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(54) **Cap for a container**

(57) Cap intended to be secured to the mouth (20) or neck of a container, particularly a bottle (2), containing a more or less liquid product.

It comprises a cap body (1) of plastic of cylindrical overall shape, one of the ends (11) of which is open to accept the mouth (20) of the bottle (2) and the other end of which consists of at least one end wall (10) forming a means of dispensing the product contained in the said bottle (2) and in which end wall at least one orifice (15) is made, the said cap body (1) containing a cylindrically or slightly frustoconically-shaped means of closing off the mouth (20).

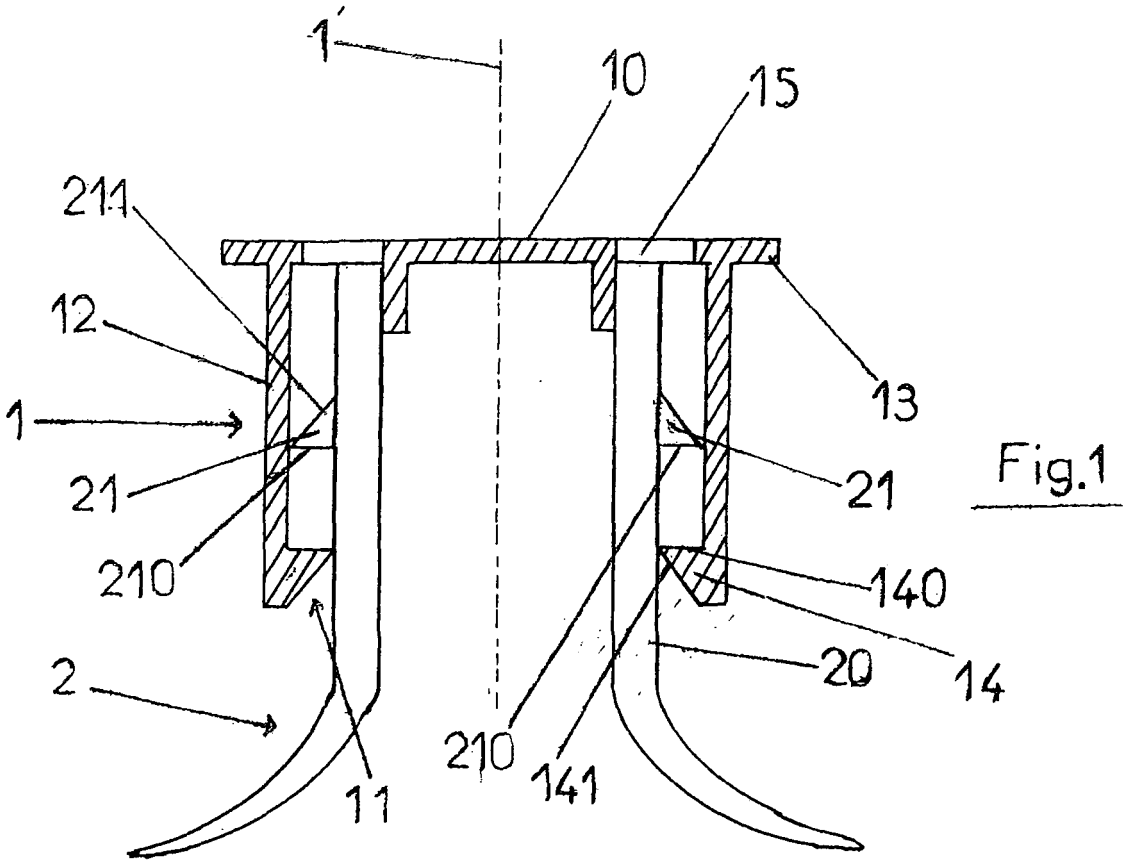

Fig.1

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Description

[0001] The subject of the present invention is a cap for a container with a mouth or neck and, in particular, for a bottle containing a more or less liquid product and more particularly, a cap commonly known as a "sport cap".

[0002] Caps known as "sport caps" for bottles with conventional mouths, that is to say bottles which have a generally cylindrical neck that is small in size with respect to the body of the bottle are currently known and generally consist of a supporting structure screwed onto the neck of the bottle of a rigid and protruding liquid-dispensing end-piece mounted on the said supporting structure and which is opened for dispensing by pulling or turning the said end-piece, closure on the other hand being effected by pushing on this end-piece, and a protective element such as a thermoformed film or a lid when the bottle is not being used.

[0003] Document US 2005/0236440 describes a cap such as this consisting of a cylindrical base intended to be secured to the mouth of a bottle by screwing, of an operating element mounted so that it can rotate axially on the said base and having a passage through which the liquid contained in the bottle can flow and an opening element that can rise or fall in response to a predetermined turning of the operating element in order to open or close the duct along which liquid is dispensed.

[0004] However, these caps have the disadvantage of forcing the user to use both hands and perform the manipulation in a number of steps involving a fair amount of effort and, on the other hand, because of the prominence of the end-piece, of being exposed to impact and dirt.

[0005] Document FR 2 826 638 proposes a cap consisting of a supporting structure intended to be fixed on a container that has a mouth or neck, of a means of dispensing the liquid or pasty product contained in the said container, which means is connected to the said supporting structure by an elastically deformable device that tends automatically to bring the dispensing means from a position retracted inside the supporting structure into a deployed position that allows the liquid or the pasty product to be dispensed with very little effort or manipulation, the container being opened and closed by way of a lid collaborating with the said supporting structure.

