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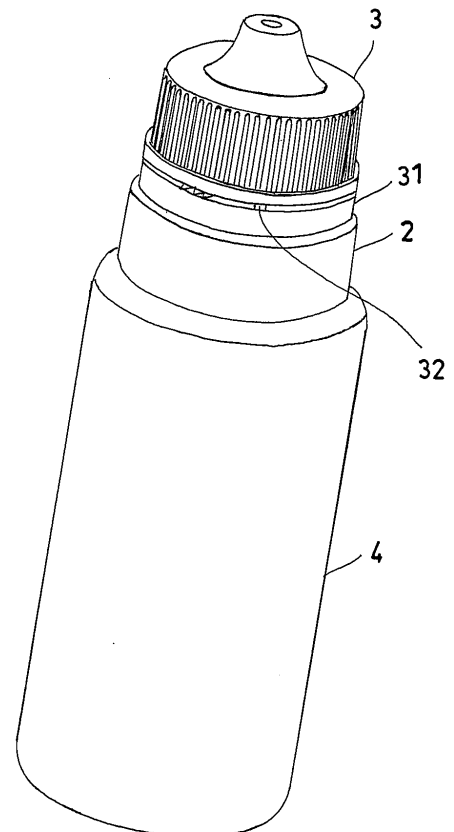
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(54) **Device for dispensing liquids**

(57) Device for dispensing liquids comprising a hollow body (2) adapted to be associated at its lower end to the mouth of the bottle (4) and having - at its upper end - a spout terminating into an opening (24) from which the liquid product is dispensed, a cap (3), which is constrained to such hollow body in such a manner to allow the tight sealing of the bottle.

Fig.1



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Description

[0001] The present invention refers to a device for dispensing liquids.

[0002] In particular, the present invention consists of a device for dispensing liquids for example of the type used for dispensing a liquid contained in a bottle to which the device is associated.

[0003] Usually, such devices are associated to the mouth of a bottle and they perform the simultaneous capping thereto by means of a cap usually screwed onto the bottle and which is associated to a safety seal, made up of a ring arranged on the neck or in proximity to the mouth of the bottle and constrained by means of bridges to such cap, which guarantees the fact that the cap itself had never been removed before the first use of the bottle containing the liquid. The liquid itself may be a medical liquid such as for example a collyrium or similar liquid, of the type used for applying contact lenses.

[0004] The applicant observed that such constraint system determines the presence of three separate parts which make up the final product: the open bottle, the dispensing device which is inserted into the neck of the bottle and the cap provided with an annular sealing. During the step of assembling the product, wherein the dispensing device is associated to the bottle by means of the cap, such system requires performing two subsequent steps: a first step in which the dispensing device is pressure-inserted into the neck of the bottle and a second step in which the cap is constrained to the bottle by means of its sealing. The present invention simplifies the assembly of the product attaining a single assembly made up of the dispensing device and the cap provided with the sealing which is constrained to the bottle in a single step. An aspect of the present invention regards a device for dispensing liquids comprising a hollow body adapted to be associated at its lower end to the mouth of a bottle and having - at its upper end - a spout terminating into an opening from which the liquid product is dispensed, a cap, constrained to such hollow body in such a manner to allow a tight sealing of the bottle, **characterised in that** the hollow body internally has a seat adapted to be associated in a coupling manner with the edge of the neck of the bottle in which the liquid to be dispensed is contained.

[0005] Characteristics and advantages of the dispensing device according to the present invention shall be clearer from the following exemplifying and non-limiting description, with reference to the attached schematic drawings, wherein:

- figure 1 shows a perspective view of the bottle with associated to the neck thereof the dispensing device capped according to the present invention;
- figure 2 shows a front view of the bottle without the dispensing device capped according to the present invention;
- figures 3a and 3b show the cap according to the

present invention without the dispensing device respectively in front view and in a diametric section;

- figures 4a and 4b show the dispensing device according to the present invention without the cap respectively in front view and in a diametric section.

