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(54) **A DISPENSE HEAD**

(57) The present invention relates to a dispense head (1) to be mounted on a beverage container (35), enabling a beverage present in the beverage container to be dispensed via a dispensing line, the dispense head comprising an outer shell (2) having an axial extension (E), the outer shell comprising a first opening (3) configured to receive the dispensing line and a second opening (16) configured to receive a gas inlet, and an inner part (7) arranged inside the outer shell and configured to be movable in the axial extension from a first position to a second position in relation to the outer shell, the inner part having a first end (8) and a second end (9), the second end facing the beverage container, wherein the second end comprises a locking unit (10) configured to engage the beverage container in the second position, the inner part comprises a first locking member (11) and a second locking member (12), and the outer shell further comprises a third opening (13) and a fourth opening (14) for receiving the first and second locking members, respectively, in the second position. The present invention also relates to a beverage dispensing system comprising a beverage container.

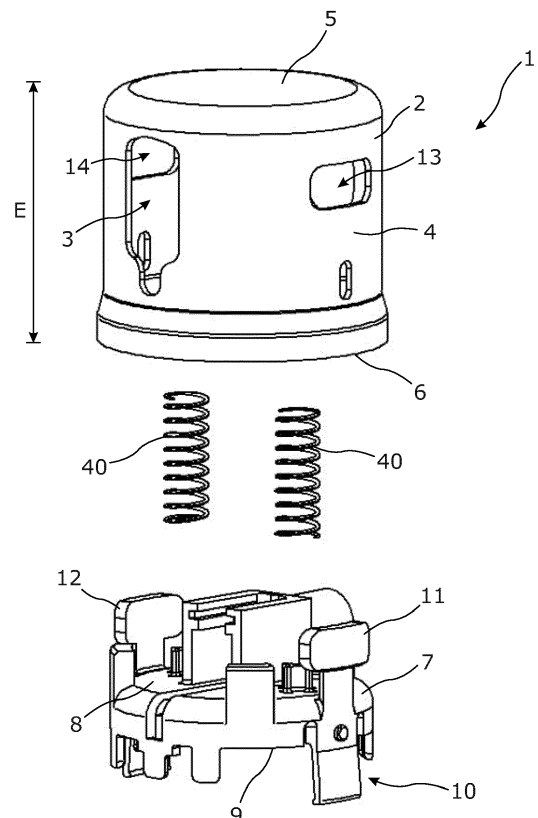


Fig. 1

Description

[0001] The present invention relates to a dispense head to be mounted on a beverage container, enabling a beverage present in the beverage container to be dispensed via a dispensing line.

[0002] The consumers are more aware of the dispensing of beverages, such as beer, due to the fact that beer consumers have become increasingly aware of the quality of the beer they drink, and they 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 accessible to more consumers, and beer dispensing devices are increasingly being installed in private homes, companies, sports facilities etc., where no trained personnel operate 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 beverages, such as beer, in a bar facility, it may sometimes be difficult for the personnel to clean the device properly, or it might just be emphasised in the daily routines.

[0007] 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 beverage container in an easy and expedient manner.

[0008] 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 an improved dispense head which is easy to use and to mount on a beverage container.

[0009] 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 dispense head to be mounted on a beverage container, enabling a beverage present in the beverage container

to be dispensed via a dispensing line, the dispense head comprising:

- an outer shell having an axial extension, the outer shell comprising a first opening configured to receive the dispensing line and a second opening configured to receive a gas inlet, and
- an inner part arranged inside the outer shell and configured to be movable in the axial extension from a first position to a second position in relation to the outer shell, the inner part having a first end and a second end, the second end facing the beverage container,

wherein the second end comprises a locking unit configured to engage the beverage container in the second position, the inner part comprises a first locking member and a second locking member, and the outer shell further comprises a third opening and a fourth opening for receiving the first and second locking members, respectively, in the second position.

[0010] By incorporating both the locking unit and the first locking member and second locking member in the dispense head an easy way to couple the dispense head to the beverage container is obtained while still ensuring a safe coupling of the dispense head to the beverage container during use.

[0011] Furthermore, the locking unit may comprise at least one flange configured to engage a groove arranged in the beverage container, the flange projecting radially inwards.

[0012] Additionally, the locking unit may comprise a plurality of first fingers arranged around a circumference of the inner part with a mutual distance between them, the fingers extending from the second end, each finger having a first free end part, the first free end part comprising the flange.

[0013] Moreover, the first locking member and the second locking member may each comprise a second finger extending in the axial extension from the first end, the second fingers having a second free end part, the second free end parts comprising a locking piece projecting radially outwards from the second free end part and being configured to engage the third opening and the fourth opening in the second position.

[0014] The inner part may also comprise a pressure activation nozzle in fluid communication with the gas inlet, the pressure activation nozzle being configured to let a gas into the beverage container.

[0015] Furthermore, the inner part may comprise a first guide configured to guide a part of the dispensing line so that it is positioned in the inner part.

[0016] Also, a distance may be defined between the first position and the second position of the inner part.

[0017] In addition, the first opening and the second opening may at least have an opening extension in the axial extension, the opening extension being equal to or larger than the distance.

[0018] One or more projection(s) may project radially from the inner part, the one or more projection(s) being configured to engage one or more receiving guide(s) arranged in the outer shell.

[0019] The receiving guides may be grooves or apertures having an extension in the axial extension so that the projection(s) is/are movable in the axial extension in the receiving guides.

[0020] Moreover, one or more springs may be arranged between a top part of the outer shell and the inner part, so that the one or more springs is/are being compressed when moving the inner part from the first position to the second position.

[0021] Additionally, the dispensing line may be brought into fluid communication with an inside of the beverage container in the second position.

[0022] Also, the inner part may comprise guide members configured to engage corresponding guide members on the beverage container, so that the dispense head may be guided to the intended position on the beverage container.

[0023] Furthermore, the outer shell may be made of a polymeric material or metal. The polymeric may for instance be polyoxymethylene (POM) or similar materials. When making the outer shell in a polymeric material, it may be injection moulded. The metal may for instance be stainless steel.

[0024] The inner part may also be made of a polymeric material. The polymeric material may for instance be polyoxymethylene (POM) or similar materials. When making the inner part in a polymeric material it may be injection moulded.

[0025] Moreover, a pressure relief valve may be arranged in connection with the gas inlet.

[0026] In addition, a shut-off valve may be arranged in connection with the pressure activation nozzle.

[0027] The inner part may have a support for the spring.

[0028] The invention also relates to a beverage dispensing system comprising a beverage container, on which a dispense head as described above is mounted, a dispensing line and a gas supply in fluid communication with the gas inlet.

