



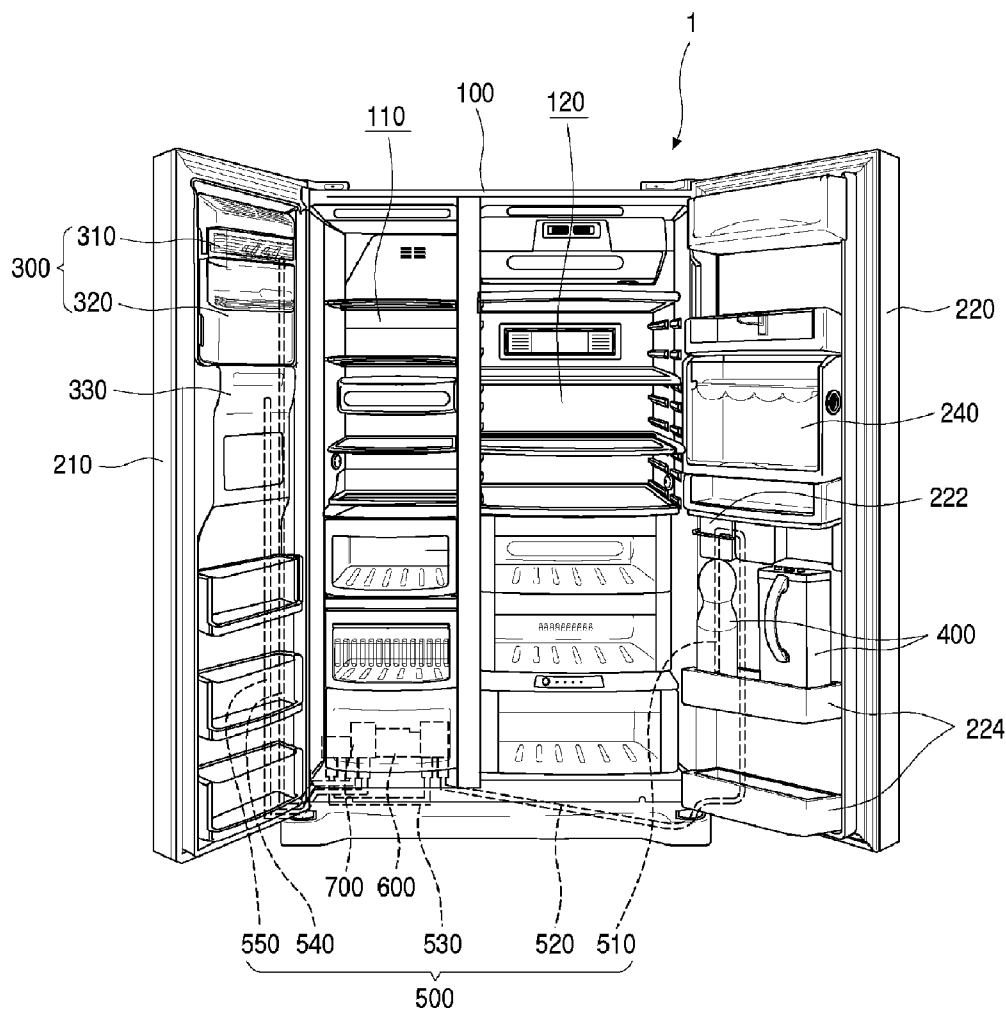
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(19) **United States**(12) **Patent Application Publication****Kim et al.**(10) **Pub. No.: US 2012/0111049 A1**(43) **Pub. Date: May 10, 2012**(54) **REFRIGERATOR**(76) Inventors: **Sung-Kyoung Kim**, Seoul (KR);
Dong-Wan Kim, Seoul (KR)(21) Appl. No.: **13/384,494**(22) PCT Filed: **Aug. 11, 2010**(86) PCT No.: **PCT/KR2010/005265**§ 371 (c)(1),
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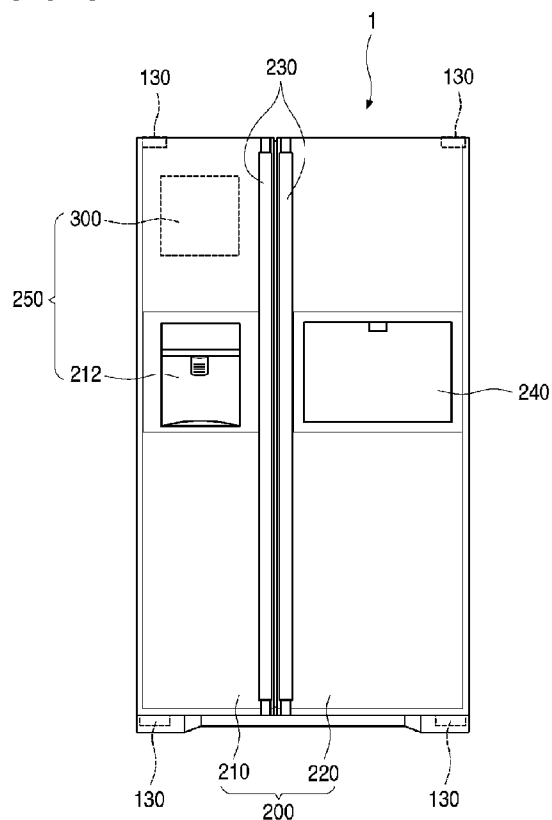
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F25D 11/02 (2006.01)(52) **U.S. Cl.** 62/344; 62/340; 62/447(57) **ABSTRACT**

