

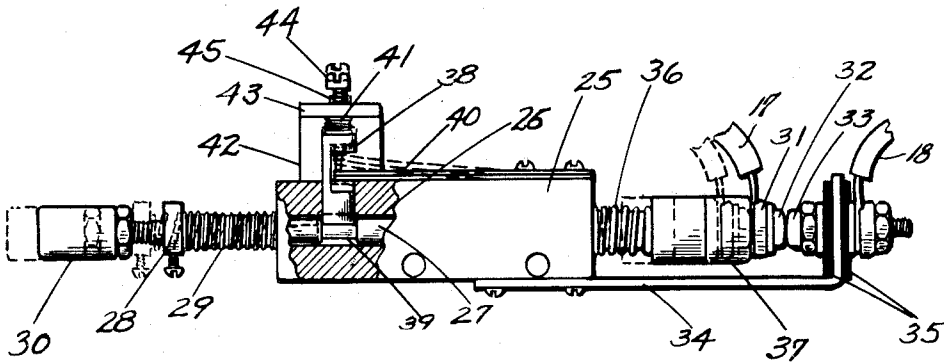
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CIRCUIT BREAKER

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CIRCUIT BREAKER

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1 Claim. (Cl. 200—138)

This invention relates to circuit breakers for liquid receptacles.

The primary object of the invention is to provide means whereby the liability of the liquid receptacle becoming overheated or the heating element becoming burnt out, will be reduced to a minimum. The device is shown as used in connection with an electric heater and it is so correlated with the heater circuit that whenever the liquid level in the receptacle reaches a level low enough to render it incapable of dissipating the heat from the burner, the circuit for the heater will be broken and means is provided for manually restoring the circuit.

The novelty of the invention will be understood by reference to the following drawings in which:

The figure is a side view partly in plan and partly in section of the circuit breaker.

The circuit breaker is illustrated in detail in the figure as consisting of a block 25 having a longitudinal opening 26 through which a stem or bar 27 projects. The stem or bar 27 at one end carries a collar 28 with an expansion spring 29 between the collar and the end of the block and a hand piece 30 at the extreme end of the stem or rod. The other end of the stem or rod extends into the socket member 31 which carries the contact 32 to contact with contact 33 on the end of arm 34. The contact 32 is insulated from the arm 34 by the insulation 35 and one of the wires, for example, 18, may be fastened to contact 32 and the other wire 17 fastened to the contact 33. The expansion spring 36 will urge the socket member with the contact 32 in a longitudinal direction to contact members 32 and 33, this spring having one end bearing against the socket member and the other against the block.

It is to be noted that the scale of the spring 29 preponderates over the scale of the spring 36 so that there will be a normal tendency for the stem or shaft to move in one direction to spread the contacts apart to break the circuit, because the spring 29 preponderates over spring 36 and the end of the stem 27 is provided with a head 37 in the socket member 31. The contacts are held together however, in yielding contact by a thermostatically controlled detent consisting of a

latch bar 38 adapted to engage a notch or groove 39 in the stem or bar 27.

The latch bar passes transversely into the block 25 and it is actuated by a thermostatic blade 40 of bi-metallic metal which will move the latch outwardly against the action of the spring 41, when the block becomes heated. The block 25 consists of a metal having a relatively high degree of conductivity and it lies in close proximity to the heater casting so that its temperature will be relatively the same as the temperature of the heater.

It will be noted that the bar 25 carries a bracket 42 with a transverse lip 43 through which a screw 44 projects and which engages the portion 45 of the large bar and extends down to the thermostatic bar, the screw providing an adjustment so that the thermostatic bar will release the latch at a predetermined temperature.

When the parts are assembled and the two contacts are yieldingly held together by maintaining the large bar or detent in the groove in stem 27, the current will flow through the heater supplying a predetermined wattage dependent upon the particular tap to which the contact 24 is fastened. The amount of wattage supplied by the heater will depend upon the quantity of liquid to be kept warm and the wattage supplied will be as near as possible in direct ratio with the amount of heat dissipated by the receptacle. As the liquid is used out of the receptacle, obviously its capacity for dissipating heat will be proportionately reduced until by the time the liquid is very low in the receptacle, the heat will be supplied faster than it can be absorbed or dissipated by the liquid. Therefore, the heater will get too hot and unless some means is provided for cutting off the current, the heater casting or its correlated parts would become dangerously overheated, but inasmuch as the circuit breaker is connected in intimate contact with the heater casting, the thermostatic blade will have its free end move away from the block when it becomes too hot and release the detent or large bar to permit the preponderating spring 29 to move the contact support to break the circuit so that the heater may cool.

From the foregoing, it will be apparent that the heater or the surrounding parts will never become easily hot because the circuit will be

broken before the temperature of the heater rises to a dangerous degree.

What I claim is:

5 A circuit breaker comprising a block, an elongated longitudinally movable contact carrier in the block, a collar on the longitudinally movable member, a spring between the end of the block and the collar, a longitudinally yielding contact on the end of the longitudinally movable member
10 distant from the spring, a spring weaker than

the first spring between the contact and the block, a contact in line with the first named contact, a transversely movable detent in the block to engage a notch in the longitudinally movable member, and a thermostatic blade for moving the detent so that the first named spring can impart movement to the longitudinally movable member to cause the first named contact to move away from the second. 5

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