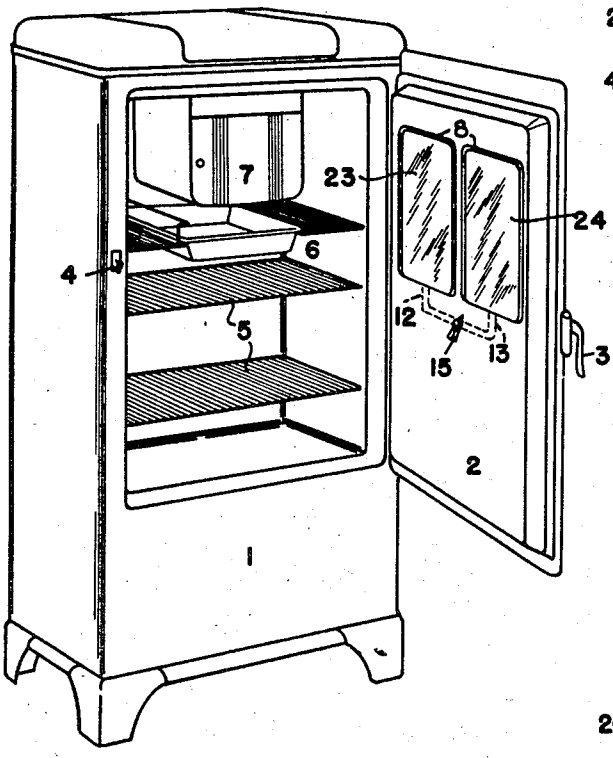
Jan. 28, 1941. J. W. HOSKINS 2,229,850

WATER COOLER

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FIG. 1



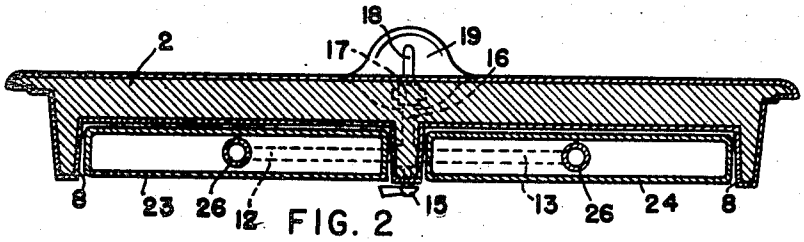


FIG. 2

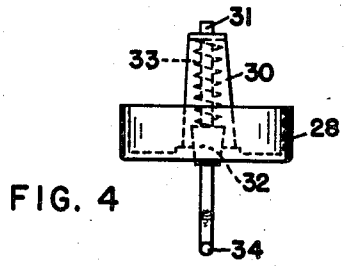


FIG. 4

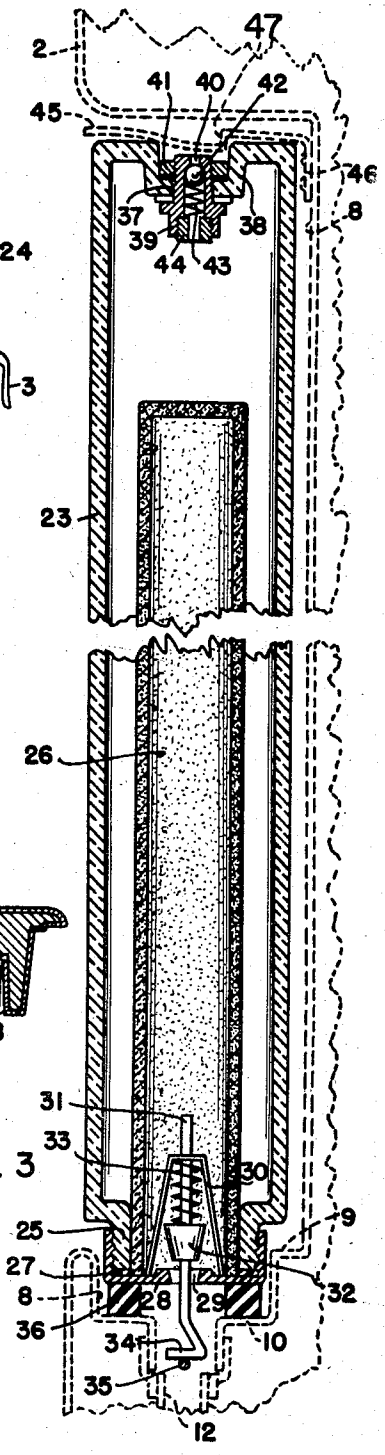


FIG. 3

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FIG. 5

