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Title of Invention

54	CLOSURE MEANS

57	Abstract (not more than 150 words)	Number of Sheets	60

(57) Abstract: Cap means comprises opening indicating means (7) provided with flap means (10) suitable for interacting with abutment means (5) associated with a neck (1) of container means, said flap means (10) comprising at least one first portion (13) and at least one second portion (14) arranged alongside one another along a peripheral edge (28) of said opening indicating means (7), a dimension of said at least one second portion (14) measured transversely in relation to said peripheral edge being greater than a corresponding dimension of said at least one first portion (13) measured transversely in relation to said peripheral edge (28); container means comprises a neck (1) from which abutment means (5) projects and cap means (4) provided with flap means (10) suitable for interacting with said abutment means (5), said abutment means (5) comprising a plurality of distinct abutment elements (11, 11a, 11b) and said flap means (10) comprising at least one portion (14) suitable for being received in gap means (12) defined between two abutment elements (11, 11a, 11b) of said plurality of abutment elements.

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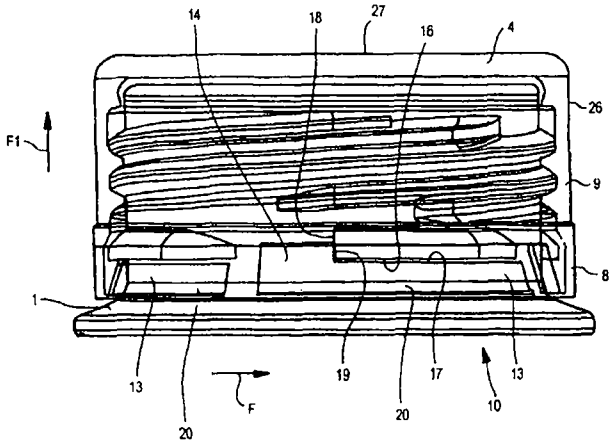


Closure means

The invention relates to closure means comprising abutment means associated with a neck of a container and cap means provided with an opening indicating device provided with safety ring means and with flap means arranged to interact with the abutment means. The invention furthermore relates to seal means associable with cap means and being suitable for being interposed between the cap means and a mouth of a neck of a container.

Caps are known consisting of a cylindrical skirt comprising a first portion, cooperating with a bottom wall to define a base body of the cap and a second portion that constitutes an opening indicating device suitable for informing the user of the wholeness of a product packaged in the container.

The second portion comprises a ring that interacts with a projection obtained in the neck of the container.

The projection is annular-shaped and projects from a side wall of the neck.

The first portion and second portion are separated by a nominal opening line consisting of a plurality of cuts, or openings passing through the cylindrical skirt and spaced by bridge elements that extend between the first portion and the second portion, which are intended to be fractured during the first opening of the container.

A plurality of flaps project from an edge zone of the ring that - in use - face the inside and a top part of the cap.

At the moment of the first opening of the container, the flaps interact with the projection to prevent the detachment of the ring from the neck of the container and to promote the breakage of the bridge elements.

A drawback of the caps disclosed above consists of the fact that the bridge elements may get deformed, before being fractured, in such a way as to enable the ring to rotate integrally with the base body of the cap.

This partially cancels the effect of the opening indicating means, inasmuch as the container can be opened, so that part

of the contents can be taken and possibly replaced without the bridge elements break.

As a result, a user is unable to distinguish a whole container from one that has been tampered with.

Caps are furthermore known that are provided with seal elements arranged to enable a hermetic closure of the containers with which they are associated.

A first type of seal elements comprises a disc-shaped seal made of plastic material, for example an elastomer, fixed to an internal surface of the bottom wall of the cap.

When the cap is tightened on the neck of a container, the disc-shaped seal is pressed against a mouth of the neck to prevent leaks of liquid.

A drawback of the seal elements of the type disclosed above consists of the fact that the contact between the disc-shaped seal and the mouth occurs at a zone - substantially shaped as an annulus - having rather a limited extent.

As a result, the disc-shaped seals disclosed above may not be able to ensure a satisfactory seal.

A second type of seal elements comprises a disc from which concentric first annular bead and second annular bead depart, the second annular bead having a diameter that is greater than the first annular bead and therefore being arranged outside the latter.

The first annular bead is configured in such a way as to be received at the inside of a neck of a container in such a way that an external wall of the first annular bead interacts in use with an internal surface of the neck.

The second annular bead is shaped in such a way as to partially surround the neck, such that an internal wall of the second annular bead interacts in use with an external surface of the neck.

The distance between the first annular bead and the second annular bead is substantially the same as or shorter then the thickness of the cylindrical wall that defines the neck.

A drawback of the seal elements of the type disclosed above consists of the fact that the production thereof may involve

diccifulties because they require precise dimensional tolerances.

Furthermore, the manufacture of such seal elements requires the use of rather complicated moulds.

An object of the invention is to improve the known closure means.

Another object of the invention is to obtain closure means that promotes a rapid and effective detachment of opening indicating means from a body of the cap means.

A further object is to obtain cap means provided with opening indicating means that do not rotate integrally with the body of the cap means when the latter is unscrewed from the neck of a container.

A still further object is to obtain seal elements for caps that are simple to make and easy to apply to a neck of a container.

In a first aspect of the invention, cap means is provided, comprising opening indicating means provided with flap means suitable for interacting with abutment means associated with a neck of container means, characterised in that said flap means comprises at least one first portion and at least one second portion arranged alongside one another along a peripheral edge of said opening indicating means, a dimension of said at least one second portion measured transversely in relation to said peripheral edge being greater then a corresponding dimension of said at least one first portion measured transversely in relation to said peripheral edge.

In un second aspect of the invention, container means is provided, comprising a neck from which abutment means projects and cap means provided with flap means suitable for interacting with said abutment means, said abutment means comprising a plurality of distinct abutment elements, characterised in that said flap means comprises at least one portion suitable for being received in gap means defined by two consecutive abutment elements of said plurality of abutment elements.

The cap means comprises flap means provided with at least one first portion arranged to interact with a zone of the abutment elements and at least one second portion arranged to interact with a further zone of the abutment elements.

The first zone and the second zone define active surfaces of the abutment elements mutually inclined.

In particular, one of the active surfaces is arranged transversely to a direction along which the cap means is rotated to be separated from the container means.

In this way, the surface acts as a stop means for the opening indicating means, which cannot be rotated without fracturing bridge elements that connect the opening indicating means to a base body of the cap means.

The bridge elements break after the cap means have been rotated in relation to the neck by an extremely limited angle.

Owing to these aspects of the invention, it is therefore possible to obtain cap means that cannot be tampered without any tampering being clearly shown by the opening indicating means.

It is furthermore possible to obtain rapid opening of the containers to which the cap means are applied inasmuch as the interaction of the at least one first portion and of the at least one second portion of the flap means with the active surfaces of the abutment elements causes an immediate fracture of the bridge elements.

In a third aspect of the invention, there is provided seal means for a cap associable with a neck of a container, comprising a central zone from which a projection projects that is suitable for interacting with a mouth of said neck, characterised in that it furthermore comprises a substantially flat annular portion that extends from said projection externally of said central zone.

In a fourth aspect of the invention, there is provided closure means, comprising cap means associable with a neck of a container and seal means suitable for being interposed between said cap means and said neck, said seal means

comprising an annular portion suitable for interacting with a mouth of said neck, characterised in that said cap means is internally provided with pressing means arranged to interact with said annular portion, when said cap means is tightened on said neck.

Owing to these aspects of the invention it is possible to obtain seal means that associate high sealing efficiency with significant manufacturing simplicity and application to a neck of a container.

In particular, the seal means according to the invention is significantly more effective than the flat disc-shaped seals and is much easier to make and apply than the disc seals provided with a pair of concentric beads.

In fact, during operation, the projection of the seal means is received in a shapingly coupled manner inside the neck in such a way as to interact with an internal surface of the latter.

Furthermore, when the cap inside which the seal means is positioned is tightened on the neck the substantially flat annular portion is deformed so as to interact with an external surface of the neck, partially enveloping it.

It is thus possible to obtain an improved sealing action because the substantially flat annular portion fits itself according to the particular geometry of the space defined between the cap and the neck, thus enabling a satisfactory seal to be obtained even in the case of necks and caps that have actual dimensions that differ from the theoretical ones.

This cannot be obtained with circular seals provided with a pair of concentric beads according to the state of the art.

The invention can be better understood and carried out with reference to the attached drawings, that illustrate some exemplifying and non-limiting embodiments thereof, in which:

Figure 1 is a plan view of a neck of a container provided with abutment means comprising a plurality of distinct abutment elements;

Figure 2 is an axial section of cap means provided with flap means;

Figure 3 is a view like the one in Figure 2, showing flap means made according to a version;

Figure 4 is a section IV-IV of Figure 1;

Figure 5 is a side view of the neck in Figure 1;

Figure 6 is a transparent side view of the cap means of Figure 3 associated with the neck in Figure 5;

Figure 7 is a section like the one in Figure 4 showing the cap means of Figure 2 associated with the neck in Figure 5;

Figure 8 is a view like the one in Figure 2 showing a further version of the cap means comprising flap means provided with holes;

Figure 9 is a view like the one in Figure 5, showing a neck provided with abutment means made according to a preferred embodiment;

Figure 10 is an axial section of cap means comprising flap means made according to a preferred embodiment;

Figure 11 is a view like the one in Figure 6, showing the cap means of Figure 10 associated with the neck in Figure 9;

Figure 12 is a view like the one in Figure 5, showing a neck provided with abutment means made according to a further preferred embodiment;

Figure 13 is an axial section of cap means comprising flap means made according to a further preferred embodiment;

Figure 14 is a view like the one in Figure 6, showing the cap means of Figure 13 associated with the neck in Figure 12;

Figure 15 is a partially fragmentary axial section of cap means and of seal means distinct from the cap means and suitable for cooperating with the cap means;

Figure 16 is a section like the one in Figure 15 showing the cap means completely screwed onto a neck of a container and the seal means tightened between the cap means and the neck.

With reference to Figures 1 to 8, there is shown a neck 1 of a container comprising a side wall 24 that defines an opening 25 of the container.

On the side wall 24 there is made a thread 2 shaped in such a way as to engage with a corresponding further thread 3 obtained inside a cap 4 that has to be associated with the neck 1.

The cap 4 can be obtained by compression moulding of plastic material or by other known production processes.

The neck 1 is equipped with abutment means 5, projecting circumferentially from the side wall 24, arranged to interact with opening indicating means 7 with which the cap 4 is provided.

The opening indicating means 7 comprises a ring 8 connected to a base body 9 of the cap 4 by means of bridge elements intended to be fractured at the moment of the first opening of the container.

The base body 9 is defined by a side skirt 26 and by a bottom wall 27.

From an end zone of the ring 8 flap means 10 projects that in use are arranged inside the cap 4.