[0006] Referring to the mentioned figures, the device for dispensing liquids according to the present invention comprises a hollow body 2 adapted to be associated at its lower end to the mouth of the bottle and having - at its upper end - a spout terminating into an opening 24 from which the liquid product is dispensed. Such hollow body comprising a lower cylindrical portion 21, fitted to a central cylindrical portion 22 preferably threaded externally and in turn fitted to a substantially frustoconical upper portion 23 which attains such spout.

[0007] The hollow body internally has a seat adapted to be associated in a coupled manner with the neck 41 of the bottle 4 in which the product to be dispensed is contained.

[0008] In particular, the edge 42 of such neck of the bottle is inserted into such seat.

[0009] Such seat is obtained between an annular portion 25 projecting downwards, obtained between the lower portion 21 and the central portion 22, and an annular relief 26 or notch arranged on the internal surface of the lower portion, preferably in proximity to the lower opening 27 of the hollow body 2.

[0010] For such purpose the neck 42 of the bottle 4 must have a corresponding projecting annular portion 43 which is engaged with such notch determining the stable constraint between the device and the bottle.

[0011] The device according to the present invention further comprises a cap 3, which is constrained to such hollow body in such a manner to close the bottle in a tight sealing manner for example by means of an internal threading.

[0012] Such cap is provided with an annular sealing 31 which is engaged with an annular projection 28 provided for on the external surface of the hollow body 2. The annular sealing 31 is constrained to the cap by means of preset frangible connection elements 32 which are broken during the first bottle opening operation. Preferably, the cap is shaped in a manner substantially corresponding to the hollow body, hence for example having a frustoconical portion at the upper part.

[0013] The device according to the present invention operates as follows.

[0014] The device may be provided capped with the sealing arranged in operating position. The device is subsequently pressure-inserted onto the edge 41 of the bottle 4 after the liquid product to be dispensed has been introduced into the bottle itself. During use, the cap is removed by breaking the connection elements 32. For such purpose, in cases where such cap is screw-removable, the edge of the bottle has means adapted to prevent the rotation of the device with respect to the neck of the bottle, which in the illustrated embodiment are attained

by means of a plurality of substantially vertical grooves or reliefs 44 made on a projecting annular portion. Such grooves provide a rough zone, or a zone generally adapted to cause friction with the mentioned seat of the device, onto which the annular relief or notch 26 abuts, preventing the rotation of the device itself with respect to the neck of the bottle and facilitating the screw-opening of the cap.

Claims

1. Device for dispensing liquids comprising:

- a hollow body (2) adapted to be associated at its lower end to the mouth of the bottle (4) and having

- at its upper end - a spout terminating into an opening (24) from which the liquid product is dispensed,

- a cap (3), which is constrained to such hollow body in such a manner to allow the tight sealing of the bottle,

characterised in that the hollow body internally has a seat adapted to be associated in a coupled manner with the edge (42) of the neck (41) of the bottle (4) in which the liquid product to be dispensed is contained.

2. Device according to claim 1, wherein such seat is associated to a projecting annular portion (43) made on the neck (42) of the bottle.

3. Device according to claim 1, wherein such cap is provided with an annular sealing (31) which is engaged with an annular projection (28) provided for on the external surface of the hollow body (2), the annular sealing 31 being constrained to the cap by means of preset frangible connection elements (32) which are broken during the first bottle opening operation.

4. Device according to claim 2, wherein such hollow body comprises a lower cylindrical portion (21), wherein such seat is present, fitted to a central cylindrical portion (22) in turn fitted to a substantially frustoconical upper portion (23) which attains such spout.

5. Device according to claim 1, wherein such seat is obtained between an annular portion (25) projecting downwards, obtained between the lower cylindrical portion (21) and the central cylindrical portion (22), and an annular relief (26) or notch arranged on the internal surface of said lower cylindrical portion, in

proximity to the lower opening (27) of the hollow body.

6. Device according to claim 5, wherein such projecting annular portion (43) of the bottle is engaged with such notch of the hollow body.

7. Device according to claim 1, wherein such cap is screw-associated to the hollow body.

8. Device according to claim 1, wherein such cap has a shape substantially corresponding to that of the hollow body.

9. Bottle adapted to contain product liquids dispensable through the device of claim 1 when associated to the mouth of such bottle, **characterised in that** it comprises - on its edge - means adapted to prevent the rotation of the device with respect to the neck of the bottle.