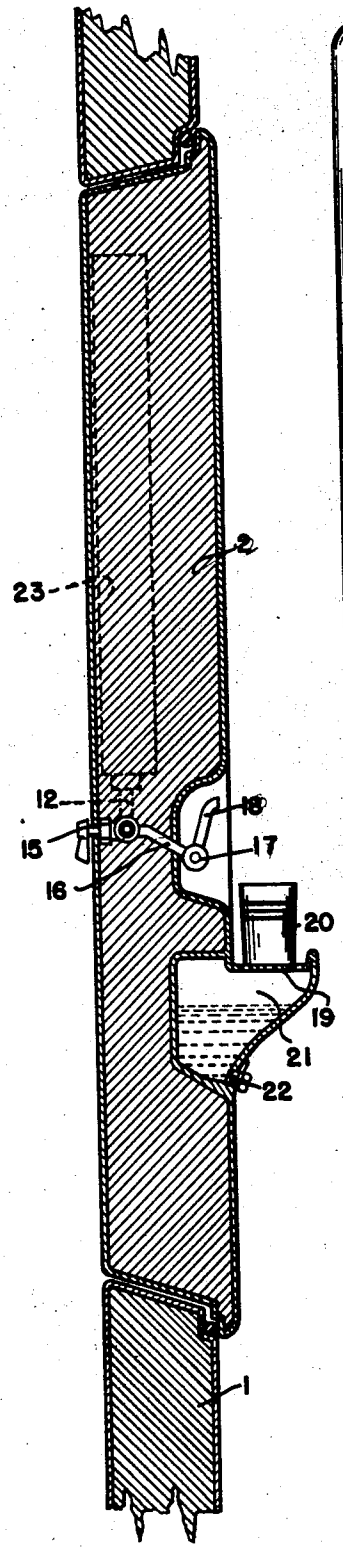
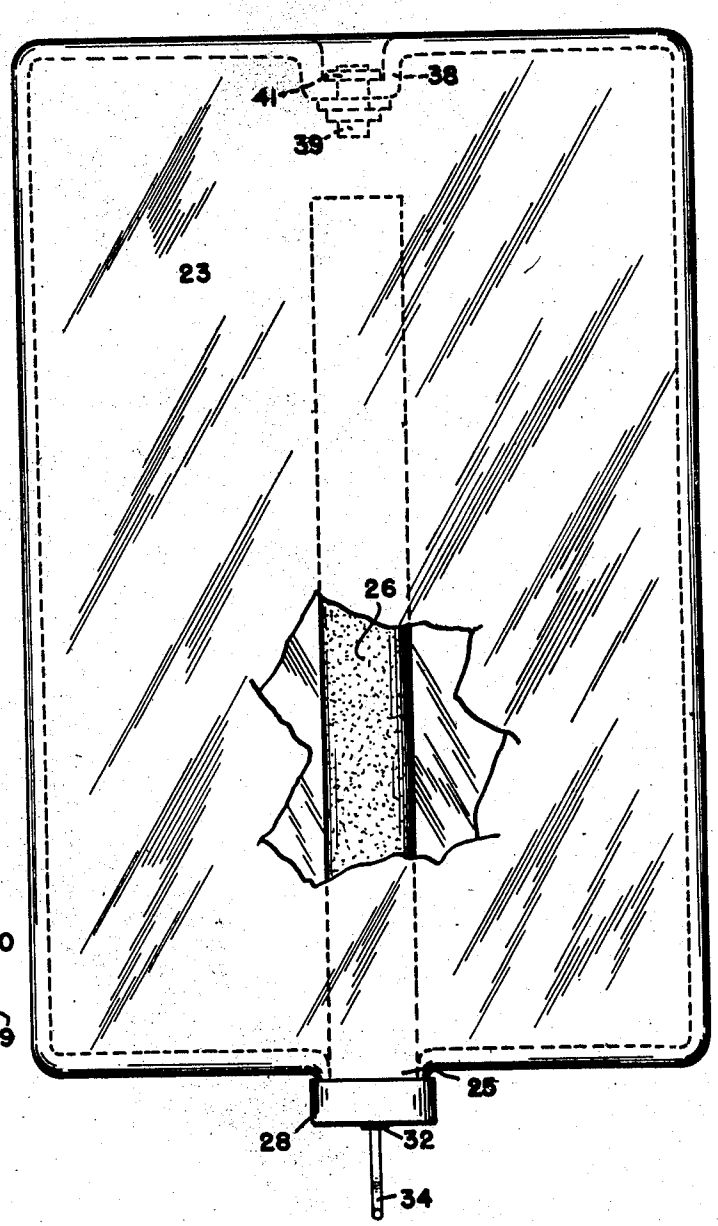


FIG. 6



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Patented Jan. 28, 1941 2,229,850

UNITED STATES PATENT OFFICE

2,229,850

WATER COOLER

James W. Hoskins, Spokane, Wash., assignor of one-half to Truan T. Lester, Spokane, Wash.

