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(72) Inventor: **BASTERO LOPEZ, Jesús Ma**
E-48620 Plentzia, Vizcaya (ES)

(71) Applicant: **Barangüa, S.L.**
48620 Plentzia (ES)

(74) Representative: **Elzaburu Marquez, Alberto**
Elzaburu S.A.
Miguel Angel, 21
28010 Madrid (ES)

(54) **NON-REFILLABLE CAP**

(57) Unrefillable cap comprising a pouring means (12) which includes a first cylindrical body (12-1) which adjusts hermetically inside the neck of a vessel (11) and a plugging means (13) insertable inside the pouring

means (12) comprising, in its bottom part, a tapered sector (14) such that the join between the section (14) of tapered section and the first cylindrical body (12-1) is made by means of a two-state hinge joining means.

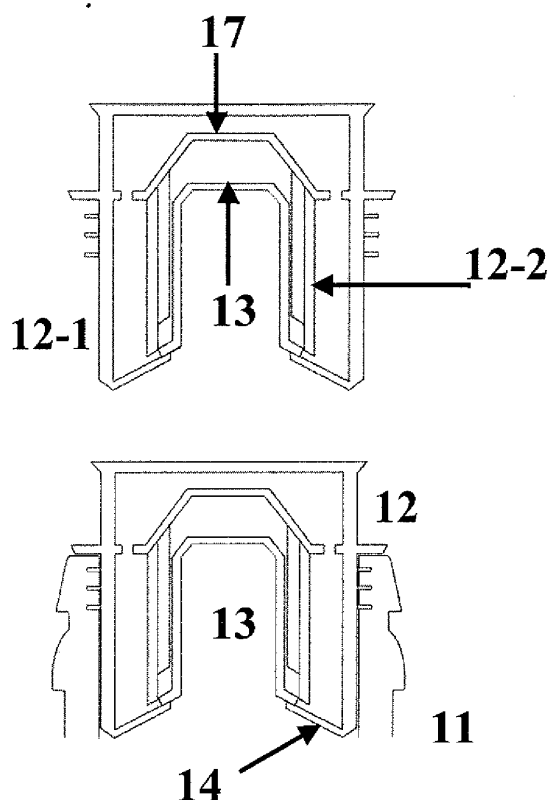


Fig. 1

Description

OBJECT OF THE INVENTION

[0001] This invention relates to a sealing system that prevents subsequent refilling of a vessel.

[0002] More specifically, this invention relates to a cap with an unrefillable pourer for a vessel of bottle type, incorporating systems for regulating at will the pouring flow of the liquid it contains and prevent refilling of the bottle by means of the introduction of a liquid from an external source.

STATE OF THE ART

[0003] Various caps are already known with unrefillable pourers which are affixed to the mouths of bottles, in which various parts work together to determine an adequate pouring flow of the liquid contained in a bottle and which act as a safety device to prevent the possible refilling of the bottle.

[0004] Typically an unrefillable cap consists of various assembled parts, each of which is made in a mould from a different plastic material; for example, the unrefillable cap consists of a pouring part, within which a plugging system or automatic valve is moved by gravity, and some guide systems which serve to guide the valve in its movements and, at the same time, to limit the opening situation of the device.

[0005] Consequently, it is necessary to perform several operations to complete assembly of the unrefillable cap, with the entire assembly forming a complex design which is somewhat complicated to assemble, requiring moulds of a high price which increase the overall cost of the unrefillable cap.

[0006] It is therefore necessary to develop a cap with an unrefillable pourer comprised of a reduced number of elements of simple design, in order to make the entire unit easy to assemble and to be of a reduced overall cost.

CHARACTERISATION OF THE INVENTION

[0007] This invention seeks to resolve or reduce one or more of the aforementioned drawbacks by means of an improved cap with an unrefillable pourer comprising a pouring system that includes a first cylindrical body which fits hermetically in the neck of a vessel and a plugging system inserted in the interior of the pouring system; in such a way that the bottom of the pouring system comprises a section with a tapered cross-section in such a way that the union between the tapered section and the first cylindrical body is by means of a two-state hinge-type joining system.

[0008] One purpose of the invention is to develop an unrefillable cap that comprises a reduced number of parts that are built and assembled with relative ease, ensuring that said unrefillable cap can be obtained using a minimum of materials and labour, thus obtaining an unrefill-

able cap at a reduced price.

[0009] A further purpose of the invention is to prevent subsequent fraudulent refilling of the bottle. This function is based on the vertical movement of the plugging system or throttle valve depending on whether the bottle is in an upright or inclined position.

[0010] Yet another purpose of the present invention is to simplify the manufacturing process through the moulding and assembly of the different parts comprising the unrefillable cap.

