(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 937 652 A1

# (12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
**25.08.1999 Bulletin 1999/34**

(51) Int. Cl.[6]: **B65D 47/24**, B65D 25/56

(21) Application number: **99200535.5**

(22) Date of filing: **24.02.1999**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE**
Designated Extension States:
**AL LT LV MK RO SI**

(30) Priority: **24.02.1998 NL 1008404**

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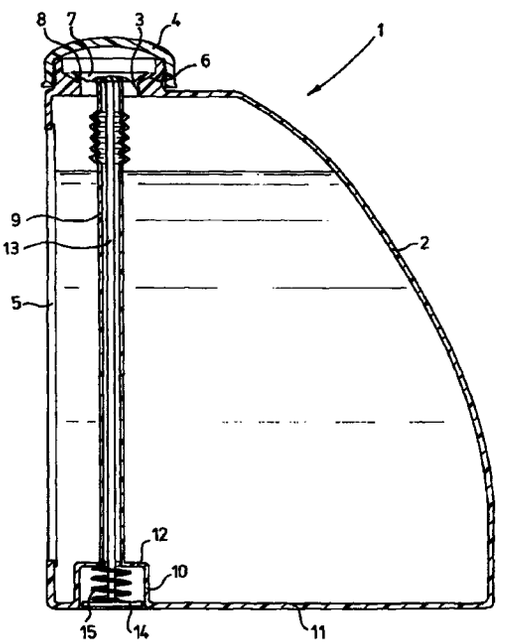
## (54) Container,in particular container for engine oil

(57) The invention relates to a container (1), in particular a container for engine oil, comprising: a pouring opening (3,63); a valve seat (6,66) which surrounds the pouring opening (3,63); a shut-off valve (7,67) which extends over the pouring opening (3,63) and the valve seat (6,66) and can bear against the valve seat (6,66) in order to close off the pouring opening (3,63); a system of push/pull rods (13,73), one end of which is attached to the shut-off valve (7,67) and the other end of which projects outside the container and is provided with a push-button (14,74); and a spring (15,75) which, with prestress, acts on the system of rods (13,73), in order to prestress the push-button (14,74) in the direction of the outside of the container (1) and the shut-off valve (7,67) in the direction of the valve seat (6,66). The container (1) may furthermore comprise a shaft (9) which extends through the inside of the container (1) and surrounds the system of rods (13,73). Preferably, the pouring opening (3,63) lies on the top side, the push-button (14,74) lies on the underside and the system of rods (13,73) comprises a single rod which extends from the shut-off valve (7,67) to the push-button (14,74).

Fig-1

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## Description

**[0001]** The invention relates to a container, in particular a container for engine oil, comprising:

- a container housing with a pouring opening;
- a valve seat which surrounds the pouring opening;
- a shut-off valve which extends over the pouring opening and the valve seat and is able to bear against the valve seat in order to close off the pouring opening; and
- a system of push/pull rods which extend between two ends and one end of which is attached to the shut-off valve and the other end of which is provided with a push-button which can be operated from outside the container.

**[0002]** A container of this nature is known from US-A-5,395,000. This publication discloses an engine oil container with a pouring opening in which a valve seat which surrounds the pouring opening is arranged. The pouring opening can be closed off by means of a shut-off valve which is arranged on one end of a plunger. The other end of the plunger projects out of the container and is provided with a push-button. The push-button end of the plunger lies in a depression formed in the bottom of the container. The plunger, together with shut-off valve and push-button, can be moved between two positions, namely a position in which it closes off the pouring opening and a position in which the pouring opening is open in order to allow pouring. In the closed position, the shut-off valve and the valve seat together form a snap-action connection. To open the pouring opening, the shut-off valve has to be retracted into the container. This is achieved by means of a lever which pivots about a pivot point. This lever can be moved to and fro between two positions which can be fixed and are limited by snap-action connection. To open the pouring opening, one end of the lever has to be pressed into the depression, so that the other end can engage beneath the push-button and the push-button can move out of the depression towards the interior of the container in order to retract the shut-off valve, which is attached thereto by means of the plunger, into the container. To allow the valve to be fixed in a position in which the pouring opening is open, the lever has to be pressed through into the bottom of the depression, where it can be locked by means of a snap-action connection. To close the pouring opening again, it is necessary to press on the push-button, in order to press the push-button back towards the inside of the container, into the depression, and thus to press the other end of the lever back down, so as to release the snap-action connection at one end of the lever, until the other end of the lever snaps into its snap-action connection, as do the valve and the valve seat. The drawback of this design is that moving the operating lever from one position to the other requires a certain level of force. When opening the valve, i.e. releasing the snap-action closure between valve and valve seat, this may result in shocks which, if the container is being held in the pouring position, with its pouring opening facing downwards, may lead to spillage. Furthermore, to close the pouring opening again, it is necessary to exert a certain level of force in order to release the valve from its open position in which it is fixed by means of the lever. In addition to the fact that this may also cause shocks and, if the holder is in its pouring position, may lead to spillage, a further significant drawback of this design is that it becomes awkward to extremely difficult to meter the liquid during pouring, since it is not readily possible to control the outlet size of the pouring opening and also it is not readily possible to close the pouring opening at a specific, desired moment.

