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(54) **MODULAR PLUG**

MODULARSTOPFER

BOUCHON MODULAIRE

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EP-B1- 2 765 090 FR-A1- 2 688 762

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Description

Field of the invention

[0001] The present invention relates to a stopper for closing bottles containing liquid or semi-liquid products.

Discussion of the related art

[0002] A stopper for closing a bottle is known in the art. This stopper has a head with a cylindrical shank extending therefrom. The shank, which is made of cork or a polymeric material, is adapted to fit into the bottle to close it. In particular, when the bottle is closed, the shank is inserted in the neck of the bottle until the head abuts the edge of the neck. It shall be noted that the shank must be suitably sized to conform with the neck of the bottle be able to fit therein. On the other hand, the head remains outside the bottle, for a user to be possibly able to reopen the bottle. This head can be formed with a variety of materials such as wood or plastic and may have inscriptions engraved therein or printed thereon.

[0003] Documents EP 2 765 090 A1 and FR 2 688 762 A1 show tamper evident bottle stoppers comprising a support element, a ring portion fitting over the support element, and a cover element coupled to the support element. These stoppers are conformed so as to change configuration after a first opening, in order to allow to check if an opening of the bottle has occurred.

Prior art problem

[0004] One drawback of this stopper is that it is only compatible with particular types of bottles, for example it is not suitable for bottles with a threaded neck.

[0005] Hence, the production line of the stopper must be adapted to each type of bottle.

SUMMARY OF THE INVENTION

[0006] Therefore, the purpose of the present invention is to provide a bottle stopper that can overcome the aforementioned prior art drawbacks.

[0007] In particular, the object of the present invention is to provide a stopper that can be adapted to various types of bottles.

[0008] A further object of the present invention is to provide a cap that can be customized, while maintaining its simple structure.

[0009] The aforementioned technical purpose and objects are substantially fulfilled by a bottle stopper that comprises the technical features as disclosed in one or more of the accompanying claims.

Advantages of the invention

[0010] The stopper of the present invention solves the aforementioned technical problem in that it comprises

modular portions that can be assembled as desired. In particular, this stopper comprises a support element, which is associated with the bottle type, and other parts (such as a ring portion and a cover element) not associated to the bottle type. These parts may be customized and freely assembled to the support element.

[0011] This will afford the use of a single production line for the individual parts and of different production lines for the support element depending on the type of bottle.

[0012] The stopper of the present invention may be also employed also as an overcap, mounted to various stoppers. Once again, the support element is adapted to the type of stopper and/or bottle and the other parts are assembled thereon.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The characteristics and advantages of the present invention will result from the following detailed description of a possible practical embodiment, illustrated as a non-limiting example in the annexed drawings, in which:

- Figure 1 shows a perspective view of a first embodiment of a stopper according to the present invention;
- Figure 2 shows a side view of the stopper of Figure 1;
- Figure 3 shows an exploded side view of the stopper of Figure 1;
- Figure 4 shows an exploded perspective view of the stopper of Figure 1;
- Figure 5 shows a sectional side view of the stopper of Figure 1; and
- Figure 6 shows a perspective view of a second embodiment of a stopper according to the present invention.

DETAILED DESCRIPTION

[0014] Even when this is not expressly stated, the individual features as described with reference to the particular embodiments shall be intended as auxiliary to and/or interchangeable with other features described with reference to other exemplary embodiments.

[0015] Referring to the accompanying figures, the present invention relates to a stopper 1, which is configured to be placed on a bottle neck and/or a similar container adapted to receive liquids.

[0016] The stopper 1 comprises a support element 2. This support element 2 is adapted to hold other parts of the stopper 1 in position.

[0017] According to a preferred embodiment, the support element 2 is made of a plastic material for light weight and processability reasons. For example, the support element 2 may be formed by molding, for example injection molding.

[0018] The stopper 1 comprises a ring portion 3, which fits on the support element. In particular, the ring portion 3 is connected to the support element 2 to be prevented

from rotating relative to the support element 2. In other words, the ring portion 3 is rotationally locked with respect to the support element 2. According to a preferred embodiment, the ring portion 3 is glued to the support element 2.

[0019] More in detail, the support element 2 has a top edge 21 and a bottom edge 22 and extends along a center axis J. The ring portion 3 extends on the support element 2 from the top edge 21 to the bottom edge 22. This ring portion 3 is configured to be held by the hand of a user, wherefore it is a portion of the stopper 1 that remains at least partially visible. The ring portion 3 may be made, for example, of a plastic material, wood, metal, a combination thereof or any other suitable material well-known to the skilled person. This ring portion 3 may be customized with designs or text, engraved therein or printed thereon. According to a preferred embodiment, the ring portion 3 has a circular outer perimeter. In alternative embodiments, not shown, the outer perimeter of the ring portion 3 may also have a square, polygonal or any other shape.

[0020] The stopper 1 also comprises a cover element 4. The cover element 4 is coupled to the support element 2, particularly at its upper edge 21. By way of example and without limitation, the cover element 4 may be sealed or glued to the support element 2. Alternatively, the cover element 4 may be coupled with the support element 2 by means of a snap-fit mechanism.

[0021] It shall be noted that the cover element 4 may be formed with various materials. For example, the cover element 4 may be made of a plastic material, metal or a combination thereof.

