No. 753,764. PATENTED MAR. 1, 1904.

F. M. VANNEMAN.

REFRIGERATOR.

APPLICATION FILED MAR. 24, 1903.

NO MODEL.

Fig. 1.

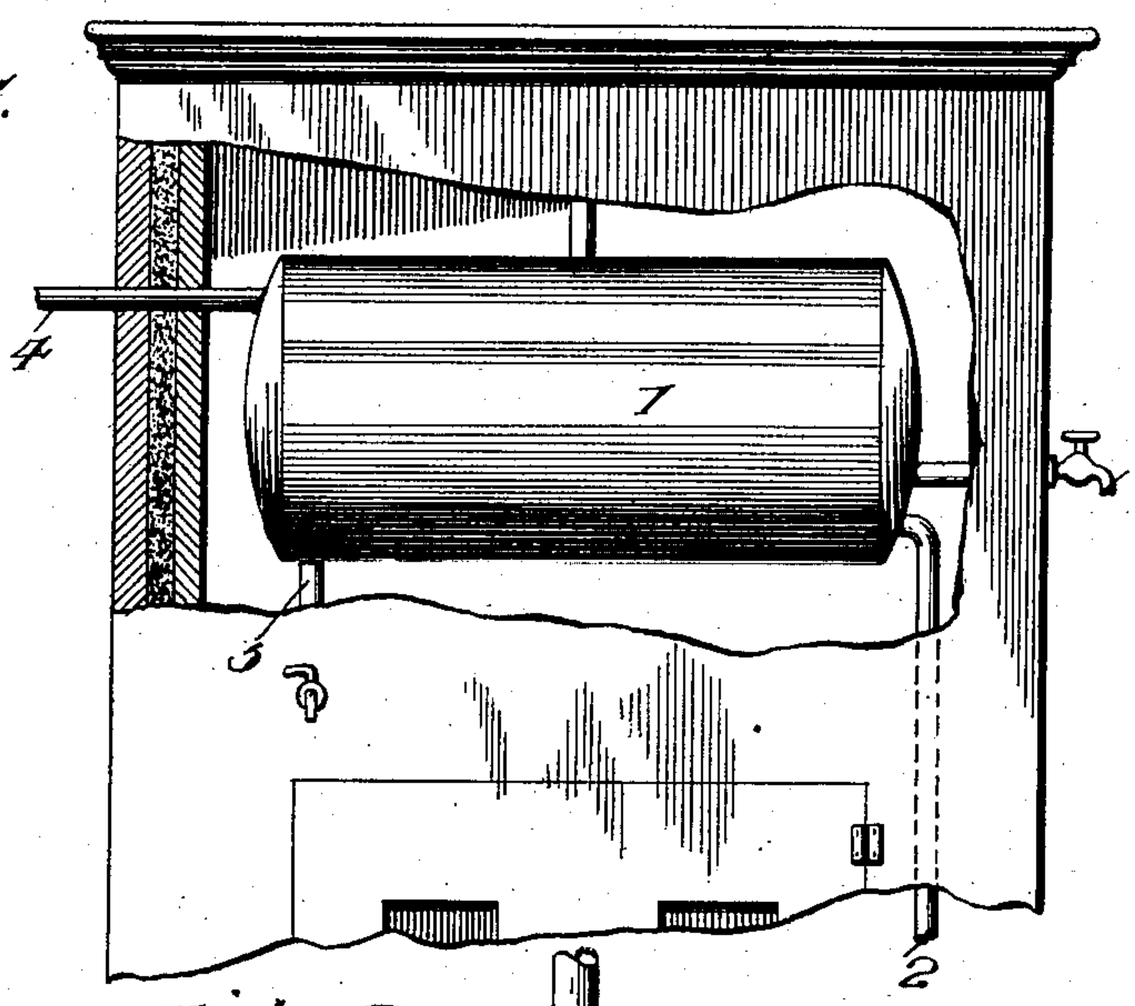


Fig. 2.

