



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**29.12.2010 Bulletin 2010/52**

(51) Int Cl.:  
**B65D 1/02 (2006.01)**      **B65D 1/06 (2006.01)**  
**B65D 1/09 (2006.01)**      **A61J 1/06 (2006.01)**

(21) Application number: **09380125.6**

(22) Date of filing: **24.06.2009**

(84) Designated Contracting States:  
**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 SE SI SK TR**  
 Designated Extension States:  
**AL BA RS**

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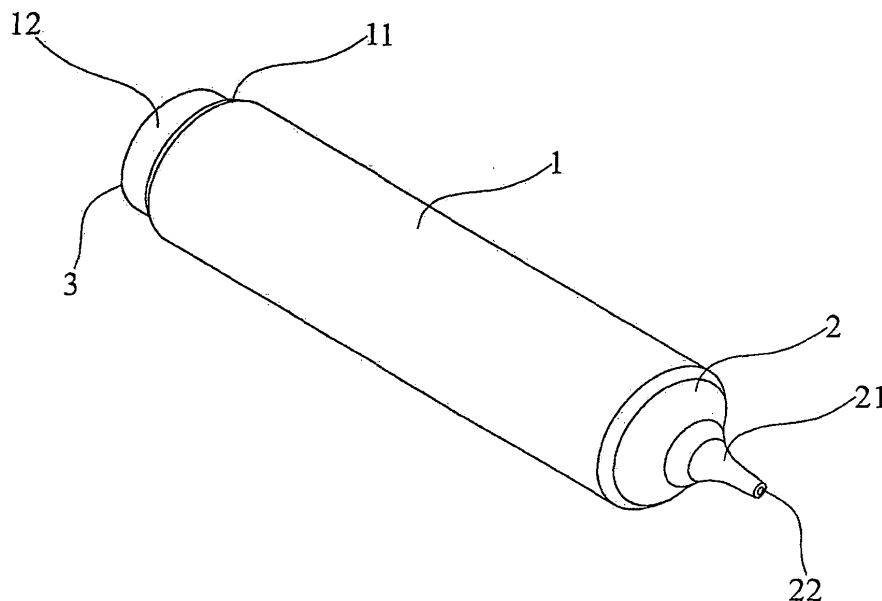
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Remarks:  
 Amended claims in accordance with Rule 137(2) EPC.

(54) **Hollow glass container**

(57) Hollow glass container, which comprises a glass cylindrical main body (1), wherein a first base (2) of the cylindrical main body has a long and narrow neck (21) sealed by melting of the glass material itself, **characterised in that** the main body (1) comprises, in a second base (3) opposed to the first base (2), a circular crown (31) made of the material of the main body for disposing a seal for an orifice on said crown defined by said circular crown. The side walls of the main body (1) comprise a

contraction (11) in the proximity of the second base (3), in such a manner that the second base (3) has a diameter smaller than that of the diameter of the main body (1), wherein said contraction (11) defines a cylindrical area (12) of smaller diameter in the main body (1). On storing a multiplicity of containers in a matrix manner adjacent to each other, the cylindrical areas (12) allow the introduction of a die cutter through the free spaces (10) defined by the contractions (11), for simultaneously cutting circular labels that will remain in said second bases (3).



**FIG. 1**

## Description

### Technical field of the invention

**[0001]** The present invention relates to a hollow glass container. More specifically, the present invention relates to a glass container of the type normally used by the pharmaceutical industry for filling and sealing, under hermetic conditions, containers containing liquid substances, of the type commonly referred to as "ampoule", which comprise a cylindrical glass main body, wherein a first base of said cylindrical main body has a long and narrow neck sealed by melting of the material itself.

### Background of the invention

**[0002]** Ampoules are glass containers that comprise a cylindrical glass main body, comprising long and narrow necks in each of the bases of said body which, once the liquid has been introduced into the ampoule, are hermetically sealed by melting of the material at its point. When the user wishes to use the content of the ampoule, he/she must cut it by breaking both glass necks to allow correct emptying of the ampoule content.

**[0003]** Given that it is necessary to break or rupture both glass necks, the possibilities of suffering accidental cuts is not inconsiderable and, on the other hand, a waste of glass unlikely to be recycled is produced, with the consequent environmental damage.

**[0004]** Another problem of said "ampoule-type" containers is that they cannot stand on their own in an upright position and are difficult to handle when removed from their box.

