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(54) Cap for liquid product containers

(57) A dispensing cap (1) for viscous liquid product containers comprising a cup-shaped body (2) provided with means (24) for its sealed connection to a neck of said container, the base (4) of said cup-shaped body presenting a dispensing aperture (8) for said liquid product which is freely open outwards during dispensing, and closure means (10,11) movable between a first position in which they sealedly close said aperture (8) and a second position in which they enable the product to be dispensed, said dispensing aperture (8) presenting, in the product dispensing direction, at least a first part (8A) formed at least partially within a portion (9B) projecting from the base (4) of the cup-shaped body (2) towards the container interior when the cap (1) is positioned on it, followed by a second part (8B) of smaller section than the first part (8A).

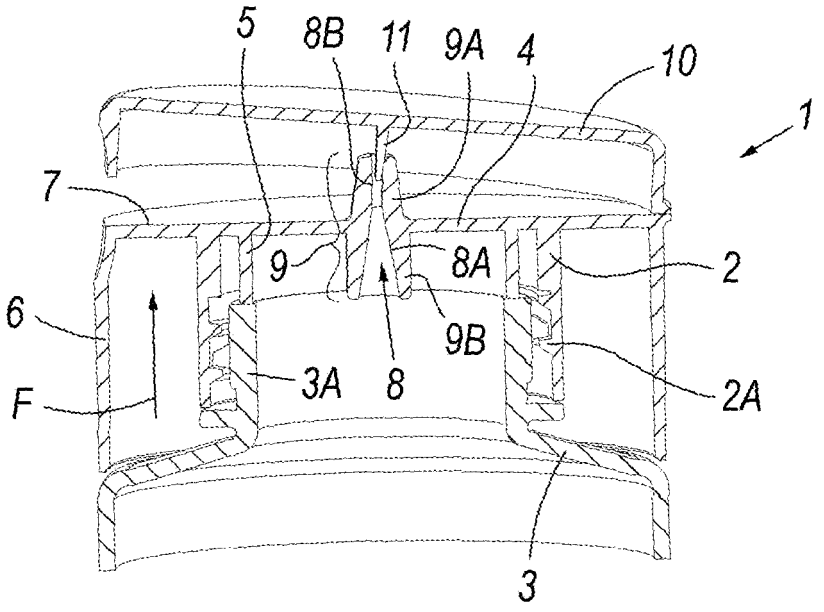

Fig. 1

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Description

[0001] The present invention relates to a dispensing cap for liquid product containers.

[0002] More particularly it relates to a cap for containers to be used mainly inverted or otherwise, such as those used to dispense fairy dense and viscous products such as ketchup, mayonnaise, liquid chocolate, sauces, creams and the like.

[0003] Certain currently available caps present a cup-shaped body connectable to a container neck. A dispensing aperture is provided on the base of the cup-shaped body.

[0004] In some solutions the dispensing aperture presents a silicone insert which blocks the exit of the product contained in the container when this is inverted, until a pressure is exerted on the deformable container.

[0005] In other solutions only a hole is present allowing free outflow of the product to be dispensed.

[0006] Following external pressure exerted on the container, the internal pressure increases and the silicone insert deforms to enable the product to be dispensed.

[0007] These caps are of high production cost and do not fully satisfy consumer requirements as they tend to create a "jet" of product.

[0008] In this respect the silicone insert has a certain rigidity to opening, which takes place only when the pressure in the container exceeds a certain threshold.

[0009] Once open, dispensing takes place under a substantially constant pressure which is less than that required to open the insert.

[0010] When product dispensing has terminated, the silicon insert closes and remains soiled.

[0011] Any product encrustations on its outside can compromise operability and create hygiene problems as these encrustations are more subject to bacterial and similar attack than the product remaining in the container.

[0012] An object of the invention is therefore to provide a cap which is less costly than known caps, which does not create a product "jet" during dispensing, which reduces the possibility of encrustations which could result in malfunction, and which represents an improvement in hygiene compared with traditional containers.

