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(71) Applicant: **Altachem N.V.
9800 Deinze (BE)**

(72) Inventor: **De Schrijver, Aster
9831 Deurle (BE)**

(74) Representative: **Colens, Alain M.G.M.
Office Hanssens Colens
Square Marie Louise 40
Bte 19
1000 Bruxelles (BE)**

(54) Cap dispenser for pressurized containers

(57) The invention provides a cap for dispensing prepolymer/adhesive/sealant or food from a container under pressure through a valve. The protective, ergonomic and modular cap comprises a thermoplastic housing (1), preferably with a flexible part at the bottom so that it fits on cans of different sizes; a thermoplastic handle (2) that is

able to be snapped and to pivot in the housing; an adapter (3) with a internal longitudinal conduit, said adapter being preferably interchangeable depending on the type of valve, and can be inserted into said cap; a connection piece (4), preferably with internal thread equipped with a straw, that can be changed for different applications (prepolymer/ adhesive/sealant/food).

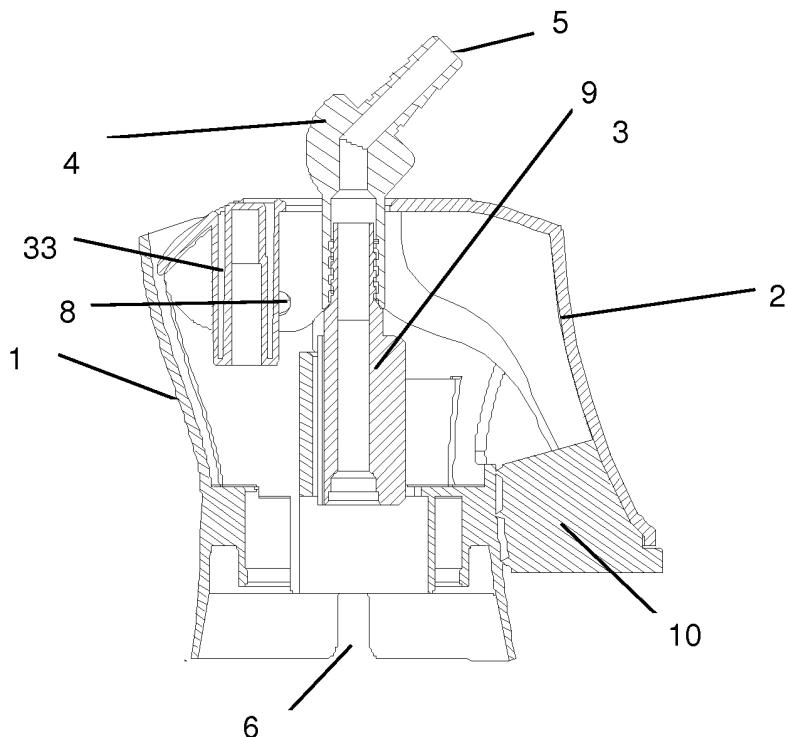


FIG. 1

Description

[0001] The present invention relates to a cap dispenser for use on pressurized fluid containers, more particularly for dosing 1K polyurethane foam applications, adhesives/sealants and for food products.

[0002] According to the invention the cap is to be fixed onto a known aerosol can or pressurized fluid container by clipping it on the metal cup of the can or equivalent member.

[0003] The invention provides a cap which is also a dispenser and furthermore can be adapted to different types of cans. It replaces the protective thermoplastic cap of the prior art but is also used for delivering and dosing the content of the aerosol container.

[0004] The cap has indeed first of all a function of protecting the valve of the can located at the upper part thereof. There is also provided a handle that is operated for activating the valve and which preferably can be blocked by a removable retaining piece of plastic. This lock can only be removed by the end consumer. The handle may be made for example in polypropylene reinforced with glass fibers.

[0005] According to an embodiment of the invention, the lock has such a design that an adaptable straw to deliver the foam at a precise location can be fixed in it. When the cap is snapped on the aerosol container, there is in the beginning no contact between the valve to be activated and the cap. The contact can only be made by pulling away the lock.

[0006] The present invention involves also an easier use for the end customer. This is due to the special ergonomic shape of the cap. This shape makes it possible for the end consumer to use the cap dispenser with one hand. The prior art adapters in the market requires a 2-hand-control.

