



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
26.10.2022 Bulletin 2022/43

(51) International Patent Classification (IPC):
B05B 11/00 (2006.01)

(21) Application number: **22167214.0**

(52) Cooperative Patent Classification (CPC):
B05B 11/3047; B05B 11/3059; B05B 11/00412; B05B 11/3025

(22) Date of filing: **07.04.2022**

(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:
KH MA MD TN

(72) Inventors:
• **SOLER, Nicolas**
Calceranica al Lago (TN) (IT)
• **SCHMID, Loris**
Calceranica al Lago (TN) (IT)
• **DONATI, Claudio**
Calceranica al Lago (TN) (IT)

(30) Priority: **14.04.2021 IT 202100009404**

(74) Representative: **Vanosi, Adelio Valeriano**
ADV IP S.r.l.
Corso di Porta Vittoria, 29
20122 Milano (IT)

(71) Applicant: **Coster Tecnologie Speciali S.p.A.**
38050 Calceranica al Lago (Trento) (IT)

(54) **PERFUME DISPENSING DEVICE**

(57) A perfume dispensing device (1), comprising a bottle (2) equipped with a neck (2A) to which a pump (3) is fixed, and a nebuliser button (4) which comprises a base (5) to which an actuation button (6) is coupled, the button (6) and the base (5) being mutually configured so that the push button (6) can rotate, in a limited way with respect to the base (5), between at least a first angular dispensing position - in which the said button (6) can slide with respect to the base (5) in an axial direction to operate the pump (3) through the transition from a first rest posi-

tion and a second actuation position - and a second angular closing position in which the said base (5) prevents the axial sliding of said push button (6), the button (6) determining a delivery channel (7) endowed with a spray nozzle (8) at a first end thereof and coupled - in a sealed manner at a second end (9) thereof - to a hollow stem (10) of the pump (3), the base (5) being fixed and torsionally coupled to the pump (3).

Class: B65D

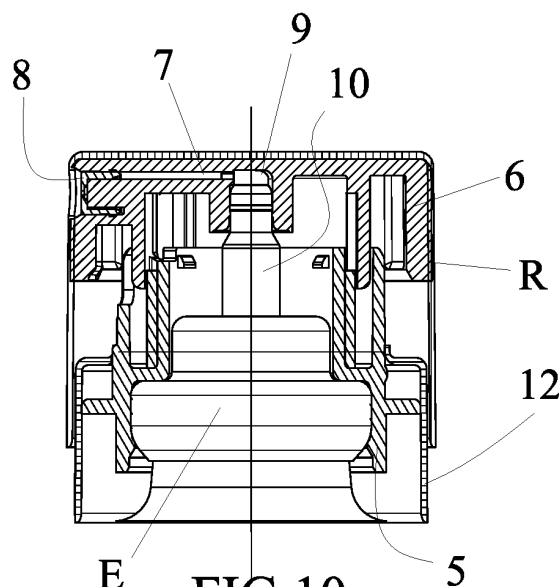


FIG. 10

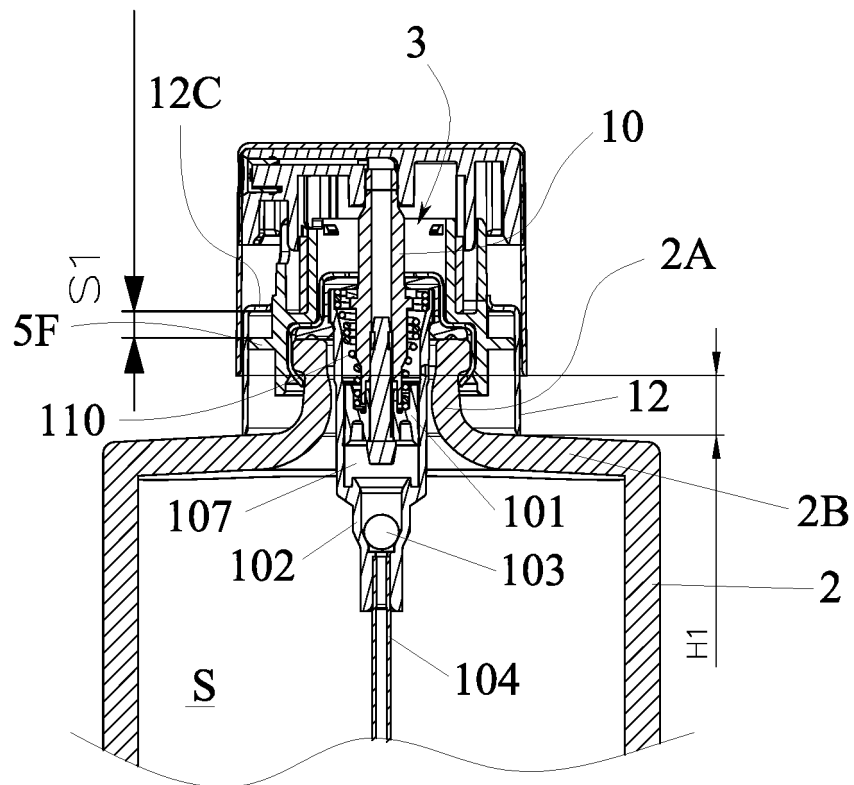


FIG.17

Description

FIELD OF THE INVENTION

[0001] The present invention relates to a perfume dispensing device. 5

[0002] In particular, it refers to a nebuliser device for the said perfume which operates by means of a manually operated pump.

BACKGROUND ART

[0003] Perfumes in liquid form are marketed in bottles onto which a dispensing means (usually a manually operated pump) is mounted, the said device being activated by a dispensing button. The dispensing button has a nozzle that nebulises the perfume when pressurised by the manual pump.

[0004] If the dispensing button is touched either accidentally or involuntarily, this can lead to unwanted perfume dispensing. 10 20

SUMMARY OF THE INVENTION

[0005] The object of the present invention is to provide a perfume dispensing device which overcomes the technical drawbacks of the commonly known technique. 25

[0006] A further object of the invention is to provide a device that minimises the risks due to the dispenser being touched accidentally or involuntarily. 30

[0007] This and other objects are achieved by means of a device according to the technical teachings of the claims annexed hereto.

[0008] Advantageously, the device can be adapted to bottles with different configurations. 35

[0009] Even more advantageously, the device is configured to optimise the filling operation and operation to mount the dispensing button.

