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(54) A capsule for closing containers

(57) In the capsule for closing container for liquids, a hood-shaped first element (3) is screw-coupled with a mouth (2) of the container and exhibits and outlet mouth (32) for liquids. A second element comprises an annular first part (40) jointed with the first element (3) and connected coaxially to an annular second part (41) by means of easy-break fractures. A third element (5) is coaxially conected internally of the second element by easy-break fractures so as to be detachable therefrom when the capsule is inserted on the container. The third element (5), which is provided with an obturator (50) operatively associated with the outlet mouth (32) of the first element (3), exhibits means for limiting (55) for interacting with the first element (3) to limit an axial raising movement.

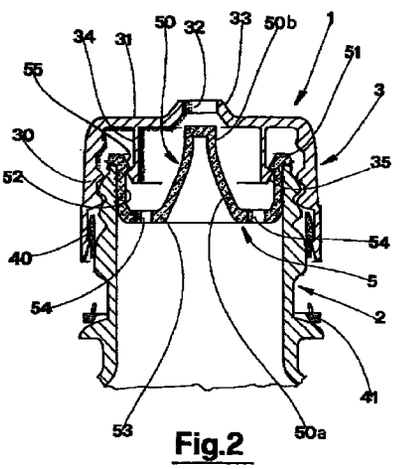

Fig.2

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Description

[0001] Capsules for closing containers such as bottles of water, soft drinks and the like have been present in the art for some time. The capsules are generally speaking made of plastic and realized in two parts which are joint-assembled at the moment they are inserted on the container. The first part of the capsule is essentially constituted by a cap which opens and re-closes the container, while the second part comprises an annular element for checking that the container has in fact been opened. This annular element comprises a first ring which is joint-fitted into the cap and a second ring which is coaxially connected to the first by easy-break fractures and which is commonly known as the security strip. The second part of the capsule can also comprise an additional element, constituted for example by a pouring device, the periphery of which is connected by easy-break points to an internal edge of the annular element so as to be easily detachable from the latter when the capsule is inserted on the container neck.

[0002] The two parts of the capsule are made separately, in general by injection-moulding or compression, and assembled subsequently, at the moment of application of the capsule on the container.

[0003] Capsules of the above type are known in the prior art, for example in patent GB 2141414 and Italian application IT MO96A000023.

[0004] The main aim of the present invention is to realize a capsule composed of two assemblable parts which is provided with a security strip for indicating that the container has been opened and a pouring device which enables the liquid contained in the container to be poured without removing the cap from the container itself.

[0005] An advantage of the invention is that it provides a tamper-proof capsule with a pouring device but which is also economical to produce, store and assemble.

[0006] A further advantage of the invention is that it enables the container to be opened and closed as well as the contained liquid to be poured with very simple and rapid operations.

[0007] A still further advantage of the invention is that it provides a capsule which can be applied to mouths of containers already existing on the market.

[0008] Yet further advantages of the capsule are: its relatively small mass, a good seal, a steady pouring action, which last enables the consumer to drink directly from the bottle without any need for a beaker and without having to touch the mouth of the container with his or her lips.

[0009] These aims and advantages and more besides are all attained by the capsule of the invention, as it is characterized in the claims that follow.

[0010] Further characteristics and advantages of the present invention will better emerge from the detailed description that follows of a preferred but non-exclusive embodiment of the invention, illustrated purely by way of a non-limiting example in the accompanying figures of the drawings, in which: figure 1 is a schematic halfway section in vertical elevation of the capsule, assembled and applied to the mouth of a container, in a closed configuration; figure 2 is the capsule of figure 1 in an open configuration.

[0011] With reference to the above-cited figures, 1 denotes in its entirety a capsule for containers made according to the present invention. The capsule 1 is applied to a mouth 2 of a container constituted by a plastic bottle, for example having flexible lateral walls and containing a drink.

[0012] The capsule 1 comprises a first hood-shaped element 3, destined to be constrained to the mouth 2 of the container by a screw coupling, with the possibility of moving axially up and down with respect to the container. The first element 3, which constitutes the cap of the container and which serves to re-close the container after it has been opened for the first time, can be moulded and made of relatively stiff plastic.

