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(54) **Container provided with an improved cap**

Behälter mit verbessertem Verschluss

Conteneur avec capuchon amélioré

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Description

[0001] The present invention concerns a container provided with an improved cap.

[0002] As is known, certain types of metal containers and those in other materials have a metal capsule in the so-called "twist off" zone as a lid. Containers of this type are disclosed in DE 8 814 972 U. This capsule has a crimped lower edge and a plurality of helical ridges obtained along this edge in a uniformly distributed manner. In use, the lid is screwed onto the mouth of the container, a mouth that has a thread. At present, in the industrial sector, the phase of filling the container with a product and the successive phase of screwing on the lid is carried out using automatic systems that, regarding this last phase of closing, are equipped with a container gripper device, a lid gripper device and a device that first moves the lid close to the mouth of the container and then rotates the lid with respect to the container in order to accomplish the screwing on. The complexity and related cost of an automatic system that must carry out the above-described operations appear evident. In addition, the system must first of all ensure perfect centring between the lid and the mouth of the container in order to allow correct coupling between these two elements and then the required torque to correctly screw the lid on without damaging the container; for example, consider containers in a deformable material such as certain types of metal containers. It should be pointed out that for many products, perfect air and liquid tightness is required. Lastly, it is evident how the above-mentioned system is much more complex when the mouth of the container is defined along an axis other than the longitudinal vertical axis of the container.

[0003] The object of the present invention consists in making an improved cap that is devoid of the above-mentioned drawbacks.

[0004] According to the present invention, an improved cap comprises

a first component in a plastic material defined by an annular body that in correspondence to a longitudinal edge section has an annular cavity defined by two sections separated by an annular shoulder, a folded edge of a mouth of said container being housed in a snap-fit manner inside said cavity, and
a second component in a metal material constituted by a metal capsule in the so-called "twist off" zone already screwed onto said first component before said cap is fitted to said container.

[0005] The present invention shall now be described with reference to the enclosed drawings, which show several preferred embodiments and where:

Figure 1 is a partial, perspective view of a container made according to the principles of the present invention,

Figure 2 is an enlarged-scale cross-section view of the coupling between a cap and the container in Figure 1,

Figure 3 is a partial view of a first element of the cap in Figure 2,

Figure 4 is a view of a second element of the cap in Figure 2,

Figure 5 is a cross-section view of a second embodiment of the cap shown in Figure 2, and

Figures 6 to 11 are cross-section views of further embodiments of the cap in Figure 2.

[0006] With reference to Figure 2, reference numeral 1 indicates, in its entirety, a cap to apply on a mouth 9 of a container 2 made of metal, plastic or any other material, as shown in Figure 1. The cap 1 is defined by a first component in a plastic material 3 and a second component in a metal material constituted by a metal capsule 4 in the so-called "twist off" zone and shown in Figure 4. As is known, the so-called "twist off" capsule 4 has a crimped lower edge 5 and a plurality of helical ridges 6 are obtained along this edge 5 in a uniformly distributed manner. The first component 3 is defined by an annular body on the outer cylindrical wall of which the helical ridges 7 are obtained as shown in Figure 3. The capsule 4 is screwed onto the first component 3 and, in substance, the ridges 6 of the capsule 4 are screwed along the ridges 7 of the first component 3.

[0007] With reference to Figure 2, the first component 3 has an annular cavity 8, in correspondence to one of its longitudinal ends, defined by two lateral walls 8a and 8b of which wall 8a is the innermost wall and by a bottom wall 8c. A first section 11 is defined inside the cavity 8 with decreasing width towards the inside so as to constitute a guide as shall be better explained further on and a second inner section 12 able to be engaged by a folded edge 13 of the mouth 9, as an annular shoulder 14 made in the wall 8a is defined between sections 11 and 12. In the embodiment shown in Figures 1 and 2, the mouth 9 is constituted by a cylindrical collar 15, the upper section of which is folded back to form said edge 13, which has a truncated-cone shape. The edge 13 is folded towards the inside of the mouth 9 and in section is defined on a plane on which it defines an acute angle with the collar 15.

[0008] In use, after the product has been placed in the container 2, the mouth 9 of this container 1 is brought below a magazine (not shown) of caps 1. A cap 1 is taken from this magazine and applied with pressure to the mouth 9. During this application, the edge 13 of the collar 15 enters into the cavity 8 and elastically deforms the wall 8a until the edge 13 is inside section 12 where its free end snaps onto the annular shoulder 14 while the fold point makes contact with the wall 8c. Basically, a snap coupling between the cap 1 and the mouth 9 has been created.

