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(54) **A DECORATIVE, TAMPERPROOF, CLOSURE**

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FERMETURE DÉCORATIVE INVIOLABLE

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Description

[0001] The present invention relates to a decorative, tamperproof closure according to the preamble of claim 1. Such a closure is known e.g. by WO 2005/049443.

[0002] Tamperproof closures are generally used on containers, such as bottles having a neck and a mouth, to prevent the contents being contaminated without the final consumer's knowledge. Normally, such closures also have devices which can provide evidence of the initial opening operation (also known as "tamper evident" closures) and/or devices for preventing refilling.

[0003] In fact, if a safety closure could be easily removed, it would not fulfil the anti-refilling or tamper-evident function for which it was selected.

[0004] Given that tamperproof closures are widely used, there is an ever greater demand in the market for the provision of durable decorations on the outer surfaces of the closures.

[0005] In particular, there is a need to provide a closure which can also be decorated on a surface that is visible only when the closure is open (that is, when the cap has been removed from the container).

[0006] In view of the above-mentioned state of the art, the object of the present invention is to provide a tamperproof closure which is decorated internally; advantageously, the decoration should not be subject to rapid wear.

[0007] According to the present invention, this object is achieved by means of a closure according to Claim 1.

[0008] The characteristics and the advantages of the present invention will become clear from the following detailed description of some practical embodiments thereof, which are described by way of non-limiting example with reference to the appended drawings, in which:

Figure 1 shows a cross-section of a first embodiment of the present invention,
Figure 2 shows a cross-section of a detail of Figure 1,
Figures 3-5 show cross-sections of three further embodiments of the present invention, and
Figure 6 is an exploded, perspective view of the embodiment of Figure 1.

[0009] Although no container is shown in the drawings, the closures are shown in the configuration that is adopted when they are fitted on the neck of a bottle.

[0010] In the present description, all references to upward and downward directions should be understood as relating to the orientation of the closure as shown in the appended drawings.

[0011] The closure 1, which extends along a main longitudinal axis X-X, can be fitted on containers having a neck and a mouth, for example, on bottles, and comprises, substantially, a removable cap 2 and a main body 3 which can be fixed firmly to the neck of the container.

[0012] The cap 2 can ensure the liquid-tightness of the closure 1 and comprises an internal thread 4 and an upper metal element 5; the internal thread 4 may optionally be formed on an inner cap 6 disposed inside and fixed firmly to the upper metal element 5, which may also be cap-shaped.

[0013] The upper metal element 5 and the inner cap 6 may be held together by conventional, known methods, for example, by mechanical methods or by gluing. In the drawings, an intermediate cap is interposed between the upper metal element 5 and the inner cap 6 but the intermediate cap is optional; the threaded portion 4 may in fact be formed directly on the upper metal element 5, for example, by a copying process.

[0014] When the upper metal element 5 is separate from the threaded portion 4, the upper metal element 5 comprises an end portion 7 which extends longitudinally downwards beyond all of the other elements that make up the cap 2. The length of the end portion 7 as far as its end edge 8 is at least 3 mm.

[0015] Main body 3 comprises a pourer 10 and a sleeve 11. Optionally, there may also be means 12 for preventing re-filling such as, for example, a valve system or the like. In any case, the anti-refilling means 12 are conventional and will not be discussed further.

[0016] Pourer 10 is also conventional and has a pouring lip 13 and an externally threaded portion 14 on which the threaded portion 4 of the cap 2 is engaged.

[0017] In the embodiment of Figure 4, pourer 10 is formed integrally - by means of a flange 15 - with a lower portion 16 which has means 17 for engagement on the neck of the container; in the other embodiments, pourer 10 terminates at the bottom in the flange 15 which is firmly restrained on the neck of the container by engagement means 17 formed on sleeve 11.

[0018] A washer 18 may be inserted between the flange 15 and the mouth of the container with the function both of supporting the anti-refilling means 12 and of forming the liquid-tight seal against the mouth of the container.

[0019] As can be seen in Figure 2, pourer 10 is fitted on the washer 18 with interference. In the drawings, the portions which interfere with one another are in fact shown graphically as undeformed, co-penetrating portions.

[0020] Figure 2 shows the particular profile of the internal and external threads which is selected to permit correct operation of the closure 1.

[0021] The angle α is advantageously between 30° and 75°, more advantageously between 45° and 75°, and even more advantageously greater than 50° and/or less than 70°, for example, about 45°.

[0022] Surprisingly, it has been discovered that, in a closure such as that described herein, these values permit correct removal of the cap 2 without the threads jumping over one another.

[0023] Sleeve 11 shown is formed integrally with the inner cap 6; in this case, sleeve 11 and the inner cap 6 are connected to one another by a fracture line 19 which separates the two elements by breaking during the initial opening operation. This fracture line 19 defines the upper

edge of sleeve 11.

[0024] An upper flange 20 of sleeve 11 is positioned immediately below fracture line 19 and has the function of restraining pourer 10 axially and/or rotationally on the neck of the container.

[0025] In Figures 1, 3 and 5, the sleeve 11 comprises the means 17 for engagement on the container, preferably in the form of a continuous, upwardly-facing tab 21; in the embodiment of Figure 4, however, sleeve 11 comprises means for preventing removal, for example, a projection 23 which can remain fitted in the lower edge 22 of lower portion 16 if sleeve 11 is subjected to an upward pull. Sleeve 11 may comprise anti-rotation means 24 which prevent it from rotating relative to the neck of the bottle.

[0026] The prevention of rotation may then be transferred to pourer 10 by suitable means 25, for example, opposed teeth arranged on flanges 15 and 20, respectively.