[0007] According to one embodiment of the invention, the cap dispenser can activate 3 types of valves. This is possible by only changing one inner part in the cap. One can have a vertical displacement so one can activate the normal gun valve. There is also a possibility for activating a tilting valve so we can dose the adhesives/sealants. A third part is to activate a 2K-valve (2 components). For each kind of valve/application there can be provided different adaptors.

[0008] The invention will be further disclosed in the following description of an exemplary embodiment of the invention with reference to the enclosed drawings which are provided also only as examples and wherein

Fig. 1 is a sectional side overview of a cap according to the invention showing the assembly of its different parts,

Fig. 2 shows the bottom part adaptable to the upper part of different types of aerosol can,

Fig. 3 shows the removable blocking member fixed

under the handle or lever,

Fig. 4a is a sectional side view illustrating the snapping and functioning of the handle on the housing of the cap,

Fig. 4b-c are corresponding sectional front views

Fig. 5 shows is a sectional view the cap equipped with the connection part and a straw that can be bended back so that the end thereof is closed and fixed to the cap,

Fig. 6 illustrates the conversion a tilting movement of the handle into a vertical displacement of the adapter,

Fig. 7a-7c show various embodiments for the adapter

Fig. 8 shows more in detail the sealing of the adapter and the stem of the valve

[0009] As illustrated in fig. 1, the cap is designed out of different pieces :

1. the housing 1

2. the handle 2

3. adaptors for different valves 3 (or 9)

4. a connection piece + straw 4 and 5

35 which each has its own specific function.

[0010] In this example, the incision 6 makes the bottom diameter of the housing more flexible so the skirt 18 of the cap fits around various sizes and types of can.

[0011] In fig. 2 , which is also a sectional view, the 40 housing 1 is rigidly fixed onto the can (not shown) by snapping the cap onto the metal (clinched) cup 7 of the can. This has the advantage that the cap is applicable on different cans, at least on the most used standard cans. The connection piece 4 is removed in this figure showing the external thread of the adapter 9.

[0012] The lever or handle 2 of this cap dispenser is designed in such way that a tilting movement is converted into a vertical displacement as shown in fig. 6 (see arrows). The handle is mounted as the last part of the assembly, because it will close the housing of the cap.

[0013] This handle 2 is fixedly placed in the cap by snapping the handle body around the axis 8 , which may be in one piece with the cap, in the form of two opposite coaxial inside projections or of a longitudinal member 8, 55 where it will be pivotable as shown in fig. 4a. The coo- rating axis and lever are designed in such a way that would not snap out of the cap while applying a force on the handle.

[0014] Fig. 4a is a side sectional view showing part of the can with its cover 41, the valve 42 with its stem 11 and the metal cup 27.

[0015] As shown in Fig. 4b, which is a front view according to A-A' in Fig. 4a, when this handle is mounted it touches one upper part, preferably a shoulder, of an elongated insert or adapter 9 with a hollow conduit, which if moved down, will activate the valve to deliver the content of the can. Therefore the handle is developed with this special design so that it slides in a receiving recess in the top of the cap to snap on the axis 8 and contact insert 9 and push it down when further pressed. This downward movement of the insert will open the valves completely. Fig. 4c is a sectional front view according to B-B' showing the axis 8, made of one piece with the housing to provide extra-strength.

[0016] Before its use, this handle is blocked by the hard thermoplastic part 10 on the housing. This is foreseen for safety reasons because the cap has also the function of protecting the valve and the upper part of the can. As shown in perspective view in fig. 3, the handle 2 can only be used when this hard part 10 is removed from the cap.

[0017] The snapping function makes it possible to remove the handle 2 from the body of the cap, replace for instance the inner insert 9 and remount the handle.

[0018] The adapter-inserts 9 shown in fig. 7a-c have 2 functions : first of all it must activate the valve and very importantly it must seal the valve because when there is foam coming out of the valve, it must be avoided that foam or viscous product comes inside the cap. This could block the whole cap dispenser. Therefore the adapter 9 seals on the top of the stem 11 of the valve (not shown) as illustrated in fig. 8 . The second function of the adaptor is to guide the foam out of the insert and feed it out through the straw without any leakage. Therefore the adaptor is foreseen with tread on top so the customer can screw on the connection part with straw. This connection part is delivered with plastic straw and inner tread.