Application February 20, 1939, Serial No. 257,400

5 Claims. (Cl. 62—141)

My present invention relates to an improved water cooler and more particularly to structure and apparatus employed for supporting receptacles in a refrigerator door in order that the cooled water may be drawn from the outside of the refrigerator without the necessity for opening the door.

According to my hereinafter described invention, I support two water receptacles on the inside of a refrigerator door and by the utilization of valves and pipes connected to an exterior faucet on the door, provide for easy access to the cooled water supply.

With the use of my invention, a greater economy in the operation of the refrigerator may be obtained due to the fact that by omitting the required opening and closing of the refrigerator door, the temperature within the refrigerator is maintained at a lower level without placing any greater burden on the cooling means.

The device of my invention is also particularly adaptable for use in localities where the water supply comprises a spring, and the water from which in many instances requires filtering as well as cooling, for drinking purposes. To this end I have utilized a filter in the water jars, and the water thus drawn from the supply in the refrigerator door, is pure and free of foreign substances, and at the desirable cool temperature for drinking.

It will, of course, be understood, that the containers for the water may be filled from the household water supply or they may be delivered to the home containing spring water or water from other desirable sources.

In the accompanying drawings I have illustrated one complete example of a physical embodiment of my invention according to the best mode I have thus far devised, but it will be understood that various changes and alterations may be made in the exemplified structure without departing from the scope of the appended claims.

In the drawings,

Figure 1 is a perspective view of a refrigerator with the door open and showing two water jars in place in the door.

Figure 2 is a horizontal sectional view of the door showing the water jars and the outlet pipes therefrom.

Figure 3 is a vertical sectional view of the door and the jar showing the inner filter and the air inlet and water outlet valves.

Figure 4 is an enlarged plan of the water outlet valve structure.

Figure 5 is a vertical sectional view of the refrigerator door showing the faucet and the overflow receiving tank.

Figure 6 is a plan view of one of the jars partially broken away to show the filter therein.

Referring now to the drawings I have illustrated a refrigerator as 1, which may be of any suitable or desirable type, but which is shown as the usual electrically operated type, having a hinged door 2. The door 2 has a pivoted handle 3 of usual form adapted for coaction with the latch 4, on the refrigerator.

Within the refrigerator 1, I have illustrated the usual wire shelves 5, the uppermost shelf supporting a drip tray 6. Above this tray 6 is disposed the cooling unit and ice-making structure designated as 7.

Referring now to the particular structure with which my invention is involved, on the inner side of the door 2 I have formed cavities as 8 being substantially rectangular in shape and extending well into the door 2.

The inner walls of the cavities are formed with shoulders 9 and the bottom walls 10 having receiver depressions which are connected with pipes 12 and 13 respectively. These pipes 12 and 13 join each other at, and by means of, a rotary valve 15 of such construction as will permit the alternate opening or closing of either of said pipes. From this valve 15, the pipe 16 is provided through the door 2 for connection with the valve 17 actuated by the oscillation of the faucet 18 pivotally joined with the valve 17 and extending from the outer side of the door. When the faucet is in upraised position as shown in Figure 5, the valve is closed, and when in lowered position, not shown, the valve is open and the water is permitted to flow.

On the outer side of the door 2 is fashioned a perforated shelf 19 adapted to support thereon a drinking glass as 20 or other suitable drinking vessel.

Under the shelf 19 and partially within the door I provide an overflow receiving tank 21 having a drain plug 22.

For use in inverted position with the door so constructed I have devised the jars or containers as 23—24 of substantially rectangular shape and formed to fit snugly into the door cavities.

These jars are each formed with a restricted neck 25, and within the neck closely fitted therewith I utilize a cylindrical filter of suitable material as 26, open at its lower end and terminating at the outer extremity of the jar neck. Disposed under the neck of the jar is an annular washer 27 and a cap 28 is provided for the jar and secured thereto as by threaded engagement therewith. The cap 28 is fashioned with an opening 29 centrally disposed thereof and having an inwardly diverging surface.

To close the opening 29 of the jar cap when in upright position, I use a valve structure comprising a frame or support 30 having a reciprocable valve rod 31 therein. On the valve rod I provide a valve 32 of frustro-conical shape and

adapted to fit into the diverging opening 29. Between the valve 32 and the frame 30 on the rod 31 is fashioned a coil spring 33 formed to urge the valve into closed position. On the free end of the rod 31, I have formed a hook as 34 presenting a laterally extending surface to a valve tripper 35 fixed in the bottom wall of the cavity in such a manner as to elevate the rod 31 upon contact therewith.

