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(54) **A connecting device**

(57) The present invention relates to a connecting device (1) for connecting an outlet of a beverage dispensing system (100) via a dispensing line (23) to a beverage container (27), the connecting device (1) comprising a first part (3) having a first fluid channel (6) and piercing means (7) adapted to pierce a membrane (28) of the beverage container (27), a second part (8) having a second fluid channel (11) and a first projecting element (12), the second part (8) being adapted to be connected with the dispensing line (23), the first part (3) being connected the second part (8) for to provide fluid communication between the first fluid channel (6) and the second fluid channel (11), the first and second parts (3, 8) being connected by the first projecting element (12) engaging into a corresponding recess (13) or groove arranged at the first part (3), wherein the first part (3) comprises a second projecting element (15), the second projecting element (15) being adapted to engage into corresponding engagement means (25) arranged on the beverage container (27).

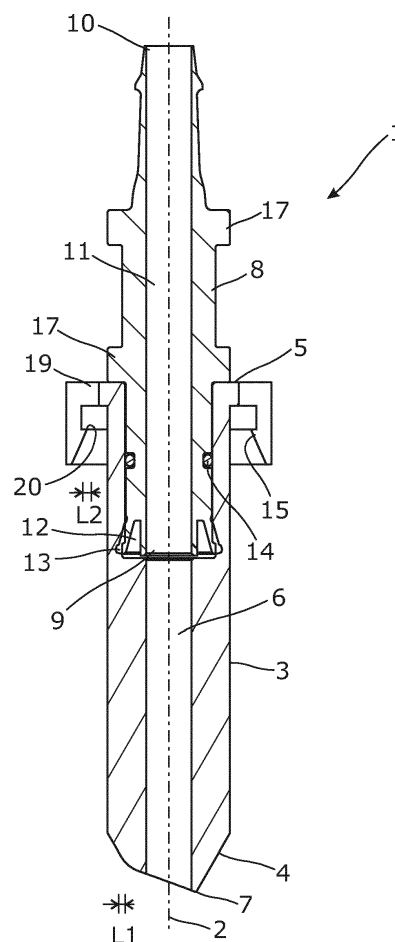


Fig. 1

Description

Field of the invention

[0001] The present invention relates to a connecting device for connecting an outlet of a beverage dispensing system via a dispensing line to a beverage container. The present invention also relates to a dispensing line and a beverage dispensing system as well as to a method for connecting an outlet of a dispensing line with a beverage container and a method for disconnecting an outlet of a dispensing from a beverage container.

Background art

[0002] Dispensing of beverage, such as beer, has become more in focus with the consumer due to the fact that beer consumers have become increasingly aware of the quality of the beer and tend to base their beer label preferences on the final impression of the beer, i.e. the dispensed beer.

[0003] The impression of a newly dispensed beer is influenced by the taste and how it appears to the consumer. Also, the taste of the beer may change as the temperature of the beer varies. In view of this, it is of high importance that the dispensing devices serve the purpose of dispensing beer within the right temperature range and with the right amount of CO₂ in the beer.

[0004] The amount of CO₂ in a newly dispensed beer is influenced by the amount of CO₂ applied to the beer at the time of manufacture and also by the conditions under which the beer has been stored. The amount of CO₂ applied to the beer will migrate out of the beer if the beer is not kept under pressure in the beer keg. Therefore, it is very important that the pressure of the CO₂, besides being adequate for dispensing the beer, is also adequate for keeping the pressure balance in the beer keg, hence keeping the beer fizzy and foamy after dispensing.

[0005] Furthermore, beer dispensing devices have become within the reach of more consumers and are increasingly being installed in private homes, companies, sports facilities etc., where no trained personal is operating the dispensing devices. Thus, the safety of the user of the dispensing device and the hygiene of the device have likewise become very important.

[0006] When dispensing beverage, such as beer, in a bar facility, it may sometimes be difficult for the personal to clean the device properly, or it might just be given a low priority in the daily routines.

[0007] Furthermore, often during replacement of the beverage container, the dispensing line is being reused without being cleaned. The consequence is that the dispensing line may contain old beverage and that for instance bacteria are present. This may result in a bad taste of the beverage, or even, in some instances, constitute a health risk for the consumer.

[0008] In addition, dispensing systems applying the

use of disposable beverage containers are being used more and more frequently. In this regard, a need has arisen for being able to connect the dispensing line with the disposable container in an easy and expedient manner.

Summary of the invention

[0009] It is an object of the present invention to wholly or partly overcome the above disadvantages and drawbacks of the prior art. More specifically, it is an object to provide a connecting device which is easy to use in relation to connecting and disconnecting a dispensing line to a beverage container.

[0010] A further object of the present invention is to provide a connecting device which ensure that a dispensing line only may be used one time for one beverage container.

[0011] The above objects, together with numerous other objects, advantages and features, which will become evident from the below description, are accomplished by a solution in accordance with the present invention by a connecting device for connecting an outlet of a beverage dispensing system via a dispensing line to a beverage container, the connecting device having an axial extension, comprising - a first part having a first end and a second end, and a first fluid channel extending between the first and second ends of the first part, the first part comprising, at the first end, piercing means adapted to pierce a membrane of the beverage container,

- a second part having a first end and a second end and a second fluid channel extending between the first and second ends of the second part, the second part comprising a first projecting element arranged at the first end of the second part, the first projecting element having a first radial length extending in a radial direction in relation to the second part, the second end of the second part being adapted to be connected with the dispensing line, the second end of the first part being connected with the first end of the second part for to provide fluid communication between the first fluid channel and the second fluid channel, the first and second parts being connected by the first projecting element of the second element engaging into a corresponding recess or groove arranged at the second end of the first part, wherein the first part comprises a second projecting element having a second radial length extending in a radial direction in relation to the first part, the second projecting element being adapted to engage into corresponding engagement means arranged on the beverage container or a part of the beverage container, the second radial length being larger than the first radial length.

[0012] In an embodiment, the second radial length may

be more than 25% larger than first radial length, preferably more than 35%.

[0013] A plurality of second projecting elements may be arranged each having a second radial length which equals up to the second radial length.

[0014] Moreover, the first end of the second part may be inserted into the second end of the first part.

[0015] Further, the first projecting element may comprise one or more projecting arms.

[0016] Also, the second projecting element may be made of a different material than that of the first projecting element, the different material being less flexible than that of the first projecting element.

[0017] Additionally, the first projecting element may have a first thickness and the second projecting element may have a second thickness, the second thickness being larger than the first thickness.

[0018] Furthermore, the piercing means may have a cutting edge.

[0019] Sealing element may be arranged above the first projection element of the second element.

[0020] Moreover, the second projecting element may be arranged on a projecting arm which projects radially from the first part.

[0021] Also, the second projecting element may be extending radially from the first part and in an angle towards the second part.

[0022] The first projecting element may project radially from the second part and in an angle towards the first part.

[0023] In an embodiment, the first and/or the second projecting elements may be extending around the first part or the second part, respectively.

[0024] The present invention also relates to a dispensing line comprising a tube section having an inlet end and an outlet end, the inlet end being connected with the connecting device as described above.

[0025] Said outlet end in the dispensing line as described above may be connected with a spout and/or a valve.

[0026] Also, the present invention relates to a beverage dispensing system comprising a beverage container having a beverage and propelling means for forcing the beverage out of the container into a dispensing line, wherein the dispensing line and the beverage container are connected via the connecting device as described above.

[0027] Moreover, the propelling means may be mechanical pressure means.

[0028] Furthermore, the beverage container may comprise a cap arranged in connection with an opening in the beverage container, the cap comprising a membrane to be pierced by the piercing means, and engagement means adapted to engage the second projecting element of the first part of the connecting device.

[0029] The present invention also relates to a method for connecting an outlet of a dispensing line with a beverage container, comprising the steps of:

- providing a connecting device as described above,
- connecting the connecting device with a dispensing line,
- arranging the connecting device in relation to the beverage container, and
- connecting the connecting device with an inside of the beverage container by piercing a membrane.

[0030] Finally, the present invention relates to a method for disconnecting an outlet of a dispensing line from a beverage container, comprising the steps of:

- releasing the propelling means in relation the beverage container,
- providing access to the second part of the connecting device, and
- pulling the second part so that it is separated from the first part of the connecting device, while the first part remains in the beverage container.

Brief description of the drawings

[0031] The invention and its many advantages will be described in more detail below with reference to the accompanying schematic drawings, which for the purpose of illustration show some non-limiting embodiments and in which

Fig. 1 shows, in a cross-sectional view, an embodiment of the connecting device according to the present invention,

Fig. 2 shows the second part of the connecting device of Fig. 1 in an outside view,

Fig. 3 shows a cross-sectional view of the first part of the connecting device of Fig. 1,

Fig. 4 shows the first part in a top view taken from the second end,

Fig. 5 shows, in a cross-sectional view, the connecting device in relation to a cap of a beverage container,

Fig. 6 shows an enlarged view of the area B of Fig. 5,

Fig. 7 shows the guide assisting in guiding and positioning the connecting device according to the present invention in relation to the cap and thereby beverage container,

Fig. 8 is another view of the guide assisting in guiding and positioning the connecting device according to the present invention in relation to the cap and thereby beverage container,

Figs. 9-11 show another embodiment of a connect-

ing device according to the present invention,

Figs. 12-16 show yet another embodiment of a connecting device according to the present invention,

Fig. 17 shows the connecting device according to the present invention in a cross-sectional view,

Fig. 18 shows, in a cross-sectional view, the connecting device according to the present invention in relation to a cap of a beverage container,

Fig. 19 shows an enlarged view of the area B of Fig. 18,

Fig. 20 shows a capsule-shaped element in an outside view,

Figs. 21-23 show a further embodiment of a connecting device according to the present invention,

Fig. 24 shows another embodiment of the connecting device according to the present invention,

Figs. 25 and 26 shows, in a cross-sectional view, a top part of the beverage container with a cap having a membrane,

Fig. 27 shows an enlarged view of the area F of Fig. 26,

Fig. 28 shows the beverage container and the upper pressing part separated,

Fig. 29 shows a beverage dispensing system according to the invention in a cross-sectional view,

Figs. 30a-30c show enlarged cross-sectional views of different embodiments of the second projecting element engaging corresponding engagement means of the cap, and

Fig. 31 shows a dispensing line.

[0032] All the figures are highly schematic and not necessarily to scale, and they show only those parts which are necessary in order to elucidate the invention, other parts being omitted or merely suggested.

Detailed description of the invention

[0033] Figs. 1-8 show an embodiment of a connecting device 1 according to the present invention. Fig. 1 shows, in a cross-sectional view, the connecting device 1 having an axial extension 2 and comprising a first part 3 having a first end 4 and a second end 5 and a first fluid channel 6 extending between the first end 4 and the second end 5 of the first part 3. At the first end 4, the first part com-

prises piercing means 7 adapted to pierce a membrane (not shown) of the beverage container. Furthermore, the connecting device 1 comprises a second part 8 having a first end 9 and a second end 10 and a second fluid channel 11 extending between the first end 9 and the second end 10 of the second part 8. The second part 8 comprises a first projecting element 12 arranged at the first end 9 of the second part 8, the first projecting element 12 having a first radial length L1 extending in a radial direction in relation to the second part 8 and the second end 10 of the second part 8 is adapted to be connected with the dispensing line (not shown).

[0034] The second end 5 of the first part 3 is connected with the first end 9 of the second part 8 for to provide fluid communication between the first fluid channel 6 and the second fluid channel 11. Furthermore, the first part 3 and the second part are connected by the first projecting element 12 of the second part 8 engages into a corresponding recess 13 or groove arranged at the second end 5 of the first part 3. Thus when the second part is connected with the first part, the first projecting element 12 abuts the inner wall of the recess 13, whereby the first part 3 and the second part 8 are mechanically locked to each other. In this embodiment, the first end 9 of the second part 8 is inserted into the second end 5 of the first part 3.

[0035] Furthermore, a sealing element 14, here in the form of an O-ring, is arranged above the first projection element 12 of the second element 8, so that the connection between the first fluid channel 6 and the second fluid channel 11 is sealed off.

[0036] In addition, the first part 3 comprises a second projecting element 15 having a second radial length L2 extending in a radial direction in relation to the first part 3. The second projecting element 15 is adapted to engage into corresponding engagement means (not shown) arranged on the beverage container or a part of the beverage container, and the second radial length L2 is larger than the first radial length L1. Hereby it is obtained that the connection to the beverage container of the first part 3 of the connecting device 1 is greater than the connection between the first part 3 and the second part 8 of the connecting device 1, whereby the second part 8 will be separated from the first part 3 before the first part will be separated from the beverage container. A further advantage is that it will be difficult to reuse the connecting device 1 after the first and second parts have been separated, whereby the connecting device 1 may assist in providing a one-way and disposable dispensing line solution for securing that a new dispensing line will be used each time a beverage container shall be replaced.

[0037] In Fig. 2, the second part 8 is shown in an outside view. At the first end 9, the first projecting element 12 is arranged. In this embodiment, the first projecting element 12 comprises a plurality of projecting arms projecting radially from the second part 8 and in an angle towards the first part. Due to the design of the projecting arms, they have a spring effect since during assembly of

the first part 3 and the second part 8, the projecting arms pressed inwards against the wall of the second part, whereby they do not project radially until they are opposite the recess of the first part, whereby they project again and engage the recess. Furthermore, a special tool is necessary for assembling the first and second parts, whereby the projecting arms also serve to prevent the second part 8 from being inserted into the first part again after they have been separated, since the projecting arms have a larger diameter than the inner diameter of the second end of the first part. At a distance from the first projecting element 12, a circumferential groove 16 is arranged. The groove 16 is adapted to receive the sealing element. Furthermore, in this embodiment, the second part 8 also comprises two radially extending guide collars 17 arranged with a mutual distance for guiding the connecting device 1 in relation to the beverage container. A dispensing line is adapted to be connected at the second end 10.

