35 of the standoff member 13 within the conduit 9 so that the standoff distance "d", being the distance by which distal end 36 of the standoff member 13 extends from opening 11, is reliably maintained during use.

[0042] As may be seen in Figure 7 for example, the spokes 37 are shaped with tapered leading (upper) 41 and trailing (lower) 43 edges to promote streamline flow of the solution 10 through the conduit and about the spokes 37 and standoff member 13.

[0043] Referring again to Figure 3, marking instrument 1 also includes a cap 45 that is dimensioned for placement over the nozzle 5 to thereby prevent the solution 10 from drying. In the presently described embodiment the cap 45 is formed with an internal female thread 47 that mates with a male thread 49 formed around the outside of converging wall portion 29 of barrel 3. Accordingly, the cap 45 may be screwed on to the barrel 3 when the marking instrument 1 is not in use and then unscrewed and removed from the barrel 3 when the instrument 1 is about to be used. Clip-on connections or other types of suitable fastening may also be used for attaching the cap 45 to the barrel 3. Alternatively, in other embodiments the cap 45 may attach to the nozzle 5 rather than to the barrel 3.

[0044] The cap 45 has an internal sealing member that comprises a circular wall 51 that extends axially inwardly from an inner surface of closed end 53 of the cap 45 and which locates about or adjacent distal end 36 of the standoff member 13.

[0045] The marking instrument 1 includes a leg assembly in the form of a crown 55 which has a transverse circular member 57 from which a number of legs 59 depend around the perimeter of the circular member 57. Attachment protrusions 61 extend upwardly around the perimeter of the circular member 57 and are received into complementary cap recesses 63 formed into the outside of the cap 5.

[0046] The one or more cap recesses 63 and the attachment protrusions 61 are shaped to non-detachably engage each other, for example by means of a snap-lock fit.

[0047] In alternative embodiments the legs 59 may be integrally formed with the cap.

[0048] With reference to Figure 9, a person uses the marking instrument 1 by grasping the barrel 3 with one hand and unscrewing the cap 45 from the barrel 3 with the other hand so as to remove cap 45 from barrel 5 to thereby expose nozzle 5. In doing so the sealing member

51 is removed from its position about the distal end 36 of standoff member 13 of the nozzle 5. The person then brings the nozzle adjacent the surface 20 to be marked, for example a toilet bowl, on which a portion 10a of the solution 10 from barrel 3 is to be deposited. Doing so brings the distal end 36 of the offset member 13 against the surface so that a space w is maintained between the outlet 11 of the nozzle 5 and the surface. Squeezing the barrel 3, as indicated by arrows 70 forces a portion of solution stored within the barrel 3 to pass through the conduit 9 of nozzle 5 and about the offset member 35 and past the spokes 37 to exit from nozzle outlet 11 as the instrument 1 is moved by the user in the direction indicated by arrow 72.

[0049] As the solution is dispensed through the outlet 9 the user moves the marking instrument 1 over the surface 2, including making cross-strokes and down-strokes so that the dispensed solution, which is preferably heavily pigmented, forms markings on the surface e.g. writing and drawings. Due to the distance "d" between the distal end 36 of the offset member 13 and the surface 2 the nozzle outlet 11 is maintained at the space w from the surface 2, taking into account the fact that the marking instrument 1 will not always be held normal to the surface but may be slightly angled thereto, the space between the outlet 11 and the surface 2 is fairly constant even as the angle between the marking instrument 1 and the surface 2 varies due the motion of the person's hand during use of the instrument. Consequently, provided the person maintains a fairly uniform squeezing force 70 on the barrel 3 the flow of the solution 10 out of the nozzle 11 will be even and the markings that are formed by dispensed portion 10a are largely uniform and not subject to clumping. The Inventors have found that the offset member 13 largely overcomes the problem of inconsistent line uniformity when making the markings on the surface because it sets a distance "d" between the nozzle outlet and the writing surface so that the nozzle outlet never inadvertently hits the surface and results in clumping of dispensed hygiene solution.

