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(54) **A DISPENSING CLOSURE**

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Description

[0001] The present invention relates generally to a dispensing closure and particularly to a closure for a flowable product.

[0002] The present invention seeks to provide improvements in or relating to dispensing closures for flowable products such as condiments including, for example, ketchups and the like.

[0003] US 2011/0248048 A1 relates to a closure device comprising a measuring cap, a moving shutter and a lid, the closure intended to be connected to a flexible container. The moving shutter is operated by pressing on the container which allows a dose of a product to come out.

[0004] According to the present invention there is provided a dispensing closure for a flowable product according to claim 1. In this way the closure can be configured to provide a number of advantages, including:

1) An anti-spurt function. This is because the product is not dispensed directly from the orifice but must, due to the presence of the valve, pass through the pre-dispensing chamber. This can be particularly useful for products which are dosed with gas e.g. Nitrogen where the initial pressure can cause spurting.

2) A serum trap. Certain flowable products, such as ketchups and mustards, tend to separate over time into a lighter and a heavier fraction. The lighter fraction is less viscous than the heavier fraction and tends to separate from, and collect on top of, the heavier fraction. The lighter fraction, also sometimes referred to as "serum", causes problems for conventional dispensing closures. This is because the lighter fraction will tend to reach a dispensing orifice before the heavier fraction; and in general consumers find dispensing of the lighter fraction undesirable. The present invention can be configured to ensure that the path from the pre-chamber inlet and the dispensing orifice causes at least the majority of the fluid reaching the terminal orifice to be free of serum.

3) Improved "suck back". Because the air must travel through a long path from the dispensing orifice into the container this causes improved negative pressure which helps to suck any undispensed product in the closure back into the container.

[0005] The valve member is translatable within the chamber between the first and second positions. In other words the complete valve member itself moves as opposed to, for example, a flap valve which hinges open and closed. In some embodiments the valve may move generally axially within the chamber. For this purpose the valve member may be provided with guide means for constraining the movement to be substantially axial.

[0006] The valve member is movable in response to product flow. For example, the product itself moves the valve member away from the inlet so that it can reach the orifice.

[0007] The chamber may be generally bucket-like. For example a generally cylindrical container open at one end and closed at the other except for the inlet.

[0008] The valve member may include an inlet. The path through the pre-chamber may therefore be through the valve itself.

[0009] The valve member may include a spout, which may be connected to the dispensing orifice. In some embodiments the spout may include an inlet and the inlet may be provided in the region of the base of the spout.

[0010] The closure may include a base and a lid. For example the base is connectable to a container and the lid is used to close the base to protect the contents of the container.

[0011] The lid and base may be joined by a hinge. For example the closure may be formed as a flip-top dispensing closure.

[0012] The lid may be moveable between an open position and a closed position; and when the lid is in the closed position the valve member may be caused to be in the first position.

[0013] The lid may include a spigot and the spigot may push the valve to the first position. For example when the lid is closed onto the base after dispensing the spigot may enter the dispensing orifice and engage part of the valve (e.g. a spout).

[0014] According to an example there is provided an anti-spurt dispensing closure comprising a closure as described herein.

[0015] According to an example there is provided a condiment dispensing closure comprising a closure as described herein.

[0016] According to an example there is provided a flip-top dispensing closure comprising a closure as described herein.

[0017] According to an embodiment there is provided a closure as described herein in combination with a container.

[0018] The present invention will now be more particularly described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is an exploded perspective sectional view illustrating the components of a dispensing closure formed according to an embodiment of the present invention;

Figure 2 is a perspective view of a base and lid arrangement forming part of the closure of Figure 1;

Figure 3 is an underplan perspective view of the base/lid of Figure 2;

Figure 4 is an underplan perspective view of a pre-

dispensing chamber forming part of the closure of Figure 1;

Figure 5 is a plan perspective view of the chamber of Figure 4;

Figure 6 is an underplan perspective view of a valve member forming part of the closure of Figure 1;

Figure 7 is a plan perspective view of the valve of Figure 6;

Figure 8 is a section of the closure of Figure 1 when assembled and shown in a closed position with the valve member in a first position; and

Figure 9 is a section of the base of Figure 8 shown with the valve member in a second position.

[0019] Referring first to Figure 1 there is shown the components of a dispensing closure generally indicated 10. The closure comprises: a lid 15; a base 20; a valve member 25; and a pre-dispensing chamber 30.

[0020] Referring also to Figures 2 and 3, the base 20 and lid 15, which together make up the main body of the closure, are shown in more detail.

[0021] The base 20 comprises a generally cylindrical side wall 35 open at one end and closed at the other by a top plate 40 which includes a centrally located turret 45 having an end plate 50 which includes an eccentrically located dispensing orifice/opening 55 with an internally extending orifice wall 56.

[0022] The interior of the side wall 46 of the turret 45 has a circumferential snap bead 47. Towards the open end of the interior of the side wall 35 is a further circumferential snap bead 36.

[0023] Extending from the base of the turret wall 46 is a sealing projection 48. Depending from the underside of the top plate 40 is a circumferential sealing rib 49.

[0024] The upper surface of the plate 40 carries an arcuate tamper evident strip 60 which is connected to the top plate 40 by frangible bridges 61. The strip 60 has two spaced recesses 62.

[0025] The lid 15 comprises a generally cylindrical side wall 16 closed at one end by a generally disc-shape top plate 17. The side wall 16 includes an inward step 18 which defines an arcuate rebate 19.

[0026] The rebate 19 carries a pair of lugs 66. The rebate 19 is shaped to receive the tamper evident strip 60 when the lid is positioned on to the base. In the initially closed position the lugs 66 engage into the slots 62 under the strip. This means that the lid 15 cannot be opened without first removing the strip 60 by tearing it off the plate 40 and breaking the bridges 61.

[0027] The top plate 17 carries a depending spigot 65 positioned to engage the orifice 55 of the base as described in more detail below.