BRIEF DESCRIPTION OF THE FIGURES 40

[0010] Further features and advantages of the innovation will become clearer in the description of a preferred but not exclusive embodiment of the device, illustrated - by way of a non-limiting example - in the drawings annexed hereto, in which: 45

Figure 1 is a perspective view of a dispensing button on the device according to the present invention, in an angular mounting position;

Figure 2 is a top-down view of the button in Figure 1;

Figure 3 is an axial section view taken along line III-III in Figure 2;

Figure 4 is an axial section view taken along line IV-IV in Figure 2;

Figure 5 is a perspective view of the dispensing button in Figure 1 in an angular closed position;

Figure 6 is a top-down view of the button in Figure 5;

Figure 7 is an axial section view taken along the line VII-VII in Figure 6, where there is also a section view of a part on which the button is mounted;

Figure 8 is an axial section view taken along the line VIII-VIII in Figure 6, where there is also a section view of a part on which the button is mounted;

Figure 9 is a front view of the dispensing button in Figure 1, in an angular dispensing position, and in a resting configuration;

Figure 10 is a section view taken along the line IX-IX in Figure 13, relating to the button in Figure 9 and in which there is also a section view of a part on which the button is mounted;

Figure 11 is a front view of the dispensing button in Figure 1, in an angular dispensing position, and in a operating configuration;

Figure 12 is a section view taken along the line IX-IX in Figure 13, relating to the button in Figure 11, in which there is also a section view of a part on which the button is mounted;

Figure 13 is a top-down view of the button in Figures 9 and 11;

Figure 14 is a section view taken along line XIV-XIV in Figure 7;

Figure 15 is the view of a base of the button in Figure 1;

Figure 16 is a perspective view of a key on the button in Figure 1; and

Figures 17 to 19 show different configurations of the device according to the present invention, with bottles with different conformations.

DETAILED DESCRIPTION OF THE INVENTION

[0011] With reference to the figures stated, reference number 1 is used to denote, as a whole, a perfume dispensing device. 50

[0012] The device 1 for dispensing a perfume S, as advantageously shown in Figure 17, comprises a bottle 2 endowed with a neck 2A to which a pump 3 is fixed. 55

[0013] The bottle is preferably a glass bottle, but may also be made of plastic, metal, or another suitable material.

[0014] The pump 3 may be of the manually operated kind or of the conventional type.

[0015] The said pump may comprise a hollow stem 10 connected to a piston 101 which slides in a sealed manner inside a cup-shaped body 102 so as to define a compression chamber 107. The compression chamber may comprise a valve element 103 which intercepts, in a conventional manner, a fluid passage formed on the bottom of the cup-shaped body 102. The fluid passage may be connected to a suction tube 104 immersed in the perfume S housed in the bottle 2 in liquid or fluid form.

[0016] The piston 101 can slide along the stem 10, which may be formed of two pieces, countering the force of a spring 110.

[0017] When, following a movement of the stem 10, the perfume S inside the compression chamber 107 reaches a predetermined pressure, the piston 101 slides along the stem opening up a fluid passage (not shown) which moves the cavity in the stem 10 into communication with the compression chamber 107.

[0018] In this way, the perfume S is delivered under pressure through the cavity in the stem 10.

[0019] The pump 3 described above, as well as the operation thereof, are conventional. But other kinds of pumps may also be utilised, depending on the uses.

[0020] It must be noted that the pump may be coupled with a deformable bag that contains the perfume S, which is therefore not loose inside the bottle 2. Outside the deformable bag the pressure is ambient level.

[0021] Continuing with the description of the invention, it can be seen that the pump 3 is coupled to a nebuliser button 4 which comprises a base 5 to which a dispensing button 6 is coupled.

[0022] The button 6 defines a dispensing channel 7 equipped, at a first end thereof, with a nebulisation nozzle 8 and tightly coupled, at a second end 9 thereof, to a hollow stem 10 in the pump 3.

[0023] The button 6 and the base 5 are mutually configured so that the button 6 can rotate (preferably around its axis A) in a limited way with respect to the base 5, between at least a first angular dispensing position (Fig. 9) - in which the button 6 slides with respect to the base 5 in an axial direction to operate the pump 3 by means of a transition between a first resting position (Fig. 9) and a second operating position (Fig. 11) - and a second angular closing position (Fig. 5), in which the said base 5 prevents the said button 6 sliding axially.

[0024] The moving mechanism described above may be implemented in different ways by a person skilled in the art.

[0025] A particularly effective way may be understood from a comparative analysis of Figures 15 and 16 and from the section view in Figure 14.

[0026] Essentially, the base 5 may feature a first wall 200 and a second wall 201, both of which are cylindrical and coaxial. The first wall may feature a recess 202 which, when the button 6 is at the stroke end thereof, houses a protuberance 204 thereof within which the de-

livery channel 7 is made. The second wall 201 also features a lower section 205 which serves the same purpose.

[0027] A relief element 210 may be featured externally to the second wall 201 (but preferably two diametrically opposite ones are featured, as can be seen in Fig. 14), which cooperates, when the button and base are assembled, with a shaped guide 211 present on the button 6.

[0028] The shaped guide 211 features a profile that has seats 211A, 211B which can house the relief element 210 depending on the angular position of the button 6 with respect to the base 5. Specifically, a first seat 211A is deep enough that, when the relief 210 is aligned with the first seat 211A (i.e. in the first angular dispensing position of Fig. 9), a complete axial stroke of the button 6 is possible with respect to the base 5.

[0029] When, on the other hand, the relief 210 is aligned with the second seat 211B (i.e. in the second angular closing position (Fig. 5), the said relief 210 encounters the raised surface P which essentially prevents an axial stroke of the button 6 with respect to the base 5.

[0030] The guide 211 also limits the angular movement of the button 6, precisely between the said two positions which can, preferentially, form a 90° angle.

[0031] It is easy to see that the shaped guide 211 features cam profiles C which, by pressing on a front surface of the relief 210, allow a 'jog' movement of the relief 210 (and therefore of the button 6) with respect to the base 5, precisely between the aforesaid angular dispensing and closure positions.

[0032] Advantageously, the button 6 and the base 5 are mutually configured so that the button 6 features a further angular position (Fig. 1), that is a mounting position, with respect to the base 5, which differs from the said first and second angular positions. The base 5 and the button 6 may also feature mutual engagement means 18, 19 which prevent the axial movement of the button 6 with respect to the base 5 when the button 6 is in the said further angular position (mounting position), which may be a position envisaged for mounting the nebuliser button on the pump 3.

[0033] Advantageously, this further angular position is located at 45° with respect to the end positions (dispensing position and closing position).