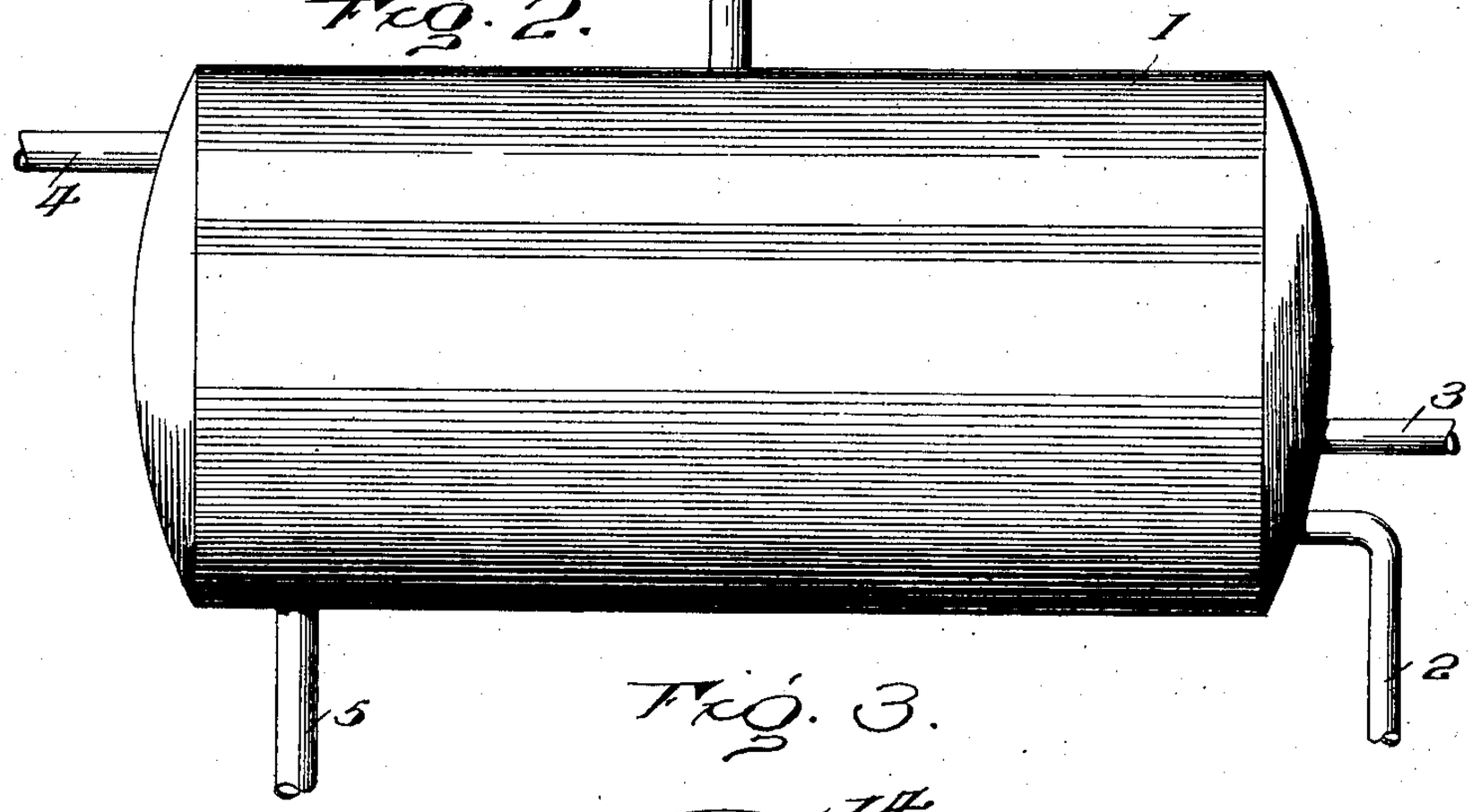
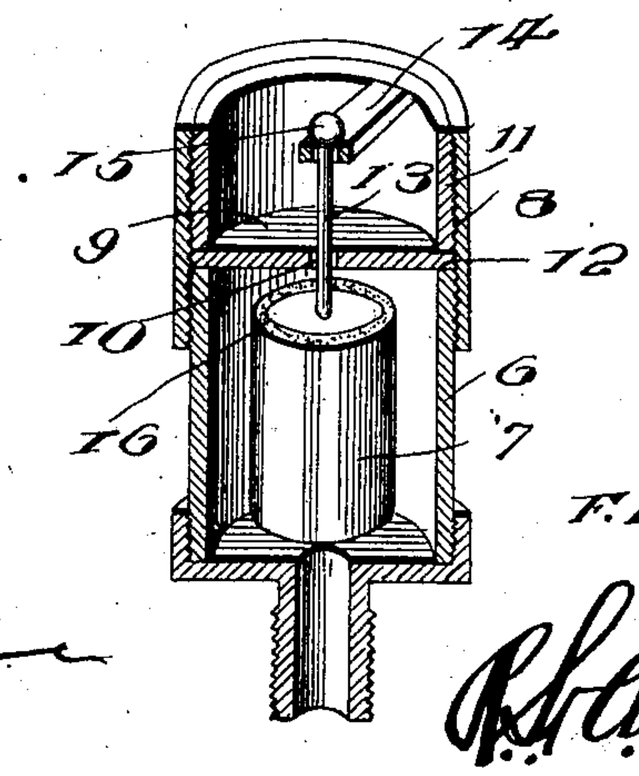


Fig. 3.



Witnesses

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No. 753,764. Patented March 1, 1904.

UNITED STATES PATENT OFFICE.

FRANKLIN M. VANNEMAN, OF SIDELL, ILLINOIS.

REFRIGERATOR.

SPECIFICATION forming part of Letters Patent No. 753,764, dated March 1, 1904.

Application filed March 24, 1903. Serial No. 149,366. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN M. VANNEMAN, a citizen of the United States, residing at Sidell, in the county of Vermilion and State of Illinois, have invented certain new and useful Improvements in Refrigerators, of which the following is a specification.