[0028] In some embodiments (not shown) the lid 15 and base 20 are joined together by a hinge to form a flip-top dispensing closure.

[0029] Referring now to Figures 4 and 5 the pre-dispensing chamber 30 is shown in more detail.

[0030] The chamber 30 is generally bucket-like and includes a generally cylindrical side wall 31 with a base plate 32.

[0031] The plate 32 has an inlet 33 defined by an internally extending spout 34.

[0032] The side wall 31 includes a rebate 70 which defines an internal arcuate shelf 71 on the opposite side to the spout 34.

[0033] The free end of the side wall 31 has an outwardly flared lip defining a snap bead 72 and an inwardly extending stop bead 73.

[0034] Referring now to Figures 6 and 7 the valve member 25 is shown in more detail.

[0035] The valve 25 comprises a disc-like main platform. One side of the platform 26 includes a circular inlet 27 and the other side of the platform includes an upstanding spout 28. It will be noted that the spout 28 includes a lateral inlet 29; in other words the spout inlet 29 is not provided by the platform 26 but rather by a cut-out in the side wall of the spout itself.

[0036] Depending from the periphery of the platform 26 is an arcuate first tab 75a generally opposite the tab 75a are two smaller, spaced tabs 75b, 75c. Projecting from the periphery of the platform 26 are a main tab 76a and two further tabs 76b, 76c. Viewed in plan, the tabs 75a, 76a are diametrically opposed and so are respective smaller tabs 76b, 75b and 76c, 75c.

[0037] Referring now also to Figure 8 the closure 10 is shown assembled.

[0038] The valve 25 is assembled into the chamber 30. The tabs 75b, 75c fit either side of the shelf 71 and the tab 75a fits in between the side wall 31 and the spout 34. As shown in Figure 8 in this first position of the valve 25 within the chamber 30 the platform 26 blocks the mouth of the spout 34.

[0039] With the valve 25 in place, the chamber 30 is fitted into the interior of the closure base 20. The open end of the chamber 30 is pushed up into the turret 45 so that the bead 72 snap engages over the bead 47 to lock the chamber in position.

[0040] The platform spout 28 extends in this position partly into the dispensing orifice side wall.

[0041] It will be noted that in the position shown in Figure 8 product cannot flow through the spout 34 into the chamber 30. It will also be noted that the lid spigot 65 is engaged through the orifice 55 and projects down into the orifice side wall so that it engages the platform spout 28. The spigot 65 holds the valve 25 in the position shown in Figure 8.

[0042] When the lid 15 is removed the spigot 65 no longer prevents the valve 25 from moving. Product can now enter the dispensing chamber 30 by forcing the valve 25 to move. In other words the product flow itself pushes the valve 25 upwards (as shown in the drawing) and away

from the inlet 33. In products which have been pre-dosed with gas, the first time the pack is opened the gas will also contribute to pushing the valve away from the inlet mouth.

[0043] Because the tabs 75, 76 are all arcuate and a corresponding shape to the interior of the side wall 31 they act as a guide means so that the valve 25 slides substantially axially within the chamber and does not, for example, tilt during its movement.

[0044] With the valve 25 in the second position shown in Figure 9 product can now enter the chamber 31 through the spout 34.

[0045] The second position of the valve 25 is defined by the engagement of the free ends of the tabs 75a, b, c with the underside of the stop bead 73. In this position the spout 28 has moved through the orifice side wall 56.

[0046] As illustrated by arrow A, upon entering the chamber 30 fluid passes under the platform 26 (as it cannot pass around the edges) to the orifice 27 where after it travels across the upper side of the platform 26 to the spout inlet 29, then through the spout 28 for final discharge through the orifice 55.

[0047] When dispensing is complete the lid 15 can be returned to the closed position of Figure 8 which causes the spigot 65 to enter the orifice 55 and once again push the valve 25 down and back to the position shown in Figure 8 where the orifice 33 is blocked.

Claims

1. A dispensing closure (10) for a flowable product, the closure having:

   - a dispensing orifice (55);
   - a pre-dispensing chamber (30) with an inlet (33) defined by an internally extending spout (34);
   - a valve member (25), assembled into the chamber (30) and comprising a disc-like platform (26), is movable within the chamber (30) between a first and second position, in which in the first position the mouth of the spout (34) is blocked by the platform (26) of the valve member (25) and the valve member is movable away from the chamber inlet (33) to the second position in response to product flow such that in the second position the inlet (33) is unblocked and is in fluid communication with the orifice (55) through the chamber (30); and
   - a base (20) and a lid (15),
   - **characterised in that** when the lid (15) is in the closed position the valve member (25) is caused to be in the first position.

2. A closure (10) as claimed in claim 1, in which the valve member (25) moves generally axially within the chamber (30).

3. A closure (10) as claimed in any preceding claim, in which the chamber (30) is generally bucket-like.

4. A closure (10) as claimed in any preceding claim, in which the valve member (25) includes an inlet (27).

5. A closure (10) as claimed in any preceding claim, in which the valve member (25) includes a spout (28).

6. A closure (10) as claimed in Claim 5, in which the dispensing orifice has a side wall (56) and the spout (28), in the first position, extends partially into the dispensing orifice (55) side wall (56).

7. A closure (10) as claimed in Claim 5 or Claim 6, in which the spout (28) includes in inlet (29).

8. A closure (10) as claimed in Claim 7, in which the inlet (28) is provided in the region of the base of the spout (28).

9. A closure (10) as claimed in Claim 1, in which the lid (15) is moveable between an open position and a closed position.