**[0003]** Furthermore, US-A-5,193,719 also discloses a container for engine oil. This engine-oil container also has a shut-off valve which is able to close off a valve seat which surrounds the pouring opening. This shut-off valve, too, is attached to a plunger which, at its other end, is provided with a push-button which lies recessed in a depression in the bottom of the container. However, once this valve closure has been opened, it can no longer be closed. When the valve is opened, it can fall freely out of the container, or at any rate it is prevented from falling entirely out of the container by a retaining member in the form of a projecting arm which is formed on the plunger.

**[0004]** The object of the present invention is to provide a container, in particular an engine-oil container, with which the oil can be poured in an accurate, metered manner into the opening in the engine and which rules out the possibility of spillage altogether.

**[0005]** According to the invention, this object is achieved by the fact that the container furthermore comprises a spring which, with prestress, preferably compressive prestress, acts on, on the one hand, the system of rods and, on the other hand, the container housing, in order to prestress the push-button in the direction of the outside of the container and the shut-off valve in the direction of the valve seat.

**[0006]** The container according to the invention can be placed with its pouring opening very close to the filling opening of the engine without any oil being poured out via the pouring opening, and it is possible for the container to have its pouring opening facing downwards. This is possible because a shut-off valve is provided which, by means of a system of push/pull rods which is prestressed in the closure direction by a spring, holds the pouring opening closed until the push-button which is accessible from outside the container is depressed in order, via the system of rods, to lift the closure valve off the valve seat, so that liquid or any other substance contained in the container can flow out of the container via the pouring opening.

**[0007]** In this context, a system of push/pull rods is understood to mean a system of rods which is able to

transmit both a tensile load and a compressive load and is thus able to act in two directions. A system of rods of this nature may be composed of one or more rigid rods and/or one or more flexible rod-like bodies which, if appropriate, may follow a curved path and, in doing so, are able to transmit a tensile/compressive force in order to be able to operate the shut-off valve by means of the button.

**[0008]** In order to prevent any possibility of liquid substance contained in the container being able to leak in the area of the push-button, it is advantageous, according to the invention, if the container furthermore comprises a shaft which extends through the interior of the container, surrounds the system of rods and whose end which lies at the push-button end is attached in a sealed manner to the inner wall of the container, and whose other end lies in the area of the shut-off valve in order, when the valve is in its closed position, to adjoin the shut-off valve in a sealed manner. In this way, oil, for example, is prevented from being able to leave the container in the vicinity of the push-button via the system of rods, at least in the closed position of the shut-off valve in which it bears against the valve seat. The shaft may be provided, at its shut-off valve end, with a flexible material against which the shut-off valve seals in the closed position, in order also to reliably close off the shut-off valve end of the shaft in the closed position.

**[0009]** According to the invention, leakage of the liquid substance contained in the container via the push-button for operating the shut-off valve can be eliminated entirely if the other end of the shaft, i.e. the shut-off valve end of the shaft, is attached in a sealing manner to the valve, and if the shaft has a section which is flexible in the longitudinal direction of the said shaft and allows extension of the shaft. Then, when the push-button is pressed in, it will be possible for the shut-off valve to be pressed upwards from the valve seat by the system of rods, since the shaft is allowed to yield to a certain extent for this purpose. According to the invention the section of the shaft which is flexible in the longitudinal direction can be provided, in a simple and advantageous manner, by designing this section which is flexible in the longitudinal direction in the form of a concertina or bellows.

**[0010]** In order to prevent the push-button from being depressed unintentionally, for example as a result of a large number of containers according to the invention being stacked, it is advantageous, according to the invention, if the push-button is arranged recessed in a depression or recess formed in the container wall. Furthermore, it is also possible, in this way, to minimize the number of parts which project out of the container.

**[0011]** If the container is provided with a recess or depression in which the push-button is arranged, it is highly advantageous, in design terms, if the spring, for the purpose of prestressing the system of rods in the closure direction, is arranged in the said recess or depression, between the rear side of the push-button and the bottom of the recess.

**[0012]** According to an advantageous embodiment of the invention, the system of rods will comprise a single rod. This may be a straight, essentially rigid rod, but may also be a slightly flexible rod which is able to transmit compressive and tensile forces along a curved path. By designing the system of rods with only a single rod, the number of components required is limited and the reliability of its action is increased, since the number of moving parts is kept to a minimum. According to an advantageous embodiment of the invention, the pouring opening is arranged on one side, preferably the top side, of the container, and the push-button is arranged on an opposite side, preferably the underside, and the system of rods comprises a single rod which extends from the shut-off valve to the push-button. In this way, the pouring opening of the container can be moved to the desired pouring location, in which position the push-button for actuating the shut-off valve is then situated on a side of the container which is remote from the pouring opening and is readily accessible. A further advantage is that in this case the system of push/pull rods can be designed in the form of a single straight rod, making the transmission of the compressive force exerted on the push-button for actuation purposes efficient and reliable.