[0050] It will therefore be realised that a marking instrument according to an embodiment of the present invention may be conveniently used to make markings on the surface of a toilet bowl in the manner of writing or drawing. The hygiene solution that is deposited assists in cleansing the toilet bowl as flush water flows over it during flushing so that it partially dissolves across the surface and into the bowl. Gels which have a viscosity to allow dispensing through a nozzle and which have hydrophilic adhesion properties are suitable flowable hygiene solutions. For example gels based upon those described in US. Patent No. 6,667,286 have hydrophilic adhesion properties may be made with viscosities for imparting markings to the toilet bowl surface are suitable for use with embodiments of the marking instrument.

[0051] In compliance with the statute, the invention has been described in language more or less specific to structural or methodical features. The term "comprises" and

its variations, such as "comprising" and "comprised of" is used throughout in an inclusive sense and not to the exclusion of any additional features. It is to be understood that the invention is not limited to specific features shown or described since the means herein described herein comprises preferred forms of putting the invention into effect. The invention is, therefore, claimed in any of its forms or modifications within the proper scope of the appended claims appropriately interpreted by those skilled in the art.

[0052] Throughout the specification and claims (if present), unless the context requires otherwise, the term "substantially" or "about" will be understood to not be limited to the value for the range qualified by the terms.

[0053] Any embodiment of the invention is meant to be illustrative only and is not meant to be limiting to the invention. Therefore, it should be appreciated that various other changes and modifications can be made to any embodiment described without departing from the spirit and scope of the invention.

Claims

1. A marking instrument for toilet hygiene comprising:

a hand deformable barrel (3) containing a flowable hygiene solution (10); and
a nozzle (5) having a conduit (9) therethrough terminating in a nozzle outlet (11) for directing the flowable hygiene solution (10) on to a surface (20), the conduit (9) being in communication with an outlet (7) of the hand deformable barrel (3); and
a standoff member (13) extending a distance (d) beyond the nozzle outlet (11);
wherein in use the standoff member (13) is brought against the surface (20) for the flowable hygiene solution (10) to be dispensed upon, whereby upon squeezing the hand deformable barrel (3) the flowable hygiene solution (10) flows through the conduit (9) and out of the nozzle outlet (11) to be deposited on the surface (20) for marking, the standoff member (13) maintaining a space between the nozzle outlet (11) and the surface (20) for assisting uniform deposition of the flowable hygiene solution (10) upon the surface (20).

2. The marking instrument for toilet hygiene of claim 1, wherein the nozzle outlet (11) is circular for dispensing the flowable hygiene solution (10) onto the surface (20) with cross-strokes and down-strokes of constant width.

3. The marking instrument for toilet hygiene of claim 1 or claim 2, wherein the nozzle (5) includes a flange (19) for abutment with an outer edge (21) of the outlet

(7) of the hand deformable barrel (3).

4. The marking instrument for toilet hygiene of claim 3, wherein the nozzle (5) is formed with a generally cylindrical body (15) having a convex side wall (27) wherein at least a portion (17) of the generally cylindrical body (15) is received into the outlet (7) of the hand deformable barrel (3).

5. The marking instrument for toilet hygiene of claim 4, wherein the generally cylindrical body (15) is continuous with a frusto-conical tip (23) that is coaxial with the generally cylindrical body (15), wherein a base of the frusto-conical tip (23) extends beyond the generally cylindrical body (15) to thereby form the flange (19).

6. The marking instrument for toilet hygiene of claim 5, wherein the hand deformable barrel (3) includes a converging inner wall portion (29) that converges toward the outlet (7) of the hand deformable barrel (3) to thereby present a frusto-conical lumen (31) that narrows towards the outlet (7) of the hand deformable barrel (3).

7. The marking instrument for toilet hygiene of claim 6, wherein a portion (17) of the convex side wall (27) is retained by the frusto-conical lumen (31).

8. The marking instrument for toilet hygiene of any one of the preceding claims, including a cap (45) dimensioned for placement over the nozzle (5) to thereby prevent the flowable hygiene solution (10) from drying.

9. The marking instrument for toilet hygiene of claim 8, wherein the cap (45) locates over the outlet (7) of the hand deformable barrel (3).

10. The marking instrument for toilet hygiene of claim 8 or claim 9, wherein the cap (45) includes an internal sealing member (51) that locates about or adjacent an end (36) of the standoff member (13) upon the cap (45) being fastened to the hand deformable barrel (3) for preventing drying of the flowable hygiene solution (10).