[0038] Fig. 3 shows a cross-sectional view of the first part 3. The piercing means 7 is arranged at the first end 4 for piercing the membrane of the beverage container when the first part 3 is being brought into engagement with the beverage container. Preferably, the piercing means 7 have a cutting edge for facilitating the piercing. Above the first fluid channel 6, an insertion area 18 is arranged which is adapted to receive the first end of the second part. In the inner wall of this insertion area 18, the recess 13 is arranged. Furthermore, the second projecting element 15 is arranged on an L-shaped arm 19 extending radially from the first part, so that the projecting element 15 is facing the outer face of the first part and providing a distance between them, thereby defining a space 21. The second projecting element 15 has a triangular shape with a contact face 20 facing up against the L-shaped arm 19. The corresponding engagement means of the beverage container is adapted to be received in the space 21 so that the second projecting element 15 engages these as shown in Fig. 5.

[0039] Fig. 4 shows the first part 3 in a top view taken from the second end 5. In this embodiment, the first part 3 comprises four L-shaped arms 19 each comprising a second projecting element.

[0040] Fig. 5 shows, in a cross-sectional view, the connecting device 1 in relation to a cap 22 of a beverage container (not shown). The second part 8 is connected with the dispensing line 23. The guide collars of the second part 8 are positioned in a guide 24 for aligning the connecting device 1 with the beverage container. The first element 3 has been forced downwards against and through a membrane of the cap 22 so that the membrane has been pierced and the inside of the beverage container is in fluid communication with the dispensing line 23.

[0041] Fig. 6 shows an enlarged view of the area B of Fig. 5. In this view it is easily deducible how the engagement means 25 of the cap 22 have entered into the space so that the second projecting elements 15 engage and mechanically lock each other.

[0042] Figs. 7 and 8 show the guide 24 assisting in guiding and positioning the connecting device 1 in relation to the cap 22 and thereby beverage container. Figs. 9-11 show another embodiment of a connecting device 1 according to the present invention. This embodiment has substantially the same design and function as the one shown in Figs. 1-8. However, the second part 8 of the connecting device 1 comprises only one guide collar 17 adapted to engage with the guide 24 for positioning the connecting device in relation to the cap 22 as shown in Figs. 10 and 11.

[0043] Figs. 12-16 show yet another embodiment of a connecting device according to the present invention. Again the connecting device of the present embodiment has substantially the same design and function as the one shown in Figs. 1-8.

[0044] In Fig. 12, the connecting device 1 is shown in a cross-sectional view. The first part 3 comprises a recess 26 arranged on the outside at the second end 5. The second projecting element 15 is, in this embodiment, arranged in the recess 26, and comprises a ring-shaped element having three radially extending arms arranged around the ring-shaped element with a mutual distance, as shown in Fig. 16.

[0045] Fig. 13 shows the connecting device 1 inserted in the cap 22 in a top view. Fig. 14 shows, in a cross-sectional view, the connecting device 1 in relation to a cap 22 of a beverage container (not shown). The second part 8 is connected with the dispensing line 23. The guide collar 17 of the second part 8 is positioned in a guide (not shown) for aligning the connecting device 1 with the beverage container. The first element 3 has been forced downwards against and through a membrane of the cap 22, so that the membrane has been pierced and the inside of the beverage container is in fluid communication with the dispensing line 23.

[0046] Fig. 15 shows an enlarged view of the area B of Fig. 14. In this view it is easily deducible how the second projecting element 15, here in the form of the three radially extending arms, engages the cap 22 and thereby mechanically locks the first part 3 to the cap 22. The ring-shaped element may be made of metal, whereby the second projecting element is made of a different material than that of the first projecting element, the different material being less flexible than that of the first projecting element, which may be made of a plastic material.

[0047] Figs. 17-20 show an additional embodiment of a connecting device 1 according to the present invention. This embodiment has substantially the same design and function as the one shown in Figs. 12-16.

[0048] In Fig. 17, the connecting device 1 is shown in a cross-sectional view. The first part 3 comprises a recess 26 arranged on the outside at the second end 5. In this embodiment, the second projecting element 15 is arranged in the recess 26 and comprises a capsule-shaped element extending radially out from the recess 26 and has a substantially vertical extension. On the inside of the vertical extension, engagement means are arranged

adapted for engaging corresponding engagement means arranged on the cap as shown in Figs 18 and 19. The capsule-shaped element 15 is shown in Fig. 20 in an outside view.

[0049] Fig. 18 shows in a cross-sectional view the connecting device 1 in relation to a cap 22 of a beverage container (not shown). The second part 8 is connected with the dispensing line 23. The guide collar 17 of the second part 8 is positioned in a guide (not shown) for aligning the connecting device 1 with the beverage container. The first element 3 has been forced downwards against and through a membrane of the cap 22, so that the membrane has been pierced and the inside of the beverage container is in fluid communication with the dispensing line 23.

[0050] Fig. 19 shows an enlarged view of the area B of Fig. 18. In this view it is easily deducible how the second projecting element 15, here in the form of the capsule-shaped element, engages the cap 22 and thereby mechanically locks the first part 3 to the cap 22.

[0051] Figs. 21-23 show a further embodiment of a connecting device 1 according to the present invention. This embodiment has substantially the same design and function as the one shown in Figs. 12-16.

[0052] In Fig. 21, the connecting device 1 is shown in a cross-sectional view. The first part 3 comprises the second projecting element 15 which, in this embodiment, is extending radially from the first part 3 and in an angle towards the second part 8. Thus, when the connecting device 1 is connected with the cap 22, the second projecting element 15 extends radially out from the first part 3 and towards the second part and thereby the cap 22, as shown in Figs. 22 and 23.

[0053] Fig. 22 shows, in a cross-sectional view, the connecting device 1 in relation to a cap 22 of a beverage container (not shown). The second part 8 is connected with the dispensing line 23. The guide collar 17 of the second part 8 is positioned in a guide (not shown) for aligning the connecting device 1 with the beverage container. The first element 3 has been forced downwards against and through a membrane of the cap 22, so that the membrane has been pierced and the inside of the beverage container is in fluid communication with the dispensing line 23.

[0054] Fig. 23 shows an enlarged view of the area B of Fig. 22. In this view it is easily deducible how the second projecting element 15 will engage the cap 22 if pulled out of the cap 22, since the second projecting element 15 will engage the cap 22 and thereby mechanically lock the first part 3 to the cap 22.

[0055] Fig. 24 shows another embodiment of the connecting device 1. Fig. 24 shows, in a cross-sectional view, the connecting device 1 comprising a first part 3 having a first end 4 and a second end 5, and a first fluid channel 6 extending between the first end 4 and second end 5 of the first part 3. At the first end 4, the first part comprises piercing means 7 adapted to pierce a membrane (not shown) of the beverage container. Furthermore, the con-

necting device 1 comprises a second part 8 having a first end 9 and a second end 10 and a second fluid channel 11 extending between the first end 9 and second end 10 of the second part 8. The second part 8 comprises a first projecting element 12 arranged at the first end 9 of the second part 8, the first projecting element 12 having a first radial length L1 extending in a radial direction in relation to the second part 8 and the second end 10 of the second part 8 being adapted to be connected with the dispensing line (not shown).

[0056] The second end 5 of the first part 3 is connected with the first end 9 of the second part 8 to provide fluid communication between the first fluid channel 6 and the second fluid channel 11. Furthermore, the first part 3 and second part are connected by the first projecting element 12 of the second part 8 engaging into a corresponding recess 13 or groove arranged at the second end 5 of the first part 3. Thus, when the second part is connected with the first part, the first projecting element 12 abuts the inner wall of the recess 13, whereby the first part 3 and the second part 8 are mechanically locked to each other. In this embodiment, the first end 9 of the second part 8 is inserted into the second end 5 of the first part 3.

[0057] In addition, the first part 3 comprises a second projecting element 15 having a second radial length L2 extending in a radial direction in relation to the first part 3. The second projecting element 15 is adapted to engage into corresponding engagement means (not shown) arranged on the beverage container or a part of the beverage container, and the second radial length L2 is larger than the first radial length L1. Hereby it is obtained that the connection to the beverage container of the first part 3 of the connecting device 1 is greater than the connection between the first part 3 and the second part 8 of the connecting device 1, whereby the second part 8 will be separated from the first part 3 before the first part will be separated from the beverage container. A further advantage is that it will be difficult to reuse the connecting device 1 after the first and second parts have been separated, whereby the connecting device 1 may assist in providing a one-way and disposable dispensing line solution for securing that a new dispensing line will be used each time a beverage container shall be replaced.

[0058] Fig. 25 shows, in a cross-sectional view, a top part of the beverage container 27 with a cap 22 having a membrane 28. The beverage container 27 is arranged below an upper pressing part 29, wherein the connecting device 1 has been arranged and is being positioned in relation to the beverage container by the guide 24. In Fig. 26, the beverage container 27 has been moved towards the upper pressing part 29, so that the membrane of the cap has been moved up against the first part 3 of the connecting device 1 which has then been forced through the membrane and pierced it, so that the inside of the beverage container is in fluid communication with the dispensing line 23.

[0059] Fig. 27 shows an enlarged view of the area F

of Fig. 26. In this view it is easily deducible how the second projecting element 15 of the first part 3 has been moved past the engagement means 25 of the cap 22, so that the second projecting element 15 engages and mechanically locks each other.

[0060] Furthermore, a ball valve 30 may be arranged inside the second part 8.

[0061] In Fig. 28, the beverage container 27 has been moved away from the upper pressing part 29, whereby the second part 8 has been separated from the first part 3 according to the inventive idea.

[0062] In Fig. 29, a beverage dispensing system 100 according to the invention is shown in a cross-sectional view. The system 100 comprises a beverage container 27 having a beverage and propelling means 31 for forcing the beverage out of the container into a dispensing line 23. The dispensing line 23 and the beverage container 27 are connected via the connecting device 1. In this embodiment, the propelling means is mechanical pressure means having an upper pressing part 29 and a lower pressing part 32. Furthermore, the beverage container 27 comprises a cap 22 arranged in connection with an opening in the beverage container, the cap 22 comprises a membrane to be pierced by the piercing means, and engagement means is adapted to engage the second projecting element of the first part of the connecting device 1.

[0063] Furthermore, the propelling means 31 and the beverage container 27 are placed inside a cabinet 33. The cabinet 33 may comprise cooling means for keeping the beverage in the beverage container on a predetermined cold temperature. Furthermore, a font 34 having the tapping head 35 and a guide channel 36 is arranged on top of a cabinet 33 having a chamber 37 which is in fluid communication with the guide channel 36. The dispensing line (not shown) may be guided down through the font via the guide channel 36 to the chamber 37, wherein the connecting device 1 according to the invention may be positioned in the guide to be connected with beverage container 27.

[0064] Figs. 30a-30b show enlarged cross-sectional views of the second projecting elements 15 of the first part 1 engaging with engagement means on the cap 22. In Fig. 30a, an inside lock-type engagement is shown, and Figs. 30b-30c show two different embodiments of outside lock-type engagements. Each lock-type mechanically locks the element and means to each other.

[0065] Fig. 31 shows a dispensing line 23 comprising a tube section 38 having an inlet end 39 and an outlet end 40, the inlet end 39 being connected with the connecting device 1. Furthermore, the outlet end may be connected with a spout and/or a valve 41.

[0066] In addition, when an outlet of a beverage dispensing system 100 is to be connected with a beverage container via a dispensing line, the following steps may be applied:

- providing a connecting device 1,

- connecting the connecting device 1 with a dispensing line 23,
- arranging the connecting device 1 in relation to the beverage container 27, and
- connecting the connecting device 1 with an inside of the beverage container 27 by piercing a membrane 28.

[0067] Furthermore, when the outlet of a beverage dispensing system 100 is to be disconnected from a beverage container, the following steps may be applied:

- releasing the propelling means 31 in relation the beverage container 27,
- providing access to the second part 8 of the connecting device 1, and
- pulling the second part 8 and/or the beverage container, so that the second part 8 is separated from the first part 3 of the connecting device 1, while the first part 3 remains in the beverage container 27.

[0068] Although the invention has been described in the above in connection with preferred embodiments of the invention, it will be evident for a person skilled in the art that several modifications are conceivable without departing from the invention as defined by the following claims.