[0027] Sleeve 11 comprises an upper portion 26 delimited by flange 20 and a lower portion 27 delimited by lower end 38 of sleeve 11.

[0028] Upper portion 26 advantageously has a slightly smaller outer diameter than lower portion 27, the transition between the two being formed by a surface 28 which is advantageously tapered.

[0029] A lower metal element 29 which is advantageously sleeve-shaped, is arranged around at least a portion of sleeve 11.

[0030] Upper edge 30 of lower metal element 29 is arranged close to end edge 8 of upper metal element 5. The two metal elements 5, 29 are advantageously arranged adjacent one another and consecutively. Elements 5, 29 may be joined together by bridges 31 or may be completely separate.

[0031] Guide means 32 are advantageously arranged close to end edge 8 so that, during the fitting of cap 2 on main body 3, end edge 8 remains far enough from the outer surface of upper portion 26 of sleeve 11 not to scrape the outer surface of upper portion 26 with its sharp edges.

[0032] The guide means 32 may be formed either on upper metal element 5, for example as shown in the drawings in the form of an annular channel projecting towards upper portion 26, or - conversely - on upper portion 26 itself, for example, in the form of an annular projection extending towards metal element 5.

[0033] The depth of the channel is substantially equal to the clearance between upper metal element 5 and upper portion 26 (or sleeve 11).

[0034] Alternatively, the guide means 32 may be portions of a channel or of a projection, or internal/external boss-like spot protuberances; clearly, the number and angular extent of the guide means 32 may be selected and varied at will, provided that there is no unreliability when centering metal element 5 on sleeve 11.

[0035] The guide means 32 advantageously have a projection of at least 0.1 mm, preferably about 0.2 mm, relative to the reference diameter (inner or outer) of elements 5, 26 on which they are formed.

[0036] When the guide means 32 are formed on upper metal element 5, a corresponding channel (not shown) may be formed on upper portion 26 so as to form a slight snap-fit upon re-closure.

[0037] As can be seen in Figure 3, upper portion 26 may comprise anti-tamper means 33, for example, spacer means, advantageously in the form of one or more lips 34 arranged around the circumference and facing upwards.

[0038] The anti-forcing means 33 are visible after re-closure, irreversibly changing the appearance of the closure 1 after the initial opening operation.

[0039] Lip 34 of Figure 3 is resiliently restrained by upper element 5, in the interior thereof and, as a result of the initial opening operation, moves outwardly so that, during re-closure, end edge 8 of upper element 5 comes into abutment with upper surface 35 of lip 34, opening it out further.

[0040] Lip 34 also acts as a spacer, preventing complete closure of cap 2 onto main body 3.

[0041] Lip 34 may comprise an outer groove in which the edges 8, 30 of metal elements 5, 29 fit; edges 8, 30 are advantageously inwardly curved to achieve the above-described spacing effect and/or to permit a resilient movement of end edge 8 over lip 34.

[0042] The anti-tamper means 33 are advantageously arranged substantially in the region of surface 28 between the two portions 26, 27 of sleeve 11, in the vicinity of demarcation plane 36, located between upper metal element 5 and lower metal element 29.

[0043] The demarcation plane 36 is arranged at a level such that substantially the entire upper portion 26 is visible when cap 2 is not fitted on main body 3.

[0044] Upper portion 26 advantageously has a length greater than 3 mm and extends substantially cylindrically through 360°.

[0045] Lower metal element 29 may be arranged around lower portion 27 with a clearance, for example, of less than 0.3 mm, or with slight interference.

[0046] If there is no clearance, lower metal element 29 may either be rotatable relative to lower portion 27, optionally only when a predetermined torque is exceeded, or may be restrained from rotating relative thereto, for example, by gluing. Lower metal element 29 advantageously has the same outside diameter and/or the same thickness as the upper metal element 5; they may also be produced by the processing of a single metal sheet, for example, an aluminium (or aluminium alloy) sheet.

[0047] The processing may comprise a continuous cut through 360°, separating the two element 5, 29, or a process which forms the bridges 31.

[0048] To prevent lower metal element 29 being easily removed from the neck of the container, it comprises axial restraining means 37.

[0049] The axial restraining means 37 may, for example, be implemented by beading of the lower end 37 of

lower metal element 29 onto the end 38 of sleeve 11, or by forming one or more grooves 39 in the lateral surface of lower metal element 29. In the former case, the lower end 38 is bent inwardly.

[0050] In the embodiment of Figure 5, groove 39 can fit in a corresponding channel 40 formed in lower portion 27; the two grooves 39, 40 will have a depth such as to effectively prevent any attempt to axially remove lower metal element 29, while at the same time optionally allowing relative rotation, as described above.

[0051] In this case, the end beading operation is not necessary and lower metal element 29 can have any desired longitudinal length.

[0052] As is clear from this description, the invention achieves the objects set, providing a compact, tamperproof closure which has an internal portion that can be decorated in a durable manner.

[0053] Naturally, to satisfy contingent and specific requirements, a person skilled in the art may apply many modifications and variations to the above-described configurations; for example, where circular elements or surfaces are mentioned, possible variations in shape due, for example, to interruptions in the continuity of the element or of the surface are also intended to be included: annular elements may also be formed by a plurality of annular portions which are optionally separate from one another.

[0054] Similarly, a person skilled in the art will appreciate that the characteristics of the embodiments described may be interchanged if necessary.

[0055] However, all of these variations and modifications are included within the scope of protection of the invention as defined by the appended claims.