11. The marking instrument for toilet hygiene of claim 10, including a number of legs (59) for supporting an underside of the cap (45).

12. The marking instrument for toilet hygiene of claim 11, wherein the legs (59) comprise part of a crown (55) that is attachable to the cap (45), wherein crown (55) includes a transverse member (57) from which the legs (59) depend.

13. The marking instrument for toilet hygiene of claim

12, wherein the crown includes attachment protrusions (61) extending from the transverse member (51) opposite the legs (59).

14. The marking instrument for toilet hygiene of claim 13, wherein the cap (45) is formed with one or more recesses (63) complementary to the attachment protrusions (61) the one or more recesses (63) and the attachment protrusions (61) being shaped for engaging each other. 5 10
15. The marking instrument for toilet hygiene of claim wherein the flowable hygiene solution (10) comprises a solution with hydrophilic and adhesive properties. 15

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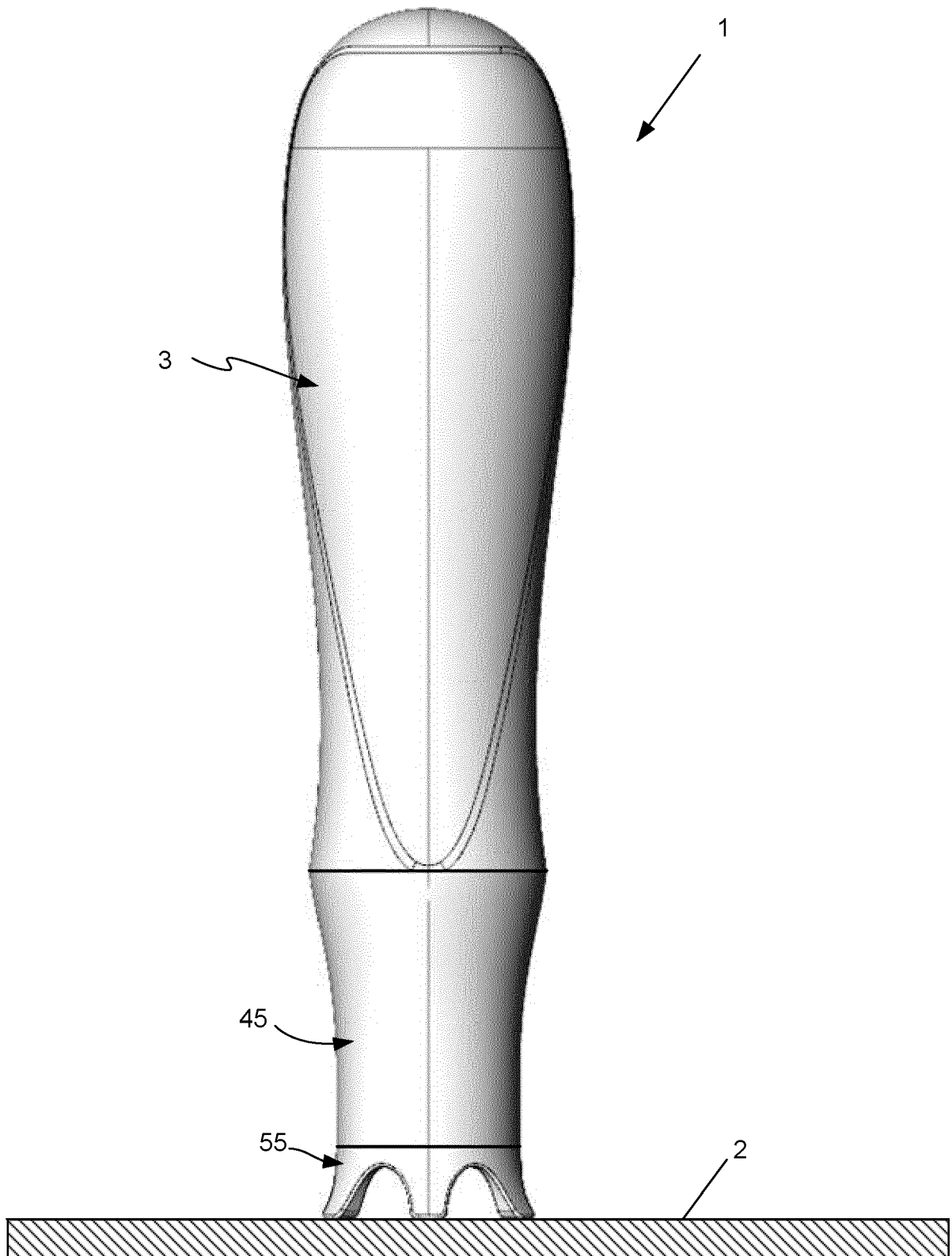