[0034] This further angular position may be determined by a further seat 211C envisaged in the guide 211. When the relief 210 is in the further seat 211C, a complete axial stroke of the button 6 with respect to the base 5 is possible. At the end of the stroke (made possible by the further lowered sections 206 and 203 for the protuberance 204, see Figures 14 and 3), the means for mutually engaging the base and the button are coupled.

[0035] Essentially, hooks 19 featured on the button 6 are engaged with teeth 18 featured on the base 5. In this way the base 5 and the button 6 remain in a mounting position where the button is essentially at the stroke end and is hooked onto the base 5. This stroke end position may essentially be the same as the axial operation po-

sition.

[0036] The conformation of the mutual engagement means 18, 19 may be such that such means can be decoupled following assembly of the button on the pump 3, as will be clarified later on.

[0037] It is also possible that the tooth 18 has an inclined surface which allows the hooks to couple with the teeth, in a step consisting of the assembly of the base on the button, which is already in the said further angular position.

[0038] The further angular position between button 6 and base 5 may be advantageously used during the assembly of the nebuliser button 4 on the pump.

[0039] During this operation, the base 5 is fixed onto and torsionally coupled to the pump 3, or in any case to the neck of the bottle 2A.

[0040] Specifically, the pump 3 may be fixed onto the neck 2A by crimping (as can be seen, for example, in Figure 7). The base 5 may be snap-fitted onto the pump 3 (or to the neck 2A), preferably at the said crimping.

[0041] This can be seen in Figure 7, for example, where an undercut 300 made in the base for hooking onto the crimping is clearly visible. In this situation, the base may feature a housing 301 (Fig. 4) which essentially copies the external shape of the crimping E.

[0042] In this document, the base 5 has been defined as 'torsionally coupled' to the pump 3, advantageously by means of the crimping E.

[0043] This term means that the fixing of the base 5 to the crimping E allows rotation by hand (as described above) of the button 6 without the user causing slippage between the base 5 and the crimping (or the neck of bottle 2).

[0044] Continuing with the description of the invention, it can be seen that the base 5 may determine a first cylindrical surface 5A (Fig. 4) onto which a skirt 12 is mounted in a sliding fashion, with interference, configured to encounter a shoulder 2B of the bottle 2 and hide a coupling area between the pump 3 and the base 5.

[0045] The skirt 12 may feature an alignment element L which denotes the position of the said nozzle 8 when the button 6 is in the said first angular dispensing position.

[0046] The skirt 12 may be made of metal or a material with a metal finish.

[0047] Between the skirt 12 and the base 5 there may be a torsional locking element 350 featured so as to prevent rotation of the skirt 12 with respect to the base 5.

[0048] The skirt 12 may feature a first cylindrical portion 12A and a second cylindrical portion 12B joined together by means of a shoulder 12C (Fig. 4), the diameter of the first cylindrical portion 12A being greater than that of the second cylindrical portion 12B, and the second cylindrical portion 12B being mounted on the first cylindrical surface 5A of the base 5.

[0049] To complete the description of the present invention, note that the button 6 may comprise a cladding R, preferably made of metal or with a metal finish, which covers the said button entirely, with the exception of the

spray nozzle 8.

[0050] Advantageously, the cladding R has at least one region with a cylindrical conformation which is overlaid, in an essentially telescopic fashion, onto the said skirt 12, which is preferably almost in contact with said first cylindrical portion 12A.

[0051] The operation envisaged in the invention is apparent from the description above and is essentially as follows.

10 **[0052]** Preliminarily (step a), bottle 2 is filled with a perfume S.

[0053] Subsequently (step b), at least part of the pump 3 is inserted inside the neck 2A of the bottle and fastened to the neck 2A of the bottle, for example by crimping.

15 **[0054]** Next (step c), the nebuliser button 4 is pressed on the pump 3 until the second end 9 of the delivery channel is tightly coupled to the hollow stem 10 of the pump.

[0055] Either before or simultaneously with step c), the nebuliser button 4 is pressed until the skirt 12 meets the shoulder 2B of the container 2 and continues to be pressed, making the skirt 12 slide axially along the surface 5A of the base 5, until the base 5 couples to the pump 3.

25 **[0056]** It is evident that, thanks to the particular coupling between the base 5 and the skirt 12, the nebuliser button 4 may be adapted to fit bottles 2 that differ considerably from one another, such as those shown in Figures 17 to 19.

30 **[0057]** The interference between the surface 5A of the base 5 and the part 12B of the skirt may be calibrated so as to keep the skirt 12 in position (just enough to ensure it does not move or rotate during normal use).

[0058] As already mentioned, an element 350 may be featured for torsional coupling between the base 5 and the said skirt 12.

[0059] Comparative analysis of Figures 17-19 shows that the height of the skirt (H1, H2, H3) essentially adapts 'automatically' to bottles with necks and shoulders with different shapes and heights.

40 **[0060]** Note also the different distance S1, S2, S3 between the shoulder 12C of the skirt 12 and a flange 5F of the base 5.

[0061] Advantageously, before being pressed onto the pump 3, the nebuliser button 4 is positioned in the said further angular position (mounting position), with engaging means 18, 19 locked. At the end of the pressing step, the force of the spring acting against the stem 10 may be sufficient to release the engagement means 18, 19.

50 **[0062]** Before pressing the nebuliser button 4 on the pump 3, the alignment element L may be aligned with a part or side of the bottle where one wishes to have the nozzle 8 when the button 6 is in the said angular dispensing position.

55 **[0063]** The alignment element L may be a visible notch as illustrated here, for example prepared for detection by an automatic machine, or any other element which serves the same purpose and which may also be hidden.

For example, instead of being made in the visible part of the skirt 12, the notch L may be made in the internal part thereof, hidden from view, but in any case, in a position which can be detected before assembly.

[0064] If element L is exposed, it can be useful for the end user in order to see the open or closed position of the dispensing system, depending on where the dispensing nozzle 8 is located.

[0065] The foregoing shows how the invention described greatly facilitates the assembly operations by means of the said further angular position in which the button may already be arranged after production.

[0066] Once the base 5 has been hooked on, the force of the spring 110 acting against the stem 10 of the pump is sufficient to disengage the engagement means 18, 19. The button 6 is therefore free to move, driven by the spring 110 of the pump, and pops upwards, into the resting position. Advantageously, the button can be brought (by turning it) to the closed position (Fig. 5) so as to avoid involuntary dispensing of the perfume S during transport.

[0067] Various embodiments of the innovation have been disclosed herein, but further embodiments may also be conceived using the same innovative concept.