Claims

1. A tamperproof closure (1) for containers having a neck and a mouth, the closure (1) comprising:

- a pourer body (10) comprising an externally threaded portion (14),
- a sleeve (11) which can be axially restrained on the neck of the container and which comprises an upper portion (26) and a lower portion (27),
- the pourer body (10) and the sleeve (11) forming a main body (3) which can be fixed firmly to the neck of the container,
- a cap (2) which can ensure the liquid-tightness of the closure (1) and which comprises:
- an upper metal element (5), and
- a threaded inner cap (6), disposed inside and fixed firmly to the upper metal element (5), said threaded inner cap (6) having an internal thread (4) which can engage with the threaded portion (14) of the pourer body (10),
- a lower metal element (29) arranged at least partially around the sleeve (11), wherein the upper edge (30) of the lower metal element (29) is spaced from the upper edge of the sleeve (11) so as to leave the upper portion (26) visible when the closure (1) is open,

characterized in that

the shoulders of the threaded portions (4, 14) that are in engagement are inclined at an angle of about 45° to the vertical.

2. A closure (1) according to the preceding claim in which the longitudinal distance between the upper edge (19) of the sleeve (11) and the lower end (28) of the visible portion (26) is at least 3 mm.

3. A closure (1) according to any one of the preceding claims in which the upper metal element (5) comprises an end portion (7) which extends downwards beyond all of the other elements making up the cap (2).

4. A closure (1) according to any one of the preceding claims comprising, preferably in said end portion (7), guide means (32) for guiding the fitting of the upper metal element (5) over the upper portion (26).

5. A closure (1) according to the preceding claim in which the guide means (32) are in the form of a substantially annular protuberance.

6. A closure (1) according to the preceding claim in which the substantially annular protuberance is formed by a channel (32) in the upper metal element (5), extending towards the upper portion (26).

7. A closure (1) according to the preceding claim in which the depth of the first channel (32) is substantially equal to the clearance between the upper metal element (5) and the sleeve (11).

8. A closure (1) according to any one of Claims 6 and 7, in which the sleeve (11) comprises a second channel located in a position corresponding to the position of the first channel (32).

9. A closure according to any one of the preceding claims in which the upper metal element (5) and the lower metal element (29) are connected to one another, for example, by means of one or more bridges (31) and/or a weakened fracture line.

10. A closure (1) according to any one of Claims 1 to 8 in which the upper metal element (5) and the lower metal element (29) are separate from one another.

11. A closure (1) according to any one of the preceding claims in which the upper metal element (5) comprises an end portion (7) which is arranged substantially around the lower portion (26).

12. A closure according to any one of the preceding claims in which the lower metal element (29) is arranged substantially over the lower portion (27).

Patentansprüche

1. Garantieverschluss (1) für Behälter mit einem Hals und einer Mündung, wobei der Verschluss (1) Folgendes umfasst:

- einen Ausgusskörper (10), der einen außen gewindeten Teil (14) umfasst,
- eine Hülse (11), die axial auf dem Hals des Behälters zurückgehalten werden kann und die einen oberen Teil (26) und einen unteren Teil (27) umfasst, wobei der Ausgusskörper (10) und die Hülse (11) einen Hauptkörper (3) bilden, der fest am Hals des Behälters befestigt werden kann,
- eine Kappe (2), welche die Flüssigkeitsdichtheit des Verschlusses (1) sicherstellen kann und die Folgendes umfasst:
- ein oberes Metallelement (5) und
- eine gewindete innere Kappe (6), die in dem oberen Metallelement (5) angeordnet und fest an ihm befestigt ist, wobei diese gewindete innere Kappe (6) ein Innengewinde (4) aufweist, das mit dem gewindeten Teil (14) des Ausgusskörpers (10) in Eingriff sein kann,
- ein unteres Metallelement (29), das zumindest teilweise um die Hülse (11) angeordnet ist, wobei der obere Rand (30) des unteren Metallelements (29) vom oberen Rand der Hülse (11) so beabstandet ist, dass der obere Teil (26) sichtbar bleibt, wenn der Verschluss (1) geöffnet ist,
dadurch gekennzeichnet, dass
die Schultern der gewindeten Teile (4, 14), die in Eingriff sind, in einem Winkel von ungefähr 45° zur Senkrechten geneigt sind.

2. Verschluss (1) nach dem vorhergehenden Anspruch, bei dem der Abstand in Längsrichtung zwischen dem oberen Rand (19) der Hülse (11) und dem unteren Ende (28) des sichtbaren Teils (26) mindestens 3 mm beträgt.

3. Verschluss (1) nach einem der vorhergehenden Ansprüche, bei dem das obere Metallelement (5) einen Endabschnitt (7) umfasst, der sich nach unten über alle anderen Elemente hinaus erstreckt, welche die Kappe (2) bilden.

4. Verschluss (1) nach einem der vorhergehenden Ansprüche, der vorzugsweise in diesem Endabschnitt (7) Führungsmittel (32) zum Führen beim Befestigen des oberen Metallelements (5) über dem oberen Teil (26) umfasst.

5. Verschluss (1) nach dem vorhergehenden Anspruch, bei dem die Führungsmittel (32) die Form eines im Wesentlichen ringförmigen Vorsprungs haben.

6. Verschluss (1) nach dem vorhergehenden Anspruch, bei dem der im Wesentlichen ringförmige Vorsprung von einem Kanal (32) im oberen Metallelement (5) gebildet wird, der sich zum oberen Teil (26) hin erstreckt.

7. Verschluss (1) nach dem vorhergehenden Anspruch, bei dem die Tiefe des ersten Kanals (32) im Wesentlichen gleich dem Zwischenraum zwischen dem oberen Metallelement (5) und der Hülse (11) ist.