[0011] Therefore, this invention makes it possible to simplify and economise the manufacture of the unrefillable cap, improving industrial effectiveness.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] There follows a description of the devices that comprise the invention, for the purposes of example only, with reference to the enclosed schematic drawings, in which:

Figure 1 is a vertical section of a cap with unrefillable pourer as per the invention,

Figure 2 is a partial vertical section of a plugging system as per the invention

Figure 3 is a perspective view of the pouring system as per the invention, and

Figure 4 is a partial vertical section of the system with unrefillable pourer as per the invention.

DESCRIPTION OF THE INVENTION

[0013] Figure 1 illustrates an unrefillable cap comprising a pouring system 12, made using moulds, of a tubular cylindrical section, to fit hermetically in the interior of the neck of a vessel such as a bottle 11, and a plugging system 13, which moves between a closed position, bottle 11 in vertical position supported on its base, preventing liquid being poured into the interior of the bottle and a pouring position, bottle upturned, such that the plugging system 13 is separated from the closing position allowing the contents of the bottle 11 to pass towards the exterior.

[0014] The diameter of the bottom part of the first cylindrical body 12-1 is progressively reduced creating a tapered section 14 truncated cone like a flap tapering progressively towards the central axis of the pourer 12. The central gap allows the liquid to be poured from the interior of the bottle 11 to the exterior thereof.

[0015] Figure 3 shows that the union between the tapered flap 14 truncated cone and the first tubular body 12-1 is performed by means of a joining system like a two-state hinge or joint. In other words, the tapered flap has a first or initial position as described above and a second, final or seated position when the plug 13 or valve is housed in the interior of the pourer 12. The two posi-

tions of the flap 14 are illustrated in Figures 1 and 3.

[0016] At the top of the interior of the pourer 12, i.e. in the end opposite the tapered flap 14 truncated cone, there are various peripheral radial projections 16 in one or two levels, in this latter case superimposed, namely, struts or ribs which protrude sufficiently from the internal side of the wall of the pourer 12 towards the centre of the pourer for the purposes of union and to support a dome 17 which limits the longitudinal displacement of the plug 13.

[0017] It should be noted that these radial projections 16 allow the contents of the bottle to pass through when the bottle is in the pouring position and at the same time form a housing to protect against possible tampering with the plugging means 13 or valve.

[0018] At the bottom of this dome 17, there is also a second cylindrical body 12-2 concentric or coaxial to the first body 12-1 of the pourer 12; analogously, the second body 12-2 has a cylindrical tubular section of a shorter length than that of the first cylindrical body 12-1, i.e., the second tubular body 12-2 which extends towards the interior of the first tubular body 12-1 of the pourer.

[0019] The second cylindrical body 12-2 has a number of ribs distributed regularly on the inside face of the cylinder which guide the movement of the plug system 13 between the closed or resting position, when the bottle is upright, and the opposite position in which it allows the contents of the bottle 11 to flow out freely when it is upturned.

[0020] Consequently, the plugging system 13 or valve must be housed in the seat formed between the dome 17, the second tubular cylinder 12-2 and the tapered flap 14 truncated cone of the pourer 12. The plug system 13 must therefore be of any shape suitable to be introduced under pressure in said seat formed in the pourer 12 through the gap in the tapered flap 14 truncated cone, such that when the plug system 13 is introduced in the pourer 12, the tapered flap 14 truncated cone is turned over towards the interior of the pourer 12 to the seat or closed position, shown in Figure 3, which prevents liquid being poured into the bottle 11.

[0021] Therefore, once the plugging system 13 has been housed in the interior of the pourer 12, the tapered flap 14 truncated cone is oriented facing up, i.e., towards the dome 17 of the pourer 12, shown in figures 1, 3 and 4, so that when the bottle 11 is in the upright position the plugging system 13 rests at least on the edge of least diameter of the tapered flap 14 truncated cone.

[0022] Once the tapered flap 14 truncated cone has acquired the seat position, there is no possibility of extracting the plugging system 13 without breaking said tapered flap 14 truncated cone.

[0023] Furthermore, as illustrated in Figure 4, the unrefillable cap is completed with an external cap 41, which may be joined from source by means of a tear-off line to the first body 12-1 of the pourer 12, in such a way that the assembled whole is covered by said cap 41.

[0024] It should be noted that the unrefillable cap is

made up of various parts of which that or those which comprise the pouring part 12, which must remain attached to the neck of the bottle 11, is/are formed only by two assembled parts, namely, the pourer 12 as such and the plugging system 13.

[0025] The plugging system 13 may take different shapes such as a ball and others, in such a way that when the vessel is in its normal vertical position, said plugging system 13 is supported on its seat and prevents the refilling of the vessel 11 and, when the vessel 11 is inclined, the plugging system 13 is moved out of place allowing the liquid contained in the vessel 11 to flow out.