10. A closure (10) as claimed in Claim 1 or Claim 9, in which the lid (15) and base (20) are joined by a hinge.

11. A closure (10) as claimed in any of Claims 1, 9 or 10, in which the lid includes a spigot (65).

12. A closure (10) as claimed in Claim 11, in which the spigot (65) pushes the valve member (25) to the first position.

13. A closure (10) as claimed in any preceding claim in combination with a container.

Patentansprüche

1. Abgabeverschluss (10) für ein fließ fähiges Produkt, wobei der Verschluss hat:

   - eine Abgabeöffnung (55):
   - eine Vorabgabekammer (30) mit einem Einlass (33), der durch einen sich innen erstreckenden Ausguss (34) definiert ist;
   - ein Ventilelement (25), das in der Kammer (30) montiert ist und eine scheibenartige Ebene (26) aufweist, das innerhalb der Kammer (30) zwischen einer ersten und einer zweiten Position beweglich ist, wobei in der ersten Position die Mündung des Ausgusses (34) durch die Ebene (26) des Ventilelements (25) versperrt wird und das Ventilelement ansprechend auf den Produktfluss von dem Kammereinlass (33) weg in die zweite Position beweglich ist, so dass der

Einlass (33) in der zweiten Position unversperrt ist und durch die Kammer (30) in einer Fluidverbindung mit der Öffnung (55) steht; und
- eine Basis (20) und einen Deckel (15),
- **dadurch gekennzeichnet, dass** das Ventilelement (25) dazu gebracht wird, in der ersten Position zu sein, wenn der Deckel (15) in der geschlossenen Position ist.

2. Verschluss (10) nach Anspruch 1, wobei das Ventilelement (25) sich im Allgemeinen axial innerhalb der Kammer (30) bewegt.

3. Verschluss (10) nach einem der vorhergehenden Ansprüche, wobei die Kammer (30) im Allgemeinen eimerähnlich ist.

4. Verschluss (10) nach einem der vorhergehenden Ansprüche, wobei das Ventilelement (25) einen Einlass (27) umfasst.

5. Verschluss (10) nach einem der vorhergehenden Ansprüche, wobei das Ventilelement (25) einen Ausguss (28) umfasst.

6. Verschluss (10) nach Anspruch 5, wobei die Abgabeöffnung eine Seitenwand (56) hat und der Ausguss (28) sich in der ersten Position teilweise in die Seitenwand (56) der Abgabeöffnung (55) erstreckt.

7. Verschluss (10) nach Anspruch 5 oder Anspruch 6, wobei der Ausguss (28) einen Einlass (29) umfasst.

8. Verschluss (10) nach Anspruch 7, wobei der Einlass (28) in dem Bereich der Basis des Ausgusses (28) bereitgestellt ist.

9. Verschluss (10) nach Anspruch 1, wobei der Deckel (15) zwischen einer offenen Position und einer geschlossenen Position beweglich ist.

10. Verschluss (10) nach Anspruch 1 oder Anspruch 9, wobei der Deckel (18) und die Basis (20) durch ein Gelenk verbunden sind.

11. Verschluss (10) nach einem der Ansprüche, 1, 9 oder 10, wobei der Deckel einen Zapfhahn (65) umfasst.

12. Verschluss (10) nach Anspruch 11, wobei der Zapfhahn (65) das Ventilelement (25) zu der ersten Position schiebt.

13. Verschluss (10) nach einem der vorhergehenden Ansprüche in Kombination mit einem Behälter.

Revendications

1. Fermeture de distribution (10) destinée à un produit pouvant s'écouler, la fermeture présentant :

- un orifice de distribution (55) ;
- une chambre de pré-distribution (30) présentant une entrée (33) définie par un bec verseur s'étendant de manière interne (34) ;
- un élément de valve (25), assemblé dans la chambre (30) et comprenant une plateforme semblable à un disque (26), qui peut être déplacé à l'intérieur de la chambre (30) entre une première et une deuxième positions, où dans la première position, la bouche du bec verseur (34) est bloquée par la plateforme (26) de l'élément de valve (25) et l'élément de valve peut être écarté de l'entrée de chambre (33) vers la deuxième position en réponse à un écoulement de produit de telle sorte que dans la deuxième position, l'entrée (33) n'est pas bloquée et est en communication de fluide avec l'orifice (55) par le biais de la chambre (30) ; et
- une base (20) et un couvercle (15),
- **caractérisée en ce que**, lorsque le couvercle (15) se trouve dans la position fermée, l'élément de valve (25) est amené dans la première position.

2. Fermeture (10) selon la revendication 1, dans laquelle l'élément de valve (25) se déplace globalement de manière axiale à l'intérieur de la chambre (30).

3. Fermeture (10) selon l'une quelconque des revendications précédentes, dans laquelle la chambre (30) est globalement semblable à un godet.

4. Fermeture (10) selon l'une quelconque des revendications précédentes, dans laquelle l'élément de valve (25) inclut une entrée (27).

5. Fermeture (10) selon l'une quelconque des revendications précédentes, dans laquelle l'élément de valve (25) inclut un bec verseur (28).

6. Fermeture (10) selon la revendication 5, dans laquelle l'orifice de distribution présente une paroi latérale (56) et le bec verseur (28), dans la première position, s'étend en partie dans la paroi latérale (56) de l'orifice de distribution (55).

7. Fermeture (10) selon la revendication 5 ou la revendication 6, dans laquelle le bec verseur (28) inclut une entrée (29).

8. Fermeture (10) selon la revendication 7, dans laquelle l'entrée (29) est ménagée dans la région de la base du bec verseur (28).

9. Fermeture (10) selon la revendication 1, dans laquelle le couvercle (15) peut être déplacé entre une position ouverte et une position fermée.

10. Fermeture (10) selon la revendication 1 ou la revendication 9, dans laquelle le couvercle (15) et la base (20) sont reliés par une articulation.

11. Fermeture (10) selon l'une quelconque des revendications 1, 9 ou 10, dans laquelle le couvercle inclut un ergot (65).

12. Fermeture (10) selon la revendication 11, dans laquelle l'ergot (65) pousse l'élément de valve (25) vers la première position.