**[0005]** The present invention is aimed at providing an "ampoule-type" container, of essentially pharmaceutical application, having none of the aforementioned drawbacks, thereby reducing the probability of injury occurring to the user and the environmental impact thereof, and providing a container of the type indicated which can stand on its own in an upright position and does not have additional labelling problems or difficulties that could lead to an undesirable increase in the price of the final product.

### Explanation of the invention

**[0006]** For such purpose, the object of the present invention is a hollow glass container, having a new concept or functionality, which is in essence characterised in that the main body comprises, in a second base opposed to the first base, a circular crown made of the material of the main body for disposing a seal for an orifice on said crown defined by the inner edge of said circular crown. Said seal shall preferably be a heat-sealed laminated seal disposed on said circular crown.

**[0007]** This container has the advantage that the user has only to break the single neck of the container, while opening/breaking the seal of the second base, which can be done, for example, by breaking the laminated seal

with a wedge-shaped element, or in any other manner.

**[0008]** Additionally, the seal of the second base can advantageously be of the type which can be burst, using a syringe needle, which allows the container to be used for storing liquids for injection, and transferring said liquids to a syringe without having to cut the glass neck.

**[0009]** Additionally, the container of the present invention may be disposed on the second base in an upright position.

**[0010]** According to a particularly preferable embodiment, the side walls of the main body comprise a contraction in the proximity of the second base, in such a manner that the second base has a diameter smaller than that of the diameter of the main body. Preferably, said contraction in turn defines a cylindrical area in the main body having a diameter smaller than that of the rest of the main body. In a particularly preferable manner, said cylindrical area defined by the contraction has a diameter two or more millimetres smaller than that of the rest of the main body.

**[0011]** This characteristic is of particular importance, in that it allows the significant reduction in the cost of packaging the containers. In fact, the contraction allows, for example, a large number of containers to be disposed adjacently to each other, placing a single lamina over these, heat-sealing, in a single operation, said lamina to the circular crowns of the containers and, subsequently, introducing a cutting device through the free spaces left by the contractions in order to cut the lamina around the second base of the container.

**[0012]** Particularly in the case of those cases where the seal is not heat-sealed over the circular crown, the inner edge of said crown may comprise a regrowth directed towards the interior of the main body, which may collaborate in the fixation of the seal.

### Brief description of the drawings

**[0013]** A detailed description of preferred, although not exclusive, embodiments of the hollow glass container that is the object of the invention is provided below, accompanied by drawings for the better understanding thereof, wherein embodiments of the present invention are illustrated by way of non-limiting example. In said drawings:

Fig. 1 shows a perspective view of an embodiment of the container according to the present invention;

Fig. 2 shows a sectional view, along a plane of radial symmetry, of the embodiment of figure 1;

Fig. 3 shows an extended view of the contraction area of the main body of the embodiment of figures 1 and 2;

Fig. 4 shows another embodiment of the container, according to the present invention, wherein it comprises a laminated seal in the area of the orifice defined by the circular crown of the con-

- tainer according to the present invention;
- Fig. 5 shows a further embodiment of the present invention, similar to that of figure 4, but with a different seal; and
- Fig. 6 shows an elevational view illustrating a multiplicity of hollow glass containers of the invention in a matrix assembly, illustrating the operating mode wherein a die cutter may operate simultaneously in all the containers for the labelling thereof.

#### Detailed description of the drawings

[0014] In figures 1 to 3 we can observe an embodiment of the container that is the object of the present invention, of the type normally used by the pharmaceutical industry for filling and sealing, under hermetic conditions, containers containing liquid substances, of the type commonly referred to as "ampoule". Said embodiment is a glass container which comprises a cylindrical main body 1 made of said material. A long and narrow 21 neck is disposed on a first base 2 which comprises a small aperture 22 that can be sealed by melting of the material applying the usual techniques for glass ampoules, for example, subjecting the aperture 22 to the action of a flame. The second base 3 opposed to the first base 2 is composed of a circular crown 31 (see Fig. 6), the inner edge of which defines an orifice 4, designed for being covered by a seal that will be disposed on said circular crown 31.