Claims

1. Perfume dispensing device (1), comprising a bottle (2) equipped with a neck (2A) to which a pump (3) is fixed, and a nebulizer button (4) which includes a base (5) to which an actuation push button (6) is coupled, the push button (6) and the base (5) being mutually configured so that the push button (6) can rotate in a limited way with respect to the base (5) between at least a first angular position in which the button (6) is slidable with respect to the base (5) in an axial direction for the actuation of the pump (3) between a first rest position and a second actuation position, and a second angular closing position where said base (5) prevents the axial sliding of said button (6), the button (6) defining a delivery channel (7) equipped at a first end with a nebulization nozzle (8) and sealedly coupled at a second end (9) to a hollow stem (10) of the pump (3), the base (5) being fixed and torsionally coupled to the pump (3) and/or to the container (2), the push button (6) and the base (5) being mutually configured so that the push button (6) provides a angular mounting position with respect to the base (5), different from said first and second angular position, the base (5) and the push button (6) providing mutual engagement means (18, 19) which block the axial movement of the push button (6) with respect to the base (5) when the push button (6) is in said angular mounting position.
2. Device (1) according to the preceding claim, wherein the base (5) defines a first cylindrical surface (5A) on which a skirt (12) configured to abut a shoulder

(2B) of the bottle (2) is slidably mounted with interference, the skirt (12) being configured to hide a coupling area between the pump (3) and the base (5) from view.

3. Device according to the preceding claim, wherein the skirt (12) provides an alignment element (L) which indicates the position of said nozzle (8) when the push button (6) is in said first angular dispensing position.
4. Device according to claim 2, wherein said skirt (12) is made of a metallic material or with a metallic finish.
5. Device according to claim 2 or 3, wherein the skirt (12) has a first cylindrical portion (12A) and a second cylindrical portion (12B) joined together, the diameter of the first cylindrical portion (12A) being greater than that of the second cylindrical portion (12B), the second cylindrical portion (12B) being mounted on the first cylindrical surface (5A) of the base (5).
6. Device according to claim 1, wherein said mutual engagement means (18, 19) are configured so as to decouple when the push button (6) is loaded by a stem (10) of the pump (3).
7. Device according to claim 1, wherein, when the push button (6) is in said angular mounting position and the mutual engagement means (18, 19) are coupled, the push button (6) with respect to the base (5) results in an axial position corresponding to the second actuation position.
8. Device according to one or more of the preceding claims, wherein the button (6) comprises a lining (R), preferably metallic (R) or with a metallic finish, which covers it entirely with the exception of the atomizing nozzle (8), the lining (R) presenting at least one region with a cylindrical conformation substantially telescopically superimposed to said skirt (12), preferably on said first cylindrical portion (12A).
9. Device according to one or more of the preceding claims in which the pump (3) is fixed to the neck (2A) by crimping and / or in which the base (5) is fixed to the pump (3) by snap action, preferably in correspondence with said crimping.
10. Method for mounting a device according to one or more of the preceding claims, comprising the steps of:
 - a. fill the bottle (2) with a perfume,
 - b. insert at least part of the pump (3) inside the neck (2A) of the bottle and fix the pump (3) to the neck (2A),
 - c. press the nebulizer button (4) on the pump (3)

until the second end (9) fits tightly to the hollow stem (10) of the pump.

11. Method according to the preceding claim, in which before or simultaneously with point c) the nebulizer button (4) is pressed until the skirt (12) meets the shoulder (2B) of the container (2) and continues to press, making axially slide the skirt (12) with respect to the base (5) until the base (5) is coupled to the pump (3) and/or to the container (2) .
12. Method according to claim 10 or 11 wherein, before pressing the nebulizer button (4) on the pump (3), the nebulizer button (4) is positioned in said further angular position, with engagement means (18,19) engaged, and / or in which, at the end of the pressing phase, the push button (6) is rotated into said second angular closing position.
13. Method according to the preceding claim in which, before pressing the nebulizer button (4), the alignment element (L) is aligned to a part of the bottle where it is desired to have the nozzle (8) when the button (6) is in said angular dispensing position.

