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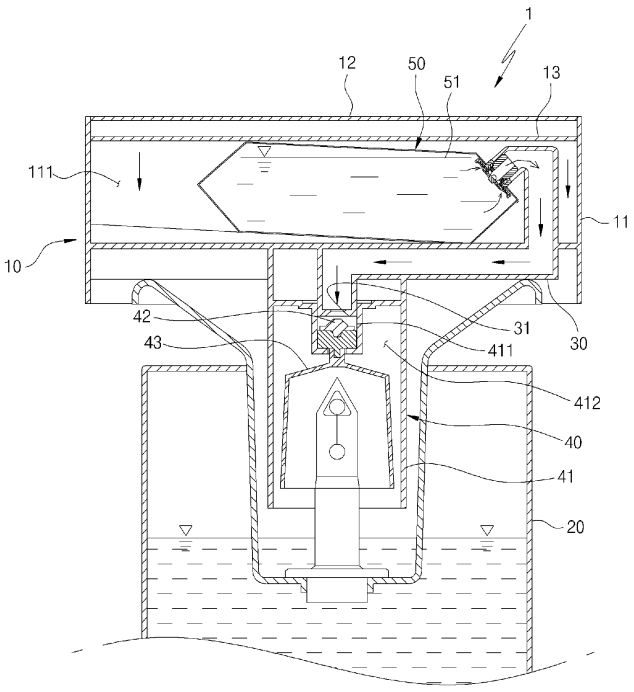
# (54) DEVICE FOR SUPPLYING DRINKING WATER

(57) Disclosed is a drinking water feed apparatus. The drinking water feed apparatus includes a main body configured to receive a water pack, in which fluid is stored, therein, a water reservoir connected to the water pack such that the fluid of the water pack is introduced into the water reservoir, a water pipe configured to connect the water pack and the water reservoir to each other, the water pipe having a nozzle, and a barrier located in the water reservoir, the barrier serving to open or close the nozzle according to the level of fluid within the water reservoir.

【Figure 1】

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## Description

[Technical Field]

**[0001]** The present invention relates to a drinking water feed apparatus.

[Background Art]

**[0002]** In general, containers for mineral water are reusable containers that are collected after use and are redistributed with fresh mineral water received therein after washing.

**[0003]** Washing of the interior and exterior of these mineral water containers, however, requires wash water, and washing using chemicals for sterilization may cause generation of secondary pollutants. Moreover, since steam or hot water used for washing the interior of the mineral water container may generate toxic substances when coming into contact with an inner surface of the mineral water container.

**[0004]** In addition, to couple a typically used mineral water container to a cold and hot water dispenser, inconveniently lifting and reversing the mineral water container is necessary. Further, since an entrance of the mineral water container coupled to the cold and hot water dispenser is immersed in water introduced into the cold and hot water dispenser, there is a possibility of pollutants adhered around the entrance of the mineral water container entering the cold and hot water dispenser.

**[0005]** Meanwhile, the cold and hot water dispenser has an air hole through which air is injected into the mineral water container, to ensure that the water received in the upside-down mineral water container is naturally introduced into the cold and hot water dispenser. The air is no longer introduced into the mineral water container when the level of water fed into the cold and hot water dispenser becomes higher than the air hole. Thus, the water received in the mineral water container is not introduced into the cold and hot water dispenser. Then, when the level of water fed into the cold and hot water dispenser becomes lower than the air hole as the water is used, the air is again introduced into the mineral water container, and thus the water of the mineral water container may be introduced into the cold and hot water dispenser.

**[0006]** To this end, the mineral water container must have a great thickness enough to withstand a predetermined pressure. If the mineral water container has a small thickness, crushing of the mineral water container may occur and the water received in the mineral water container may unintentionally be introduced into the cold and hot water dispenser. This problematically results in overflow of the water from the cold and hot water dispenser.

[Disclosure]

[Technical Problem]

**[0007]** It is an object of the present invention to provide a drinking water feed apparatus which is sanitary and can achieve a reduction in price.