[0006] However, these so-called "sport" caps which have a structure essentially made up of three individual parts, are more complicated and more expensive than ordinary screw caps or lids that allow the contents of the container to be dispensed directly from the mouth of the bottle.

[0007] It is an object of the present invention to alleviate these disadvantages by reducing the complexity of the structure of a cap and the cost of its manufacture while at the same time offering the main functionalities and advantages of present-day so-called "sport" caps.

[0008] The cap according to the present invention, which is intended to be secured to the mouth or neck of a container, particularly a bottle, containing a more or less liquid product, comprises a cap body of plastics being of cylindrical overall shape, one of the ends of which is open to accept the mouth of the bottle and the other end of which consists of at least one end wall forming a means of dispensing the product contained in the said bottle and in which end wall at least one dispensing orifice is made, the said cap body containing a cylindrically or slightly frustoconically-shaped means of closing off the mouth, this means surrounding this mouth in a sealed manner while at the same time being capable of being moved axially from a closed position in which the closing-off means is fitted tightly into the mouth of the bottle to an open position for dispensing the liquid, in which position the closing-off means is freed, and vice versa, the axial movement of the said cap body being limited by the end wall which comes into abutment with the edge of the mouth of the bottle when the cap is in the closed position and by at least one stop means secured to the internal face of the cylindrical wall of the said cap body coming into abutment with at least one stop means secured to the external face of the mouth of the said bottle when the cap is in the open position.

[0009] According to the present invention, the cap will be fitted onto the mouth of the bottle, after the bottle has been filled, by snap-fastening the stop means thus allowing the mouth of the bottle to be inserted quickly and easily into the cap body via its open free end and preventing it from being removed thereafter.

[0010] The stop means secured to the internal face of the cylindrical wall of the cap body and the stop means secured to the external face of the mouth are each in the form of an annular flange each possibly comprising a flat face perpendicular to the axis of the cap and a chamfered face; the annular flange of the cap body will preferably be located at its free end edge comprising the opening intended to accept the mouth of the bottle.

[0011] The end wall of the cap body may be advantageously flat or substantially flat and may comprise one or a plurality of orifices located between the closing-off means and the cylindrical wall. The end wall may also have at least one protrusion extending in an outwardly direction from external face of said end wall.

[0012] In a second embodiment of the dispensing means, the cap according to the present invention will further comprise an external extension of the end wall of the cap body comprising a secondary wall connected to the said end wall in a sealed manner, in the middle of which secondary wall a secondary orifice will be formed for dispensing the product contained in the bottle. The secondary wall may be substantially flat or, for example, may be in the shape of a mushroom cap.

[0013] In a third embodiment of the dispensing means, the cap according to the present invention will further comprise an internal extension of the end wall of the cap body which may consist of a cylindrical skirt secured to the internal face of the said end wall around the closing-off means concentrically with respect to the axis of the

cap and of a diameter substantially equal to the external diameter of the mouth of the bottle, the height of the skirt being defined in such a way that this skirt remains in contact with the mouth of the bottle when the cap is in the open position and a central circular orifice will be made in the said end wall, the cylindrically-shaped closing-off means being closed at its free end to prevent the product contained in the bottle from passing when the cap is in the closed position, whereas the orifices will be made in the cylindrical wall of the closing-off means so that the product can pass towards the central product-dispensing orifice when the cap is in the open position.

[0014] Furthermore, in order to enhance the sealing between the cap and the bottle and limit the build-up of dust or other undesirable substances that may affect cap hygiene, this cap may comprise, on the internal face of the cylindrical wall of the cap body, at least one annular sealing bulge and/or at least one annular projection.

[0015] Furthermore, in order that the user can satisfy himself that the bottle fitted with a cap according to the present invention has not been opened before he uses it, the cap body will be secured detachably, particularly via its free end edge, to a tamperproofing ring which may be connected by at least a weakened region of material to the said free end edge of the cap body to make the cap body easier to detach from the tamperproofing ring. According to the present invention, the tamperproofing ring will be moulded as one with the cap body and held firmly by an annular retaining means secured to the mouth of the bottle once the cap is in place.

[0016] In addition also, in order to form a rim that offers the user a better purchase on the cap, the end wall of the cap body may preferably extend laterally beyond the cylindrical wall of the said cap body.

[0017] In addition also, in order to protect the dispensing orifice or orifices, the cap according to the present invention may comprise a protective element, such as a lid or a removable film that is disposable or can be put back after first use, intended to cover the dispensing orifice or orifices in order to protect it/them.

[0018] Finally, the dispensing orifice may be in the form of an interrupted or uninterrupted annulus, or may consist of a succession of circular orifices distributed concentrically about the axis of the said cap.

[0019] Finally also, the cap according to the present invention may be made advantageously as a single piece of plastic.

[0020] The invention will be better understood by virtue of the following description which relates to a preferred embodiment and is given by way of non-limiting example and explained with reference to the attached schematic drawings in which:

- Figure 1 depicts a schematic sectioned view of a cap according to the present invention in the closed position in a first embodiment of the dispensing means;
- Figure 2 is a schematic sectioned depiction of a cap according to the present invention in the open position in a first embodiment of the dispensing means;
- Figure 3 is a schematic sectioned depiction of a cap according to the present invention in a first embodiment of the dispensing means and in an alternative form of embodiment;
- Figure 4 is a schematic sectioned depiction of a cap according to the present invention in a first embodiment of the dispensing means, associated with a tamperproofing system;
- Figure 5 is a schematic sectioned view of a cap according to the present invention in a second embodiment of the dispensing means; and
- Figure 6 is a schematic sectioned depiction of a cap according to the present invention in a third embodiment of the dispensing means.