[0029] 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 an exploded view of a dispense head according to the invention,

Figs. 2-4 show an outer shell of the dispense head,

Figs. 5-8 show an inner part of the dispense head,

Fig. 9 shows a cross-sectional view of the dispense head,

Figs. 10-13 show different views of the dispense head,

Fig. 14 shows, in a cross-sectional view, the dispense head with the inner part in the first position mounted on the beverage container,

Fig. 15 shows, in a cross-sectional view, the dispense head with the inner part in the second position mounted on the beverage container, and

Figs. 16-17 show the dispense head with a dispensing line mounted on a beverage container.

[0030] 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.

[0031] Fig. 1 shows a dispense head 1 according to the present invention in an exploded view. The dispense head 1 comprises an outer shell 2 having an axial extension E, the outer shell 2 comprising a first opening 3 configured to receive the dispensing line and a second opening (not shown) configured to receive a gas inlet. The outer shell 2 is, in this embodiment, shown with a tubular section 4, a closed end 5 and an open end 6.

[0032] The dispense head 1 also comprises an inner part 7 configured to be arranged inside the outer shell 2 and configured to be movable in the axial extension E from a first position to a second position in relation to the outer shell 2, the inner part 7 having a first end 8 and a second end 9, the second end facing the beverage container.

[0033] Furthermore, the second end 9 comprises a locking unit 10 configured to engage the beverage container in the second position, which will be further described later in connection with Figs. 14-15.

[0034] The inner part 7 also comprises a first locking member 11 and a second locking member 12, the outer shell 2 further comprising a third opening 13 and a fourth opening 14 for receiving the first and second locking members 11, 12, respectively, in the second position.

[0035] In this embodiment, two springs 40 are arranged between a top part, i.e. the closed end 5, of the outer shell 2 and the inner part 7, so that the two springs are being compressed when moving the inner part 7 from the first position to the second position.

[0036] Fig. 2 shows the outer shell 2 in a side view. In this side view the third opening 13 is shown. In addition, an aperture 15 is shown. The aperture 15 functions as a receiving guide for a projection of the inner part, so that it is ensured that the outer shell and the inner part are unable to rotate in relation to each other.

[0037] Fig. 3 shows the outer shell 2 in a perspective view. The first opening 3 is configured to receive a part of the dispensing line. Furthermore, the fourth opening 14 and the aperture 15 are shown.

[0038] In Fig. 4, another side view of the outer shell 2

is shown. From this view the second opening 16 is seen through the first opening 3, since the first opening 3 and the second opening, in this embodiment, are arranged opposite each other. In the same manner the third opening 13 and the fourth opening 14 are also arranged opposite each other. At present this design of the outer shell 2 is the preferred embodiment. However, different positions of the first to fourth openings are possible.

[0039] In Fig. 5, an inner part 7 of the dispense head is shown in a perspective view. The inner part has a gas inlet 17 configured to receive a gas line from a gas supply. In addition, the locking unit 10 comprises at least one flange 18 configured to engage a groove arranged in the beverage container, the flange projecting radially inwards.

[0040] In this embodiment, the locking unit 10 comprises a plurality of first fingers 19 arranged around a circumference of the inner part 7 with a mutual distance between them. In the present embodiment, the two first fingers 19 are arranged. However, in other embodiments, three or more fingers may be arranged. The first fingers 19 extend from the second end 9, each first finger 19 having a first free end part 20, the first free end part 20 comprising the flange 18.

[0041] The inner part 7 also comprises a first guide 21 configured to guide a part of the dispensing line, so that it is positioned in the inner part 7.

[0042] Figs. 6 and 7 show two different side views of the inner part 7. The first locking member 11 and the second locking member 12 each comprise a second finger 22 extending in the axial extension from the first end 8, the second fingers 22 having a second free end part 23, the second free end parts 23 comprising a locking piece 24 projecting radially outwards from second free end part 23 and being configured to engage the third opening and the fourth opening in the second position. From the first end 8, two supports 25 are projecting. These supports 25 are intended as supports for the springs.

[0043] Furthermore, which may be seen in Fig. 6, the first fingers 19 may bend slightly outwards, so that guidance of the dispense head towards the beverage container is facilitated

[0044] The inner part 7 also comprises a plurality of guides members 26 configured to engage corresponding guide members on the beverage container, so that the dispense head may be guided to the intended position on the beverage container.

[0045] In addition, two projections 27 project radially from the inner part 7, the projections 27 are configured to engage one or more receiving guides arranged in the outer shell.

[0046] Advantageously, as seen on Fig. 7, the locking piece 24 has a larger width than the second finger 22. Preferably, the locking piece 24 substantially has the same geometric form as the third and fourth openings of the outer shell.

[0047] In Fig. 8, the inner part 7 is shown in a top view.

The first guide 21 has a first guide unit 28 which may comprise two guide grooves, wherein the dispensing line may be guided and maintained when the dispense head is being mounted onto the beverage container. An additional guide groove 29 is arranged between the two guide grooves (not shown). Furthermore, the two supports 25 are shown.

[0048] Moreover, the locking pieces 24 project radially outwards from the second fingers, so that they project out from the inner part 7. This will be described further below.

[0049] Fig. 9 show a cross-sectional view of the dispense head 1. The inner part 7 comprises a pressure activation nozzle 30 in fluid communication with gas inlet 17, the pressure activation nozzle is configured to let a gas into the beverage container.

[0050] The spring 40 is extending between the inner part 7 and the outer shell 2.

[0051] Figs. 10-13 show different views of the dispense head 1. In Fig. 10, the dispense head 1 is shown in a perspective view. Fig. 11 shows a bottom view of the dispense head, wherein the pressure activation nozzle 30 is shown. In addition, the additional guide groove 29 is shown, which is configured to receive the part of the dispensing line which will be forced into contact with the interior of the beverage container in the second position of the inner part. In Fig. 12, the gas inlet 17 is shown through the second opening 16. The second opening has a larger extension, in the axial extension, than the gas inlet. Hereby it is ensured that the gas inlet 17 may move in relation to the outer shell 2. In Fig. 13, the receiving guide apertures 15 also have an extension in the axial extension, so that the projections 27 are movable in the axial extension in the receiving guides. In another embodiment, the receiving guides may be an internal groove in the outer shell.