[Technical Solution]

**[0008]** In accordance with an aspect of the present invention, there is provided a drinking water feed apparatus including a main body configured to receive a water pack, in which fluid is stored, a water reservoir connected to the water pack such that the fluid of the water pack is introduced into the water reservoir, a water pipe configured to connect the water pack and the water reservoir to each other, the water pipe having a nozzle, and a barrier located in the water reservoir, the barrier serving to open or close the nozzle according to the level of fluid within the water reservoir.

**[0009]** The barrier may include a barrier body located below the main body, the barrier body having a mounting hole, into which the nozzle is inserted, and a receiving space connected to the mounting hole such that the fluid of the water reservoir is introduced into the receiving space, a barrier lid configured to be rectilinearly movably placed in the mounting hole, the barrier lid serving to open and close the nozzle, and a floating piece connected at one side thereof to the barrier lid, the other side of the floating piece being located in the receiving space, the floating piece being rectilinearly moved according to the level of fluid within the water reservoir so as to move the barrier lid.

**[0010]** The main body may include a storage body, one side of which is open, the storage body having a storage space in which the water pack is located, and a cover hinged to the open side of the storage body, and an inner bottom surface of the storage space may be inclined from one side to the other side.

**[0011]** The drinking water feed apparatus may further include a push member located in the storage body, the push member serving to press the water pack.

**[0012]** The water pack may include a pack body in which the fluid is stored, the pack body having an outlet port, a plug mounted to the outlet port, one side of which is located in the pack body and the other side of which protrudes outward from the pack body, the plug having a discharge opening perforated therein, a pack lid configured to open or close the discharge opening, an elastic member mounted to one side of the plug, the elastic member serving to press the pack lid toward the discharge opening, and a connector mounted to the other side of the plug while being connected to the water pipe, the connector having a passage perforated therein, and the pack lid may be separated from the discharge opening via coupling between the plug and the connector.

**[0013]** In accordance with another aspect of the

present invention, there is provided a drinking water feed apparatus including a main body configured to receive a water pack, in which fluid is stored, a water reservoir connected to the water pack such that the fluid of the water pack is introduced into the water reservoir, and a water pipe configured to connect the water pack and the water reservoir to each other, the water pipe having a nozzle.

**[0014]** The water reservoir may include a reservoir body having a water storage space, an exhaust pipe installed to one side of the reservoir body, through which air of the water storage space is discharged, and an exhaust lid located in the water storage space, the exhaust lid being configured to open or close the exhaust pipe according to the level of fluid within the water storage space.

[Advantageous Effects]

**[0015]** According to the embodiments of the present invention, a water pack having a small thickness may be used because fluid received in the water pack is introduced into a water reservoir by pressure of a push member. This may result in a reduction in the manufacturing costs of the water pack.

**[0016]** Further, according to the embodiments of the present invention, the water pack is a disposable water pack, which may reduce costs required for collection and washing of the water pack.

[Description of Drawings]

**[0017]** These and/or other aspects of the invention will become apparent and more readily appreciated from the following description of the embodiments, taken in conjunction with the accompanying drawings of which:

FIG. 1 is a sectional view illustrating a drinking water feed apparatus according to an embodiment of the present invention;

FIG. 2 is a semi-sectional perspective view illustrating an outlet port of a water pack illustrated in FIG. 1;

FIG. 3 is a semi-sectional perspective view illustrating a barrier illustrated in FIG. 1;

FIG. 4 is a view illustrating operation of the barrier illustrated in FIG. 3; and

FIG. 5 is a sectional view illustrating a drinking water feed apparatus according to another embodiment of the present invention.

[Best Mode]

**[0018]** Hereinafter, reference will now be made in detail to the exemplary embodiments of the present invention with reference to the accompanying drawings, to allow those skilled in the technical fields to which the invention pertains to easily implement the invention. However, it will be understood that the present invention may be realized in various forms and are not limited to the embodiments described herein. Like reference numerals refer to like elements throughout.

**[0019]** Now, a drinking water feed apparatus according to one embodiment of the present invention will be described with reference to FIGS. 1 to 4.