[0009] A second embodiment of the cap 1 is shown in Figure 5, which contemplates the realization of an inner wall 16 made in a plastic material and integral with the

first component 3. The wall 16 lies on a plane orthogonal to the longitudinal axis of the first component 3 to close the inner section of the latter. A notch 17 is made along the connection edge between wall 16 and the inner wall of the first component 3. Naturally, the notch 17 could also be made close to the connection edge between wall 16 and the inner wall of component 3. In addition, a tab 18 is fixed to the outer face of wall 16, always integral with wall 16, to be used as a grip for pull-tab opening, which consists of detaching wall 16 from the first component 3 by pulling it off. In this embodiment, the edge 13 has a cylindrical shape and, in section, is actually defined on a plane parallel to that of the collar 15, with which it is connected by a central section that is curved in Figure 5, but could also be straight.

[0010] Figure 6 shows a third embodiment of the cap 1 used when the mouth 9 is similar to that shown in Figure 2, but envisages that the edge 13 is folded towards the outside of the mouth 9. In this case, the annular shoulder 14 is obtained on the outermost lateral wall 8b of the cavity 8.

[0011] A fourth embodiment of the cap 1 is shown in Figure 7 that is similar to that shown in Figure 5, but without the wall 16 and the tab 18.

[0012] A fifth embodiment of the cap 1 is shown in Figure 8 that is similar to that shown in Figure 6 and in which the edge 13 of the collar 15 is folded towards the outside and, in section, is parallel to the collar 15. It is obvious that the edge 13 could have further geometric developments, such as curls and so on for example.

[0013] A sixth embodiment of the cap 1 is shown in Figures 9, 10 and 11 that is suitable for collars 15 having two cylindrical sections 15a and 15b of different diameters and therefore defining an annular shoulder 15c between them and, in particular, with section 15a, which is the one that originates from the upper wall of the container 2, being the one of largest diameter. The longitudinal length of wall 8a is greater than that of wall 8b and an annular shoulder 21, onto which the annular shoulder 15c snaps, is obtained on wall 8a. Here, both walls 8a and 8b of the cavity 8 have an annular shoulder 21 and 14 onto which the annular shoulder 15c and the edge 13 of the collar 15 snap. Furthermore, the free end of wall 8a is of decreasing thickness so as to define a guide 19 for insertion of the collar 15 into the cavity 8. In Figure 9, the edge 13 is similar to that shown in Figure 6, in Figure 10 the edge 13 is similar to that shown in Figure 8, while in Figure 11 the edge 13 has a curled shape in cross-section.

[0014] From that described above, the advantages obtained with the embodiment of the present invention are evident.

[0015] In particular, a cap 1 has been created that can be applied on the mouth 9 of a press-fit container 2, i.e. by applying a direct force on the cap 1 directed towards the mouth 9. It is immediately obvious that in using such a cap 1, the coupling between cap 1 and mouth 9 does not need particularly complex automatic machinery, as

it is sufficient to just press the cap 1 onto the mouth 9. It should also be underlined that this coupling does not create any problems or the need for special stratagems according to the material used to produce the container 2 and the same observation can also be made with regard to the position of the mouth 9 with respect to the longitudinal axis of the container 2. Furthermore, by using such a cap 1, the coupling between cap 1 and mouth 9 does not require precise centring between cap 1 and mouth 9 as one or more guides are defined in the cap 1 for the folded edge 13 of the mouth 9. Lastly, it should be noted that the cap 1 can be used for collars 15 that have edges 13 folded in different ways (angled or not, internal or external).

Claims

1. Improved cap comprising:

a first component in a plastic material (3) defined by an annular body that in correspondence to a longitudinal edge section has an annular cavity (8) defined by two sections (11 and 12) separated by an annular shoulder (14), a folded edge (13) of a mouth (9) of said container (2) being housed in a snap-fit manner inside said cavity (8), and

a second component in a metal material constituted by a metal capsule (4) in the so-called "twit off" zone, **characterized in that** said metal capsule is already screwed onto said first component (3) before said cap (1) is fitted on said container.