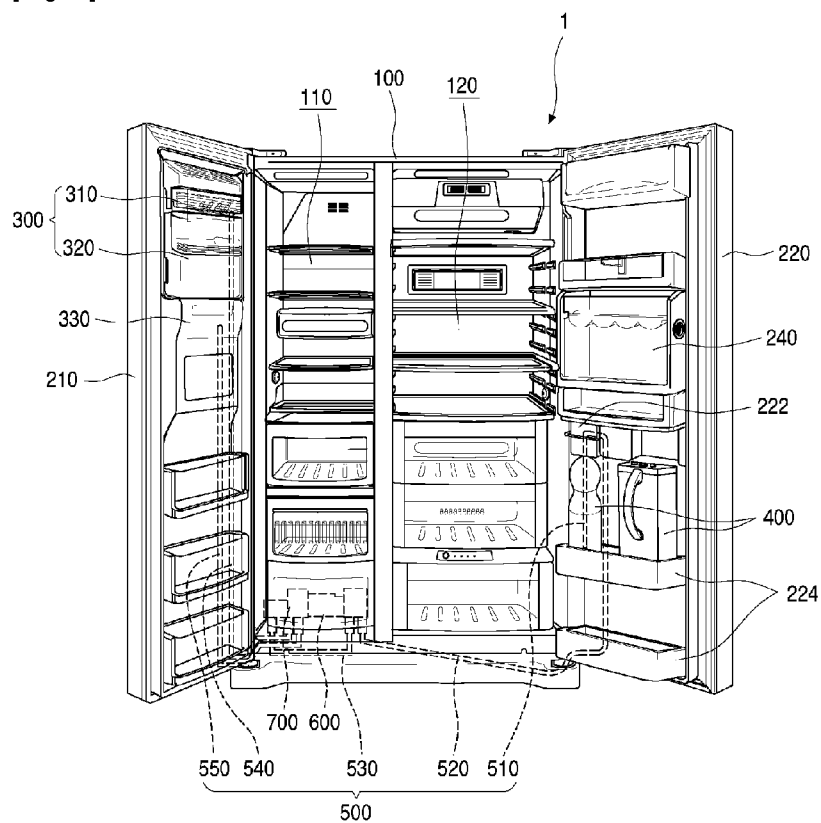
Provided is a refrigerator. The refrigerator includes a main body having a storage space; a door that is connected to the main body to selectively shield the storage space; a water supply container disposed in the storage space in a state where the door shields the storage space; an ice-maker disposed in a predetermined position of the storage space above the water supply container in a state where the door shields the storage space; a dispenser that is provided to a predetermined position of the door above the water supply container, to receive water or ice; a water supply passage extending from the water supply container to the ice-maker and the dispenser; a pump that is provided on the water supply passage to forcibly direct the water stored in the water supplying container to the ice-maker or the dispenser; and a valve that is provided on a predetermined position of the water supply passage near an outlet side of the pump to selectively supply the water to the ice-maker or the dispenser, wherein the pump is located at a height lower than the water supply container, and the valve is located at a height identical to or higher than the pump.



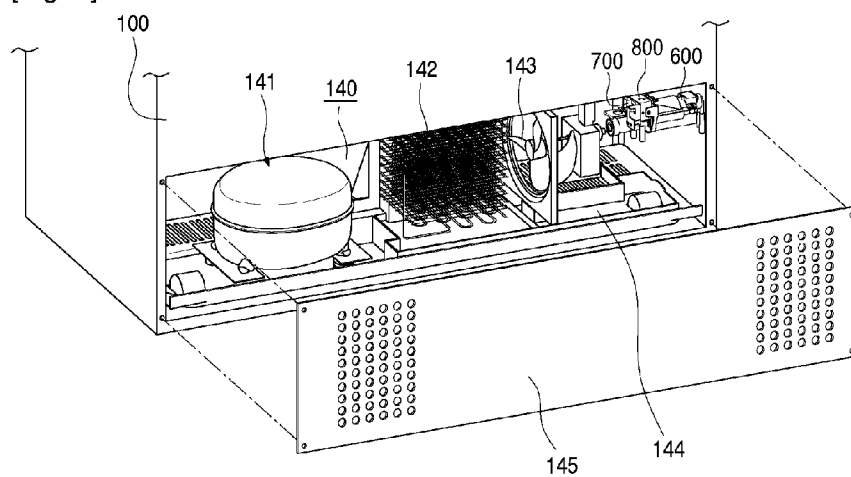
[Fig. 1]



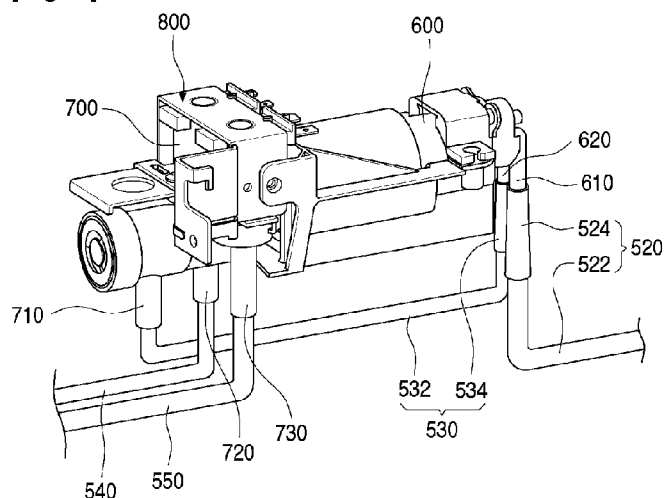
[Fig. 2]