**[0020]** FIG. 1 is a sectional view illustrating the drinking water feed apparatus according to the embodiment of the present invention, FIG. 2 is a semi-sectional perspective view illustrating an outlet port of a water pack illustrated in FIG. 1, FIG. 3 is a semi-sectional perspective view illustrating a barrier illustrated in FIG. 1, and FIG. 4 is a view illustrating operation of the barrier illustrated in FIG. 3.

**[0021]** Referring to FIGS. 1 to 4, the drinking water feed apparatus, designated by reference numeral 1, according to the present embodiment includes a main body 10, a water reservoir 20, a water pipe 30, and a barrier 40.

**[0022]** The main body 10 is configured to receive a water pack 50 in which fluid is stored. The main body 10 consists of a storage body 11 and a cover 12. Here, the fluid may be potable mineral water, beverage, etc.

**[0023]** The storage body 11 internally defines a storage space 111 in which the water pack 50 is stored. One side of the storage body 11 is open to permit entrance and exit of the water pack 50.

**[0024]** An inner bottom surface of the storage space 111 is inclined from one side to the other side. When the water pack 50 is put on the bottom surface of the storage space 111, a portion of the water pack 50 proximate to an outlet port 511 must be located on a lower side of the inclined bottom surface. This causes the water pack 50 to be tilted such that interior air of the water pack 50 is received in an upper region of the water pack 50 and the fluid is received in a lower region of the water pack 50.

**[0025]** The cover 12 is hinged to the open side of the storage body 11 and serves to protect the water pack 50 placed on the bottom surface of the storage space 111. The cover 12 may be omitted.

**[0026]** The storage space 111 is provided with a push member 13 to push the water pack 50. The push member 13 has a plate form and is rectilinearly movably installed in the storage space 111. When the push member 13 pushes the water pack 50, the fluid received in the water pack 50 may be discharged through the outlet port 511. The push member 13 is configured to push the water pack 50 by the weight thereof.

**[0027]** An elastic member (not shown) may be placed in the storage space 111 to provide the push member 13 with elastic push force toward the bottom surface of the storage space 111. As the push member 13 pushes the water pack 50 with elasticity of the elastic member, the fluid may be discharged from the water pack 50.

**[0028]** Next, the water pack 50 will be described with reference to FIG. 2.

**[0029]** The water pack 50 is provided to a consumer in a state in which the fluid is received in the water pack 50. The consumer may put the water pack 50 on the bottom surface of the storage space 111. The water pack

50 includes a pack body 51, a plug 52, a pack lid 53, an elastic member 54, and a connector 55. The water pack 50 is a disposable water pack. This may reduce costs required for the collection and washing of water packs.

**[0030]** The pack body 51 may be used to receive potable fluid therein. The pack body 51 has the outlet port 511. In consideration of the fact that the fluid received in the pack body 51 is discharged by push pressure of the push member 13, the pack body 51 may be formed of a thin plastic sheet. Forming the pack body 51 of the thin plastic sheet may reduce manufacturing costs of the pack body 51.

**[0031]** The plug 52 is mounted to the outlet port 511 and has a discharge opening 522 formed in a central portion thereof for passage of the fluid. One end of the plug 52 is affixed to an inner surface of the pack body 51 and the other end of the plug 52 protrudes outward from the pack body 51.

**[0032]** The pack lid 53 is inserted into the pack body 51 to close the discharge opening 522. The lid 53 may be formed of rubber, for example, and may be compressible.

**[0033]** The elastic member 54 is mounted to one side of the plug 52 and serves to impart elasticity to the pack lid 53 to allow the pack lid 53 to come into close contact with the discharge opening 522. As such, there is no risk of leakage of the fluid received in the pack body 51 when the pack lid 53 comes into close contact with the discharge opening 522.

**[0034]** The connector 55 is mounted to the other side of the plug 52 and has a passage 551 perforated therein. When the connector 55 is mounted to the plug 52, at least a portion of the connector 55 is inserted into the discharge opening 522, thereby applying pressure to the pack lid 53. The pressurized pack lid 53 is pushed so as to be separated from the discharge opening 522. Once the pack lid 53 is separated from the discharge opening 522, the fluid received in the pack body 51 may be introduced into the passage 551 by the push pressure of the push member 13.

**[0035]** One end of the water pipe 30 is coupled to the connector 55 to guide flow of the fluid introduced into the passage 551.