13. Fermeture (10) selon l'une quelconque des revendications précédentes, en combinaison avec un contenant.

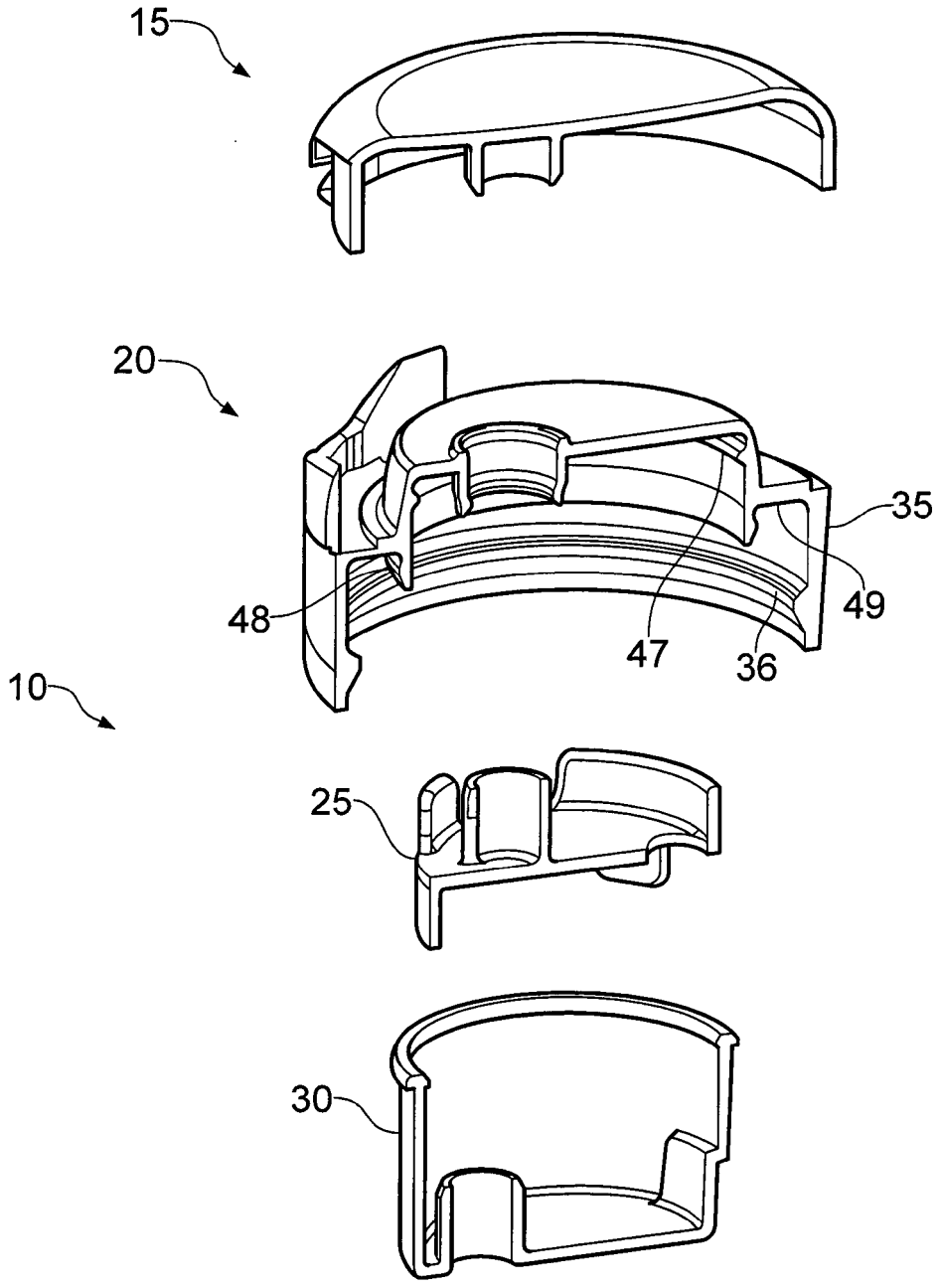