At the moment of the first opening of the container, the flap means 10 interact with the abutment means 5 to promote the breakage of the bridge elements and the consequent detachment of the ring 8 from the base body 9.

The abutment means 5 comprises a plurality of distinct abutment elements 11, the abutment elements 11 being arranged along the external perimeter of the neck 1 in such a way that between two adjacent abutment elements 11 a gap 12 is defined.

As shown in Figure 2, the flap means 10 comprises a continuous flap 15 having an annular shape that is provided with first portions 13, having a preset circumferential extent L1 and a preset height H1 and second portions 14, having a further preset circumferential extent L2 and a further preset height H2 that is greater than the preset height H1.

The first portions 13 and the second portions 14 project from a peripheral edge 28 of the ring 8 farther from the bottom wall 27.

Each first portion 13 is interposed between two second portions 14, in such a way that the first portions 13 and the second portions 14 alternate.

In addition, the preset extent L1 and the further preset extent L2 are selected in such a way that when the cap 4 is associated with the neck 1 the second portions 14 are received in the gaps 12 defined between the abutment elements 11 and therefore each abutment element 11 is received between two consecutive second portions 14 so as to overlap a first portion 13 interposed between them.

The abutment elements 11 comprise a first face 16 arranged to interact with a corresponding first active surface 17 of the first portion 13 and a second face 18 arranged to interact with a corresponding second active surface 19 of the second portion 14.

The first face 16 is substantially parallel to the peripheral edge 28 and is arranged substantially perpendicular to the second face 18.

The first active surface 17 is substantially parallel to a plane defined by the opening 25 and is arranged substantially perpendicular to the second active surface 19.

At the moment of the first opening of the container, the cap 4 is rotated in the direction indicated by the arrow F in Figure 6.

The mutual interaction of the first thread 2 and of the second thread 3 causes a shift of the cap 4 parallel to a longitudinal axis X of the neck 1, the cap 4 moving away from the container as shown by the arrow F1.

In this way, the base body 9 is induced to move away from the container whereas the ring 8 is kept in contact with the neck 1 by the abutment means 5.

The first active surface 17 is driven to interact with the first face 16 generating a tensile stress that promotes the breakage of the bridge elements, similarly to what occurs in caps made according to the state of the art.

In addition, the second active surface 19 is driven to interact with the second face 18 so as to prevent rotation of the ring 8 integrally with the base body 9.

The interaction between the second active surface 19 and the second face 18 subjects the bridge elements to shearing stress that causes them to break early.

As a result, the container cannot be tampered with in any way without the bridge elements being fractured, this fracture occurring after an extremely limited angle of rotation of the cap 4 in relation to the neck 1.

With reference to Figure 8, there is shown a version of the opening indicating means 7 comprising a continuous flap 15 in which a plurality of holes 21 is made that enables the escape of liquid that during the bottling operations was retained in a zone of the opening indicating means 7 near the peripheral edge 28 and delimited by the flap 15, by a bottom zone of the ring 8 and by a portion of material with which the cap 4 is made and which defines a hinge that interconnects the flap 15 to the ring 8.

Owing to the holes 21, undesired accumulations of liquid are substantially prevented so as to noticeably improve the hygiene of the container.

The holes 21, furthermore, by increasing the deformability of the ring 8, make the application of the latter easier, because they facilitate outward expansion of the flap 15 when the ring 8 is forced to go beyond the abutment means 5.

With reference to Figures 3 and 6, there is shown an embodiment of the cap 4 in which the flap means 10 comprises a plurality of flaps 20 that are separate from one another rather than a continuous flap 15.

Each flap 20 comprises a first portion 13 and a second portion 14, configured according to what has been disclosed with reference to Figure 2.

In Figure 9, there is shown an embodiment of the neck 1 comprising further abutment elements 11a provided with a first face 16 that is substantially parallel to a plane

identified by the opening 25, similar to what has been disclosed with reference to Figures 1 to 8.

The further abutment elements 11a furthermore comprises a further second face 18a that forms an obtuse dihedral angle α with the first face 16.

With reference to Figure 10, there is shown a version of the cap 4 comprising a further continuous flap 15a that is provided with first portions 13 each of which is provided with a first surface 17 substantially parallel to the peripheral edge 28.

The further flap 15a furthermore comprises second portions 14 each one of which is provided with a further second active surface 19a that forms with the first active surface 17 adjacent to it a further obtuse dihedral angle β having an amplitude that is substantially the same as that of the dihedral angle α.

The cap 4 may be provided with holes obtained in the further flap 15a, similarly to what has been disclosed with reference to Figure 8.

The cap 4 may comprise a plurality of flaps, as disclosed with reference to Figure 3, rather than a further flap 15a.

As shown in Figure 11, when the cap 4 is associated with the neck 2 each second portion 14 is received in a gap 12 defined between two further consecutive abutment elements 11a in such a way that each first active surface 17 faces a corresponding first face 16 and each further second active surface 19a faces a corresponding further second face 18a.

At the moment of the first opening of the container, a rotation of the cap 4 in relation to the neck 1 induces the further second active surface 19a to run on the further second face 18a.

As a result the ring 8 moves away from the base body 9, which in turn moves away from the further abutment elements 11a.

In other words, when the cap 4 is screwed off the neck 1 the ring 8 and the base body 9 mutually move away from opposite

parts of the further abutment elements 11a, thus ensuring early breakage of the bridge elements.

In Figure 12, there is shown a further embodiment of the neck 1 comprising still further abutment elements 11b provided with a first face 16 that is substantially parallel to a plane identified by the opening 25, similar to what was disclosed with reference to Figures 1 to 8.

The still further abutment elements 11b furthermore comprises a still further second face 18b that forms with the first face 16 an acute dihedral angle $\alpha 1$, in such a way as to define pointed zones 22 of the still further abutment elements 11b.

With reference to Figure 13, there is shown a further embodiment of the cap 4 comprising a still further continuous flap 15b that is provided with first portions 13, each of which is equipped with a first surface 17 that is substantially parallel to the peripheral edge 28.

The still further flap 15b furthermore comprises second portions 14 each one of which is provided with a still further second active surface 19b that forms with the first active surface 17 adjacent to it a further acute dihedral angle $\beta 1$ having an amplitude that is substantially the same as that of the dihedral angle $\alpha 1$.

The first active surface 17 and the still further second active surface 19b define, at a mutual intersecting zone, a throat 23.

The cap 4 can be equipped with holes obtained in the still further flap 15b, similarly to what has been disclosed with reference to Figure 8.

The cap 4 may comprise, a plurality of flaps, as disclosed with reference to Figure 3 instead of a still further continuous flap 15b.

As shown in Figure 14, when the cap 4 is associated with the neck 2 each second portion 14 is received in a gap 12 defined between two still further consecutive abutment elements 11b, in such a way that each first active surface 17 faces a corresponding first face 16 and each still

further second active surface 19b faces a corresponding still further second face 18b.

At the moment of the first opening of the container, a rotation of the cap 4 in relation to the neck 1 induces the still further second active surface 19b to run on the still further second face 18b.

In this way, the ring 8 is brought into contact with the still further abutment elements 11b, so that each pointed portion 22 is received in a shapingly coupled manner inside a corresponding throat 23.

As a result, the ring 8 cannot rotate integrally with the base body 9, which ensures early breakage of the bridge elements.

It should be noted that even in the cap embodiment shown in Figures 10 and 11 and in the further cap embodiment shown in Figures 13 and 14, the bridge elements are subjected to tensile stress, generated by the interaction of the first active surface 17 with the first face 16, and to a shearing stress generated by the interaction of the further second active surface 19a with the further second face 18a, or, respectively, of the still further second active surface 19b with the still further face 18b.

With reference to Figures 15 and 16, seal means 30 is shown arranged to cooperate with a cap 4, for example of the disclosed type, to prevent a product to come out from a container to which the cap 4 is applied.

The seal means 30 comprises a central zone 31 - that is disc-shaped - from which a projection 32 projects that is suitable for interacting with a mouth 33 of a neck 1 of the container.

The seal means 30 can be made of plastic matter.

The seal means 30 furthermore comprises a substantially flat annular portion 34 that extends from the projection 32 externally of the central zone 31.

The annular portion 34 has a section shaped as an annulus that is provided with a first face 35 arranged to come into

contact with the cap 4 and a second face 37 arranged to come into contact with the mouth 33 of the neck 1.

The cap 4 is furthermore provided, at the boundary zone between the bottom wall 27 and the cylindrical skirt 26, with a shaped edge 43 arranged to interact with the annular portion 34, as will be disclosed in greater detail below.

When the cap 4 is screwed onto the neck 1, the projection 32 is received in a shapingly coupled manner inside the mouth 33. At the same time, the annular portion 34, being tightened between the shaped edge 43 and the mouth 33, is subjected to a certain deformation.

This enables an effective seal action to be obtained because the annular portion 34 fits itself in such a way as to substantially completely occupy an interspace 38 defined between the internal surface 36 and the mouth 33.

In particular, a part 39 of the annular portion 34 nearer the projection 32 interacts with an end zone 40 of the mouth 33 that faces the bottom wall 27, whereas a further part 41 of the annular portion 34 farther from the projection 32 interacts with a further end zone 42 of the mouth 33 that faces the side skirt 26.

The mouth 33 is thus internally engaged by the projection 32 and is externally partially enveloped by the annular portion 34.

The annular portion 34, owing to its deformability, fits itself according to the particular geometry of the neck 1, thus enabling an improved seal to be obtained compared with the seals of the state of the art.

The seal means 30 is distinct from the cap 4 and cooperates with the latter when the cap is screwed onto the neck 1.

The container can be sealed according to different operating modes.

According to an operating mode shown in Figures 15 and 16, the seal means 30 is positioned on the neck 1 in such a way that the projection 32 is received inside the mouth 31. Subsequently, the cap 4 is positioned on the neck 1 and is

screwed onto the latter so as to enclose the seal means 30 within itself.

According to a further operating mode that is not shown, the seal means 30 can be inserted into the cap 4 and can be maintained in the inside of the latter by interference of the annular portion 34 with the thread of the cap. The cap 4 is subsequently screwed onto the neck 1 in such a way that the projection 32 and the annular portion 34 surround the mouth 31.

CLAIMS

1. Cap means, comprising opening indicating means (7) provided with flap means (10) suitable for interacting with abutment means (5) associated with a neck (1) of container means, characterised in that said flap means (10) comprises at least one first portion (13) and at least one second portion (14) arranged alongside one another along a peripheral edge (28) of said opening indicating means (7), a dimension of said at least one second portion (14) measured transversely in relation to said peripheral edge being greater then a corresponding dimension of said at least one first portion (13) measured transversely in relation to said peripheral edge (28).

2. Cap means according to claim 1, wherein said at least one second portion (14) comprises an active surface (19, 19a, 19b) inclined in relation to said peripheral edge (28) and configured in such a way as to interact with a face (18, 18a, 18b) of said abutment means (5).