[0052] Fig. 14 shows a cross-sectional view of the dispense head 1 mounted onto a beverage container 35. The beverage container 35 has a neck 36, wherein a plug 37 is arranged. Before the dispense head is mounted onto the beverage container, the dispensing line 38 is arranged in the dispense head 1 via the first opening. Hereinafter the dispense head is mounted onto the beverage container as shown in Fig. 14, so that the inner part 7 is in its first position. The locking unit 10, in the form of the first fingers 19, is engaging a groove 39 of the beverage container 35. Opposite the first fingers 19 and the outer shell 2, a minor space exists in the first position. Furthermore, the locking pieces 24 bend slightly inwards since they abut the inner face 42 of the outer shell 2.

[0053] In Fig. 15, the inner part 7 of the dispense head 1 is in its second position. Since the inner part 7 has been moved up in the outer shell 2, the outer shell 2 now partly abuts the first fingers, so that it locks the flanges in the groove. In addition, during the movement of the inner part 7 up into the outer shell 2, the springs 40 are being compressed. The locking pieces 24 are furthermore

moved up in a position where they are opposite the third and fourth openings, and thus they snap outwards to engage the third and fourth openings. Hereby the dispense head 1 is positioned and maintained on the beverage container and is ready for dispensing.

[0054] When the dispense head 1 is to be dismounted from the beverage container, the user simply presses on both locking pieces 24 at the same time, so that they disengage the third and fourth openings, whereby the compressed springs 40 ensure that the inner part 7 is brought into the first position in relation to the outer shell 2. Hereinafter the user may simply pull the dispense head upwards by means of little force, so that it disengages the beverage container.

[0055] As can be seen from Figs. 14 and 15, a distance is defined between the first position and the second position of the inner part 7. Therefore it is preferable that the first opening and the second opening at least have an opening extension being equal to or larger than the distance.

[0056] Furthermore, a shut-off valve may be arranged in connection with the pressure activation nozzle, so that it is ensured that gas pressure present in the beverage container will not escape out of the beverage container when the dispense head is mounted on the beverage container.

[0057] In Figs. 16 and 17, a part of the beverage dispensing system 100 is shown. The beverage dispensing system 100 comprises a beverage container 35, on which a dispense head 1 is mounted. In addition, the dispensing line 38 is arranged in the dispense head 1 and extends therefrom to a tapping head or tapping valve (not shown). The gas inlet 17 is in fluid communication with a gas supply (not shown).

[0058] A pressure relief valve 50 is arranged in connection with the gas inlet 17. The pressure relief valve is configured to, in one position, pressure-equalise a gas present in the beverage container with the environment before the dispense head is dismounted from the beverage container.

[0059] 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 dispense head (1) to be mounted on a beverage container (35), enabling a beverage present in the beverage container to be dispensed via a dispensing line, the dispense head comprising:

- an outer shell (2) having an axial extension (E), the outer shell comprising a first opening (3) configured to receive the dispensing line and a sec-

ond opening configured to receive a gas inlet, and

- an inner part (7) arranged inside the outer shell and configured to be movable in the axial extension from a first position to a second position in relation to the outer shell, the inner part having a first end (8) and a second end (9), the second end facing the beverage container,

wherein the second end comprises a locking unit (10) configured to engage the beverage container in the second position, the inner part comprises a first locking member (11) and a second locking member (12), and the outer shell further comprises a third opening (13) and a fourth opening (15) for receiving the first and second locking members, respectively, in the second position.

2. A dispense head according to claim 1, wherein the locking unit comprises at least one flange configured to engage a groove arranged in the beverage container, the flange projecting radially inwards.

3. A dispense head according to claim 2, wherein the locking unit comprises a plurality of first fingers arranged around a circumference of the inner part with a mutual distance between them, the fingers extending from the second end, each finger having a first free end part, the first free end part comprising the flange.

4. A dispense head according to any of the preceding claims, wherein the first locking member and the second locking member each comprise a second finger extending in the axial extension from the first end, the second fingers having a second free end part, the second free end parts comprising a locking piece projecting radially outwards from the second free end part and being configured to engage the third opening and the fourth opening in the second position.

5. A dispense head according to any of the preceding claims, wherein the inner part comprises a pressure activation nozzle in fluid communication with the gas inlet, the pressure activation nozzle being configured to let a gas into the beverage container.

6. A dispense head according to any of the preceding claims, wherein the inner part comprises a first guide configured to guide a part of the dispensing line so that it is positioned in the inner part.

7. A dispense head according to any of the preceding claims, wherein one or more projection(s) project(s) radially from the inner part, the one or more projection(s) being configured to engage one or more receiving guide(s) arranged in the outer shell.

8. A dispense head according to claim 7, wherein the receiving guides are grooves or apertures having an extension in the axial extension so that the projection(s) is/are movable in the axial extension in the receiving guides. 5
9. A dispense head according to any of the preceding claims, wherein one or more springs are arranged between a top part of the outer shell and the inner part, so that the one or more springs is/are being compressed when moving the inner part from the first position to the second position. 10
10. A dispense head according to any of the preceding claims, wherein the inner part comprises guides members configured to engage corresponding guide members on the beverage container, so that the dispense head may be guided to the intended position on the beverage container. 15
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11. A dispense head according to any of the preceding claims, wherein the outer shell is made of a polymeric material or metal.
12. A dispense head according to any of the preceding claims, wherein the inner part is made of a polymeric material. 25
13. A dispense head according to any of the preceding claims, wherein a pressure relief valve (50) is arranged in connection with the gas inlet. 30
14. A dispense head according to any of the preceding claims, wherein a shut-off valve is arranged in connection with the pressure activation nozzle. 35
15. A beverage dispensing system comprising a beverage container, on which a dispense head according to any of the preceding claims is mounted, a dispensing line, and a gas supply in fluid communication with the gas inlet. 40