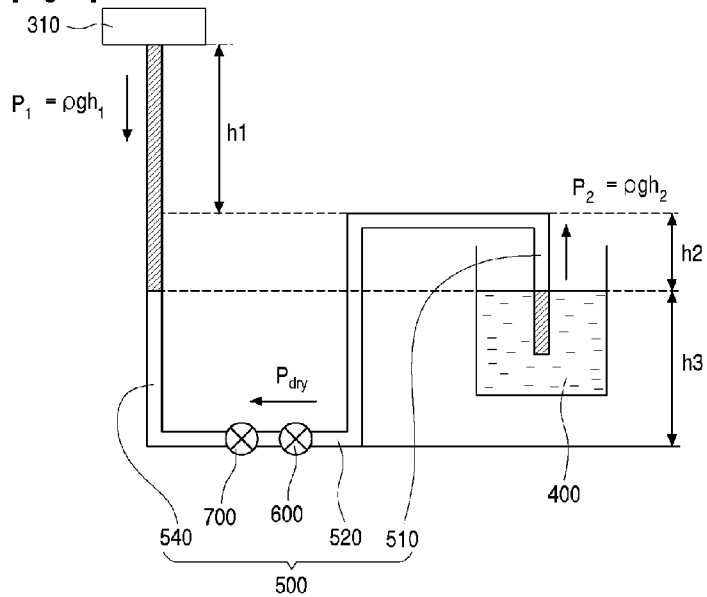
[Fig. 3]



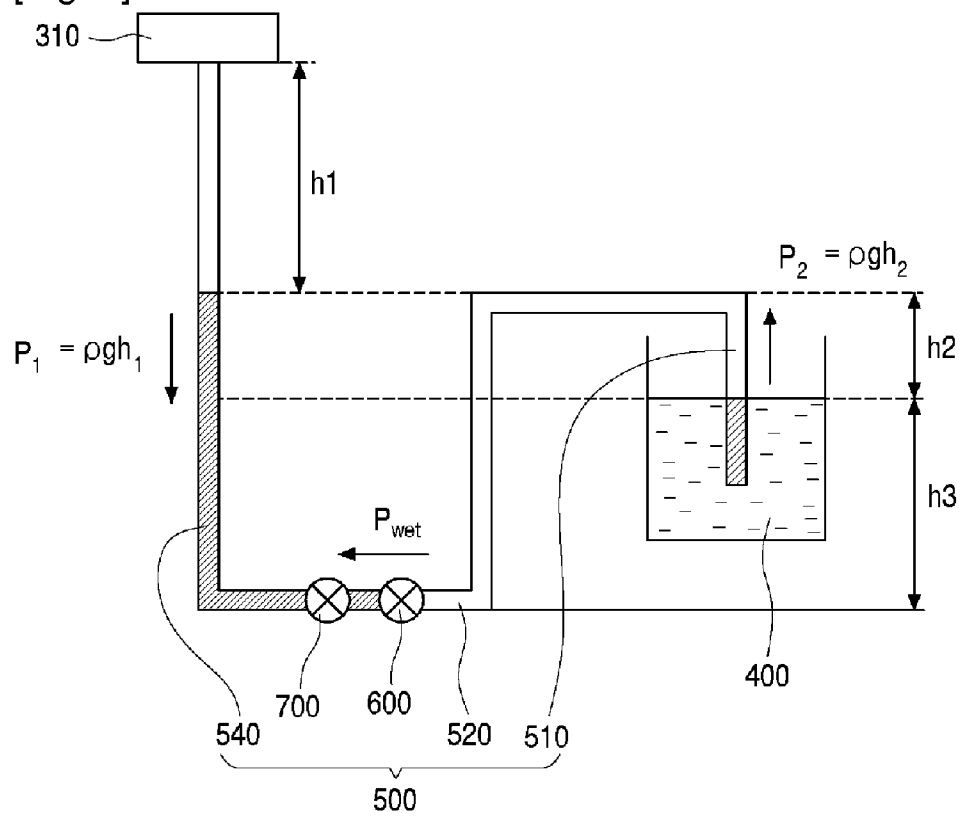
[Fig. 4]



[Fig. 5]



[Fig. 6]



REFRIGERATOR

TECHNICAL FIELD

[0001] The present disclosure relates to a refrigerator.

BACKGROUND ART

[0002] In general, a refrigerator is an electric appliance having an internal storage space shielded by a door and food is kept cold in the storage compartment. In detail, the refrigerator generates cool air through heat exchange with a refrigerant that is changed to a low pressure state by a refrigerating cycle. The storage space is kept in a low temperature state by the cool air and thus the food is kept cold so that it stays fresh.

[0003] With the change of dietary life and consumer tastes rising, the refrigerator is getting larger and being designed to be multifunctional. In addition, refrigerators having a variety of structures and convenient devices have been launched considering user convenience.

[0004] As representative devices among the convenient devices, an ice-maker for making ice and a dispenser are provided in the refrigerator. The ice-maker and dispenser are for providing ice or drinking water for the user and may be installed in the refrigerator and door.

