(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 1 918 218 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
07.05.2008 Bulletin 2008/19

(51) Int Cl.:
B65D 51/00 *(2006.01)*

(21) Application number: **07119586.1**

(22) Date of filing: **30.10.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK RS

(30) Priority: **02.11.2006 IT TO20060781**

(71) Applicant: **Alplast S.P.A.**
10121 Torino (IT)

(72) Inventors:
- **Goria, Francesco**
  I-14015, SAN DAMIANO D'ASTI (Asti) (IT)
- **Caporaletti, Fabio**
  I-15050, CARBONARA SCRIVIA (Alessandria) (IT)

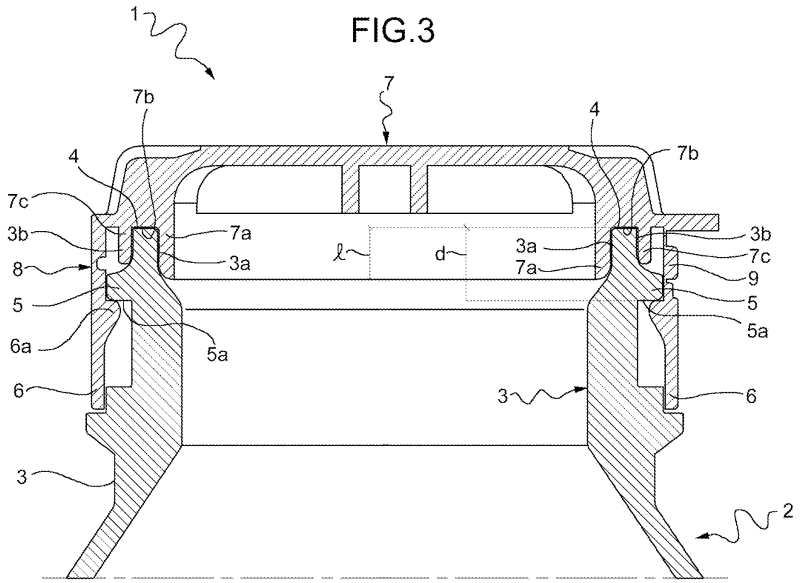
(74) Representative: **Quinterno, Giuseppe et al**
Jacobacci & Partners S.p.A.
Corso Emilia, 8
10152 Torino (IT)

(54) **Sealing capsule for the mouth of a receptacle, in particular a bottle**

(57) The capsule (1) is intended to seal the mouth of a receptacle (2), in particular a bottle, which has a neck (3) with a top surface (4) and with an outer retaining collar (5) spaced from said top surface (4). The capsule (1) is formed as one piece and has:
a ring (6) able to snap-engage beyond the retaining collar (5) of the receptacle (2),
a cap (7) hinged with the ring (6) by means of an integral hinge (8) and having an inner tubular skirt (7a) able to engage in a liquid-tight manner against an inner surface (3a) of the neck (3) of the receptacle adjacent to the top surface (4) and, around said skirt (7a), an annular bearing surface (7b) intended to press against the top surface (4) of the neck of the receptacle, and
a tamper-evident strip or band (9) able to connect the cap (7) to the ring (6) and be pulled off during initial opening of the capsule (1).

The cap (7) has moreover an outer circumferential skirt (7c), coaxial with the inner skirt (7a) and able to engage in a liquid-tight manner against an outer surface (3b) of the neck (3) of the receptacle (2) adjacent to the top surface (4), so that the cap (7) is sealingly joined substantially continuously to a surface which extends astride the edge (4) of the mouth of the receptacle (2).

FIG.3



EP 1 918 218 A2

Description

[0001] The present invention relates to sealing capsules of the so-called tamper-proof type for the mouth of a receptacle, in particular a bottle, which has a neck with a top surface and with an external retaining collar spaced from said top surface. The invention relates in particular to a sealing cap formed as one piece, for example made of plastic, having:

a ring provided with fastening means able to snap-engage beyond the abovementioned retaining collar of the receptacle,
a cap hinged with the ring by means of an integral hinge and an inner tubular skirt able to engage in a liquid-tight manner against an inner surface of the neck of the receptacle adjacent to the abovementioned top surface and, around said skirt, an annular bearing surface intended to press against the top surface of the neck of the receptacle, and
a tamper-evident strip or band able to connect the cap to the ring and be pulled off during initial opening of the capsule.

