

Description

The invention relates to a liquid container support and hygienic delivery system for dispensing drinking water or other potable liquid from a substantially rigid-bodied inverted container into the open upper end of a dischargeable reservoir housed within a cabinet through an opening defined in a generally cylindrical depending neck of the inverted container, comprising mounting means for embracingly supporting the depending neck of the container over the open upper end of the reservoir, and an upstanding feed tube supported so as to extend through sealing means sealingly closing the said open upper end of the reservoir and dimensioned to penetrate into the neck of the inverted container through a sealing arrangement thereof to provide a hygienic flow path for delivering liquid from the inverted container into the reservoir, where the inverted container has an inwardly and radially directed shoulder portion merging into the neck and a coaxial cap surrounding at least an outer axial portion of the neck of the container and having an internal recess therein including the sealing arrangement in the form of a sleeve portion

Such a system is known from US-A-4 699 188. In this system, the reservoir has a fixed cover sealing its open end and the feed tube upstands through this cover, the cover defining an upstanding sleeve surrounding the upper end of the feed tube for receiving the depending neck of the liquid container. In such an arrangement, the cover of the reservoir is essentially part of the reservoir and is bolted to it. The inverted container can thus only be fitted in place on a reservoir already provided with an appropriately sized cover. Furthermore, the neck of the liquid container is of straight-sided cylindrical form so that the weight of the container is essentially carried by the lower end of the neck and the end face of the cap resting on the cover. With this arrangement, the side forces exerted on the container have to be withstood by the neck and its substantially perpendicular junction with the main body of the container.

The invention aims to overcome these problems.

In accordance with the invention, the known system as first set forth above is characterised in that a sealing plug portion is connected to the sleeve portion, and in that the mounting means comprises mounting means adapted to fit on the upper portion of the cabinet and defining an annular ring for supporting the shoulder portion of the inverted container thereon, the mounting means also defining a tapered entry portion extending downwardly and inwardly from the annular ring for receiving the inverted neck of the container and the

coaxial cap, the tapered entry portion having a lower end and a length greater than that of the neck of the container and the coaxial cap when the shoulder portion of the inverted container is supported on the annular ring, the sealing means for sealingly closing the open upper end of the reservoir and the upstanding feed tube being coupled to the mounting means so that the feed tube is disposed for entry into the recess of the cap to separate the plug portion from the sleeve portion when the container is inverted and lowered onto the annular ring to provide the said hygienic flow path.

A liquid container support and hygienic delivery system for dispensing drinking water or other potable liquid, and embodying the invention, will now be described, by way of example only, with reference to the accompanying diagrammatic drawings in which:

Figure 1 is a fragmentary side elevation view of the system, including a hygienic cap, with certain portions broken away in sections;

Figure 2 is a section taken substantially along the line 2-2 of Figure 1, showing the partial insertion of the water bottle in the hygienic liquid dispensing system of Figure 1;

Figures 3a and 3b are fragmentary sections taken substantially along line 3-3 of the Figure 2, showing a detachable connection between an adaptor unit of the hygienic liquid dispensing system and a separate water bottle cooler;

Figures 4a, 4b and 4c are enlarged fragmentary side elevation views, partly in section, showing insertion and removal of the feed tube with respect to the hygienic cap in the system of Figure 1; and

Figure 5 is a fragmentary perspective view showing an alternative adaptor unit having a tapered side wall sitting on top of a water cooler housing.

While the invention will be described and disclosed in connection with certain preferred embodiments and procedures, it is not intended to limit the invention to those specific embodiments. Rather it is intended to cover all such alternative embodiments and modifications as fall within the spirit and scope of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Turning now to the drawings, there is shown in greater detail, a bottled water cooler 10 including a cabinet 20 of the type having an open-topped cooling reservoir 12 which is disposed to receive the inverted neck of a bottle 15 containing water or the like. Typically, the reservoir 12 and its contents are subjected to temperature control by a refrigera-

tion system and/or a heating system (not shown), in the lower portion of the cabinet 20, and water is taken from the reservoir through a drain pipe 22 and a faucet 13 mounted on a cabinet front panel 14. In the illustrated cooler 10, the front panel 14 is recessed within the cabinet periphery so as to set the faucet 13 back into the cabinet and thus prevent inadvertent contact.

In keeping with the invention, a mounting adapter 25 is disposed on the upper portion of the water cooler cabinet 20. To properly support the inverted water bottle, the mounting adapter 25 is provided with an annular ring 24 on its upper portion 26 and in order to properly receive and guide the inverted water bottle 15, the mounting adapter 25 is provided with a tapered entry portion 27 extending downwardly and inwardly from the annular ring 24 on the upper portion 26 of the mounting adapter 25. The entry portion 27 is formed with a lower end 29 having a length greater than the container neck 51, so that substantially all of the weight of the inverted water bottle is supported by the annular ring 24 of the mounting adapter 25 rather than by the water bottle neck. In the illustration of FIG. 1, the mounting adapter 25 is provided with downwardly extending side walls 17 and also includes internal stiffening ribs 28 interconnecting the side walls 17, the raised upper portion 26 and the tapered entry portion 27 so as to support the annular ring 24.

As more particularly depicted in FIG. 2, in the preferred embodiment, an annular diaphragm element 41 coupled to the lower end 29 of the entry portion 27 of the mounting adapter 25 sealingly closes the upper portion of the reservoir 12 and supports an upstanding feed tube 45 whose operation is described in greater detail below.