3. Cap means according to claim 2, wherein said active surface (19, 19a, 19b) is obtained on a side of said at least one second portion (14) projecting from said peripheral edge (28).

4. Cap means according to claim 2, or 3, wherein said at least one first portion (14) comprises a further active surface (17) configured in such a way as to interact with a further face (18) of said abutment means (5).

5. Cap means according to claim 4, wherein said further active surface (17) is arranged substantially parallel to said peripheral edge (28).

6. Cap means according to claim 4, or 5, wherein between said active surface (19, 19a, 19b) and said further active surface (17) a substantially right dihedral angle is defined.

7. Cap means according to claim 4, or 5, wherein between said active surface (19, 19a, 19b) and said further active surface (17) an obtuse dihedral angle (α) is defined.

8. Cap means according to claim 4, or 5, wherein between said active surface (19, 19a, 19b) and said further active surface (17) an acute dihedral angle (β) is defined.

9. Cap means according to any preceding claim, wherein said flap means (10) comprises a continuous flap (15, 15a, 15b) having an annular shape.

10. Cap means according to any one of claims 1 a 9, wherein said flap means (10) comprises pluralities of distinct flaps (20).

11. Container means, comprising a neck (1), from which abutment means (5) projects, and cap means (4) provided with flap means (10) that are suitable for interacting with said abutment means (5), said abutment means (5) comprising a plurality of distinct abutment elements (11, 11a, 11b), characterised in that said flap means (10) comprises at least one portion (14) suitable for being received in gap means (12) defined between two consecutive abutment elements (11, 11a, 11b) of said plurality of abutment elements.

12. Container means according to claim 11, wherein each abutment element (11, 11a, 11b) of said plurality of abutment elements comprises a face (18, 18a, 18b) inclined in relation to a plane defined by an opening (25) of said container means and configured in such a way as to interact with an active surface (19, 19a, 19b) of said flap means (10).

13. Container means according to claim 12, wherein said active surface (19, 19a, 19b) is obtained on a side of said at least one portion (14).

14. Cap means according to claim 12, or 13, wherein each abutment element (11, 11a, 11b) of said plurality of

abutment elements comprises a further face (16) configured in such a way as to interact with a further active surface (17) of said flap means (10).

15. Cap means according to claim 14, wherein said flap means (10) comprises at least one further portion (13) in which said further face (16) is obtained.

16. Apparatus according to claim 15, wherein said at least one portion (14) and said at least one further portion (13) are arranged alongside one another along a peripheral edge (28) of opening indicating means (7), a dimension of said at least one portion (14) measured transversely in relation to said peripheral edge being greater then a corresponding dimension of said at least one further portion (13) measured transversely in relation to said peripheral edge (28).

17. Cap means according to any one of claims 14 to 16, wherein said further face (16) is arranged substantially parallel to a plane defined by said opening (25).

18. Cap means according to any one of claims 14 to 17, wherein between said face (18, 18a, 18b) and said further face (16) a substantially right dihedral angle is defined.

19. Cap means according to any one of claims 14 to 17, wherein between said face (18, 18a, 18b) and said further face (16) an obtuse dihedral angle ($\alpha 1$) is defined.

20. Cap means according to any one of claims 14 to 17, wherein between said face (18, 18a, 18b) and said further face (16) an acute dihedral ($\beta 1$) angle is defined.

21. Cap means according to any one of claims 11 to 21, wherein said flap means (10) comprises a continuous flap (15, 15a, 15b) having an annular shape.

22. Cap means according to any one of claims 11 to 21, wherein said flap means (10) comprises pluralities of distinct flaps (20).

23. Seal means for a cap (4) associable with a neck (1) of a container, comprising a central zone (31) from which a projection (32) projects that is suitable for interacting with a mouth (33) of said neck (1), characterised in that it further comprises a substantially flat annular portion (34) that extends from said projection (34) externally of said central zone (31).

24. Seal means according to claim 23, wherein said annular portion (34) is made of easily deformable material.

25. Seal means according to claim 23, or 24, wherein said annular portion (34) is coplanar with said central zone (32).

26. Seal means according to any one of claims 23 to 25, wherein said projection (32) is arranged substantially perpendicular to said annular portion (34).

27. Closure means, comprising cap means (4) associable with a neck (1) of a container and seal means (30) suitable for being interposed between said cap means (4) and said neck (1), said seal means (30) comprising an annular portion (34) suitable for interacting with a mouth (33) of said neck (1), characterised in that said cap means (4) is internally provided with pressing means (43) arranged to interact with said annular portion (34), when said cap means (4) is tightened on said neck (1).

28. Closure means according to claim 27, wherein said annular portion (34) is made of deformable material such as to occupy a space (38) defined between said cap means (4) and said neck (1), when said cap means (4) is tightened on said neck (1).

29. Closure means according to claim 27, or 28, wherein said annular portion (34) is coplanar with said central zone (32).

30. Closure means according to any one of claims 27 to 29, wherein said projection (32) is arranged substantially perpendicular to said annular portion (34).

31. Closure means according to any one of claims 27 to 29, wherein said cap means (4) comprises opening indicating means (7) provided with flap means (10) suitable for interacting with abutment means (5) associated with said neck (1), said flap means (10) comprising at least one first portion (13) and at least one second portion (14) arranged alongside one another along a peripheral edge (28) of said opening indicating means (7), a dimension of said at least one second portion (14) measured transversely in relation to said peripheral edge being greater then a corresponding dimension of said at least one first portion (13) measured transversely in relation to said peripheral edge (28).

32. Closure means according to claim 31, wherein said at least one second portion (14) comprises an active surface (19, 19a, 19b) inclined in relation to said peripheral edge (28) and configured in such a way as to interact with a face (18, 18a, 18b) of said abutment means (5).

33. Closure means according to claim 32, wherein said active surface (19, 19a, 19b) is obtained on a side of said at least one second portion (14) projecting from said peripheral edge (28).

34. Closure means according to claim 32, or 33, wherein said at least one first portion (14) comprises a further active surface (17) configured in such a way as to interact with a further face (18) of said abutment means (5).

35. Closure means according to claim 34, wherein said further active surface (17) is arranged substantially parallel to said peripheral edge (28).

36. Closure means according to claim 34, or 35, wherein between said active surface (19, 19a, 19b) and said further active surface (17) a substantially right dihedral angle is defined.

37. Closure means according to claim 34, or 35, wherein between said active surface (19, 19a, 19b) and said further active surface (17) an obtuse dihedral angle (α) is defined.

38. Closure means according to claim 34, or 35, wherein between said active surface (19, 19a, 19b) and said further active surface (17) an acute dihedral angle (β) is defined.

39. Closure means according to any one of claims 27 to 38, wherein said flap means (10) comprises a continuous flap (15, 15a, 15b) having an annular shape.

40. Closure means according to any one of claims 27 to 38, wherein said flap means (10) comprises pluralities of distinct flaps (20).