Claims

1. A connecting device (1) for connecting an outlet of a beverage dispensing system (100) via a dispensing line (23) to a beverage container (27), the connecting device (1) having an axial extension (2), comprising

- a first part (3) having a first end (4) and a second end (5), and a first fluid channel (6) extending between the first and second ends (4, 5) of the first part (3), the first part (3) comprising, at the first end (4), piercing means (7) adapted to pierce a membrane (28) of the beverage container (27),
- a second part (8) having a first end (9) and a second end (10) and a second fluid channel (11) extending between the first and second ends (9, 10) of the second part (8), the second part (8) comprising a first projecting element (12) arranged at the first end (9) of the second part (8), the first projecting element (12) having a first radial length (L1) extending in a radial direction in relation to the second part (8), the second end (10) of the second part (8) being adapted to be connected with the dispensing line (23), the second end (5) of the first part (3) being connected with the first end (9) of the second part (8) for to provide fluid communication between

- the first fluid channel (6) and the second fluid channel (11), the first and second parts (3, 8) being connected by the first projecting element (12) of the second element (8) engaging into a corresponding recess (13) or groove arranged at the second end (5) of the first part (3), wherein the first part (3) comprises a second projecting element (15) having a second radial length (L2) extending in a radial direction in relation to the first part (3), the second projecting element (15) being adapted to engage into corresponding engagement means (25) arranged on the beverage container (27) or a part (22) of the beverage container, the second radial length (L2) being larger than the first radial length (L1).
2. A connecting device (1) according to claim 1, wherein the second radial length (L2) is more than 25% larger than first radial length (L1), preferably more than 35%.
 3. A connecting device (1) according to any of the previous claims, wherein the second projecting element (15) is made of a different material than that of the first projecting element (12), the different material being less flexible than that of the first projecting element (12).
 4. A connecting device (1) according to any of the previous claims, wherein the first projecting element (12) has a first thickness and the second projecting element (15) has a second thickness, the second thickness being larger than the first thickness.
 5. A connecting device (1) according to any of the previous claims, wherein the second projecting element (15) is extending radially from the first part (3) and in an angle towards the second part (8).
 6. A connecting device (1) according to any of the previous claims, wherein the first projecting element (12) projects radially from the second part (8) and in an angle towards the first part (3).
 7. A dispensing line (23) comprising a tube section (38) having an inlet end (39) and an outlet end (40), the inlet end (39) being connected with the connecting device (1) according to any of the preceding claims.
 8. A dispensing line (23) according to claim 7, wherein the outlet end (40) is connected with a spout and/or a valve (41).
 9. A beverage dispensing system (100) comprising a beverage container (27) having a beverage and propelling means (31) for forcing the beverage out of the beverage container (27) into a dispensing line (23), wherein the dispensing line (23) and the beverage container (27) are connected via the connecting device (1) according to any of the claims 1-6.
 10. A beverage dispensing system (100) according to claim 9, wherein the propelling means (31) is mechanical pressure means.
 11. A beverage dispensing system (100) according to claim 9 or 10, wherein the beverage container (27) comprises a cap (22) arranged in connection with an opening in the beverage container (27), the cap (22) comprising a membrane (28) to be pierced by the piercing means (7) of the connecting device (1), and engagement means (25) adapted to engage the second projecting element (15) of the first part (3) of the connecting device (1).
 12. A method for connecting an outlet of a beverage dispensing system (100) via a dispensing line (23) with a beverage container (27), comprising the steps of:
 - providing a connecting device (1) according to any of the claims 1-6,
 - connecting the connecting device (1) with a dispensing line (23),
 - arranging the connecting device (1) in relation to the beverage container (27), and
 - connecting the connecting device (1) with an inside of the beverage container (27) by piercing a membrane (28).
 13. A method for disconnecting an outlet of a beverage dispensing system (100) from a beverage container (27), comprising the steps of:
 - releasing the propelling means (31) in relation to the beverage container (27),
 - providing access to the second part (8) of the connecting device (1), and
 - pulling the second part (8) and/or the beverage container (27), so that the second part (8) is separated from the first part (3) of the connecting device (1), while the first part (3) remains in the beverage container (27).

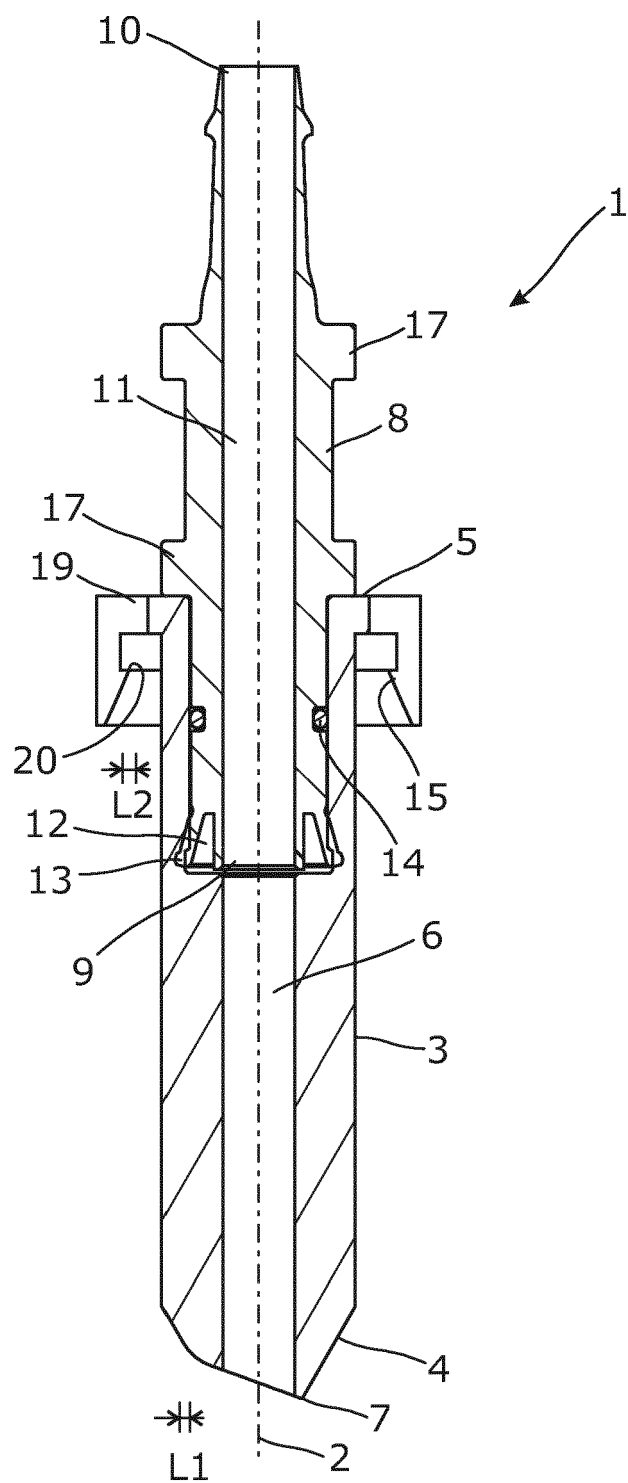
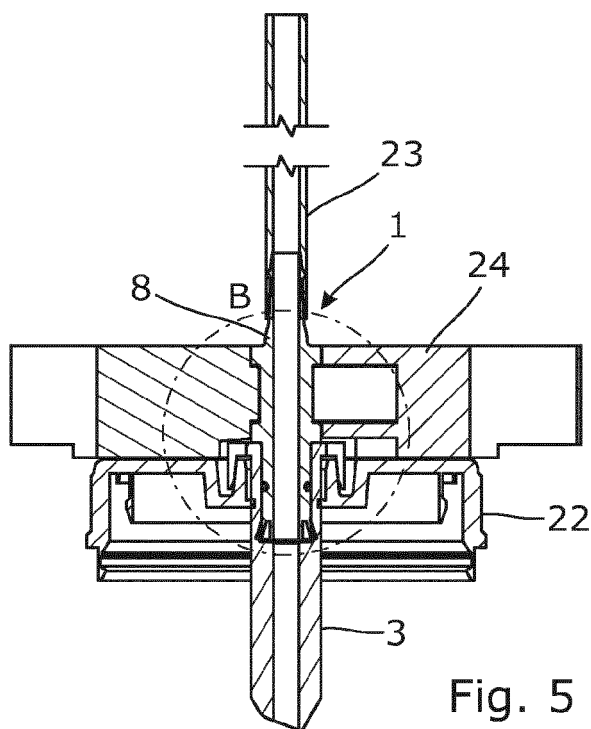
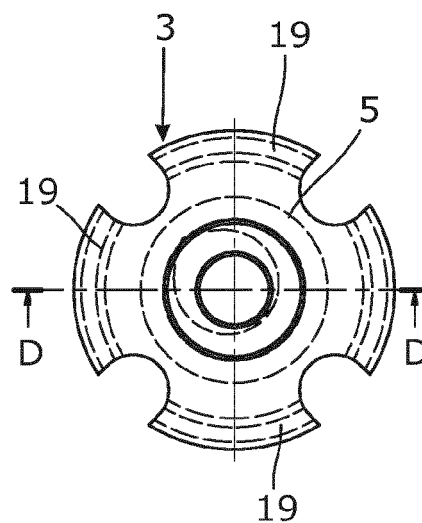
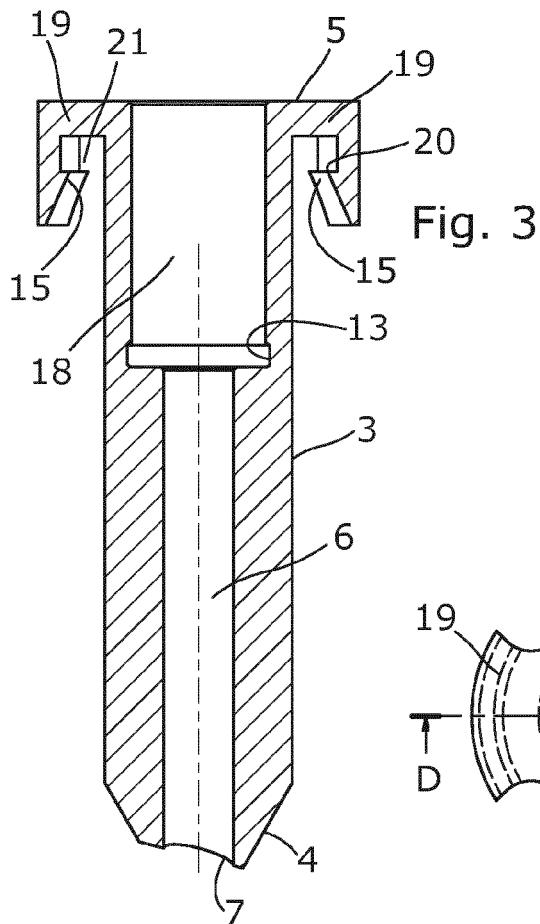
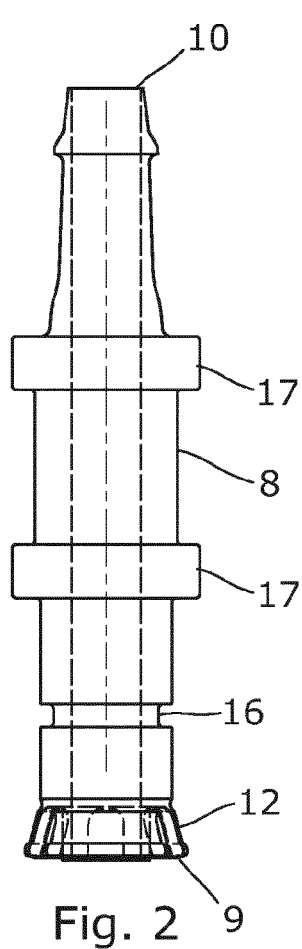
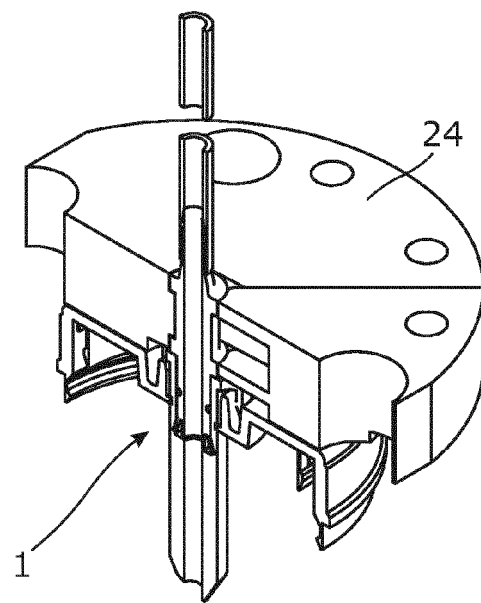
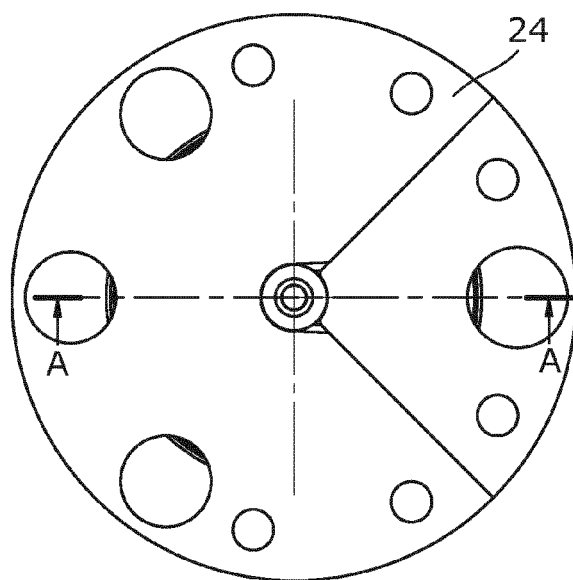
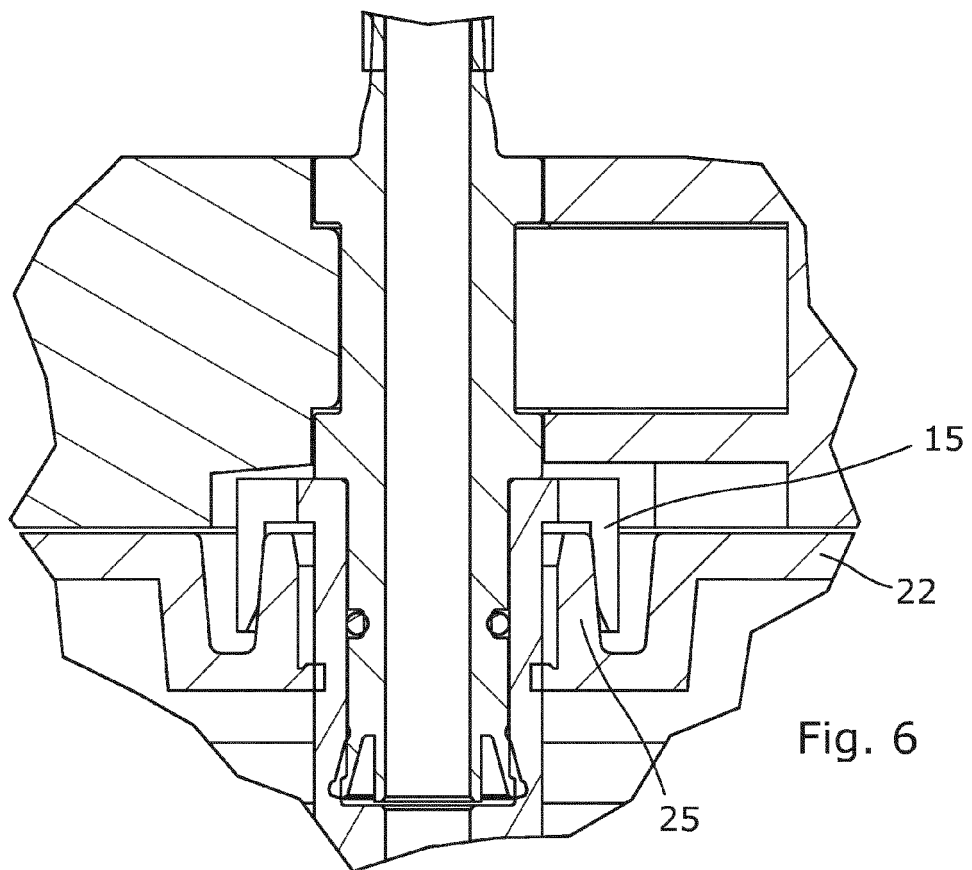