[0005] Generally, the ice-makers are classified into a manual type in which the user fills water in an ice-making tray and an automatic type in which a water supply container having a one-time ice-making volume is filled with water and mounted above the ice-making tray so that the water stored in the water supply container can automatically supplied to the ice-making tray.

[0006] The above-described two types have a disadvantage in that they can make ice by one time. If a water supply container having a volume larger than an amount of water for one-time ice-making volume is used, the water in the water supply container may be frozen due to the temperature characteristic of a freezing compartment and thus the ice-making may not be continuously realized.

[0007] In order to solve the above limitation, a refrigerator that is designed to have a water supply line that is directly connected to a tap water line and is further connected to the dispenser so that the ice-making device can be continuously operated and the user can get the drinking water through the dispenser has been developed.

DISCLOSURE OF INVENTION

Technical Problem

[0008] Embodiments provide a refrigerator that is designed to have a water supply container in which water for ice-making is stored and to supply the water to an ice-maker and a dispenser through a pump and a water supply pipe.

[0009] Embodiments also provide a refrigerator that can effectively supply water to an ice-maker or a dispenser even when a water supply container is located at a lower place than the ice-maker or dispenser.

Solution to Problem

[0010] In one embodiment, a refrigerator comprises: a main body having a storage space; a door that is connected to the main body to selectively shield the storage space; a water supply container disposed in the storage space in a state where the door shields the storage space; an ice-maker disposed in a predetermined position of the storage space above the water

supply container in a state where the door shields the storage space; a dispenser that is provided to a predetermined position of the door above the water supply container, to receive water or ice; a water supply passage extending from the water supply container to the ice-maker and the dispenser; a pump that is provided on the water supply passage to forcibly direct the water stored in the water supplying container to the ice-maker or the dispenser; and a valve that is provided on a predetermined position of the water supply passage near an outlet side of the pump to selectively supply the water to the ice-maker or the dispenser, wherein the pump is located at a height lower than the water supply container, and the valve is located at a height identical to or higher than the pump.

[0011] The details of one or more embodiments are set forth in the accompanying drawings and the description below. Other features will be apparent from the description and drawings, and from the claims.

Advantageous Effects of Invention

[0012] The refrigerator according to the present disclosure has the following effects.

[0013] Since the pump for supplying water is located at a height lower than the water supply container and the valve is located at a height higher than or equal to the pump, the water flows back upon opening the valve against adverse water-supplying conditions.

[0014] Accordingly, even in the adverse water-supplying conditions that frequently occur when detachable water supply containers are used, the pump can effectively operate and thus the operability of the pump can be improved. In addition, the remaining water in a water supply passage can be effectively discharged.

BRIEF DESCRIPTION OF DRAWINGS

[0015] FIG. 1 is a front view of a refrigerator according to an embodiment.

[0016] FIG. 2 is a front perspective view illustrating a door open state of a refrigerator according to an embodiment.

[0017] FIG. 3 is a partial perspective view illustrating a machine room of a refrigerator according to an embodiment.

[0018] FIG. 4 is a perspective view illustrating a water supply pump and a valve structure according to an embodiment.

[0019] FIGS. 5 and 6 are schematic views illustrating a water supply state of a refrigerator according to an embodiment.

MODE FOR THE INVENTION

[0020] Reference will now be made in detail to the embodiments of the present disclosure, examples of which are illustrated in the accompanying drawings. The spirit and scope of the present disclosure, however, shall not be construed as being limited to embodiments provided herein. Rather, it will be apparent that other embodiments that fall within the spirit and scope of the present disclosure may easily be derived through adding, modifying, and deleting elements herein.

[0021] Hereinafter, for the convenience of the description and understanding, a side-by-side type refrigerator having freezing and refrigerating compartments that are disposed at left and right sides will be described as an example.

[0022] FIG. 1 is a front view of a refrigerator according to an embodiment and FIG. 2 is a front perspective view illustrating a door open state of a refrigerator according to an embodiment.

[0023] Referring to FIGS. 1 and 2, a refrigerator 1 according to an embodiment includes a cabinet 100 defining a storage space and doors 40 for opening and closing the storage space.

[0024] In detail, a front surface of the cabinet 100 is open and an inside of the cabinet 100 is divided into left and right spaces by a barrier to define freezing and refrigerating compartments 110 and 120. In addition, a plurality of shelves and drawers for receiving food are provided in the freezing and refrigerating compartments 110 and 120.

[0025] The doors 40 include freezing and refrigerating compartment doors 220 and 210 for closing and opening freezing and refrigerating compartments 120 and 110, respectively. In addition, the doors 40 are pivotally coupled to the cabinet 100 by hinges 130. Therefore, the freezing and refrigerating compartments 120 and 110 can be selectively opened or closed by the pivotal motions of the freezing and refrigerating compartment doors 220 and 210.

[0026] Door handles 230 may be provided on the freezing and refrigerating compartment doors 220 and 210, respectively. In addition, a home bar 240 may be provided in the refrigerating compartment door 220 and a water using device 250 may be provided in the freezing compartment door 210. Like a dispenser 212 and an ice-making assembly 300 that will be described later, the water using device 250 may be defined as a device that performs a specific purpose and function using the water supplied from an external side.

[0027] The dispenser for dispensing drinking water or ice is provided on a front surface of the freezing compartment door 210. The ice-making assembly 300 may be provided on a rear surface of the freezing compartment door 210.