**[0013]** In order to improve the sealing of the shut-off valve on the valve seat, it is advantageous, according to the invention, if an O-ring made from a material which is suitable for such sealing purposes, such as for example a flexible, elastic material, is provided in the mutually overlapping area of valve seat and shut-off valve, so that when the O-ring, in the closed position of the shut-off valve, is compressed under the influence of the prestressing spring, a reliable seal is obtained.

**[0014]** In order, when liquid substance is being poured out of the container, to be able to observe how much liquid substance has been poured out or how much liquid substance remains inside the container, it is advantageous, according to the invention, if the container is provided with a level-indicating window which extends in the vertical direction and has a scale, the scale being presented upside-down, in such a manner that it can be read when the container is positioned upside-down. It is thus possible to meter specific volumes when pouring. In this case, it will be particularly advantageous, according to the invention, if the scale provides an indication of the fill level and is designed in such a manner that the empty indication is situated at the top and the fill-level indicators are arranged so as to increase in value from the top downwards, top and bottom being as seen in the upright position of the container with the pouring opening on its top side or in the region of its top side.

**[0015]** In order to be able to prevent any leakage from the container during storage, it is advantageous, according to the invention, if the pouring opening can be closed from the outside by means of a cap, such as a screw cap, a bayonet-closure cap or a clamp-on cap. In

order, in the closed position, to ensure that the shut-off valve is suitably sealed against the valve seat, it is in this case advantageous, according to the invention, if with the valve-seat face directed towards the outside of the container, the valve is provided, on its outwardly facing side, with a pressure support, via which the cap, in its screwed-closed position, presses the shut-off valve onto the valve seat in a sealed manner.

**[0016]** In order, in the case where the valve-seat face of the valve seat is directed towards the outside of the container, to prevent there being any possibility of contents leaking out before the push-button is actuated under the influence of the pressure exerted on the valve by the contents present in the container, it is advantageous, according to the invention, if the prestress of the spring is such that, when the container is completely full and the pouring opening faces downwards, it can hold the shut-off valve in the sealed position on the valve seat.

**[0017]** According to the invention, a push-button which is guaranteed to be leak-free and movable can be achieved in an advantageous manner by forming the push-button, via an adjoining sealed, bellows-like section, on the container housing, the push-button and the bellows-like section preferably being recessed in a depression or recess formed in the container wall. Such a push-button and bellows-like connection between push-button and container housing can be provided, together with the container housing, as an injection-moulded product if the container is made from plastic.

**[0018]** According to the invention, an easy-to-assemble container is obtained if the system of rods extends through a spring support element in such a manner that they can move with respect to one another, via which spring support element the spring acts with prestress on the container housing, and if the spring support element is attached to the container housing by means of a snap-action connection, the snap action of which works in the opposite direction from the direction in which the spring prestress acts. The spring support element will in this case advantageously be a sleeve which surrounds a section of the spring, which sleeve is provided with passages which connect the inside of the sleeve to the inside of the container. A spring support element of this nature, which may be in the form of a sleeve, given suitably selected dimensions, can be fitted into the container via the pouring opening, by means of the system of rods, and can be connected to the container housing under the pressure of the prestressing spring, by means of the snap-action connection. It will be clear that in this context suitable dimensions of the spring support element are understood to mean dimensions which will preferably be slightly smaller than those of the passage of the pouring opening.

**[0019]** According to the invention, it is particularly advantageous if the spring acts on the system of rods by being attached thereto or by being supported, under the influence of its prestress, on a dish attached to the system of rods, which dish is then preferably attached to the other end of the system of rods and is accommodated in the bellows-like section, so that its side which is remote from the spring can act on the push-button.

**[0020]** The present invention will be explained in more detail below with reference to a number of exemplary embodiments which are illustrated in the drawing, in which:

Figure 1 shows a vertical (longitudinal) sectional view through an engine-oil container according to a preferred embodiment of the invention;
Figure 2 shows a cross-sectional view of a detail of an engine-oil container according to a first variant embodiment;
Figure 3 shows a cross-sectional view of a detail of a second variant embodiment of an engine-oil container according to the invention;
Figure 4 shows a cross-sectional view of a detail of a third variant embodiment of an engine-oil container according to the invention; and
Figure 5 shows a diagrammatic, cross-sectional view of a detail of a preferred fourth variant embodiment of an engine-oil container according to the invention, Figure 5a showing the closed position and Figure 5b showing an open position.

**[0021]** Figure 1 shows an engine-oil container 1 comprising a container housing 2 with a pouring opening 3 on the top side, which opening can be closed off via a screw cap 4. A vertical level-indicator window 5, which is provided with a scale, is arranged on the side, so that the user can check from the outside how much engine oil remains in the container. What has been described so far with reference to Figure 1 is in itself nothing other than a conventional engine-oil container which has long been known.