[0022] The cover element 4 is also visible to a user, like the ring portion 3. The cover element 4 is also customizable with designs or text, engraved therein or printed thereon.

[0023] The cover element 4 is also connected to the ring portion 3. In particular, the cover element 4 contacts and abuts the ring portion 3.

[0024] Particularly referring to figure 3, it shall be noted that the cover element 4 and the support element 2 form a seat for the ring portion 3. In particular, the ring portion 3 is locked along the center axis J by the support element 2 and the cover element 4. In other words, the ring portion 3 is held stationary along the axis J by the support element 2 and the cover element 4. This means that the ring portion 3 is stably locked along the center axis J relative to the support element 2 and to the cover element 4, before and after a first opening of the bottle. Specifically, the ring portion 3, the support element 2 and the cover element 4 are fixed to each other before and after a first opening of the bottle.

[0025] More in detail, the support element 2 comprises a lower abutment member 5 at the bottom edge 22. The ring portion 3 is configured to abut the lower abutment member 5 at the bottom edge 22 of the support element 2.

[0026] It shall be noted that the cover element 4 also comprises an upper abutment member 6. When the

stopper 1 is mounted with the cover element 4 coupled to the support element 2, the ring portion 3 is configured to abut the upper abutment element 6 at the top edge 21. It shall be indeed noted that the support element 2 is also configured to abut the upper abutment member 6 of the cover element 4 when the cover element 4 is coupled to the support element 2.

[0027] More in detail, particularly referring to Figure 4, the support element 2 has an inner surface 7 and an outer surface 8. According to a preferred embodiment, the inner surface 7 contacts the cover element 4. Preferably, the inner surface 7 of the support element 2 and the cover element 4 comprise respective mutually complementary first interlocking portions 71a, 71b. In other words, the cover element 4 is configured for interlocking arrangement on the support element 2 at the inner surface 7. For example, the first interlocking portions 71a of the support element 2 comprise projecting elements 72a and recesses 73a on the inner surface 7. The first interlocking portions 71b of the cover element 4 also comprise projecting elements 72b and recesses 73b on the cover element 4. Preferably, the projecting elements 72a on the inner surface 7 are configured to fit into the recesses 73b on the cover element 4 and vice versa.

[0028] The support element 2 has an outer surface 8 that contacts the ring portion 3. According to a preferred embodiment, the outer surface 8 contacts the ring portion 3. Preferably, the outer surface 8 of the support element 2 and the ring portion 3 comprise respective mutually complementary second interlocking portions 81a, 81b. For example, the second interlocking portions 81a of the support element 2 comprise projecting elements 82a and recesses 83a on the outer surface 8. The second interlocking portions 81b of the ring portion 3 also comprise projecting elements 82b and recesses 83b on the ring portion 3. Preferably, the projecting elements 82a on the outer surface 8 are configured to fit into the recesses 73b on the ring portion 3 and vice versa.

[0029] According to a preferred embodiment, the ring portion 3 comprises a plurality of rings placed one on top of the other along the center axis J. In particular, the rings are adjacent to each other.

[0030] Preferably, the ring portion 3 comprises three rings. In particular, the ring portion 3 comprises a lower ring 31 placed at the bottom edge 22, an upper ring 32 placed at the top edge 21 and a middle ring 33. According to a preferred embodiment, the lower ring 31 and the upper ring 32 are identical. Such lower ring 31 and upper ring 32 preferably have respective inclined surfaces 310, 320 for accommodating the lower abutment member 5 and the upper abutment member 6 respectively. According to a preferred embodiment, such lower ring 31 and upper ring 32 are made of wood or metal. In certain alternative embodiments, not shown, the rings 31, 32 may be made of any other material or a combination of various different materials.

[0031] Preferably, the middle ring 33 is made of plastic. According to this embodiment, referring to Figure 5, the

middle ring 33 has a bottom surface 330a, that faces the lower ring 31, and a top surface 330b that faces the upper ring 32. The bottom surface 330a and the top surface 330b each have a respective recess 301. This recess 301 has the purpose to reduce the weight of the structure and prevent warping of the lower ring 31 and the upper ring 32.

[0032] Particularly referring to Figure 5, the support element 2 comprises a bottom 9. This bottom 9 is placed transverse to the inner surface 7 and perpendicular to the center axis J. In particular, the bottom 9 defines an upper cavity 10 and a lower cavity 11 with the inner surface 7 of the support element 2.

[0033] It shall be noted that, in this embodiment, the cover element 4 is inserted into the upper cavity 10.

[0034] According to a first preferred embodiment, the stopper 1 comprises a shank 13. The shank 13 is configured to fit into a bottle neck to close the bottle. More in detail, the shank 13 is inserted into the lower cavity 11. More in detail, the shank 13 extends along the center axis J, from the bottom 9 of the support element 2 away from the bottom 9. In particular, the shank 13 is joined to the support element 2. For example, the shank 13 is glued to the support element 2 or is mechanically fixed. This shank 13 is locked with respect to the support element 2, rotationally and along the center axis J.

[0035] According to a second embodiment as shown in Figure 6, which is alternative to the preferred embodiment, the stopper 1 comprises a threaded element 14. This threaded element 14 is configured to be coupled to a threaded bottle neck to close the bottle. In particular, the threaded element 14 is placed in the lower cavity 11.