[0013] The first element 3 comprises a cylindrical lateral body 30 closed by an upper wall 31. The lateral body 30 is provided with an internal thread which couples with an external thread provided on the mouth 2 of the container. The upper wall 31 centrally exhibits an outlet mouth 32 for the liquid in the container; which is situated at the upper end of an upwards-facing truncoconical spout 33. The first element 3 further exhibits a tubular wall 34, preferably cylindrical, having an axis which is parallel to that of the mouth 2 of the container. In the illustrated example the tubular wall 34 is coaxial to the mouth 2. The tubular wall 34 projects downards from the upper wall 31 and exhibits, in proximity of its lower end, an outwardly-projecting annular lip 35.

[0014] The capsule 1 comprises a second element 4, annular in shape, comprising a first annular part 40 and a second annular part 41 (in effect a security strip) which is connected coaxially to the first part 40 by easy-break fractures. The first annular part 40 is destined to joint in an annular seating provided internally of the lateral body 30 of the first element 3 when the first element 3 is assembled with the second element 4.

[0015] The capsule 1 further comprises a third element 5, coaxially connected by fracture points to the second element 4 so as to be detachable therefrom on insertion of the capsule 1 on the container. The third element 5 has an external diameter which is smaller than the internal diameter of the second element 4. The accompanying figures of the drawings show the capsule 1 already applied on the container, so that the second element 4 and the third element 5 are detached. During the capsule 1 manufacturing, by moulding, a single piece is obtained, constituted by the second element 4 and the third element 5, joined by the above-mentioned easy-break fractures.

[0016] During use the first element 3 can selectively assume at least a lower first closure position (figure 1) in which the outlet mouth 32 is closed by an obturator 50

constrained solidly to the third element 5 and an upper second position in which it is open (figure 2), and in which the outlet mouth 32 is distanced from the obturator 50 and the second annular part 41 is detached from the first part 40.

[0017] The third element 5 comprises three parts joined together in a single piece. A first part 51 is annular and is destined to form a seal with the upper edge of the mouth 2 of the container, This first part 51, which is the most external part of the third element 5, bears the fracture points which connect the third element 5 to the second 4 before the capsule is mounted. A second part 52 of the third element 5, cylindrical and connected to the first part 51, is destined to connect sealingly with the internal surface of the mouth 2 of the container; this second part 52, which is coaxial to the mouth 2, can have annular lips, projecting externalwise and having the function of a seal on the inside of the mouth 2. A central third part 53 of the third element 5 bears the above-mentioned obturator 50 and has its periphery connected to a lower end of the second part 52. The third part 53 is destined to close the mouth 2 of the container and exhibits one or more passage apertures 54 for the liquid in the container. In the above-described example there is a plurality of apertures 54 arranged crown-fashion about the base of the obturator 50. The obturator 50 is constituted in the illustrated example by an upwards-facing internally-hollow axial projection situated at the centre of the third element 53. The projection has a lower part 50a, truncoconical in shape, joined to an upper part 50b, which is cylindrical and superiorly closed.

[0018] The various elements of the capsule 1 are conformed and arranged in such a way that, when the first element 3 is in the closed position (figure 1), its tubular wall 34 is almost entirely internally facing the second part 52 of the third element 5 which seals on the internal surface of the mouth 2.

[0019] Situated in proximity of the upper end of the second part 52 of the third element 5 are means for limiting an axial displacement of the first element 3.

[0020] The means for limiting comprise an annular projection 55 projecting inwardly of the third element 5 and having an internal diameter which is smaller than the internal diameter of the mouth 2 to which the capsule is destined to be fitted.

[0021] The annular projection 35 of the first element 3 is predisposed to interact contactingly with the above-mentioned means for limiting on the third element 5, as can clearly be seen in figure 2.

[0022] The manufacture and mounting of the capsule are substantially of known type and thus require no specific explanation.

[0023] After mounting, the capsule 1 is in the closed and inviolate configuration as shown in figure 1, with the second element 4 still whole and the outlet mouth 32 closed by the obturator 50. By unscrewing and raising the first element 3 the capsule moves into the configuration of figure 2; the raising of the first element 1 is stopped by the fact that the annular projection 35 of the first element 3 strikes on the means for limiting (in the example represented by the internal projection 55) of the third element 5. In this configuration, the capsule can be used to drink directly from the spout 33 of the container by upturning the container, with no need for a beaker and without touching the spout itself.

[0024] This operation can be further facilitated if the lateral walls of the container are flexible, so that the container can function as a pump and expel the liquid more energetically.