2. Cap according to claim 1 **characterized in that** said first component (3) is defined by an annular body on the outer cylindrical wall of which helical ridges (7) are obtained and along which said capsule (4) is screwed.

3. Cap according to claim 1 and/or 2 **characterized in that** said annular cavity (8) has a first section (11) with decreasing width towards the inside so as to constitute a guide for said folded edge (13) during insertion of the latter and a second inner section (12) able to be engaged by said folded edge (13) of said mouth (9), said annular shoulder (14) onto which the end of said edge (13) snaps being defined between said sections (11 and 12).

4. Cap according to claim 3 **characterized in that** said annular shoulder (14) is made on the outermost lateral wall (8b) of said cavity (8) and **characterized in that** said mouth (9) has a collar (15) at the free end of which said edge (13) folded towards the outside is defined.

5. Cap according to claim 4 **characterized in that** inside said cavity (8), on the innermost lateral wall (8a), a second annular shoulder (21) is created, onto which an annular shoulder (15c) obtained on said collar (15) snaps. 5
6. Cap according to claim 3 **characterized in that** said annular shoulder (14) is made on the innermost lateral wall (8a) of said cavity (8) and **characterized in that** said mouth (9) has a collar (15) at the free end of which said edge (13) folded towards the inside is defined. 10
7. Cap according to claim 3 **characterized in that** said edge (13) has a cylindrical shape. 15
8. Cap according to claim 3 **characterized in that** said edge (13) has truncated-cone shape.
9. Cap according to claim 3 **characterized in that** said edge (13) has a coil-shaped cross-section. 20
10. Cap according to any of the previous claims **characterized in that** the inner section of said first component (3) is closed by an inner wall (16) made of a plastic material, preferably integral with said first component (3), said inner wall (16) being made on a plane orthogonal to the longitudinal axis of said first component (3) and a notch (17) being made on said inner wall (16). 25
11. Cap according to claim 10 **characterized in that** a tab (18) suitable to constitute a grip for pull-tab opening is fixed, preferably integrally, on the outer face of said inner wall (16). 30

Patentansprüche

1. Verbesserter Verschluss, der aufweist eine erste Komponente in einem Plastikmaterial (3), die durch einen ringförmigen Körper definiert ist, der in Entsprechung zu einem Längskantenabschnitt eine ringförmige Aussparung (8) besitzt, die durch zwei Abschnitte (11 und 12) definiert ist, die durch einen ringförmigen Absatz (14) getrennt sind, wobei eine gefaltete Kante (13) einer Öffnung (9) des Behälters (2) in Art einer Schnappverbindung in der Aussparung (8) untergebracht ist, und eine zweite Komponente in einem Metallmaterial, das durch eine Metallverschlusskappe (4) in der so genannten "Abschraub-"zone gebildet ist, **dadurch gekennzeichnet, dass** die Metallverschlusskappe bereits auf die erste Komponente (3) aufgeschraubt ist, bevor der Verschluss (1) auf dem Behälter angebracht wird. 40
2. Verschluss gemäß Anspruch 1, 45

dadurch gekennzeichnet, dass die erste Komponente (3) durch einen ringförmigen Körper auf der äußeren zylindrischen Wand definiert ist, auf der spiralförmige Rippen (7) erhalten sind und entlang derer der Verschluss (4) verschraubt wird.