[0013] These and other objects are attained by a cap in accordance with the technical teachings of the accompanying claims.

[0014] Further characteristics and advantages of the invention will be apparent from the description of a preferred but non-exclusive embodiment of the cap, illustrated by way of non-limiting example in the accompanying drawings, in which:

Figure 1 is a sectional view of the cap of the present invention when associated with a container, shown during a stage preceding closure;

Figure 2 is a perspective view of the cap of Figure 1 while open;

Figure 3 is a sectional view of the cap of Figure 1 while open; and

Figure 4 is a perspective view of a different embodiment of the device of the present invention.

[0015] With reference to said figures, these show a cap indicated over by the reference numeral 1.

[0016] It comprises a cup-shaped body 2 presenting a thread 2A to be connected to that present on the neck of a container 3. The connection made in this manner is a sealed connection. The thread can be replaced by any suitable means for connection to the container, for example by snap-connection.

[0017] The cup-shaped body has a base 4 from which a first annular element (spacer) 5 projects to rest frontally on the neck 3A. Projecting radially from the base 4 of the cup-shaped body there is a flange 7 from which a second annular element 6 projects, of diameter similar to that of the container 3. The base of the cup-shaped body is substantially of flat configuration or slightly curved towards the container interior.

[0018] The container base presents, for dispensing said liquid product, an aperture 8 which is freely open outwards during dispensing. The aperture 8 is provided in a projecting portion 9 rising from the base 4 of the cup-shaped body. This projecting portion 9 is of substantially cylindrical shape with an outer part 9A of wedge-shaped section.

[0019] The projecting portion 9 extends both towards the inside 9B and towards the outside 9A of the container 3 (when the cap 1 is positioned thereon).

[0020] The dispensing aperture 8 presents, in the product dispensing direction F, a first part 8A of convergent section followed by a second part 8B of constant section.

[0021] Advantageously the convergent part 8A has a length greater than the part 8B of constant section.

[0022] Specifically, the convergent part has a length between 3 and 50 mm while the constant section part has a length between 1 and 20 mm.

[0023] As can be seen, the convergent part totally involves that part of the portion 9B projecting towards the interior of the container 3.

[0024] The cap of the present invention has a lid 10 hinged to the cup-shaped body 2 via the flange 7. The lid 10 presents a protuberance 11 to penetrate into the dispensing aperture 8 when this is in a first closed position (successive to that shown in Figure 1). The protuberance 11 is slightly wedge-shaped in order to seal the aperture 8 on closure.

[0025] In an alternative embodiment shown in Figure 4, the protuberance 11 is surrounded by a rim 12 cooperating with the projecting portion 9 to improve the closure seal.

[0026] Advantageously the lid 10 presents snap-action means (not shown in Figures 1, 2 and 3 but shown in Figure 4 and indicated by the reference numeral 15) to enable said first position to be maintained.

[0027] The cap in question is produced in one piece by injection moulding.

[0028] It has been surprisingly found that by making the aperture with a part 8A in the form of a portion projecting towards the container interior followed by a second part of smaller section than the first, the product contained in the container 3 does not escape from the aperture when the container 3 is held with the cap downwards, until a pressure is applied to the container 3.

[0029] In this manner the product leaves without forming jets and with substantially constant pressure.

[0030] Advantageously the first part converges in the product dispensing direction while the second part is of constant section.

[0031] When the pressure on the container 3 ceases, the product remaining in the aperture 8 is drawn into the container interior and does not drip or seep about the outside of the projection 9.

[0032] It has been noted that to use less dense products, a first portion projecting more towards the container interior is required.

[0033] The closure of the lid 10 causes the protuberance to become inserted into the aperture 8, so cleaning this latter of even minimal product residues, and preventing undesirable dispensing blockage.

[0034] It should be noted that the first and second part are defined in the mathematical sense by two different "curves", these being characterised at a point of passage from the first to the second part by a discontinuity in the tangent to said curves.