[0036] In a preferred embodiment, the support element 2 comprises one or more through openings 12. The through openings 12 of the present invention are configured to receive an adhesive between the support element 2 and the ring portion 3, to join the support element 2 to the ring portion 3. Preferably, these through openings 12 are located at the lower cavity 11.

[0037] According to the embodiments that comprise the shank 13 or the threaded element 14, the through openings 12 are designed to allow gluing of the support element 2 and the shank 13 or the threaded element 14.

Claims

1. A stopper (1) configured to be placed on the neck of a bottle, comprising:

- a support element (2) having a top edge (21) and a bottom edge (22) and extending a long a center axis (J),
- a ring portion (3) fitting on the support element (2) and extending from the top edge (21) to the bottom edge (22), the ring portion (3) being connected to the support element (2) to be rotationally locked with respect to the support

element (2),

- a cover element (4), which is coupled to the support element (2) at the top edge (21) and is connected to the ring portion (3), the ring portion (3) being locked along the center axis (J) by the support element (2) and by the cover element (4);

characterized in that the ring portion (3) is stably locked along the center axis (J) relative to the support element (2) and to the cover element (4) before and after a first opening of the bottle.

2. A stopper (1) as claimed in claim 1, wherein the ring portion (3), the support element (2) and the cover element (4) are fixed to each other before and after a first opening of the bottle.
3. A stopper (1) as claimed in any of the preceding claims, wherein the support element (2) comprises a lower abutment member (5) at the bottom edge (22), the ring portion (2) being configured to abut the lower abutment member (5).
4. A stopper (1) as claimed in any of the preceding claims, wherein the cover element (4) comprises an upper abutment member (6), the ring portion (3) being configured to abut the upper abutment member (6) at the top edge (21) of the support element (2).
5. A stopper (1) as claimed in any of the preceding claims, wherein the support element (2) has an inner surface (7) that contacts the cover element (4), the inner surface (7) and the cover element (4) comprising respective mutually complementary first interlocking portions (71a, 71b).
6. A stopper (1) as claimed in any of the preceding claims, wherein the support element (2) has an outer surface (8) that contacts the ring portion (3), the outer surface (8) and the ring portion (3) comprising respective mutually complementary second interlocking portions (81a, 81b).
7. A stopper (1) as claimed in any of the preceding claims, wherein the ring portion (3) comprises a plurality of rings placed one on top of the other along the center axis (J).
8. A stopper (1) as claimed in the preceding claim, wherein the ring portion (3) comprises a lower ring (31) placed at the bottom edge (22), an upper ring (32) placed at the top edge (21) and a middle ring (33), the middle ring (33) having a bottom surface (330a) that faces the lower ring (31), and a top surface (330b) that faces the upper ring (32), the bottom surface (330a) and the top surface (330b) having

respective recesses (301).

9. A stopper (1) as claimed in claim 5, wherein the support element (2) comprises a bottom (9) placed transverse to the inner surface (8) and perpendicular to the center axis (J), the bottom (9) defining an upper cavity (10) and a lower cavity (11) with the inner surface (7). 5
10. A stopper (1) as claimed in the preceding claim, wherein the cover element (4) is inserted into the upper cavity (10). 10
11. A stopper (1) as claimed in claim 9 or 10, wherein the support element (2) comprises one or more through openings (12) at the lower cavity (11) allowing the support element (2) to be joined to the ring portion (3). 15
12. A stopper (1) as claimed in any of claims from 9 to 11, comprising a shank (13) fitting in the lower cavity (11) and extending from the bottom (9) of the support element (2), the shank (13) being locked with respect to the support element (2) and being configured to fit into a bottle neck to close the bottle. 20 25
13. A stopper (1) as claimed in any of claims from 9 to 12, comprising a threaded element (14) which is configured to be coupled to a threaded bottle neck to close the bottle, the threaded element (14) being placed in the lower cavity (11). 30

Patentansprüche

1. Stopfen (1), der so konfiguriert ist, dass er auf den Hals einer Flasche aufgesetzt werden kann, umfassend:
- ein Stützelement (2) mit einem oberen Rand (21) und einem unteren Rand (22), das sich entlang einer Mittelachse (J) erstreckt,
- einen Ringabschnitt (3), der auf das Stützelement (2) passt und sich vom oberen Rand (21) zum unteren Rand (22) erstreckt, wobei der Ringabschnitt (3) mit dem Stützelement (2) verbunden ist, um in Bezug auf das Stützelement (2) dreh-schlüssig zu sein,
- ein Abdeckelement (4), das am oberen Rand (21) mit dem Stützelement (2) gekoppelt und mit dem Ringabschnitt (3) verbunden ist, wobei der Ringabschnitt (3) durch das Stützelement (2) und durch das Abdeckelement (4) entlang der Mittelachse (J) verriegelt ist; 40 45 50

dadurch gekennzeichnet, dass der Ringabschnitt (3) entlang der Mittelachse (J) relativ zu dem Stützelement (2) und dem Abdeckelement (4) vor und

nach einem ersten Öffnen der Flasche stabil verriegelt ist.