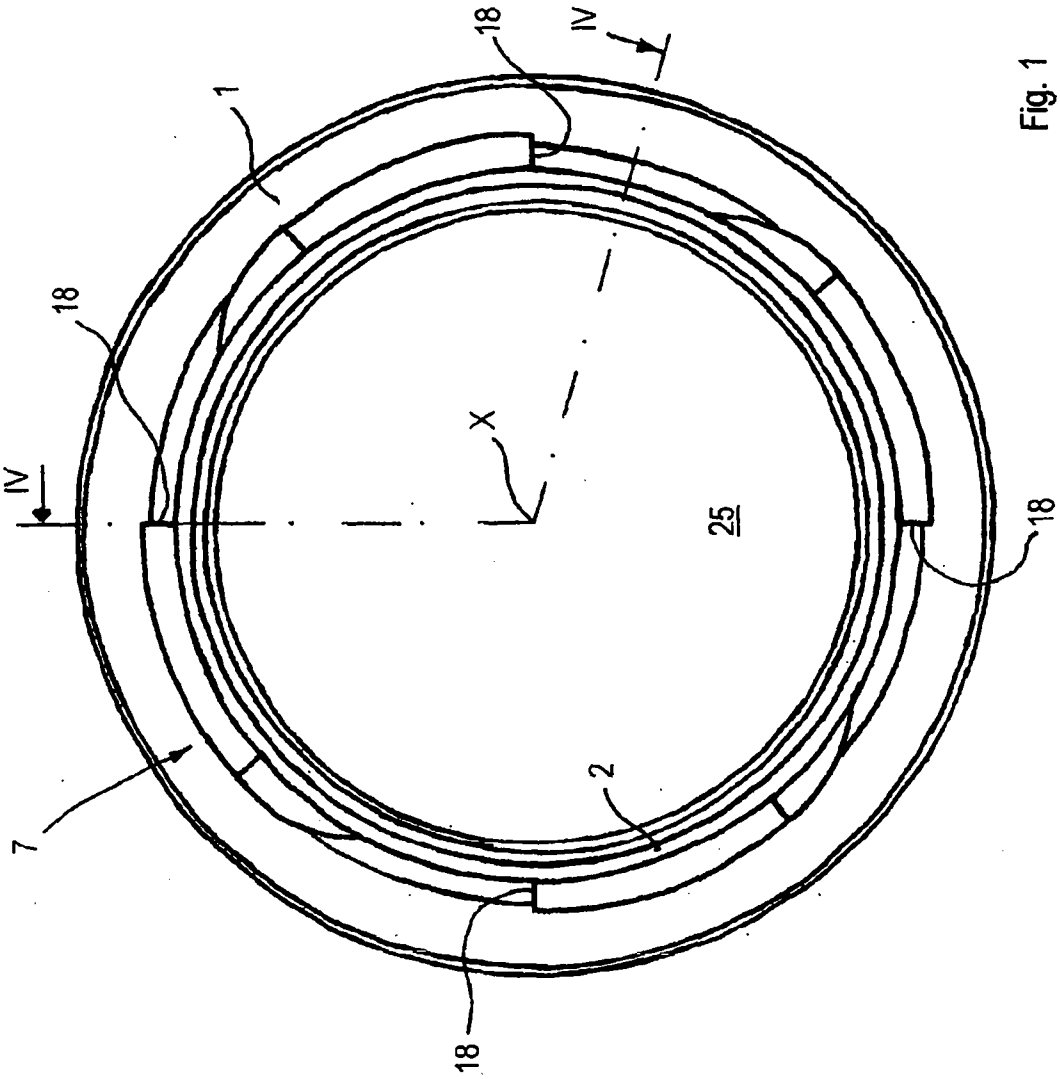


Fig. 1

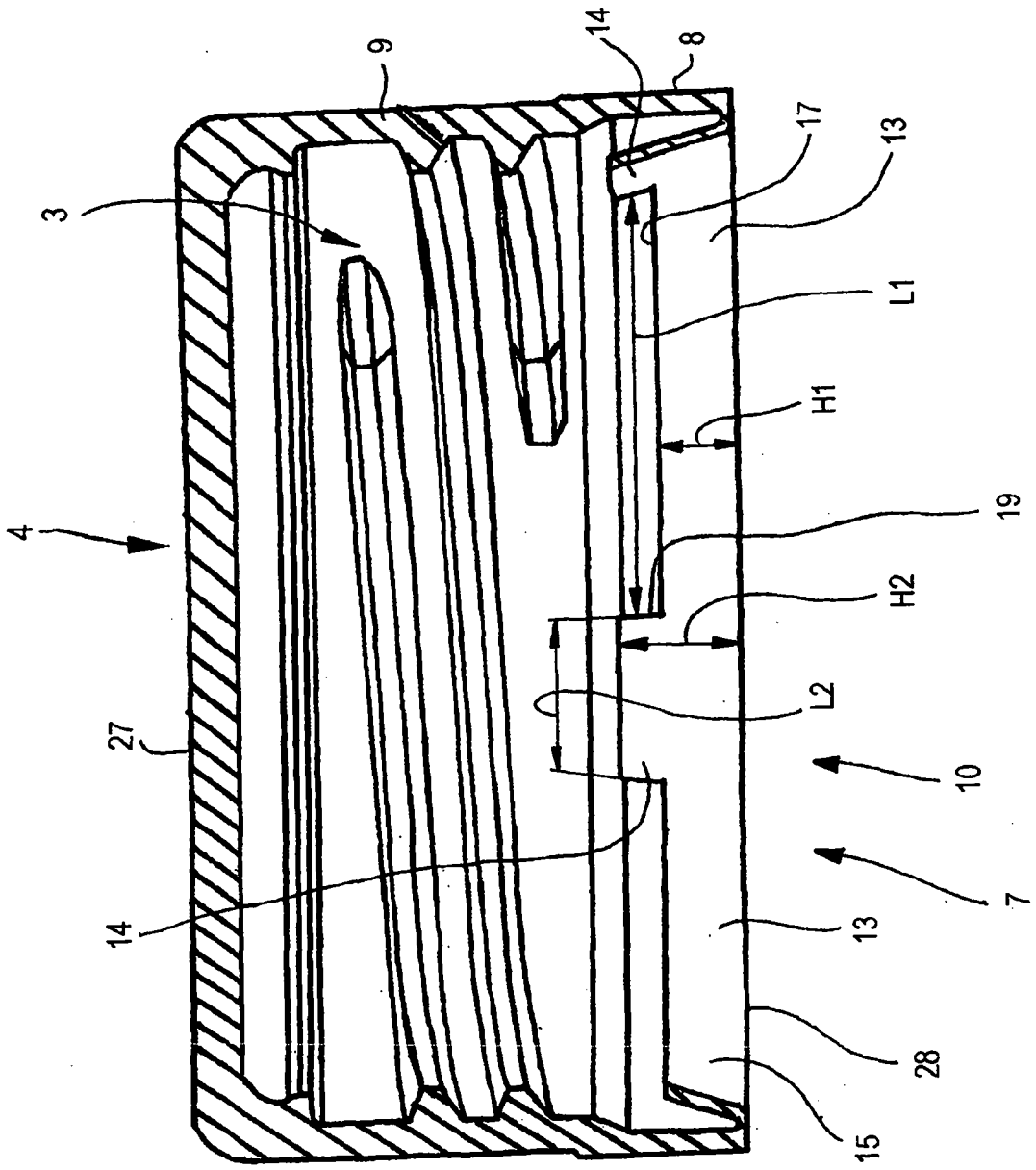


Fig. 2

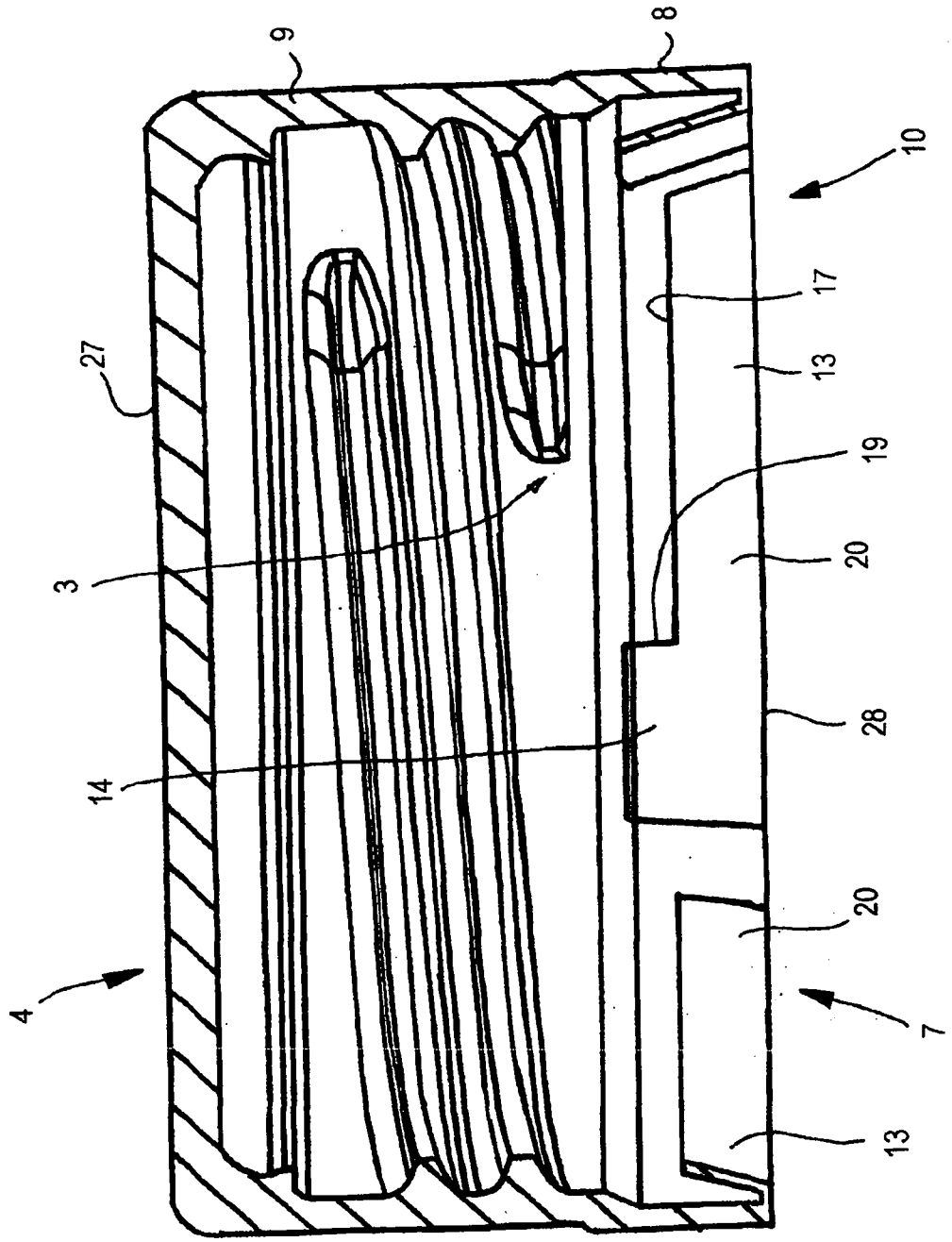


Fig. 3

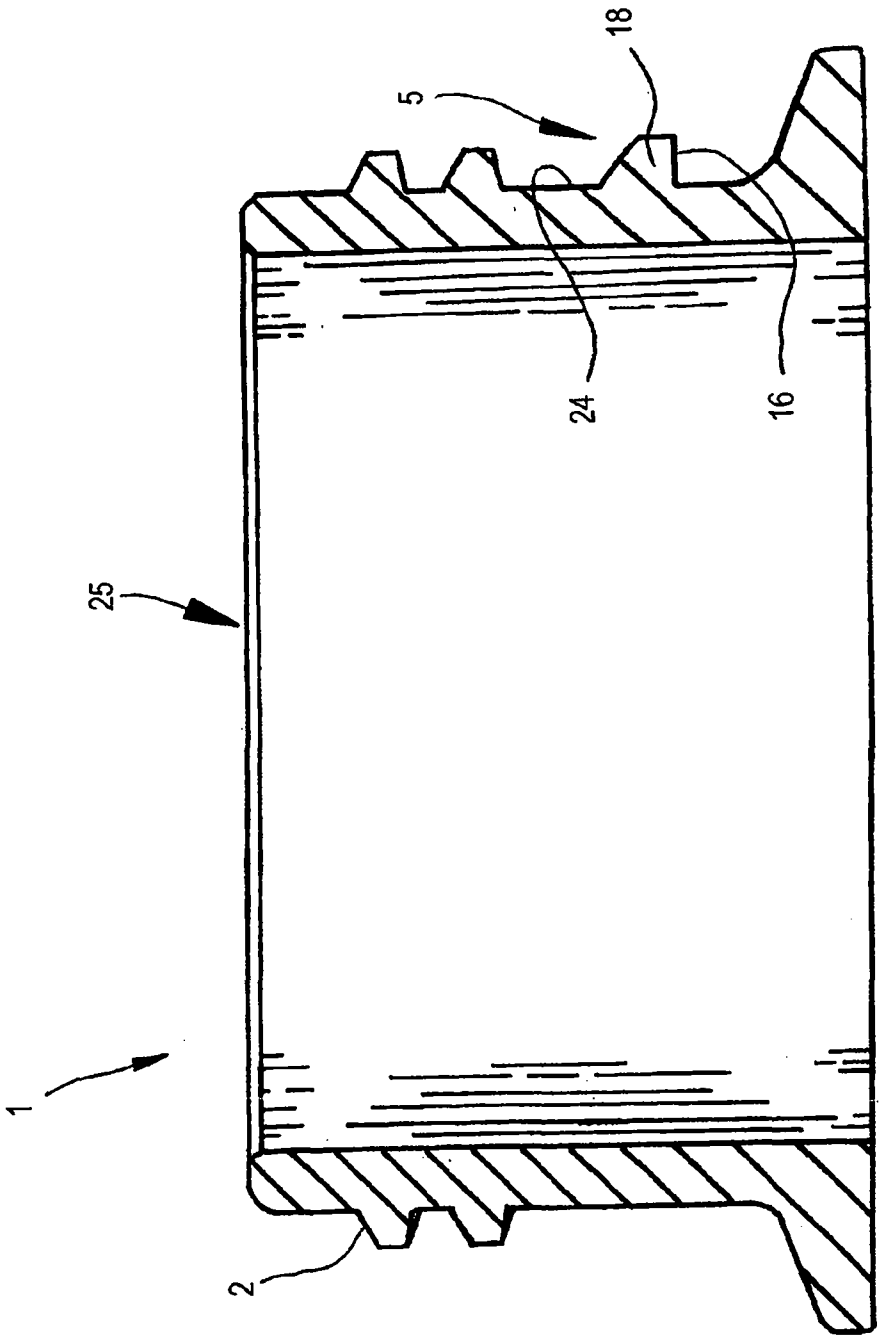