In order that the hygienic liquid dispensing system may be retrofitted to existing water coolers, the diaphragm/feed tube configuration described above carries a flexible peripheral member 43 for sealingly engaging and closing the open end of the reservoir 12. To facilitate the retrofitting between the mounting adapter and an existing water cooler having the diaphragm/feed tube connection, a quick disconnect means is provided having bayonet-type tab fittings 33 on the diaphragm and complementary lugs 34 on the lower end 29 of the entry portion 27 of the mounting adapter 25. As shown in greater detail in FIGS. 3a and 3b, one or more of the bayonet-type tab fittings 33 may be provided with centering detentlike dimples 35 for engagement with complementary recesses 36 formed in the upper surface of the lugs 34 to insure proper engagement of the quick disconnect means. It will be understood, of course, that other suitable attachment means may be provided, if desired.

Pursuant to another feature of the preferred embodiment, and as depicted in Figs. 1 and 2, an air filter 30 is provided with a filter element 37, having a filter medium removably fitted on the housing 38 of the filter 30. A conduit 39 is connected to the filter housing 38 and passes via a grommet 47, through the diaphragm element 41, so that air cannot enter the reservoir except by passing through the filter medium. A more detailed description of the filter 30 can be found in U.S. Patent No. 4,834,267, issued May 30, 1989 to Schroer et al. and is hereby incorporated by reference. It will also be appreciated with reference to Figure 1, that the filter 30 may be conveniently located under the raised upper portion 26 of the mounting adapter 25.

A hygienic cap 50 for a liquid dispensing system is shown in Figs. 4a, 4b and 4c. As is conventional with water bottles, a neck portion 51 defines a discharge opening through which liquid may dispense. In order to seal liquid within the bottle, hygienic cap 50 is provided with a lid portion 53 adapted to overlie and sealingly close the discharge opening defined by the neck 51. Additionally, an annular skirt portion 55 of the cap 50 extends axially away from the periphery of the lid portion 53 and is adapted to surround a portion of the neck 51 so as to sealingly retain contact with the neck portion 51 of the water bottle. As will become more apparent below, the hygienic cap 50 is provided with an axially inwardly extending recess 60 formed integrally with or otherwise connected to the lid portion 53. The axially inwardly extending recess 60 includes a first annular sleeve portion 62 which is located generally centrally in the lid portion 53 and is preferably integrally connected thereto.

In keeping with the present invention, a second annular plug portion 70 is connected to the inner end of the first annular sleeve portion 62 and extends axially inwardly therefrom. As shown in the illustrated embodiment, the second annular plug portion 70 is provided with a closed inner end 71 to fully seal liquid within the inverted water bottle.

In keeping with another important aspect of the invention, the second annular plug portion 70 is preferably integral with the first annular sleeve portion 62 and is connected thereto through a frangible connection 75 in order to allow the plug portion 70 to be axially separated from the sleeve portion 62 upon the forceable insertion of a feed tube 45 into the inwardly extending recess 60 to facilitate the discharge of liquid from the inverted water bottle. The frangible connection 75 includes an area of the recess which has reduced wall thickness at the inner end of the sleeve 62 where the plug portion 70 is connected thereto. This single piece construction not only reduces assembly

time but also avoids separation and loss of the plug portion. To this end, in the preferred embodiment, the cap 50 is formed in a single piece. However, it will be appreciated that a two-piece construction may sometimes be advantageous. In this regard, the multiple pieces may thereafter be assembled in a one-piece configuration either by spin welding, sonic welding, chemical bonding or the like.

In order to temporarily secure the plug 70 on the feed tube 45 when the feed tube is inserted in the recess 60, the plug portion 70 is formed with an internal gripping rib 72. In a complementary way, so that the feed tube 45 may retain the plug portion 70 upon insertion of the feed tube into the inwardly extending recess 60, feed tube 45 is provided with an annular groove 42 formed in its outside surface. In order to facilitate proper insertion of the feed tube 45 in recess 60, and proper mating engagement between the gripping rib 72 of the plug portion 70 and the annular groove 42 of feed tube 45, feed tube 45 may be provided with an upper portion 44 of reduced diameter and a tapered annular ramp portion 63 adjacent the annular groove 42 for guiding the annular gripping rib 72 into the annular groove 42.

Upon further insertion of the feed tube into the recess 60, the frangible connection 75 is broken, thereby allowing the extension of the feed tube 45 into the neck of the inverted water bottle. In a conventional manner, feed tube 45 is formed with an internal bore 46 and at least one radial inlet 48 communicating therewith to allow the dispensing of liquid from the interior of the inverted water bottle to the reservoir 12 as more fully described in the above mentioned U.S. Patent No. 4,699,188 to Baker et al. As is apparent and in order to allow fluid flow, the inlet 48 is spaced from the end of the feed tube 45 by a distance that is greater than the internal depth of the plug 70.

As shown in Fig. 4b, the exterior surface of the feed tube 45 is dimensioned with respect to the interior of the first annular sleeve portion 62 so that a sealing engagement is effected upon insertion of the feed tube 45 into the recess 60 and the inverted water bottle.