[0019] As shown in fig. 5. the connection part with the attached straw makes it possible to re-use the can. The user can bend over the straw and close its end 14 hermetically in a specifically designed annular hole 33 provided in the handle 2. If the straw happens to be stuck , the user can unscrew the connection piece 4 and replace it with a new one. The connection part can be mounted onto the cap by sliding it by force into the hard thermoplastic part of the cap, which displays its protection function.

Claims

1. A cap for dispensing prepolymer/adhesive/sealant or food from a container under pressure, said cap comprising (fig. 1) :

a. a thermoplastic housing (1) , preferably with a flexible part at the bottom so it fits on cans of

different sizes,

b. a thermoplastic handle (2) that is able to be snapped and pivot in the housing,

c. an adapter (3) with a internal longitudinal conduit, said adapter being preferably interchangeable depending on the type of valve, and can be inserted into said cap,

d. a connection piece (4), preferably with internal thread (44), that can be changed for different applications (prepolymer/adhesive/sealant/ food).

2. The cap according to claim 1 wherein there is provided a means to snap a bottom part thereof on a clinched rim (7) of the metal cup (27) of a can.

3. The cap according to claim 1 ergonomically designed, so that the cap dispensing function is operable with one hand.

4. The cap according to claim 1 comprising furthermore a removable piece (10) of hard thermoplastic material for locking the handle (2).

5. The cap according to claim 4 wherein the removable piece comprises tabs (31) that can be broken with the hand to tear off the piece 10.

6. The cap according to claim 1 wherein the handle is fixable in the housing by snapping the handle over an axis (19) that is foreseen in the cap.

7. The cap according to claim 1 comprising a straw provided to deliver the content of the can at a precise location, wherein the end (14) of the straw (5) can be hermetically closed and frictionally fixed on a hole (33) of the handle.

8. The cap according to claim 1 wherein the downward tilting motion of the handle (2) is converted into a vertical displacement which results in the activation of the valve.

9. The cap according to claim 1, wherein different plastic inserts/adapters (3, 9) are adaptable inside the cap so that the handle (2) may activate correspondingly different valves.

10. The cap according to any preceding claims wherein the inserts (3, 9) is designed to fit on the stem (11) and is provided with sealing profiles (12) to prevent any leakage inside the cap.