In carrying out the invention a receptacle made of galvanized iron or like material is disposed in the upper portion of a refrigerator in which the ice is usually placed and cold water is utilized as the cooling agent, being supplied from any suitable source, such as a well, reservoir, or the like. A special form of vent is employed, and the inlet and outlets, with the aid of my especially-devised vent, are so arranged that the entire capacity is utilized. Thereby a reserve of water is maintained at normal temperature and purity and at the same time serving as a very efficient refrigerant.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of a refrigerator embodying the invention. Fig. 2 is an elevation showing the receptacle, which is disposed within the refrigerator alone, showing the location of the vent. Fig. 3 is a sectional perspective view of a vent-tube and adjacent parts.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

As premised in the statement of invention, the device is especially used in connection with refrigerators, being adapted to be applied to the ordinary construction of the latter. A water-receptacle 1 is disposed in the refrigerant-chamber of the refrigerator, and said receptacle is designed to receive and contains the cooling medium, water, in this instance, and has located thereon inlet means 2 for the passage of the cooling medium into the same. The water may be supplied by any system, either natural or artificial, by a force-pump operated by hand or mechanical power, as the convenience of the case may require, by having pipe connections (underground preferable) to said receptacle. Outlet-pipes 3 and 4 extend from the receptacle 1, the outlet-pipe 3 being designed for supplying as a hydrant and is used to draw off water for house use, preferably, if the refrigerator is located within a house or the like. The outlet-pipe 4 may lead to a tank for stock or for any analogous purpose. In the flowing off of water from the receptacle by the outlet-pipe 4 it will be seen that all the warmer water, which would of course rise to the upper portion of the receptacle, will pass off, and the cooler water will then take its place. A draw-off 5 is located at the lowermost portion of the receptacle 1 and is utilized to draw off all dreggy water or sediment, such as will accumulate at the bottom of the same. In order to provide for a free escape for the air to admit of the receptacle being filled and refilled with water, to allow a free inflow of air to displace water drawn off, and to prevent leakage when receptacle is full and flowing off at outlet 4 as it continues to be forced in at 2, a vent of peculiar form is provided. This vent is disposed at the uppermost portion of the receptacle. A vent-tube 6 is secured to the upper portion of the receptacle, and a valve 7 works within the said tube and is adapted to be actuated by the water within the receptacle. The valve is preferably made of cork or like material and is adapted to be floated by the liquid when it rises within the tube 6, caused by the pressure of supply being greater than the natural flowing out at 4. A thimble 8 is screwed to the upper portion of the vent-tube 6, and a diaphragm 9 is seated upon the upper end of the said vent-tube. The diaphragm is provided with an opening 10, which constitutes the vent-opening, at its central portion, and the said diaphragm is rigidly held in place by a screw-ring 11, which screws into the upper portion of the thimble 8 and clamps the diaphragm to the upper por-

tion of the vent-tube 6. To render the diaphragm water-tight, a washer 12 may be disposed upon the outer or upper portion of the vent-tube in a manner which will be easily seen. The valve 7 is provided with a valve-stem 13, extending upwardly from the center thereof and working through the vent-opening 10. In order to prevent any lateral play within the tube 6, a guide 14 is provided upon the screw-ring 11, said guide consisting of a cross-bar integrally formed with the said ring 11. To limit the downward movement of the valve, a head 15 is located upon the upper extremity of the valve-stem, said head being adapted to support the valve when the same is open and away from the diaphragm 12. A gasket 16 may be disposed upon the upper face of the valve, which comes in contact with the diaphragm to further render the vent water-tight when the receptacle is full of water.

In the practical use of the invention the air passes in freely while drawing out at 3 or 5 and out freely while being filled, and when full the valve 7 is close upon the diaphragm 12 and the vent is closed, preventing escape of the fluid at vent. The contents of the receptacle being drawn off through the hydrant 3 or 5 lowers, of course, the level of the water, and the valve 7 lowers away from contact with the diaphragm 12, which virtually is a valve-seat, and the inflow of water is permitted. In its lowermost position, when the vent 10 is open, the valve will depend from the guide-bar 14, being supported by the head 15 of the valve-stem 13. The action of the vent will thus be seen to be entirely automatic, since the opening of either outlet 3 or 5 will cause the water in tube 6, which supports the valve 7, to recede, opening vent at 10, admitting air, and then allowing air to escape until valve is again floated, causing it to reclose, and the operation of the device will be as above described.

Having thus described the invention, what is claimed as new is—

In a device of the class described, the combination with a water-holding receptacle having inlet and outlet means, a vent-tube disposed upon the upper portion of the receptacle, a diaphragm disposed upon the upper end of the vent-tube and having a vent-opening therein, a thimble screwed to the upper end of the vent-tube and inclosing the diaphragm, a screw-ring adapted to be screwed within the aforesaid thimble and to clamp the diaphragm upon the upper end of the vent-tube, a float-valve disposed within the vent-tube and having a stem leading upwardly therefrom, a cross-bar formed upon the screw-ring and adapted to coöperate with the valve-stem and direct its movement within the vent-tube, and a head formed upon the upper end of the valve-stem, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANKLIN M. VANNEMAN. [L. S.]

Witnesses:

W. H. PATTERSON,

JOS. A. LINDER.