Fig. 1





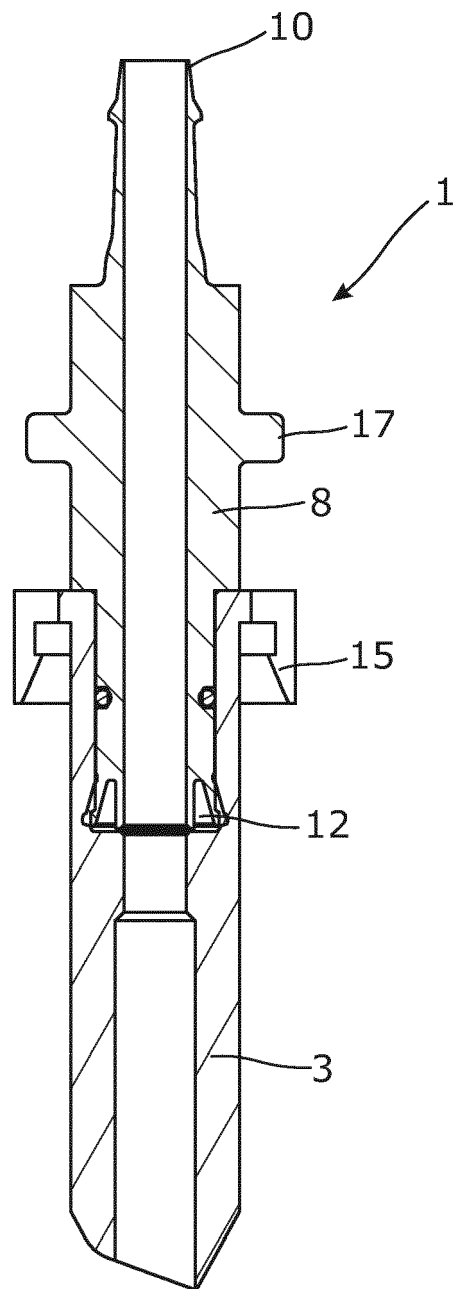


Fig. 9

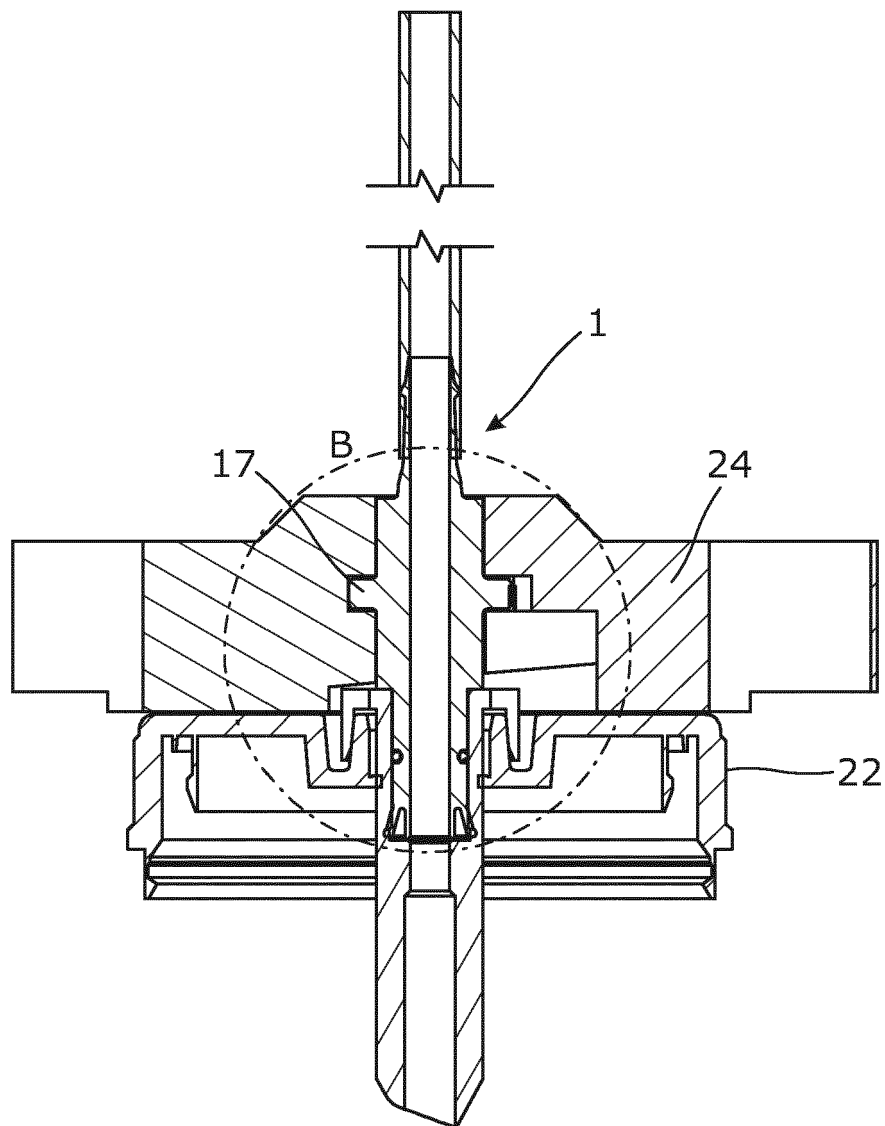


Fig. 10

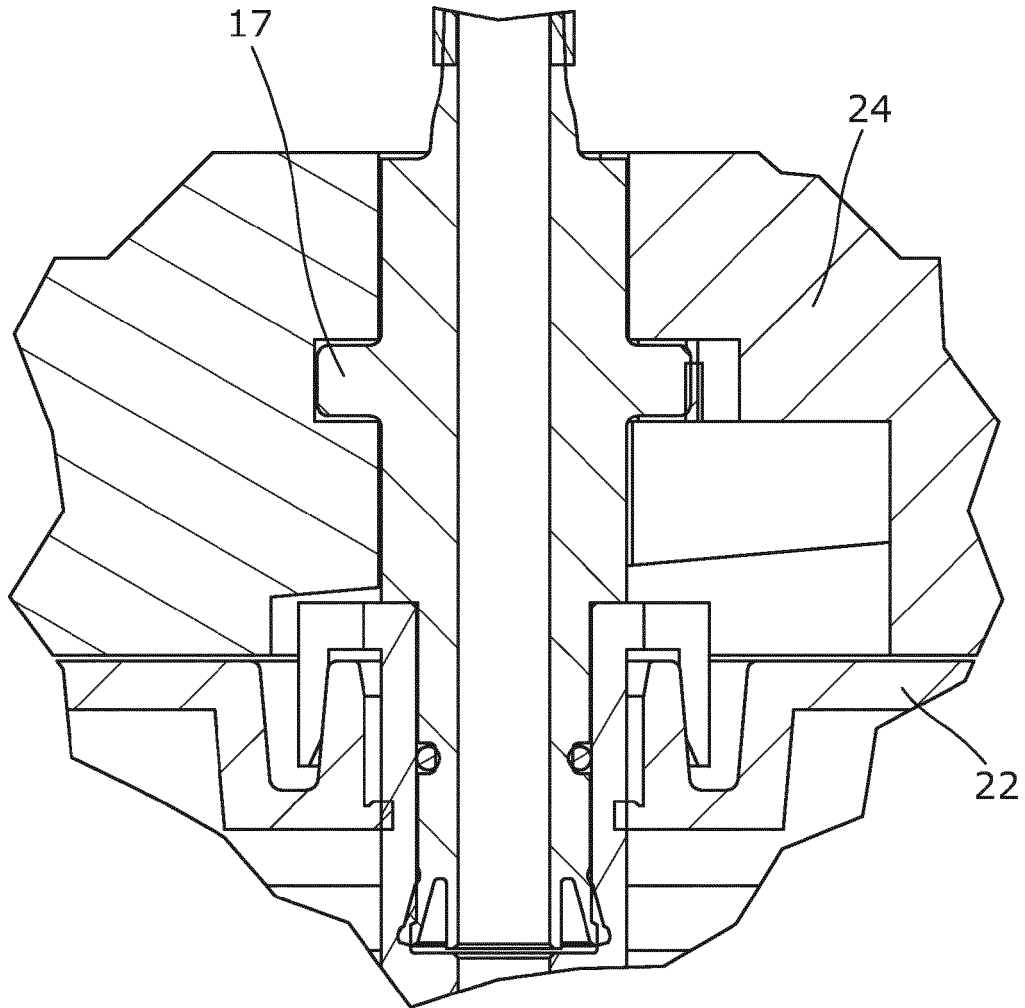


Fig. 11

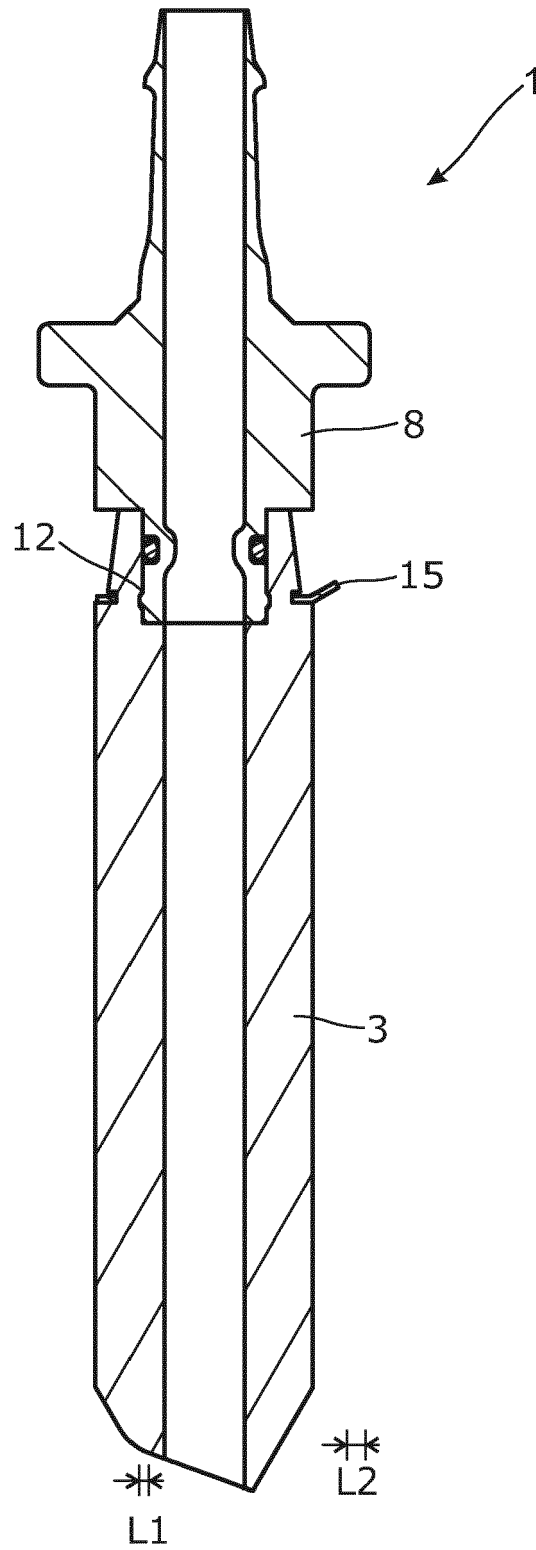
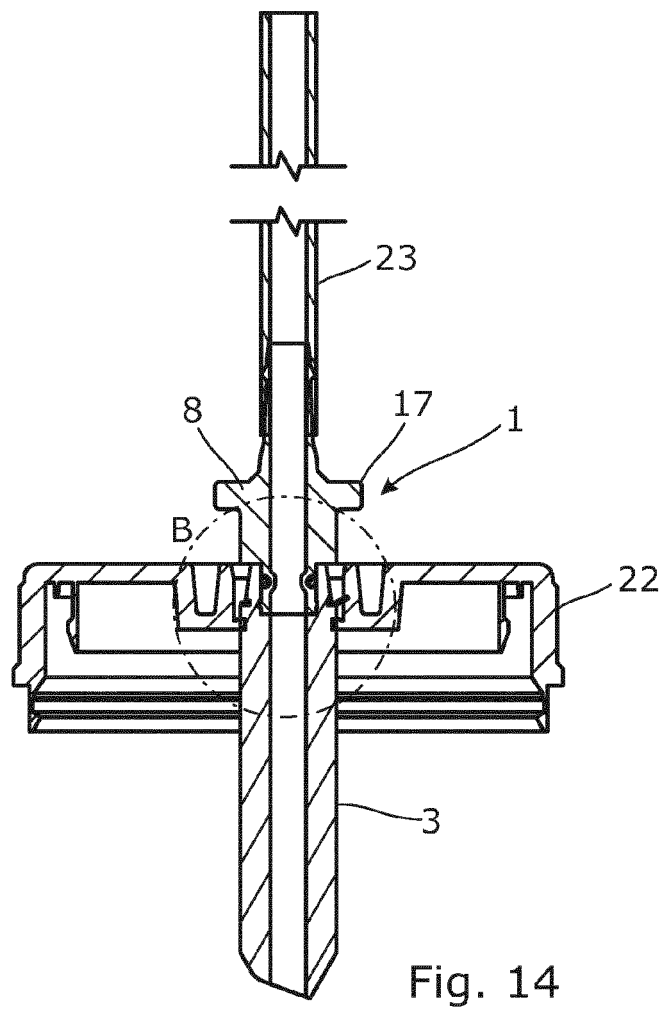
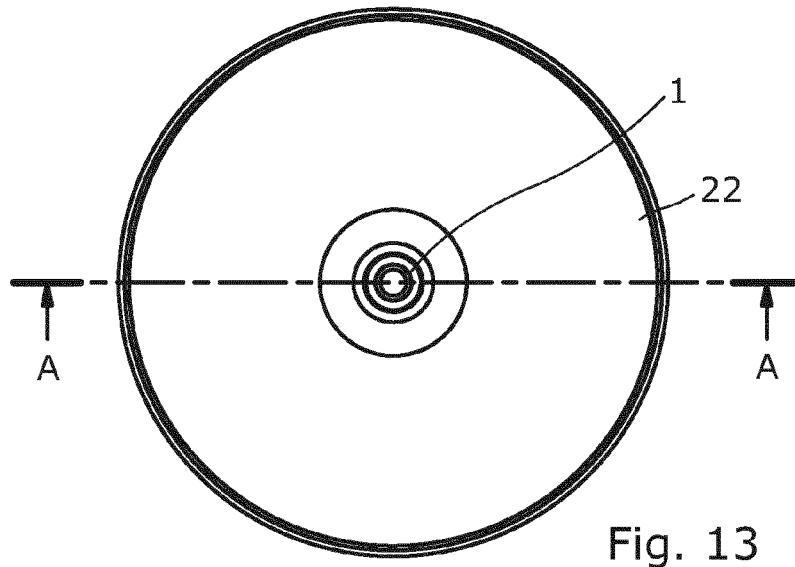