5

10

15

20

25

30

35

40

45

50

55

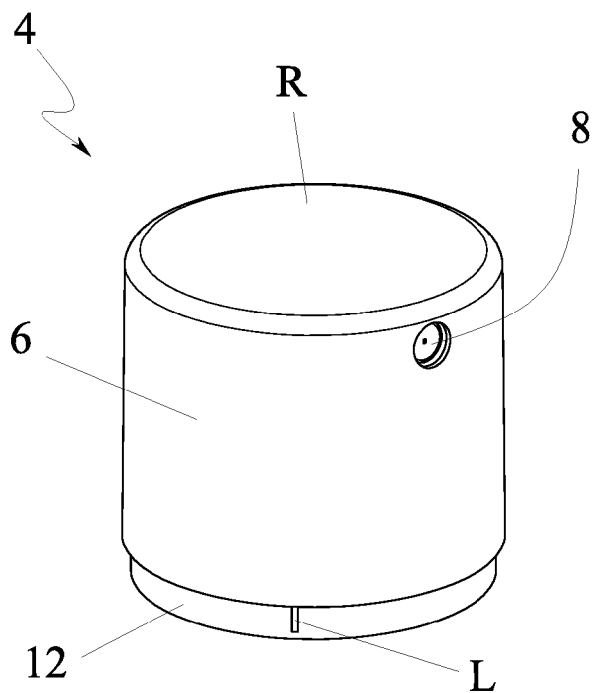


FIG.1

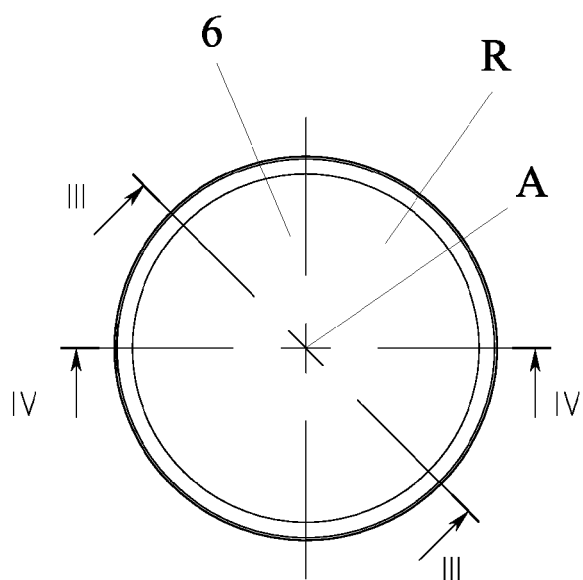


FIG.2

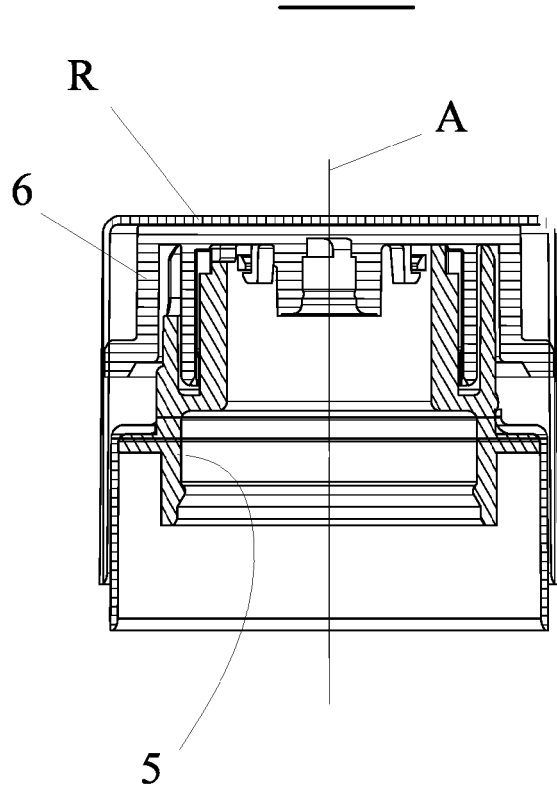


FIG.3

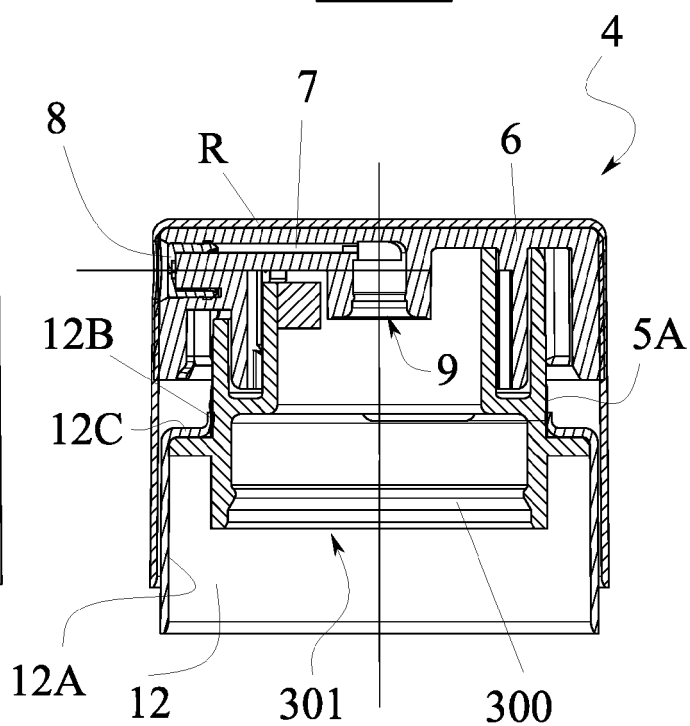


FIG.4

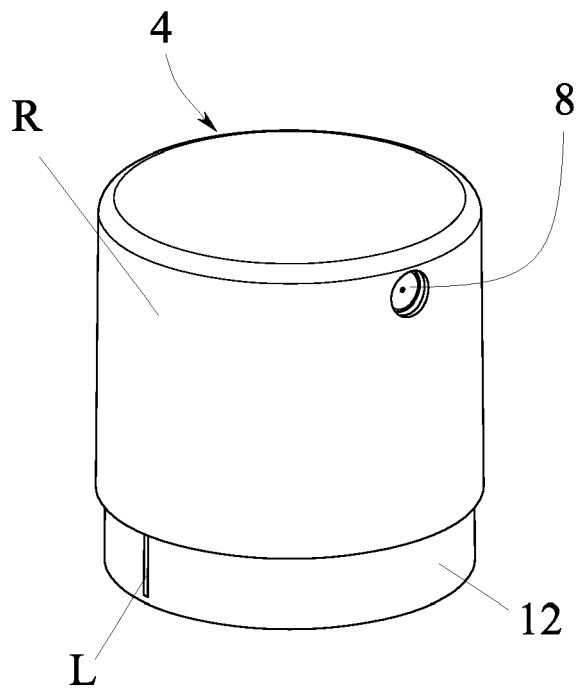


FIG. 5

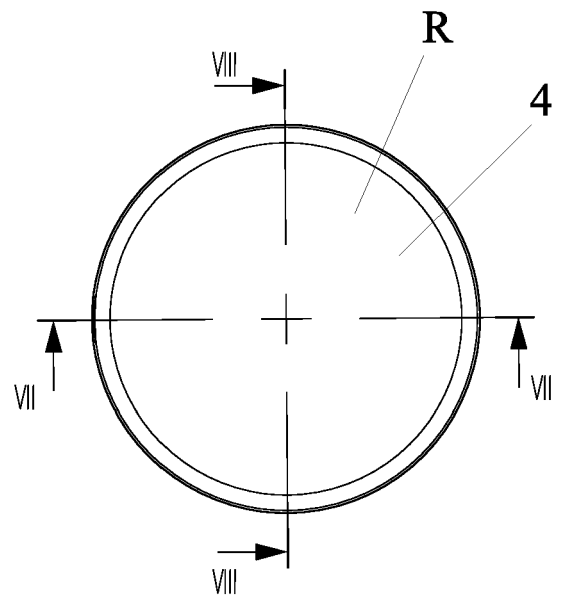


FIG. 6

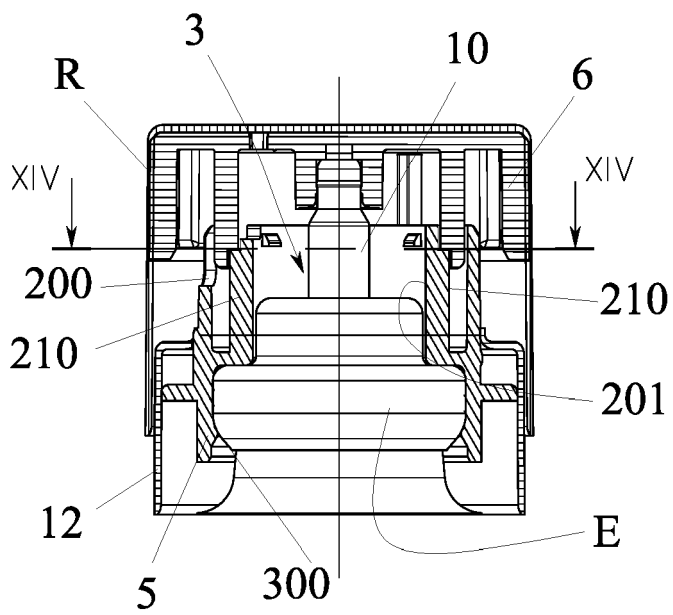


FIG. 7

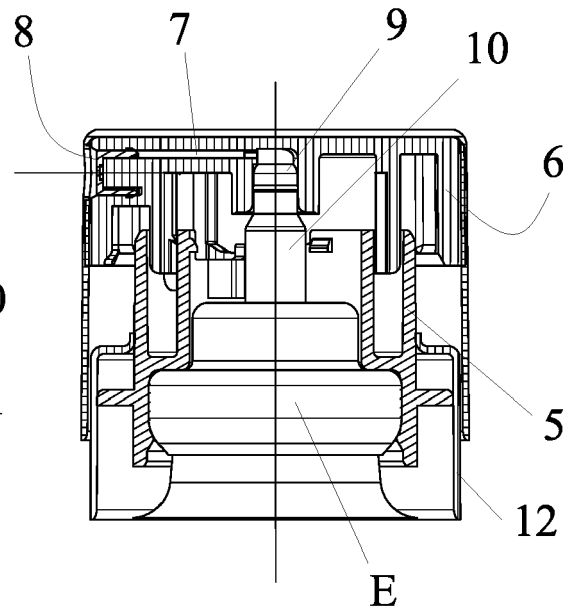


FIG. 8

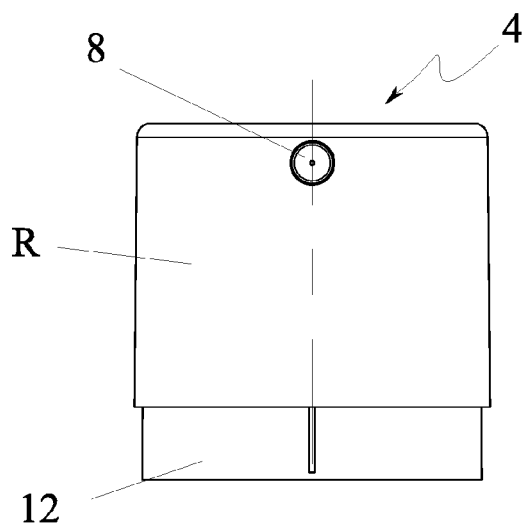


FIG. 9

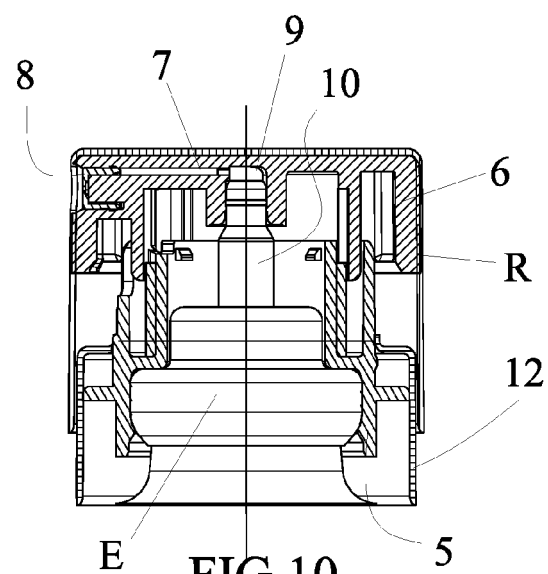


FIG. 10