**[0036]** A nozzle 31 is formed at the other end of the water pipe 30 to discharge the fluid from the water pipe 30. The barrier 40 is coupled to the nozzle 31 to control discharge of the fluid.

**[0037]** The barrier 40 includes a barrier body 41, a barrier lid 42, and a floating piece 43.

**[0038]** The barrier body 41 is mounted to a lower end of the storage body 11. The barrier body 41 is provided at one side thereof with a mounting hole 411 into which the nozzle 31 is inserted. The barrier lid 42 is located in the mounting hole 411. The barrier body 41 has an open bottom side and internally defines a receiving space 412 connected to the mounting hole 411. A lower portion of the barrier body 41 is located in the water reservoir 20.

**[0039]** The barrier lid 42 is rectilinearly movably placed in the mounting hole 411. If the barrier lid 42 is moved upward in the mounting hole 411, the barrier lid 42 closes the nozzle 31, thereby serving to prevent flow of the fluid introduced into the water pipe 30. On the contrary, if the barrier lid 42 is moved downward, the barrier lid 42 is separated from the nozzle 31. This allows the fluid introduced into the water pipe 30 to be introduced into the water reservoir 20.

**[0040]** One end of the floating piece 43 is connected to the barrier lid 42, and the other end of the floating piece 43 is located in the water reservoir 20 while being received in the barrier body 41. The floating piece 43 is rectilinearly movable according to the level of fluid in the water reservoir 20. If the water reservoir 20 is full of the fluid, the floating piece 43 is raised. The barrier lid 42 is moved upward by the raised floating piece 43, thereby closing the nozzle 31. On the contrary, if the floating piece 43 is lowered as the fluid received in the water reservoir 20 is discharged, the barrier lid 42 is moved downward, thereby opening the nozzle 31. Once the nozzle 31 is opened, the fluid introduced into the water pipe 30 may again be introduced into the water reservoir 20.

**[0041]** The water reservoir 20 is used for storage of the fluid directed from the pack body 51. The water reservoir 20 is provided with a cooling device (not shown) and a heating device (not shown) to heat or cool the fluid introduced thereinto. The water reservoir 20 may serve as a cold and hot water dispenser that is typically used.

**[0042]** Next, the drinking water feed apparatus according to another embodiment of the present invention will be described with reference to FIG. 5.

**[0043]** FIG. 5 is a sectional view illustrating the drinking water feed apparatus according to another embodiment of the present invention.

**[0044]** Referring to FIG. 5, the drinking water feed apparatus, designated by reference numeral 2, according to the present embodiment includes the main body 10, the water reservoir 20, and the water pipe 30.

**[0045]** The main body 10 and the water pipe 30 according to the present embodiment are approximately equal to those of the embodiment as illustrated in FIGS. 1 to 4. That is, the main body 10 is configured to store the water pack 50 and consists of the storage body 11 and the cover 12. The main body 10 may further include the push member 13. The cover 12 serves to protect the water pack 50 stored in the storage body 11, and the push member 13 is located in the storage body 11 to apply pressure to the water pack 50. The water pack 50 is approximately equal to that of the embodiment as illustrated in FIGS. 1 to 4.

**[0046]** The water pipe 30 connects the main body 10 and the water reservoir 20 to each other, and feeds the fluid discharged from the water pack 50 to the water reservoir 20.

**[0047]** The water reservoir 20 according to the present embodiment has a different configuration from that as in the drinking water feed apparatus illustrated in FIGS. 1 to 4.

**[0048]** The water reservoir 20 includes a reservoir body 21, an exhaust pipe 22, and an exhaust lid 23.

**[0049]** The reservoir body 21 is connected to the water pipe 30, and internally defines a water storage space 211 in which the fluid introduced through the water pipe 30 is stored. The reservoir body 21 is provided with a cooling device (not shown) and a heating device (not shown) to cool or heat the fluid introduced into the reservoir body 21.

**[0050]** The exhaust pipe 22 is mounted to a top wall of the reservoir body 21 and has a vertical bore in fluid communication with the water storage space 211 of the reservoir body 21. If the fluid is introduced into the water storage space 211 of the reservoir body 21, the interior air of the reservoir body 21 is discharged outward through the exhaust pipe 22.