FIG. 1

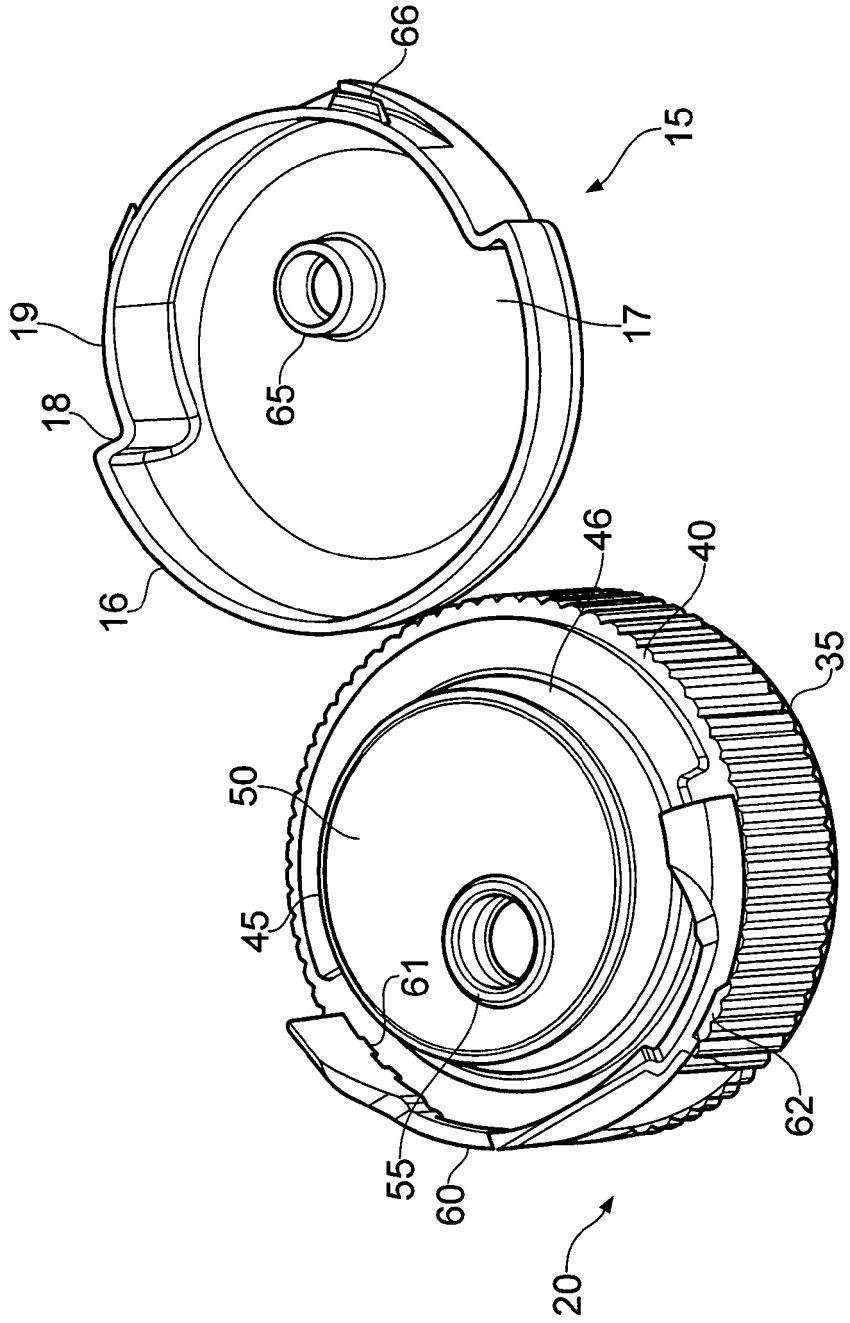

FIG. 2

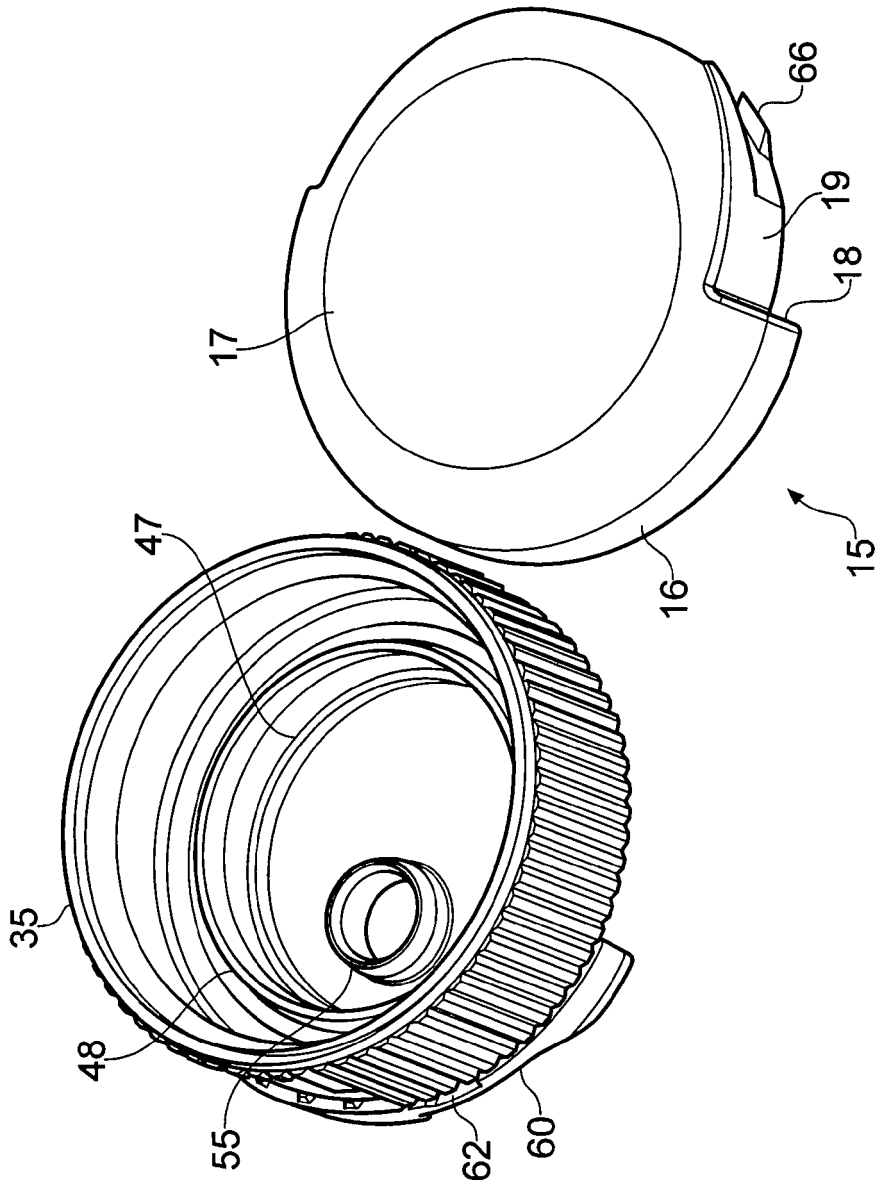

FIG. 3