2. Stopfen (1) nach Anspruch 1, wobei der Ringabschnitt (3), das Stützelement (2) und das Abdeckelement (4) vor und nach einem ersten Öffnen der Flasche aneinander befestigt sind.
3. Stopfen (1) nach einem der vorstehenden Ansprüche, wobei das Stützelement (2) ein unteres Anschlagelement (5) am unteren Rand (22) umfasst, wobei der Ringabschnitt (2) so konfiguriert ist, dass er an das untere Anschlagelement (5) anliegt.
4. Stopfen (1) nach einem der vorstehenden Ansprüche, wobei das Abdeckelement (4) ein oberes Anschlagelement (6) umfasst, wobei der Ringabschnitt (3) so konfiguriert ist, dass er am oberen Rand (21) des Stützelements (2) an das obere Anschlagelement (6) anliegt.
5. Stopfen (1) nach einem der vorstehenden Ansprüche, wobei das Stützelement (2) eine Innenfläche (7) aufweist, die das Abdeckelement (4) berührt, wobei die Innenfläche (7) und das Abdeckelement (4) jeweils zueinander komplementäre erste Verriegelungsabschnitte (71a, 71b) umfassen.
6. Stopfen (1) nach einem der vorstehenden Ansprüche, wobei das Stützelement (2) eine Außenfläche (8) aufweist, die den Ringabschnitt (3) berührt, wobei die Außenfläche (8) und der Ringabschnitt (3) jeweils zueinander komplementäre zweite Verriegelungsabschnitte (81a, 81b) umfassen.
7. Stopfen (1) nach einem der vorstehenden Ansprüche, wobei der Ringabschnitt (3) eine Vielzahl von Ringen umfasst, die entlang der Mittelachse (J) übereinander angeordnet sind.
8. Stopfen (1) nach dem vorstehenden Anspruch, wobei der Ringabschnitt (3) einen unteren Ring (31), der am unteren Rand (22) angeordnet ist, einen oberen Ring (32), der am oberen Rand (21) angeordnet ist, und einen mittleren Ring (33) umfasst, wobei der mittlere Ring (33) eine untere Fläche (330a), die dem unteren Ring (31) zugewandt ist, und eine obere Fläche (330b), die dem oberen Ring (32) zugewandt ist, aufweist, wobei die untere Fläche (330a) und die obere Fläche (330b) entsprechende Aussparungen (301) aufweisen.
9. Stopfen (1) nach Anspruch 5, wobei das Stützelement (2) einen Boden (9) umfasst, der quer zur Innenfläche (8) und senkrecht zur Mittelachse (J) angeordnet ist, wobei der Boden (9) einen oberen Hohlraum (10) und einen unteren Hohlraum (11) mit der Innenfläche (7) definiert.

10. Stopfen (1) nach dem vorstehenden Anspruch, wobei das Abdeckelement (4) in den oberen Hohlraum (10) eingesetzt ist.
11. Stopfen (1) nach Anspruch 9 oder 10, wobei das Stützelement (2) eine oder mehrere Durchgangsöffnungen (12) am unteren Hohlraum (11) umfasst, die es ermöglichen, das Stützelement (2) mit dem Ringabschnitt (3) zu verbinden.
12. Stopfen (1) nach einem der Ansprüche 9 bis 11, umfassend einen Schaft (13), der in den unteren Hohlraum (11) passt und sich vom Boden (9) des Stützelements (2) aus erstreckt, wobei der Schaft (13) in Bezug auf das Stützelement (2) verriegelt ist und so konfiguriert ist, dass er in einen Flaschenhals passt, um die Flasche zu verschließen.
13. Stopfen (1) nach einem der Ansprüche 9 bis 12, umfassend ein Gewindeelement (14), das so konfiguriert ist, dass es mit einem Flaschenhals mit Gewinde gekoppelt werden kann, um die Flasche zu verschließen, wobei das Gewindeelement (14) in dem unteren Hohlraum (11) angeordnet ist.

Revendications

1. Bouchon (1) configuré pour être placé sur le goulot d'une bouteille, comprenant :
- un élément de support (2) ayant un bord supérieur (21) et un bord inférieur (22) et s'étendant le long d'un axe central (J),
 - une partie annulaire (3) s'adaptant à l'élément de support (2) et s'étendant du bord supérieur (21) au bord inférieur (22), la partie annulaire (3) étant reliée à l'élément de support (2) pour être bloquée en rotation par rapport à l'élément de support (2),
 - un élément de recouvrement (4), qui est couplé à l'élément de support (2) au niveau du bord supérieur (21) et est relié à la partie annulaire (3), la partie annulaire (3) étant verrouillée le long de l'axe central (J) par l'élément de support (2) et par l'élément de recouvrement (4) ;
- caractérisé en ce que** la partie annulaire (3) est bloquée de manière stable le long de l'axe central (J) par rapport à l'élément de support (2) et à l'élément de recouvrement (4) avant et après une première ouverture de la bouteille.
2. Bouchon (1) selon la revendication 1, dans lequel la partie annulaire (3), l'élément de support (2) et l'élément de recouvrement (4) sont fixés l'un à l'autre avant et après une première ouverture de la bouteille.