3. Verschluss gemäß Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die ringförmige Aussparung (8) einen ersten Abschnitt (11) mit nach Innen abnehmender Breite aufweist, um so eine Führung für die gefaltete Kante (13) beim Einfügen der letzteren zu bilden, und einen zweiten Innenabschnitt (12), in den die gefaltete Kante (13) der Öffnung (9) eingreifen kann, wobei der ringförmige Absatz (14), auf den das Ende der Kante (13) einschnappt, zwischen den Abschnitten (11 und 12) definiert ist.
4. Verschluss gemäß Anspruch 3, **dadurch gekennzeichnet, dass** der ringförmige Absatz (14) auf der äußersten Seitenwand (8b) der Aussparung (8) ausgebildet ist, und **dadurch gekennzeichnet, dass** die Öffnung (9) einen Kragen (15) besitzt, an dessen freien Ende die nach außen gefaltete Kante (13) definiert ist.
5. Verschluss gemäß Anspruch 4, **dadurch gekennzeichnet, dass** in der Aussparung (8) auf der innersten Seitenwand (8a) ein zweiter ringförmiger Absatz (21) angelegt ist, auf dem ein ringförmiger Absatz (15c), der auf dem Kragen (15) erhalten wird, einschnappt.
6. Verschluss gemäß Anspruch 3, **dadurch gekennzeichnet, dass** der ringförmige Absatz (14) auf der innersten Seitenwand (8a) der Aussparung (8) ausgebildet ist, und **dadurch gekennzeichnet, dass** die Öffnung (9) einen Kragen (15) besitzt, an dessen freien Ende (13) die nach innen gefaltete Kante (13) definiert ist. 35
7. Verschluss gemäß Anspruch 3, **dadurch gekennzeichnet, dass** die Kante (13) eine Zylinderform aufweist. 45
8. Verschluss gemäß Anspruch 3, **dadurch gekennzeichnet, dass** die Kante (13) die Form eines abgeschnittenen Kegels aufweist. 50
9. Verschluss gemäß Anspruch 3, **dadurch gekennzeichnet, dass** die Kante (13) einen rollenförmigen Querschnitt aufweist. 55
10. Verschluss gemäß einem der vorhergehenden An-

sprüche,

dadurch gekennzeichnet, dass

der Innenabschnitt der ersten Komponente (3) durch eine aus einem Plastikmaterial hergestellte Innenwand (16) geschlossen ist, vorzugsweise integral mit der ersten Komponente (3), wobei die Innenwand (16) auf einer Ebene orthogonal zur Längsachse der ersten Komponente (3) ausgerührt ist und eine Einbuchtung (17) auf der Innenwand (16) ausgebildet ist.

11. Verschluss gemäß Anspruch 10,

dadurch gekennzeichnet, dass

ein Streifen (18), der zum Bilden eines Griffes für die Öffnung mittels eines Abziehstreifens geeignet ist, vorzugsweise integral an der Außenseite der Innenwand (16) befestigt ist.

Revendications

1. Capuchon amélioré comprenant :

un premier composant (3) en un matériau plastique défini par un corps annulaire qui, en correspondance avec une section latérale longitudinale, comporte une cavité annulaire (8) définie par deux sections (11 et 12) séparées par un épaulement annulaire (14), un bord plié (13) d'une ouverture (9) dudit conteneur (2) étant logé par emboîtement pression à l'intérieur de ladite cavité (8), et

un second composant (4) en un matériau métallique constitué par une capsule métallique dans la zone ainsi appelée "quart de tour", **caractérisé en ce que** ladite capsule métallique est déjà vissée sur ledit premier composant (3) avant que ledit capuchon (1) soit fixé sur ledit conteneur.

2. Capuchon selon la revendication 1, **caractérisé en ce que** ledit premier composant (3) est défini par un corps annulaire sur la paroi cylindrique extérieure de laquelle des arêtes hélicoïdales (7) sont ménagées et le long desquelles ladite capsule (4) est vissée.

3. Capuchon selon la revendication 1 et/ou 2, **caractérisé en ce que** ladite cavité annulaire (8) comporte une première section (11) avec une largeur décroissante vers l'intérieur afin de constituer un guide pour ledit bord plié (13) durant l'insertion de ce dernier et une seconde section intérieure (12) pouvant coopérer avec ledit bord plié (13) de ladite ouverture (9), ledit épaulement annulaire (14) sur lequel s'emboîte l'extrémité dudit bord (13) étant défini entre lesdites sections (11 et 12).

4. Capuchon selon la revendication 3, **caractérisé en**

ce que ledit épaulement annulaire (14) est réalisé sur la paroi latérale (8b) la plus à l'extérieur de ladite cavité (8), et **caractérisé en ce que** ladite ouverture (9) comporte un collier (15) à l'extrémité libre duquel est défini ledit bord (13) plié vers l'extérieur.

5. Capuchon selon la revendication 4, **caractérisé en ce que**, à l'intérieur de ladite cavité (8), sur la paroi latérale (8a) la plus à l'intérieur, est créé un second épaulement annulaire (21) sur lequel s'emboîte un épaulement annulaire (15c) ménagé sur ledit collier (15).

6. Capuchon selon la revendication 3, **caractérisé en ce que** ledit épaulement annulaire (14) est réalisé sur la paroi latérale (8a) la plus à l'intérieur de ladite cavité (8), et **caractérisé en ce que** ladite ouverture (9) comporte un collier (15) à l'extrémité libre duquel est défini ledit bord (13) plié vers l'intérieur.