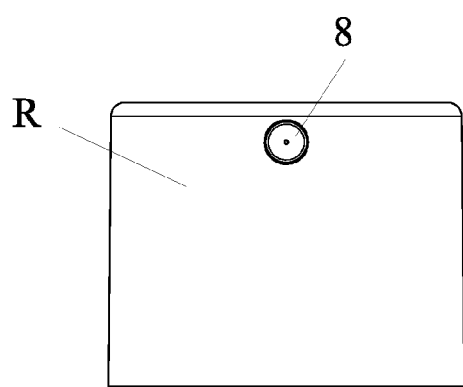


FIG. 11

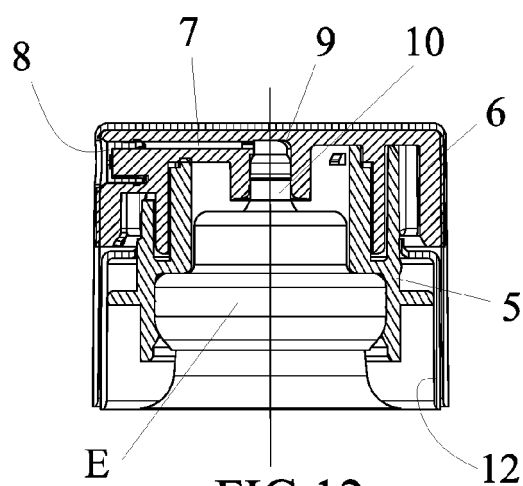


FIG. 12

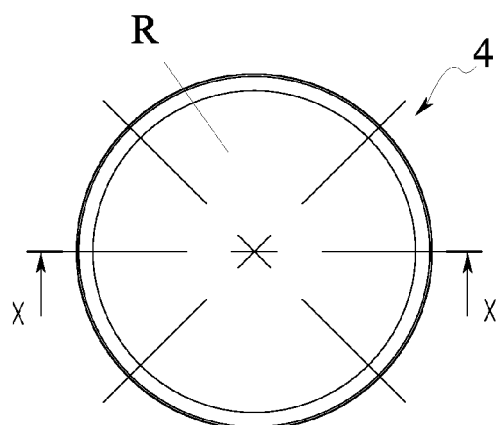


FIG. 13

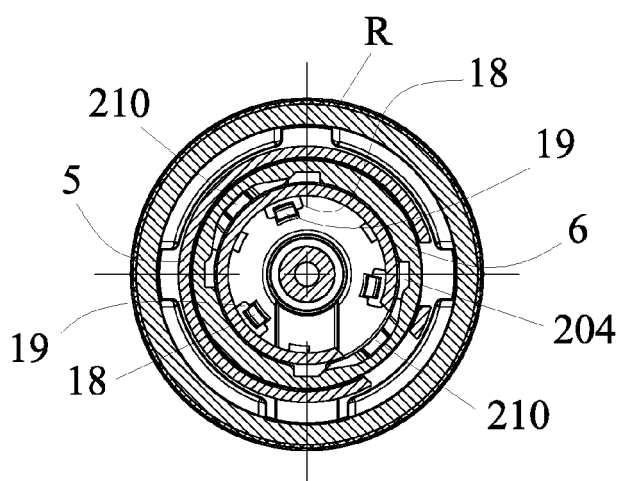


FIG. 14

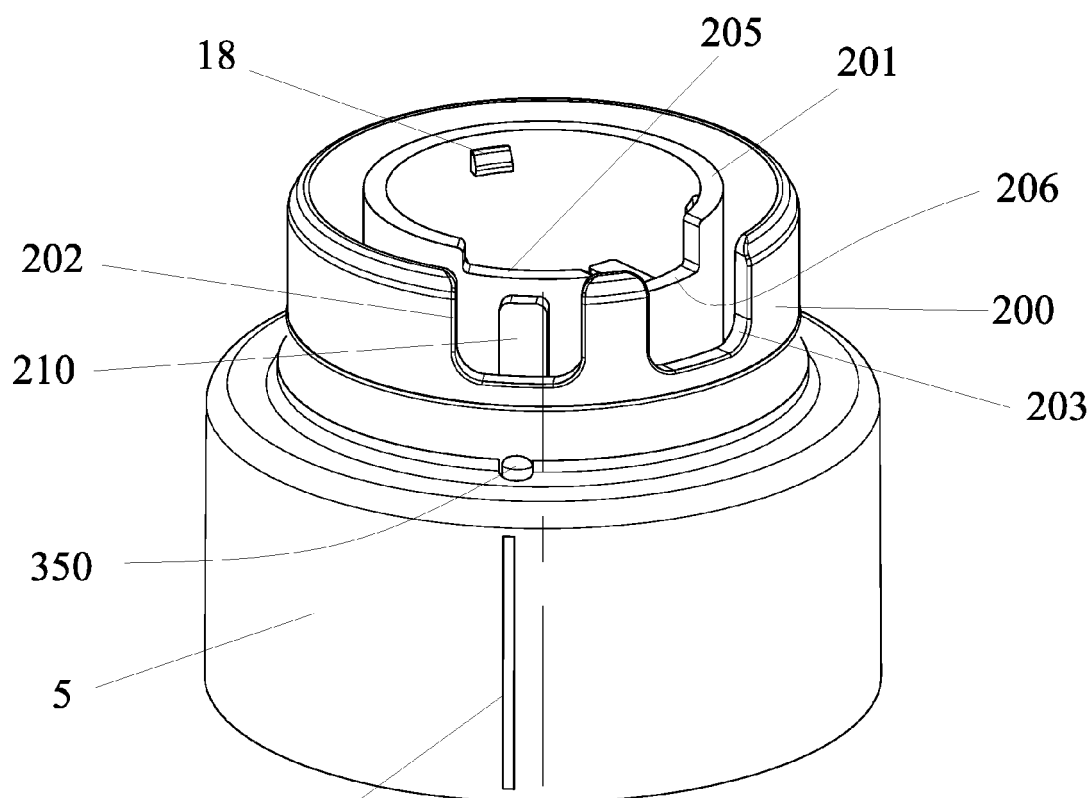


FIG.15

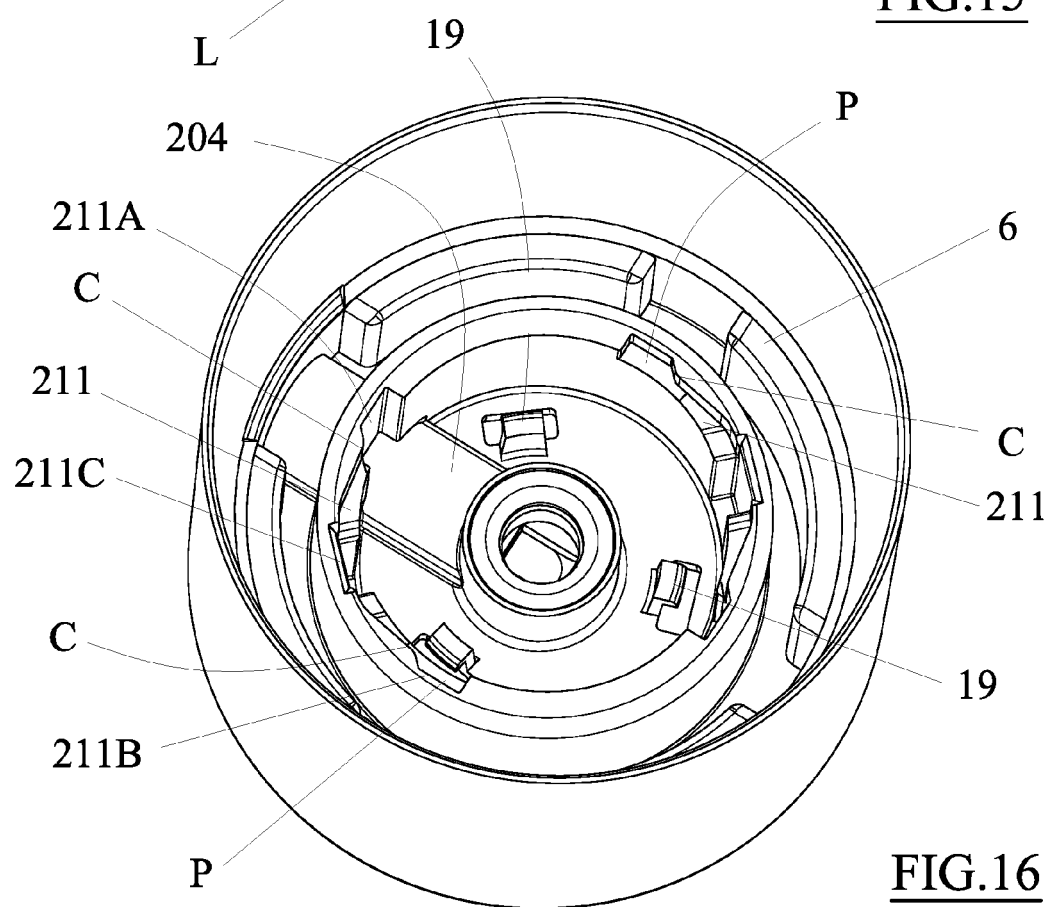


FIG.16

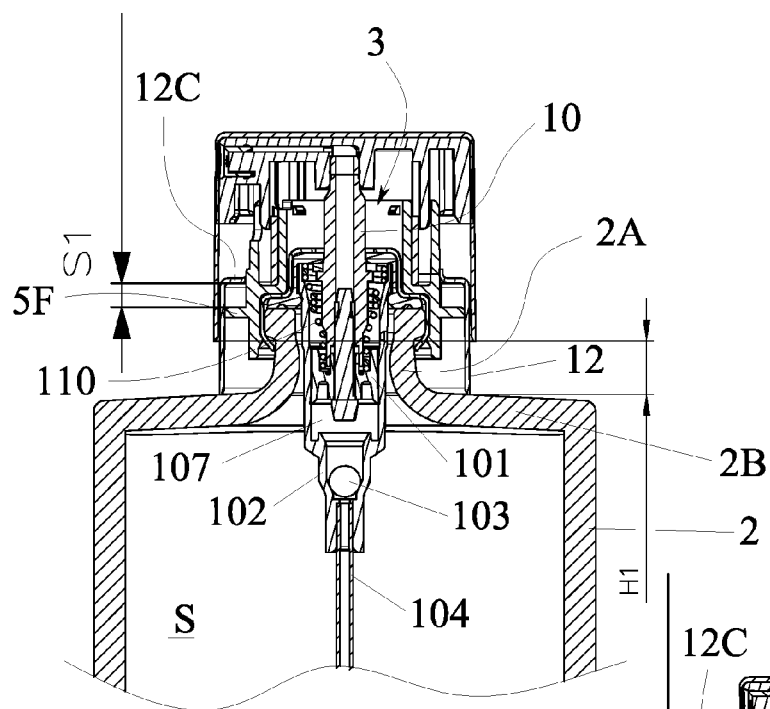


FIG. 17

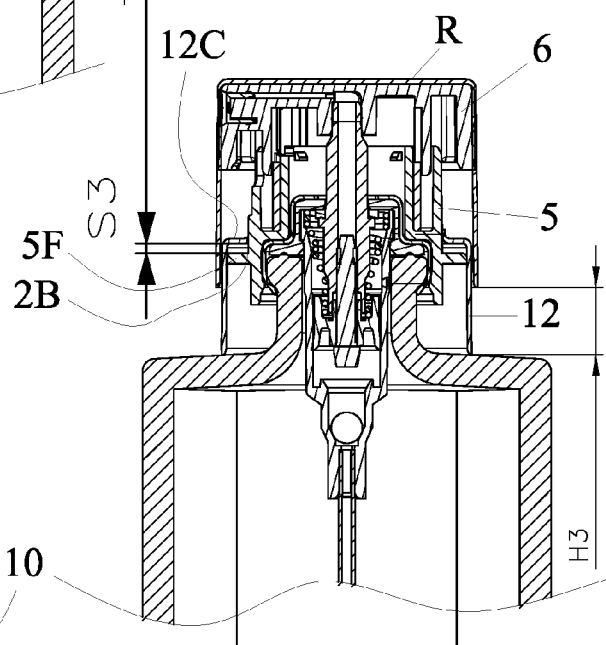


FIG. 18

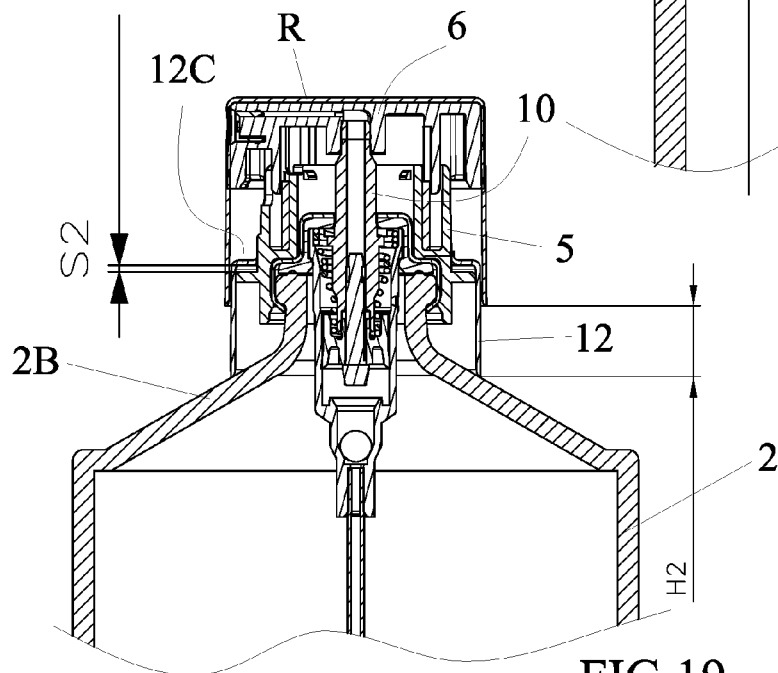


FIG. 19



EUROPEAN SEARCH REPORT

Application Number

EP 22 16 7214