8. Verschluss (1) nach einem der Ansprüche 6 und 7, bei dem die Hülse (11) einen zweiten Kanal umfasst, der in sich in einer der Position des ersten Kanals (32) entsprechenden Position befindet.

9. Verschluss nach einem der vorhergehenden Ansprüche, bei dem das obere Metallelement (5) und das untere Metallelement (29) beispielsweise durch einen oder mehrere Stege (31) und/oder eine geschwächte Bruchlinie miteinander verbunden sind.

10. Verschluss (1) nach einem der Ansprüche 1 bis 8, bei dem das obere Metallelement (5) und das untere Metallelement (29) voneinander getrennt sind.

11. Verschluss (1) nach einem der vorhergehenden Ansprüche, bei dem das obere Metallelement (5) einen Endabschnitt (7) umfasst, der im Wesentlichen um den unteren Teil (26) angeordnet ist.

12. Verschluss nach einem der vorhergehenden Ansprüche, bei dem das untere Metallelement (29) im Wesentlichen über dem unteren Teil (27) angeordnet ist.

Revendications

1. Fermeture inviolable (1) pour des récipients ayant un goulot et une embouchure, la fermeture (1) comprenant :

- un corps verseur (10) comprenant une portion filetée extérieurement (14),
- un manchon (11) qui peut être retenu axialement sur le goulot du récipient et qui comprend une portion supérieure (26) et une portion inférieure (27),
- le corps verseur (10) et le manchon (11) formant un corps principal (3) qui peut être fixé solidement au goulot du récipient,
- un capuchon (2) qui peut garantir l'étanchéité

aux liquides de la fermeture (1) et qui comprend :
- un élément métallique supérieur (5), et
- un capuchon intérieur fileté (6), disposé à l'intérieur et fixé solidement à l'élément métallique supérieur (5), ledit capuchon intérieur fileté (6) ayant un filet interne (4) qui peut s'engager avec la portion filetée (14) du corps verseur (10),
- un élément métallique inférieur (29) agencé au moins partiellement autour du manchon (11),
dans laquelle le bord supérieur (30) de l'élément métallique inférieur (29) est espacé du bord supérieur du manchon (11) de manière à laisser la portion supérieure (26) visible quand la fermeture (1) est ouverte,
caractérisée en ce que
les épaulements des portions filetées (4, 14) qui sont en engagement sont inclinées d'un angle d'environ 45° par rapport à la verticale.

2. Fermeture (1) selon la revendication précédente, dans laquelle la distance longitudinale entre le bord supérieur (19) du manchon (11) et l'extrémité inférieure (28) de la portion visible (26) est d'au moins 3 mm.

3. Fermeture (1) selon l'une quelconque des revendications précédentes, dans laquelle l'élément métallique supérieur (5) comprend une portion d'extrémité (7) qui s'étend vers le bas au-delà de tous les autres éléments constituant le capuchon (2).

4. Fermeture (1) selon l'une quelconque des revendications précédentes, comprenant, de préférence dans ladite portion d'extrémité (7), des moyens de guidage (32) pour guider le montage de l'élément métallique supérieur (5) sur la portion supérieure (26).

5. Fermeture (1) selon la revendication précédente, dans laquelle les moyens de guidage (32) sont sous la forme d'une protubérance sensiblement annulaire.

6. Fermeture (1) selon la revendication précédente, dans laquelle la protubérance sensiblement annulaire est formée par un canal (32) dans l'élément métallique supérieur (5), s'étendant vers la portion supérieure (26).

7. Fermeture (1) selon la revendication précédente, dans laquelle la profondeur du premier canal (32) est sensiblement égale à l'espacement entre l'élément métallique supérieur (5) et le manchon (11).

8. Fermeture (1) selon l'une quelconque des revendications 6 et 7, dans laquelle le manchon (11) comprend un deuxième canal situé dans une position correspondant à la position du premier canal (32).

9. Fermeture selon l'une quelconque des revendications précédentes, dans laquelle l'élément métallique supérieur (5) et l'élément métallique inférieur (29) sont connectés l'un à l'autre, par exemple, au moyen d'un ou plusieurs ponts (31) et/ou d'une ligne de fracture fragilisée.

10. Fermeture (1) selon l'une quelconque des revendications 1 à 8, dans laquelle l'élément métallique supérieur (5) et l'élément métallique inférieur (29) sont séparés l'un de l'autre.

11. Fermeture (1) selon l'une quelconque des revendications précédentes, dans laquelle l'élément métallique supérieur (5) comprend une portion d'extrémité (7) qui est agencée sensiblement autour de la portion inférieure (26).

12. Fermeture selon l'une quelconque des revendications précédentes dans laquelle l'élément métallique inférieur (29) est agencé sensiblement par dessus la portion inférieure (27).