10. Bottle according to claim 9, wherein such means comprise a plurality of substantially vertical grooves (44) obtained on the projecting annular portion of such neck (41).

Fig.1

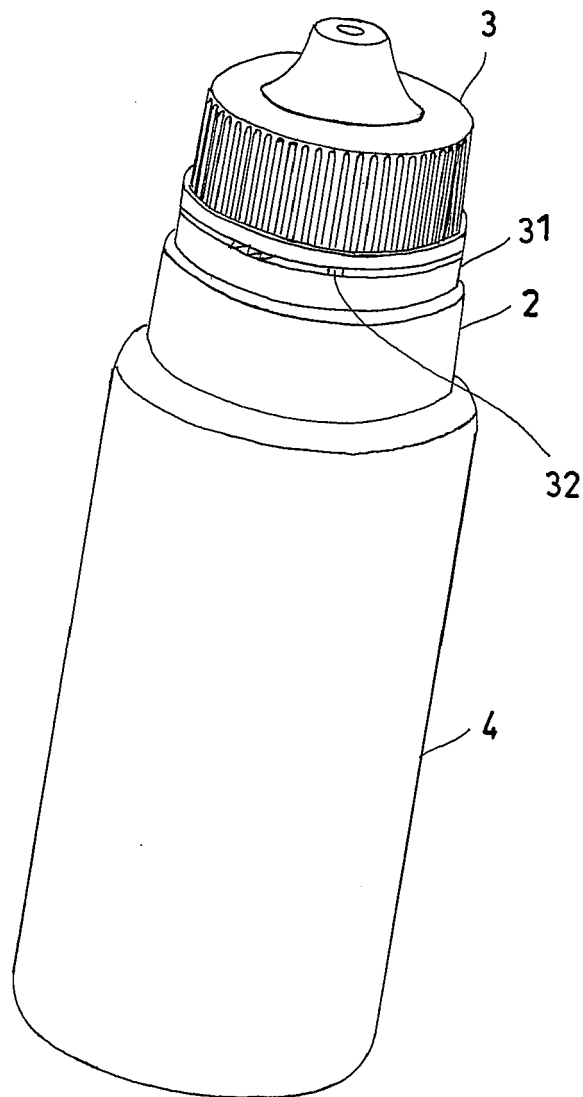
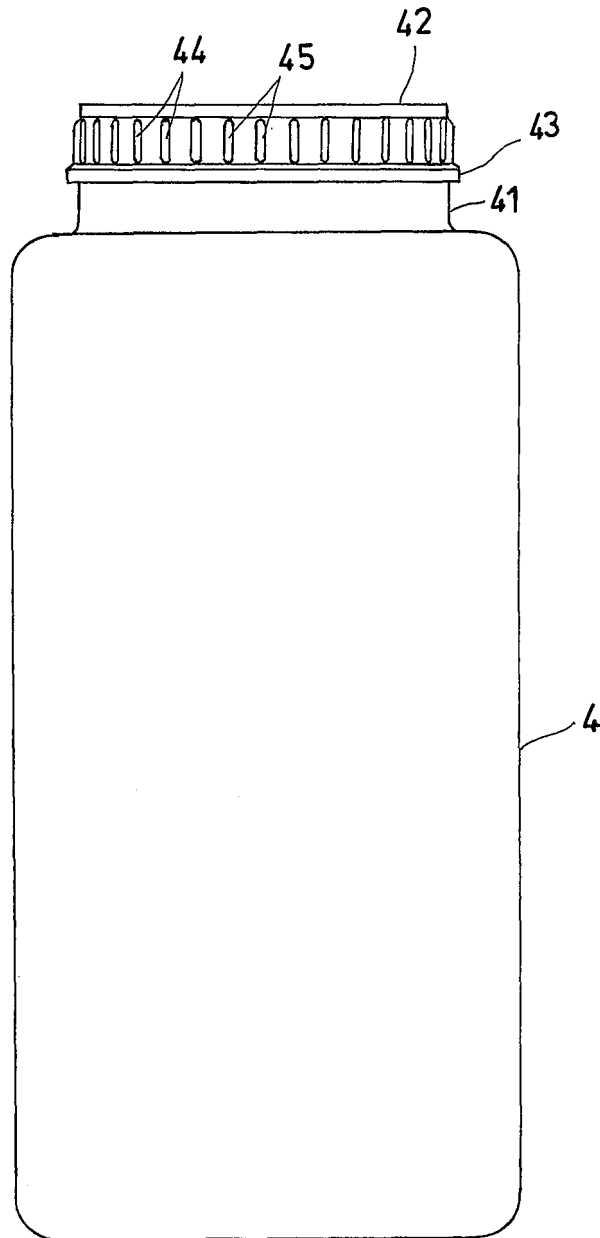