Fig. 4

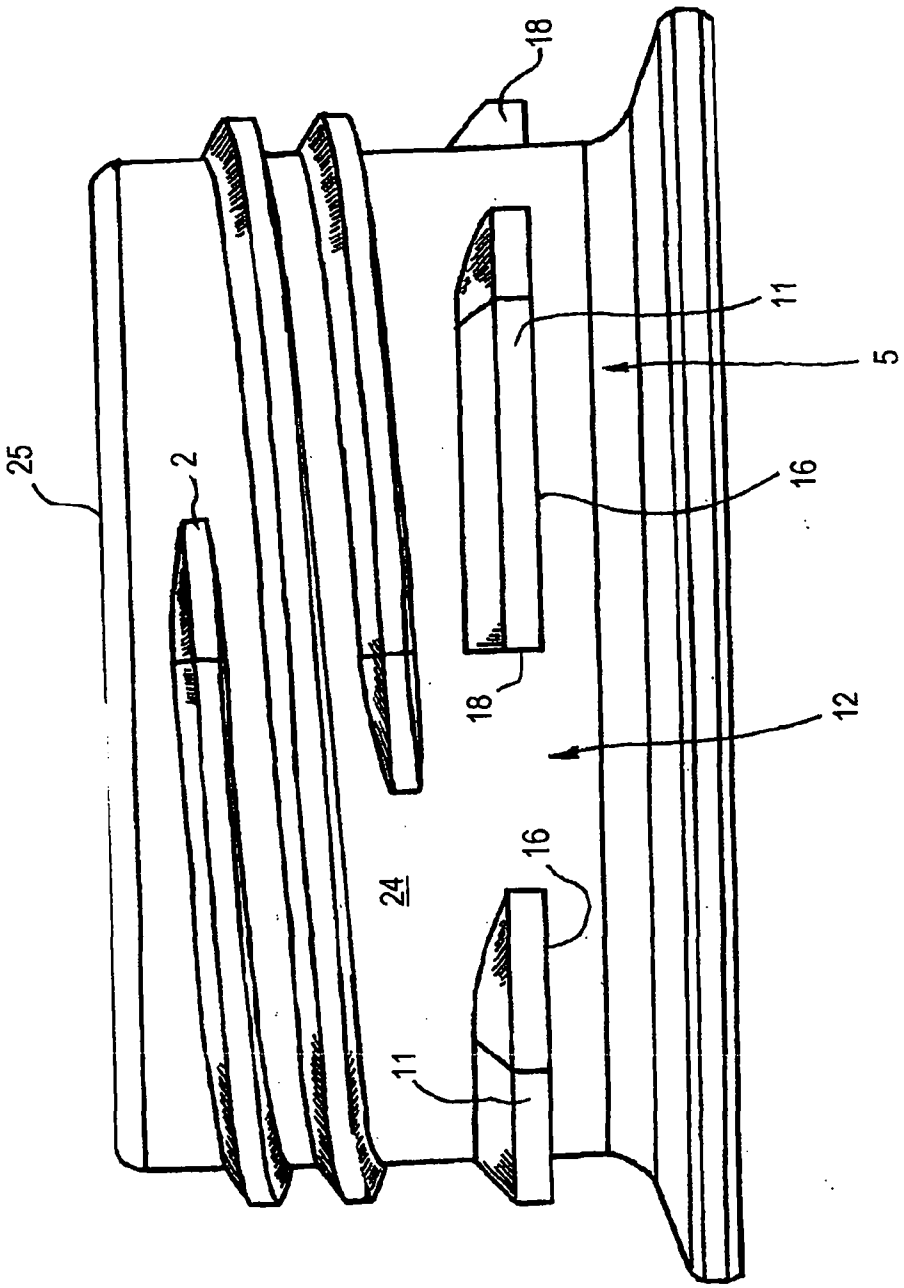


Fig. 5

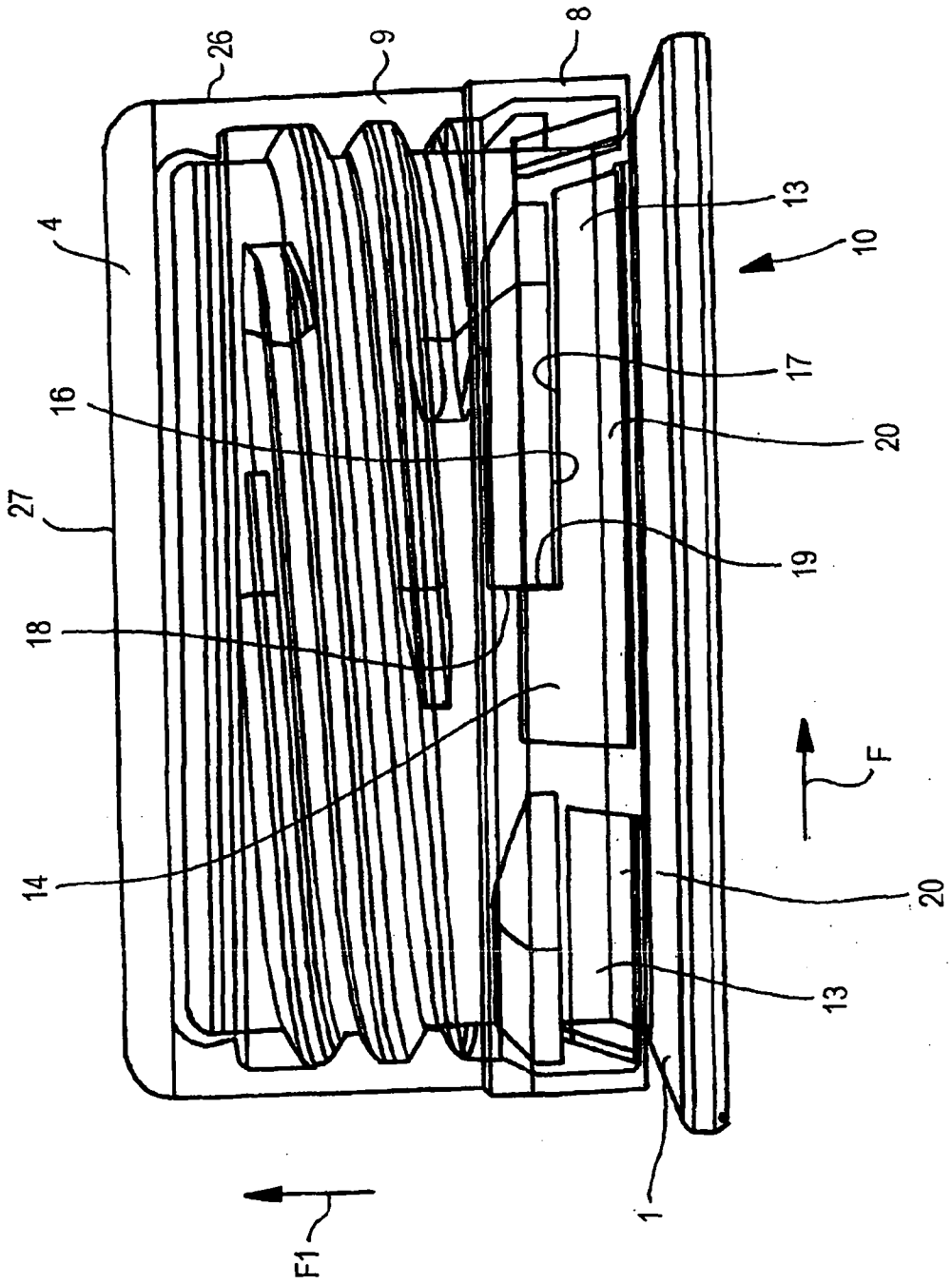


Fig. 6

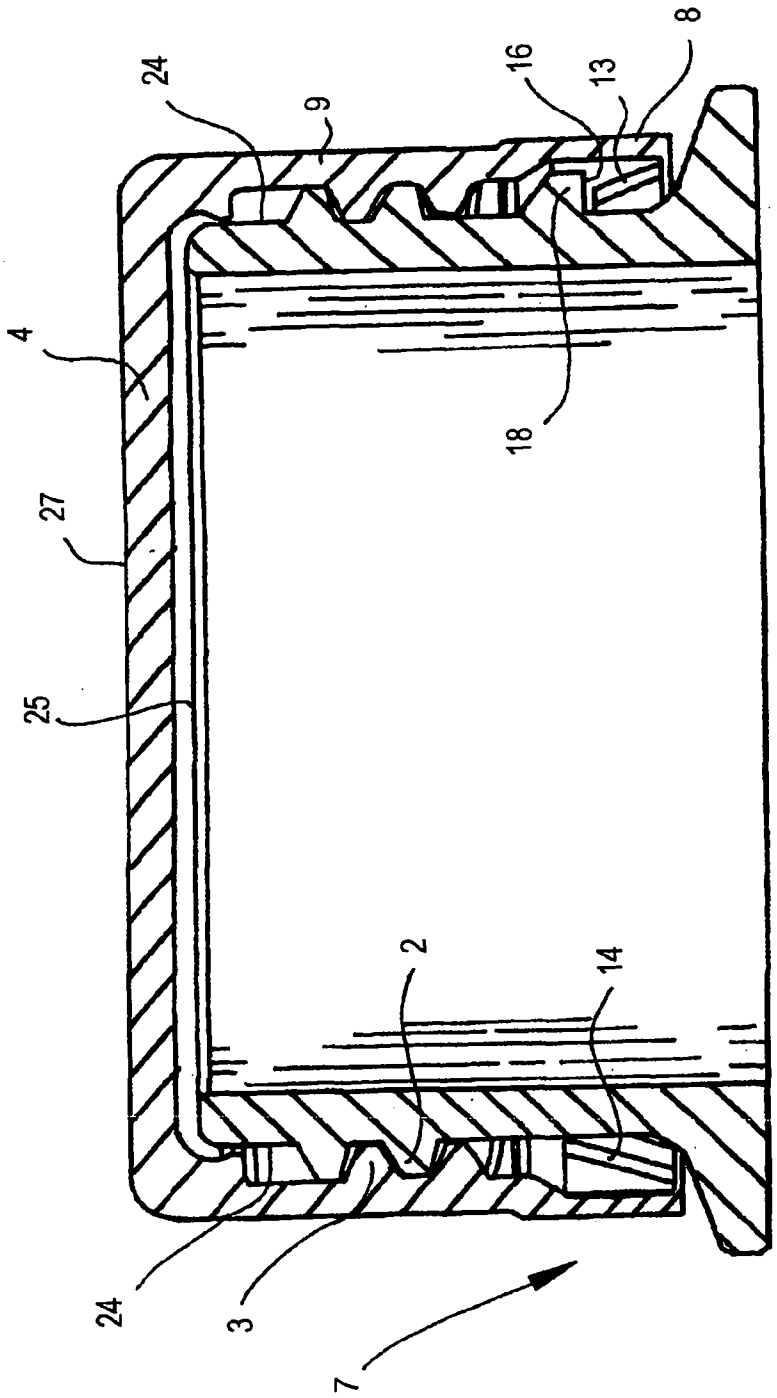


Fig. 7