[0028] The ice-making assembly 300 is a device for making ice using water supplied from a water supply container 400 that will be described later. The ice-making assembly 300 may be provided above the dispenser 212. Needless to say, if necessary, the ice-making assembly 300 may be provided in the freezing compartment 110. Hereinafter, a case where the ice-making assembly 300 is provided in the freezing compartment door 210 will be described as an example.

[0029] The ice-making assembly 300 includes an ice-maker 310 for making ice using the water supplied and an ice-bank 320 that is provided below the ice-maker 310 to store the ice.

[0030] In detail, the water for ice-making is automatically supplied to the ice-maker 310 and the water supplied is phase-changed to the ice by cold air in the freezing compartment 110. In addition, the ice made by the ice-maker 310 automatically falls down to the ice-bank 320 and stored therein.

[0031] The ice made by the ice-maker 310 and stored in the ice-bank 320 may be dispensed to the user through an ice chute 330 connecting the ice-bank to the dispenser 212. That is, the ice can be discharged to a container disposed on the dispenser 212 through the ice chute 330.

[0032] Meanwhile, a water supply container 400 may be provided on the rear surface of the refrigerating compartment door 220.

[0033] In detail, the water supply container 400 is a storage container for storing ice-making water and/or drinking water supplied to the ice-maker 310 and/or the dispenser 212. The

user separates the water supply container 400 from the refrigerating compartment door 220 and fills the water in the water supply container 400.

[0034] The water supply container 400 is located at a height lower than the water using device, i.e., the ice-maker 310 and the dispenser 212. The water filled in the water supply container 400 is supplied to the water using device 250 by a pump 600 that will be described later.

[0035] If necessary, the water supply container 400 may be provided in the refrigerating compartment 120. In this case, the water supply container is also located at a height lower than the water using device 250.

[0036] The water supply container 400 is detachably provided on the refrigerating compartment door 220 and is designed and sized to be mounted on the rear surface of the refrigerating compartment door 220. In addition, a mineral water bottle that is being sold in the market may be used as the water supply container 400. Alternatively, a specific container may be separately provided.

[0037] A plurality of baskets 224 are provided on the rear surface of the refrigerating compartment door 220. The baskets 224 are designed such that their mounting heights can be adjusted by being detached or moved. In addition, one of the baskets 224 may be designed to support the water supply container 400.

[0038] A container connecting portion 222 coupled to the water supply container 400 may be provided on the rear surface of the refrigerating compartment door 220. The container connecting portion 222 is designed to be selectively coupled to an opening of the water supply container 400. The container connecting portion 222 may be integrally formed on the rear surface of the refrigerating compartment door 220. Alternatively, the container connecting portion 222 may be detachably mounted on the refrigerating compartment door 220 by a separate member.

[0039] In detail, when the container connecting portion 222 is integrally fixed to the refrigerating compartment door 220, the water supply container 400 may be mounted on the rear surface of the refrigerating compartment door 220 by being coupled to the container connecting portion 222. In addition, when the container connecting portion 222 is provided as a separate member and coupled to the refrigerating compartment door 220, the water supply container 400 is first coupled to the container connecting portion 222 and then this assembly is mounted on the rear surface of the refrigerating compartment door 220.

[0040] Meanwhile, the water supply container 400, ice-maker 310, and dispenser 212 are fluidly connected to each other by a water supply passage 500 so that the water stored in the water supply container 400 can be supplied to the ice-maker 310 and the dispenser 212.

[0041] The pump 600 and valve 700 may be provided on certain locations of the water supply passage 500. The water in the water supply container 400 is forcibly supplied to the ice-maker and dispenser 212 by the pump 600. In addition, the water may be selectively supplied to the ice-maker or the dispenser 212 in accordance with a position of the valve 700.

[0042] The pump 600 may be disposed at an external side of the refrigerator, i.e., at a machine room 140 (see FIG. 3). If necessary, the pump 600 may be provided on a bottom surface of the cabinet 100 or on the refrigerating compartment door 220 or in the refrigerating compartment 120.

[0043] The water supply passage 500 includes a suction passage 510 disposed inside the water supply container 400,

an inlet passage connected to an inlet **610** (see FIG. 4) of the pump **600**, and an outlet passage **530** connected to the valve **700** at an outlet side **620** (see FIG. 4) of the pump **600**, an ice-maker passage **540** extending from the valve **700** to the ice-maker **310**, and a dispenser passage **550** extending from the valve **700** to a water dispensing opening of the dispenser **212**.

[0044] In detail, the suction passage **510** is for sucking the water stored in the water supply container **400**. A lower end of the suction passage **510** may extend to an inner-lower portion of the water supply container **400** when the water supply container **400** is mounted on the container connecting portion **222**. In addition, an upper end of the suction passage **510** is provided inside the container connecting portion **222**. The upper end of the suction passage **510** is detached and mounted together with the container connecting portion **222** as a single body and is selectively connected to an end of the water supply passage **500** provided in the refrigerating compartment door **220**. In more detail, the suction passage **510** may be exposed to the rear surface of the container connecting portion **222** through the container connecting portion **222**. In addition, an end of the suction passage **510**, which is exposed to the rear surface of the container connecting portion **222**, is selectively connected to an end of the water supply passage **500**, which is exposed to the rear surface of the refrigerating compartment door **220**.

[0045] Meanwhile, the inlet passage **520** is connected to the suction passage **510** at the refrigerating compartment door **40** and extends to the inlet side **610** of the pump **600**. At this point, when the pump **600** is provided on a side of the cabinet **100**, the inlet passage **520** may be guided from the refrigerating compartment door **220** toward the cabinet **100** through the hinge **130**.