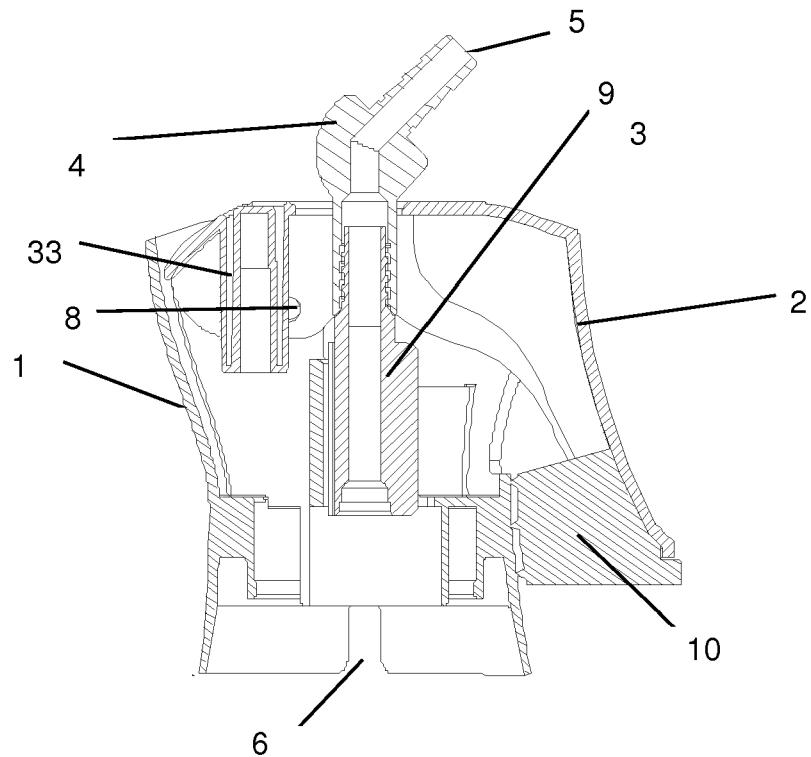


FIG. 1

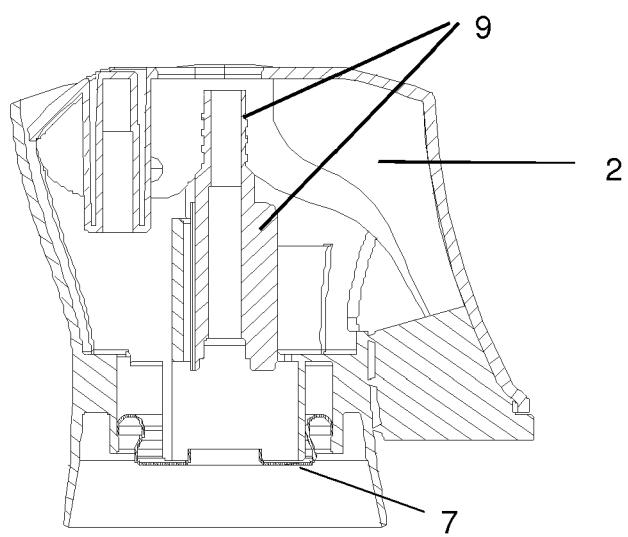


FIG. 2

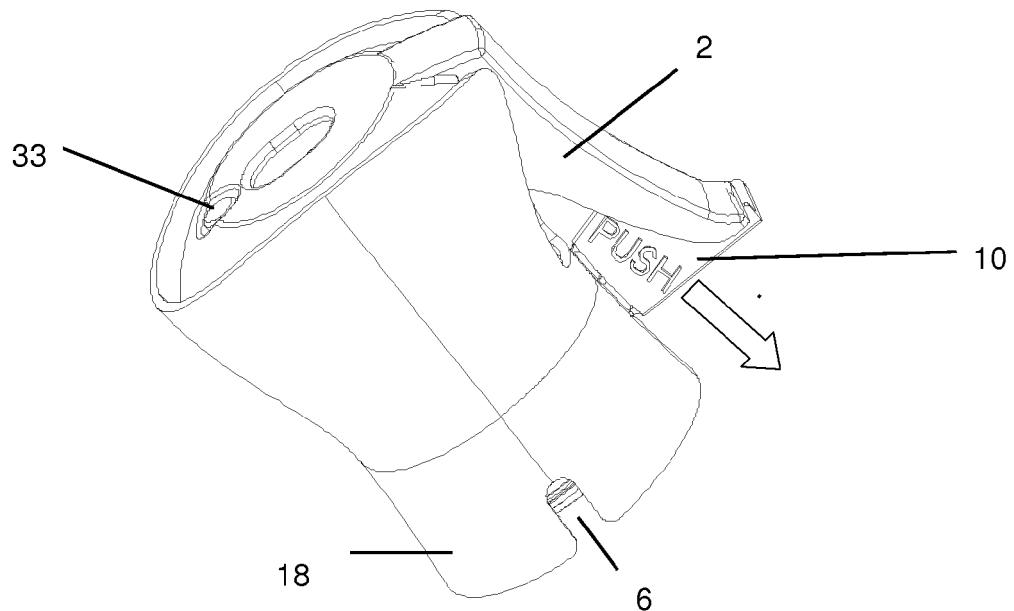


FIG. 3

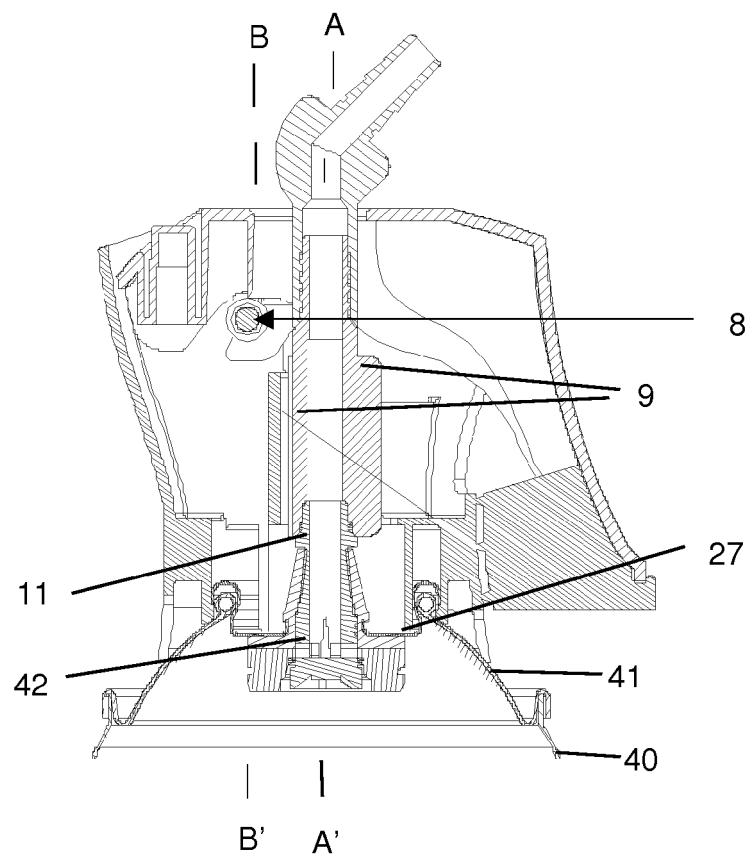


FIG. 4a

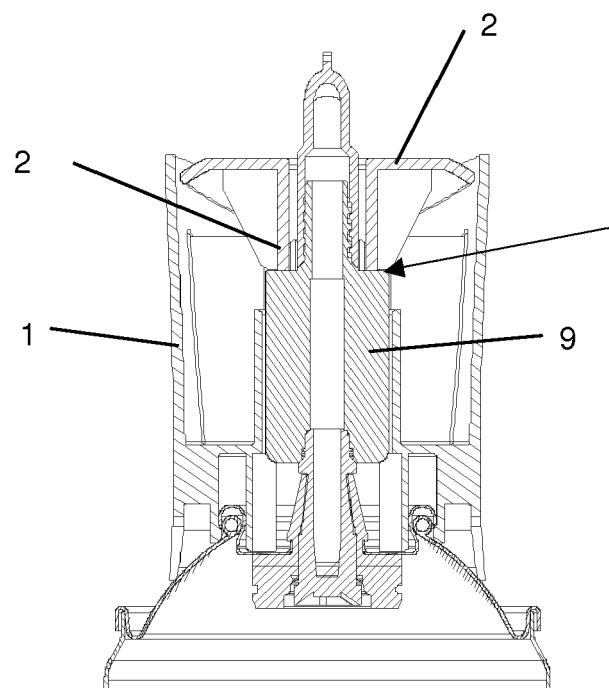


FIG. 4b