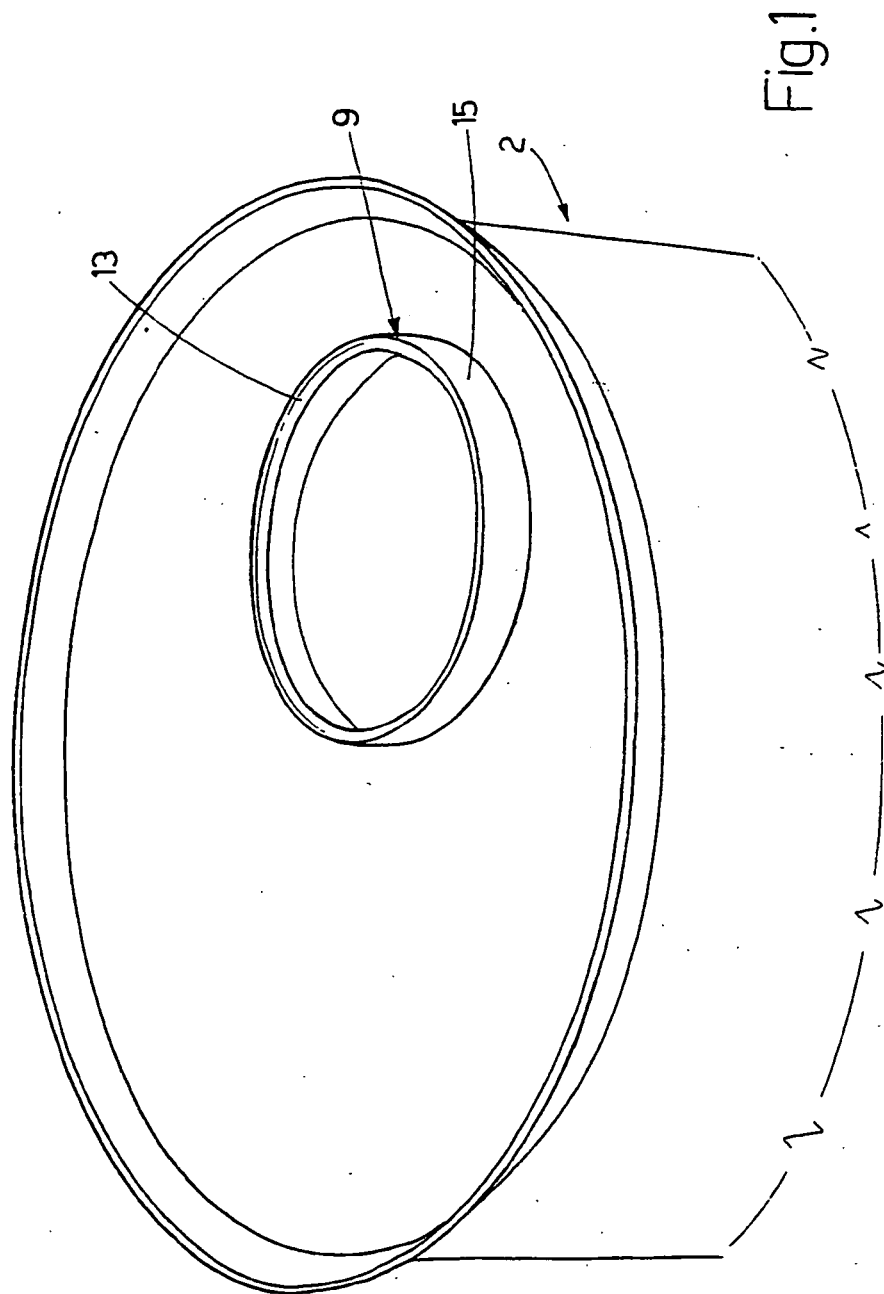
7. Capuchon selon la revendication 3, **caractérisé en ce que** ledit bord (13) a une forme cylindrique.