FIG. 1

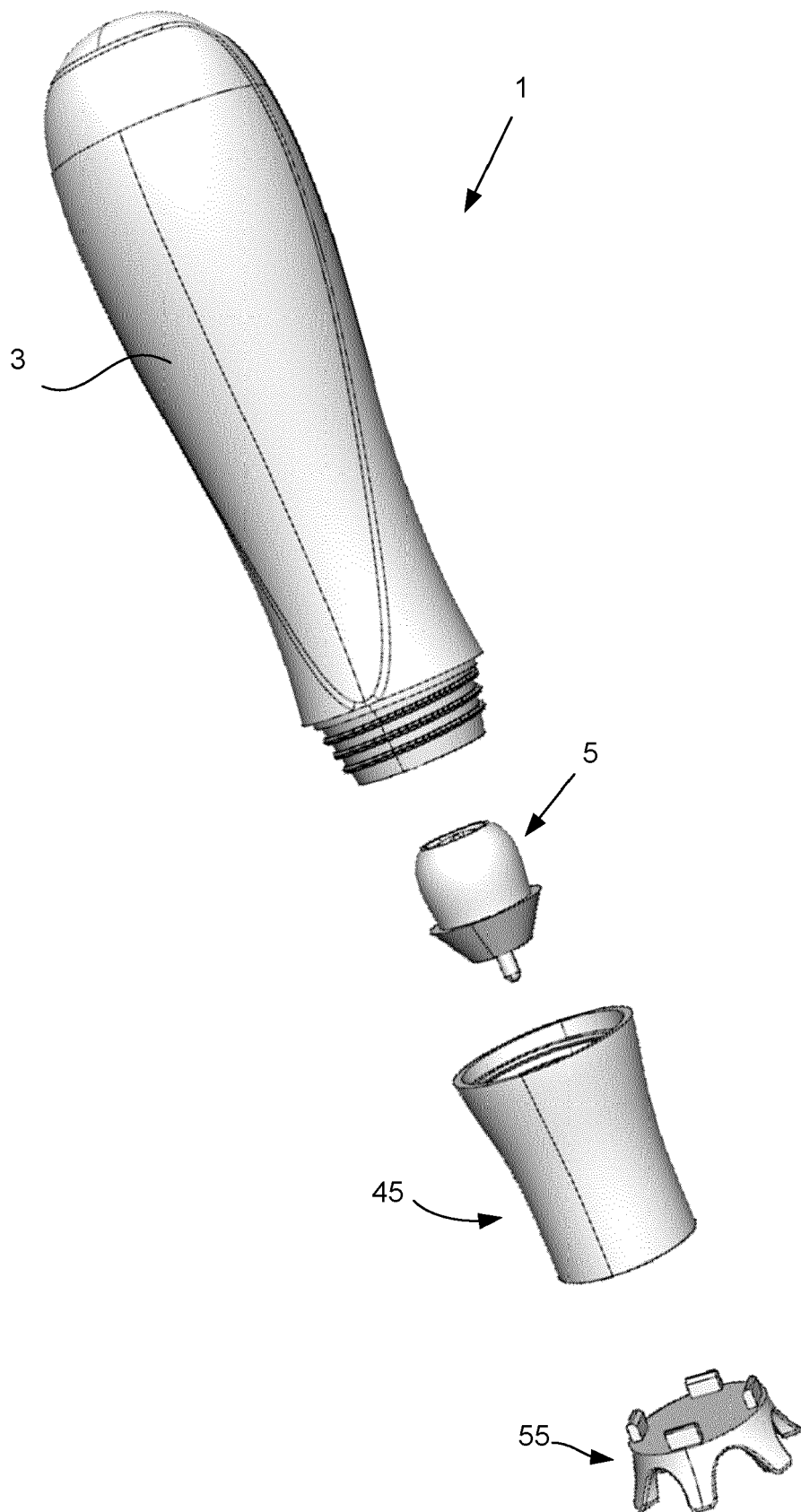