[0015] In this case, the side walls of the main body also comprise a contraction 11 in the proximity of the second base 3, which causes the second base 3 to have a diameter smaller than that of the diameter of the main body 1-. Additionally, in this case, the contraction 11 in turn defines a cylindrical area 12 in the main body having a smaller diameter to that of the rest of the main body 1. The objective of said depressed area 11, 12 is to leave room for a punching or cutting element in an orifice 4 covering phase by means of a heat-sealed or heat-glued film. For this purpose, preferably, the diameter of the cylindrical area 12 of smaller diameter shall be, at least, 2 mm smaller than the main diameter of the main element 1-.

[0016] As can be observed in figures 2 and 3, these forms can be obtained with a uniform cylinder 1 side wall thickness.

[0017] The aperture 22 has been represented in figure 1 in its open status, in that it is sealed once the content to be stored in its interior has been introduced therein.

[0018] In figure 3 we can observe that a regrowth 41 directed towards the interior of the main body projects from the inner edge of the crown 31, which may serve as an additional support for a heat-sealed lamina or as a support for a cap-type seal, for example.

[0019] Figures 4 and 5 show two similar embodiments of the container that is the object of the present invention, wherein the containers have been conveniently sealed. Thus, the aperture 22 of the neck 21 appears sealed by

melting (and therefore, rounded), while in the opposite base we can observe a seal 5 disposed on the circular crown 31 that seals the orifice 4 of the second base 3. Additionally, in the case shown in figure 5, the seal 5 comprises a flange 51 that is easy to open.

[0020] In both of the cases shown, the seal 5 consists of a heat-sealed lamina. Said lamina may be of a composite material with an outer side, aluminised applying known techniques, or of another type.

[0021] According to the present invention, it is convenient that the seal 5 may be penetrated by a syringe needle to extract the liquid contained in its interior without having to break the neck 21-. The aluminised laminas may fulfil said condition. The seal, in this case, may also be substituted, for example, by a cap made of a suitable synthetic material.

[0022] In this manner, it is possible to store a multiplicity of similar containers in a matrix manner adjacent to each other, for example, in a staggered array (see Fig. 6) on a container or tray 7, and fix, for example, by adherence, a paper or plastic label 6 for the second bases 3 of the multiple containers. The cylindrical areas 12 of smaller diameter will then allow the introduction of a die cutter (not shown) through the free spaces 10 defined by the contractions 11, for simultaneously cutting circular labels that will remain at the bottom (or second bases 3) of the containers.

[0023] Having sufficiently described the nature of the present invention, in addition to the manner in which to implement it, we hereby state that everything which does not alter, change or modify its fundamental principle shall be subject to variations of detail.

#### 35 Claims

1. Hollow glass container, which comprises a glass cylindrical main body (1), wherein a first base (2) of the cylindrical main body has a long and narrow neck (21) sealed by melting of the glass material itself, **characterised in that** the main body (1) comprises, in a second base (3) opposed to the first base (2), a circular crown (31) made of the material of the main body for disposing a seal for an orifice on said crown defined by said circular crown.
2. Hollow glass container, according to claim 1, **characterised in that** the side walls of the main body (1) comprise a contraction (11) in the proximity of the second base (3), in such a manner that the second base (3) has a diameter smaller than that of the diameter of the main body (1), wherein said contraction (11) defines a cylindrical area (12) of smaller diameter in the main body (1), in such a manner that, on storing a multiplicity of similar containers in a matrix manner adjacent to each other, the cylindrical areas (12) allow the introduction of a die cutter through the free spaces (10) defined by the contractions (11), for

simultaneously cutting circular labels that will remain in said second bases (3) of the containers.

3. Hollow glass container according to claim 2, **characterised in that** said cylindrical area (12) defined by the contraction (11) has a diameter two or more millimetres smaller than the rest of the main body (1). 5
4. Hollow glass container according to any of the preceding claims, **characterised in that** the side walls of the cylindrical body (1) are uniform in diameter. 10
5. Hollow glass container according to any of the preceding claims, **characterised in that** the inner edge of the circular crown (31) comprises a regrowth on its inner edge (41) directed towards the interior of the main body (1). 15
6. Hollow glass container according to any of preceding claims, **characterised in that** it comprises a heat-sealed laminated seal disposed on the aforementioned circular crown (31). 20
7. Hollow glass container according to any of the preceding claims, **characterised in that** it comprises a seal for the aforementioned orifice (4) of the type which can be burst by means of a syringe needle. 25