**[0051]** The exhaust lid 23 is a floating member and is mounted to a ceiling surface of the water storage space 211. The exhaust lid 23 is proximate to the exhaust pipe 22. The exhaust lid 23 serves to clog the exhaust pipe 22 if the level of fluid rises as the fluid fills the water storage space 211 of the reservoir body 21. If the exhaust pipe 22 is clogged, the fluid is no longer introduced into the water storage space 211. Then, the level of fluid is lowered as a user uses the fluid stored in the water storage space 211. As such, the exhaust lid 23 is separated from the exhaust pipe 22. Once the exhaust lid 23 is separated from the exhaust lid 22, the fluid received in the water pack 50 may be introduced into the water storage space 211 through the water pipe 30.

**[0052]** Many features discussed in the embodiment as illustrated in FIGS. 1 to 4 may be applied to the present embodiment.

**[0053]** According to the present invention, in consideration of the fact that the fluid received in the water pack 50 is discharged by pressure of the push member 13, the water pack 50 may have a small thickness. This may reduce manufacturing costs of the water pack 50. The water pack 50 of the present invention may be a disposable water pack, which may reduce costs required for the collection and washing of water packs.

[Mode for Invention]

**[0054]** As described above, a related description has sufficiently been discussed in the above "Best Mode" for implementation of the present invention.

[Industrial Applicability]

**[0055]** As described above, the present invention may be wholly or partially applied to a drinking water feed apparatus.

**[0056]** Although the embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

**Claims**

**1.** A drinking water feed apparatus comprising:

a main body configured to receive a water pack, in which fluid is stored;
a water reservoir, into which the fluid of the water pack is introduced;
a water pipe configured to connect the water pack and the water reservoir to each other, the water pipe having a nozzle; and
a barrier located in the water reservoir and connected to the water pipe, the barrier serving to open or close the nozzle according to the level of fluid within the water reservoir,

wherein the barrier includes:

a barrier body having a mounting hole into which the water pipe is inserted, the interior of the barrier body connected to the mounting hole being connected to the water reservoir;
a barrier lid configured to be rectilinearly movably placed in the mounting hole, the barrier lid serving to open and close the nozzle; and
a floating piece connected at one side thereof to the barrier lid, the interior of the floating piece being connected to the water reservoir such that the floating piece is moved upward or downward according to the level of fluid within the water reservoir so as to rectilinearly move the barrier lid.

**2.** A drinking water feed apparatus comprising:

a main body configured to receive a water pack, in which fluid is stored;
a water reservoir, into which the fluid of the water pack is introduced; and
a water pipe connected at one side thereof to the water pack and at the other side thereof to the water reservoir,

wherein the water reservoir includes:

a reservoir body having a water storage space in which the fluid directed from the water pack is stored;
an exhaust pipe installed to a top wall of the reservoir body, through which air of the water storage space is discharged; and
an exhaust lid located in the water storage space, the exhaust lid being configured to be moved according to the level of fluid within the water storage space so as to open and close the exhaust lid, and
wherein, if the exhaust pipe is closed by the exhaust lid, the air of the water storage space is

not discharged, and the fluid stored in the water pack is not introduced into the water storage space.

**3.** The drinking water feed apparatus according to claim 1 or 2, wherein the main body includes:

a storage body, one side of which is open, the storage body having a storage space in which the water pack is located; and
a cover hinged to the open side of the storage body,
wherein an inner bottom surface of the storage space is inclined from one side to the other side.