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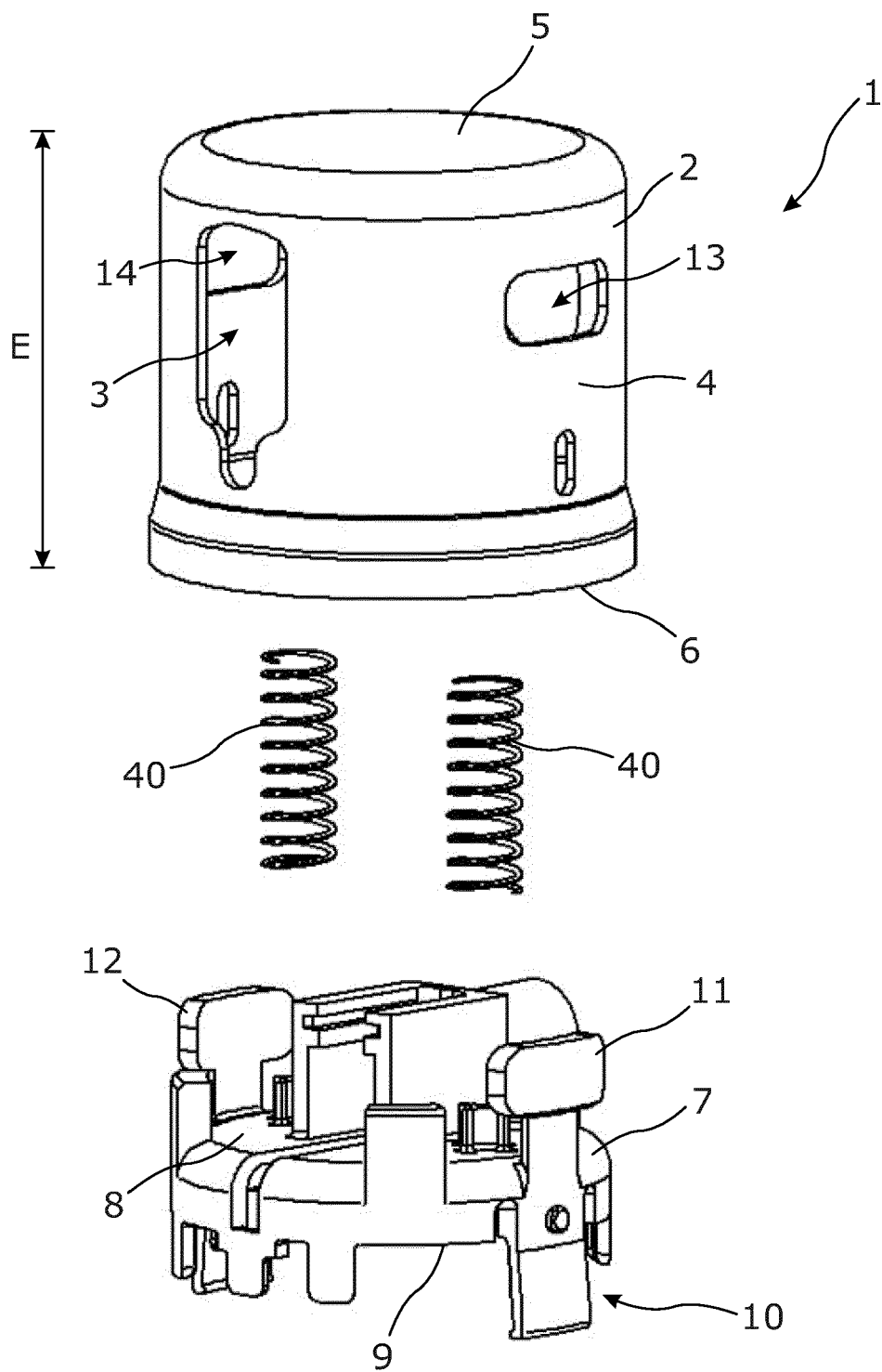