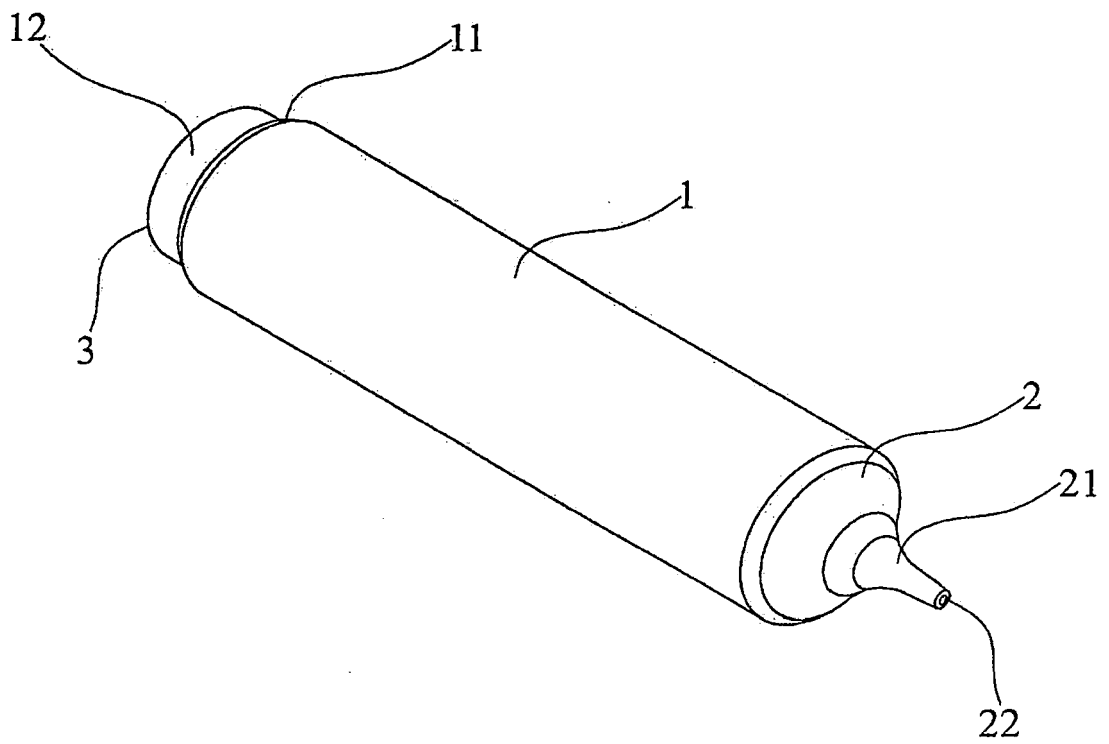
**Amended claims in accordance with Rule 137(2) EPC.** 30