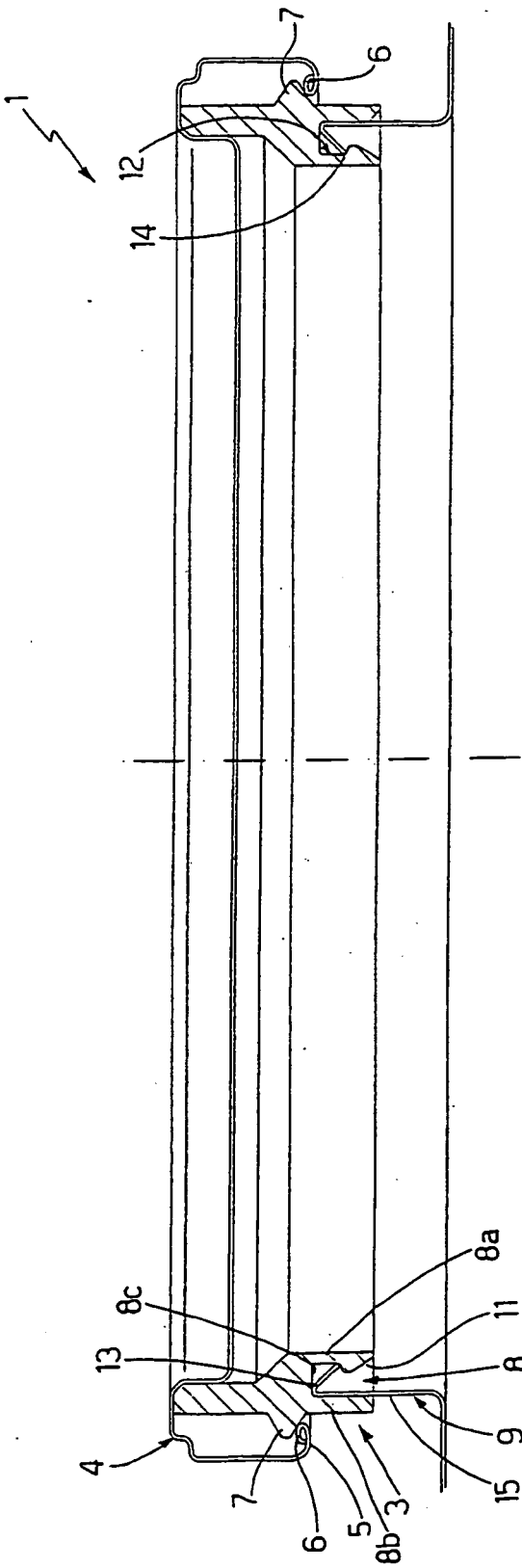
8. Capuchon selon la revendication 3, **caractérisé en ce que** ledit bord (13) a une forme tronconique.