[0002] An object of the present invention is to propose an improved sealing capsule of the type specified above, which is able to be produced easily and having during use an effective liquid-tight sealing action.

[0003] This and other objects are achieved according to the invention with a sealing capsule of the type defined above, characterized in that the cap has moreover an outer circumferential skirt, coaxial with the inner skirt and able to engage in a liquid-tight manner against an outer surface of the neck of the receptacle adjacent to the abovementioned top surface, so that the cap is sealingly joined substantially continuously to a surface which extends astride the edge of the mouth of the receptacle.

[0004] According to a further characteristic feature the inner skirt of the cap has conventionally a length smaller than the distance between the bottom side of the retaining collar and the top surface of the neck of the receptacle.

[0005] According to a further characteristic feature, the outer surface of the inner skirt of the cap has advantageously an annular sealing projection which, in the mounted condition of the capsule, presses against the inner surface of the neck of the receptacle.

[0006] Further characteristic features and advantages of the invention will appear from the detailed description which follows, provided purely by way of a non-limiting example, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a sealing capsule according to the present invention;
Figure 2 is a cross-sectional view along the line II-II of Figure 1; and
Figure 3 is a cross-sectional view similar to that shown in Figure 2 and shows a sealing capsule according to the present invention in the condition mounted on the mouth of a receptacle.

[0007] In the drawings 1 denotes overall a sealing capsule of the tamper-proof type for the mouth of a receptacle, such as that indicated by 2 in Figure 3.

[0008] With reference to Figure 3, the receptacle 2 has a neck 3, with a top surface 4, and with an outer retaining collar 5. This collar is axially spaced from the top surface 4 and has a bottom side indicated by 5a.

[0009] The sealing capsule 1 is manufactured as one piece, for example using a moulded plastic.

[0010] This capsule 1 has a ring 6 which, on its inner surface, has a projection 6a able to snap-engage beyond the retaining collar 5 of the neck 3 of the receptacle 2.

[0011] The capsule 1 also comprises a cap 7 which is hinged with the ring 6 by means of an integral hinge 8.

[0012] The cap 7 has an inner tubular skirt 7a which in the mounted condition of the capsule 1 engages in a liquid-tight manner against an essentially cylindrical inner surface 3a of the neck 3 of the receptacle. This inner cylindrical surface 3a of the neck 3 is adjacent to the top surface 4 thereof.

[0013] An annular bearing surface 7b is formed around the skirt 7a, in the bottom side of the cap 7. In the mounted condition of the capsule 1 this bearing surface 7b presses against the top surface 4 of the neck 3 of the receptacle, as can be seen in Figure 3.

[0014] The cap 7 also has an outer circumferential skirt 7c coaxial with the inner skirt 7a.

[0015] The outer skirt 7c, in the mounted and closed condition of the capsule 1, engages in a liquid-tight manner against an inner surface 3b of the neck 3 of the receptacle, adjacent to the top surface 4 thereof.

[0016] In the mounted condition of the capsule 1, the cap 7 is therefore sealingly joined continuously to a surface which extends astride the edge of the mouth of the receptacle 2, this surface encompassing the inner surface 3a, the top surface 4 and the outer surface 3b of the neck 3 of the receptacle.

[0017] The capsule 1 also comprises furthermore a tamper-evident strip or band 9 which connects the cap 7 to the ring 6 and which, in a manner known per se, can be pulled off during initial opening of the capsule 1.

[0018] With particular reference to Figure 2, the inner skirt 7a of the cap 7 conveniently has a length 1 (measured with respect to the plane of the bearing surface 7b) which is smaller than the distance d (Figure 3) between the bottom side 5a and the top surface 4 of the neck 3 of the receptacle.

[0019] Preferably, as shown in particular in Figure 2, the outer surface of the inner skirt 7a of the cap 7 has an annular sealing projection 10 which, in the mounted condition of the capsule, presses against the inner surface 3a of the neck 3 of the receptacle.

[0020] The circumferential projection 10 projects by a very small amount from the outer surface of the skirt 7a, for example by 0.2-0.3 mm. In the mounted condition of

the capsule this projection is in fact flattened substantially against the inner cylindrical surface 3a of the neck 3 of the receptacle, producing a local increase in the radial force with which the skirt 7a is applied to the inner surface 3a of the neck 3.

[0021] The projection 10 may have a substantially semicircular or semi-elliptical cross-section.