[0035] Two embodiments of the invention have been described, however others can be conceived using the same inventive concept.

Claims

1. A dispensing cap (1) for viscous liquid product containers, comprising a cup-shaped body (2) provided with means (24) for its sealed connection to a neck of said container, the base (4) of said cup-shaped body presenting a dispensing aperture (8) for said liquid product which is freely open outwards during dispensing, and closure means (10, 11) movable between a first position in which they sealedly close said aperture and a second position in which they enable the product to be dispensed, **characterised in that** said dispensing aperture presents, in the product dispensing direction, at least a first part (8A) formed at least partially within a portion (9B) projecting from the base of the cup-shaped body towards the container interior when the cap is positioned on it, followed by a second part (8B) of smaller section than the first part.

2. A dispensing cap as claimed in the preceding claim, wherein said first part (8A) converges in the product dispensing direction and/or said second part is of constant section.

3. A dispensing cap as claimed in one or more of the preceding claims, wherein the first part (8A) has a length greater than said second part (8B).

4. A dispensing cap as claimed in one or more of the preceding claims, wherein the first part (8A) has a length between 3 and 50 mm and/or the second part has a length between 1 and 20 mm.

5. A cap as claimed in the preceding claim, wherein said projecting portion (9) extends towards both the container interior (9B) and the container exterior (9A).

6. A cap as claimed in one or more of the preceding claims, wherein the first part (8A) totally involves that portion (9B) projecting towards the container interior.

7. A cap as claimed in one or more of the preceding claims, wherein the closure means are hinged to said cup-shaped body and present a protuberance (11) which penetrates into said dispensing aperture when they are in said first position.

8. A cap as claimed in the preceding claim, wherein said protuberance is surrounded by a rim (12) cooperating with said externally extending portion.

9. A cap as claimed in one or more of the preceding claims, wherein said closure means present snap-action means (15) to enable said first position to be maintained.

10. A cap as claimed in one or more of the preceding claims, wherein the cap is made by injection moulding in a single-piece.