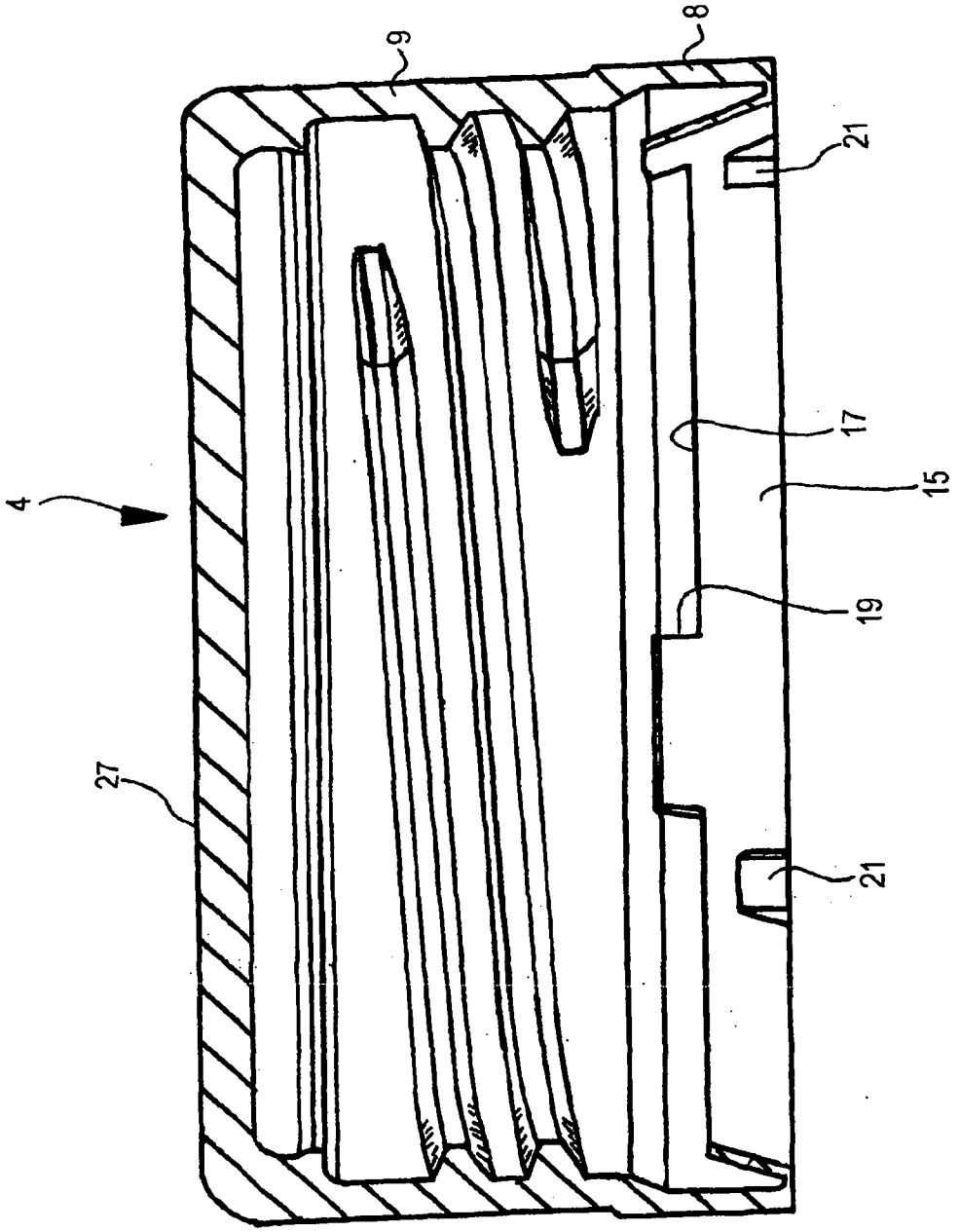


Fig. 8

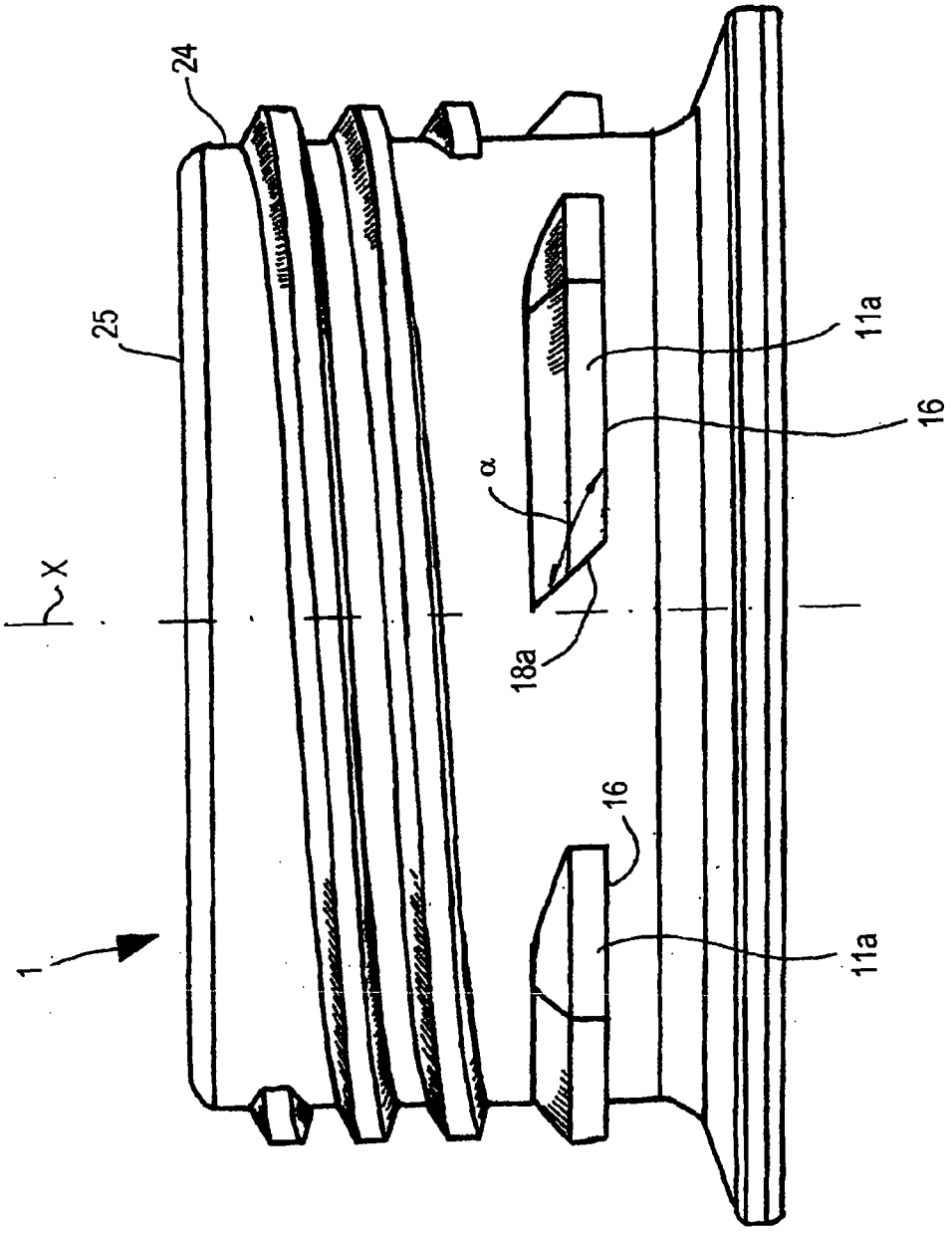


Fig. 9

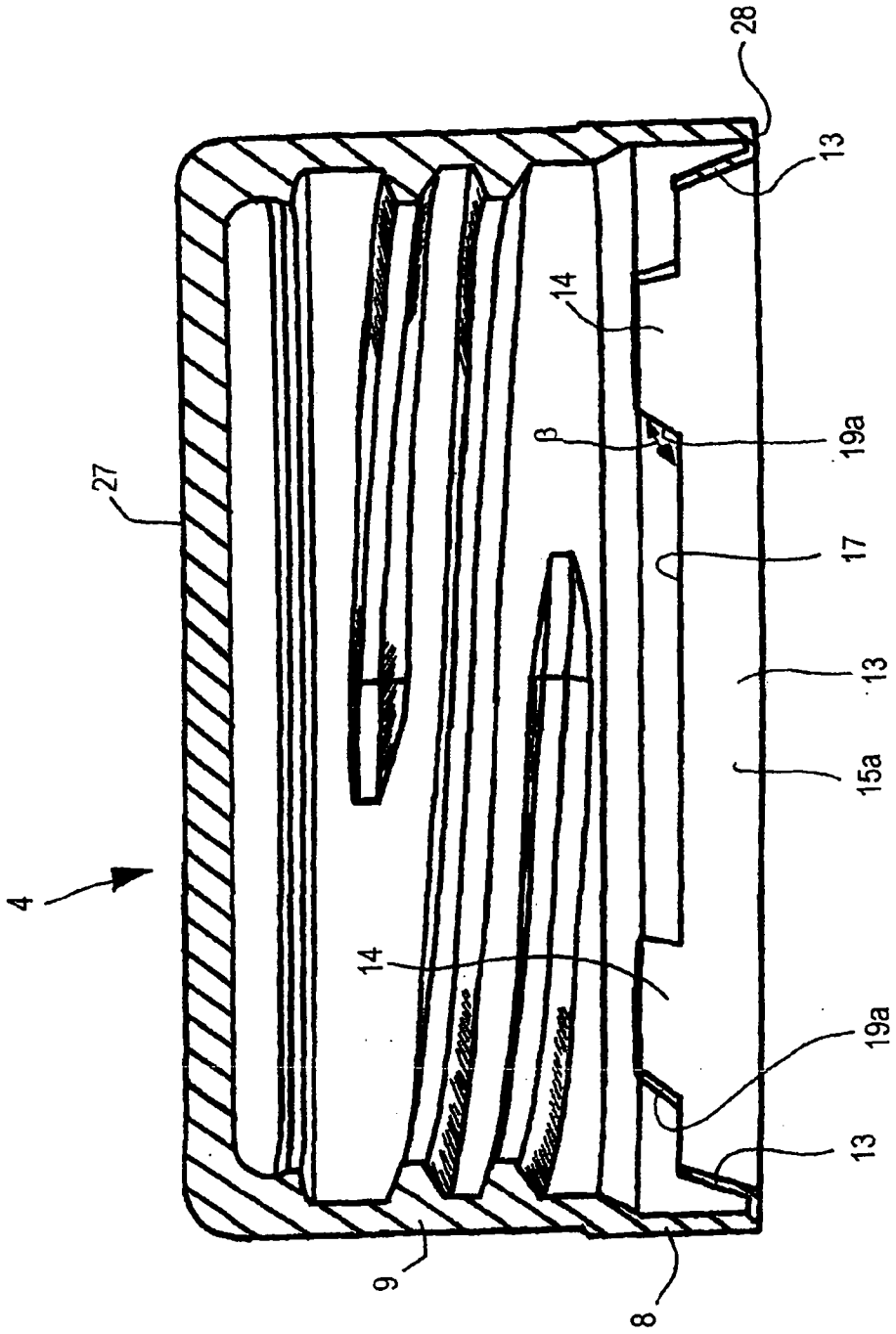


Fig. 10

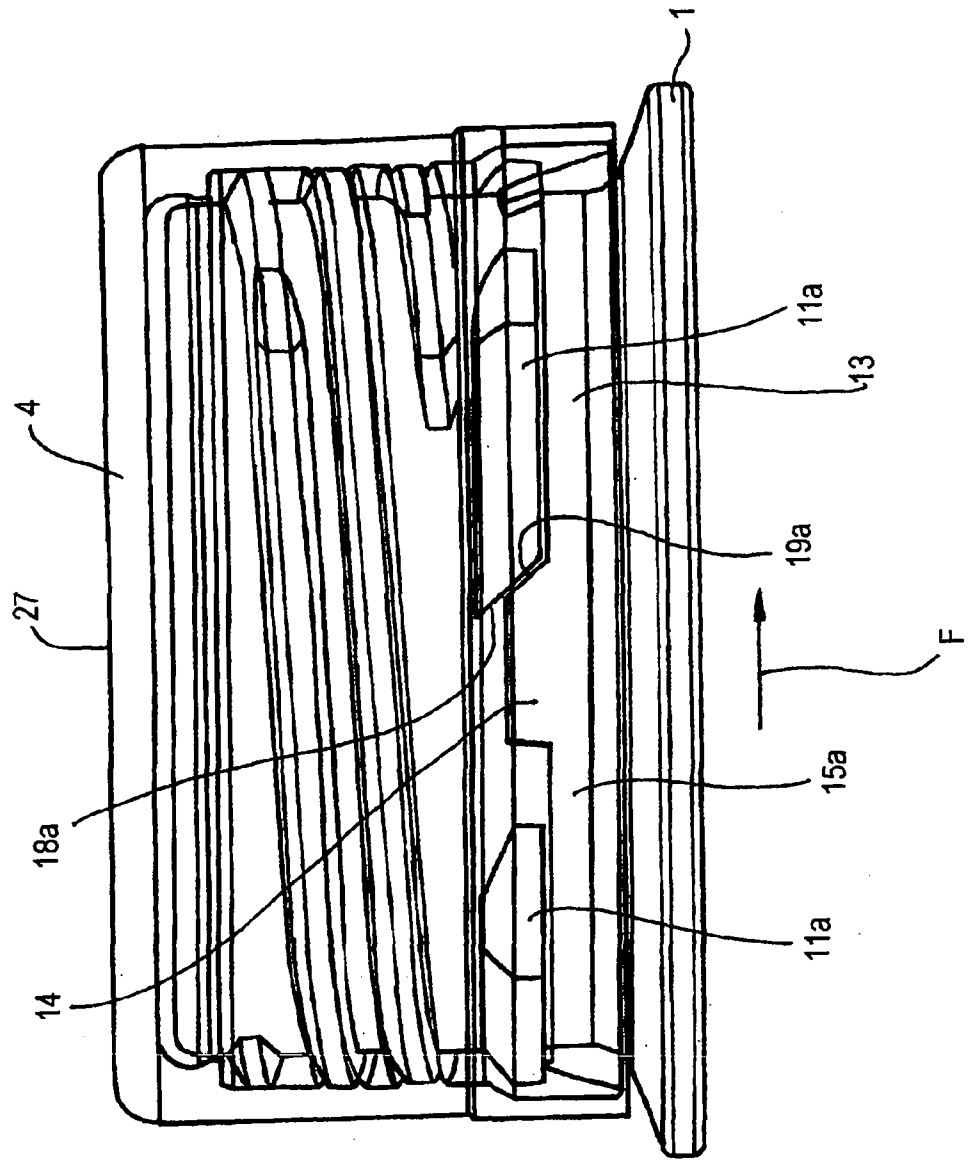