[0021] Figure 1 shows that a cap according to the present invention secured to the mouth 20 of a bottle 2 consists of a single piece of plastic formed by moulding and comprises a cap body 1 which is of cylindrical shape, one of its ends comprising a flat or substantially flat wall 10 and its other end comprising an opening 11 via which the neck 20 of the bottle 2 can be inserted into the cylindrical cap body 1 so that the cap can be fitted onto the mouth 20 of the bottle 2.

[0022] The flat wall 10 of the cap body 1 is equipped, in the middle of its internal face, with a closing-off means 3 of cylindrical or frustoconical shape extending axially and, by fitting tightly into the mouth 20 of the bottle 2, sealing off the said mouth 20.

[0023] It may also be seen that the flat wall 10 extends laterally beyond the cylindrical wall 12 of the cap body 1 in such a way as to form a rim 13 giving the user a better purchase on the cap, particularly so that he can pull the latter in order to bring the cap into the open position as may be seen in Figure 2.

[0024] Furthermore, the external face of the cylindrical wall of the mouth 20 of the bottle 2 comprises an annular flange 21 intended to collaborate with an annular flange 14 located at the edge of the opening 11 forming one of the ends of the cylindrical cap body 1, each annular flange 21, 14 comprises a flat face, 210, 140, respectively, which is perpendicular to the axis 1' of the cap and a chamfered face 211, 141, respectively, which annular flanges 21, 14 are oriented in opposite directions so that when the mouth 20 of the bottle is introduced into the cylindrical part 12 of the cap body 1 in order to fit the cap, the thrust exerted on the cap and the elastic deformation of the cap body 1 which is made of plastic, causes the annular flange 21 of the cap body 1 to snap-fasten onto the annular flange 14 of the mouth 20 of the bottle thereby preventing, once snap-fastening has been performed and as a result of the mutual contact between the flat faces 210, 140 of the two annular flanges 21, 14 respectively, prevents the cap from being removed. The only permitted movement is axial movement of the cap between, on the one hand, the position in which the flat wall 10 is in abutment against the edge of the mouth 20 of the bottle, and

the position in which the flat face 140 of the annular flange 14 is in abutment against the flat face 210 of the annular flange 21.

[0025] The flat wall 10 of the cap body 1 forms a means of dispensing the product contained in the bottle 2 and for this purpose comprises one or more orifices 15 located between the closing-off means 3 and the cylindrical wall 12 so that when the closing-off means 3 is housed in the mouth 20 of the bottle, the product contained in the bottle 2 cannot be dispensed, as may be seen in Figure 1, and when the closing-off means 3 is free of the mouth 20 of the bottle, as a result of the cap having been pulled, the product contained in the bottle 2 can be dispensed, entering the space 4 delimited by the internal surface of the cylindrical cap body 10 and the closing-off means 3 and the mouth 20 of the bottle and then passing through the orifice or orifices 15 made in the flat wall 10 of the cap body 1, as indicated by the arrows depicted in Figure 2.

[0026] Figure 2 also shows that when the cap body 1 is in the open position, sealing between the cap body 1 and the mouth 20 of the bottle is provided by contact between the two flat faces 210, 140 of the annular flanges 21, 14, respectively, and by contact between the latter and, respectively, the internal surface of the cylindrical wall 12 of the cap body 1, and the external surface of the mouth 20 of the bottle.

[0027] Figure 3 shows a cap according to the present invention in the open position and further comprising an annular projection 14' partially depicted and secured to the internal face of the cylindrical wall 12 of the cap body 1 and which is intended to be in contact with the external surface of the mouth 20 of the bottle so as to enhance the sealing between the cap and the bottle 2. It will be noted that the number of annular sealing projections 14' can be increased according to the level of sealing expected, and that these may also have the additional function of preventing foreign bodies from getting into the cap body 1.

[0028] If reference is now made to Figure 4, it may be seen that a cap according to the present invention is secured detachably via its free end edge 10' to a tamperproofing ring 16 that constitutes evidence that the cap has been opened before it is actually used.

[0029] The tamperproofing ring 16 is connected by a weakened region of material 17 to the free end edge 15 of the cap body 1 to make it easier for the cap to be detached from the tamperproofing ring 16 which is moulded as one with the cap and held fixedly by virtue of an annular retaining means 22 secured to the mouth 20 of the bottle once the cap is in place.

[0030] At the time of first use, the user will twist the cap body 1 about its axis 1' and pull it, and this will break the connection between the cap body 1 and the tamperproofing ring 16 at the weakened region 17 and thus free the cap body 1 so that it can actually be used.

[0031] However, the cap according to the present invention and depicted in the figures described hereinabove does not offer the user the dispensing of the product via a central orifice as offered by present-day so-called "sport" caps because of the orifice or orifices 15 situated between the closing-off means 3 and the cylindrical wall 12 and therefore offset from the central axis 1' of the cap.