[0046] In addition, the outlet passage **530** connects the pump **600** to the valve **700**. That is, the outlet passage **530** connects the outlet side **620** of the pump **600** to the inlet side **710** of the valve **700** so that the water discharged from the pump **600** can flow toward the valve **700**.

[0047] The ice-maker passage **540** and the dispenser passage **550** are independent passages that are connected to the valve **700**. The ice-maker passage **540** and the dispenser passage **550** are passages branched off from the valve **700** and extend toward the ice-maker **310** and the dispenser **212**, respectively.

[0048] The ice-maker passage **540** and the dispenser passage **550** may be guided through the hinge **130** of the freezing compartment door **210**. Further, the ice-maker passage **540** and the dispenser passage **550** are received in a separate pipe until they pass through the hinge **130** and branched off at an outlet end of the pipe.

[0049] FIG. 3 is a partial perspective view illustrating a machine room of a refrigerator according to an embodiment and FIG. 4 is a perspective view illustrating a water supply pump and a valve structure according to an embodiment.

[0050] Referring to FIGS. 3 and 4, the machine room **140** is formed at a lower portion of the cabinet **100**. The machine room **140** provides a space in which a variety of components such as a compressor **141**, a condenser **142**, a capillary tube, a fan motor assembly **143**, and a drain pan **144** are disposed.

[0051] The machine room **140** is separately provided at a lower-rear surface of the cabinet **100** from a storage space of the refrigerator. In addition, an opened rear surface of the machine room **140** may be closed by a machine room cover **145**.

[0052] In addition, the pump **600** and the valve **700** are provided in the machine room **140**. The pump **600** and the valve **700** may be integrally coupled to each other by a mounting member **800** and fixedly mounted in the machine room **140** by the mounting member **800**.

[0053] In more detail, the valve **700** is mounted on a left side (in FIG. 4) of the mounting member **800** and the pump **600** is mounted on a right side of the mounting member **800**. Therefore, the mounting member **800**, the pump **600**, and the valve **700** may be assembled as a single body.

[0054] The mounting member **800** is provided with a mounting portion **810** so that the mounting member **800** can be fixedly mounted in the machine room **140** by a coupling member such as a screw. The location and shape of the mounting portion **810** may be variably formed in accordance with a mounting location in the machine room **140**.

[0055] The mounting member **800** is formed such that the valve **700** and the pump **600** can be mounted in parallel at an identical height. If necessary, the valve **700** may be located at a height higher than the pump **600**.

[0056] The valve **700** and the pump **600** are closely mounted on the mounting member **800** and thus the water discharged from the pump **600** can be supplied to the valve **700** through the outlet passage **530** that will be described later.

[0057] A connection state between the water supply passage **500**, the pump **600**, and the valve **700** will be described hereinafter in more detail.

[0058] First, the water supply passage **500** is connected between the pump **600** and the valve **700** so that the water in the water supply container **400** can be supplied to the ice-maker **310** and the dispenser **212**.

[0059] In detail, the inlet passage **520** is connected to the inlet side **610** of the pump, through which the water is introduced from the water supply container **400**. The inlet passage **520** includes an inlet side extending pipe **522** and an inlet side connecting pipe **524**.

[0060] The inlet side extending pipe **522** may be formed of flexible polyethylene and have an inner diameter of about $\frac{1}{16}$ inch. The inlet side extending pipe **522** extends from the suction passage **510** to a portion adjacent to the pump **600** and is connected to the inlet side **610** of the pump **600** by the inlet side connecting pipe **524**.

[0061] The inlet side connecting pipe **524** is for connecting the inlet side **610** of the pump **600** to the inlet side extending pipe **522**. The inlet side connecting pipe **524** may be formed of flexible silicon. By aligning the end of the inlet side extending pipe **522** and the inlet side **610** of the pump in a line by the inlet side connecting pipe **524**, the blocking of the passage by the bending of the inlet side connecting pipe **524** can be prevented.

[0062] The inlet side **610** of the pump **600** connected to the inlet side connecting pipe **524** may have an inner diameter of about $\frac{1}{4}$ inch. In addition, since the inlet side connecting pipe **524** is formed of flexible material, the inlet side extending pipe **522** can be easily connected to the inlet side **610** of the pump **600** even when the diameters thereof are different from each other.

[0063] Alternatively, opposite ends of the inlet side connecting pipe **524** may be designed to have different inner diameters from each other so that the inlet side **610** of the pump **600** and the inlet side extending pipe **522**, which have different inner diameters from each other, can be connected to the respective opposite ends of the inlet side connecting pipe

524. In detail, the inner diameter of the inlet side connecting pipe **524** may be gradually reduced from a first end to a second end by stepping and enlarging the cross-section.

[0064] Meanwhile, the outlet passage **530** connects the outlet side **620** of the pump **600** to the inlet side **710** of the valve **700** and includes an outlet side extending pipe **532** and an outlet side connecting pipe **534**. The outlet side extending pipe **532** may be formed of flexible polyethylene. The outlet side extending pipe **532** extends from the valve inlet side **710** to the pump **600** and is connected to the outlet side **620** of the pump **600** by the outlet side connecting pipe **534**.