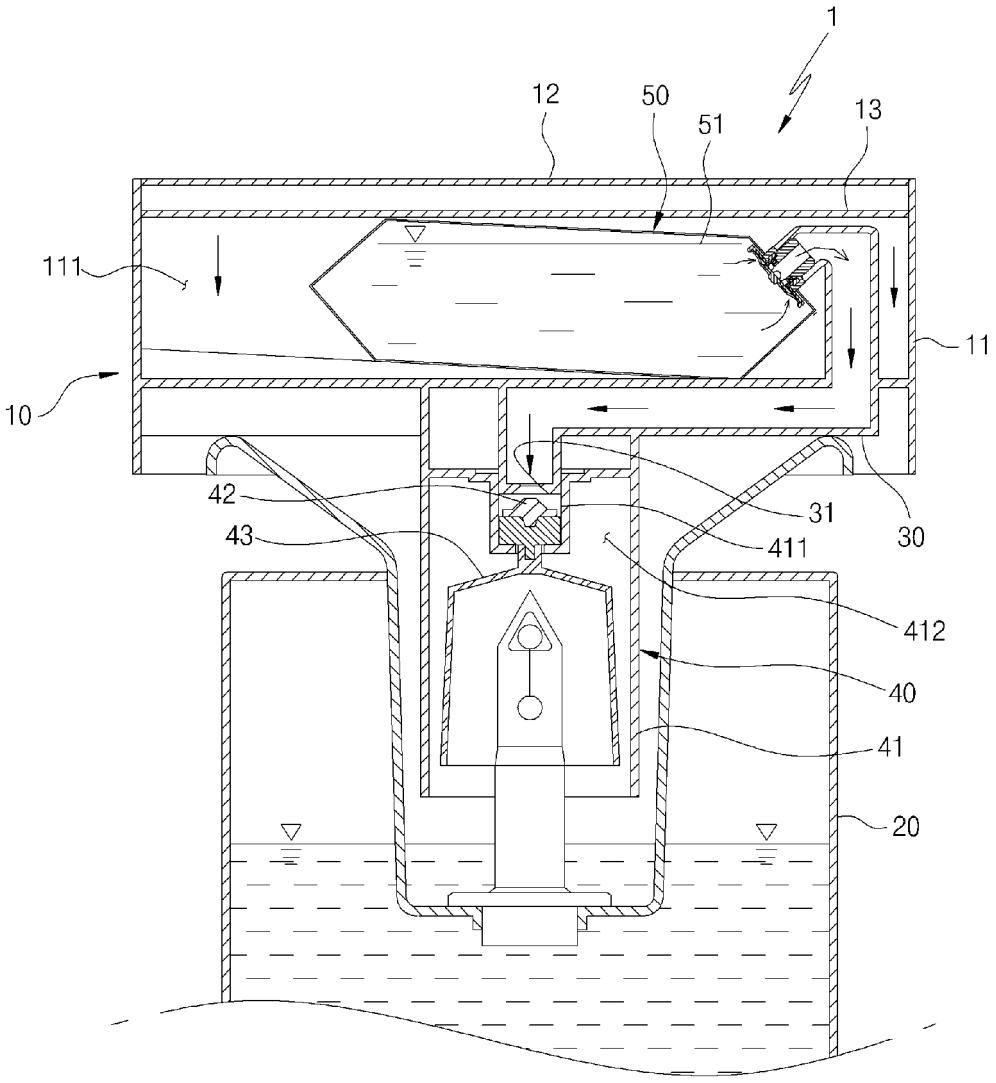
**4.** The drinking water feed apparatus according to claim 3, further comprising a push member located in the storage body, the push member serving to press the water pack.

**5.** The drinking water feed apparatus according to claim 1 or 2, wherein the water pack includes:

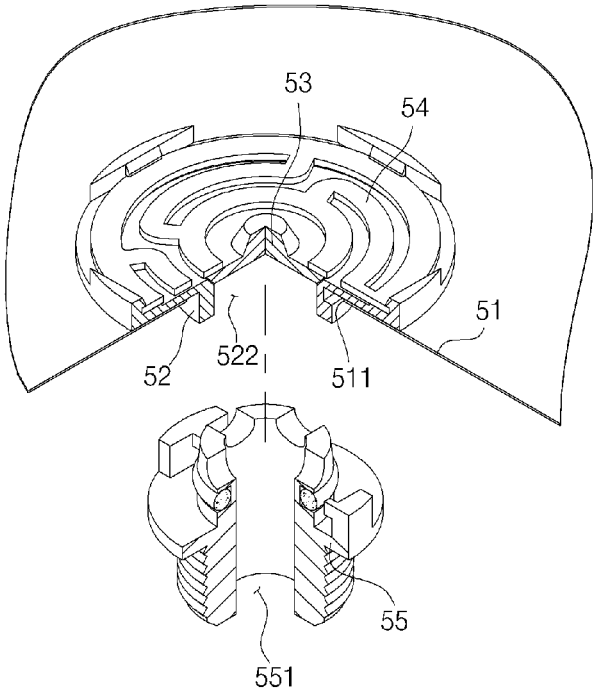
a pack body in which the fluid is stored, the pack body having an outlet port;
a plug mounted to the outlet port, one side of which is located in the pack body and the other side of which protrudes outward from the pack body, the plug having a discharge opening perforated therein;
a pack lid located in the pack body to open or close the discharge opening;
an elastic member mounted to one side of the plug, the elastic member serving to impart elasticity to the pack lid in a direction of closing the discharge opening; and
a connector connected to the water pipe while being mounted to the other side of the plug, the connector having a passage perforated therein.