[0026] With reference again to figure 2, the plugging system 13 can take the form of an inverted U or thimble whose edge is extended by means of a peripheral extension like a ring-shaped hoop 13-1 oriented in the opposite direction to the axis of symmetry of the thimble, i.e., its diameter progressively extends to create a section that is tapered in cross-section. Thus in the resting position of the bottle 11 the plugging system 13 is supported on the seat produced at the base of the pourer 12 establishing the closing position on an inclined plane, shown in Figures 1 and 4, formed by the flap 14 of the pourer 12 which makes it practically impossible to refill the bottle 11.

[0027] With reference again to figure 1, it can be seen that the cap with unrefillable pourer 12 as established here is housed in the neck of the bottle 11 and consists of two parts, a pourer 12 and a plugging system or valve 13. The liquid is poured through the orifices and passages formed between the first cylindrical body 12-1, second cylindrical body 12-2, dome 17 and struts or ribs 16 which support it.

[0028] Turning again to figure 4, it is seen that on the outside of the neck of the bottle 11 there is an outer ring or outer flap physically coupled to the pourer 12 through a flat ring which projects from the outer face of the mentioned pourer 12. Consequently, said flap external to the neck of the bottle 11 holds and secures the pourer 12 to the neck of the bottle 11 even more.

[0029] Said outer flap can be joined permanently to the body of the pourer 12 in the event of making both parts in a single part by moulding. Consequently, a pourer 12 is created with outer holding flap and secured to the neck of the one-piece bottle.

Claims

1. **Unrefillable cap** comprising a pouring system (12) that includes a first cylindrical body (12-1) which fits hermetically in the interior of the neck of a vessel (11), a plugging system (13) that can be inserted in the interior of the pouring system (12); **characterised by** the fact that the bottom of the pouring system (12) comprises a section (14) truncated cone which is tapered in cross-section in such a way that the union between the tapering section (14) truncated cone and the first cylindrical body (12-1) is by means

of a two- state hinge-type union system.

2. **Unrefillable cap** as per Claim 1; **characterised by** the fact that the plugging system (13) is in the shape of an inverted U, encircled at its base, by a ring-shaped hoop (13-1) with a tapering section. 5
3. **Unrefillable cap** as per Claim 2; **characterised by** the fact that the closed position of the plugging system (13) is obtained on an inclined plane defined by the tapering section (14) truncated cone when it is in the seated position on which it supports the plugging system (13) to seal the entrance to the vessel (11). 10
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4. **Unrefillable cap** as per any of the Claims 1 to 3; **characterised by** the fact that the unrefillable cap comprises two assembled pieces: a pouring system (12) and a plugging system (13) which may be housed in the latter. 20
5. **Unrefillable cap** as per Claim 4; **characterised by** the fact that the outer flap is joined, permanently, to a flat substantially horizontal ring which projecting from the body of the pourer (12) adapted for holding and securing the said pourer (12) to the neck of the vessel (11). 25
6. **System of automatic sealing** which may be fitted hermetically in the interior of the neck of a vessel (11); **characterised by** the fact that it comprises an unrefillable cap as per Claim 4 which can be closed by means of an external sealing system (41), which may be joined from source through a tear-off line to the first body (12-1) of the unrefillable cap. 30
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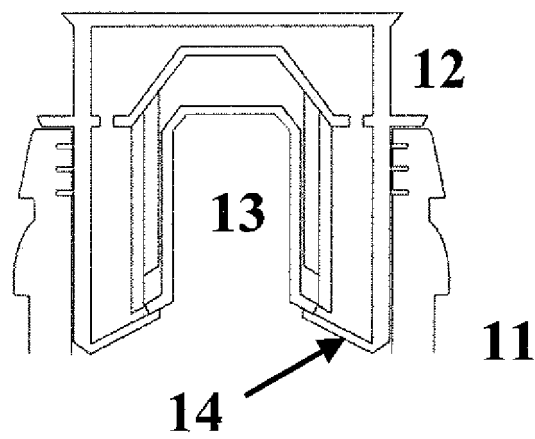
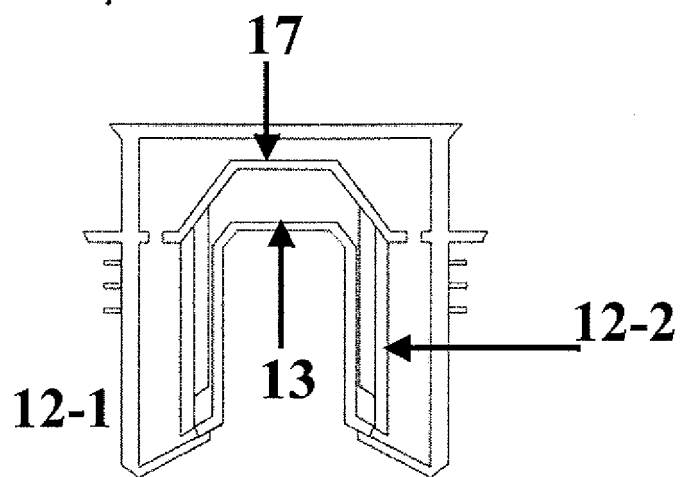


