Feb. 13, 1940. J. J. SZUSH 2,190,574

WATER COOLING DEVICE

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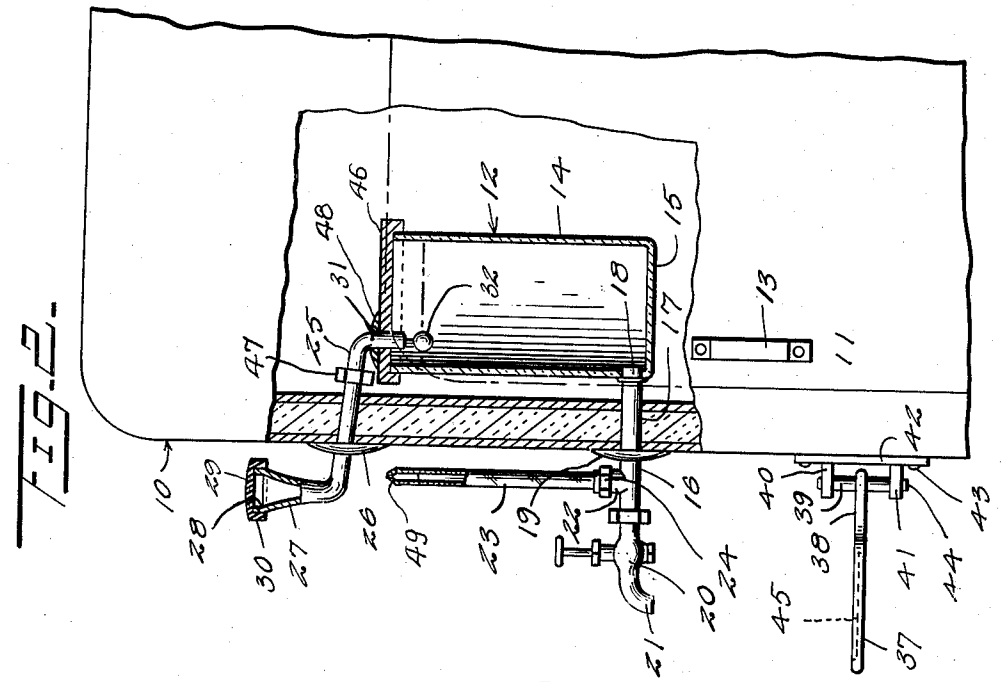


FIG. 2.

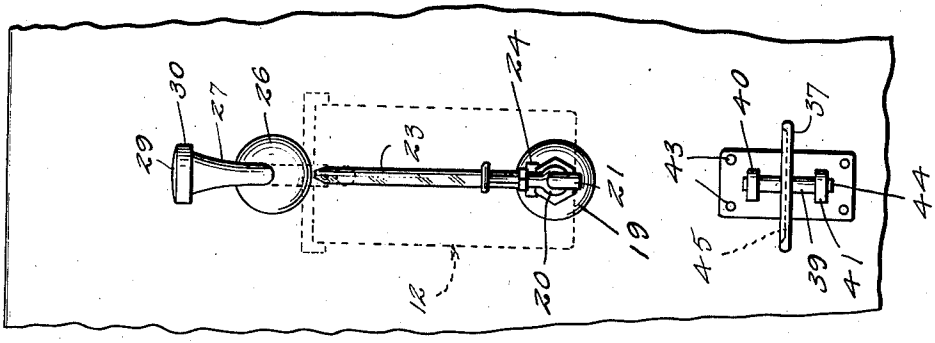


FIG. 1.

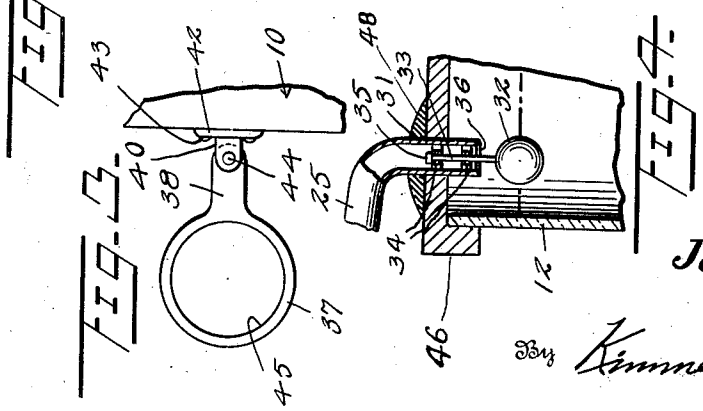


FIG. 3.