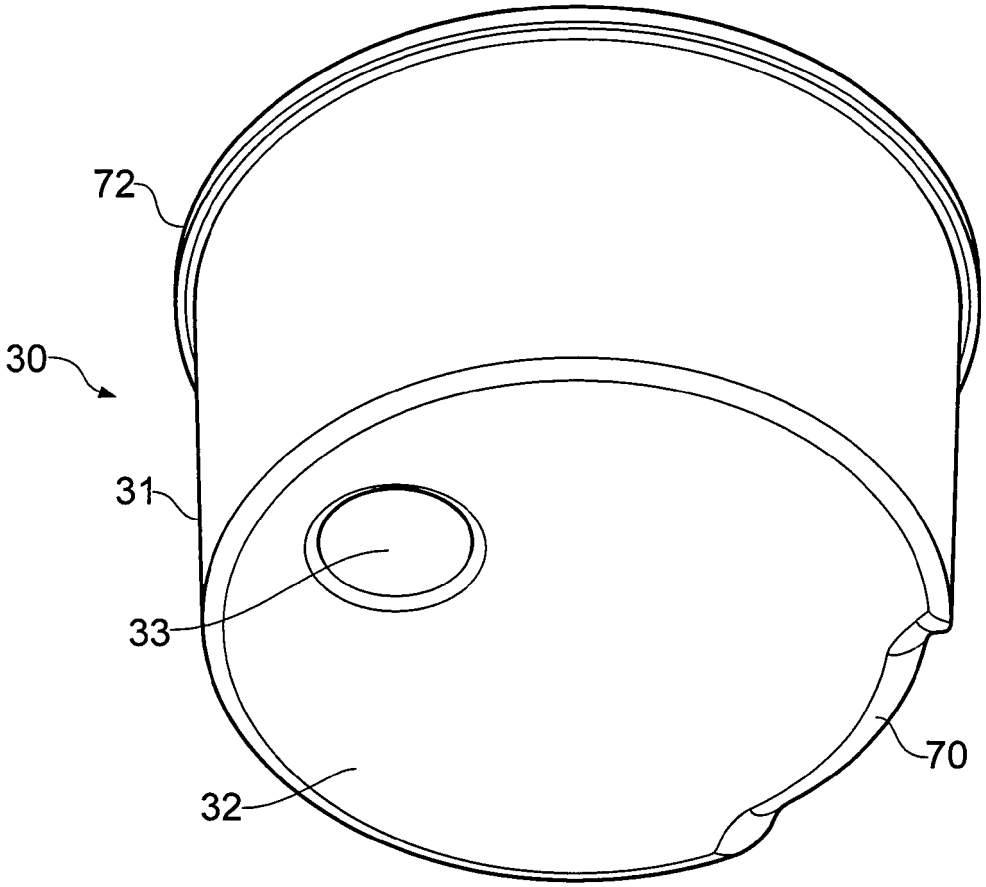

FIG. 4

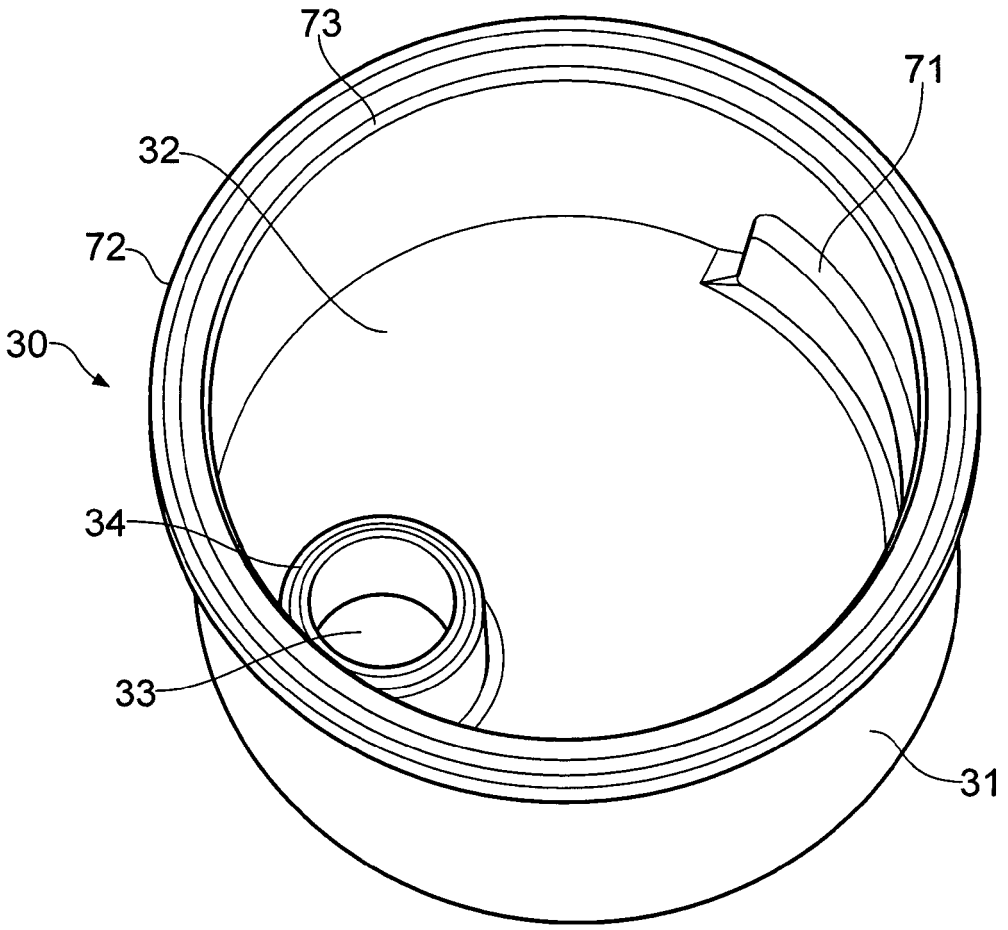

FIG. 5

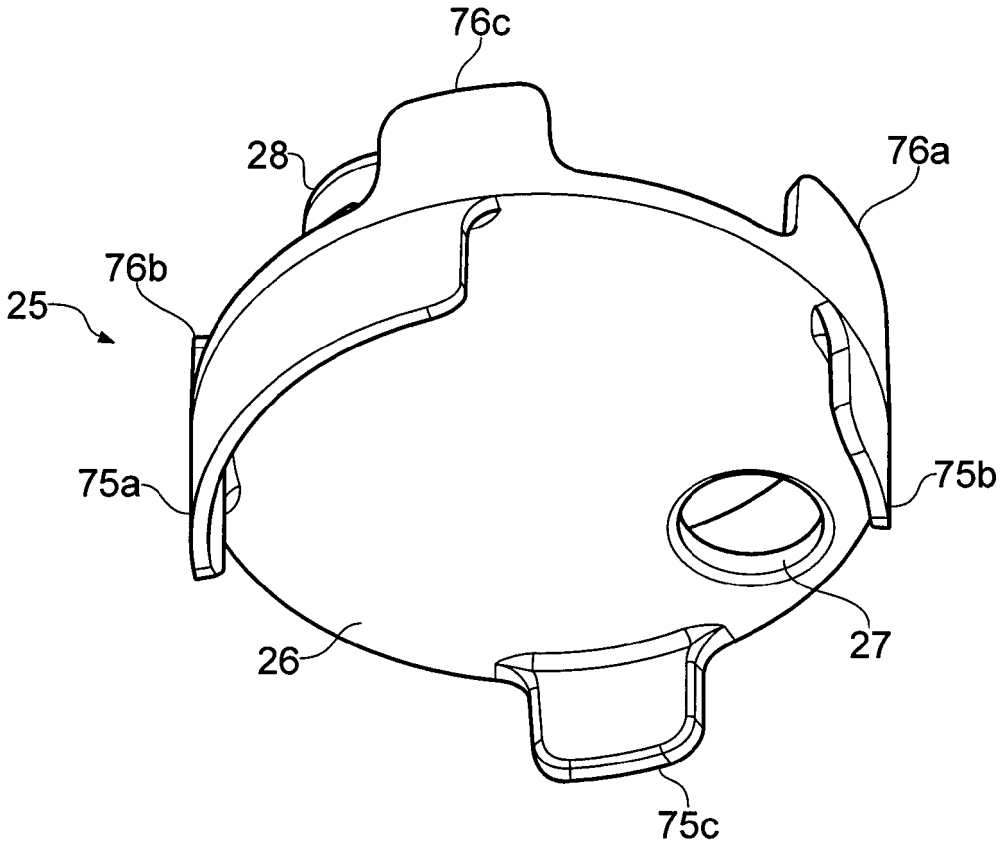