**[0022]** However, according to the invention a valve seat 6, which comprises a ring segment of a cone, is provided around the pouring opening 3. According to the invention, a shut-off valve 7, which extends over the entire pouring opening 3 and at least a section of the valve seat 6, is also provided. This shut-off valve 7 is able to close onto the valve seat 6, thus preventing engine oil from flowing out via the pouring opening 3. In order to improve the sealing of the shut-off valve 7 on the valve seat 6, the shut-off valve 7 is provided with a rubber O-ring.

**[0023]** The shut-off valve 7 is provided, on its underside, with a shaft 9 which is securely connected thereto and extends from the shut-off valve 7 all the way down to a depression or recess 10 formed in the bottom 11 of the housing 2, where the shaft 9 is securely connected to the bottom 12 of the recess 10. A rod 13, which is entirely closed off from the inside of the container 1 by the shaft 9, extends through the shaft 9. At its top end, the rod 13 is securely connected to the shut-off valve 7, and at its bottom end, which projects out of the interior

of the container 1, the rod is provided with a push-button 14. The push-button 14 is entirely recessed in the recess 10, in order to prevent push-button 14 from being depressed when the container is standing on its base 11. Furthermore, a prestressing spring 15, which is supported with compressive prestress on, on the one hand, the bottom 12 of the recess 10 and, on the other hand, the rear side, which is not accessible for actuation purposes, of push-button 14, is arranged in the recess 10.

**[0024]** Prestressed spring 15 ensures that a tensile force acts on rod 13, which force presses the shut-off valve 7 against the valve seat 6, in order to ensure satisfactory sealing. It will therefore be clear that when the push-button 14 is pushed, for example by means of a digit, such as the thumb, the shut-off valve 7 comes off the valve seat 6, in order in this way to open the pouring opening 3. This removal of the shut-off valve 7 is in this case facilitated in particular by the fact that the shaft 9 is provided with a concertina-like or bellows-like section 16 which allows axial extension of the shaft 9.

**[0025]** It will be clear that the container, which is illustrated in an upright position in Figure 1, after the screw cap 4 has been removed, can be placed upside-down, with its pouring opening in the filling mouth or filling opening of an engine block. All this is done while the pouring opening 3 is still closed off by the shut-off valve 7. Then, a thumb, for example, can be used to depress the push-button 14, which in the inverted position of the container will lie on the top side. Then, using the level-indicator window 5, it is possible, during pouring, to monitor the level of liquid in the container 1. It will be clear that it is advantageous in this case if the level-indicator window 5 is provided with a measurement scale, for example in per cent, which starting from the position illustrated in Figure 1 increases from the top downwards. This means that, from the top downwards, the first measuring mark will show 10%, followed by a measuring mark showing 20%, followed by 30%, etc., up to 100%.

**[0026]** Figures 2, 3 and 4 show cross-sectional views of a number of variant embodiments, i.e. details of the container according to the invention, in which only the pouring opening, the shut-off valve, the system of rods, the push-button and the prestressing spring are shown.

**[0027]** Figure 2 shows a system with a shut-off valve 21, a valve seat 22, a push-button 23 which is recessed in a recess 24, a spring 25 and a system of rods which comprises a rod 26 which is pivotably connected to a rod 27, which is in turn pivotably connected to a rod 29, rod 27 being arranged so as to pivot about hinge 28, so as to act as a lever. It will be clear that in the case of a system of rods of this nature valve 21 is lifted off valve seat 22 when button 23 is pressed. Figure 2 also shows fixing arms 30, by means of which shaft 31 is fixed to the housing 34 in the vicinity of the pouring opening 32.

**[0028]** Figure 3 diagrammatically shows a variant embodiment which, with regard to design, to a large extent corresponds to Figure 2. For this reason, the components are provided with the same numbers in Figure 3 as in Figure 2. However, the difference between the embodiment in accordance with Figure 3 and the embodiment in accordance with Figure 2 is that when button 23 is pressed, in the embodiment in accordance with Figure 3 the valve is not pushed upwards, but rather is pulled downwards.

**[0029]** Figure 4 shows a further variant embodiment of a container according to the invention. The embodiment in accordance with Figure 4 shows a housing 44 provided with a pouring opening 45. The pouring opening 45 can be closed off by means of an assembly comprising valve seat 42 and shut-off valve 41. Via a flexible push/pull rod 46, which can be guided along a curve, the valve 41 is connected to button 48. Button 48 is again prestressed in the closure direction of the valve 41 by means of a spring 47. The shaft 43 is fixed with respect to the pouring opening 45 by means of arms 50. The axial length of the shaft 43 can be extended by means of a bellows 51.

**[0030]** Figure 5 shows an embodiment of the invention which is preferred for reasons of assembly technology, or in other words a fourth variant of the invention. Figure 5a shows, at least in diagrammatic detail, the closed position, and Figure 5b shows an open position. In Figure 5, components which correspond to the embodiment in accordance with Figure 1 are provided with corresponding reference numerals which have been increased by 60. Thus, 62 denotes the wall of the container housing, 63 denotes the outlet passage, 64 denotes the closure cap, 66 denotes the valve seat, 67 denotes the shut-off valve, 70 denotes the depression formed in the base 71 of the container, 72 denotes a so-called spring support element, which is to be described in more detail and in functional terms corresponds to the bottom 12 of the depression shown in Figure 1, 73 denotes the system of rods or the plunger connecting the shut-off valve and the push-button, 74 denotes the push-button and 75 denotes the prestressing spring.