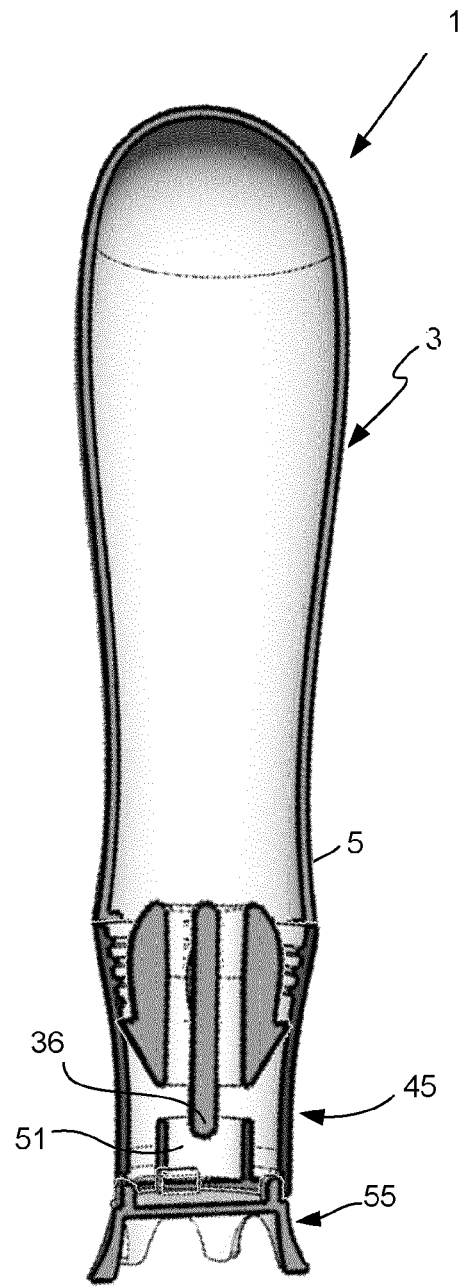
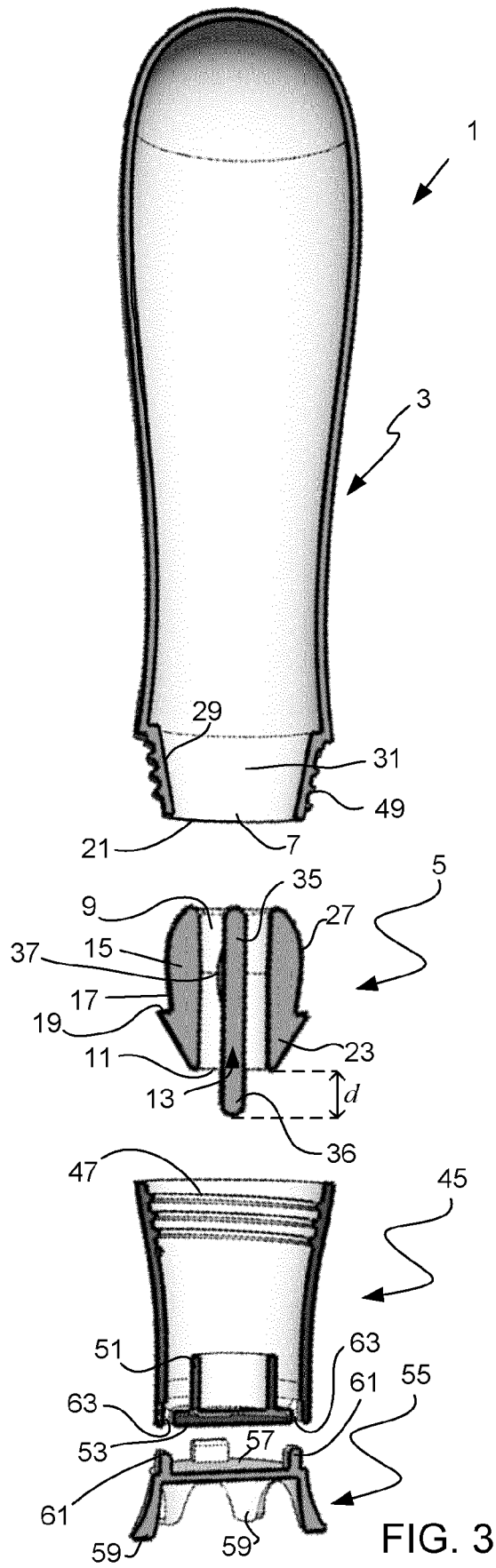