3. Bouchon (1) selon l'une quelconque des revendications précédentes, dans lequel l'élément de support (2) comprend un élément de butée inférieur (5) au niveau du bord inférieur (22), la partie annulaire (2) étant configurée pour venir en butée contre l'élément de butée inférieur (5).
4. Bouchon (1) selon l'une quelconque des revendications précédentes, dans lequel l'élément de couverture (4) comprend un élément de butée supérieur (6), la partie annulaire (3) étant configurée pour venir en butée contre l'élément de butée supérieur (6) au niveau du bord supérieur (21) de l'élément de support (2).
5. Bouchon (1) selon l'une quelconque des revendications précédentes, dans lequel l'élément de support (2) a une surface intérieure (7) en contact avec l'élément de recouvrement (4), la surface intérieure (7) et l'élément de recouvrement (4) comprenant des premières parties d'emboîtement (71a, 71b) mutuellement complémentaires.
6. Bouchon (1) selon l'une quelconque des revendications précédentes, dans lequel l'élément de support (2) a une surface extérieure (8) en contact avec la partie annulaire (3), la surface extérieure (8) et la partie annulaire (3) comprenant des secondes parties d'emboîtement (81a, 81b) mutuellement complémentaires.
7. Bouchon (1) selon l'une quelconque des revendications précédentes, dans lequel la partie annulaire (3) comprend une pluralité d'anneaux superposés le long de l'axe central (J).
8. Bouchon (1) selon la revendication précédente, dans lequel la partie annulaire (3) comprend un anneau inférieur (31) placé sur le bord inférieur (22), un anneau supérieur (32) placé sur le bord supérieur (21) et un anneau central (33), l'anneau central (33) ayant une surface inférieure (330a) qui fait face à l'anneau inférieur (31), et une surface supérieure (330b) qui fait face à l'anneau supérieur (32), la surface inférieure (330a) et la surface supérieure (330b) ayant des évidements respectifs (301).
9. Bouchon (1) selon la revendication 5, dans lequel l'élément de support (2) comprend un fond (9) placé transversalement à la surface intérieure (8) et perpendiculairement à l'axe central (J), le fond (9) définissant une cavité supérieure (10) et une cavité inférieure (11) avec la surface intérieure (7).
10. Bouchon (1) selon la revendication précédente, dans lequel l'élément de recouvrement (4) est inséré dans la cavité supérieure (10).

11. Bouchon (1) selon la revendication 9 ou 10, dans lequel l'élément de support (2) comprend une ou plusieurs ouvertures traversantes (12) dans la cavité inférieure (11) permettant à l'élément de support (2) d'être relié à la partie annulaire (3). 5
12. Bouchon (1) selon l'une quelconque des revendications 9 à 11, comprenant une tige (13) s'insérant dans la cavité inférieure (11) et s'étendant à partir du fond (9) de l'élément de support (2), la tige (13) étant verrouillée par rapport à l'élément de support (2) et étant configurée pour s'insérer dans le goulot d'une bouteille afin de fermer cette dernière. 10
13. Bouchon (1) selon l'une quelconque des revendications 9 à 12, comprenant un élément fileté (14) configuré pour être couplé à un goulot de bouteille afin de fermer la bouteille, l'élément fileté (14) étant placé dans la cavité inférieure (11). 15
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Fig. 1