**[0031]** As an addition to the embodiment in accordance with Figure 1, a raised circular edge 82 is formed on the top side of the shut-off valve 67. This raised circular edge 82 ensures that when the screw cap 64 is screwed on, the shut-off valve 67 is pressed firmly against the valve seat 66, in order to ensure sealing. An image, such as a name or logo of an oil company, may be arranged inside the circular ring 82, in or on surface 83.

**[0032]** The embodiment shown in Figure 5 is highly advantageous in particular with regard to assembly. The push-button 74 is formed as a single unit with a bellows-like member 81 which, in turn, is formed as a single unit with the base at the deep part of the depression 70. The push-button 74 and the bellows-like part 81 thus delimit a space which is entirely closed off from the outside of the container. There is thus no possibility of leakage. Suitable dimensioning ensures that the push-button 74 is recessed in the depression 70 in both the closed and

the open position of the shut-off valve, i.e. at all times. The major assembly advantage of the embodiment in accordance with Figure 5 is achieved, in particular, by the special design of the so-called spring support element 72. Via this spring support element 72, the prestressing spring 75 sets itself against the container housing 62. This spring support element 72 is attached to the container housing by means of a snap-action connection 79, 80 (79 is a snap-action projection formed on the spring support element 72, and 80 is a snap-action projection formed on the container housing). Since the spring 75 is under compressive prestress, the snap-action connection 79, 80 merely has to lock so that the spring support element 72, on the one hand, and the push-button end of the system of rods 73 or the push-button 74, on the other hand, cannot move apart. Thus the plunger 73, after the spring support element 72 and the spring 75 have been arranged thereon, can be fitted into the container, via the pouring opening 63, until the snap-action connection 79, 80 is brought about as the spring 75 is compressed and therefore the spring prestress is built up. In order also to be able to set the spring against the system of rods 73, it is important that that end of the spring which is remote from the spring support element 72 is fixed to the system of rods 73, or at least can be supported against this system of rods. This support for the spring 75 on the plunger 73 is achieved by providing the push-button end of the plunger 73 with a disk 76 which is fixed to this plunger by welding, fusion, screwing or in some other way. In order to make it possible to bring about the snap-action connection 79, 80 without inserting further accessories into the container, it is advantageous if the plunger 73 is provided with a stop 77, via which stop 77 the spring support element 72 can be pressed in the direction of snap action.

**[0033]** In order to ensure that when the push-button 74, which bears loosely against the disk 76, is depressed, any liquid or other container contents present in the space delimited by the push-button 74 and the bellows-like part 81 can escape from this space, it is advantageous if the spring support element 72 is provided with holes 78 which create a connection between the inside of the container, on the one hand, and the space delimited by push-button 74 and bellows-like part 81, on the other hand.

**[0034]** In order to be able to provide the spring with a certain active travel, it is advantageous, according to the invention, if the spring support element 72 is designed as a sleeve.

**[0035]** It will be clear that, although the invention has been explained with reference to a container for engine oil, the container according to the invention is not limited only to containers for engine oil. The container according to the invention may also be used for other liquid substances or substances which are able to flow.

## Claims

1. Container (1), in particular container for engine oil, comprising:

   - a container housing (2, 62) with a pouring opening (3, 63);
   - a valve seat (6, 66) which surrounds the pouring opening (3, 63);
   - a shut-off valve (7, 67) which extends over the pouring opening (3, 63) and the valve seat (6, 66) and is able to bear against the valve seat (6, 66) in order to close off the pouring opening (3, 63); and
   - a system of push/pull rods (13, 73) which extend between two ends and one end of which is attached to the shut-off valve (7, 67) and the other end of which is provided with a push-button (14, 74), which can be operated from outside the container;

   characterized in that the container (1) furthermore comprises a spring (15, 75) which, with prestress, preferably compressive prestress, acts on, on the one hand, the system of rods (13, 73) and, on the other hand, the container housing (2, 62), in order to prestress the push-button (14, 74) in the direction of the outside of the container (1) and the shut-off valve (7, 67) in the direction of the valve seat (6, 66).

2. Container according to Claim 1, characterized in that the container furthermore comprises a shaft which extends through the interior of the container, surrounds the system of rods and whose end which lies at the push-button end is attached in a sealed manner to the inner wall of the container, and whose other end lies in the area of the shut-off valve, in order, when the valve is in its closed position, to adjoin the shut-off valve in a sealed manner.

3. Container according to Claim 2, characterized in that the other end of the shaft is attached, in a sealed manner, to the valve, and in that the shaft has a section which is flexible in the longitudinal direction of the said shaft and allows extension of the shaft.

4. Container according to Claim 3, characterized in that the section of the shaft which is flexible in the longitudinal direction is designed in the form of a concertina or bellows.