[0032] To avoid this situation a second embodiment of the dispensing means proposes a cap according to the present invention, as can be seen in Figure 5, which further comprises an external extension 18 of the flat wall 10 of the cap body 1 which comprises a flat additional wall 180 parallel to the flat wall 10 and connected thereto in a fluidtight manner, this additional wall at its middle having a secondary orifice 181, preferably of a diameter smaller than that of the mouth 20 of the bottle 2 and allowing the product, depicted by arrows, contained in the bottle 2 to be conveyed towards the secondary orifice 181 centred about the axis 1' of the cap as is the case in present-day caps. The product will therefore be conveyed from the outlet of the mouth 20 of the bottle through a first chamber 4 identical to the one depicted in Figure 2 and then a second chamber 5 corresponding to the interior space of the extension 18 in order thereafter to be discharged via the central secondary orifice 181 so that it can be dispensed.

[0033] It will be noted that the additional wall 180 may have a substantially flat or some other shape, for example the shape of a mushroom cap.

[0034] Figure 6 shows a cap according to the present invention in a third embodiment of the dispensing means which further comprises an internal extension 19 of the flat wall 10 forming one of the ends of the cap body 1 which consists in a cylindrical skirt secured to the internal face of the flat wall 10 about the closing-off means 3 concentrically with respect to the axis 1' of the cap and of a diameter substantially equal to the external diameter of the mouth 20 of the bottle 2, the height of the skirt being defined in such a way that this skirt remains in contact with the mouth 2 of the bottle when the cap is in the open position.

[0035] This figure also shows that the flat wall 10 has just one circular orifice 15' made centrally and that the cylindrically-shaped closing-off means 3 is closed at its free end to prevent product contained in the bottle 2 from flowing when the cap is in the closed position on account of the central orifice situated along the axis of the mouth 20 of the bottle whereas orifices 30 are made in the cylindrical wall of the closing-off means 3 to allow the product, represented by arrows, to pass towards the central product-dispensing orifice 15' when the cap is in the open position as is the case with present-day sport caps. The product will therefore be conveyed, when the cap is in the open position, from the outlet of the mouth 20 of the bottle into a first chamber 6 delimited by the internal wall of the cylindrical skirt 19, the internal face of the flat wall 10 and the dispensing means 3 and then into a second chamber 7 corresponding to the interior space of the closing-off means 3 in order finally to be dispensed via the

central orifice 15' which opens into the interior space of the closing-off means 3.

[0036] The cap body 1 is therefore moved axially by pulling on the cap body 1 in order to bring it into the position in which the mouth 20 of the bottle 2 is open, and by pushing it to bring it into the position in which the mouth 20 of the bottle is closed. It should be noted that the cap body could, in an alternative form of embodiment, further comprise on its internal face a screw thread cooperating with a screw thread made on the external surface of the mouth of the bottle so as to allow the cap body 1 to move axially by twisting it about its axis 1', in the same way as a conventional cap screwed onto a mouth of a bottle.

[0037] In order to prevent dirt or dust from entering the cap body and ensure hygienic use, this cap body may comprise a removable lid or film such as, for example, a heat-sealed film secured to the top surface of the cap body comprising the dispensing orifice or orifices, covering this orifice or these orifices in order to protect it or them and prevent dust or other particles from entering the cap body.

[0038] Naturally, the cap according to the present invention can be manufactured from any suitable material, preferably a plastic of the polymer or copolymer type, using any conventional technique such as moulding or injection moulding.

[0039] Of course, the invention is not restricted to the embodiments described and depicted in the attached drawings. Modifications can still be made, particularly in terms of the construction of the various elements or by substituting-technical equivalents without thereby departing from the field of protection of the invention.

Claims

1. Cap intended to be secured to the mouth (20) or neck of a container, particularly a bottle (2), containing a more or less liquid product, **characterized in that** it comprises a cap body (1) of plastic of cylindrical overall shape, one of the ends (11) of which is open to accept the mouth (20) of the bottle (2) and the other end of which consists of at least one end wall (10, 180) forming a means of dispensing the product contained in the said bottle (2) and in which end wall at least one dispensing orifice (15, 181, 15') is made, the said cap body (1) containing a cylindrically or slightly frustoconically-shaped means (3) of closing off the mouth (20), this means surrounding this mouth in a sealed manner while at the same time being capable of being moved axially from a closed position in which the closing-off means (3) is fitted tightly into the mouth (20) of the bottle (2) to an open position for dispensing the liquid, in which position the closing-off means (3) is freed, and vice versa, the axial movement of the said cap body (1) being limited by the end wall (10) which comes into abutment with the edge of the mouth (20) of the bottle (2) when the cap is in the closed position and by at least one stop means (14) secured to the internal face of the cylindrical wall (12) of the said cap body (1) coming into abutment with at least one stop means (21) secured to the external face of the mouth (20) of the said bottle (2) when the cap is in the open position.

2. Cap according to claim 1, **characterized in that** it is made as a single piece of plastic.

3. Cap according to Claim 1 or claim 2, **characterized in that** the stop means (14) secured to the internal face of the cylindrical wall (12) of the cap body (1) constitutes, with the stop means (21) secured to the external face of the mouth (20) of the bottle (2), snap-fastening means.

4. Cap according to any one of claims 1 to 3, **characterized in that** the stop means (14) secured to the internal face of the cylindrical wall (12) of the cap body (1) and the stop means (21) secured to the external face of the mouth (20) are each in the form of an annular flange, preferably located at the end edge of the cap body (1) comprising the opening (11) intended to accept the mouth (20) of the bottle (2).