[0065] The outlet side connecting pipe **534** may be formed of a same material as the inlet side connecting pipe **522** and fluidly connects the outlet side **620** of the pump **600** to an end of the outlet side connecting pipe **534**. In addition, the outlet side connecting pipe **534** is formed only at a straight line section so that the blocking of the inner passage by the bending or curve can be prevented.

[0066] Meanwhile, all of the outlet side **620** of the pump, the outlet side connecting pipe **534**, and the outlet side extending pipe **532** may have an inner diameter of $\frac{1}{4}$ inch. That is, the inner diameter of the inlet passage **520** may be larger than that of the outlet passage **530**. Accordingly, the pulsatile flow, which may occur when an amount of water introduced to the pump **600** is less than an amount of the water discharged from the pump **600**, can be minimized.

[0067] In addition, since the inlet side connecting pipe **524** and the outlet side connecting pipe **534** may be elastically deformed in a moment the water is introduced or discharged through the pump **600**, the noise occurring when the passage is contracted or expanded can be minimized.

[0068] Meanwhile, the ice-maker passage **540** connected to the ice-maker **310** at a first outlet side **720** of the valve **700** may be formed of polyethylene and have an inner diameter of about $\frac{1}{4}$ inch. In addition, the dispenser side passage **550** connected to the dispenser **212** at a second outlet side **730** of the valve **700** may be formed of polyethylene and have a diameter of $\frac{5}{16}$ inch.

[0069] Accordingly, since an amount of ice-making water supplied to the ice-maker **310** is greater than an amount of drinking water discharged through the dispenser **212** when the dispenser **212** is manipulated, the user can more quickly take the drinking water.

[0070] The following will describe operation of the refrigerator having the above-described structure.

[0071] First, in order to use the ice-making water and the drinking water, the water supply container **400** is filled with water and the container connecting portion **222** is connected to the water supply container **400**. Next, the water supply container **400** is mounted on the rear surface of the refrigerating compartment door **222**. The water supply container **400** may be a mineral water bottle. In this case, the mineral water sold in the market is opened and directly connected to the container connecting portion **222** without a process for supplying the water to the water supply container **400**.

[0072] By the coupling of the water supply container **400** and the container connecting portion **222**, the suction passage **510** is located in the water supply container **400** to suck the water from the water supply container **400**. When the container connecting portion **222** is mounted, the suction passage **510** is connected to the inlet passage **520** and thus the water supply to the ice-maker **310** and the dispenser **212** becomes possible.

[0073] In this state, when a signal for supplying water to the ice-maker **310** is transferred to a control unit or a signal for dispensing drinking water is transferred to the control unit through an input button provided on the dispenser **212**, the pump starts operating.

[0074] By the operation of the pump **600**, the water is introduced from the water supply container **400** to the suction passage **510** and is further directed to the pump **600** through the inlet passage **520**. That is, the water introduced into the suction passage **510** is supplied to the pump **600** after consequently passing through the inlet side extending pipe **522**, the inlet side connecting pipe **524**, and the inlet side **610** of the pump **600**.

[0075] At this point, the inlet side connecting pipe **524** may be expanded or contracted in a radial direction by the pulsatile flow that may occur when the pump is driven. The contraction and expansion attenuate the impact applied to the pipe passage and thus the pipe noise can be reduced. In addition, since the water can be sufficiently supplied to the inside of the pump **600**, the pulsation can be reduced.

[0076] Further, the water discharged from the pump **600** through the outlet passage **530** is directed to the valve **700**. At this point, the water discharged from the pump **600** is supplied to the valve **700** after consequently passing through the outlet side **620** of the pump **600**, the outlet side connecting pipe **534**, and the outlet side extending pipe **532**. In addition, the pulsatile flow phenomenon caused by the water discharged from the pump **600** can reduce the noise of the pipe passage by the flexibility of the outlet side connecting pipe **534**.

[0077] When the ice-making water supply signal is transferred to the first outlet side **720** of the valve **700** is opened so that the water supplied to the valve **700** can be supplied to the ice-maker **310** through the ice-maker passage **540**.

[0078] When the drinking water dispensing signal is transferred, the second outlet side **620** is opened so that the drinking water can be supplied to the dispenser **212** through the dispenser passage **550**.

[0079] Meanwhile, when the water in the water supply container **400** is exhausted during the operation of the refrigerator **1** and thus the water supply container **400** is empty, the air and water in the water supply passage **500** may be mixed with each other during the operation of the pump **600** as shown in FIG. 5.

[0080] FIGS. 5 and 6 are schematic views illustrating a water supply state of a refrigerator according to an embodiment.

[0081] In FIG. 5, for convenience of the description, a structure for supplying the water to the ice-maker will be described as an example.

[0082] Referring to FIG. 5, prior to the water in the water supply container **400** is fully exhausted, the water filled in the water supply passage **500** is supplied to the ice-maker **310** by pressure difference between the inlet side **610** and the outlet side **620** of the pump **600** driven.

[0083] Meanwhile, when the pump **600** is driven by the operational signal of the ice-maker after the water in the water supply container **400** is fully exhausted, the water and air co-exists in the water supply passage **500** and thus the air may be introduced into the inlet side **610** of the pump **600**.

[0084] In detail, when the pump is driven in a state where no water is filled in the water supply container **400**, the air in the water supply container **400** may be introduced into the pump **600** through the inlet passage **520**. In addition, the air introduced into the pump **600** may be directed toward the outlet

passage 530. In addition, the air discharged to the outlet passage 530 is introduced into the valve 700 through the outlet passage 530 and is then supplied to the ice-maker passage 540.

