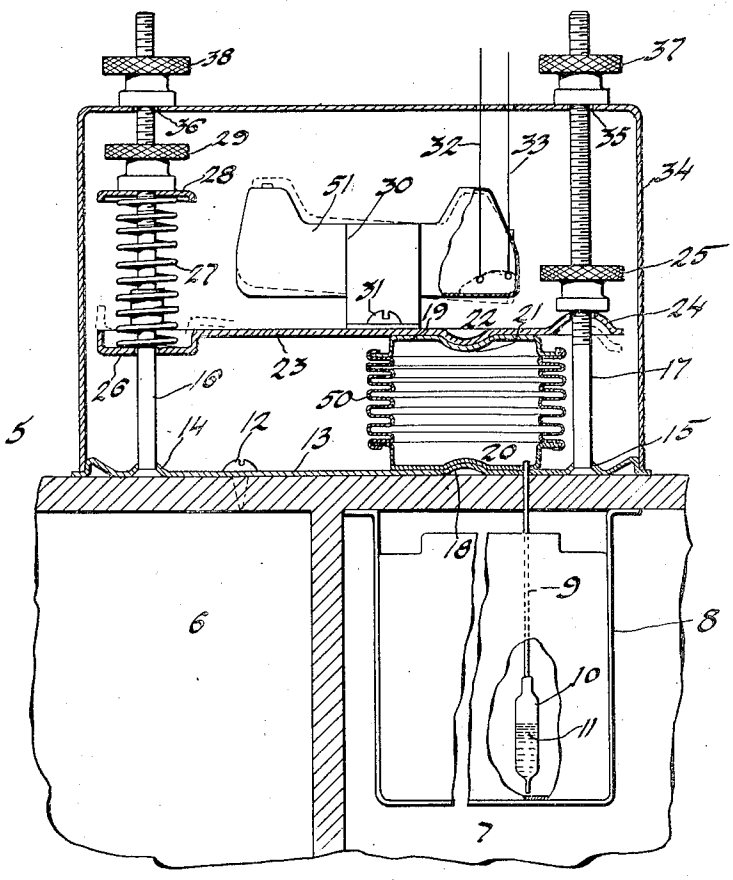
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CONTROL FOR ELECTRIC CIRCUITS

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CONTROL FOR ELECTRIC CIRCUITS.

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It is the primary object of my invention to provide a control for electric circuits, and particularly one adapted for use in electric refrigeration system, for controlling the operation of the electric motor and compressor in accordance with the temperatures obtaining in the refrigerator box. In accomplishing this, I provide a sylphon mounted outside the refrigerator box and connected by a tube with the interior of the box, said tube containing a gas adapted to expand and contract the sylphon in accordance with temperature variations. I connect a mercury tube or other suitable circuit making and breaking devices with the sylphon in such a manner that the tube and the sylphon will be tilted by expansion or contraction so as to make or break the electric circuit.

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 central sectional view showing diagrammatically a refrigerator box with my improved device applied thereto.

I have shown a refrigerator box or cabinet having a conventional food compartment 6 and freezing compartment 7. In the freezing compartment 7 I have conventionally shown a freezer or brine tank 8 into which a tube 9 having an enlarged end 10 is extended. The bottom of the end 10 is sealed and a supply of liquid which will gasify in the presence of certain temperatures is contained therein, as shown at 11.

Mounted on the top of the box 5 by means of screws 12 is a plate 13 having struck-up portions 14 and 15 from which screw-threaded standards 16 and 17 extend. Mounted on another struck-up portion 18 of the plate 13 is a conventional sylphon bellows 50 having a top closure 19 and a single opening which communicates with the tube 9 as at 20. The sylphon is provided with a central depression 21 in which the depression 22 of a plate 23 seats. The plate 23 is provided with a struck-up portion 24 which is apertured to receive the standard 17. A nut 25 is screwed on the standard 17 against the top of the struck-up portion 24 so as to anchor the same in any desired position. The opposite end of the plate 23 is provided with an apertured depression 26 through which the standard 16 extends. Positioned around the standard 16 above the plate 23 and seating in the depression 26 is a coil spring 27. A flanged washer 28 is provided on the top of the spring 27 and a nut 29 is threaded on the standard 16 so as to adjustably hold the spring 27 under compression and thereby exert an adjustable and yieldable pressure upon the plate 23.

Positioned above the plate 23 and secured thereto by means of a strap 30 and screw 31 is a conventional mercury tube 51 adapted to contain a drop of mercury, and having electric leads 32 and 33 extending therefrom.