The hygienic liquid dispensing system is provided with means for resealing the inverted water bottle upon removal of the water bottle from the cooler or, conversely, upon removal of the feed tube from the hygienic cap 50. Upon removal of feed tube 45 from the inverted water bottle 15, annular groove 42 retains the annular plug portion 70 of hygienic cap 50 until the plug portion is fully drawn into the axially inwardly extending recess 60 of lid portion 53. In the preferred embodiment, the plug portion 70 is formed with an outside annular surface dimensioned to sealingly fit within the sleeve portion 62 when the feed tube 45 is with-

drawn from the recess 60. For this purpose, the plug 70 is preferably formed with a tapered lead-in section 69 adjacent the frangible connection 75 for guiding the plug 70 into the sleeve 62 when the feed tube 45 is withdrawn from the recess 60. Adjacent its closed end 71, the plug portion 70 is also preferably provided with an annular flange 73 in order to prevent the plug portion 70 from being removed from the hygienic cap 60. In the preferred embodiment, the external annular flange 73 is dimensioned to seat on the inner end of the sleeve 62 when the plug 70 is drawn into the sleeve. Additionally, in order to sealingly engage the plug portion 70 with the first annular sleeve portion 62 of the hygienic cap, plug portion 70 is provided with an external annular recess 77 which sealingly cooperates with a radially inwardly projecting bead 76 of sleeve portion 62. Moreover, this external annular groove/internally projecting bead combination provides a gripping means that will allow the feed tube 45 to mate with and retain the plug portion 70 prior to the plug portion becoming slideably disengaged with respect to the sleeve portion 62.

In the preferred embodiment, a hygienic cap 50 is also provided with a line of weakness 80 on the skirt 55 extending toward the lid portion 53 and a pull tab 85 extending axially from the skirt. Pull tab 85 is provided to facilitate manually tearing the skirt 55 along the line of weakness 80 when the cap 50 is removed from the container. Additionally, the cap is formed to receive a protective seal 84 covering the recess 60 to prevent contaminants from entering therein. The protective seal 84 also serves to indicate whether the cap has been tampered with prior to insertion of the feed tube 45 into the recess 60.

An alternate embodiment of the invention is illustrated in FIG. 5 wherein the mounting adapter 25a is designed to be positioned on top of an existing water cooler 10a having a flat upper surface. The above described hygienic water bottle system having the hygienic cap, feed tube and mounting diaphragm is housed within the cooler 10a, but is not shown here.

Claims

1. A liquid container support and hygienic delivery system for dispensing drinking water or other potable liquid from a substantially rigid-bodied inverted container (15) into the open upper end of a dischargeable reservoir (12) housed within a cabinet (20) through an opening defined in a generally cylindrical depending neck (51) of the container (15), comprising mounting means (25) for embracingly supporting the depending neck (51) of the inverted container (15) over the open upper end of the



time but also avoids separation and loss of the plug portion. To this end, in the preferred embodiment, the cap 50 is formed in a single piece. However, it will be appreciated that a two-piece construction may sometimes be advantageous. In this regard, the multiple pieces may thereafter be assembled in a one-piece configuration either by spin welding, sonic welding, chemical bonding or the like.

In order to temporarily secure the plug 70 on the feed tube 45 when the feed tube is inserted in the recess 60, the plug portion 70 is formed with an internal gripping rib 72. In a complementary way, so that the feed tube 45 may retain the plug portion 70 upon insertion of the feed tube into the inwardly extending recess 60, feed tube 45 is provided with an annular groove 42 formed in its outside surface. In order to facilitate proper insertion of the feed tube 45 in recess 60, and proper mating engagement between the gripping rib 72 of the plug portion 70 and the annular groove 42 of feed tube 45, feed tube 45 may be provided with an upper portion 44 of reduced diameter and a tapered annular ramp portion 63 adjacent the annular groove 42 for guiding the annular gripping rib 72 into the annular groove 42.

Upon further insertion of the feed tube into the recess 60, the frangible connection 75 is broken, thereby allowing the extension of the feed tube 45 into the neck of the inverted water bottle. In a conventional manner, feed tube 45 is formed with an internal bore 46 and at least one radial inlet 48 communicating therewith to allow the dispensing of liquid from the interior of the inverted water bottle to the reservoir 12 as more fully described in the above mentioned U.S. Patent No. 4,699,188 to Baker et al. As is apparent and in order to allow fluid flow, the inlet 48 is spaced from the end of the feed tube 45 by a distance that is greater than the internal depth of the plug 70.

As shown in Fig. 4b, the exterior surface of the feed tube 45 is dimensioned with respect to the interior of the first annular sleeve portion 62 so that a sealing engagement is effected upon insertion of the feed tube 45 into the recess 60 and the inverted water bottle.

The hygienic liquid dispensing system is provided with means for resealing the inverted water bottle upon removal of the water bottle from the cooler or, conversely, upon removal of the feed tube from the hygienic cap 50. Upon removal of feed tube 45 from the inverted water bottle 15, annular groove 42 retains the annular plug portion 70 of hygienic cap 50 until the plug portion is fully drawn into the axially inwardly extending recess 60 of lid portion 53. In the preferred embodiment, the plug portion 70 is formed with an outside annular surface dimensioned to sealingly fit within the sleeve portion 62 when the feed tube 45 is with-

drawn from the recess 60. For this purpose, the plug 70 is preferably formed with a tapered lead-in section 69 adjacent the frangible connection 75 for guiding the plug 70 into the sleeve 62 when the feed tube 45 is withdrawn from the recess 60. Adjacent its closed end 71, the plug portion 70 is also preferably provided with an annular flange 73 in order to prevent the plug portion 70 from being removed from the hygienic cap 60. In the preferred embodiment, the external annular flange 73 is dimensioned to seat on the inner end of the sleeve 62 when the plug 70 is drawn into the sleeve. Additionally, in order to sealingly engage the plug portion 70 with the first annular sleeve portion 62 of the hygienic cap, plug portion 70 is provided with an external annular recess 77 which sealingly cooperates with a radially inwardly projecting bead 76 of sleeve portion 62. Moreover, this external annular groove/internally projecting bead combination provides a gripping means that will allow the feed tube 45 to mate with and retain the plug portion 70 prior to the plug portion becoming slideably disengaged with respect to the sleeve portion 62.