1. Hollow glass container, which comprises a glass cylindrical main body (1), wherein a first base (2) of the cylindrical main body has a long and narrow neck (21) sealed by melting of the glass material itself, the main body (1) comprising, in a second base (3) opposed to the first base (2), a circular crown (31) made of the material of the main body for disposing a seal for an orifice on said crown defined by said circular crown, **characterised in that** the side walls of the main body (1) comprise a contraction (11) in the proximity of the second base (3), in such a manner that the second base (3) has a diameter smaller than that of the diameter of the main body (1), wherein said contraction (11) defines a cylindrical area (12) of smaller diameter in the main body (1), in such a manner that, on storing a multiplicity of similar containers in a matrix manner adjacent to each other, the cylindrical areas (12) allow the introduction of a die cutter through the free spaces (10) defined by the contractions (11), for simultaneously cutting circular labels that will remain in said second bases (3) of the containers. 35  
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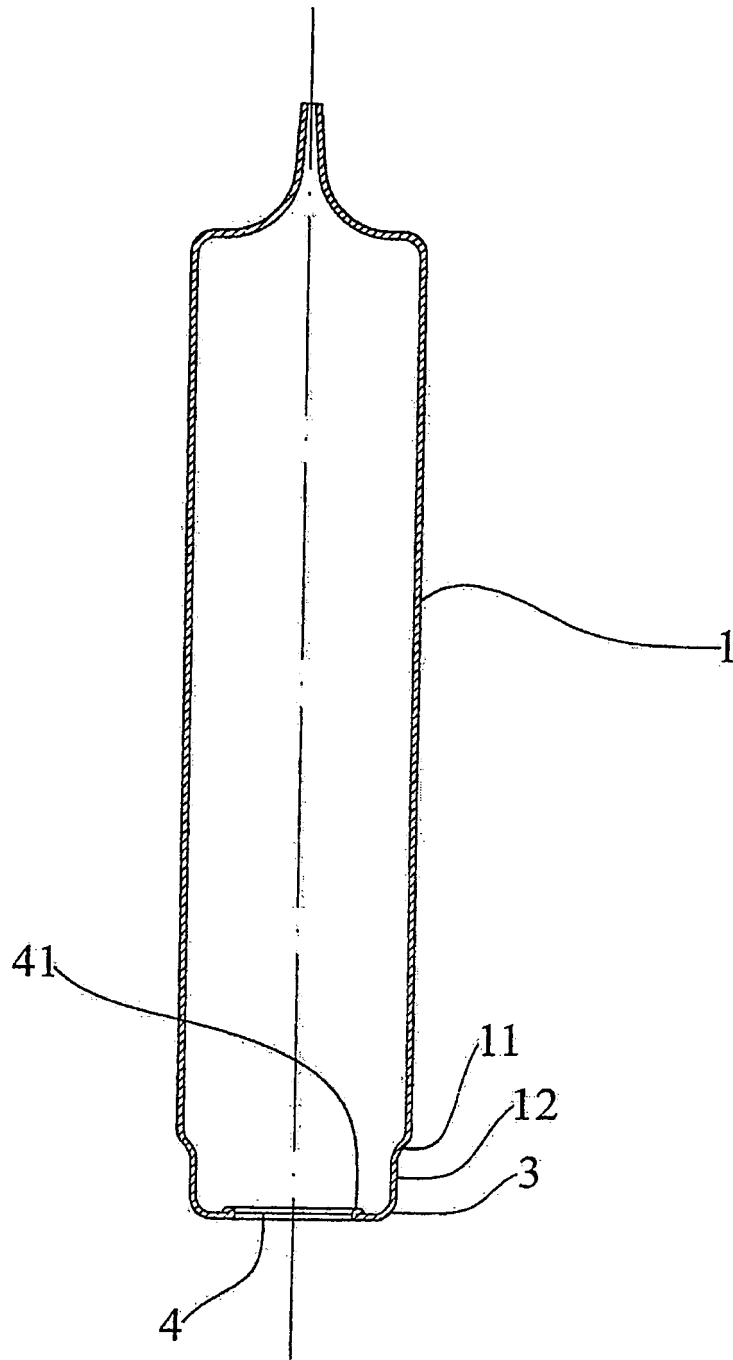
2. Hollow glass container according to claim 1, **characterised in that** said cylindrical area (12) defined by the contraction (11) has a diameter two or more 55

millimetres smaller than the rest of the main body (1).