Between the jar cap and the bottom wall of the neck-receiving depression is provided a washer as 36 of rubber or other resilient and sealing material.

In the upper wall of the jar, in inverted position, I have fashioned a valve structure for the purpose of relieving any vacuum which may appear in the jar due to the outflow of water. This structure involves the opening 37 in the jar, the opening being surrounded by a countersunk wall 38 to prevent damage to the valve when the jar is placed in upright position. Through the opening 37 extends the valve casing 39 having an opening 40 therethrough and the casing is secured by means of a nut as 41. This opening 40 is sealed by a ball valve 42 secured in closed position by a spring 43, and the spring 43 is maintained within the casing by the retaining plug 44.

It will be apparent that if a vacuum is created in the jar, the differential air pressure will force the ball valve against the tension of its spring and permit the pressure within the jar to become equalized with the atmospheric pressure.

The jar is spaced from the walls of the cavity at the bottom by the shoulder 9 and is secured to and spaced from the wall at the top of the cavity by means of a spring clip 45 having means for securing the clip to the cavity wall as at 46, and provided with a transverse shoulder 47 adapted to engage the countersunk wall 38 to releasably retain the jar in position in the refrigerator door.

In operation, assuming the cooling unit to be in operation, and the interior of the refrigerator to be cool, the jars, the number thereof being limited only by the size or area of the door, filled with water are placed in their respective cavities and the valves 32 will be automatically opened. The water will then flow through the pipes 12 and 13 to the valve 15 where the valve will be operated by hand to open one of the pipes 12 or 13.

When it is desired to fill a glass, the vessel is placed on the shelf 19 and the faucet is lowered whereupon the water will pour therefrom. When the glass is filled it is necessary only to elevate the faucet and the water is cut off.

When the supply of water in the jar being used, is exhausted, the valve 15 is operated to open the other pipe, and the device will continue ready for operation until all of the water has been drawn, and the jars need to be refilled or replaced.

It is believed apparent that the structure disclosed may readily be employed in any existing refrigerator with minor changes, and that the device will readily conform to the manufacture of new refrigerators. It is also apparent that the invention may be employed in electrically operated, gas operated, or ice cooled machines, or refrigerators cooled in any manner whatsoever, due to the fact that the cooling of the water is not subject to mechanical connection with the cooling unit, but depends only on the cool air contained within the refrigerator.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The combination, with a refrigerator door provided with receptacle supporting means, of a water receptacle carried by said means and having a discharge valve in one end thereof, means on the door for opening said valve when the receptacle is supported on the door, a cylindrical filter within said receptacle enclosing said valve and rising therefrom, and means for discharging the filtered water from the receptacle from the outside of the door.

2. The combination with a refrigerator door having a cavity on the inner side thereof, the bottom wall of said cavity being in communication with pipes extending to the outer side of the door and dispensing means connected with said pipes, of a water receptacle having a plunger-valved outlet and adapted for insertion in said cavity, means on the door for actuating the plunger-valve in said outlet to place the interior of the receptacle in communication with said dispensing means, and means in said receptacle for equalizing any differential pressure which may arise from the discharge of the water therefrom.

3. In combination with a refrigerator door having a cavity on the inner side thereof, the bottom wall of said cavity having a neck-receiving depression in communication with pipes in said door extending to the outer side of the door, and dispensing means connected with said pipes, of a water receptacle having an outlet neck adapted for insertion in said cavity and means to place the interior of the receptacle in communication with said pipes and said dispensing means.

4. In combination with a refrigerator door having a cavity on the inner side thereof and an encircling neck-receiving depression in the bottom wall of said cavity being in communication with pipes in said door extending to the outer side of the door, and dispensing means connected with said pipe, of a water receptacle having a valved outlet neck adapted for insertion in said neck-receiving depression and means on the door for actuating the valve in the outlet neck to place the interior of the receptacle in communication with said dispensing means whereby the water contained in the receptacle may be discharged.

5. The combination with a refrigerator door having a cavity on the inner face thereof and an encircling neck-receiving depression in the bottom wall of said cavity, pipes in said door communicating with said neck-receiving depression and extending to the outer side of the door, dispensing means connected with said pipes and a sealing washer in the bottom of the neck-receiving depression, of a water receptacle having a plunger-valved outlet neck adapted for insertion in said neck-receiving depression and for coaction with said washer and means in the door for actuating the valve in the outlet neck to place the interior of the receptacle in communication with said dispensing means.

JAMES W. HOSKINS.