Fig. 11

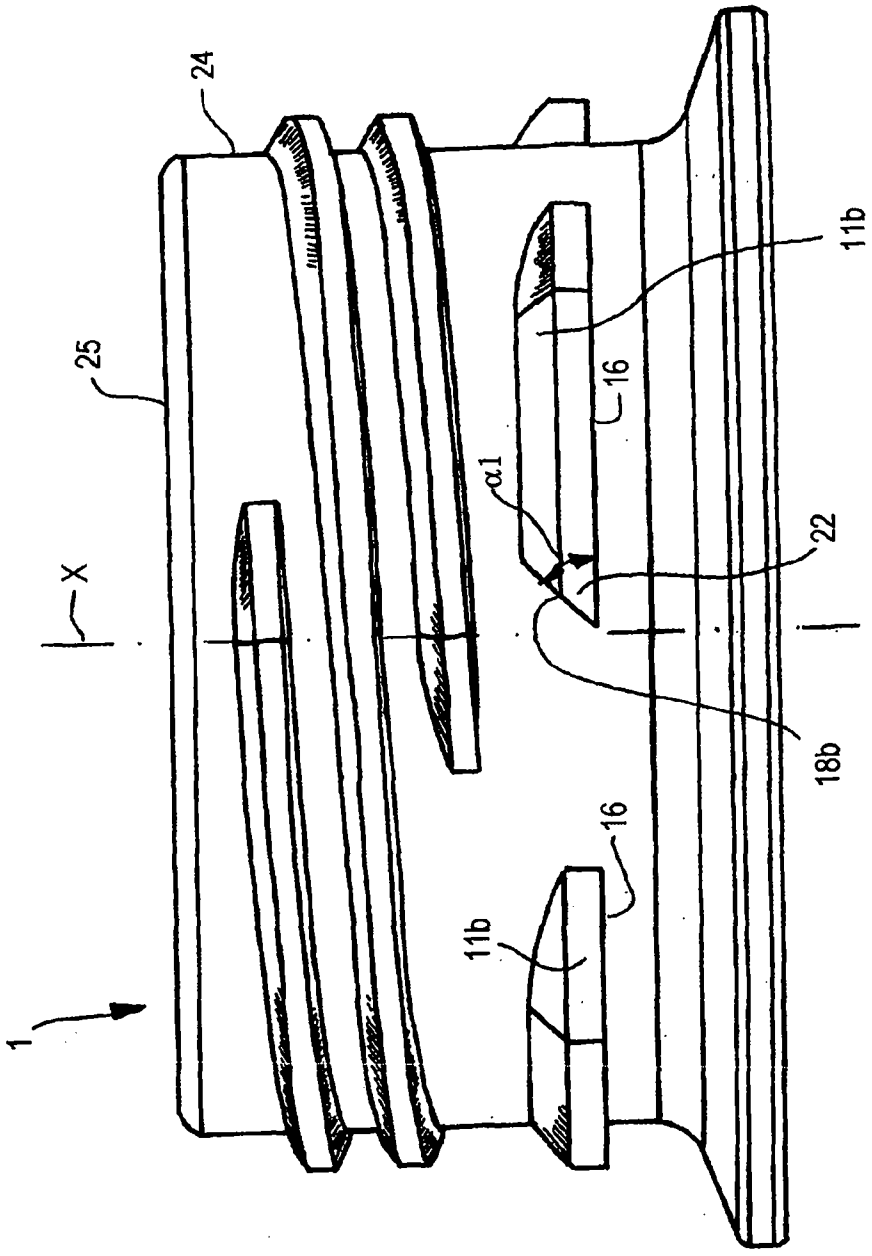


Fig. 12

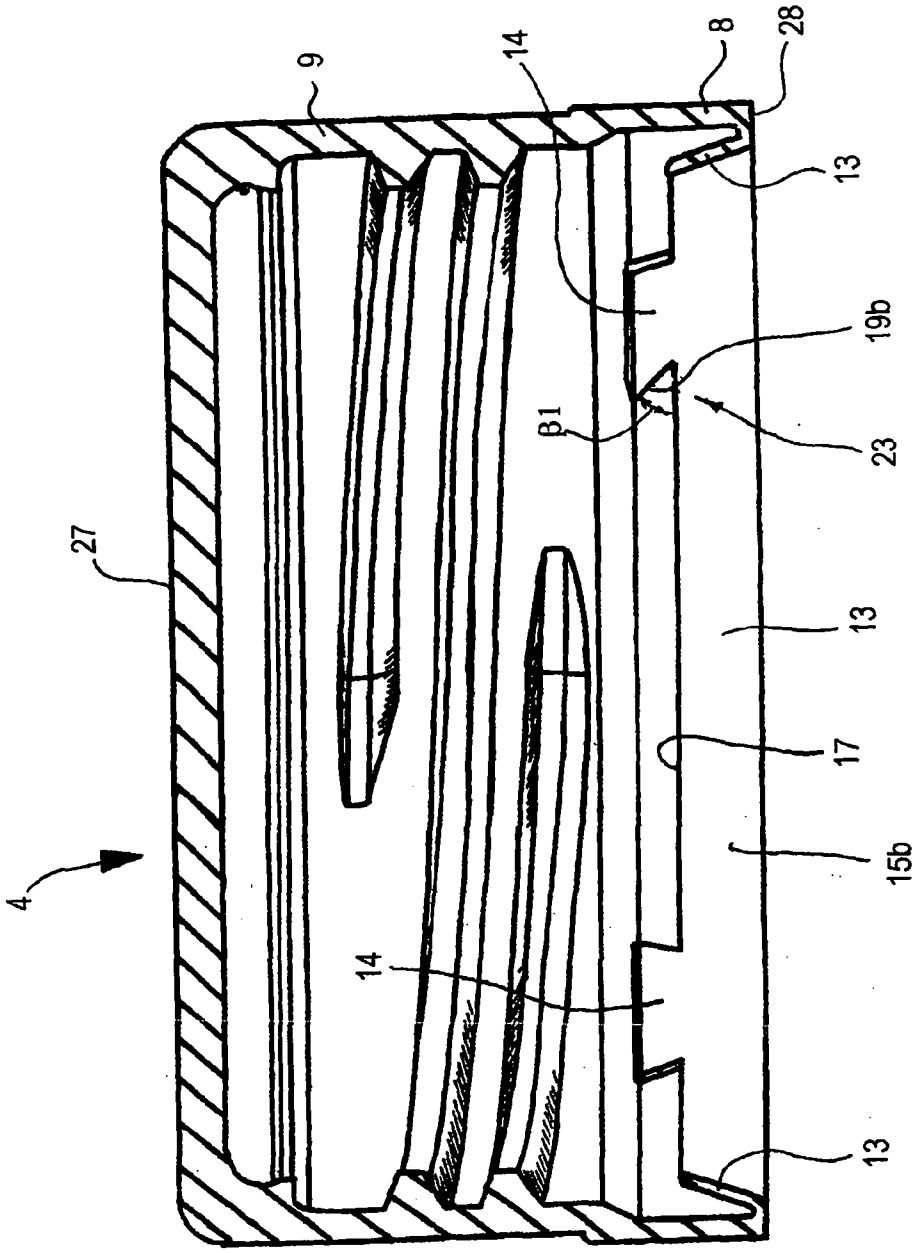


Fig. 13

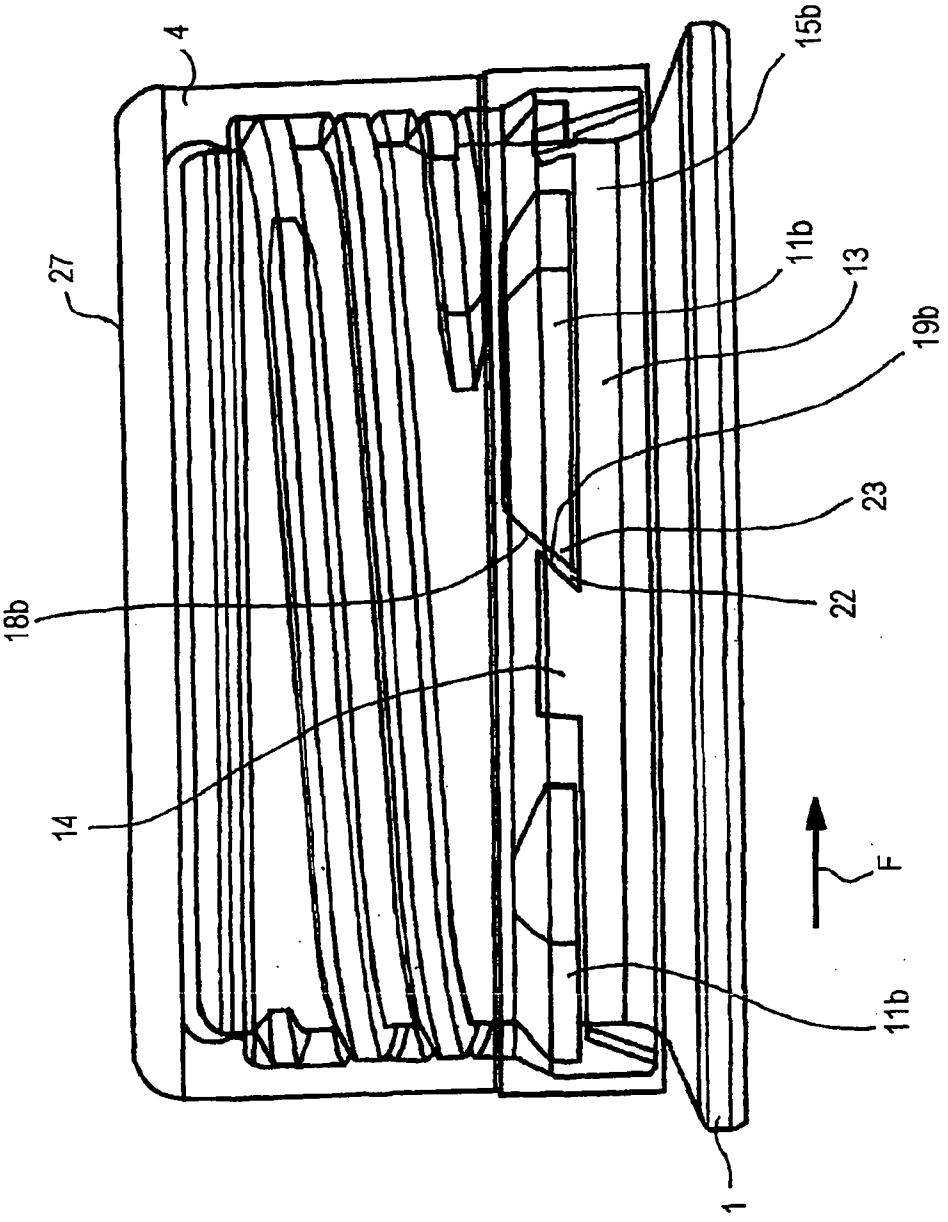