In the preferred embodiment, a hygienic cap 50 is also provided with a line of weakness 80 on the skirt 55 extending toward the lid portion 53 and a pull tab 85 extending axially from the skirt. Pull tab 85 is provided to facilitate manually tearing the skirt 55 along the line of weakness 80 when the cap 50 is removed from the container. Additionally, the cap is formed to receive a protective seal 84 covering the recess 60 to prevent contaminants from entering therein. The protective seal 84 also serves to indicate whether the cap has been tampered with prior to insertion of the feed tube 45 into the recess 60.

An alternate embodiment of the invention is illustrated in FIG. 5 wherein the mounting adapter 25a is designed to be positioned on top of an existing water cooler 10a having a flat upper surface. The above described hygienic water bottle system having the hygienic cap, feed tube and mounting diaphragm is housed within the cooler 10a, but is not shown here.

Claims

1. A liquid container support and hygienic delivery system for dispensing drinking water or other potable liquid from a substantially rigid-bodied inverted container (15) into the open upper end of a dischargeable reservoir (12) housed within a cabinet (20) through an opening defined in a generally cylindrical depending neck (51) of the container (15), comprising mounting means (25) for embracingly supporting the depending neck (51) of the inverted container (15) over the open upper end of the



reservoir (12), and an upstanding feed tube (45) supported so as to extend through sealing means (41) sealingly closing the said open upper end of the reservoir (12) and dimensioned to penetrate into the neck (51) of the inverted container (15) through a sealing arrangement (50) thereof to provide a hygienic flow path for delivering liquid from the inverted container (15) into the reservoir (12), where the inverted container (15) has an inwardly and radially directed shoulder portion merging into the neck (51) and a coaxial cap (50) surrounding at least an outer axial portion of the neck (51) of the container (15) and having an internal recess (60) therein including the sealing arrangement (50) in the form of a sleeve portion (62), characterised in that a sealing plug portion (70) is connected to said sleeve portion (62), and in that the mounting means comprises mounting means (25) adapted to fit on the upper portion of the cabinet (20) and defining an annular ring (24) for supporting the shoulder portion of the inverted container (15) thereon, the mounting means (25) also defining a tapered entry portion (27) extending downwardly and inwardly from the annular ring (24) for receiving the inverted neck (51) of the container (15) and the coaxial cap (50), the tapered entry portion (27) having a lower end (29) and a length greater than that of the neck (51) of the container (15) and the coaxial cap (50) when the shoulder portion (27) of the inverted container (15) is supported on the annular ring (24), the sealing means (41) for sealingly closing the open upper end of the reservoir (12) and the upstanding feed tube (45) being coupled to the mounting means (25) so that the feed tube (45) is disposed for entry into the recess (60) of the coaxial cap (50) to separate the plug portion (70) from the sleeve portion (62) when the container (15) is inverted and lowered onto the annular ring (24) and thereby to provide the said hygienic flow path.

2. A system according to claim 1, characterised in that the mounting means (25) is removable from the cabinet (20).

3. A system according to claim 1 or 2, characterised in that the container (15) is unpresurized.

4. A system according to any preceding claim, in which the sealing means comprises a substantially annular diaphragm element (41) coupled to the entry portion (27) of the mounting means (25).

5. A system according to claim 4, characterised in that the diaphragm element (41) carries a flexible peripheral member (43) for sealingly engaging and closing the upper end of the reservoir (12).

6. A system according to any preceding claim, characterised in that the sealing means (41) is detachably connected to the lower end of the entry portion (27) to permit ready removal therefrom.

7. A system according to claim 4 or 5, characterised in that the diaphragm element (41) is formed with quick-disconnect means (33) for coupling it to the lower end of the entry portion (27).

8. A system according to claim 7, characterised in that the quick-disconnect means includes cooperating bayonet-type fittings (33,44) on the diaphragm (41) at the lower end of the entry portion (27).

9. A system according to any preceding claim, characterised in that the mounting means (25) is provided with an aperture (30) outboard of the lower end (29) of the entry portion (27) for admitting air into the reservoir (12) as liquid is discharged therefrom.

10. A system according to claim 9, characterised by air filter means (37) connected to the aperture (30) for filtering the air admitted into the reservoir (12).

11. A system according to claim 10, characterised in that the mounting means (25) includes a portion adapted to be raised above the cabinet (20), and in which the filter means (37) is disposed under the raised portion (26).

12. A system according to any preceding claim, characterised in that the mounting means (25) includes downwardly extending side walls, and internal ribs (28) interconnecting the side walls and the tapered entry portion (27).

13. A system according to any preceding claim, characterised in that the sleeve portion (60) and the plug portion (70) of the cap (50) are integrally formed with a frangible connection (75) therebetween including an area of reduced wall thickness, the frangible connection (75) being adapted to be ruptured and the plug portion (70) axially separated from the sleeve portion (62) upon forcible insertion of the feed tube (45) into the recess (60) in order to permit



the discharge of the liquid from the container (15).

14. A system according to claim 13, characterised in that the feed tube (45) includes an internal bore (46) and a radial inlet (48) communicating therewith, the inlet (48) being spaced from the tip end of the feed tube (45) by a distance greater than the internal depth of the plug portion (70) in the recess (60).

15. A system according to any preceding claim, characterised in that the plug portion (70) is formed with internal gripping means (72) and the feed tube (45) is formed with complementary external gripping means (42) for securing the plug portion (70) on the feed tube (45) when the feed tube (45) is inserted in the recess (60) and the plug portion (70) is separated from the sleeve portion (62) of the cap (50).