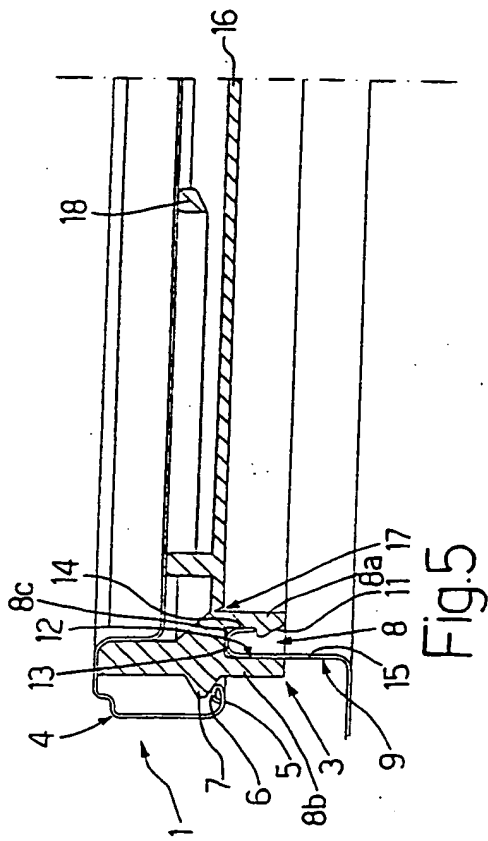
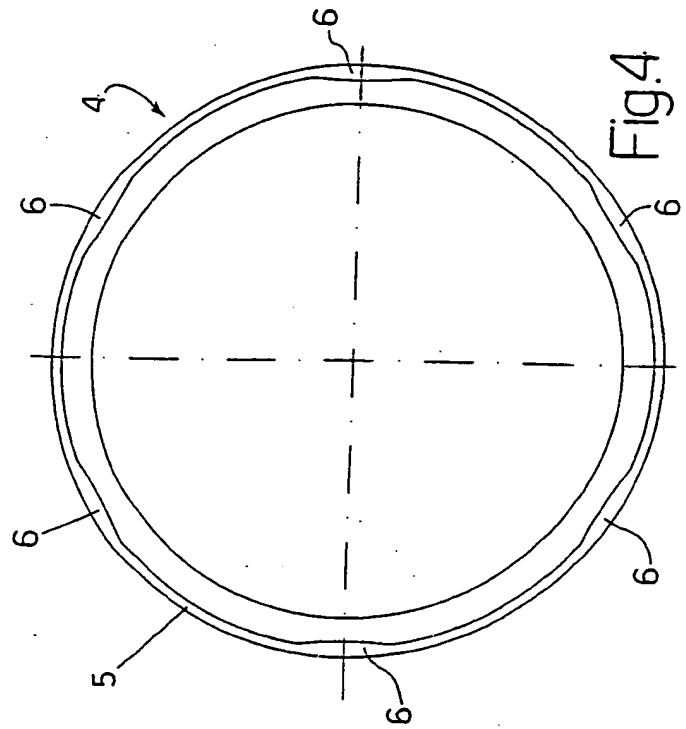
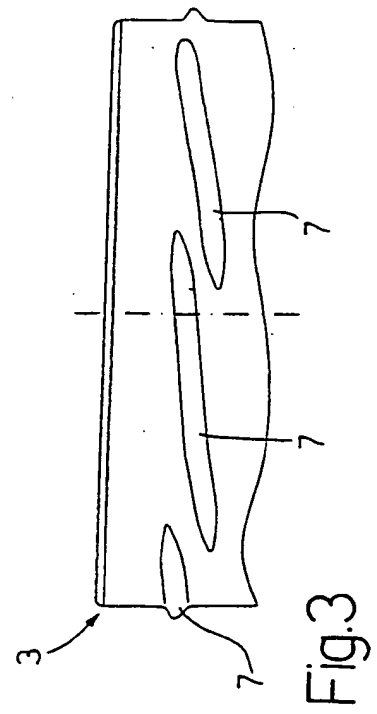
9. Capuchon selon la revendication 3, **caractérisé en ce que** ledit bord (13) a une section transversale en forme de bobine.

10. Capuchon selon l'une quelconque des revendications précédentes, **caractérisé en ce que** la section intérieure dudit premier composant (3) est fermée par une paroi intérieure (16) réalisée en un matériau plastique, de préférence en une seule pièce avec ledit premier composant (3), ladite paroi intérieure (16) étant réalisée dans un plan orthogonal à l'axe longitudinal dudit premier composant (3) et une encoche (17) étant réalisée sur ladite paroi intérieure (16).

11. Capuchon selon la revendication 10, **caractérisé en ce qu'une** languette (18), agencée pour constituer une prise pour une ouverture par arrachage de languette, est fixée sur, de préférence d'une pièce avec, la face extérieure de ladite paroi intérieure (16).