Fig. 12



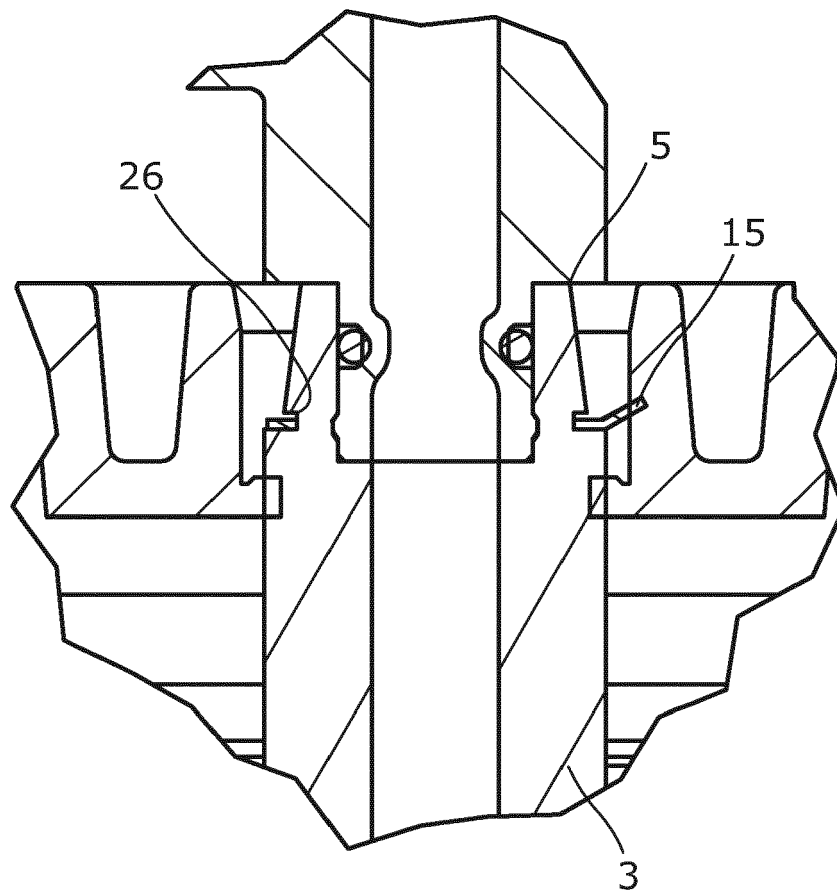


Fig. 15

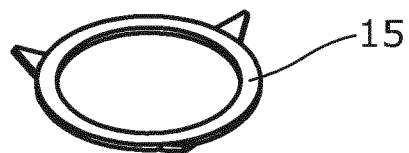


Fig. 16

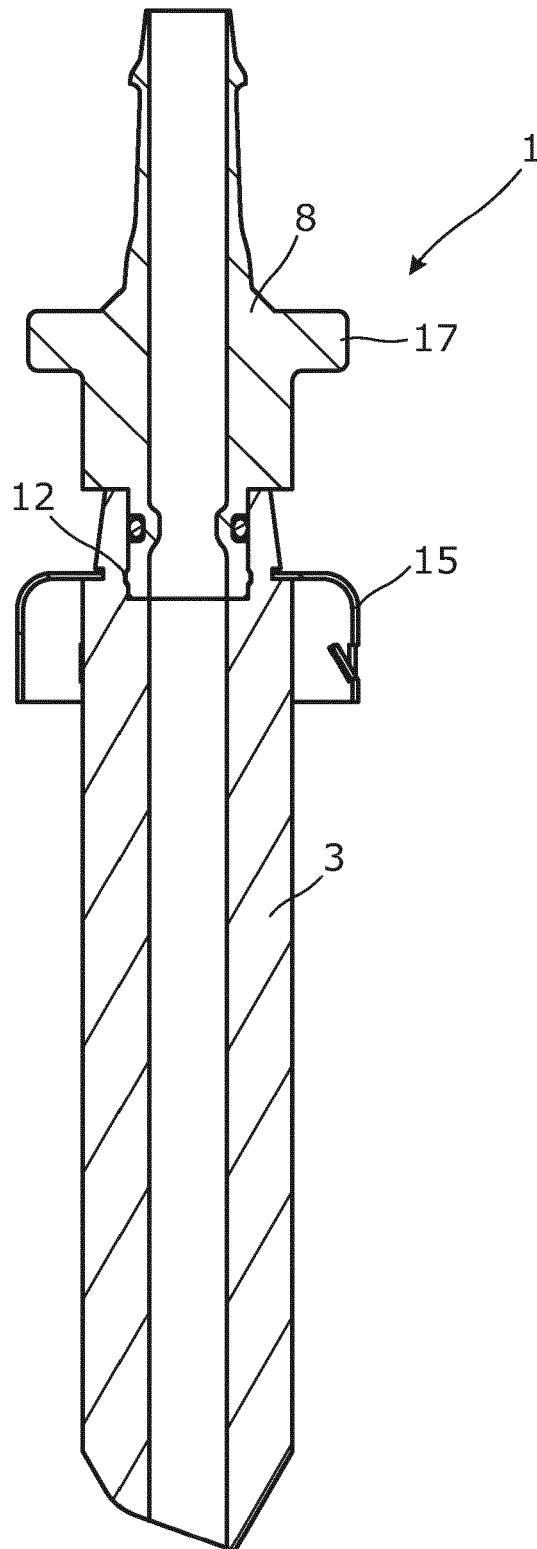


Fig. 17

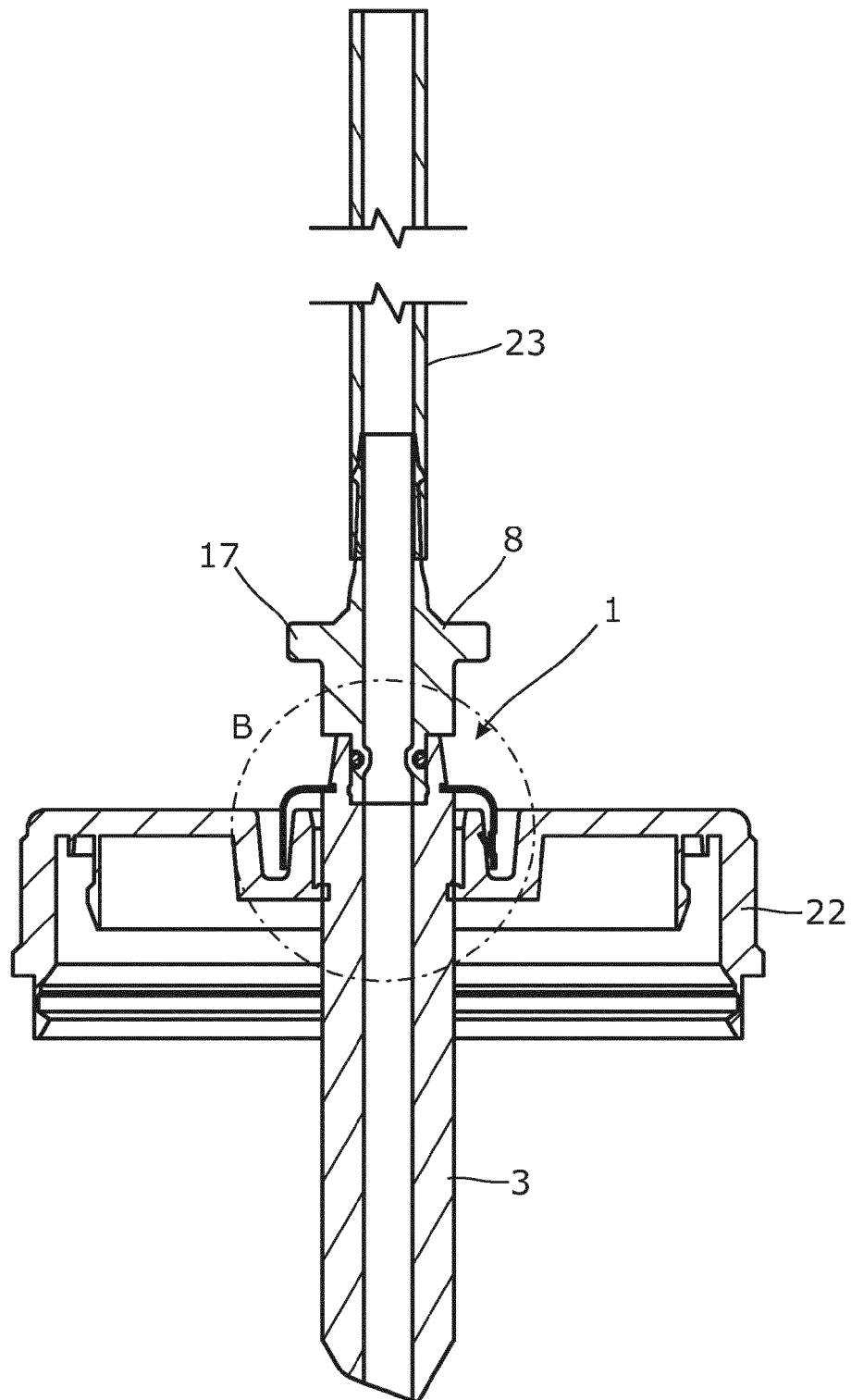


Fig. 18

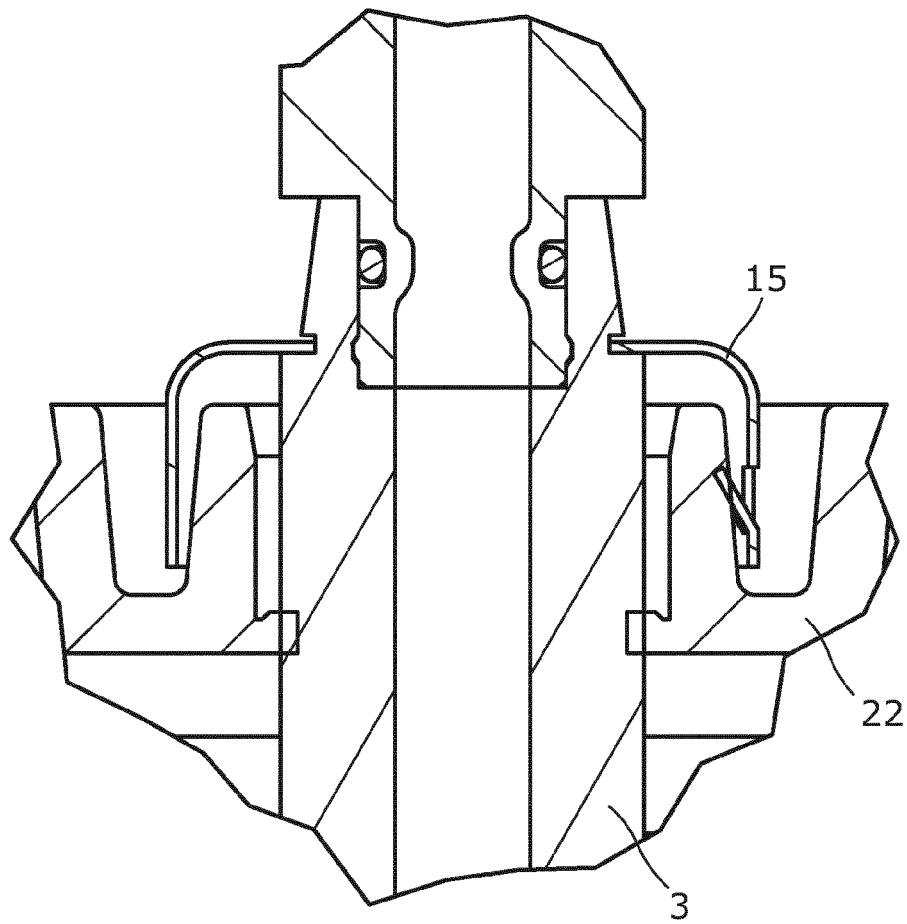


Fig. 19

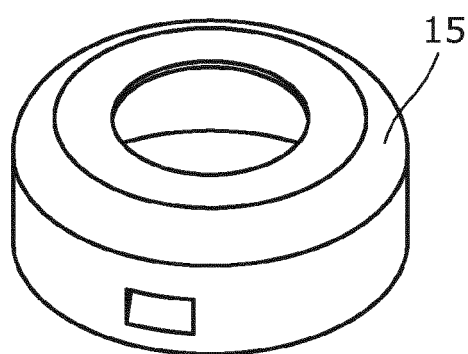


Fig. 20

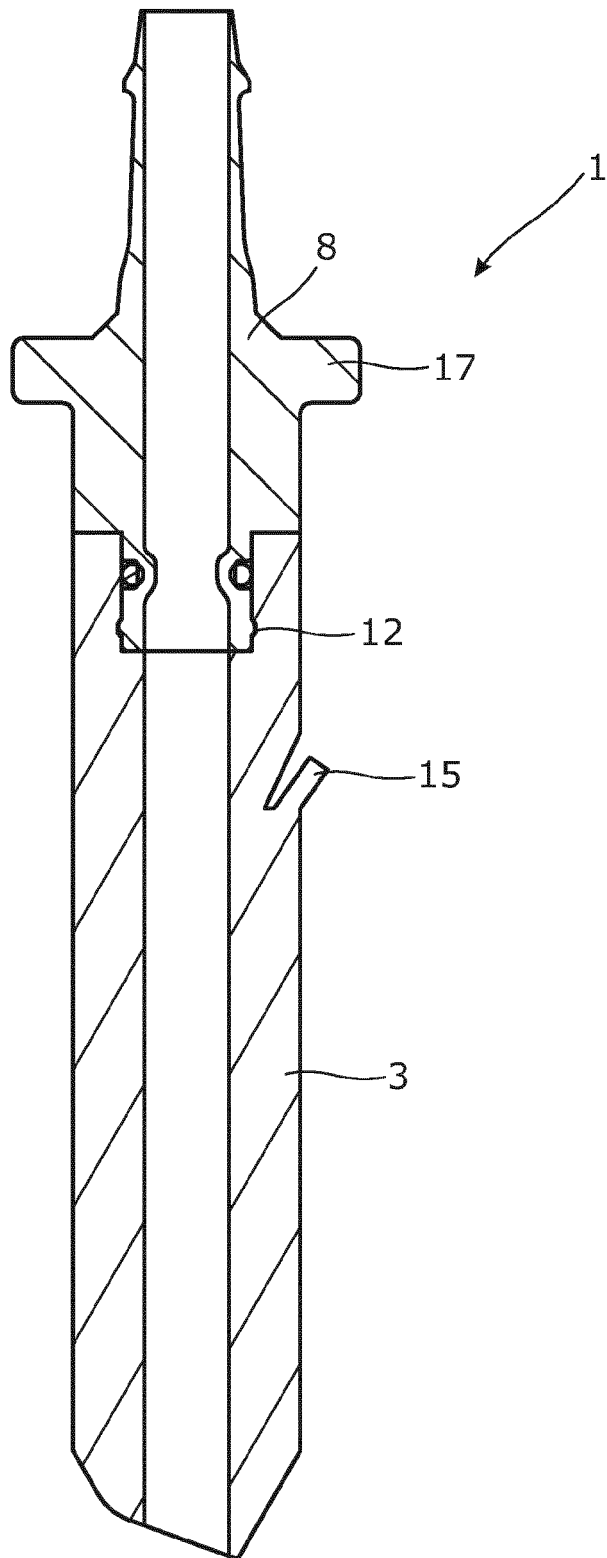