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	WO 2008/012455 A1 (VALOIS SAS [FR]; BERTIN ROMAIN [FR]; POULIAUDE FLORENT [FR]) 31 January 2008 (2008-01-31) * the whole document *	1-13	INV. B05B11/00
A	WO 02/057022 A1 (VALOIS SA [FR]) 25 July 2002 (2002-07-25) * the whole document *	1-13	
			TECHNICAL FIELDS SEARCHED (IPC)
			B05B
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 6 September 2022	Examiner Gineste, Bertrand
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	

1
EPO FORM 1503 03.82 (P04C01)

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

EP 22 16 7214

5 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.

06-09-2022

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2008012455 A1	31-01-2008	BR PI0715543 A2	24-04-2013
		CN 101511706 A	19-08-2009
		EP 2049415 A1	22-04-2009
		ES 2353644 T3	03-03-2011
		FR 2904294 A1	01-02-2008
		JP 5236640 B2	17-07-2013
		JP 2009544541 A	17-12-2009
		US 2008023498 A1	31-01-2008
		WO 2008012455 A1	31-01-2008
WO 02057022 A1	25-07-2002	CN 1503702 A	09-06-2004
		DE 60211855 T2	28-12-2006
		EP 1360014 A1	12-11-2003
		ES 2265485 T3	16-02-2007
		FR 2819793 A1	26-07-2002
		WO 02057022 A1	25-07-2002