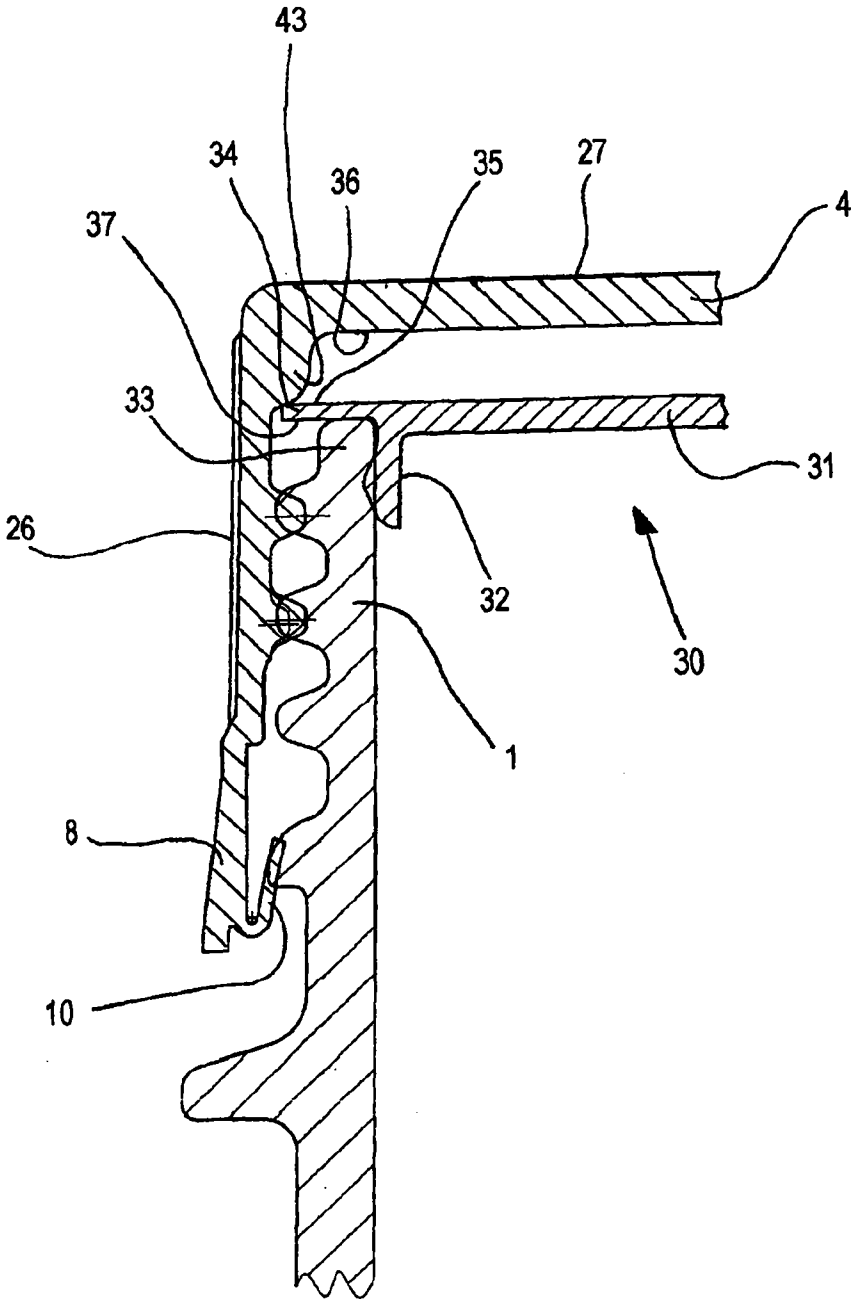


Fig. 14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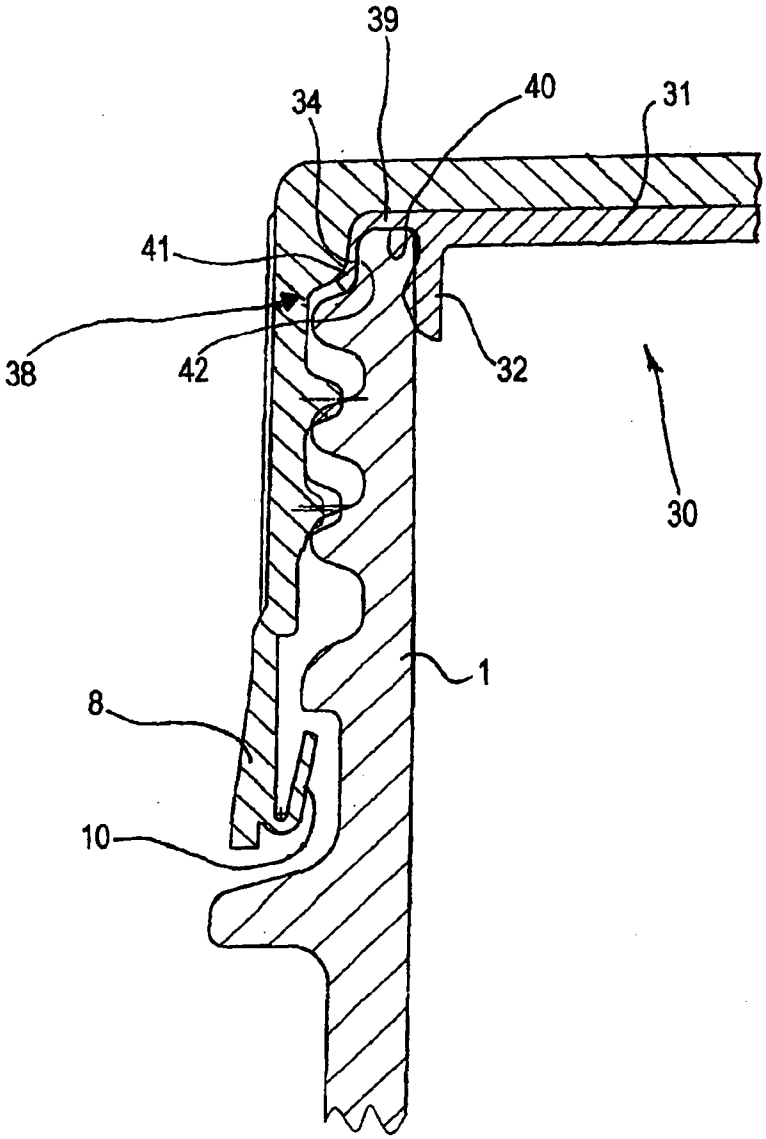
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