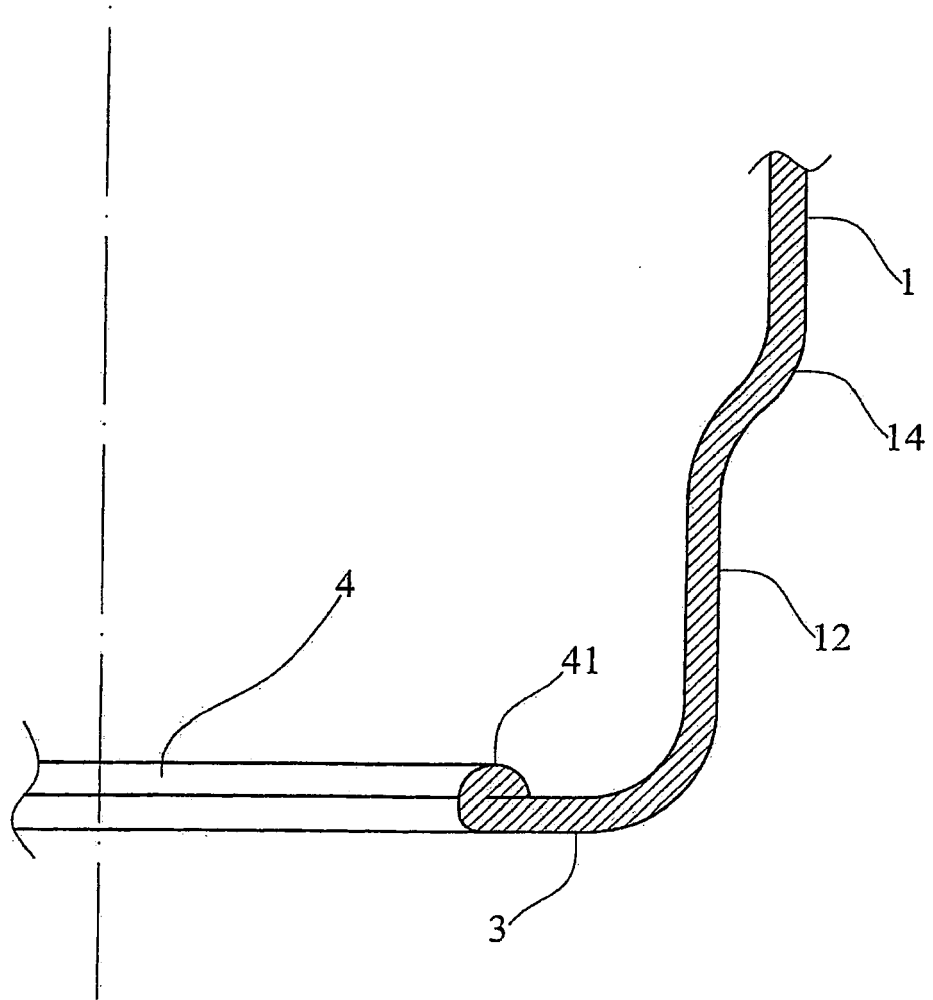
3. Hollow glass container according to any of the preceding claims, **characterised in that** the side walls of the cylindrical body (1) are uniform in diameter.
4. Hollow glass container according to any of the preceding claims, **characterised in that** the inner edge of the circular crown (31) comprises a regrowth on its inner edge (41) directed towards the interior of the main body (1).
5. Hollow glass container according to any of preceding claims, **characterised in that** it comprises a heat-sealed laminated seal disposed on the aforementioned circular crown (31).
6. Hollow glass container according to any of the preceding claims, **characterised in that** it comprises a seal for the aforementioned orifice (4) of the type which can be burst by means of a syringe needle.