5. Container according to one of the preceding claims, characterized in that the push-button is arranged recessed in a depression or recess formed in the container wall.

6. Container according to Claim 5, characterized in that the spring is arranged in the said recess or depression, between the rear side of the push-button and the bottom of the recess or depression.

7. Container according to one of the preceding claims, characterized in that the system of rods comprises a single rod.

8. Container according to one of the preceding claims, characterized in that the pouring opening is arranged on one side, preferably the top side, of the container, and in that the push-button is arranged on an opposite side, preferably the underside, and in that the system of rods comprises a single rod which extends from the shut-off valve to the push-button.

9. Container according to one of the preceding claims, characterized in that the valve seat or the shut-off valve is provided, in the mutually overlapping area, with an O-ring which is preferably made from an elastically resilient material.

10. Container according to one of the preceding claims, characterized in that it is provided with a level-indicating window which extends in the vertical direction and has a scale, the scale being presented upside-down, in such a manner that it can be read when the container is positioned upside-down.

11. Container according to Claim 10, characterized in that the scale provides an indication of the fill level and is designed in such a manner that the empty indication is situated at the top and the fill-level indicators are arranged so as to increase in value from the top downwards, top and bottom being as seen in the upright position.

12. Container according to one of the preceding claims, characterized in that the pouring opening can be closed from the outside by means of a cap, such as a screw cap, a bayonet-closure cap or a clamp-on cap, in which case, if the valve-seat face is directed towards the outside of the container, the valve is preferably provided on its outwardly facing side with a pressure support, via which the cap, in its screwed-closed position, presses the valve onto the valve seat in a sealed manner.

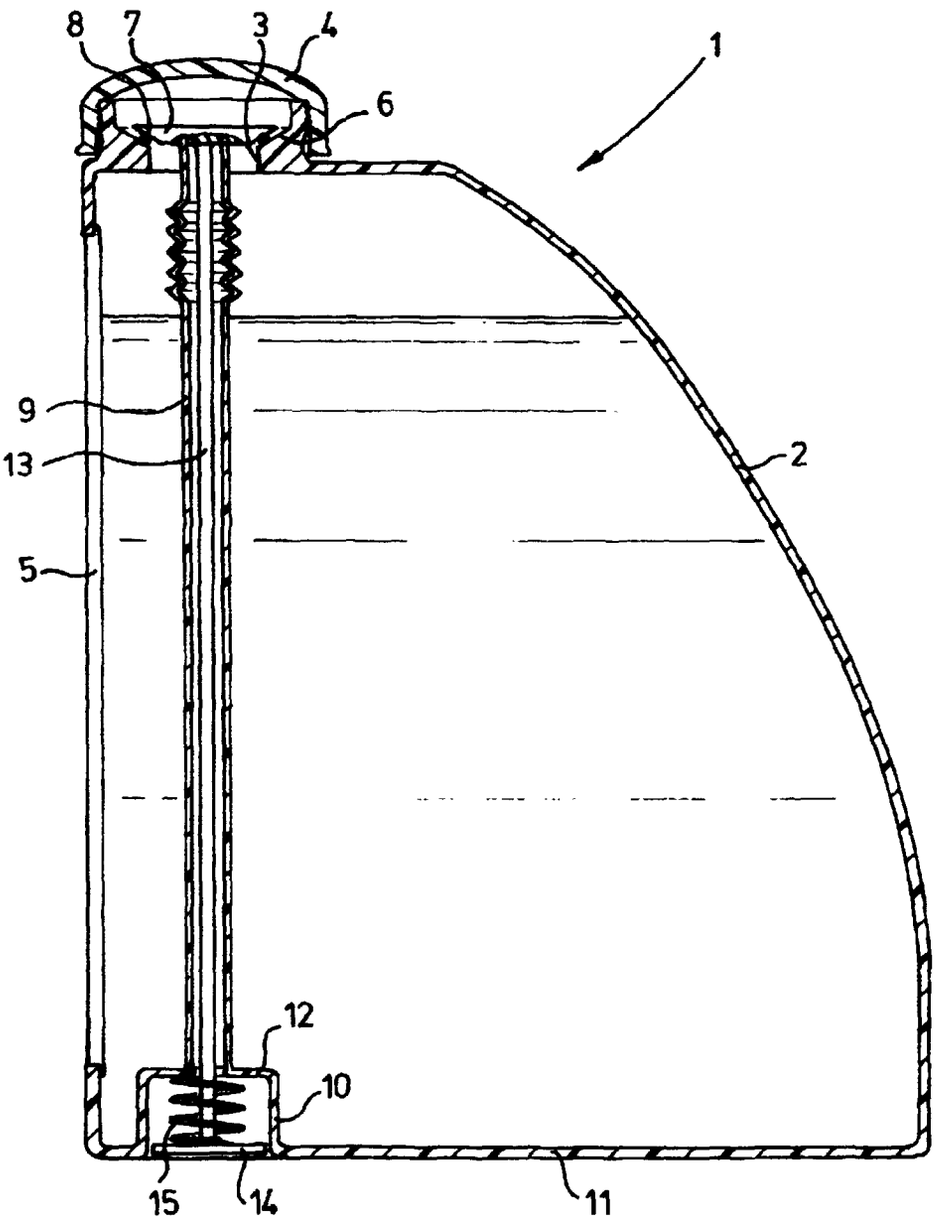
13. Container according to one of the preceding claims, characterized in that the valve-seat face of the valve seat is directed towards the outside of the container, and in that the prestress of the spring is such that, when the container is completely full and the pouring opening faces downwards, it can hold the shut-off valve in the sealed position on the valve seat.