A hood 34 is provided over the operating parts of the control, being suitably apertured as at 35 and 36 so that the standards 17 and 16 may extend therethrough and bearing at its bottom against the plate 13. Nuts 37 and 38 are provided on the standards 17 and 16, respectively, above the top of the hood so as to removably secure the hood in place.

In the practical operation of my improved device, when the temperature in the freezing chamber 7 or freezer 8 is above a predetermined level, the liquid contained in the tube 9 will gasify and expand into the sylphon 50 thereby causing the sylphon to expand and raise the plate 23 against the pressure of the spring 27 until the mercury tube 51 is tilted to bring the mercury drop therein to the end of the tube where the electric terminals are positioned (as viewed in the drawing, the left hand end of the tube would be raised to bring the drop of mercury to the right hand end thereof). When the operation of the refrigerating appartus has continued to the point where the temperature in the freezer 8 is reduced a predetermined amount, the gas will be liquefied so as to release the pressure exerted upon the sylphon 50 and permit the coil spring 27 to force the plate 23 downwardly and reverse the position of the mercury tube 51 so as to break the circuit between the electric leads 32 and 33. By reason of the fact that one end of the plate 23 is anchored by means of the nut 25, it will be apparent that the action of the sylphon will not constitute a straight vertical movement. One side of the sylphon will tilt while the other side, which is closest the anchoring nut 25 will remain relatively stationary. In that manner, the plate 23 will not be raised directly vertically, but will be tilted.

It will be apparent that the operating range of the device may be controlled and adjusted through the nut 25, while the temperatures

at which the current will be turned off or on may be adjusted through the nut 29.

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 be reasonably included within the scope thereof.

What I claim is:

1. A control device comprising a sylphon, means for expanding the same, a plate overlying the top of the sylphon having a circuit make and break device secured thereon and adapted for actuation by movement of the plate, a standard on one side of the sylphon, means adjustably anchoring the one end of the plate to the standard, a standard on the other side of the sylphon, the other end of the plate being slidably engaged therewith, and a spring engaged with the latter end of the plate for contracting the sylphon under predetermined conditions.

2. A control device comprising a sylphon, means for expanding the same, a plate overlying the top of the sylphon having a circuit make and break device secured thereon and adapted for actuation by movement of the plate, a standard on one side of the sylphon, means adjustably anchoring the one end of the plate to the standard, a standard on the other side of the sylphon, the other end of the plate being slidably engaged therewith, a spring engaged with the latter end of the plate for contracting the sylphon under predetermined conditions, and means for adjusting the tension of the spring.

3. A control device comprising a sylphon, means for expanding the same, a plate overlying the top of the sylphon having a circuit make and break device secured thereon and adapted for actuation by movement of the plate, a standard on one side of the sylphon, means adjustably anchoring the one end of the plate to the standard, a standard on the other side of the sylphon, the other end of the plate being slidably engaged therewith, a spring engaged with the latter end of the plate for contracting the sylphon under predetermined conditions, and means for adjusting the tension of the spring, said means comprising a nut threaded on the second standard, and adapted to apply pressure on the spring.

4. A control device comprising a sylphon, means for expanding the same, a plate overlying the top of the sylphon having a circuit make and break device secured thereon and adapted for actuation by movement of the plate, a standard on one side of the sylphon, means adjustably anchoring the one end of the plate to the standard, a standard on the other side of the sylphon, the other end of the plate being slidably engaged therewith, and a cover enveloping the parts and engaged with said standards for securing it in place.

5. A control device comprising a sylphon, means for expanding the same, a pair of standards, one disposed on one side of the sylphon and the other on the opposite side, a plate resting on the top of the sylphon having holes in each end thereof, one engaged around one standard and the other around the other standard, the surface of the plate around one opening being convex and a nut threaded on the standard for holding said end as a fulcrum point, a coiled spring around the other standard bearing at one end against the other end of the plate, a nut on the standard adapted to adjustably exert pressure on the other end of the spring, and a circuit make and break device secured to the plate intermediate its ends.

6. In combination, a sylphon, means for expanding said sylphon, a member pivotally connected between its ends to said sylphon, an abutment for one end of said member, means for adjusting the position of said abutment, a spring under compression between the opposite end of said member and a second abutment, means for adjusting the position of said second abutment whereby to control the effective pressure of said spring on the corresponding end of said member, and a switch mechanism moved by movement of said member.

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