[0022] Obviously, without modifying the principle of the invention, the embodiments and the constructional details may be greatly varied with respect to that described and illustrated purely by way of a non-limiting example, without thereby departing from the scope of the invention as defined in the accompanying claims.

Claims

1. Sealing capsule (1) for the mouth of a receptacle (2), in particular a bottle, which has a neck (3) with a top surface (4) and with an outer retaining collar (5) spaced from said top surface (4), the capsule (1) being formed as one piece and having:

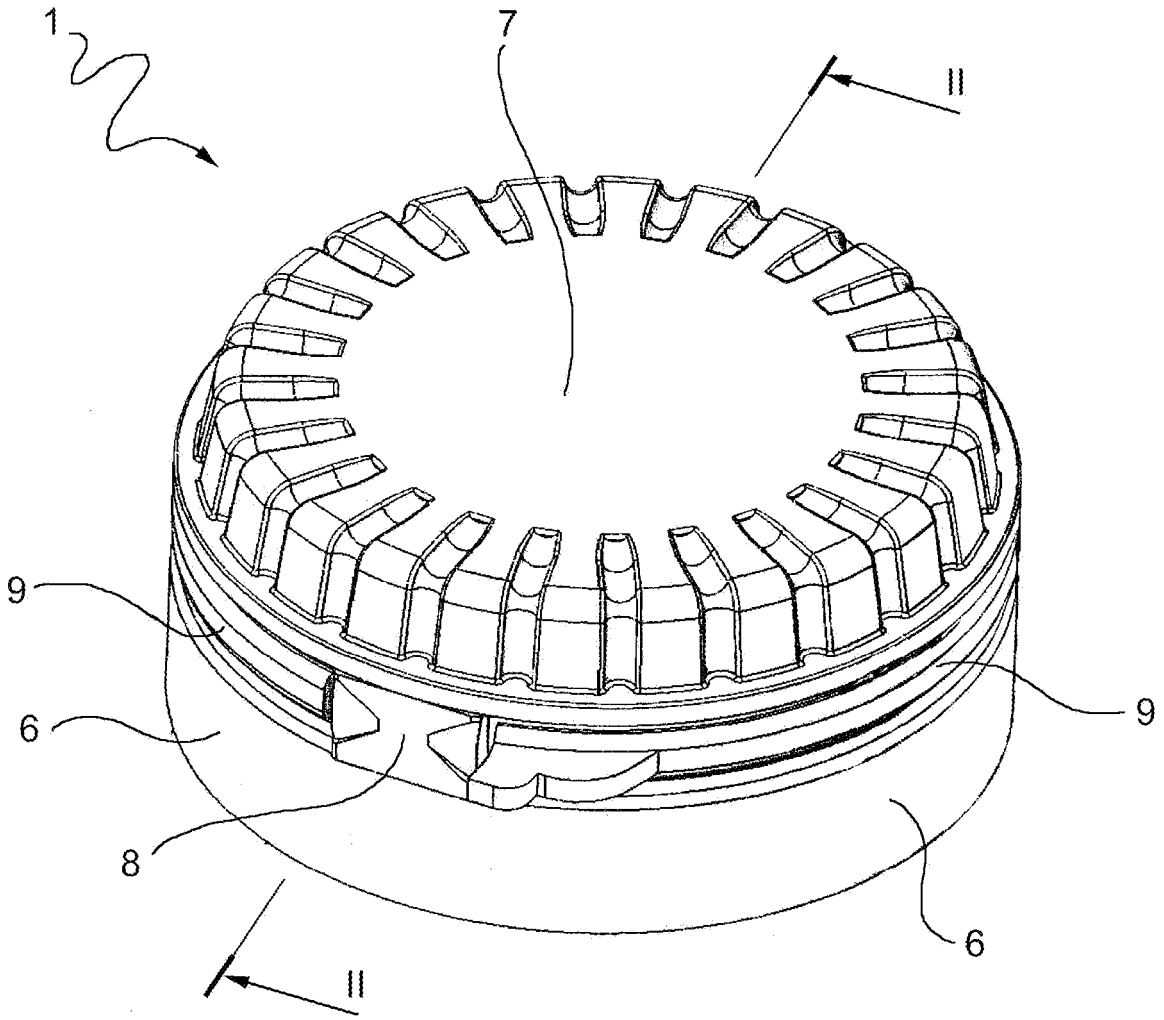
a ring (6) provided with fastening means (6a) able to snap-engage beyond said retaining collar (5) of the receptacle (2),
a cap (7) hinged with the ring (6) by means of an integral hinge (8) and having an inner tubular skirt (7a) able to engage in a liquid-tight manner against an inner surface (3a) of the neck (3) of the receptacle adjacent to said top surface (4) and, around said skirt (7a), an annular bearing surface (7b) intended to press against the top surface (4) of the neck of the receptacle, and
a tamper-evident strip or band (9) able to connect the cap (7) to the ring (6) and be pulled off during initial opening of the capsule (1),
the capsule (1) being **characterized in that** the cap (7) has moreover an outer circumferential skirt (7c), coaxial with the inner skirt (7a) and able to engage in a liquid-tight manner against an outer surface (3b) of the neck (3) of the receptacle (2) adjacent to said top surface (4), so that the cap (7) is sealingly joined substantially continuously to a surface which extends astride the edge (4) of the mouth of the receptacle (2).