Fig. 1

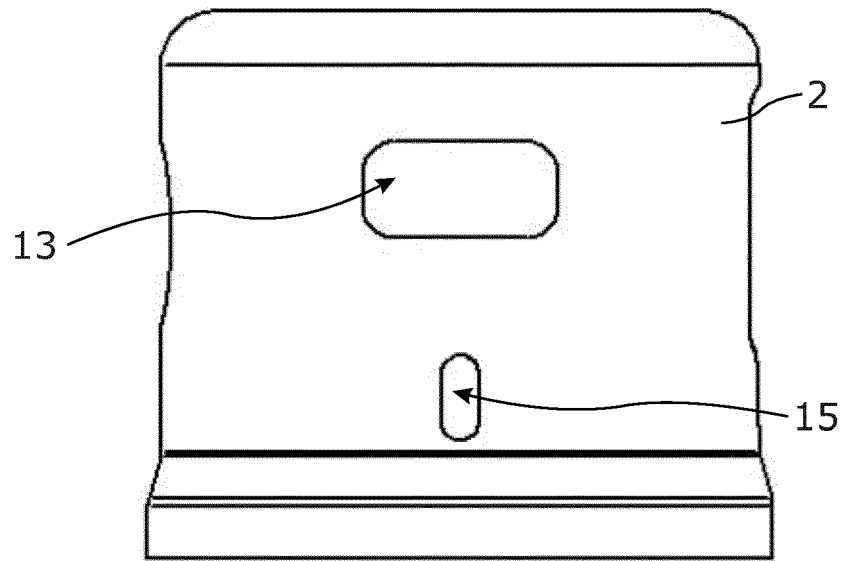


Fig. 2

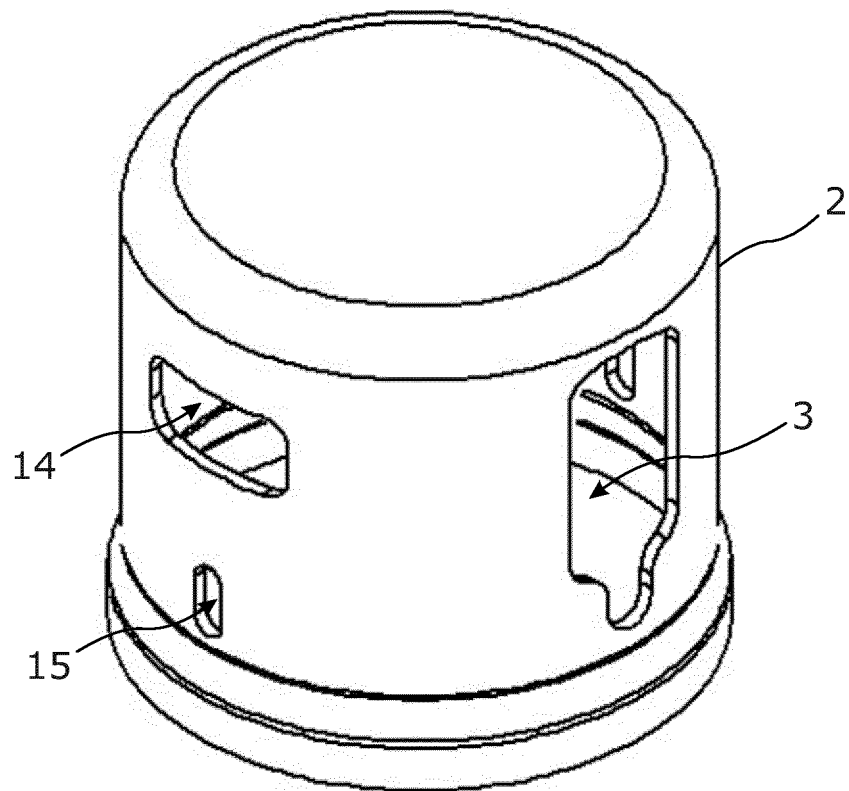


Fig. 3

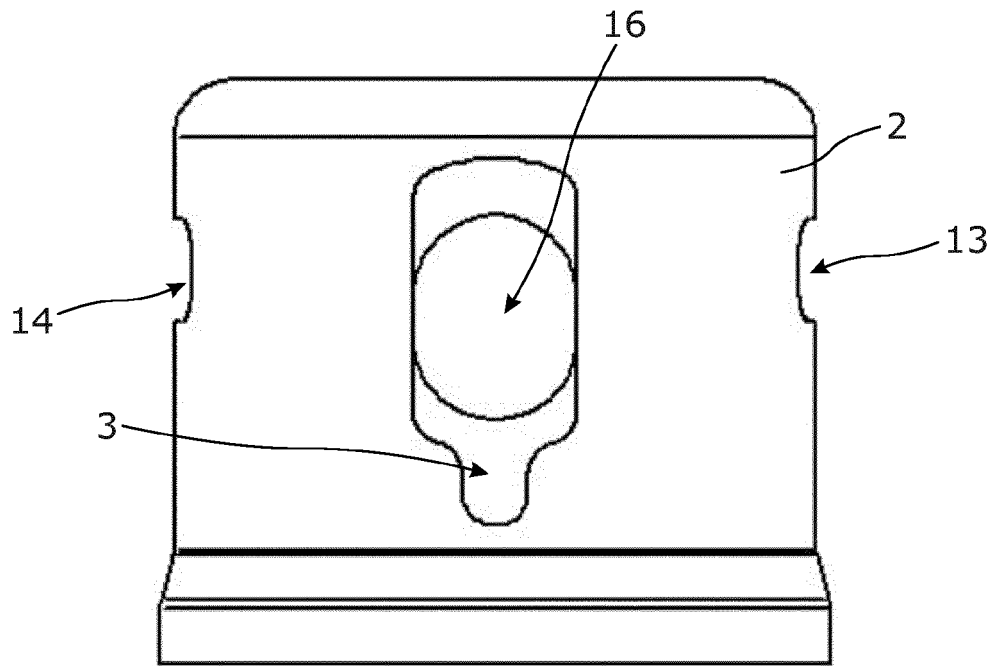


Fig. 4