Fig.2



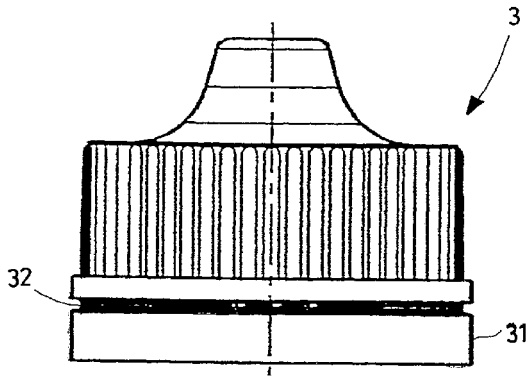


Fig.3a

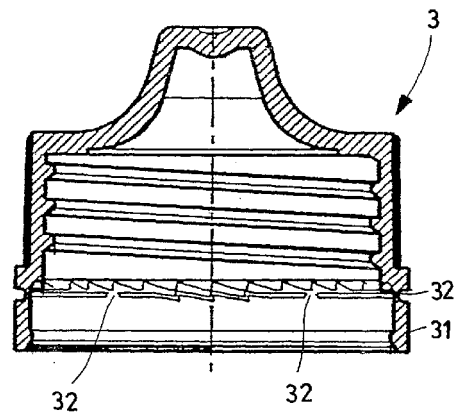


Fig.3b

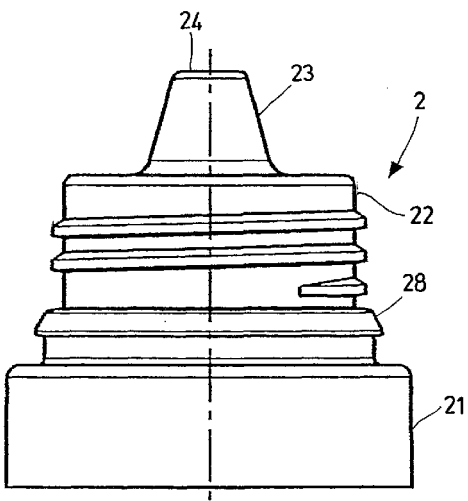


Fig.4a

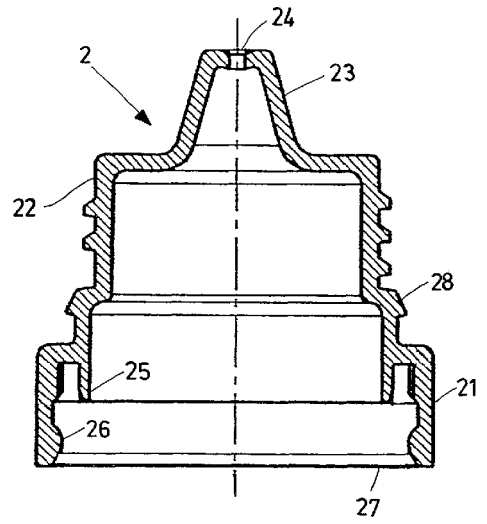


Fig.4b



EUROPEAN SEARCH REPORT

Application Number
EP 09 15 2514

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			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		13 May 2009	Fournier, Jacques
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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. The members are as contained in the European Patent Office EDP file on
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