16. A system according to claim 15, characterised in that the internal gripping means includes a radially inwardly projecting annular lip (72) formed on the plug portion (70), and the external gripping means includes an annular groove (42) formed in the tip end of the feed tube (45).

17. A system according to claim 16, characterised in that the tip end (44) of the feed tube (45) has a tapered annular ramp portion (63) adjacent the groove (42) for guiding the inwardly projecting lip (72) into the groove (42).

18. A system according to any preceding claim, characterised in that the plug portion (70) is dimensioned to fit sealingly within the sleeve portion (62) when the inverted container (15) is lifted off the mounting means (25) and the feed tube (45) is withdrawn from the recess (62).

19. A system according to any one of claims 1 to 13, characterised in that the feed tube (45) has a tip end (44), a substantially hollow tubular body portion and a base portion, the feed tube body portion being dimensioned for close fitting sealing relation with the inside diameter of the internal recess (60) to prevent leakage therebetween when the feed tube (45) is inserted into the recess (60), the feed tube (45) having an internal bore (46) and at least one radial opening (48) communicating therewith, the radial opening (48) being spaced from the tip end (44) of the feed tube (45) by a distance that is greater than the internal depth of the plug portion (70), the radial opening (48) and

the bore defining a fluid passage for dispensing the liquid from the container (15) into the reservoir (12) up to a predetermined liquid level and for admitting air from the reservoir (12) above the liquid level into the container (15) to displace the dispensed liquid, the fluid passage being unobstructed by internally or externally disposed valving to permit the free flow of liquid and air therethrough.

20. A system according to claim 19, characterised in that the tip end (44) of the feed tube (45) has a reduced cross sectional diameter for insertion into the internal recess (60) and the tip end (44) has complementary external gripping means (42) for cooperating with internal gripping means (72) in the plug portion (70) to secure the plug portion (70) on the tip end (44) when the feed tube (45) is inserted into the internal recess (60).

Patentansprüche

1. Träger für Flüssigkeitsbehälter und hygienisches Abgabesystem zur Ausgabe von Trinkwasser oder anderer trinkbarer Flüssigkeit aus einem im wesentlichen mit einem starren Körper versehenen, umgedrehten Behälter (15) in das obere offene Ende eines entleerbaren Vorratsbehälters (12), der in einem Gehäuse (20) untergebracht ist, durch eine Öffnung, die in einem im allgemeinen zylindrischen, nach unten vorstehenden Hals (51) des Behälters (15) ausgebildet ist, das eine Anbringungseinrichtung (25) umfaßt, die den nach unten vorstehenden Hals (51) des umgedrehten Behälters (15) über dem offenen oberen Ende des Vorratsbehälters (12) umfassend trägt, sowie eine aufrechtstehende Zuführrohre (45), die so gehalten wird, daß sie sich durch eine Dichtungseinrichtung (41) erstreckt, die das offene obere Ende des Vorratsbehälters (12) dichtend verschließt und so bemessen ist, daß sie durch eine Dichtungsanordnung (50) desselben in den Hals (51) des umgedrehten Behälters (15) eindringt und so einen hygienischen Flußweg zur Abgabe von Flüssigkeit aus dem umgedrehten Behälter (15) in den Vorratsbehälter (12) schafft, wobei der umgedrehte Behälter (15) einen nach innen und radial ausgerichteten Schulterabschnitt aufweist, der in den Hals (51) übergeht, sowie eine koaxiale Kappe (50), die wenigstens einen äußeren axialen Abschnitt des Halses (51) des Behälters (15) umgibt und eine innere Vertiefung (60) darin aufweist, die die Dichtungsanordnung (50) in Form eines Hülseabschnitts (62) enthält, dadurch gekennzeichnet, daß ein Dichtungs-



stopfenabschnitt (70) mit dem Hülsenabschnitt (62) verbunden ist, und daß die Anbringungseinrichtung eine Anbringungseinrichtung (25) umfaßt, die auf den oberen Abschnitt des Gehäuses (20) paßt und einen ringförmigen Ring (24) aufweist, der den Schulterabschnitt des umgedrehten Behälters (15) darauf trägt, wobei die Anbringungseinrichtung (25) des weiteren einen sich verjüngenden Eingangsabschnitt (27) aufweist, der sich von dem ringförmigen Ring (24) nach unten und nach innen erstreckt und den umgedrehten Hals (51) des Behälters (15) und die koaxiale Kappe (50) aufnimmt, wobei der sich verjüngende Eingangsabschnitt (27) ein unteres Ende (29) hat und länger ist als der Hals (51) des Behälters (15) und die koaxiale Kappe (50), wenn der Schulterabschnitt (27) des umgedrehten Behälters (15) von dem ringförmigen Ring (24) getragen wird, wobei die Dichtungseinrichtung (41), die das offene obere Ende des Behälters (12) dichtend verschließt, und die aufrechtstehende Zuführ- röhre (45) mit der Anbringungseinrichtung (25) verbunden sind, so daß die Zuführ- röhre (45) so angeordnet ist, daß sie in die Vertiefung (60) der koaxialen Kappe (50) eindringt und den Stopfenabschnitt (70) von dem Hülsenabschnitt (62) trennt, wenn der Behälter (15) umgedreht und auf den ringförmigen Ring (24) abgesenkt wird, und so den hygienischen Flußweg schafft.

2. System nach Anspruch 1, **dadurch gekennzeichnet**, daß die Anbringungseinrichtung (25) von dem Gehäuse (20) entfernt werden kann.