Fig. 21

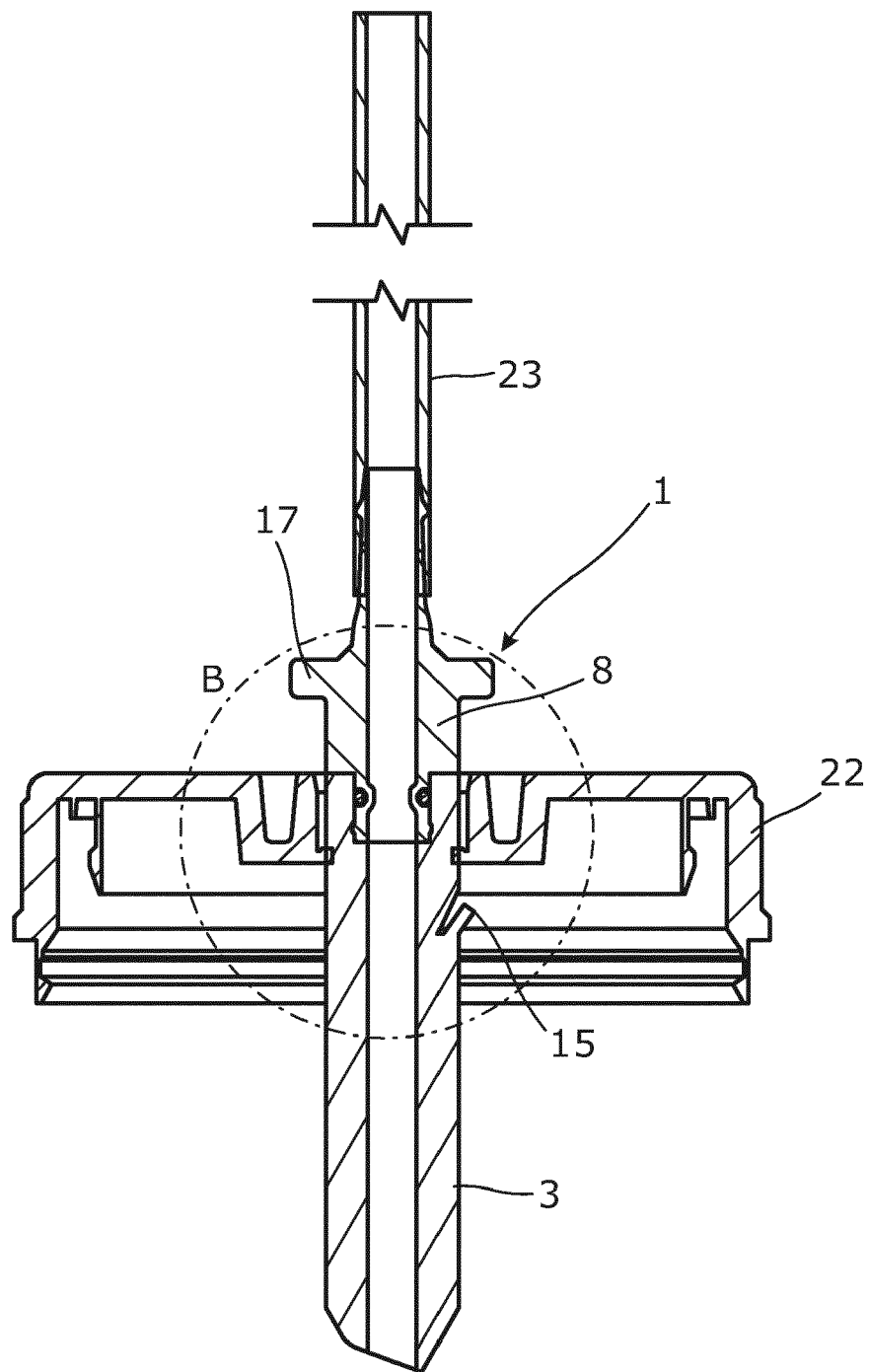


Fig. 22

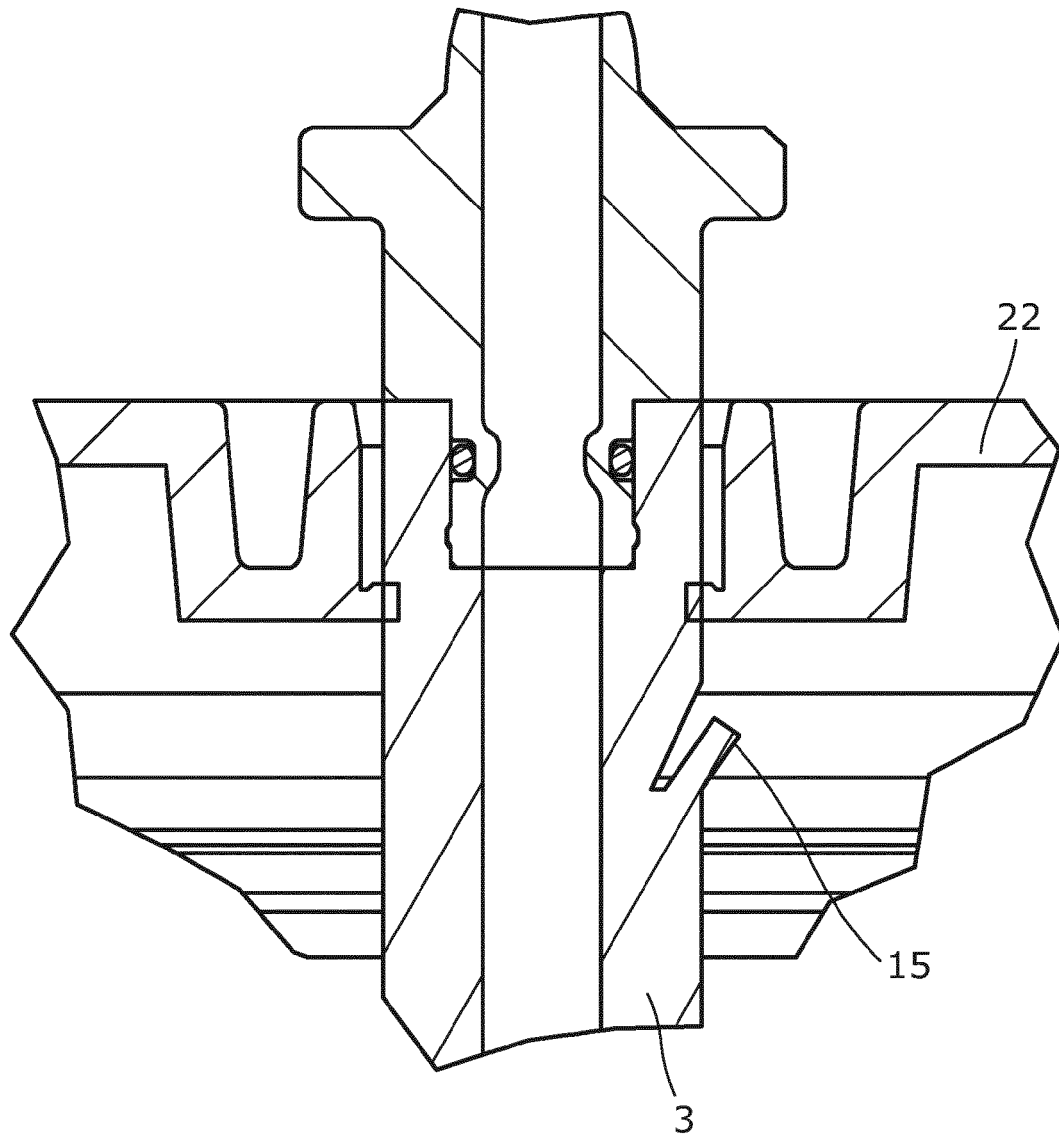


Fig. 23

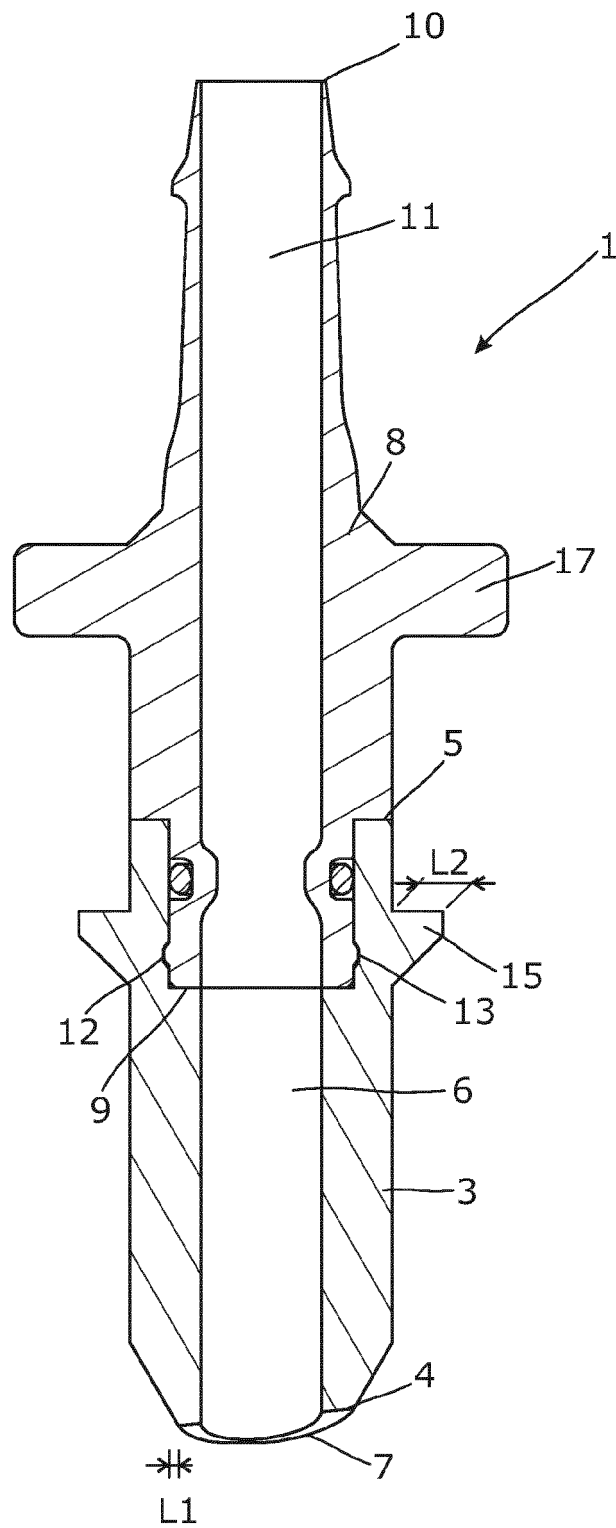


Fig. 24

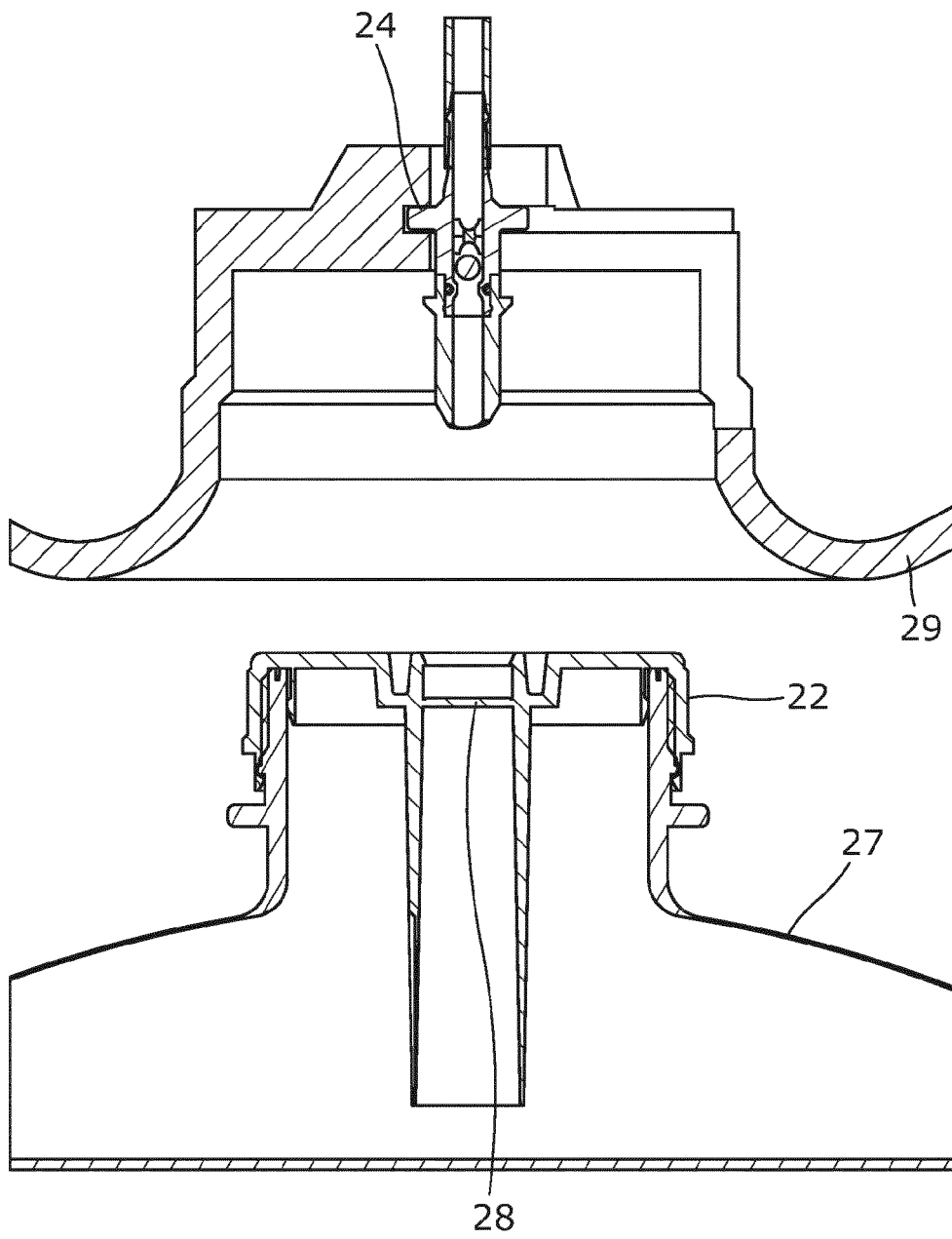


Fig. 25

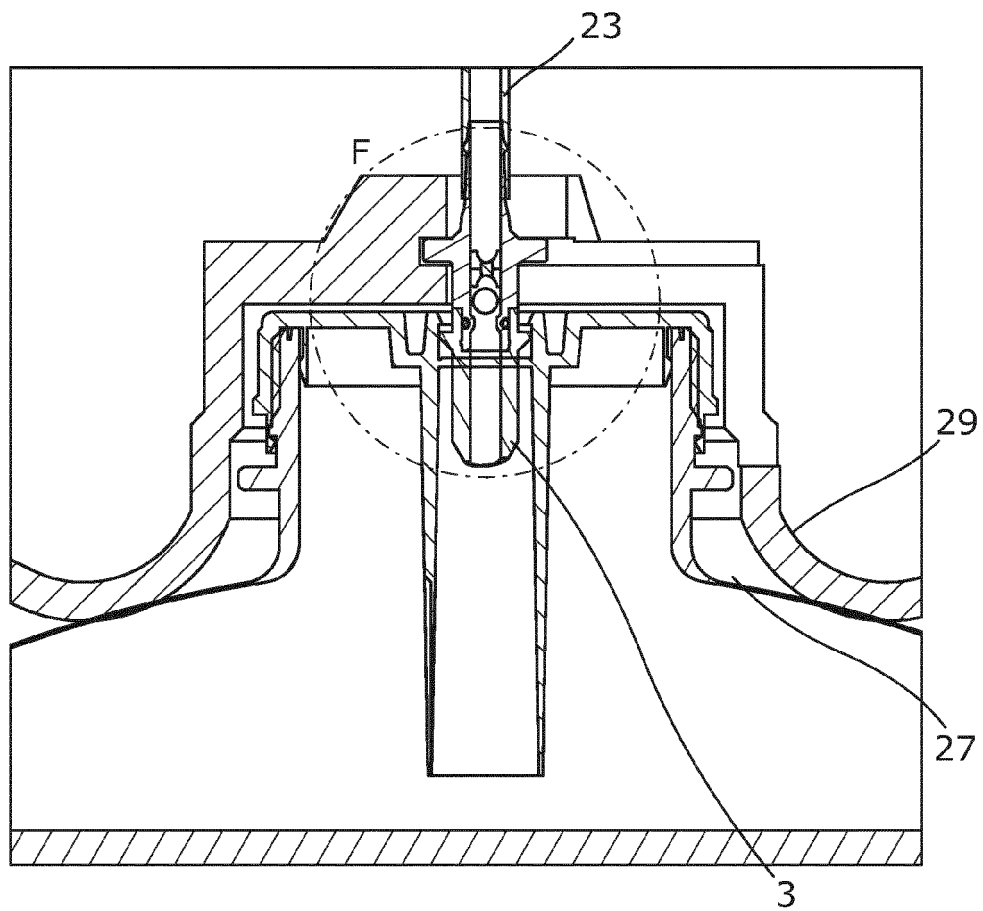


Fig. 26

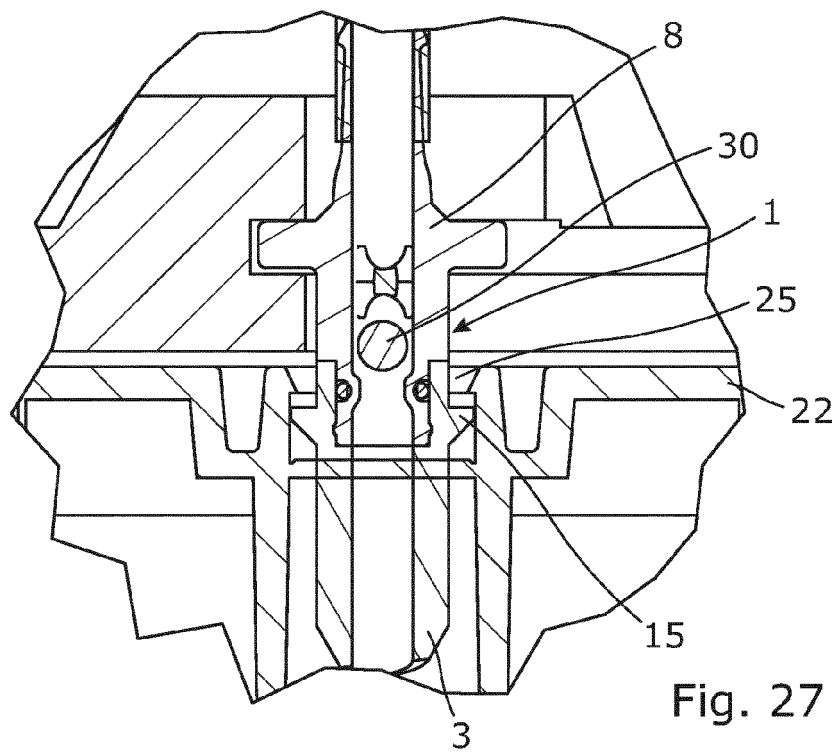


Fig. 27