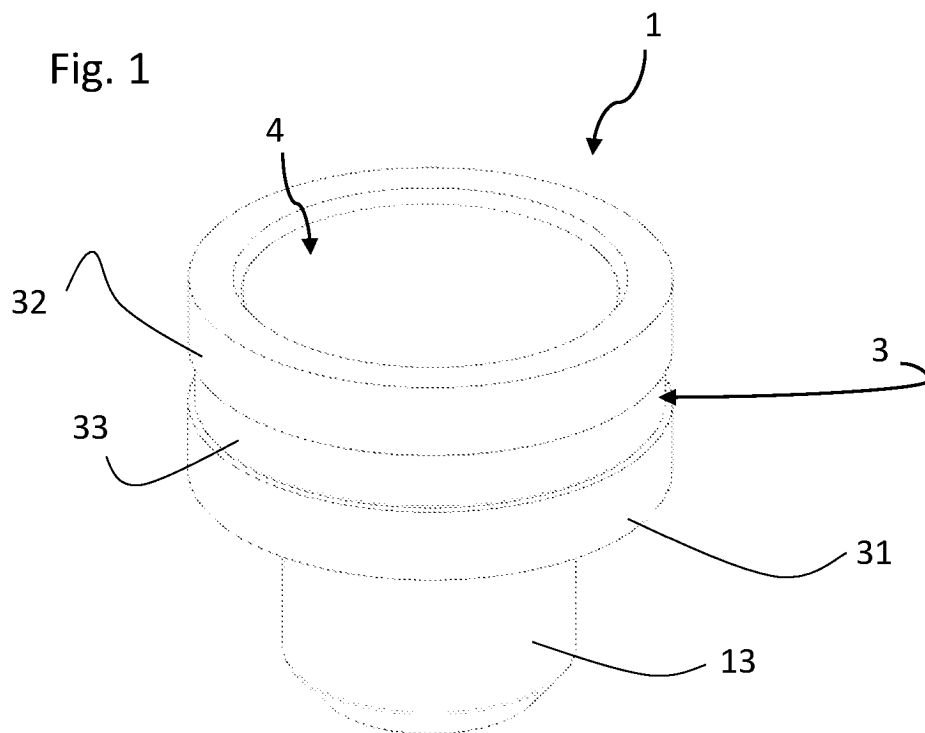


Fig. 2

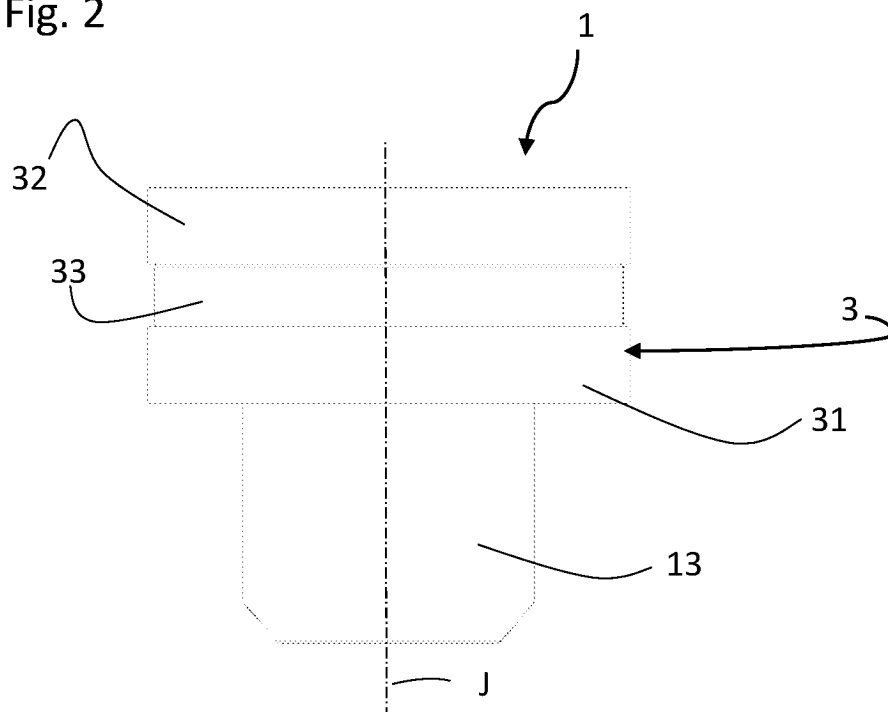


Fig. 3

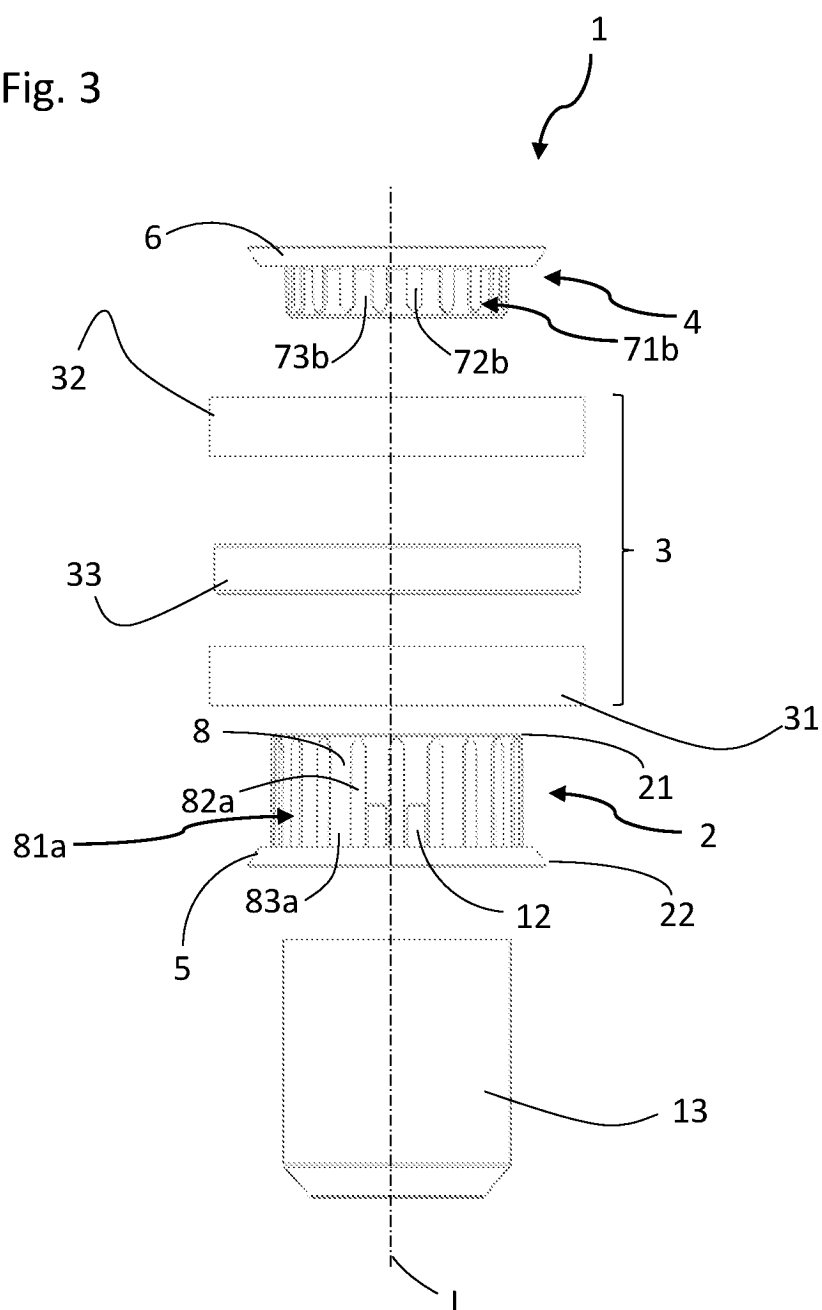