FIG. 6

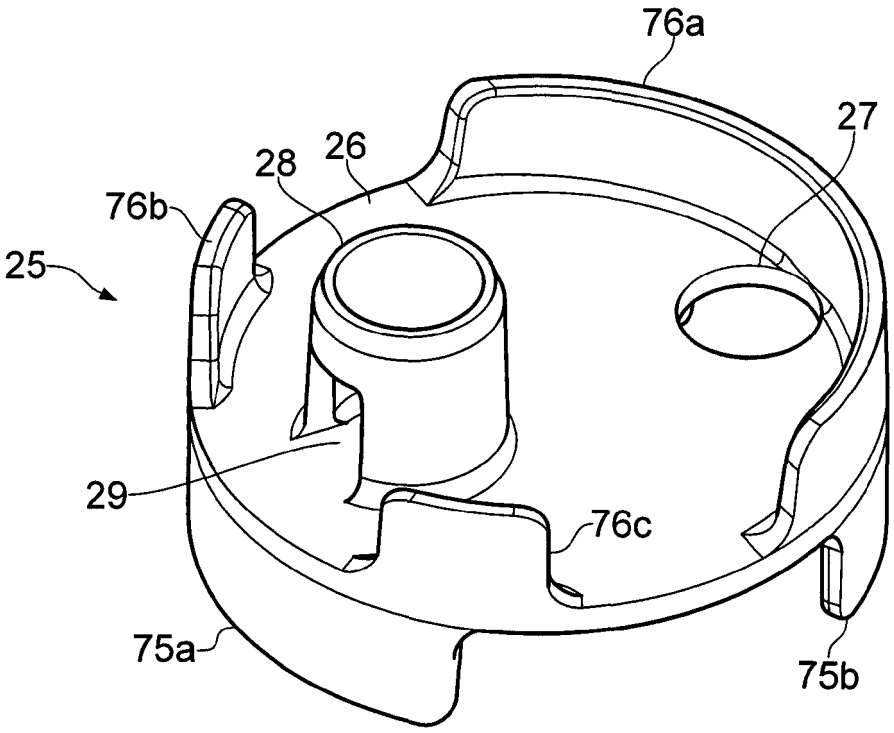

FIG. 7

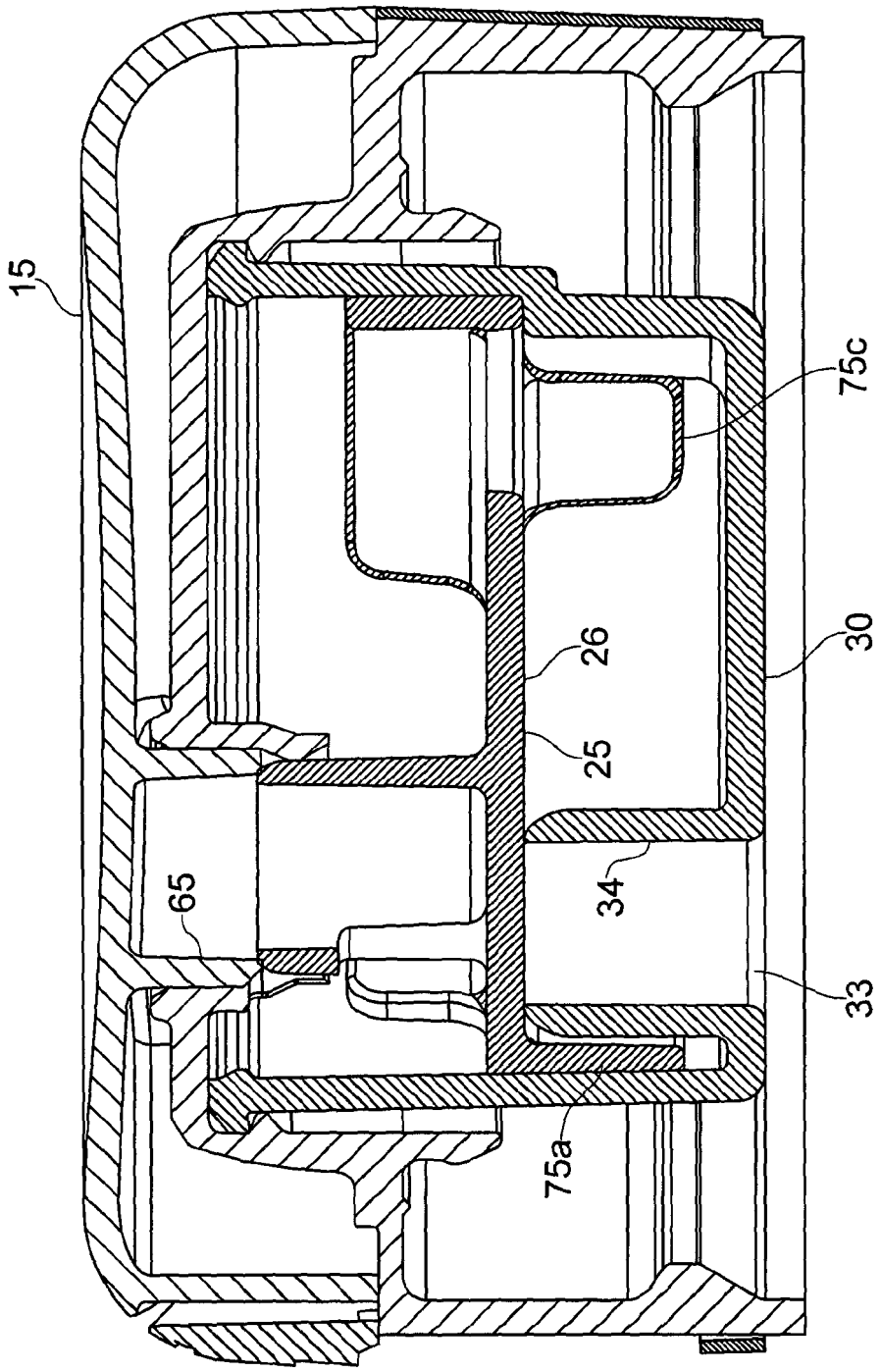

FIG. 8

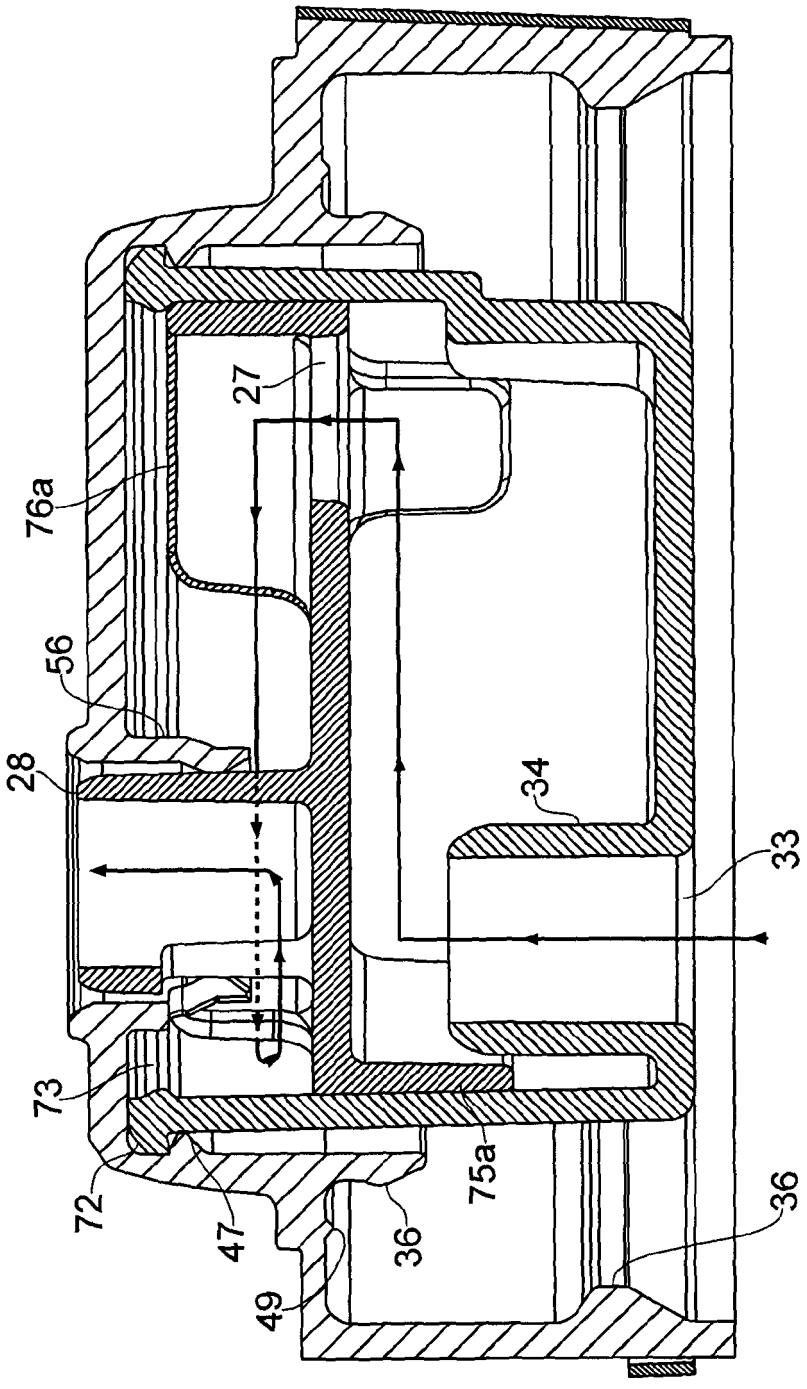

FIG. 9

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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