5. Cap according to Claim 4, **characterized in that** the annular flange (14, 21) comprises a flat face (140, 210) perpendicular to the axis (1') of the cap and a chamfered face (141, 211).

6. Cap according to any one of claims 1 to 5, **characterized in that** the end wall (10) of the cap body (1) has one or several dispensing orifices (15) located between the closing-off means (3) and the cylindrical wall (12).

7. Cap according to any one of claims 1 to 6, **characterized in that** the end wall (10) of the cap body (1) is flat or substantially flat.

8. Cap according to any one of Claims 1 to 7, **characterized in that** it further comprises an external extension (18) of the end wall (10) of the cap body (1) comprising a secondary wall (180) connected to the said end wall (10) in a sealed manner, in the middle of which secondary wall (180) a secondary orifice (181) is formed for dispensing the product contained in the bottle (2).

9. Cap according to Claim 8, **characterized in that** the secondary wall (180) is substantially flat or in the form of a mushroom cap.

10. Cap according to any one of Claims 1 to 7, **characterized in that** it further comprises an internal extension (19) of the end wall (10) of the cap body (1)

consisting of a cylindrical skirt secured to the internal face of the said end wall (10) around the closing-off means (3) concentrically with respect to the axis (1') of the cap and of a diameter substantially equal to the external diameter of the mouth (20) of the bottle (2), the height of the skirt being defined in such a way that this skirt remains in contact with the mouth (2) of the bottle when the cap is in the open position and **in that** the end wall (10) comprises a central circular orifice (15'), the cylindrically-shaped closing-off means (3) being closed at its free end to prevent the product contained in the bottle (2) from passing when the cap is in the closed position, whereas the orifices (30) are made in the cylindrical wall of the closing-off means (3) so that the product can pass towards the central product-dispensing orifice (15') when the cap is in the open position.

11. Cap according to any one of the preceding claims, **characterized in that** it further comprises, on the internal face of the cylindrical wall (12) of the cap body (1), at least one annular sealing bulge (14') designed to enhance the sealing between the cap and the bottle (2) and/or to limit the build-up, in the cap body (1), of dust or other undesirable substances liable to adversely affect cap hygiene.

12. Cap according to any one of the preceding claims, **characterized in that** it is detachably secured, by virtue of a tamperproofing ring (16), to the mouth (20) of the bottle (2) before it is actually used.

13. Cap according to Claim 12, **characterized in that** the tamperproofing ring (16) is connected by at least a weakened region of material (17) to the free end edge (10') of the cap body (1) so as to make the cap body (1) easier to detach from the tamperproofing ring (16) which is moulded as one with the cap body (1) and, once the cap is in place, held firmly secured to the mouth (20) of the bottle by an annular retaining means (22).

14. Cap according to any one of the preceding claims, **characterized in that** the end wall (10) of the cap body (1) extends laterally beyond the cylindrical wall (12) of the cap body (1) to form a rim (13), giving the user a better purchase on the cap.

15. Cap according to any one of the preceding claims, **characterized in that** it comprises a protective element intended to cover the dispensing orifice or orifices (15, 181, 15') so as to protect them.

16. Cap according to Claim 15, **characterized in that** the protective element is a lid or a removable film.

17. Cap according to any one of the preceding claims, **characterized in that** the dispensing orifice (15) has an interrupted or uninterrupted annular shape.

18. Cap according to any one of the preceding claims, **characterized in that** the dispensing orifice (15) consists of a succession of circular orifices distributed concentrically around the axis (1') of the said cap.

19. Cap according to any one of preceding claims, **characterized in that** the end wall (10) comprises at least one protrusion extending in an outwardly direction from external face of said end wall (10).