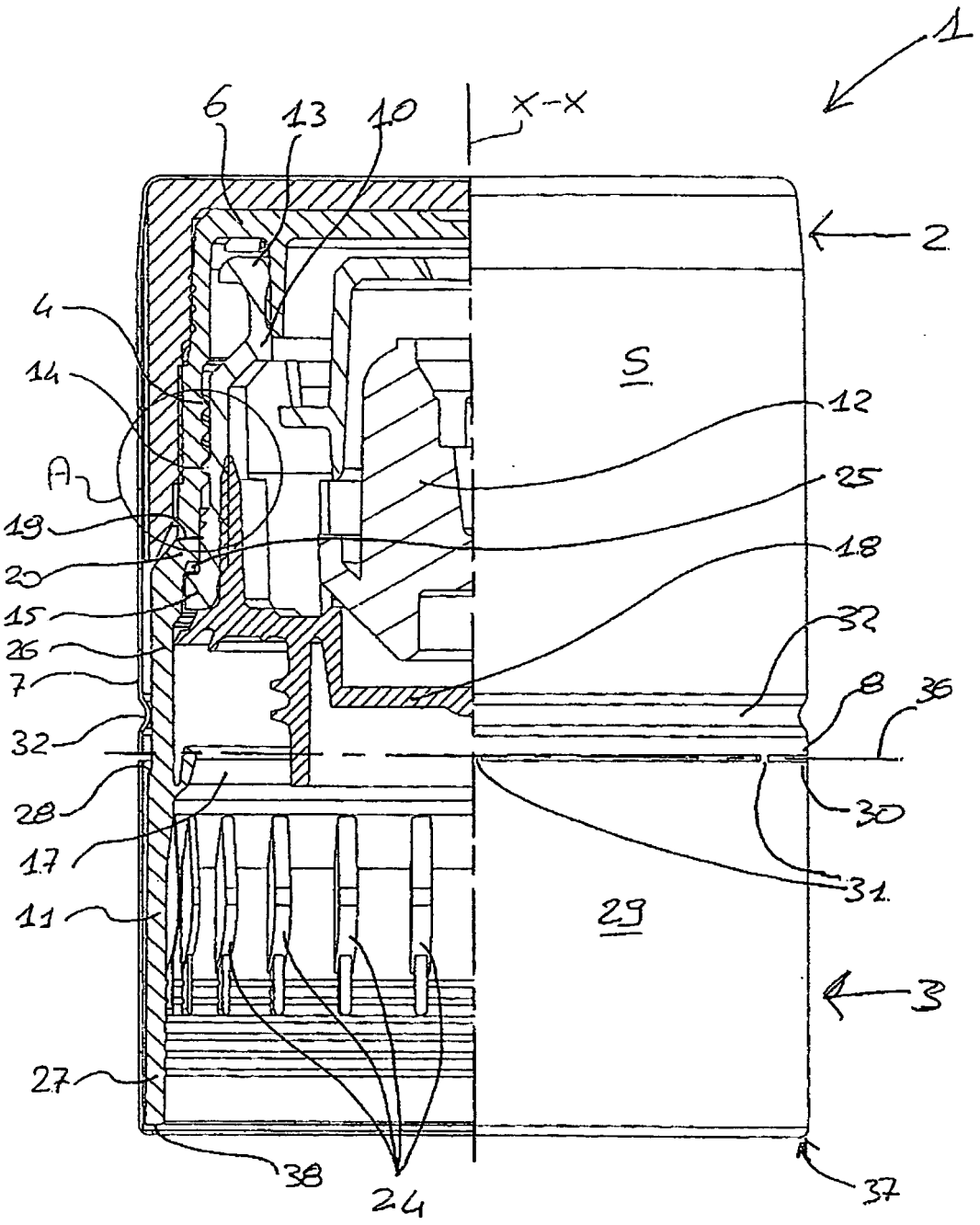

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Fig. 1