FIG. 2



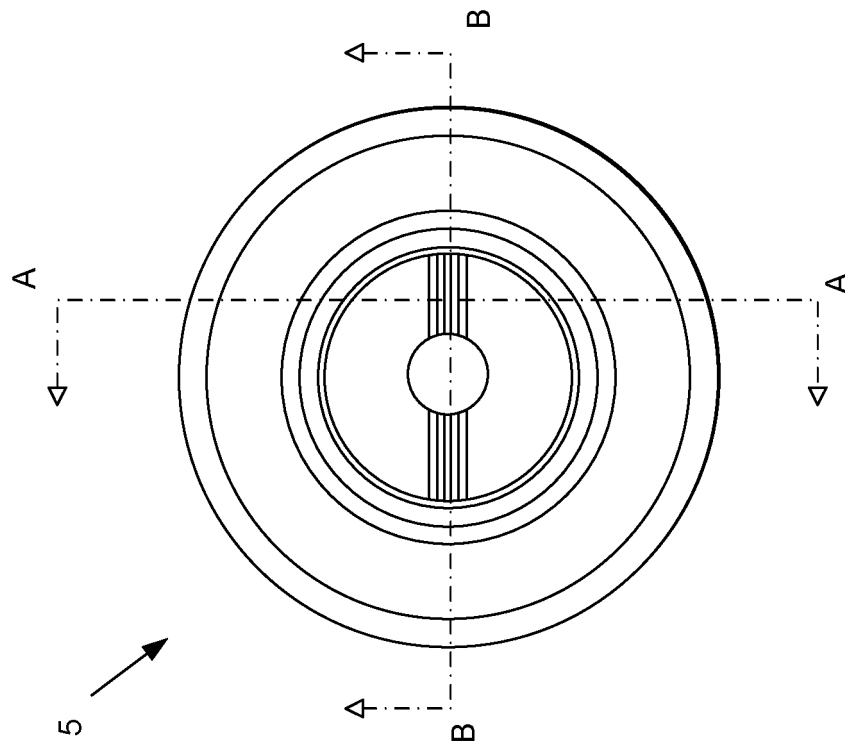


FIG. 6

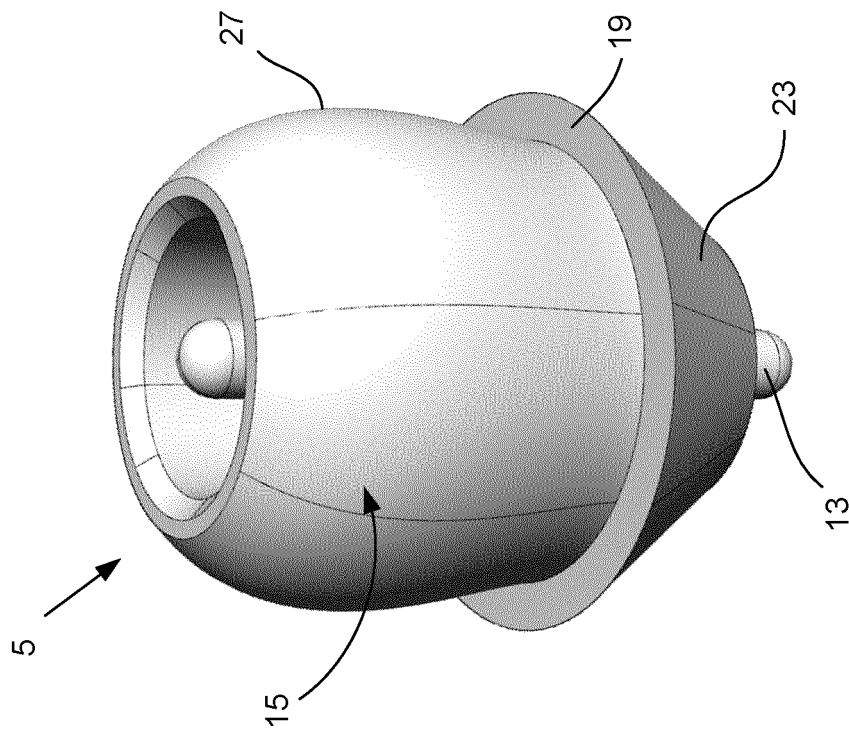


FIG. 5

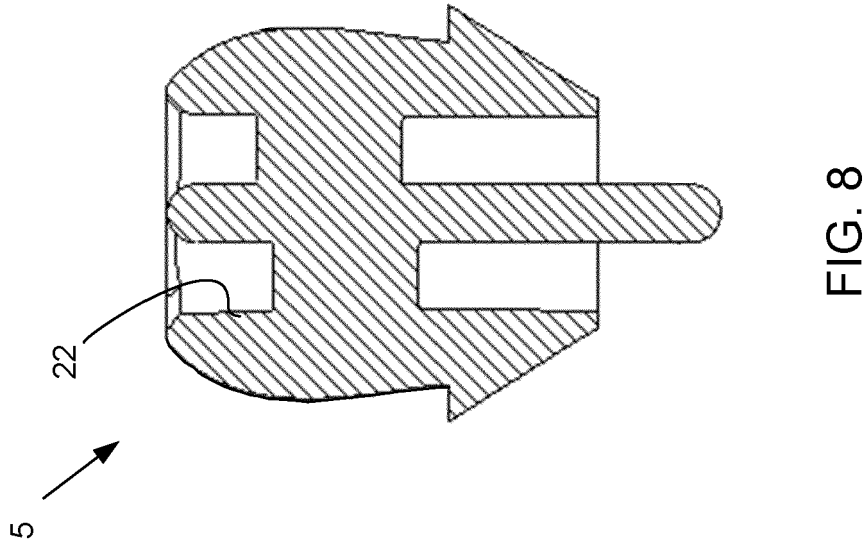


FIG. 8

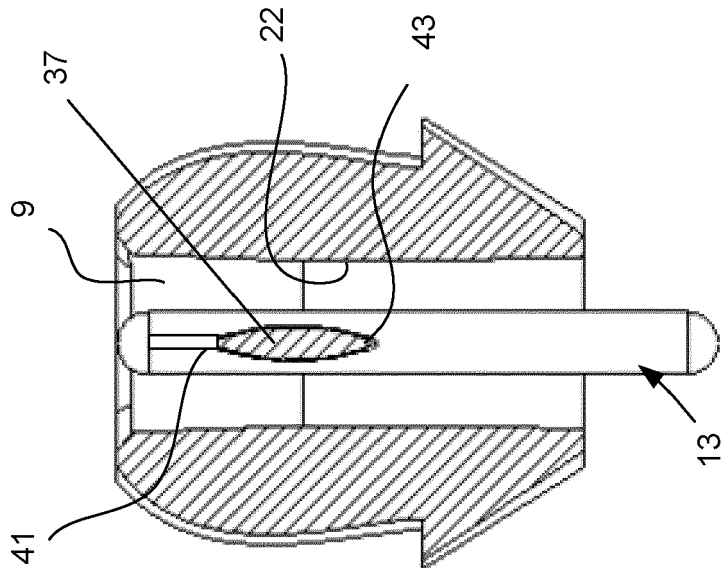


FIG. 7

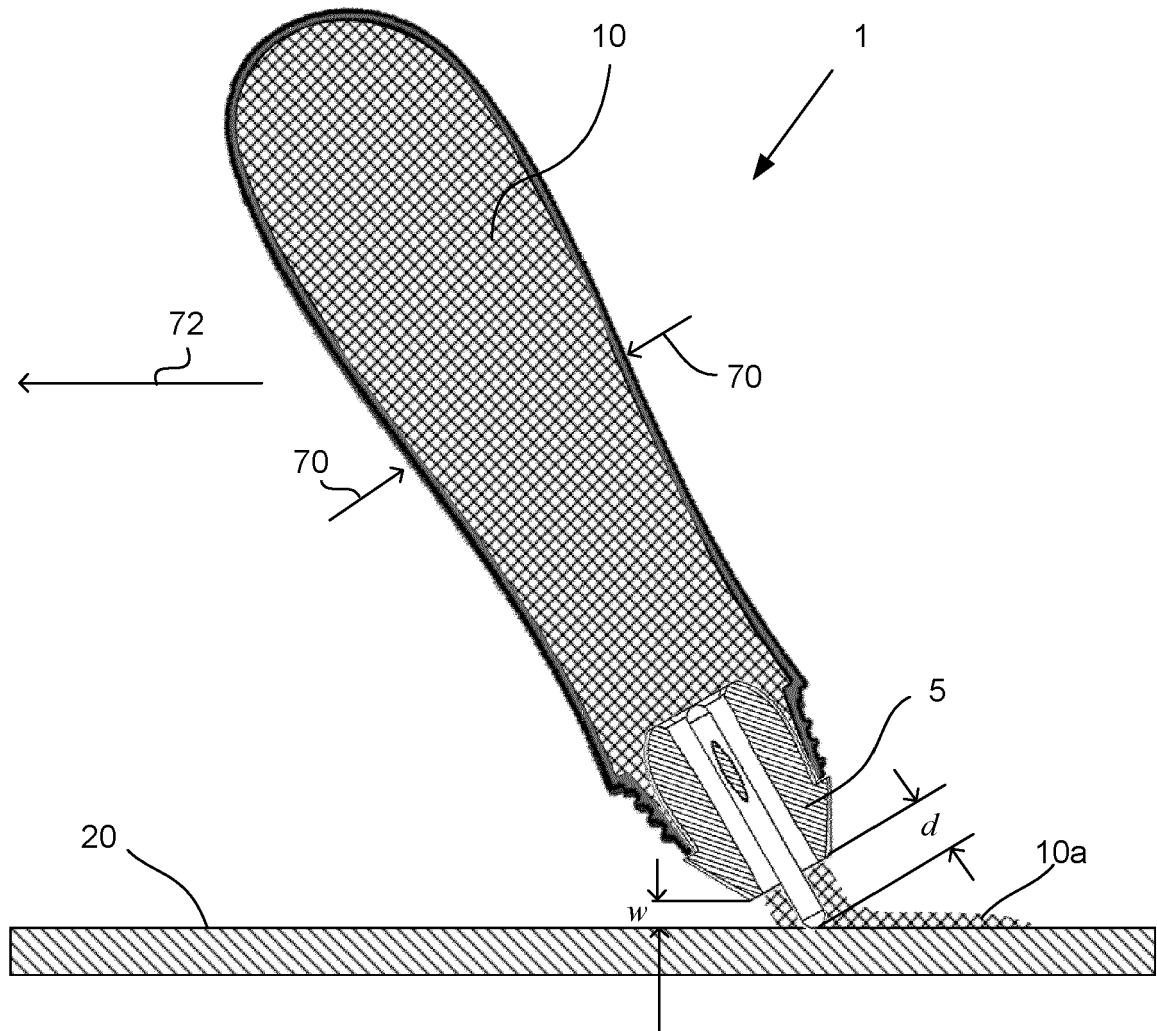


FIG. 9



EUROPEAN SEARCH REPORT

 Application Number
 EP 20 19 2022

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 2015 193984 A (KOBAYASHI PHARMA) 5 November 2015 (2015-11-05)	1-3,6-15	INV. B65D47/42
Y	* paragraphs [0001], [0028]; figures 1-4 *	4,5	
Y	----- US 3 379 490 A (GILBERT SCHWARTZMAN) 23 April 1968 (1968-04-23) * figures 1-4 *	4,5	
A	----- JP 2016 124594 A (KOBAYASHI PHARMACEUTICAL CO LTD) 11 July 2016 (2016-07-11) * figures 1-7 *	1-15	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 16 February 2021	Examiner Jervelund, Niels
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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