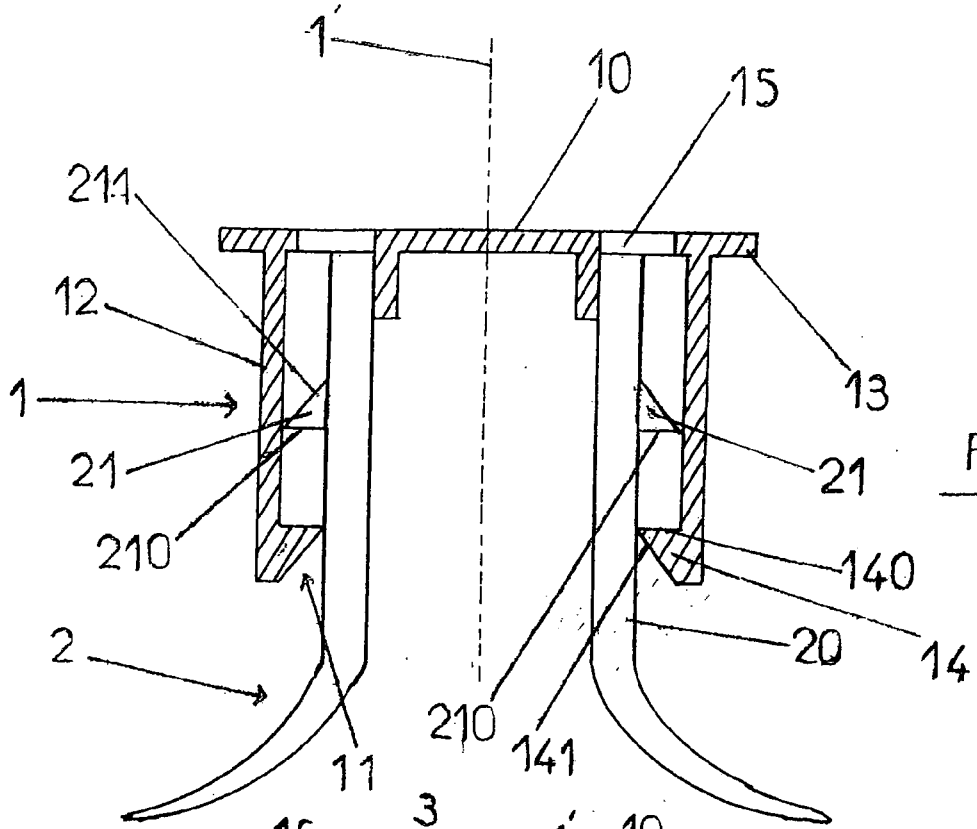
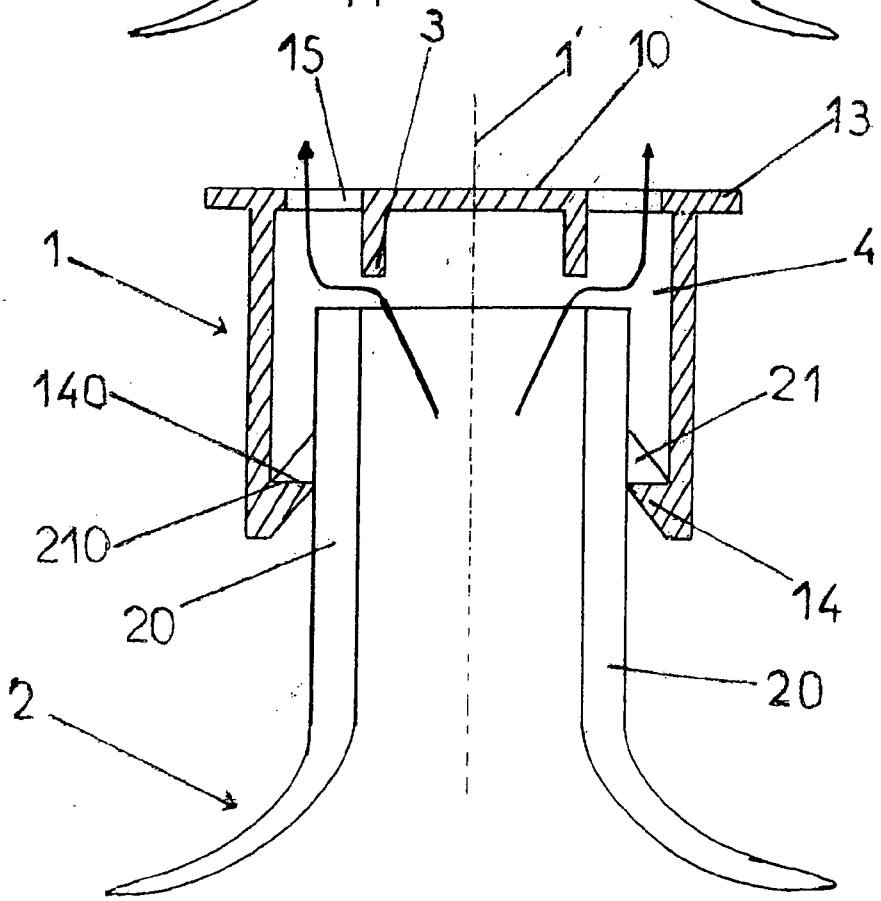