Fig. 4

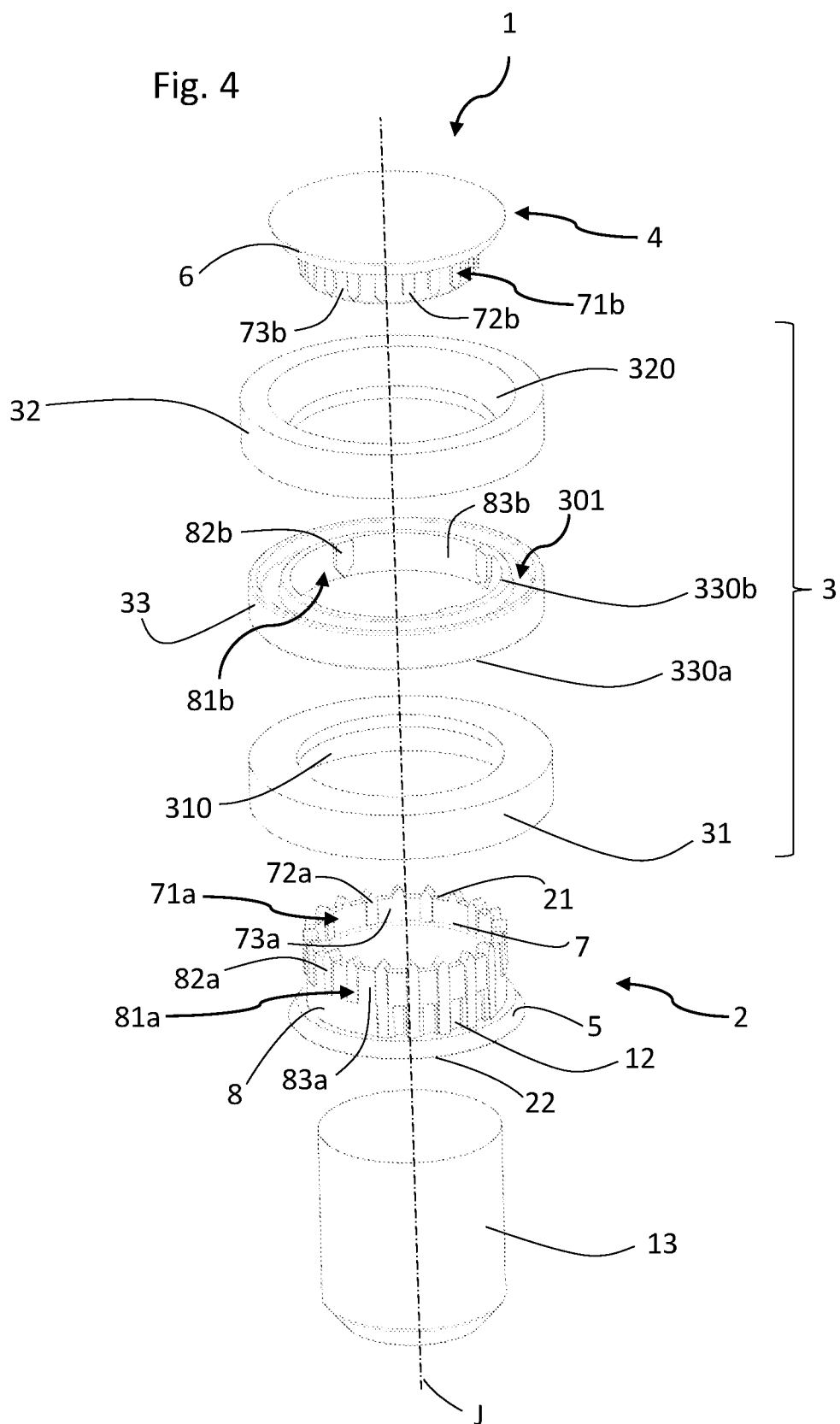


Fig. 5

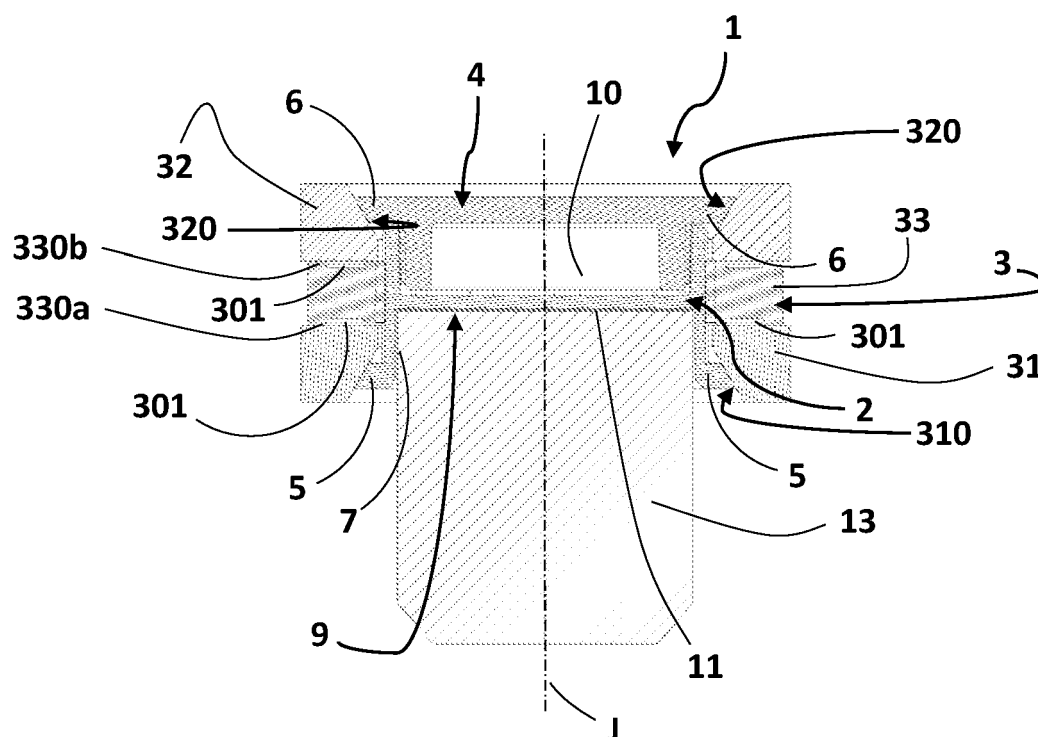