3. System nach Anspruch 1 oder 2 **dadurch gekennzeichnet**, daß der Behälter (15) nicht unter Druck steht.

4. System nach einem der vorangehenden Ansprüche, wobei die Dichtungseinrichtung ein im wesentlichen ringförmiges Trennwandelement (41) umfaßt, das mit dem Eingangsabschnitt (27) der Anbringungseinrichtung (25) verbunden ist.

5. System nach Anspruch 4, **dadurch gekennzeichnet**, daß das Trennwandelement (41) ein flexibles Umfangsteil (43) trägt, das mit dem oberen Ende des Vorratsbehälters (12) dichtend in Kontakt ist und es verschließt.

6. System nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet**, daß die Dichtungseinrichtung (41) lösbar mit dem unteren Ende des Eingangsabschnitts (27) verbunden ist, um so leichte Entfernung von selbi-

gem zu ermöglichen.

7. System nach Anspruch 4 oder 5, **dadurch gekennzeichnet**, daß das Trennwandelement (41) mit einer Schnelltrenneinrichtung (33) verbunden ist, um es an dem unteren Ende des Eingangsabschnitts (27) anzubringen.

8. System nach Anspruch 7, **dadurch gekennzeichnet**, daß die Schnelltrenneinrichtung zusammenwirkende Bajonettverbindungsstücke (33, 44) an der Trennwand (41) am unteren Ende des Eingangsabschnitts (27) enthält.

9. System nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet**, daß die Anbringungseinrichtung (25) mit einer Öffnung (30) außerhalb des unteren Endes (29) des Eingangsabschnitts (27) versehen ist, um Luft in den Vorratsbehälter (12) einzulassen, wenn Flüssigkeit daraus abgegeben wird.

10. System nach Anspruch 9, **gekennzeichnet** durch eine Luftfiltereinrichtung (37), die mit der Öffnung (30) verbunden ist und die in den Vorratsbehälter (12) eintretende Luft filtert.

11. System nach Anspruch 10, **dadurch gekennzeichnet**, daß die Anbringungseinrichtung (25) einen Abschnitt enthält, der über das Gehäuse (20) angehoben werden kann, und in dem die Filtereinrichtung (37) unter dem angehobenen Abschnitt (26) angeordnet ist.

12. System nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet**, daß die Anbringungseinrichtung (25) nach unten verlaufende Seitenwände enthält, sowie innere Stege (28), die die Seitenwände und den sich verjüngenden Eingangsabschnitt (27) miteinander verbinden.

13. System nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet**, daß der Hülsenabschnitt (62) und der Stopfenabschnitt (70) der Kappe (50) als Einheit mit einer dazwischen befindlichen Bruchverbindung (75) ausgeformt sind, die einen Bereich verringerter Wanddicke enthält, wobei die Bruchverbindung (75) aufgebrochen wird und der Stopfenabschnitt (70) axial vom Hülsenabschnitt (62) getrennt wird, wenn die Zuführ- röhre (45) unter Druck in die Vertiefung (60) eingeführt wird, um die Abgabe der Flüssigkeit aus dem Behälter (15) zu ermöglichen.

14. System nach Anspruch 13, **dadurch gekennzeichnet**, daß die Zuführ- röhre (45) eine Innen-



- bohrung (46) und einen radialen Einlaß (48) enthält, der damit in Verbindung steht, wobei der Einlaß (48) vom Kopfende der Zuführrohre (45) um eine Länge beabstandet ist, die größer ist als die innere Tiefe des Stopfenabschnitts (70) in der Vertiefung (60). 5
15. System nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet**, daß der Stopfenabschnitt (70) mit einer inneren Greifeinrichtung (72) versehen ist, und die Zuführrohre (45) mit einer komplementären äußeren Greifeinrichtung (42) versehen ist, um den Stopfenabschnitt (70) an der Zuführrohre (45) zu befestigen, wenn die Zuführrohre (45) in die Vertiefung (60) eingeführt wird und der Stopfenabschnitt (70) von dem Hülsenabschnitt (62) der Kappe (50) getrennt wird. 10 15
16. System nach Anspruch 15, **dadurch gekennzeichnet**, daß die innere Greifeinrichtung einen radial nach innen vorstehenden Rand (72) enthält, der an dem Stopfenabschnitt (70) ausgeformt ist, und die äußere Greifeinrichtung eine Ringnut (42) enthält, die am Kopfende der Zuführrohre (45) ausgeformt ist. 20 25
17. System nach Anspruch 16, **dadurch gekennzeichnet**, daß das Kopfende (44) der Zuführrohre einen konischen, ringförmigen Neigungsabschnitt (63) aufweist, der an die Nut (42) angrenzt und den nach innen vorstehenden Rand (72) in die Nut (42) führt. 30
18. System nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet**, daß der Stopfenabschnitt (70) so bemessen ist, daß er dichtend in den Hülsenabschnitt (62) paßt, wenn der umgedrehte Behälter (15) von der Anbringungseinrichtung (25) abgehoben wird und die Zuführrohre (45) aus der Vertiefung (60) gezogen wird. 35 40
19. System nach einem der Ansprüche 1 bis 13, **dadurch gekennzeichnet**, daß die Zuführrohre (45) ein Kopfende (44) hat, einen im wesentlichen hohlen, röhrenförmigen Körperabschnitt, sowie einen unteren Abschnitt, wobei der Zuführrohrkörperabschnitt so bemessen ist, daß er eine enganliegende Dichtungsbeziehung zu dem Innendurchmesser der Innenvertiefung (60) hat, um Undichtigkeit zwischen selbigen zu verhindern, wenn die Zuführrohre (45) in die Vertiefung (60) eingeführt wird, wobei die Zuführrohre (45) eine Innenbohrung (48) und wenigstens eine radiale Öffnung (48) aufweist, die mit selbiger in Verbindung steht, wobei die radiale Öffnung (48) vom Kopfende (44) der Zuführrohre (45) um eine Länge beabstandet ist, die größer ist als die innere Tiefe des Stopfenabschnitts (70), wobei die radiale Öffnung (48) und die Bohrung einen Fluiddurchlaß zur Abgabe der Flüssigkeit aus dem Behälter (15) in den Vorratsbehälter (12) bis zu einem vorgegebenen Flüssigkeitspegel und zum Eintritt von Luft aus dem Vorratsbehälter (12) oberhalb des Flüssigkeitspegels in den Behälter (15) bilden, um die abgegebene Flüssigkeit zu verdrängen, wobei der Fluiddurchlaß nicht durch innen oder außen angeordnete Armaturen versperrt wird, so daß der freie Strom von Flüssigkeit und Luft durch selbigen möglich ist. 45 50 55
20. System nach Anspruch 19, **dadurch gekennzeichnet**, daß das Kopfende (44) der Zuführrohre (45) einen verringerten Querschnittsdurchmesser zum Einführen in die Innenvertiefung (60) aufweist, und das Kopfende (44) eine komplementäre äußere Greifeinrichtung (42) aufweist, die mit einer inneren Greifeinrichtung (72) in dem Stopfenabschnitt (70) zusammenwirkt und den Stopfenabschnitt (70) an dem Kopfende (44) befestigt, wenn die Zuführrohre (45) in die Innenvertiefung (60) eingeführt wird.