1'
10
15
211
12
1
21
210
13
21
140
14
20
2
210
141
11

Fig.1


15
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20
2

Fig.2

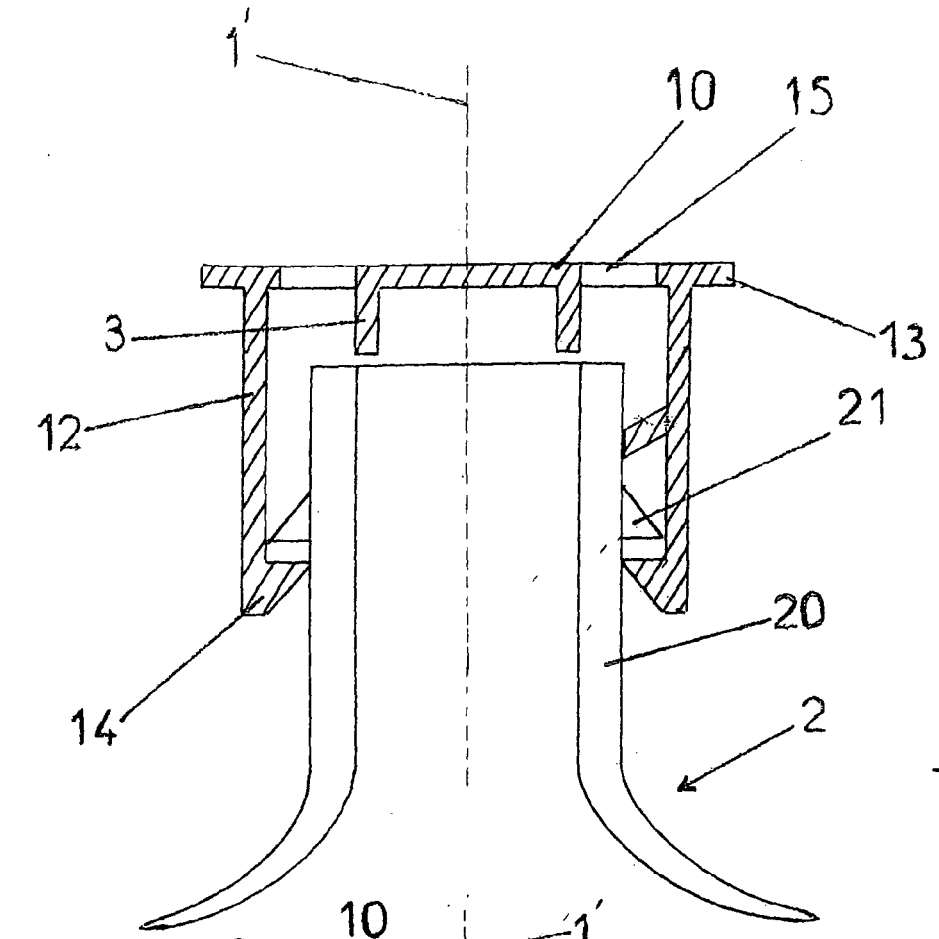

Fig.3

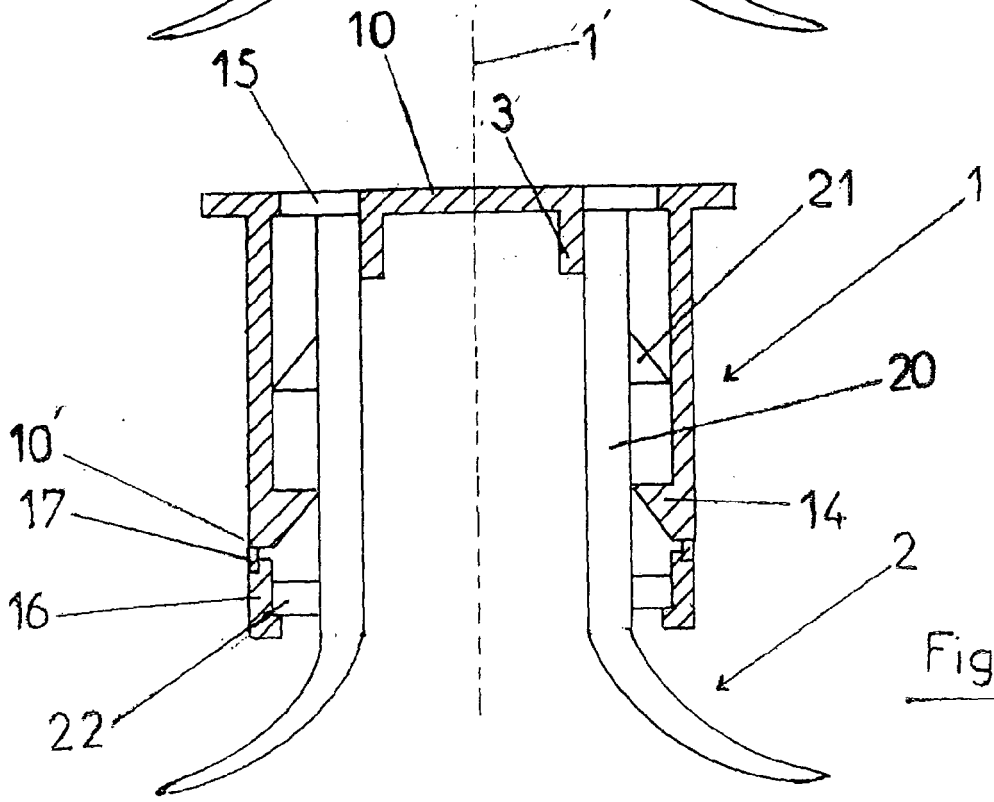

Fig.4

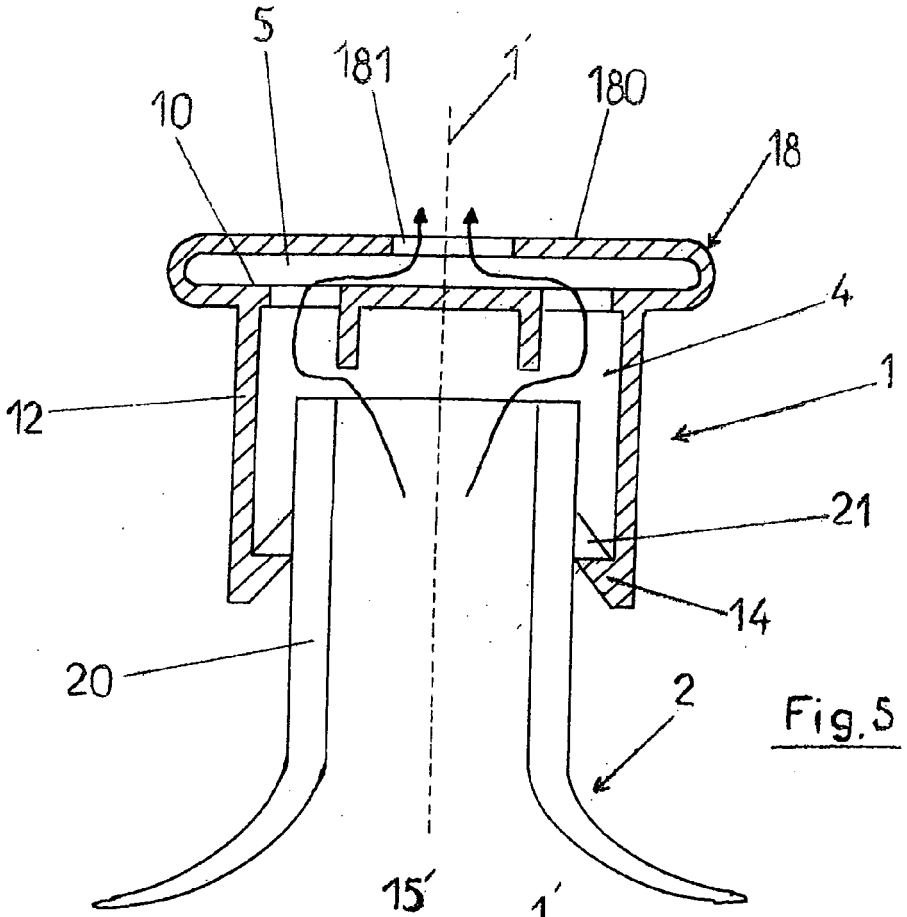

Fig.5

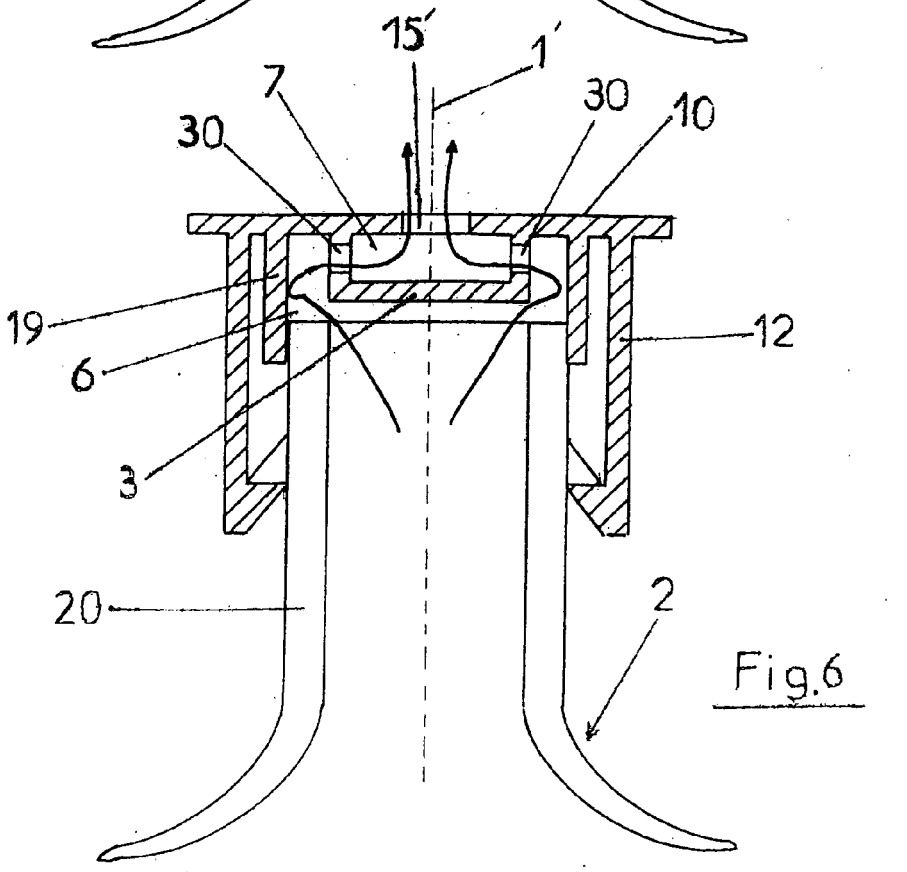

Fig.6

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EUROPEAN SEARCH REPORT

Application Number
EP 08 36 0024

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X Y	DE 10 2004 055338 A1 (ALPLA WERKE [AT]) 18 May 2006 (2006-05-18) * page 3, paragraph 31 - page 5, paragraph 59; figures 1-17 *	1-7, 14-19 11	INV. B65D47/24
Y	US 5 305 932 A (ISELI ANDREAS [US]) 26 April 1994 (1994-04-26) * column 4, lines 13-32; figure 1 *	11	
X	US 2008/110848 A1 (LANTOS EMERY [US] ET AL) 15 May 2008 (2008-05-15) * page 2, paragraph 28 - page 3, paragraph 31; figures 1-10 *	1-7, 12-14,19	
X	GB 2 010 787 A (FINKE KUNSTSTOFF ROBERT) 4 July 1979 (1979-07-04) * page 2, lines 36-93; figures 1-5 *	1-6,8,9, 19	
X	US 3 351 249 A (STULL MORTON B) 7 November 1967 (1967-11-07) * column 1, line 61 - column 3, line 45; figures 1-7 *	1-7,10, 17-19	
X	US 4 314 656 A (KESSLER MILTON) 9 February 1982 (1982-02-09) * column 7, line 60 - column 8, line 15; figures 14-17 *	1-7, 17-19	

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
Munich	12 December 2008	Grondin, David

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

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12-12-2008

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