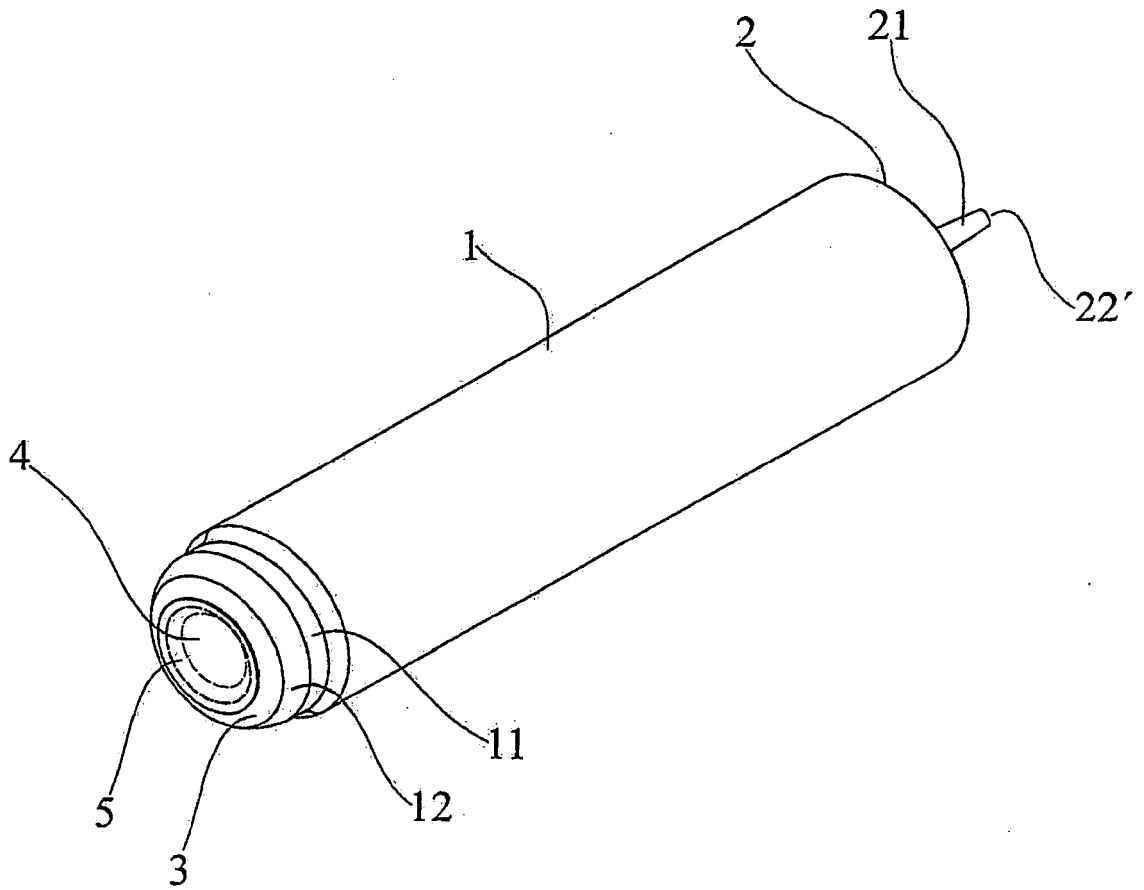
**FIG. 1**



**FIG. 2**

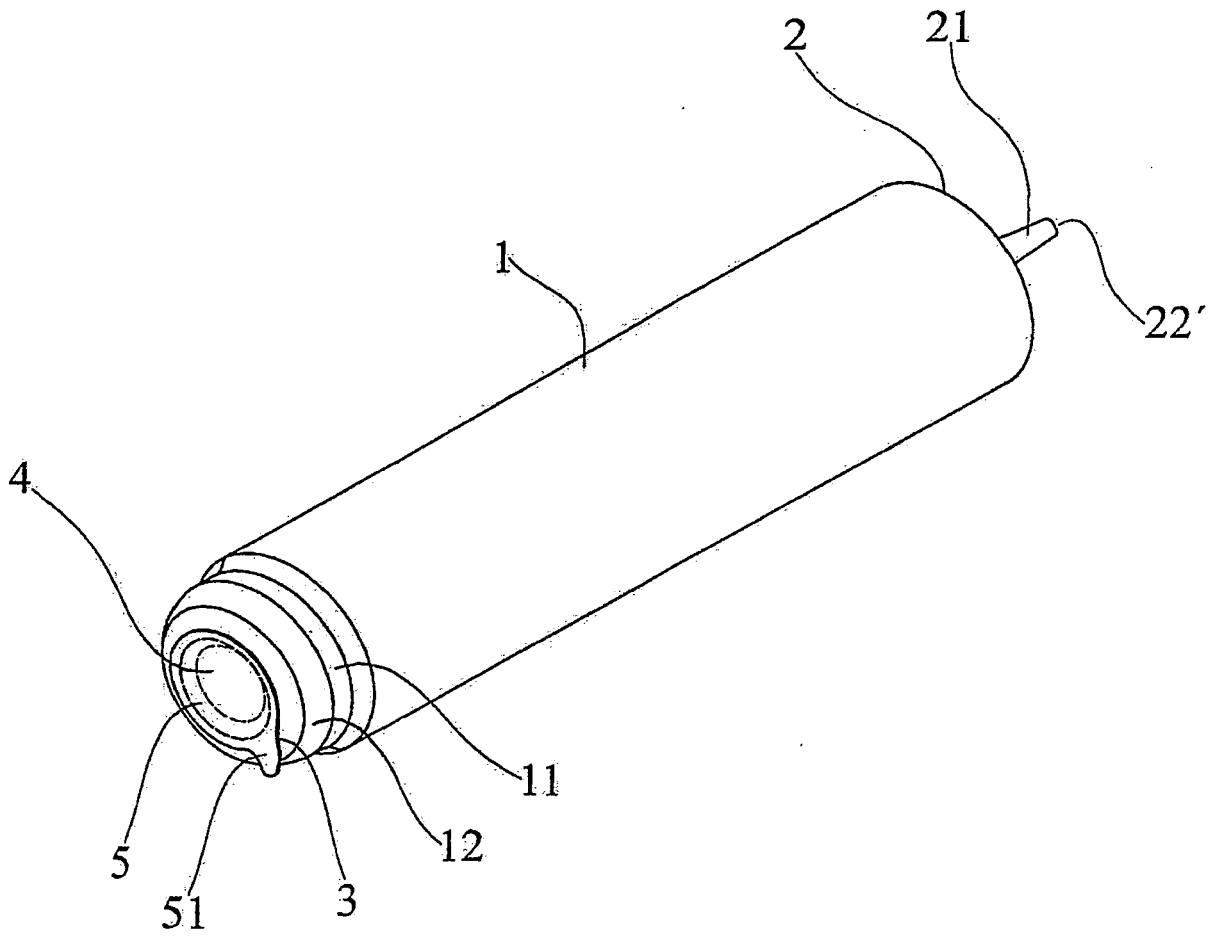


**FIG. 3**

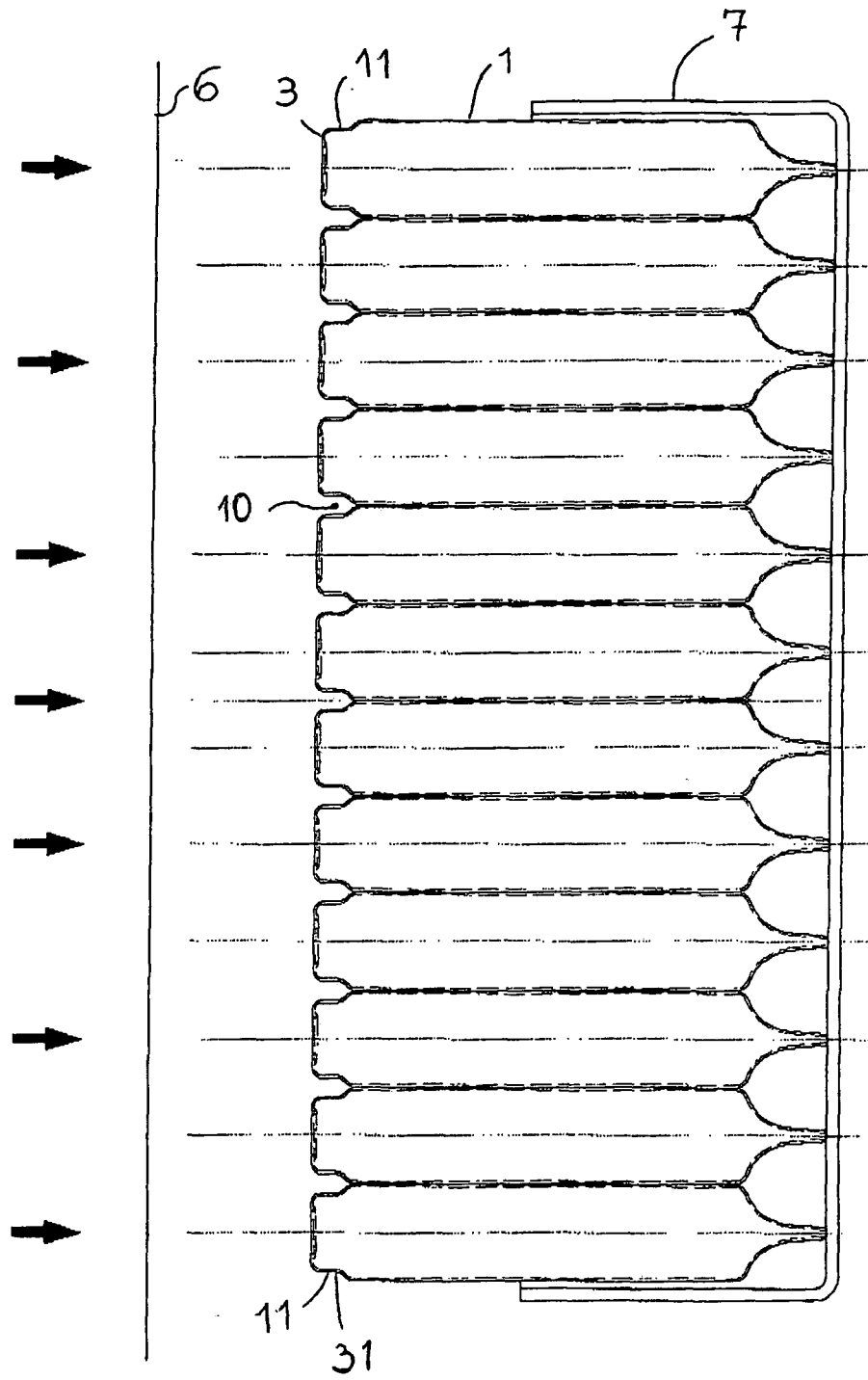


**FIG. 4**





**FIG. 5**



**FIG. 6**



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Application Number  
EP 09 38 0125

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