Revendications

1. Support de récipient à liquide et système de fourniture hygiénique pour distribuer de l'eau potable ou un autre liquide potable depuis un récipient renversé (15) à corps sensiblement rigide dans l'extrémité supérieure ouverte d'un réservoir déchargeable (12) logé à l'intérieur d'une armoire (20) en passant par une ouverture définie dans un goulot pendant (51) généralement cylindrique du récipient (15), comprenant des moyens de montage (25) pour supporter de manière à l'embrasser le goulot pendant (51) du récipient renversé (15) au-dessus de l'extrémité supérieure ouverte du réservoir (12), et un tube d'alimentation dressé (45), supporté de façon à s'étendre à travers des moyens d'étanchéité (41), qui ferment de manière étanche l'extrémité supérieure ouverte du réservoir (12), et dimensionné pour pénétrer dans le goulot (51) du récipient renversé (15) à travers un agencement d'étanchéité (50) de celui-ci de façon à procurer un parcours d'écoulement hygiénique pour distribuer du liquide depuis le récipient renversé (15) dans le réservoir (12), le récipient renversé (15) présentant une partie d'épaulement dirigée radialement vers l'intérieur et se fondant dans le goulot (51) et un capuchon coaxial (50) entourant au moins une partie axiale externe du



goulot (51) du récipient (15) et ayant un évidement interne (60) comportant à l'intérieur l'agencement d'étanchéité (50) sous la forme d'une partie de manchon (62), caractérisé en ce qu'une partie de bouchon de scellage (70) est reliée à ladite partie de manchon (62) et en ce que les moyens de montage comprennent des moyens de montage (25) adaptés pour s'ajuster sur la partie supérieure de l'armoire (20) et délimitant une bague annulaire (24) pour supporter la partie d'épaulement du récipient renversé (15), les moyens de montage (25) délimitant aussi une partie d'entrée effilée (27) qui s'étend vers le bas et vers l'intérieur à partir de la bague annulaire (24) pour recevoir le goulot renversé (51) du récipient (15) et le capuchon coaxial (50), la partie d'entrée effilée (27) ayant une extrémité inférieure (29) et une longueur plus grande que celle du goulot (51) du récipient (15) et du capuchon coaxial (50) lorsque la partie d'épaulement (27) du récipient renversé (15) est supportée sur la bague annulaire (24), les moyens d'étanchéité (41) destinés à fermer de manière étanche l'extrémité supérieure ouverte du réservoir (12) et le tube d'alimentation dressé (45) étant couplés aux moyens de montage (25) de façon que le tube d'alimentation (45) soit disposé pour entrer dans l'évidement (60) du capuchon coaxial (50) pour séparer la partie de bouchon (70) de la partie de manchon (62) lorsque le récipient (15) est renversé et abaissé sur la bague annulaire (24) et pour procurer ainsi le parcours d'écoulement hygiénique précité.

2. Système suivant la revendication 1, caractérisé en ce que les moyens de montage (25) sont détachables de l'armoire (20).

3. Système suivant l'une des revendications 1 et 2, caractérisé en ce que le récipient (15) n'est pas sous pression.

4. Système suivant l'une quelconque des revendications précédentes, dans lequel les moyens d'étanchéité comprennent un élément (41) en forme de diaphragme sensiblement annulaire qui est couplé à la partie d'entrée (27) des moyens de montage (25).

5. Système suivant la revendication 4, caractérisé en ce que l'élément en forme de diaphragme (41) supporte un élément périphérique flexible (43) destiné à entrer en prise de manière étanche avec l'extrémité supérieure du réservoir (12) et à la fermer.

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6. Système suivant l'une quelconque des revendications précédentes, caractérisé en ce que les moyens d'étanchéité (41) sont reliés de manière détachable à l'extrémité inférieure de la partie d'entrée (27) pour permettre un enlèvement aisé à partir de celle-ci.

7. Système suivant l'une des revendications 4 et 5, caractérisé en ce que l'élément en forme de diaphragme (41) est formé par des moyens de déconnexion rapide (33) pour le coupler à l'extrémité inférieure de la partie d'entrée (27).