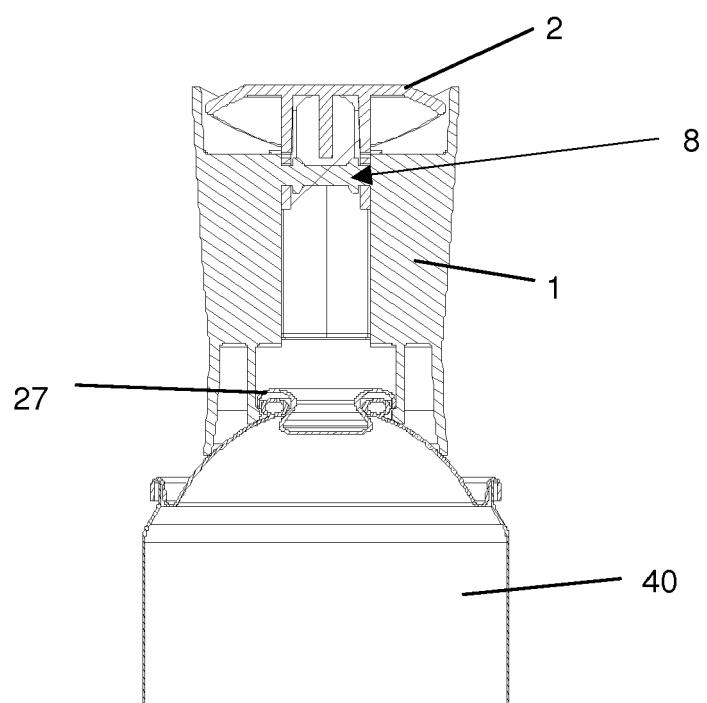


FIG. 4c

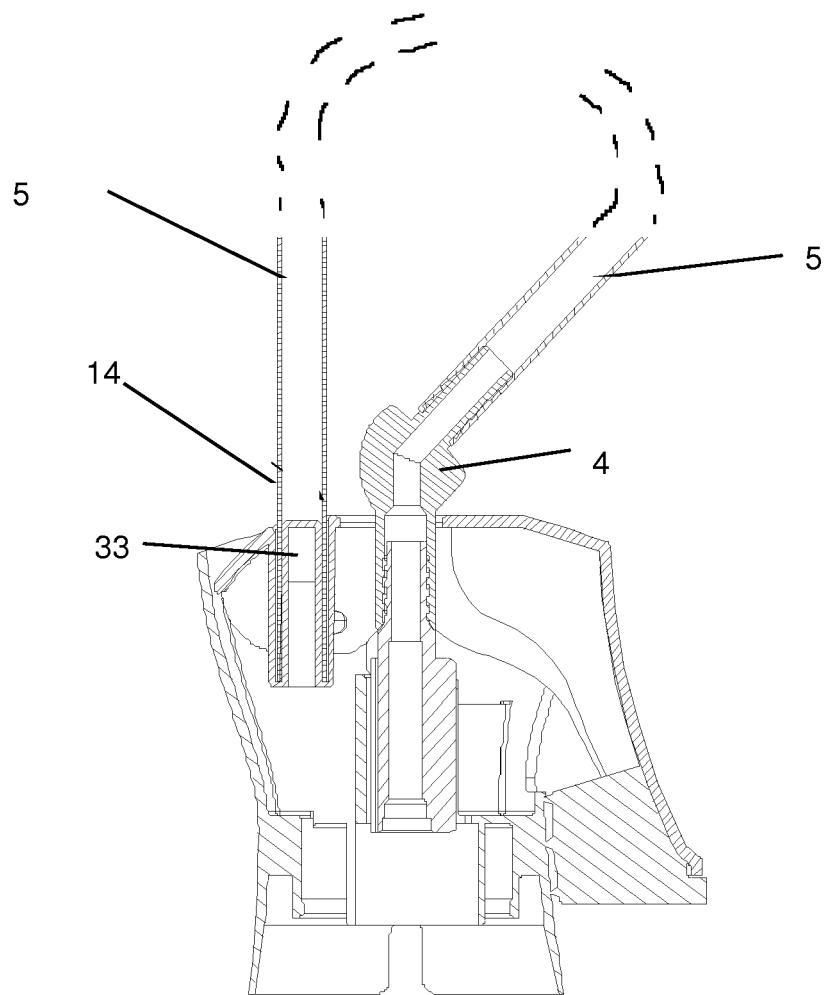


FIG. 5

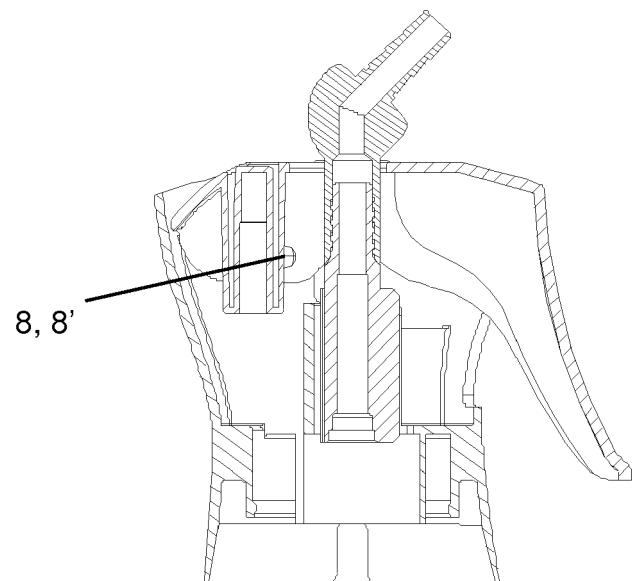


FIG. 6a

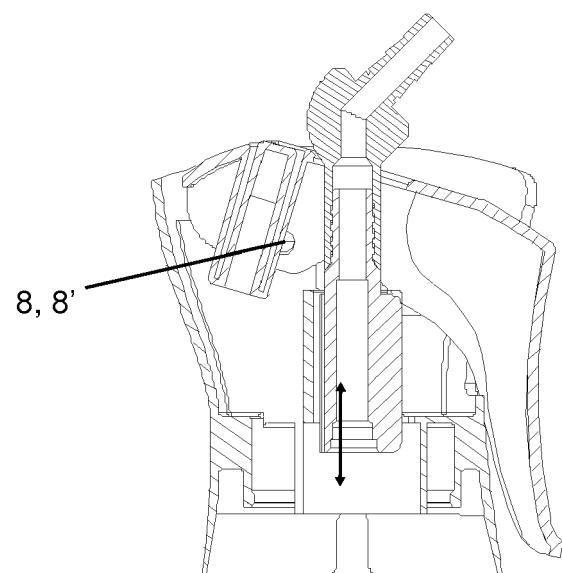


FIG. 6b

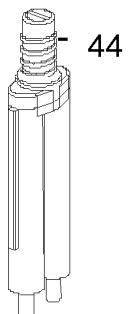
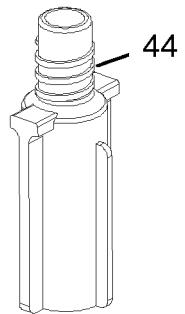