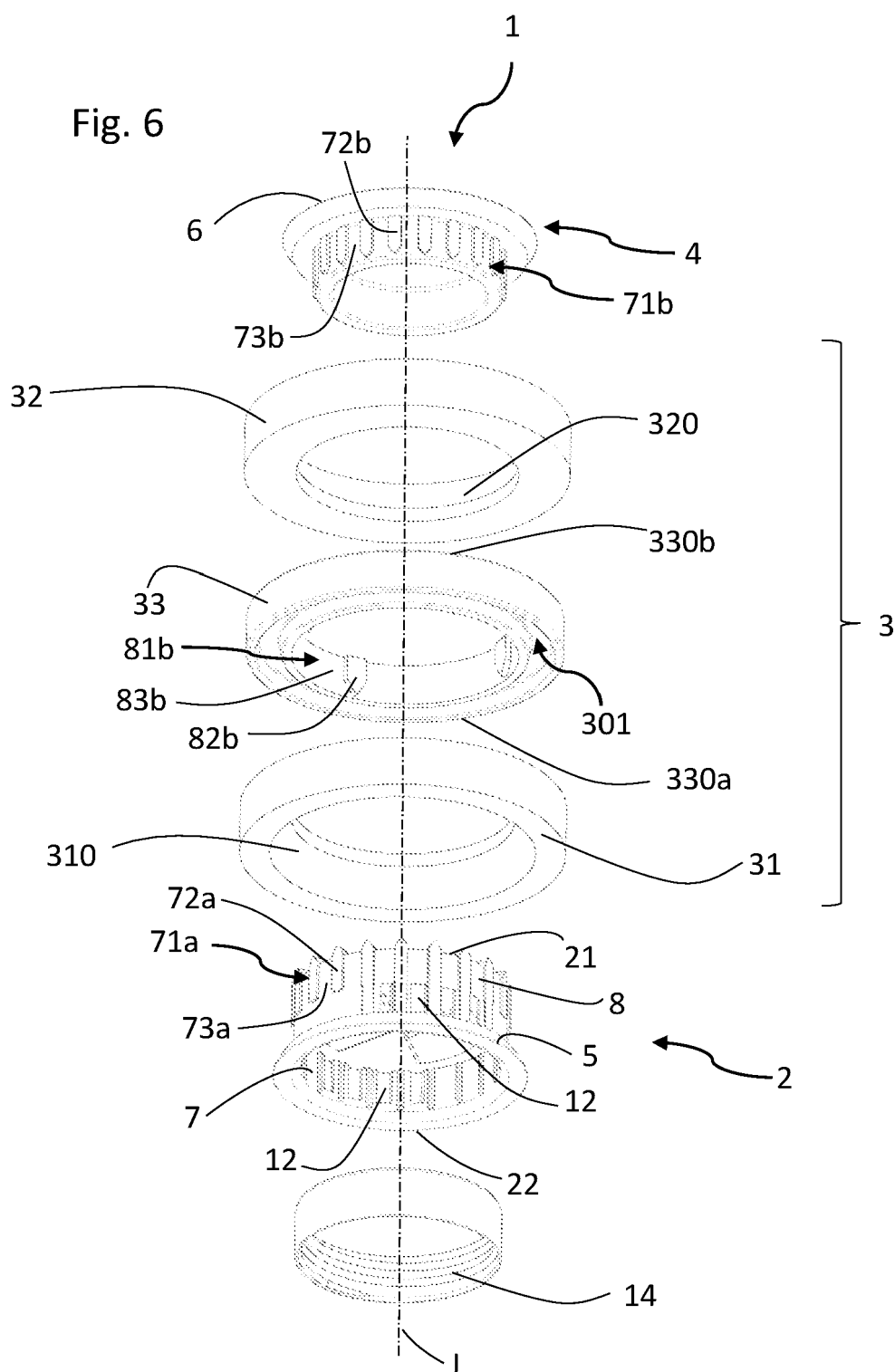


Fig. 6



REFERENCES CITED IN THE DESCRIPTION

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