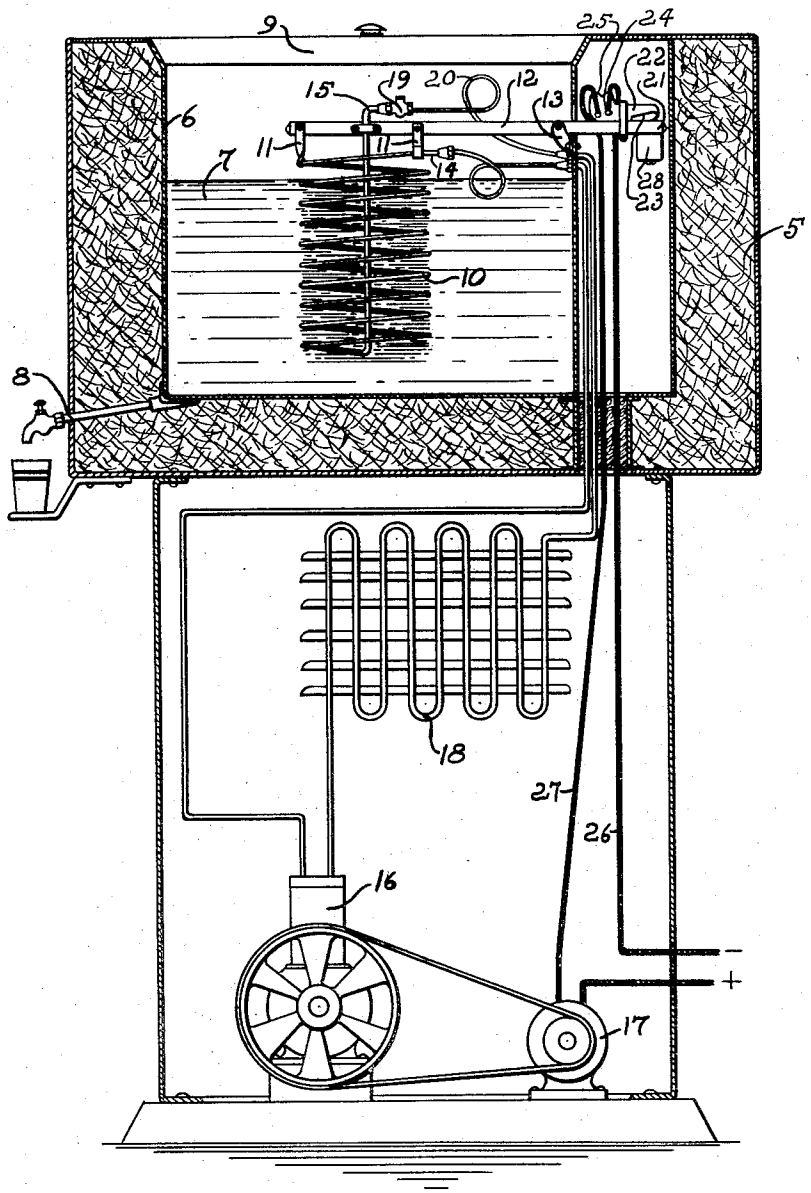
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REFRIGERATING SYSTEM

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REFRIGERATING SYSTEM

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My invention has for one of its primary objects the provision with a refrigerating apparatus of means for starting and stopping the apparatus in response to movement of the heat absorptive portion of the apparatus which movement is caused by the lowering or raising of the temperature surrounding the heat absorptive device.

More specifically, my invention contemplates the provision of a heat absorptive element in a body of fluid so that as heat is withdrawn from the fluid, the fluid will congeal on the device, causing the device to float in the fluid for the purpose of operating a control device.

With the above and other objects in view, my invention consists in the arrangement, combination and construction of the various parts of my improved device as described in the specification, claimed in my claims and shown in the accompanying drawing, in which:

The single figure is a view partly in section and partly in elevation of a refrigerating apparatus embodying my invention.

I have shown a thermally insulated housing 5 within which may be poistioned a tank 6 which is adapted to contain water or other suitable fluid 7 to be cooled. A conventional fluid outlet pipe 8 is shown as well as a conventional cover 9 for the tank 6.

Positioned within the tank 6 is a heat absorptive device which in this particular illustration comprises a plurality of loops of pipe 10. The piping 10 is supported by means of brackets 11 from a rod 12 which is pivotally supported from the side wall of the tank 6 by a bracket 13.