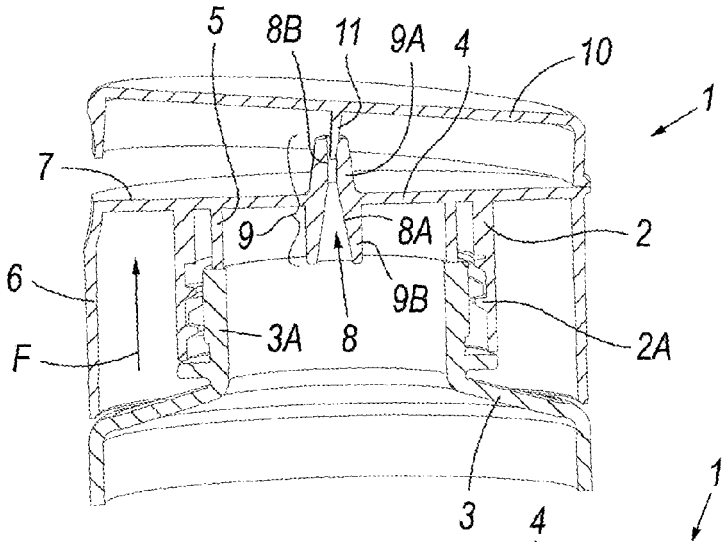

Fig. 1

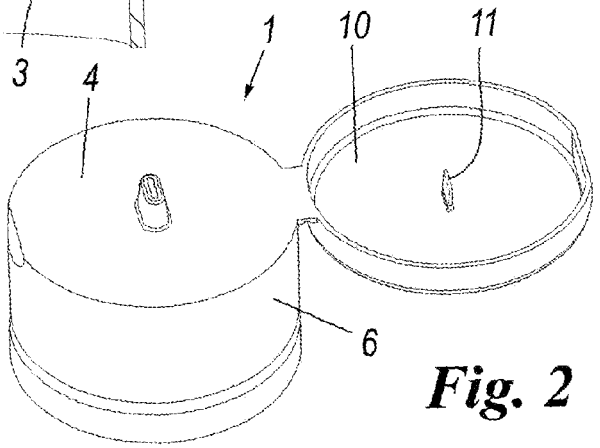

Fig. 2

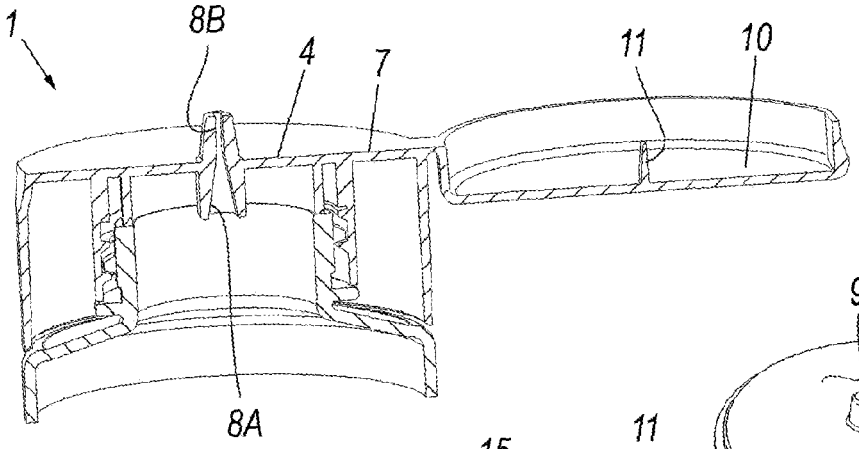

Fig. 3

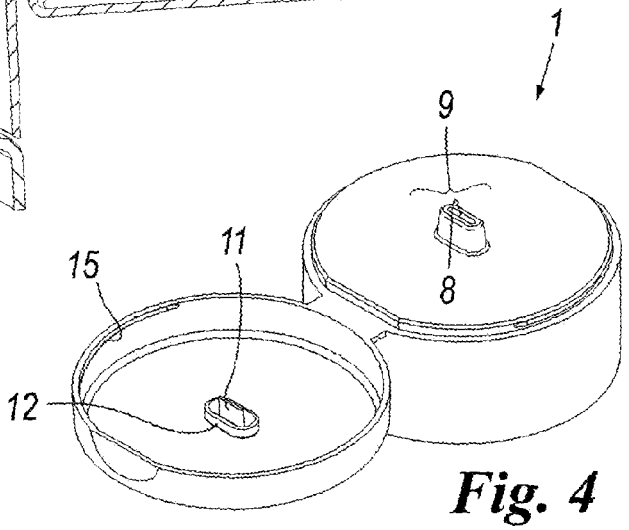

Fig. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 09 15 7584

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 696 408 A (DUBACH WERNER F [CH]) 29 September 1987 (1987-09-29) * column 3, line 55 - column 4, line 2; figures 9-11 *	1-10	INV. B65D47/08
X	WO 94/03371 A (CREATECHNIC AG [CH]) 17 February 1994 (1994-02-17) * page 16, paragraph 2 - page 19, paragraph 1; figures 6,7 *	1,2,4-7, 9,10	
X	US 2008/245795 A1 (BERGE GARY L [US]) 9 October 2008 (2008-10-09) * paragraph [0042] - paragraph [0054]; figures 1-5c *	1,2,4-7, 9,10	
X	US 6 454 130 B1 (MILLER CHRISTOPHER JOSEPH [US] ET AL) 24 September 2002 (2002-09-24) * column 3, line 21 - column 4, line 16; figures 5-10 *	1,4-7,9, 10	
X	EP 0 214 095 A (ALFATECHNIC AG [CH]) 11 March 1987 (1987-03-11) * column 2, line 46 - column 4, line 24; figures 1-3 *	1,4-7,9, 10	TECHNICAL FIELDS SEARCHED (IPC) B65D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	1 October 2009	Fournier, Jacques

CATEGORY OF CITED DOCUMENTS

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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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