[0025] As has been seen, the invention enables the liquid to be poured without removing the cap or any other part of the capsule from the container. The consumer can, however, if so desired, completely detach the capsule from the container and so free the whole mouth 2, by exerting a relatively strong unscrewing and raising force on the first element 3; then, if so desired, the capsule can be replaced on the container mouth.

[0026] Furthermore, starting from the open configuration of figure 2, the container can be re-closed by screwing the first element 3 so that the obturator 50 re-closes the outlet mouth 32. The detachment of the security strip 41 remains the proof that the container has been opened.

Claims

1. A capsule for closing containers, comprising:

   a hood-shaped first element (3) destined to be constrained to a mouth (2) of a container and able to move axially upwards and downward with respect to the container;
   an annular second element (4), comprising a first annular part (40) destined to joint with the first element (3), and a second annular part (41), destined to function as a security strip, connected coaxially to the first annular part (40) by means of easy-break fractures;
   a third element (5), connected coaxially to the second element (4) by fractures so as to be detachable therefrom upon first application of the capsule on the container; which third element (5) has an external diameter which is smaller than an internal diameter of the second element (4);
   characterised in that the first element (3) exhibits an outlet mouth (32) for a liquid in the container and that the outlet mouth (32) can selectively assume at least a lower first position in which the outlet mouth (32) is closed by an obturator (50) solidly connected to the third element (5), and at least an upper open position, in which the outlet mouth (32) is distanced from the obturator (50) and the second annular part (41) is detached from the first annular part (40).

2. The capsule of claim 1, characterized in that the third element (5) exhibits means for limiting (55) for interacting with the first element (3) in order to limit an axial raising movement.

3. The capsule of claim 2, characterized in that said means for limiting comprise a first annular projection (55) which projects internalwise of the third element (5).

4. The capsule of claim 3, characterized in that the first annular projection (55) has an internal diameter which is smaller than an internal diameter of the mouth (2) which is destined to receive the capsule.

5. The capsule of any one of the preceding claims from 2 to 4, characterised in that the first element (3) exhibits a tubular wall (34) which is parallel to the mouth (2) of the container, on which tubular wall (34) a second annular projection (35) is fashioned, projecting externalwise and destined to interact contactingly with said means for limiting (55).

6. The capsule of claim 5, characterized in that the second annular projection (35) is situated in proximity of a lower end of the tubular wall (34).

7. The capsule of claim 5 or 6, characterised in that when the first element (3) is in the closed position, the tubular wall (34) is at least partly facing a part (52) of the third element (5) destined to meet sealingly with the internal surface of the mouth (2) of the container.

8. The capsule of claim 7, characterised in that the obturator (50) is an upwards-facing and internally hollow axial projection of the third element (5), and that said projection exhibits a truncoconical lower part (50a) united with a cylindrical and superiorly-closed upper part (50b).

9. The capsule of any one of the preceding claims, characterised in that the outlet mouth (32) is situated at an upper end of an upwards-facing spout (33).

10. The capsule of any one of the preceding claims, characterised in that the third element (5) comprises:

an annular first part, destined to seal on an upper edge of the mouth of the container (2);
a cylindrical second part (52), connected to the first part (51) and destined to seal on an internal surface of the mouth (2) of the container (2);
a central third part (53), bearing said obturator (50) and having a periphery which is connected to a lower end of the second part (52), destined to close the mouth (2) of the container and exhibiting one or more apertures (54) for passage of the liquid in the container (2).

11. The capsule of any one of the preceding claims, characterised in that the first element (3) is destined to be screw-coupled with an external side of the mouth (2) of the container.