The piping 10 comprises two ends 14 and 15, the former extending to a compressor 16 which is adapted to be operated by an electric motor 17. As will be understood by those skilled in the art the compressor 16 draws gasified refrigerant through the pipe 14, compresses it and forces the same into the condenser coils 18 where it is cooled and liquefied and then returned through the pipe end 15 to the expansion coils or heat absorptive device illustrated by the coils 10. A suitable expansion valve, diagrammatically illustrated at 19 may be provided immediately adjacent the coils 10.

As will be well understood by those skilled in the art, it is necessary to operate the compressor 16 only intermittently inasmuch as the fluid 7 will be cooled to a sufficient extent by less than continuous operation. Operation of the compressor by the motor 17, which results in the drawing off of gasified refrigerant from the coil 10 permits that coil to be operated in the most efficient manner as a heat absorptive device and as it absorbs heat a coating of ice will be formed thereon. As the amount of ice so formed increases there will be a tendency for the same to float thus raising the coils 10 and the supporting arm 12, the latter pivoting on its bracket support 13 and slightly bending the coils 20 of the pipe ends 14 and 15. This raising of the support 12 and pivoting of the same will cause a lowering of the end 21 thereof. Mounted on this end 21 is a bulb 22 containing a drop of mercury 23 as well as a pair of electrical contact points 24 and 25. As the end 21 is lowered the mercury drop 23 will move away from the contact points 24 and 25 breaking the connection between the same and thus breaking the electrical circuit maintained by the wires 26 and 27 to the motor 17, thus stopping the motor and discontinuing the operation of the compressor. As the compressor remains idle the ice formed on the coils 10 will melt causing a lowering of the coils 10 together with the support 12, thereby permitting the mercury drop 23 to fall to the opposite end of the tube 21 from that shown in the drawing, thereby connecting the points 24 and 25 and reestablishing the circuit between the electric lead lines 26 and 27 to again operate the motor and compressor.

In order that the weight of the coils 10 may not be so excessive as to require the formation of too great an amount of ice thereon in order to operate the control, I may provide a counter weight 28 on the end 21 of the support 12.

It will be readily understood by those skilled in the art that the piping at the ends 14 and 15 should be relatively flexible, such as thin walled copper tubing, in order that

the device may efficiently and continuously operate. It will also be well understood that various types of heat absorptive devices other than the one shown herein may be used without departing from the spirit of my invention and also that various types of control devices may be used. The invention may be utilized with absorptive refrigeration systems equally as well as with systems of the compressor type and the control may be utilized for alternately operating other than electrical circuits. I desire it to be understood that I use the term "electrical circuit" in a broad sense and that any other mechanism by which the refrigeration system is alternately operated and allowed to remain idle is the full mechanical equivalent thereof.

It will be obvious that various changes may be made in the arrangement, combination and construction of the various parts of my improved device without departing from the spirit of my invention and it is my intention to cover by my claims such changes as may reasonably be included within the scope thereof.

What I claim is:

1. A refrigerating apparatus including a heat dissipating device and a movable heat absorbing device, and means, controlled by the movement of said heat absorbing device, independent of any movement of the heat dissipating device, for alternately operating said heat dissipating device.

2. A refrigerating apparatus including a heat dissipating device and a vertically movable heat absorbing device, and means, controlled by the upward movement of the heat absorbing device, independent of any movement of the heat dissipating device, for stopping and by the downward movement thereof for starting the operating of the heat dissipating device.

3. A refrigerating apparatus including a heat dissipating device and a movable heat absorbing device, means controlled by the absorption of heat by said heat absorbing device for moving it and means, controlled by such movement, independent of any movement of the heat dissipating device, for intermittently operating said heat dissipating device.

4. A refrigerating apparatus including a heat dissipating device and a movable heat absorbing device, a body of liquid at least partially enclosing the latter device adapted to congeal on said device as it absorbs heat whereby, when a sufficient body of ice has been formed thereon, said device may float and rise in said liquid, and means controlled by the rising and falling of said device for intermittently operating the heat dissipating device.

5. A water cooler comprising a receptacle containing water to be cooled, a heat absorbing device positioned in said water adapted to congeal water on its surface by its heat absorptive action whereby, when a sufficient body of ice has been formed thereon, it may float and rise, a heat dissipating device and means controlled by the rising and falling of the heat absorbing device for intermittently operating the heat dissipating device.

HUGH J. SCULLEN.