2. Sealing capsule according to Claim 1, in which the inner skirt (7a) of the cap (7) has conventionally a length (l) smaller than the distance (d) between the bottom side (5a) of the retaining collar (5) and the top surface (4) of the neck (3) of the receptacle (2).

3. Sealing capsule according to Claim 1 or 2, in which the outer surface of the inner skirt (7a) of the cap (7) has an annular sealing projection (10) which, in the mounted condition of the capsule (1), presses against the inner surface (3a) of the neck (3) of the receptacle (2).

4. Sealing capsule according to Claim 3, in which said sealing projection (10) has a substantially semi-circular or semi-elliptical cross-section.

FIG.1



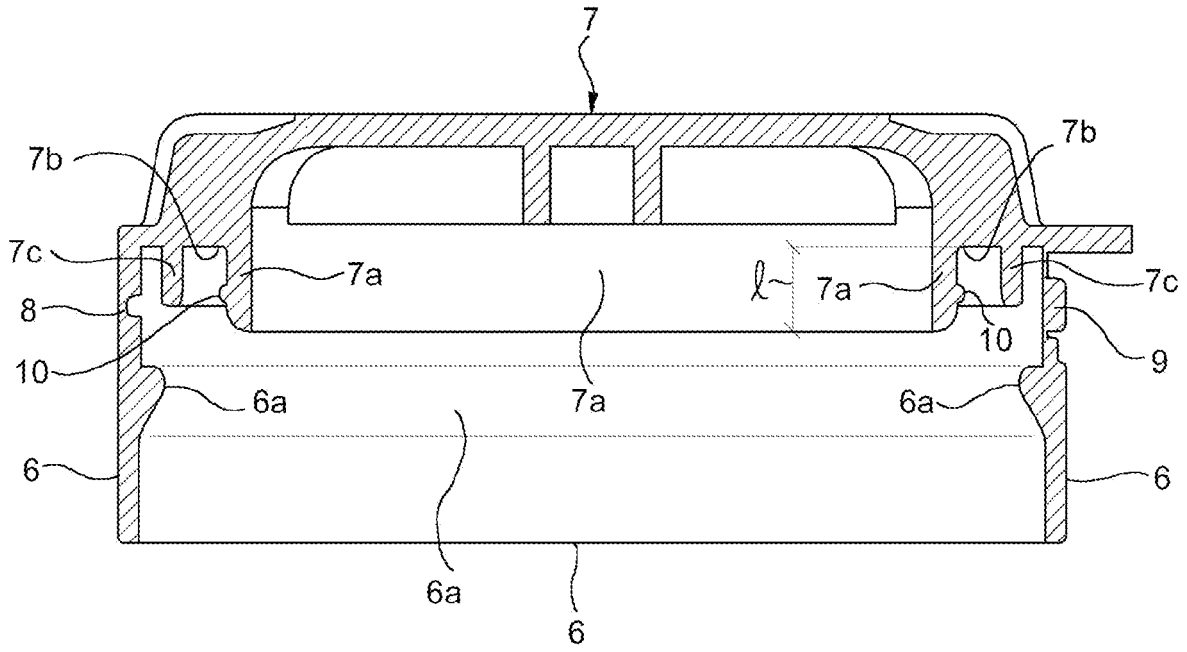


FIG.2

FIG.3