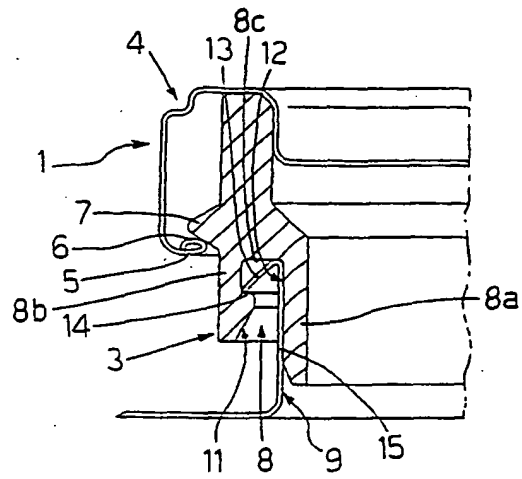


Fig.6

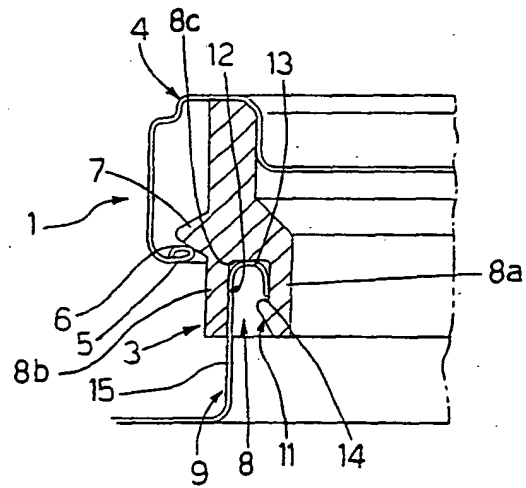


Fig.7

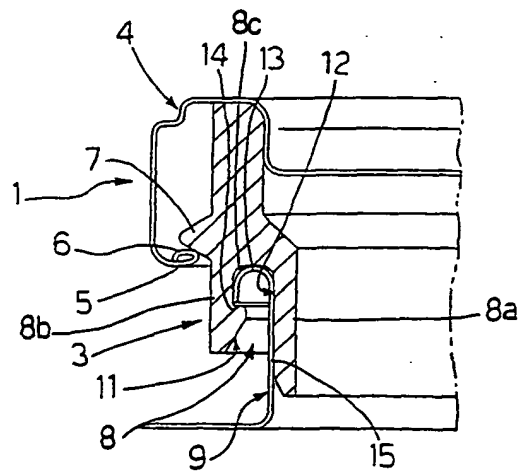


Fig.8

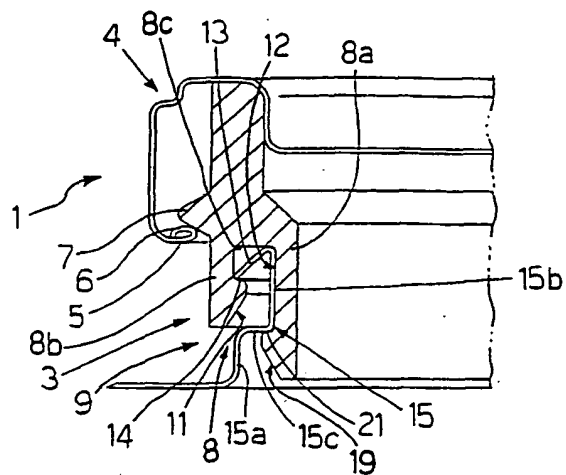


Fig.9

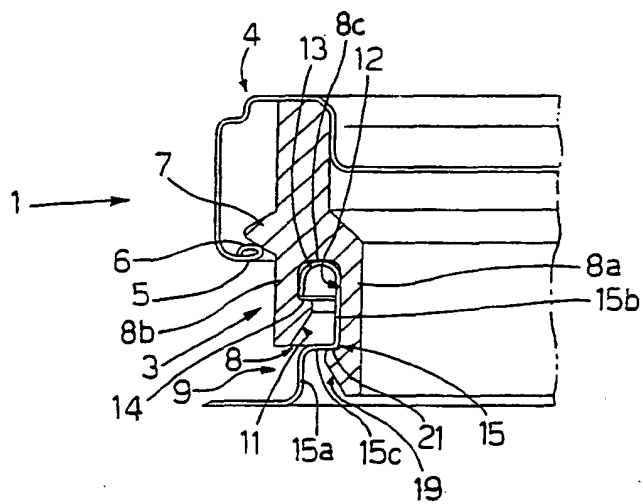


Fig.10

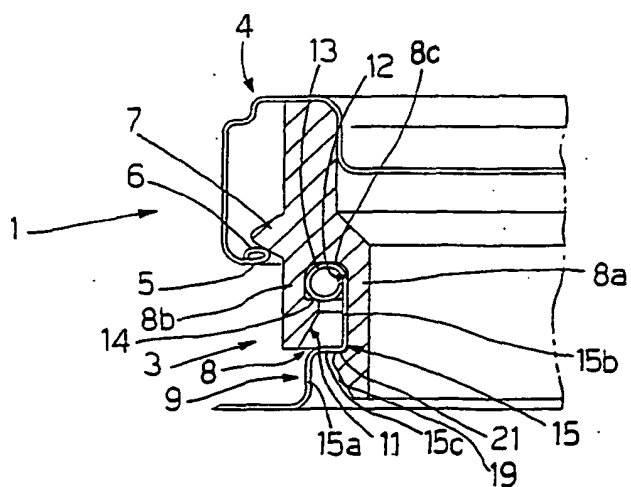


Fig.11

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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