[0085] Accordingly, the air is filled in some of the suction passage 510, inlet passage 520, outlet passage 530, and ice-maker passage 540.

[0086] In this state, even when the water supply container 400 is mounted again after being filled with the water, the pump 600 cannot generate pressure that can discharge the water remaining in the ice-maker passage 540. That is, it becomes an adverse water-supplying condition where the air co-exists in both of the inlet side 610 and the outlet side 620 and thus the pump 600 cannot generate pressure for effectively supplying the water to the pump 600.

[0087] In order to eliminate the adverse water supply condition, when the operational signal of the ice-maker is input, the pump 600 is designed to start operating at the same time the valve 700 is opened.

[0088] Meanwhile, the valve 700 and the pump 600 are located at a height lower than not only the water using device 250 but also the water supply container 400. In addition, the valve 700 and the pump 600 are disposed adjacent to each other and maintain the interconnection state.

[0089] Further, the valve 700 is located at a height identical to or greater than the pump 600. As shown in FIG. 6, the water remaining in the ice-maker passage 540 is introduced into the outlet side of the pump 600 through the valve upon opening the valve 700.

[0090] That is, by the locations of the valve 700 and the pump 600 and the structure of the water supply passage 500, the water is introduced into the pump 600 when the valve 700 is opened. Accordingly, the inside of the pump 600 and the inlet and outlet sides 610 and 620 of the pump 600 can be quickly filled with the water.

[0091] As described above, by the mounting locations of the water using device 250, water supply container 400, and pump 600, i.e., by the height difference of the water using device 250, water supply container 400, and pump 600, the water can be supplied to the pump 600 when the valve 700 is opened, the adverse water supply condition in the water supply passage can be quickly eliminated. Therefore, the pump 600 can generate normal discharge pressure and thus the remaining water in the ice-maker passage 540 can be discharged. In addition, the water can be effectively supplied from the water supply container 400.

[0092] Meanwhile, this principle can be identically applied to not only the ice-maker passage 540 but also the dispenser passage 550.

[0093] Although embodiments have been described with reference to a number of illustrative embodiments thereof, it should be understood that numerous other modifications and embodiments can be devised by those skilled in the art that will fall within the spirit and scope of the principles of this disclosure. More particularly, various variations and modifications are possible in the component parts and/or arrangements of the subject combination arrangement within the scope of the disclosure, the drawings and the appended claims. In addition to variations and modifications in the component parts and/or arrangements, alternative uses will also be apparent to those skilled in the art.

1. A refrigerator comprising:
 - a main body having a storage space;
 - a door that is connected to the main body to selectively shield the storage space;
 - a water supply container disposed in the storage space in a state where the door shields the storage space;
 - an ice-maker disposed in a predetermined position of the storage space above the water supply container in a state where the door shields the storage space;
 - a dispenser that is provided to a predetermined position of the door above the water supply container, to receive water or ice;
 - a water supply passage extending from the water supply container to the ice-maker and the dispenser;
 - a pump that is provided on the water supply passage to forcibly direct the water stored in the water supplying container to the ice-maker or the dispenser; and
 - a valve that is provided on a predetermined position of the water supply passage near an outlet side of the pump to selectively supply the water to the ice-maker or the dispenser,
- wherein the pump is located at a height lower than the water supply container, and the valve is located at a height identical to or higher than the pump.
2. The refrigerator according to claim 1, wherein the storage space comprises at least one of or both a freezing compartment and a refrigerating compartment; and
 - the door comprises at least one of or both a freezing compartment door and a refrigerating compartment door that closes and opens the freezing and refrigerating compartments, respectively.
3. The refrigerator according to claim 2, wherein the water supply container is provided on a side of one of the freezing and refrigerating compartment doors.
4. The refrigerator according to claim 2, wherein the ice-maker is provided on a side of one of the freezing and refrigerating compartment doors.
5. The refrigerator according to claim 1, wherein the pump and the valve are coupled to each other by a mounting member and the mounting member is fixedly mounted on an outer side of the refrigerator.
6. The refrigerator according to claim 5, further comprising a machine room provided on a lower portion of the main body, wherein the mounting member is mounted in the machine room.
7. The refrigerator according to claim 1, wherein the pump and the valve are provided at a lower side of an inside of the refrigerating compartment.
8. The refrigerator according to claim 3, wherein the water supply container is configured to be removable from the refrigerating compartment or the refrigerating compartment door.
9. The refrigerator according to claim 1, wherein the water supply passage extends to the ice-maker and the dispenser through a hinge connecting the door to the main body.
10. The refrigerator according to claim 1, wherein the water supply passage comprises:
 - a suction passage disposed within the water supply container;
 - an inlet passage having a first end connected to the suction passage and a second end connected to an inlet side of the pump;
 - an outlet passage connected to the valve at an outlet side of the pump;

an ice-maker passage extending from the valve to the ice-maker; and
a dispenser passage extending from the valve to an water outlet of the dispenser.

11. The refrigerator according to claim **10**, further comprising a container connecting portion that is detachably connected to a rear surface of the door, wherein the water supply container is selectively coupled to the container connecting portion.

12. The refrigerator according to claim **11**, wherein the suction passage passes through and integrally formed with the container connecting portion.

13. The refrigerator according to claim **11**, wherein the suction passage is selectively connected to the inlet passage by detachably mounting the container connecting portion on the door.

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