14. Container according to one of the preceding claims, characterized in that the push-button is formed on the container housing via a sealed, bellows-like section, push-button and bellows-like section preferably being recessed in a depression or recess formed in the container wall.

15. Container according to one of the preceding claims, characterized in that the system of rods extends through a spring support element, via which the prestressed spring acts on the container housing and in that the spring support element is attached to the container housing by means of a snap-action connection, the snap action of which works in the opposite direction from the direction in which the spring prestress acts, the spring support element preferably being a sleeve which surrounds a section of the spring, which sleeve is provided with passages which connect the inside of the sleeve to the inside of the container.

16. Container according to Claim 14 and Claim 15, characterized in that the spring acts on the system of rods by being attached thereto or by being supported, under the influence of its prestress, on a dish, which dish is preferably attached to the other end of the system of rods and is accommodated in the bellows-like section, so that its side which is remote from the spring can act on the push-button.

Fig-1



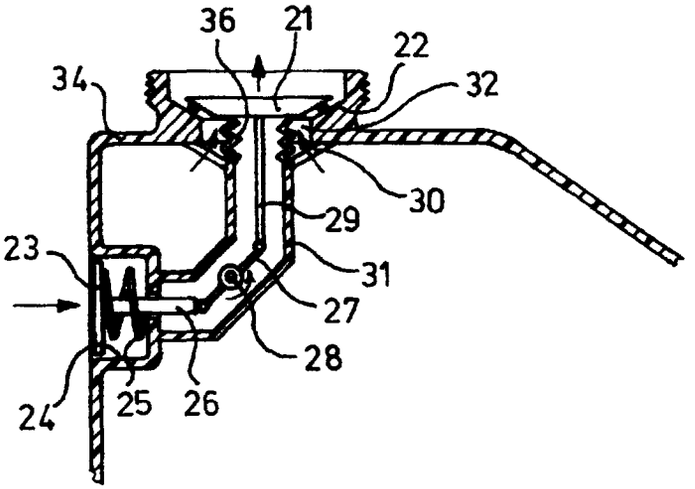



Fig - 2

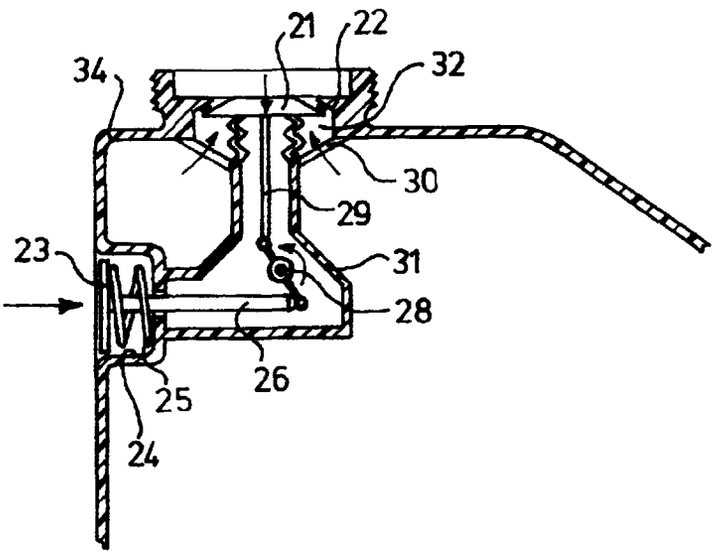



Fig - 3

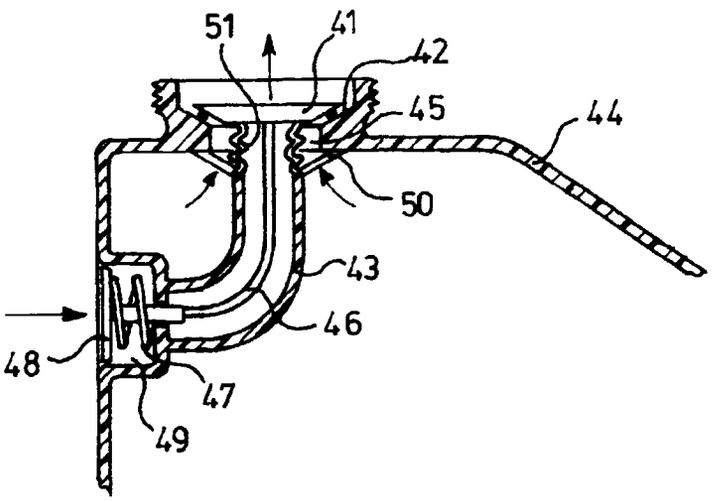



Fig - 4

Fig-5a

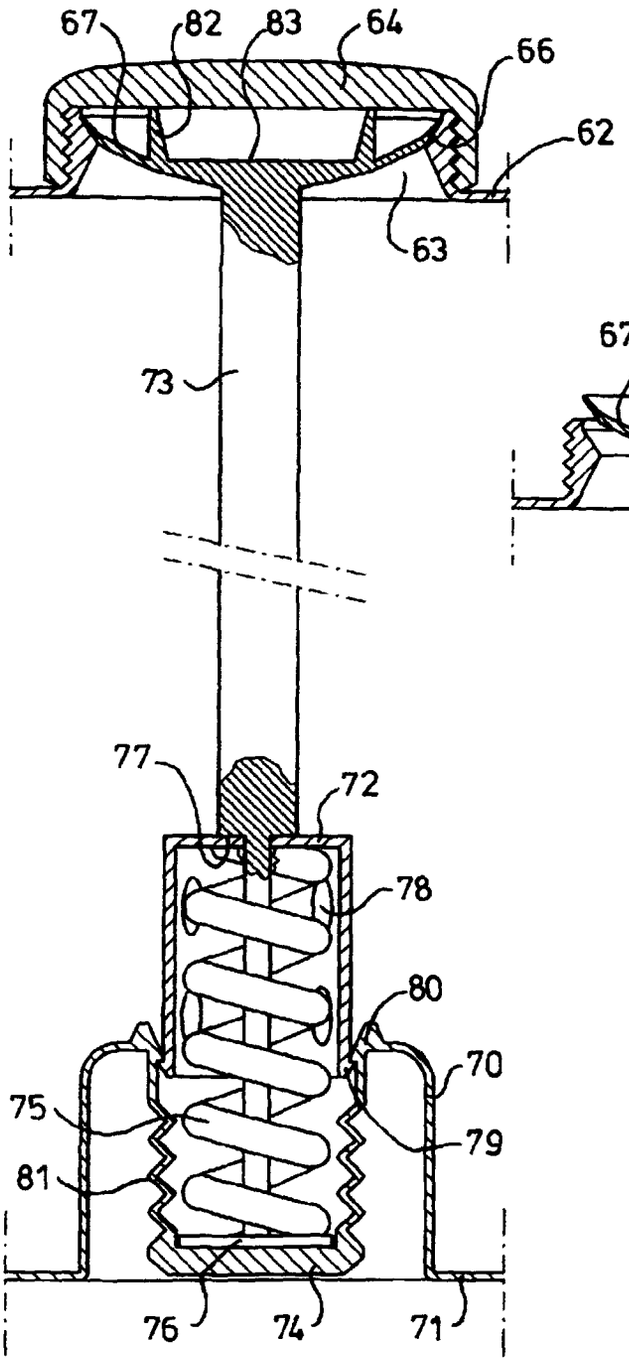

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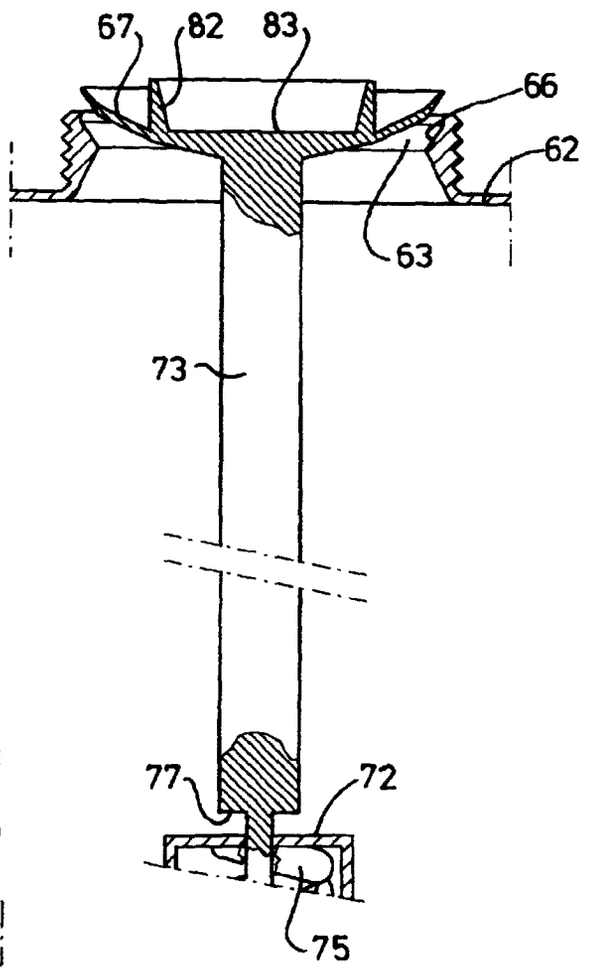
Fig-5b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Application Number
EP 99 20 0535

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| THE HAGUE | 10 June 1999 | Vollering, J |

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