8. Système suivant la revendication 7, caractérisé en ce que les moyens de déconnexion rapide comprennent des raccords de type baïonnette coopérants (33, 34) sur le diaphragme (41) à l'extrémité inférieure de la partie d'entrée (27).

9. Système suivant l'une quelconque des revendications précédentes, caractérisé en ce que les moyens de montage (25) sont prévus avec un orifice (30) à l'extérieur de l'extrémité inférieure (29) de la partie d'entrée (27) pour admettre de l'air à l'intérieur du réservoir (12) lorsque du liquide est déchargé de ce dernier.

10. Système suivant la revendication 9, caractérisé par des moyens de filtrage d'air (37) reliés à l'orifice (30) pour filtrer l'air admis dans le réservoir (12).

11. Système suivant la revendication 10, caractérisé en ce que les moyens de montage (25) comprennent une partie qui est adaptée pour être surélevée au-dessus de l'armoire (20) et en ce que les moyens de filtrage (37) sont disposés sous la partie surélevée (26).

12. Système suivant l'une quelconque des revendications précédentes, caractérisé en ce que les moyens de montage (25) comprennent des parois latérales qui s'étendent vers le bas et des nervures internes (28) qui relient mutuellement les parois latérales et la partie d'entrée effilée (27).

13. Système suivant l'une quelconque des revendications précédentes, caractérisé en ce que la partie de manchon (60) et la partie de bouchon (70) du capuchon (50) sont façonnées d'une pièce avec une liaison fragile (75) entre elles comportant une zone d'épaisseur de paroi réduite, la liaison fragile (75) étant adaptée pour être brisée et pour que la partie de bouchon (70) soit axialement séparée de la partie de manchon (62) après une insertion de manière forcée du tube d'alimentation (45) dans l'évide-



- ment (60) en vue de permettre le déchargement du liquide à partir du récipient (15).
14. Système suivant la revendication 13, caractérisé en ce que le tube d'alimentation (45) comporte un alésage interne (46) et une entrée radiale (48) qui communique avec ce dernier, l'entrée (48) étant espacée de l'extrémité supérieure du tube d'alimentation (45) d'une distance plus grande que la profondeur interne de la partie de bouchon (70) dans l'évidement (60). 5 10
 15. Système suivant l'une quelconque des revendications précédentes, caractérisé en ce que la partie de bouchon (70) est formée avec des moyens de prise interne (72) et en ce que le tube d'alimentation (45) est formé avec des moyens de prise externe complémentaires (42) pour fixer la partie de bouchon (70) sur le tube d'alimentation (45) lorsque le tube d'alimentation (45) est inséré dans l'évidement (60) et que la partie de bouchon (70) est séparée de la partie de manchon (62) du capuchon (50). 15 20
 16. Système suivant la revendication 15, caractérisé en ce que les moyens de prise interne comprennent une lèvre annulaire (72) qui fait saillie radialement vers l'intérieur et qui est formée sur la partie de bouchon (70) et en ce que les moyens de prise externes comprennent une gorge annulaire (42) formée dans l'extrémité supérieure du tube d'alimentation (45). 25 30
 17. Système suivant la revendication 16, caractérisé en ce que l'extrémité supérieure (44) du tube d'alimentation (45) présente une partie de rampe annulaire effilée (63) adjacente à la gorge (42) pour guider la lèvre en saillie vers l'intérieur (72) dans la gorge (42). 35 40
 18. Système suivant l'une quelconque des revendications précédentes, caractérisé en ce que la partie de bouchon (70) est dimensionnée pour s'adapter de manière étanche à l'intérieur de la partie de manchon (62) lorsque le récipient renversé (15) est soulevé hors des moyens de montage (25) et que le tube d'alimentation (45) est retiré de l'évidement (60). 45 50
 19. Système suivant l'une quelconque des revendications 1 à 13, caractérisé en ce que le tube d'alimentation (45) comporte une extrémité supérieure (44), une partie de corps tubulaire sensiblement creux et une partie de base, la partie de corps du tube d'alimentation étant dimensionnée pour s'adapter étroitement en relation d'étanchéité avec le diamètre interne de l'évidement interne (60) en vue d'éviter une fuite entre eux lorsque le tube d'alimentation (45) est inséré dans l'évidement (60), le tube d'alimentation (45) présentant un alésage interne (46) et au moins une ouverture radiale (48) communiquant avec lui, l'ouverture radiale (48) étant espacée de l'extrémité supérieure (44) du tube d'alimentation (45) d'une distance qui est plus grande que la profondeur interne de la partie de bouchon (70), l'ouverture radiale (48) et l'alésage formant un passage pour distribuer le liquide depuis le récipient (15) dans le réservoir (12) jusqu'à un niveau de liquide prédéterminé et pour admettre de l'air à partir du réservoir (12) au-dessus du niveau de liquide dans le récipient (15) en vue de déplacer le liquide distribué, le passage pour fluide n'étant pas obstrué par des vannes disposées à l'intérieur ou à l'extérieur pour permettre un écoulement libre du liquide et de l'air à travers lui. 55
 20. Système suivant la revendication 19, caractérisé en ce que l'extrémité supérieure (44) du tube d'alimentation (45) présente un diamètre en section transversale réduit pour l'insertion dans l'évidement interne (60) et en ce que l'extrémité supérieure (44) présente des moyens de prise externe complémentaires (42) pour coopérer avec des moyens de prise interne (72) dans la partie de bouchon (70) en vue de fixer la partie de bouchon (70) sur l'extrémité supérieure (44) lorsque le tube d'alimentation (45) est inséré dans l'évidement interne (60). 11