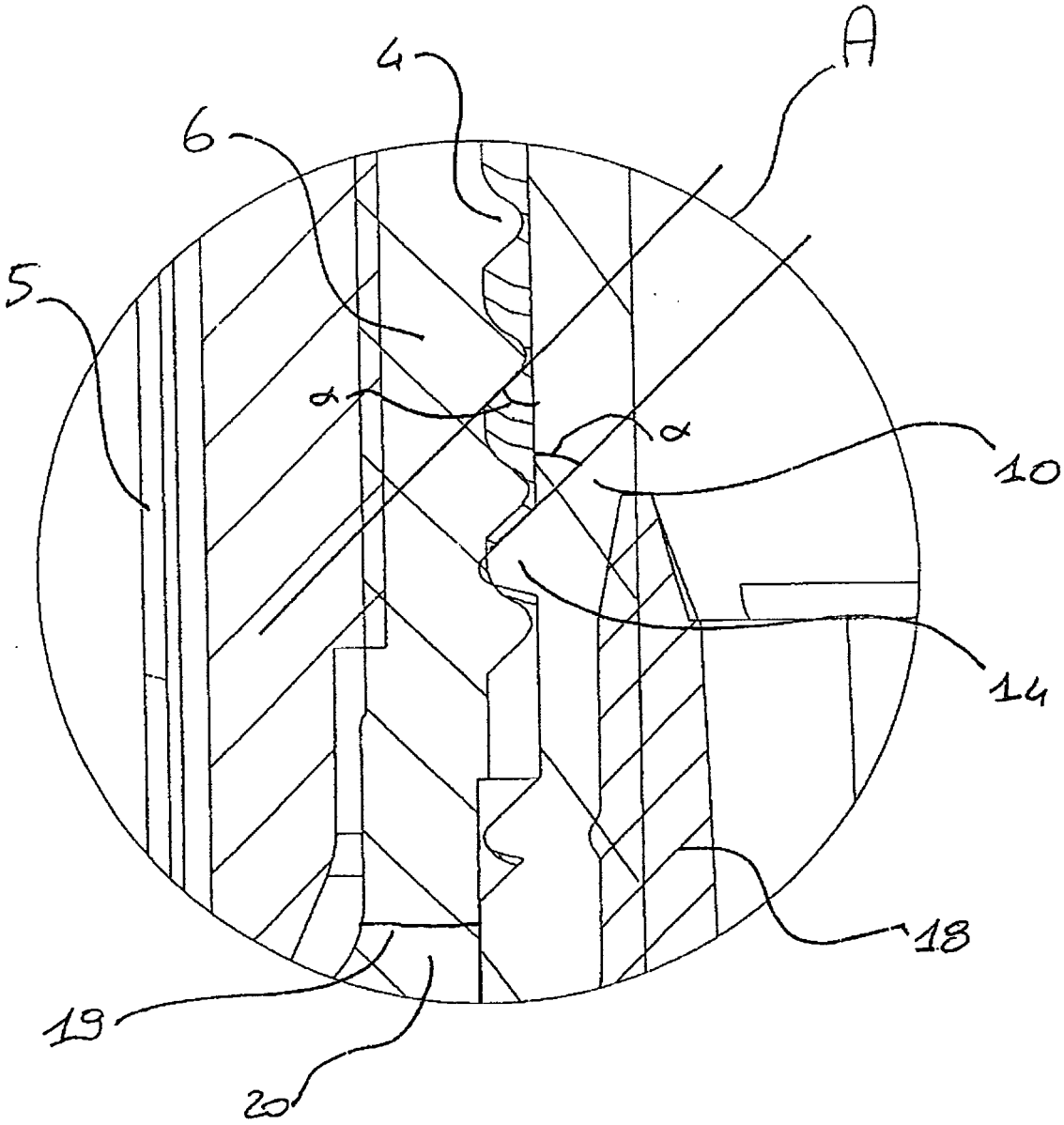


Fig. 2

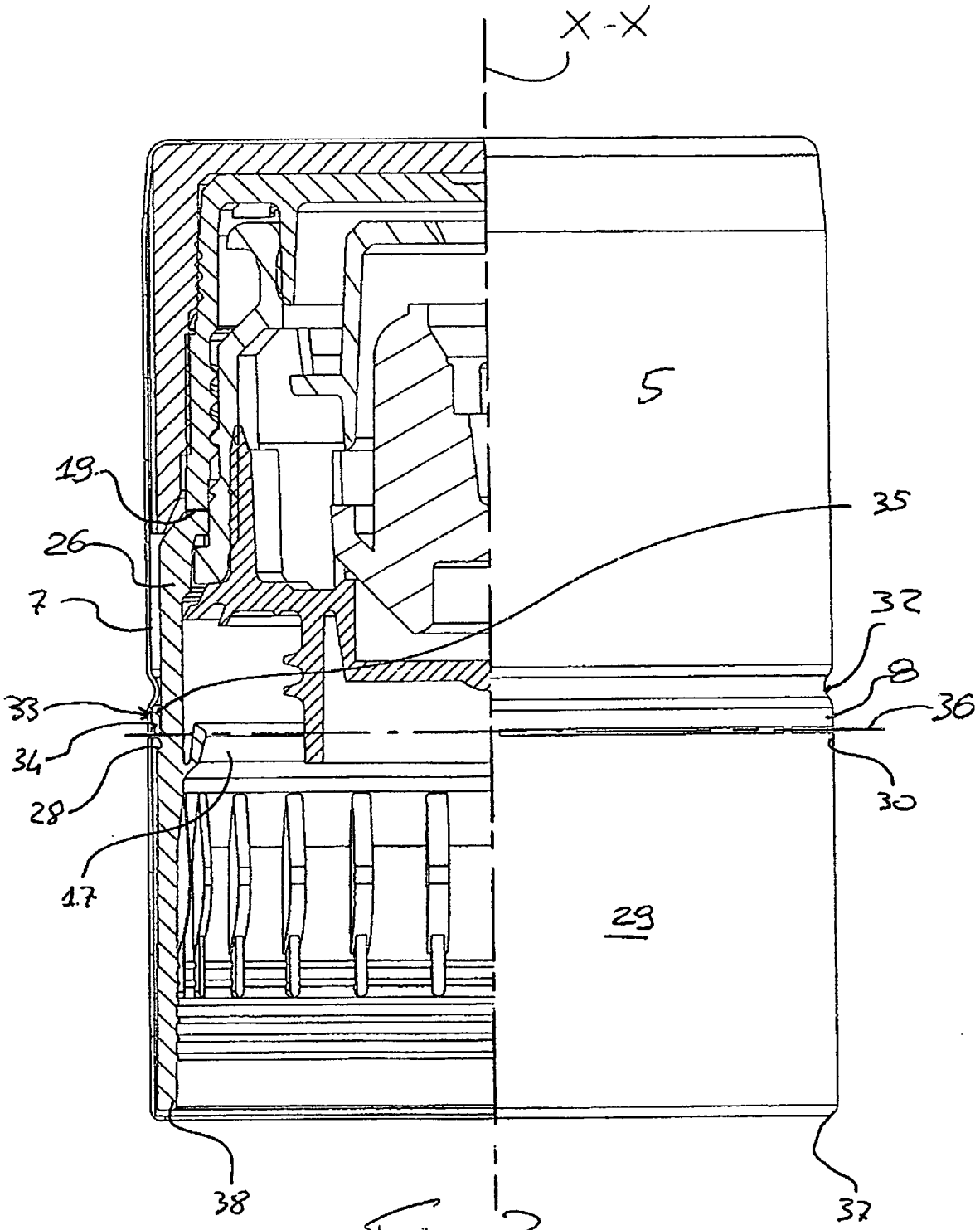


Fig. 3