FIG. 4.

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WATER COOLING DEVICE

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2 Claims. (Cl. 62—89)

This invention relates to water cooling devices and more particularly to a water cooling means adapted to be mounted in a refrigerator.

An object of this invention is to provide means for cooling water in a refrigerator, the means being so constructed and mounted relative to the refrigerator that water may be withdrawn from the receptacle without making it necessary to open the door of the refrigerator.

Another object of this invention is to provide in combination with a refrigerator a water cooling means which includes a receptacle positioned within the refrigerator and means on the outside of the refrigerator whereby the quantity of water in the receptacle may be readily determined.

A further object of this invention is to provide an improved water cooling means including a receptacle within the refrigerator and an intake pipe discharging into the receptacle, the pipe being provided with a float operated valve so as to prevent overflowing of the receptacle during the filling operation.

To the above objects and to others which may hereinafter appear, the invention consists of the novel construction, combination and arrangement of parts as will be more specifically referred to and illustrated in the accompanying drawing, wherein an embodiment of the invention is shown, but it is to be understood that changes, modifications and variations may be resorted to which fall within the scope of the invention as claimed.

In the drawing:

Figure 1 is a detail front elevation of a water cooling means mounted in a refrigerator being shown in fragmentary elevation,

Figure 2 is a detail side elevation of the refrigerator partly broken away and in vertical section showing the water cooling means mounted in the interior of the refrigerator, the cooling means being shown partly in vertical section and partly in side elevation,

Figure 3 is a plan view of a tumbler supporting means associated with this invention, and

Figure 4 is a fragmentary view in section partly in detail of the float valve.

Referring to the drawing, the numeral 10 designates generally a refrigerator cabinet provided with a door 11 and a handle 13. The refrigerator 10 is of conventional construction and may be either a mechanical type of refrigerator or one which is cooled through the medium of ice positioned in an ice compartment forming part of the refrigerator.

At the present time in refrigerators it is the practice to insert a bottle on the interior of the cabinet for the purpose of cooling water or similar liquids. In a case of this kind in order to remove the water from the bottle or other receptacle, it is necessary on each occasion to open the door 11 of the refrigerator, thus admitting a quantity of warm air. In order, therefore, to provide a means whereby a receptacle may be placed on the inside of the refrigerator 10 and water withdrawn from the receptacle and also poured into the receptacle without opening the door thereof, I have provided a receptacle 12 which is adapted to be positioned in a fixed position on the interior of the refrigerator 10. The receptacle 12 comprises vertical walls 14 and a bottom wall 15. The top of the receptacle 12 is preferably open. A discharge pipe 16 extends through an opening 17 provided in a wall of the refrigerator 10 and is secured as at 18 to the adjacent vertical wall of the receptacle 14. A vacuum cup or sealing member 19 is positioned about the discharge pipe 16, snugly engaging about the pipe 16 on the outer side of the cabinet 10 and also snugly engaging against the outer surface of the cabinet 10. The discharge pipe 16 at its outer end is provided with a spigot 20 having a downwardly directed discharge nozzle 21.

The discharge pipe 16 at a point outwardly from the cabinet 10 is provided with an upwardly extending nipple 22, and a transparent tubular member or sight tube 23 is connected to the nipple 22 by a coupling member 24. The tube 23 is open at its upper end and the top of the tube 23 is substantially level or co-planar with the top of the receptacle 12 and the water from the receptacle 12 is adapted to flow through the discharge pipe 16 and then up into the tube 23. In this manner the level of the water in the receptacle 12 can be visibly determined from the exterior of the cabinet 10.

The receptacle 12 is adapted to be filled by a filler pipe 25 which extends through a wall of the cabinet 10, the pipe or tube 25 being downwardly inclined and a vacuum sealing member 26 similar to the sealing member 25 engages about the pipe or tube 25 on the exterior of the cabinet 10 and snugly engages against the outer surface of the cabinet 10. The outer end of the filler pipe 25 is provided with an upwardly directed and upwardly flaring intake member 27 in the form of a funnel-shaped body terminating at its upper end in a cylindrical flange 28. A cap 29 provided with a downwardly extending flange 30 yieldably engages about the open upper end of the

