The general nature of the invention having been set forth a preferred embodiment will now be described with reference to the drawing, to disclose fully the features already mentioned as well as features of advantage which can be better appreciated after a detailed description.

The drawing is an elevation of a heat exchanger having the instant invention appended thereto, with parts thereof broken away to better show details.

A heat exchanger indicated generally at 1 is formed of a generally rectangular casing having a sump 10 formed in the bottom thereof to which make-up water is fed from any convenient source through a line 12. A valve 14, operated by a conventional float 16, controls the flow of water through line 12 to maintain a substantially constant water level in sump 10. A drain line 18 is provided, controlled by a valve 20 for draining the sump whenever the same becomes necessary.

A motor 22 drives water pump 24 which draws water from the sump via line 26 and delivers it via line 28 to a water header 30. A plurality of shower pipes 32 are connected to heater 30 and run the full length of the heat exchanger. Each pipe 32 has a plurality of spray nozzles 34 attached thereto through which the circulating water is sprayed over a coil bank positioned therebeneath for eventual return to the sump.

An inlet header 36 receives refrigerant gas from a refrigerant compressor (not shown). The gas circulates through a plurality of sinuous tubes 40 wherein it is condensed to a liquid by the circulating water. An outlet header 38 collects the liquid for delivery to a refrigerant evaporator (not shown).

As was pointed out above, means must be provided for bleeding off a portion of the circulating water. In cases where the rate of evaporation is high, a high level of precipitated solids will accumulate in the sump water. If this is not disposed of by adequate bleed off, the action of the chemical will be nullified.

For bleeding off a portion of the circulating water, a pan 42 is connected by straps 44 to the lowermost tube 40. A slideable cover 50 serves to regulate the amount of water caught in pan 42. A suitable line 46 connects pan 42 with drain line 18 by way of a T fitting 48.

The feeding apparatus for the water treating solution comprises a container 52 mounted on any suitable base 54. A water treating chemical is placed in solid or crystalline form in container 52. A liquid inlet line 56 is connected to the discharge line 28 of pump 24 for the passage of water to the container. The water treating chemical will go into solution with the water in the container and this solution is then fed to the sump of the heat exchanger. Line 56 is provided with a normally opened valve 58 so that the flow of water to container 52 may be discontinued if necessary for any reason.

The water level in container 52 is maintained substantially constant by a valve 60 controlled by a float 62. An overflow line 64 leads to line 46 and thence to drain line 18 to insure that water will not overflow container 52 should valve 60 for any reason be held in an open position.

A line 66 having a hand controlled valve 68 therein for regulating the flow of solution therethrough terminates in a conventional valve 70 of the float operated type. Valve 70 is opened and closed by a modified float or half ball 72 provided with an aperture 74. When half ball 72 is in its upper position (shown in dotted lines) valve 70 is closed. When half ball 72 is in its lower position, as shown, then valve 70 is open. Half ball 72 is positioned in the water fall from spray heads 34. A counterweight 76 normally biases half ball 72 to its upper valve closing position. Counterweight 76 is so adjusted that when the half ball 72 is full of water, the combined weight of ball and water will move the ball to its lower valve opening position against the bias of the counterweight. Aperture 74 is so sized that it will drain the ball of collected water when the circulation of water from spray heads 34 ceases.
Air, entering opening 78 in the front wall 80 of the housing, circulates over the coil bank in counterflow relation to the passage of the water. Fans may be provided to aid this air circulation.

In operation, valve 20 is closed and valve 58 is opened. Valve 68 is set to give the desired feeding rate of the water treating solution. Cover 50 is adjusted on pan 42 to give the proper bleed off.

Motor 22 is turned on to drive pump 24. As the water flows over the coil bank, half ball 72 will become full and overcome the bias of counterweight 76 to open valve 70. Since half ball 72 is directly positioned in the water fall from spray heads 34, it will remain full of water despite the continual seepage of water therethrough via aperture 74. The solution will then commence to drip into sump 10. When the operation is terminated, the water will drain from ball 72 via aperture 74 and counterweight 76 will then bias the ball to the valve closing position. Also, upon termination of operation water will cease flowing from the discharge line of the pump and via line 56 to container 52.

As many possible embodiments may be made of the features of the above invention, without departing from the scope of the invention, it is to be understood that all matter heretofore set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. In a heat-exchanger having a sump containing a body of water, a bank of tubes for the passage of a refrigerant therethrough, and means for circulating water from said sump over said bank of tubes; water treating means comprising a reservoir for a water treating solution, a pipe line communicating said reservoir with said heat-exchanger sump and terminating in a control valve, means biasing said valve to a normally closed position and means responsive to a flow of water over said bank of tubes for biasing said valve to an open position comprising a half-ball positioned in said water flow and adapted to be filled with the circulating water for overcoming the bias of said valve closing means.

2. The device of claim 1 wherein said half-ball has an aperture in a wall thereof for draining said water therefrom whereby said valve closing means is operative to close said valve when said water flow ceases.

3. The device of claim 2 with means for bleeding off a predetermined amount of said circulating water and float controlled means for supplying make-up water to said sump.

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