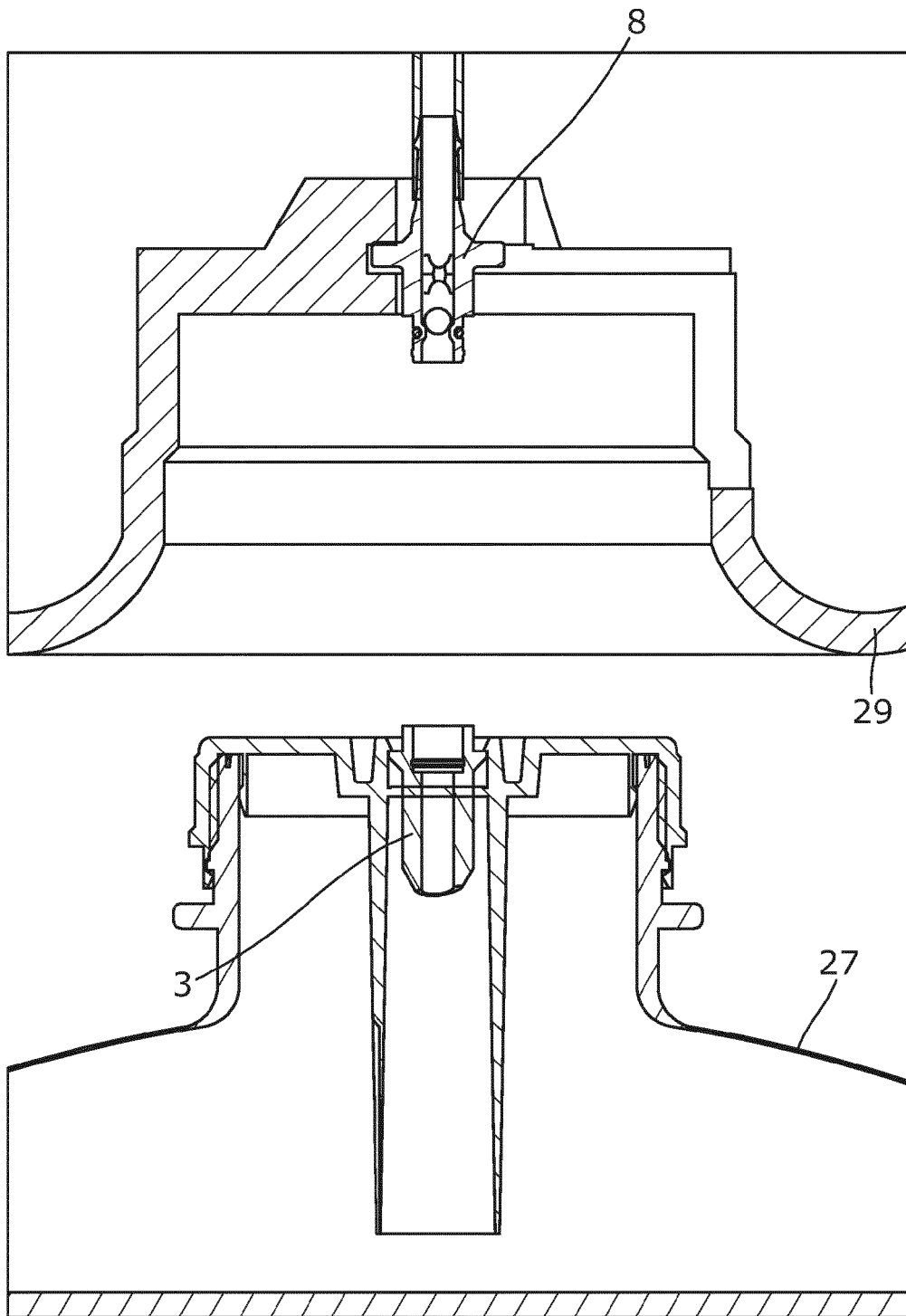


Fig. 28

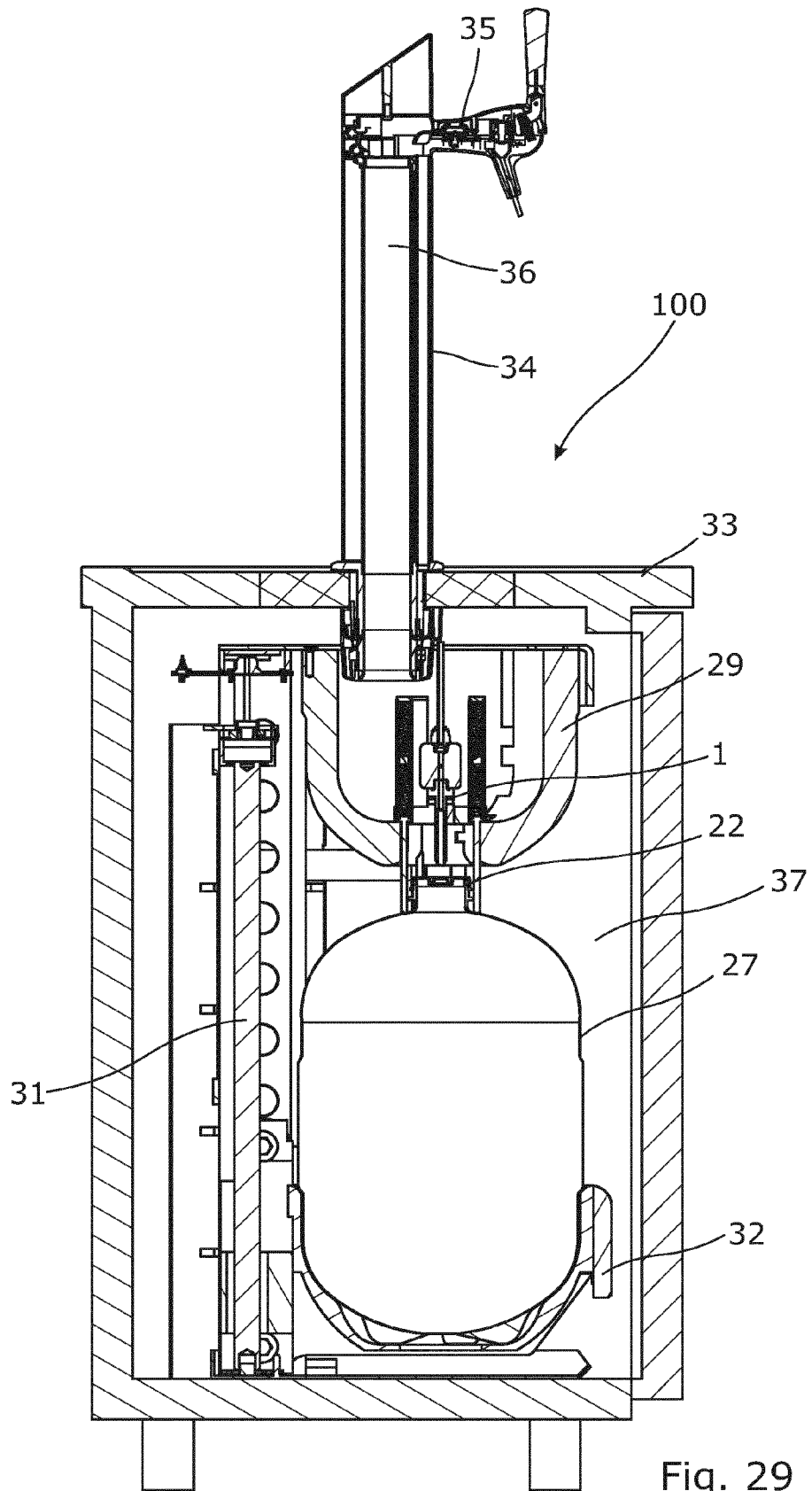


Fig. 29

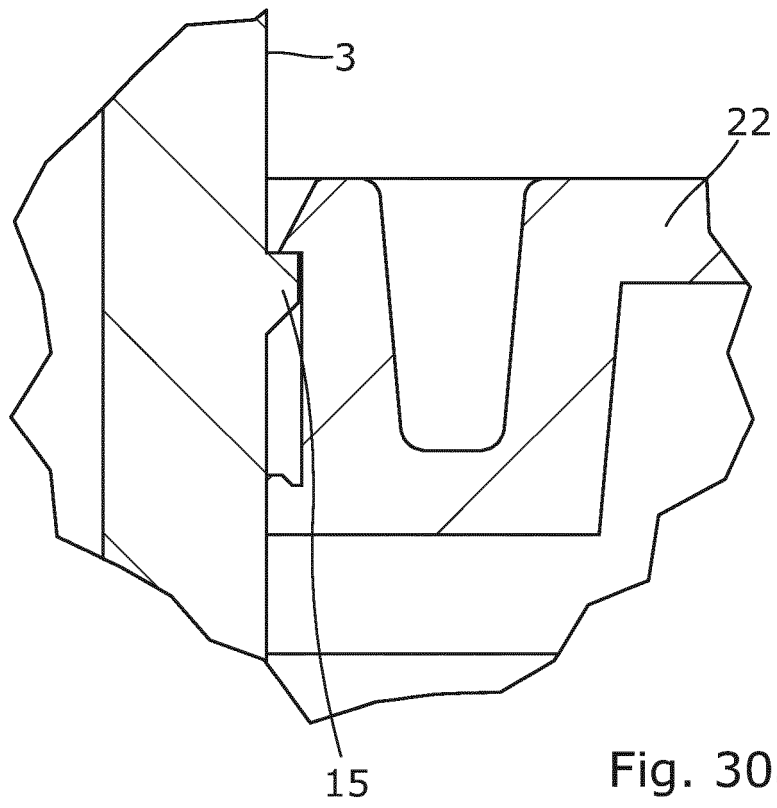


Fig. 30a

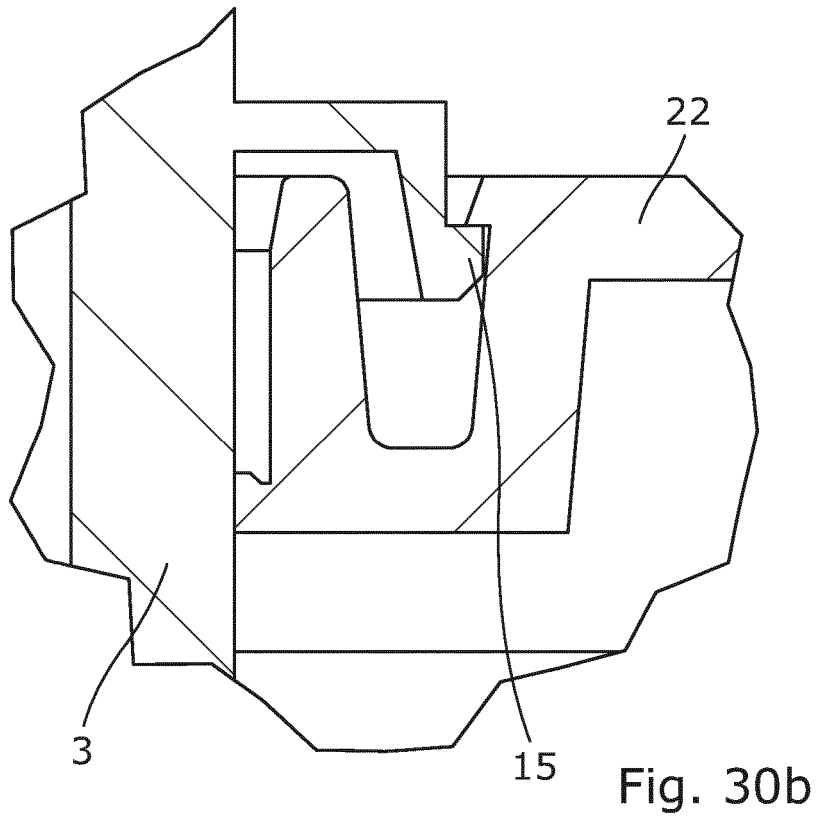


Fig. 30b

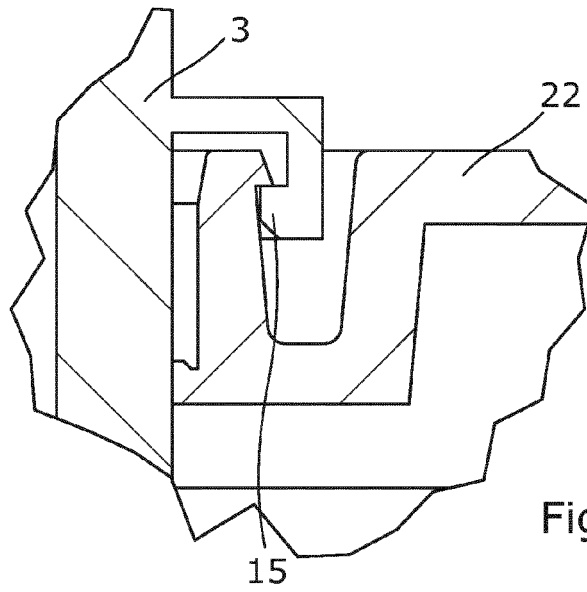


Fig. 30c

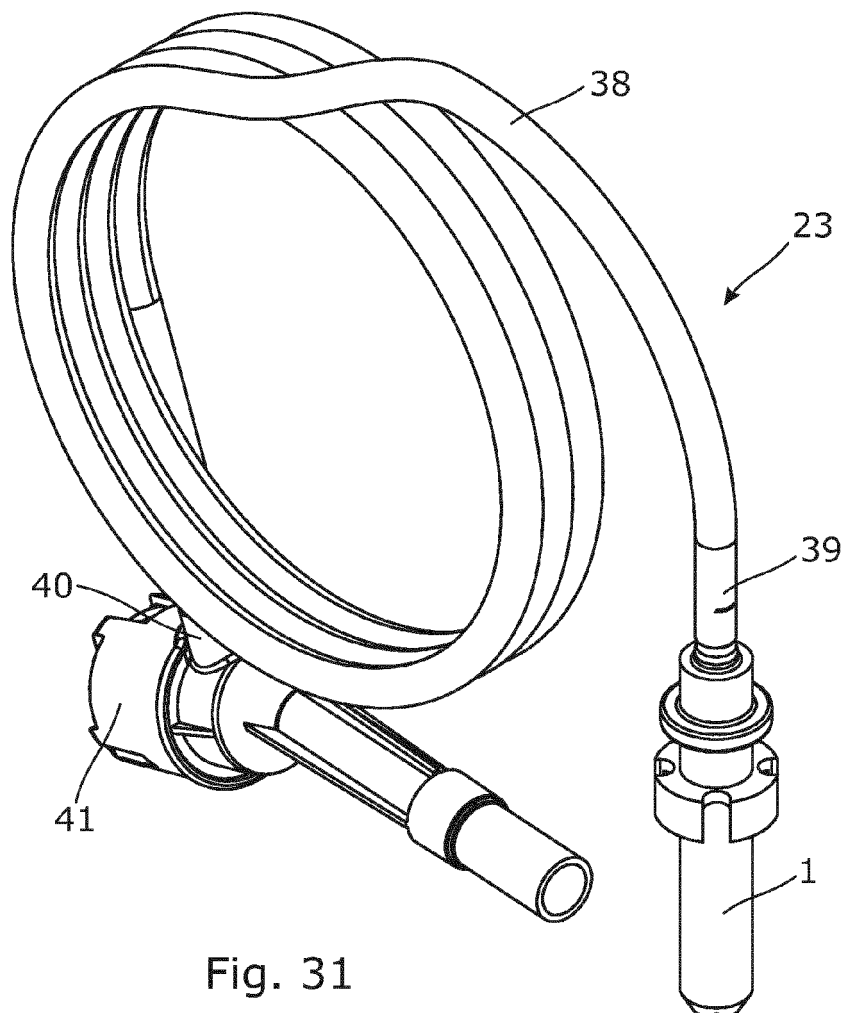


Fig. 31



EUROPEAN SEARCH REPORT

 Application Number
 EP 13 18 4337

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 6 February 2014	Examiner Schultz, Tom
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 13 18 4337

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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06-02-2014

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