**6.** The drinking water feed apparatus according to claim 5,
wherein at least a portion of the connector is inserted into the discharge opening so as to separate the pack lid from the discharge opening, and
wherein, if the pack lid is separated from the discharge opening, the interior of the pack body is connected to the passage, and the fluid of the pack body is introduced into the water pipe.

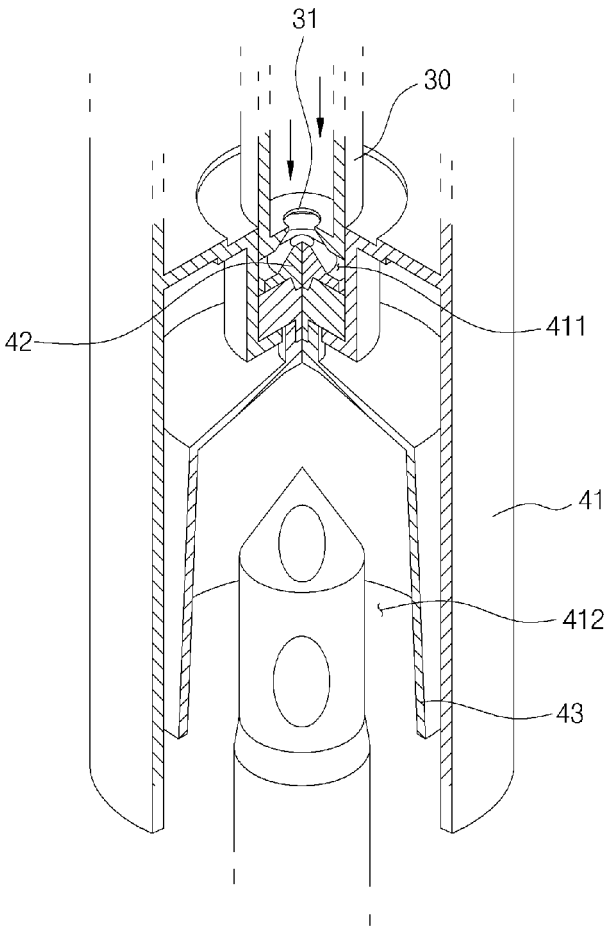
【Figure 1】



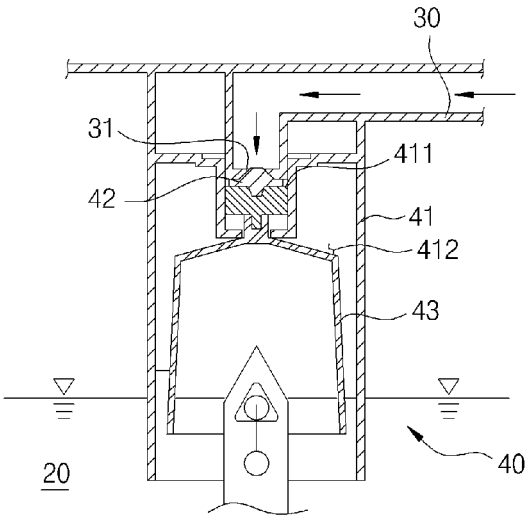
【Figure 2】



【Figure 3】




【Figure 4】



【Figure 5】