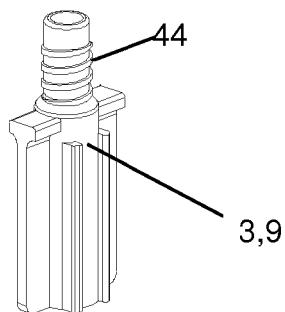


FIG. 7a

FIG. 7b

FIG. 7c

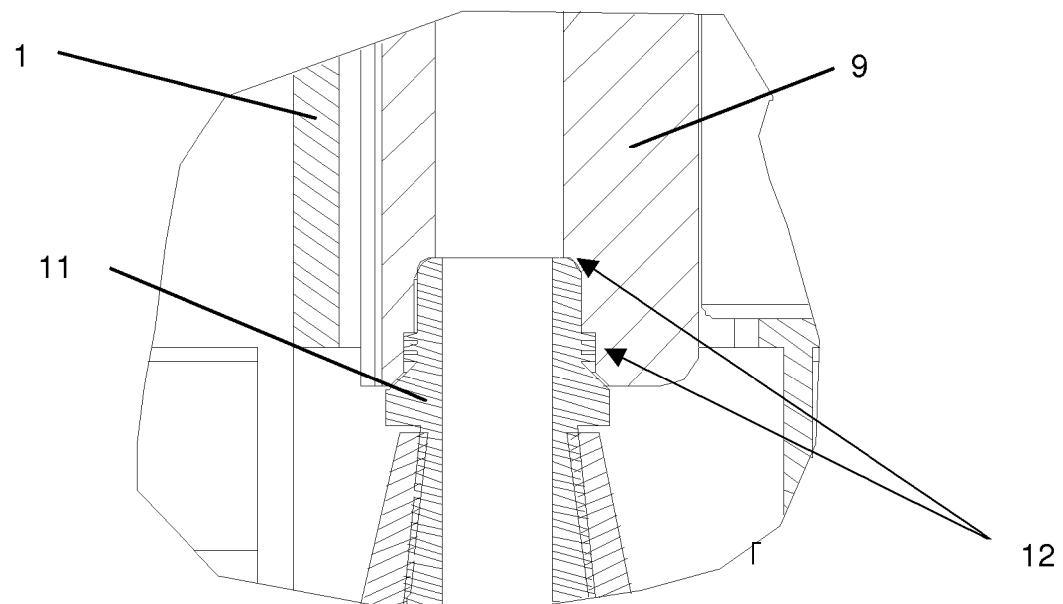


FIG. 8



EUROPEAN SEARCH REPORT

Application Number

EP 08 10 4297

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The present search report has been drawn up for all claims			
1	Place of search	Date of completion of the search	Examiner
	Munich	24 October 2008	Brito, Fernando
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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			
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