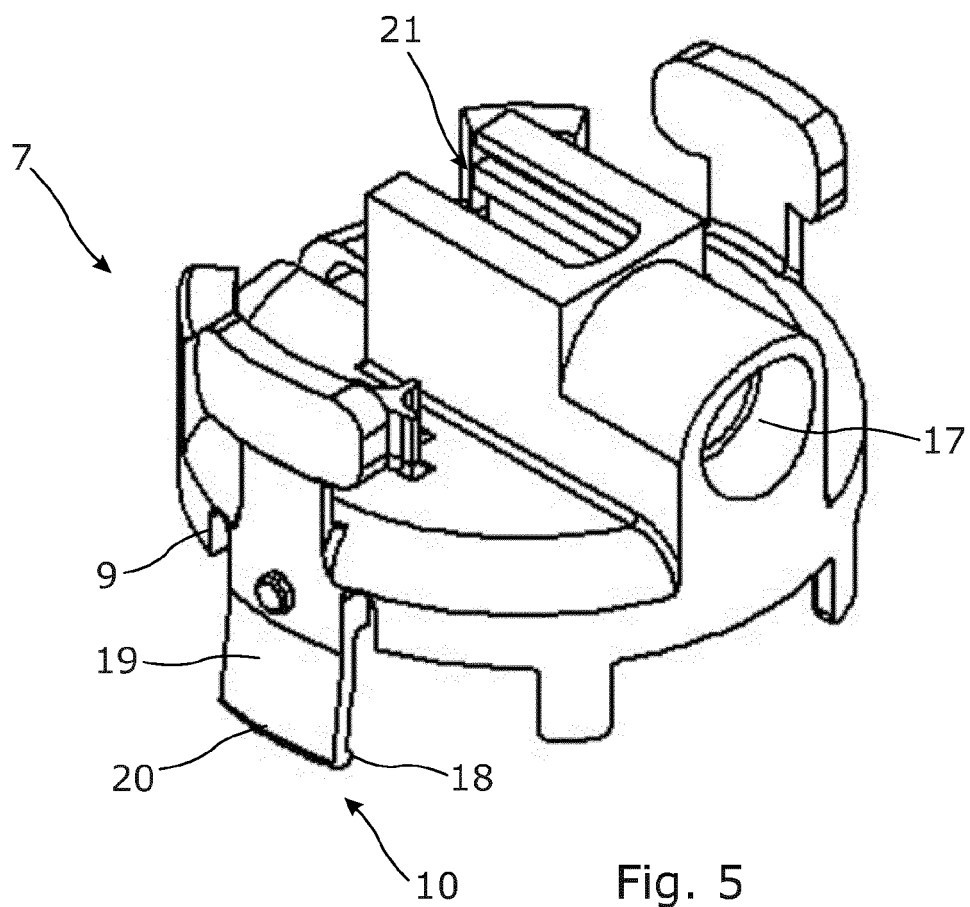
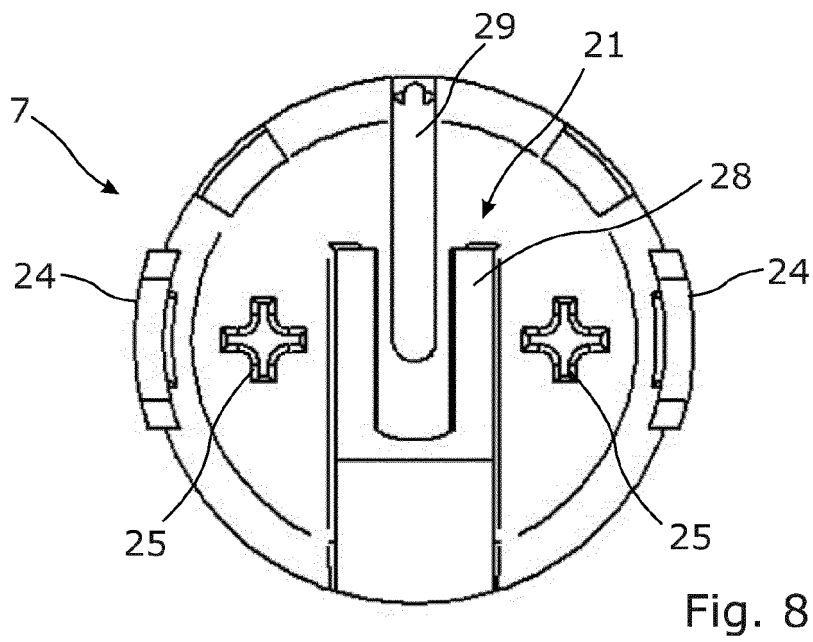
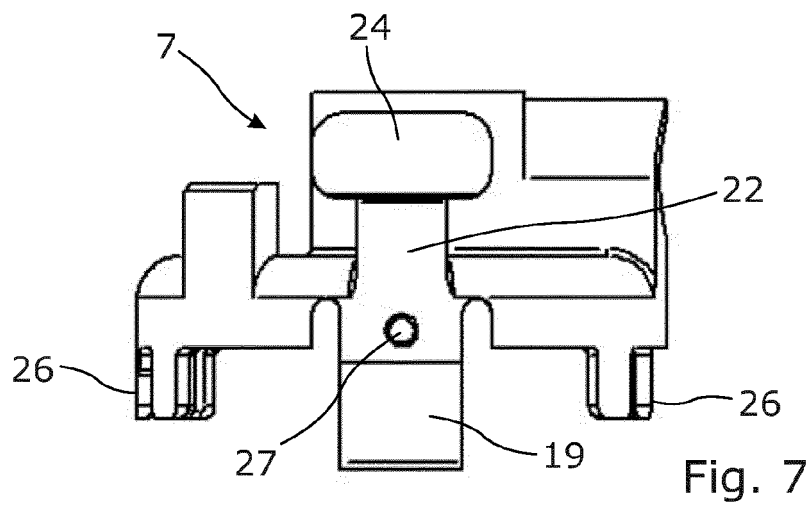
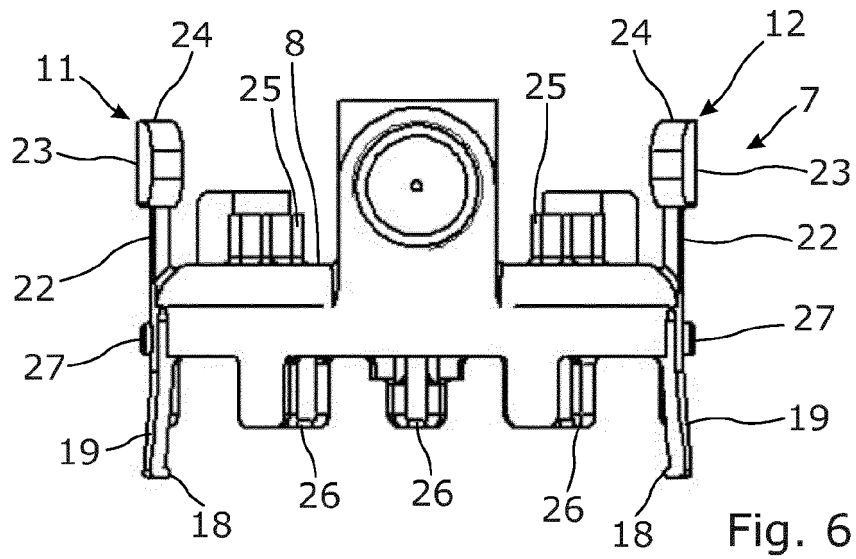