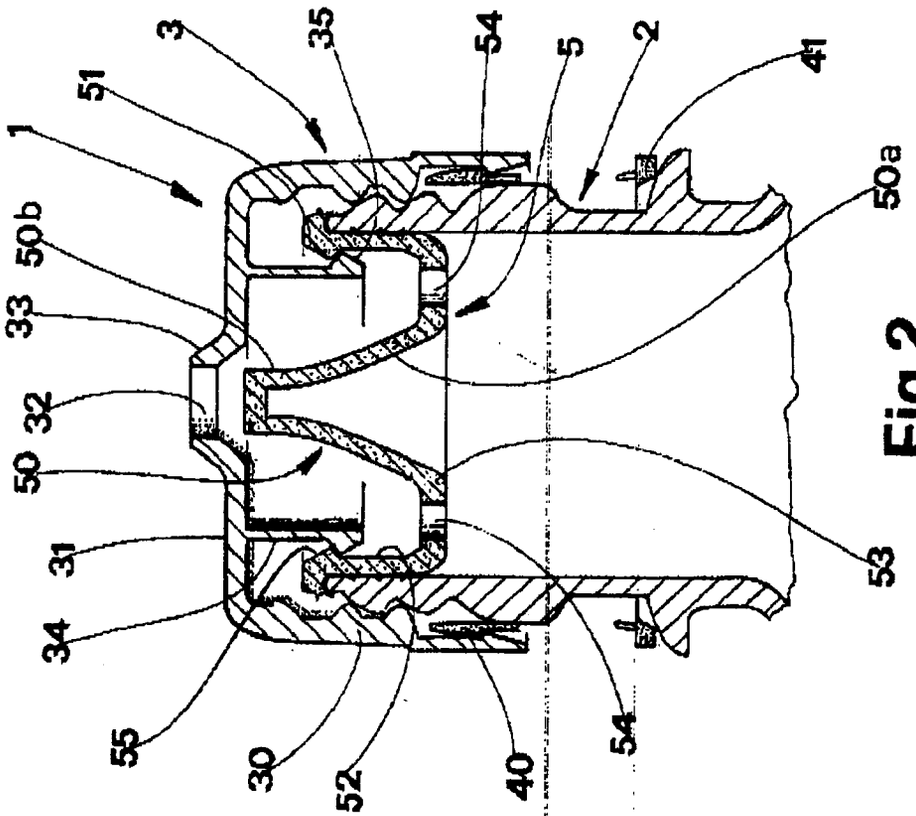
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Fig.2

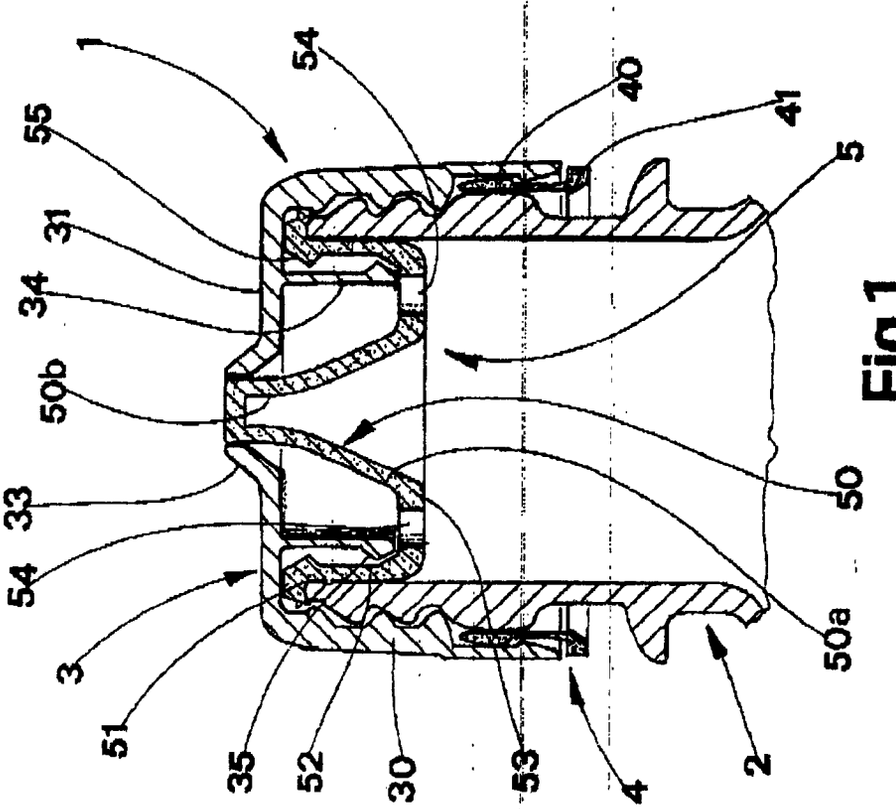
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Fig.1

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EUROPEAN SEARCH REPORT

Application Number
EP 98 11 7430

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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
BERLIN	4 January 1999	Olsson, B

CATEGORY OF CITED DOCUMENTS

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