Fig. 1

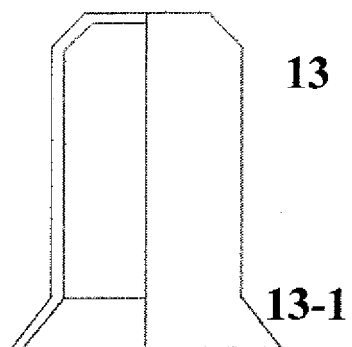


Fig. 2

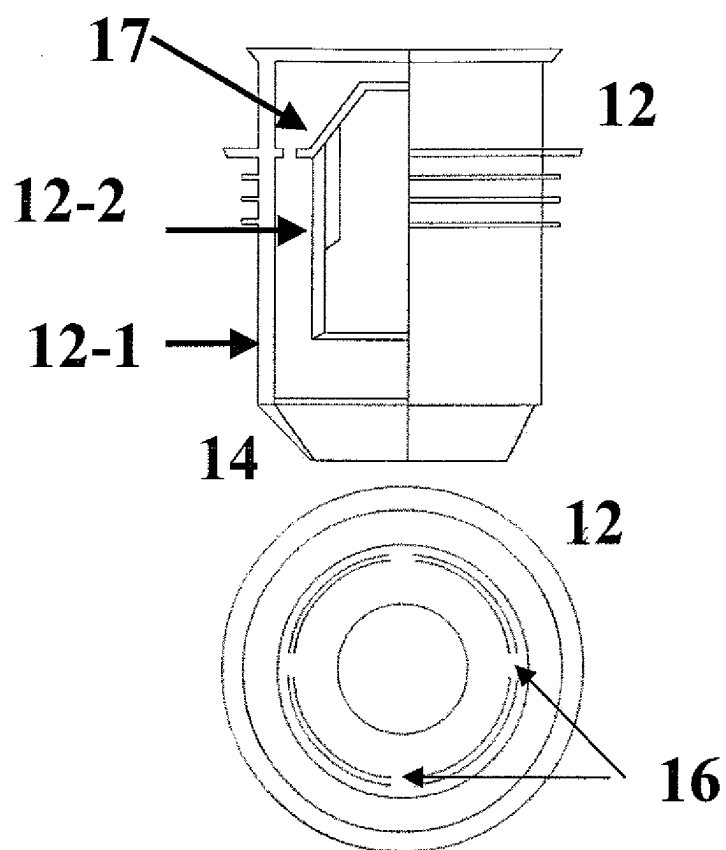


Fig 3

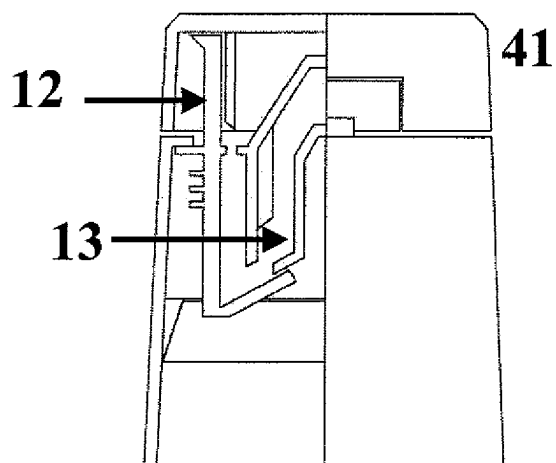


Fig. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ ES 2005/070007

A. CLASSIFICATION OF SUBJECT MATTER		
<i>B65D 47/02 (2006.01)</i>		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
B65D47/02,B65D47/00,B65D49/00,B65D4902,B65D49/04		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
CIBEPAT,EPODOC,WPI		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ES 2080646 A2 (Formas Técnicas, S.A) 01.02.1996, column 4, lines 14 - 20; lines 56 -61 ; drawings	1-5
A	US 2004026464 A1 (Granger et al.) 12.02.2004, the whole document	1,4,5
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
30 March 2005 (30.03.2005)		06 April 2005 (06.04.2005)
Name and mailing address of the ISA/		Authorized officer
Facsimile No.		Telephone No.

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/ ES 2005/070007

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Form PCT/ISA/210 (patent family annex) (July 1992)