Fig. 5



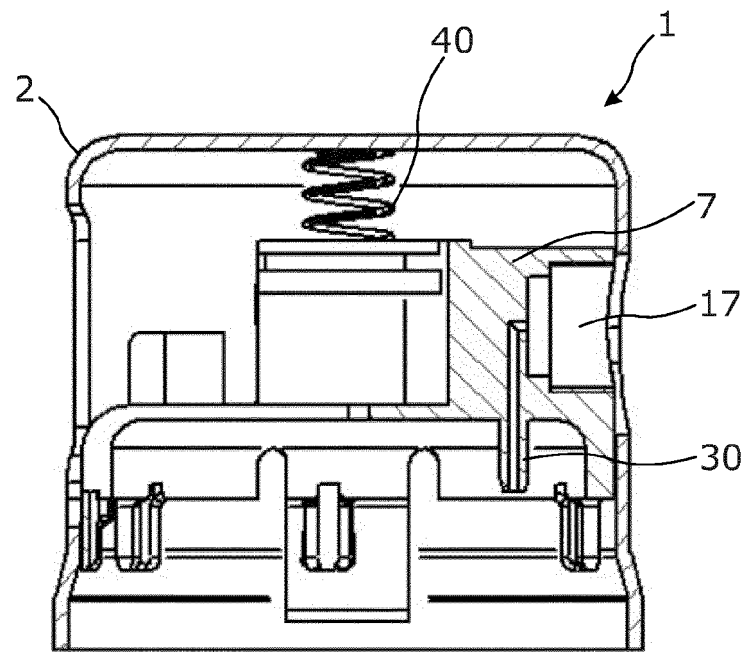


Fig. 9

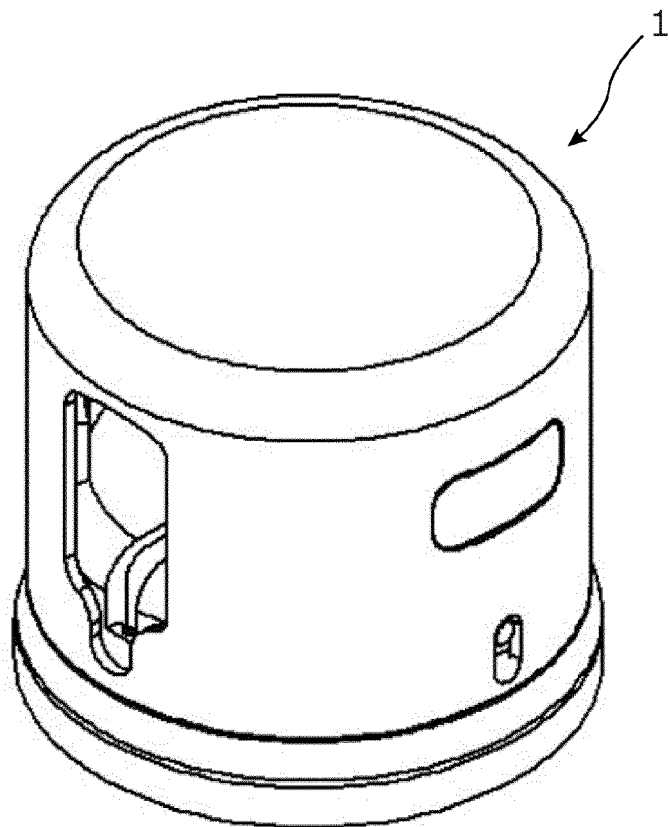


Fig. 10

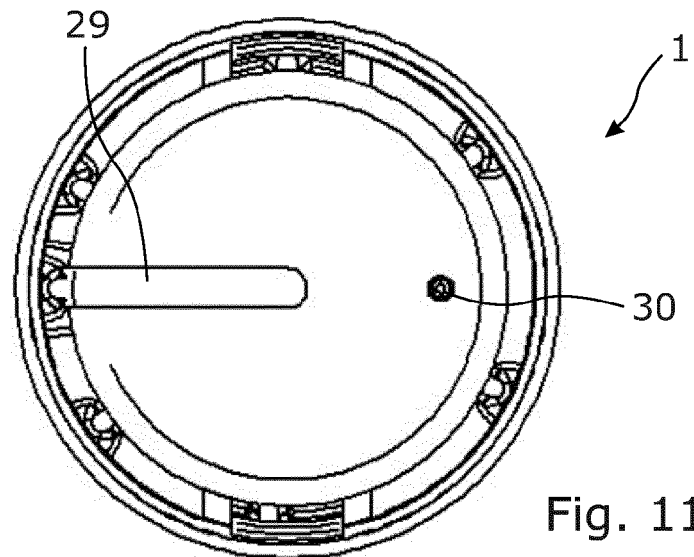


Fig. 11

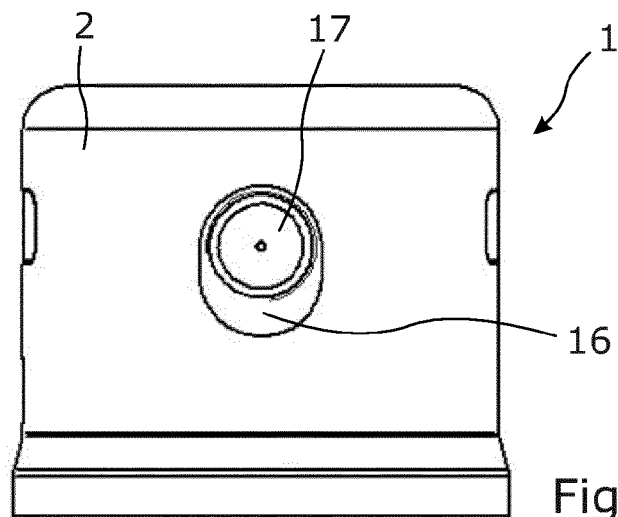


Fig. 12

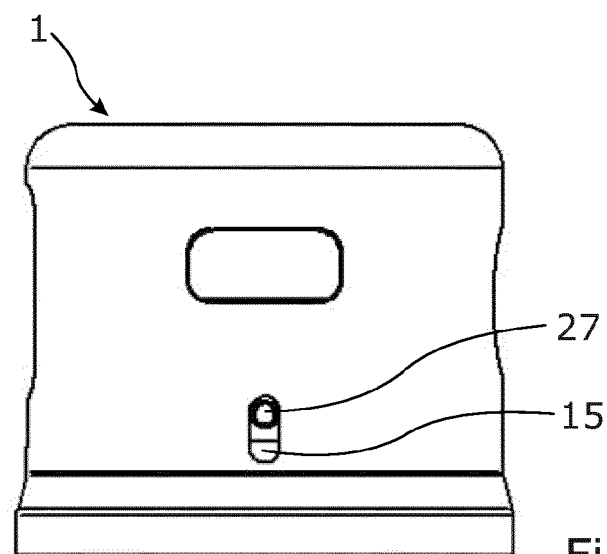


Fig. 13

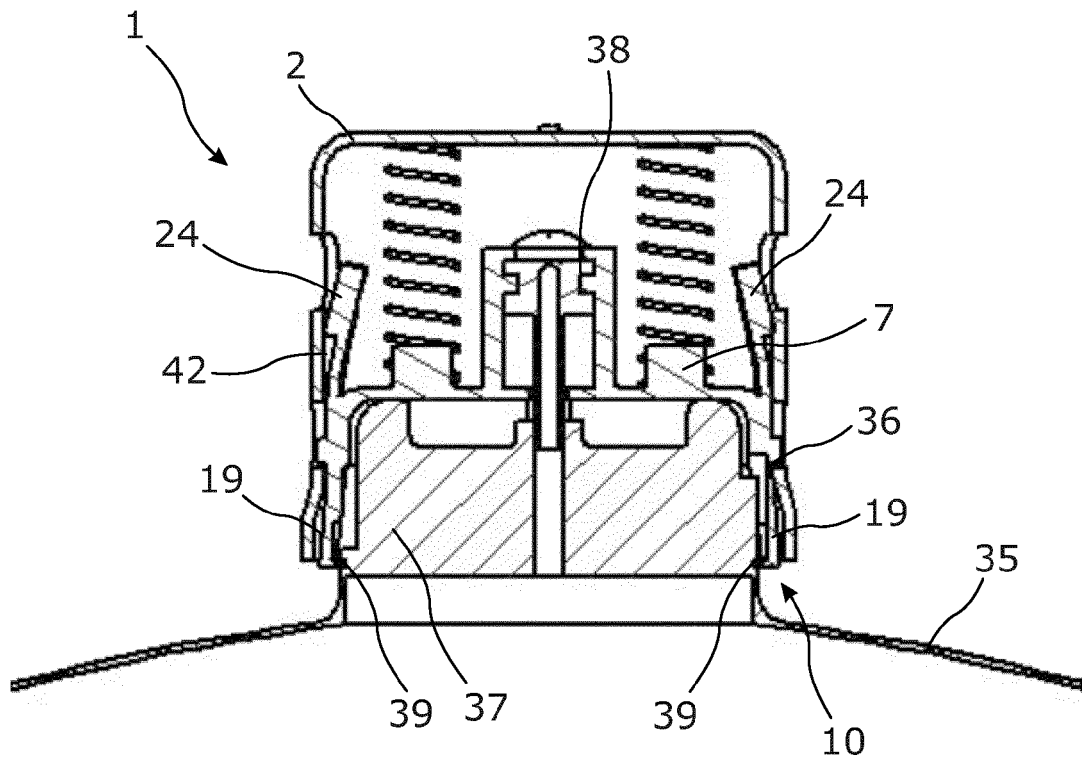


Fig. 14

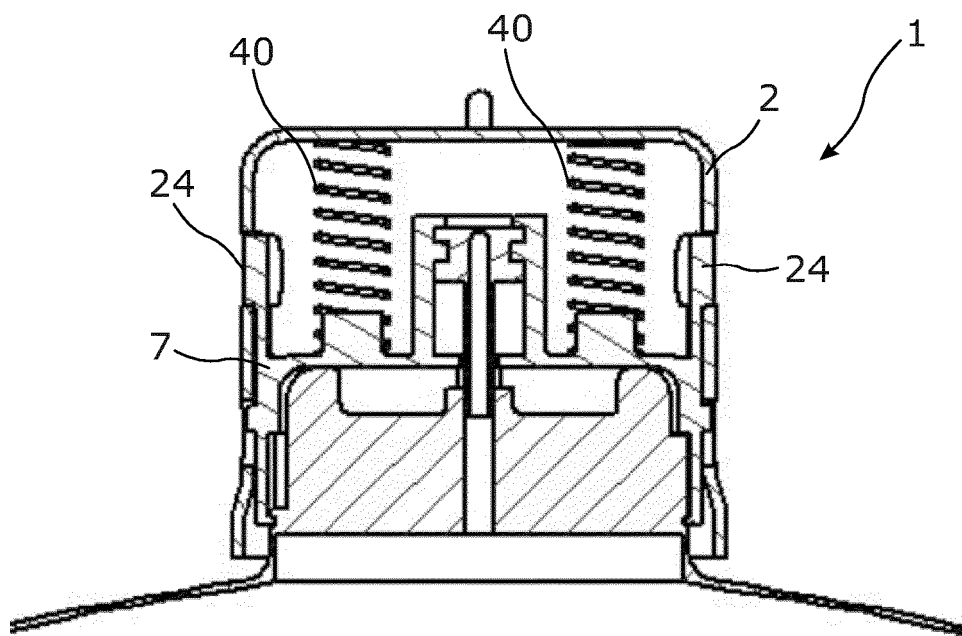


Fig. 15

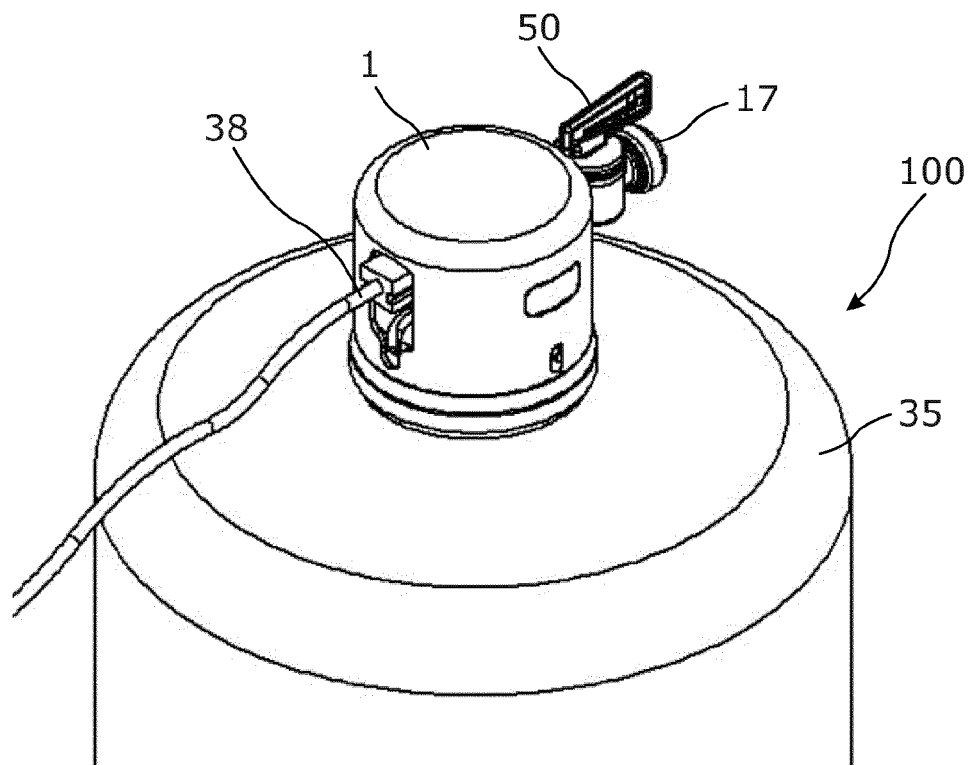


Fig. 16

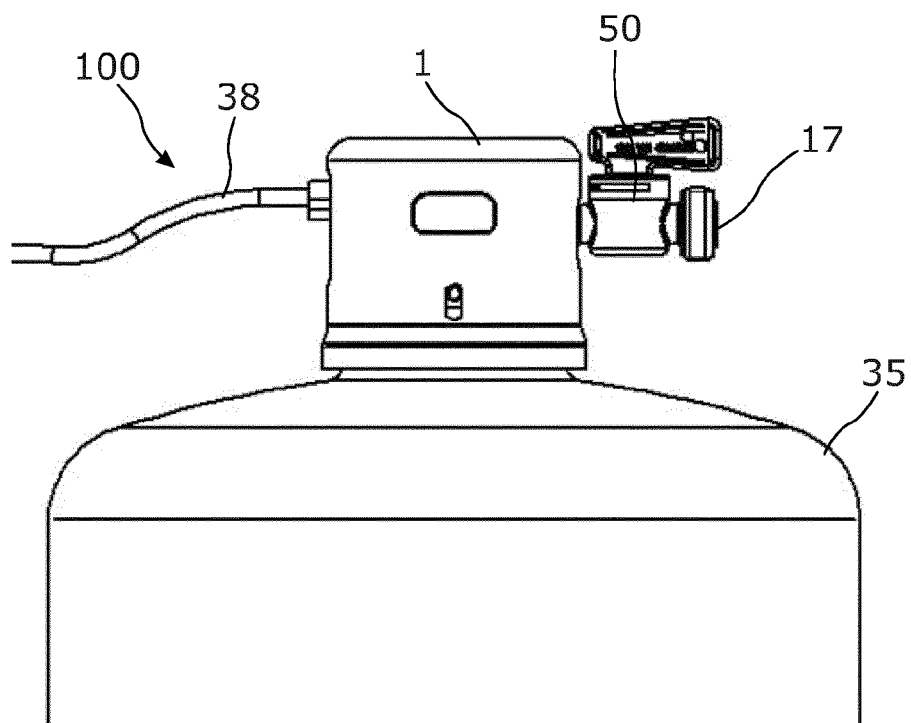


Fig. 17



EUROPEAN SEARCH REPORT

 Application Number
 EP 17 18 9803

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EPO FORM 1503 03.82 (P04C01)

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			TECHNICAL FIELDS SEARCHED (IPC)
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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 March 2018	Examiner Schultz, Tom
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 17 18 9803

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