intake member 27. The inner end of the filler pipe 25 is provided with a vertically disposed and downwardly directed discharge portion 31 which extends into the receptacle 12 at the upper open end thereof. A float valve member 32 in the form of a hollow sphere is disposed below the open lower end of the discharge portion 31 and a stem 33 is secured to the valve member 32 and extends upwardly into the discharge member 31. A pair of guide members 34 are secured on the inside of the discharge pipe 31 and engage about the stem 33 so as to slidably support the stem 33 axially of the discharge member 31. The upper end of the stem 33 is provided with a head 35 engageable with the uppermost guide member 34 so as to limit the downward movement of the valve member 32 to an open position. The lower end of the discharge member or extension 31 is provided with a valve seat 36 against which the valve member 32 is adapted to engage so that when the receptacle 12 is substantially filled, the valve member 32 will engage against the seat 36 and thus prevent filling of the receptacle 12 to a point where the receptacle will overflow.

A tumbler supporting tray 37 provided with a stem or extension 38 is disposed below the discharge nozzle 21 of the spigot 20 and the stem 38 is provided on opposite sides thereof with tubular members 39. These tubular members 39 engage between upper and lower ears 40 and 41 carried by a base plate 42 which is secured as by fastening means 43 to the outer side of the cabinet 10. The tray 37 is swingably supported between the ears 41 by a shaft or bolt 44 which engages through the tubular member 39 and through the ears 40 and 41. In this manner the tray 37 may be disposed directly beneath the discharge nozzle 21 or may be swung to one side or the other as may be desired. The tray 37 includes a recess 45 on the upper side thereof within which the tumbler is adapted to engage so that the tumbler will not readily slide off of the upper surface of the tray 37.

The receptacle 12 is provided with a cap or closure 46 through which the discharge extension 31 extends, and the pipe 25 is provided with a union or coupling 47 so that the discharge portion 31 may be detached from the pipe 25 without removing the pipe 25 from the refrigerator wall 10. The discharge member 31 is sealed in the cap 46 by means of a suction sealing member 48. The cap or closure 46 provides means to prevent odors from the interior of the refrigerator from being absorbed by the water in the receptacle 12. The upper end of the sight tube 23 is reduced as at 49 so as to prevent dust or the like entering the tube.

In the use of this device, the receptacle 12 is initially filled by removing the rubber cap 29 and pouring the water into the funnel-shaped intake member 27. As the receptacle 12 nears its filled condition the float 32 will be moved upwardly until it seats against the valve seat 36. At this time no further water can enter the receptacle through the intake pipe 25 so that the receptacle 12 cannot be filled to overflowing. As the water rises in the receptacle 12, the water in the level indicating tube 23 will rise to the level of the water in the receptacle.

After the receptacle 12 has been filled, the cap 29 is applied to the intake member 27, and cooled water is then withdrawn from the spigot 20 and discharged into a tumbler engaging on the tray 37. The tray 37 when not in use may be swung laterally against a side of the refrigerator.

What I claim is:

1. In a refrigerator, water cooling means comprising an upstanding closed stationary receptacle disposed interiorly of the refrigerator, a discharge pipe connected at one end to the receptacle and extending outwardly through a wall of the refrigerator, an intake pipe extending through said wall and discharging into the upper end of the receptacle, a funnel-shaped intake member carried by the outer end of said intake pipe for opposing the outer face of said wall, a float valve within the upper portion of the receptacle, means for slidably suspending the float valve from the inner end of said intake pipe, a spigot on the outer end of said discharge pipe, a transparent water level indicating tube exteriorly of the refrigerator for opposing the outer face of said wall, and means securing said tube to said discharge pipe intermediate said spigot and the refrigerator.

2. In a refrigerator, water cooling means comprising an upstanding closed stationary receptacle disposed interiorly of the refrigerator, a discharge pipe connected at one end to the receptacle, extending outwardly through a wall of the refrigerator, an angle-shaped intake pipe extending through said wall and discharging into the upper end of the receptacle, a funnel-shaped intake member carried by the outer end of said intake pipe for opposing the outer face of said wall, a float valve within the upper portion of the receptacle, means for slidably suspending the float valve from the inner end of said intake pipe, a spigot on the outer end of said discharge pipe, a transparent water level indicating tube communicating with the discharge pipe and arranged exteriorly of the refrigerator for opposing the outer face of said wall, means securing said tube to said discharge pipe intermediate said spigot and the refrigerator, yieldable sealing members about said discharge and intake pipes for engaging the outer face of said wall, and a yieldable sealing member above said intake pipe and engaging the outer face of the top of said receptacle.

JOHN J. SZUSH.