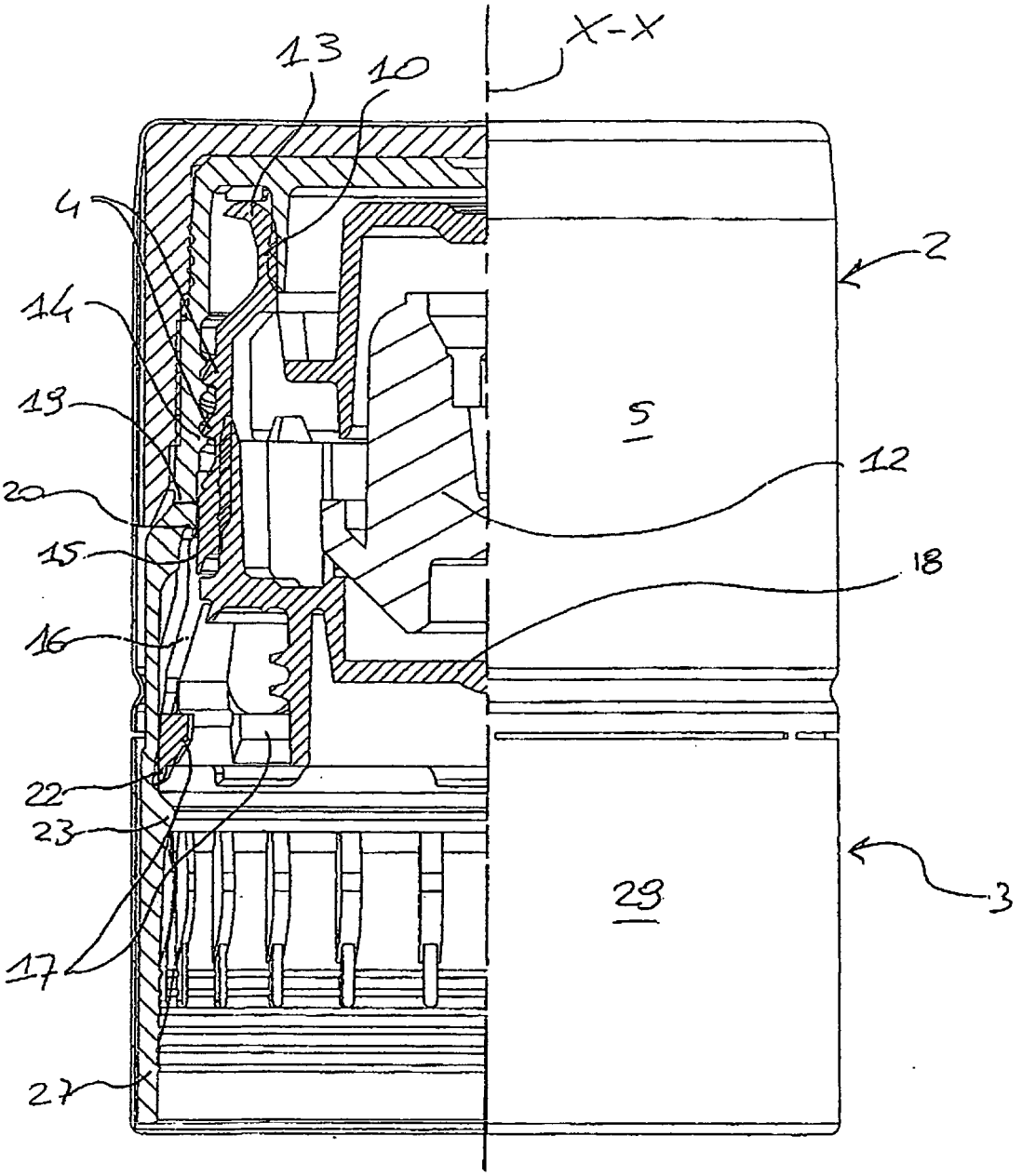


Fig. 4

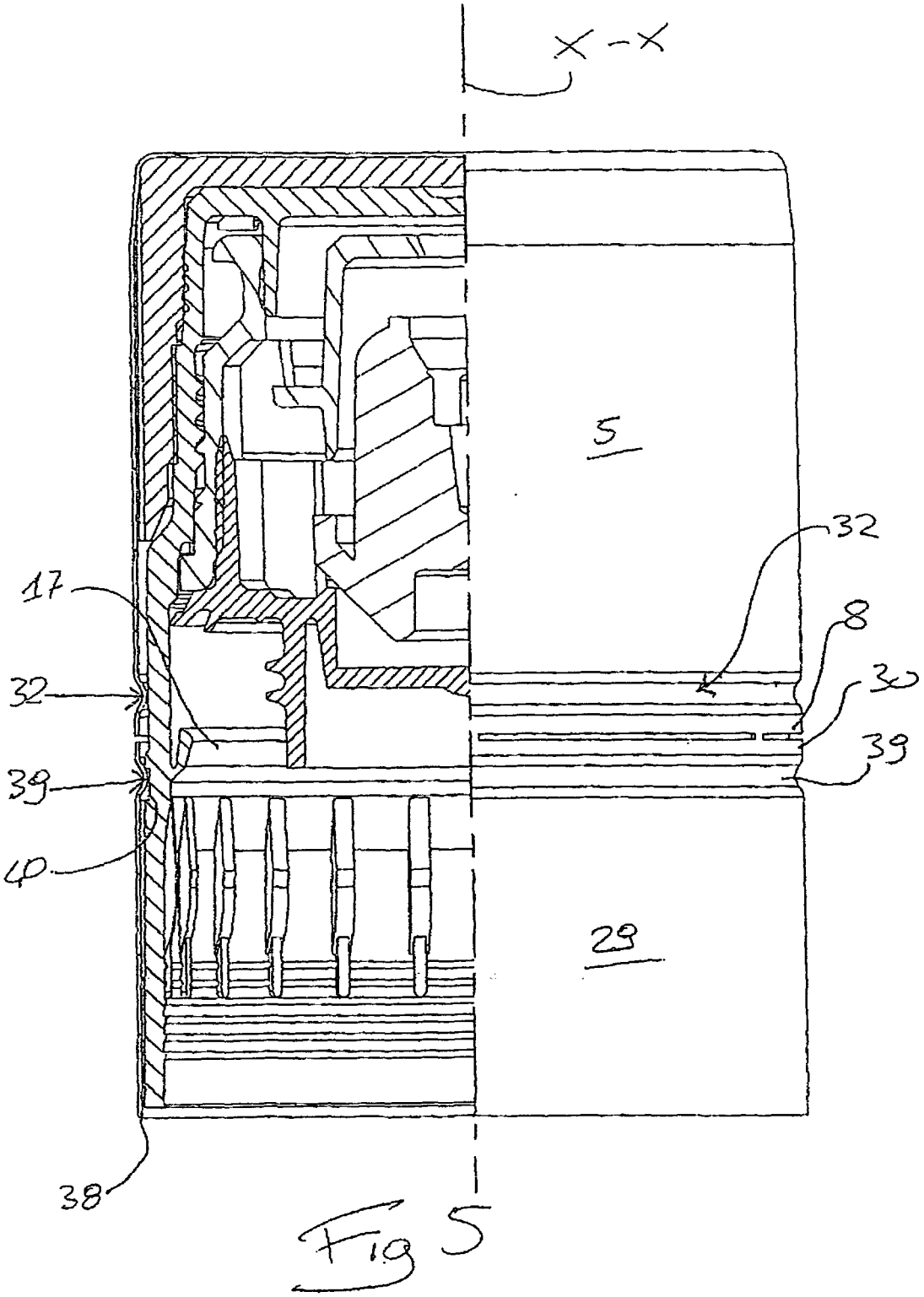


Fig 5

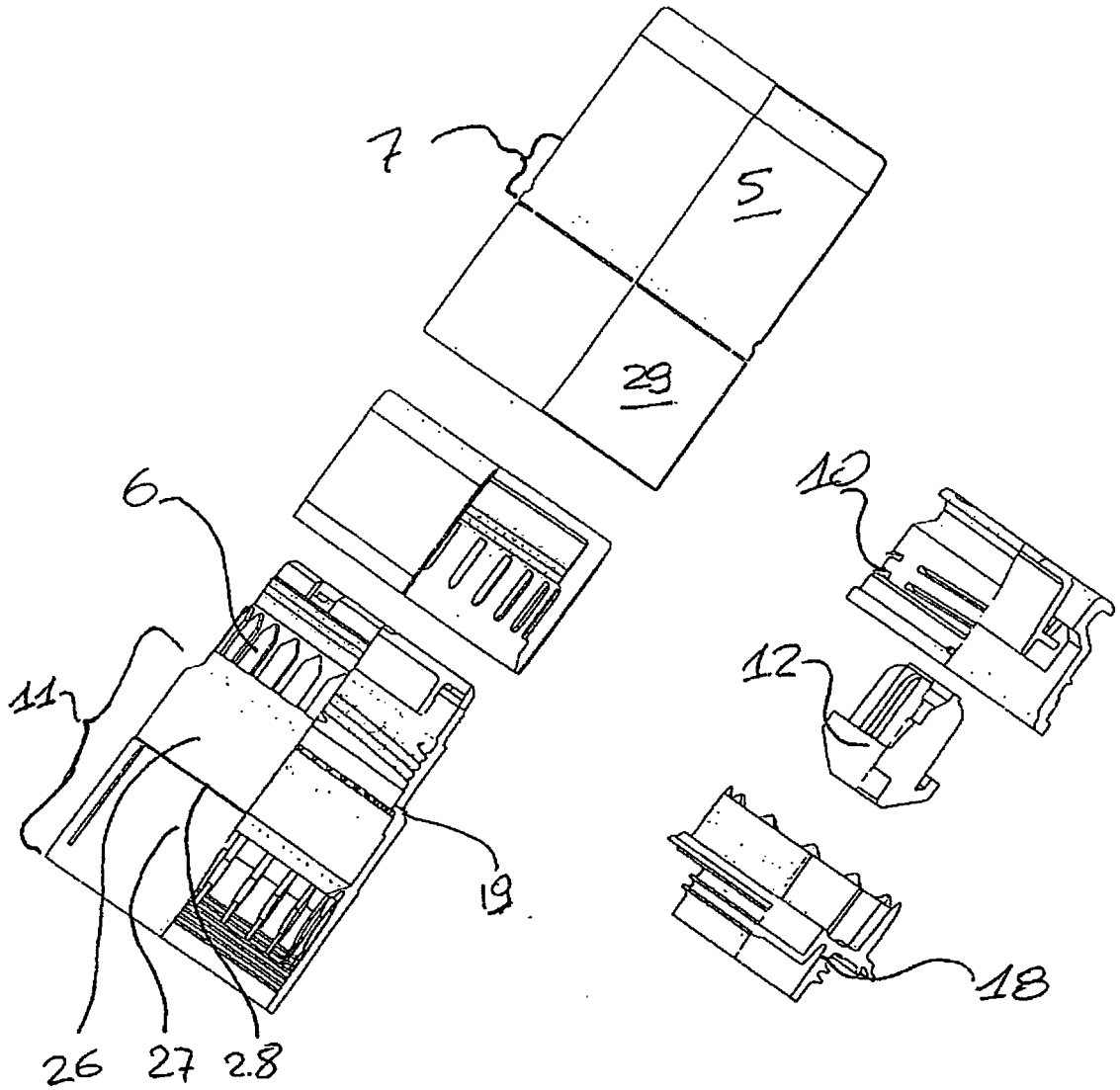


Fig 6

REFERENCES CITED IN THE DESCRIPTION

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