FREDERICK S. DENISON, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO MINNEAPOLIS HEAT REGULATOR COMPANY, OF MINNEAPOLIS, MINNESOTA, A CORPORATION.

THERMO CIRCUIT-CLOSER.

1,290,928.


To all whom it may concern:

Be it known that I, FREDERICK S. DENISON, a citizen of the United States, resident of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Thermo Circuit-Closers, of which the following is a specification.

In the operation of a thermostatic device for controlling the dampers of a heating apparatus, difficulty has been experienced in preventing the thermostatic bar from becoming bent or twisted out of proper shape through the pressure on the rigid contact screws of the terminals. The object, therefore, of my invention is to provide an improved means for mounting these contact screws in such a manner that they will accommodate themselves to the pressure of the thermostatic bar without interfering with the closing of the circuits therethrough.

The invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification,

Fig. 1 is a front view, partially in section, of a thermostat embodying my invention.

Fig. 2 is a vertical sectional view of the same.

Fig. 3 is a front view of the gage with a portion of the dial broken away, showing the application of my invention thereto.

In the drawing, 2 represents the base of a thermostat. 3 is a thermostatic bar, having a tongue 4 which projects downwardly between contact screws 5 which are mounted in posts 6. The bar 3 has a conductor A leading to one terminal of a motor B and the posts 6 have conductors C and D leading therefrom to the motor. 7 is an indicator hand pivoted at 8 on the base and movable over the graduations of a dial 9. The posts 6 are mounted in links 10 which are pivoted at 11 on the indicator 7 on each side of its pivot 8 and are pressed inwardly toward each other and a stop 12 by means of springs 13. These springs are comparatively light and are adapted to yield under pressure of the thermostatic bar on the contact screws, so that, if the instrument be set for a high temperature and for some reason the room should become cold so that the bar is contracted and would normally bear without undue pressure upon one of the contact screws, the spring for the link on which said screw is mounted would allow the link to swing outwardly while still remaining in contact with the bar until the temperature rose sufficiently to expand the bar and move it in the opposite direction.

In Fig. 3 the invention is applied to a gage 14 having the usual hollow coil 15 connected with the coupling 16 through which pressure is admitted to the coil. One end of this coil has a tongue 17 thereon to extend between the contact screws, as described, and a link 18 connects said end with a quadrant 19 which is geared in any suitable manner to the indicator hand 20 that is movable over the face of the dial 21. The contact screws and the links are substantially the same as described with reference to Fig. 1 and I will designate them by the same reference numerals.

With this manner of mounting the contact screws there will be no danger of bending or twisting the thermostatic bar or the hollow coil, even though there should be considerable range in the expansion and contraction of the coil.

I claim as my invention:

1. A circuit closer comprising a base, a thermostatic member mounted thereon, a pivoted indicator hand, links pivoted at one end on said indicator hand near its pivot for oscillation therewith upon opposite sides of said thermostatic member, contact screws carried by said links and mounted in the path of said member to be engaged and actuated thereby, springs foryieldingly resisting the pressure of said thermostatic member on said screws, an electric circuit connected with said member and with said screws and closed by the contact of said member with said screws.

2. A circuit closer comprising a base, a thermostatic member mounted thereon, a pivoted indicator, contact screws pivotally supported by said indicator upon opposite sides of said thermostatic member and in the path of the same, said screws being mounted to yield under pressure of the thermostatic member thereon, an electric circuit connected with said member and with said screws and closed by the contact of said member with said screws.

3. A circuit closer comprising a base, a
thermostatic bar mounted thereon and having a depending end, an indicator hand pivoted on said base beneath said bar, links pivoted on said indicator hand upon opposite sides of said bar and springs for normally holding said links toward each other with a yielding pressure, contact screws mounted on said links in the path of the depending end of said bar, an electric circuit connected with said bar and with said screws and closed by the contact of said bar with said screws.

4. A circuit closer comprising a base, a thermostatic bar mounted thereon and having a depending end, an indicator hand pivoted on said base, links pivoted at one end on said hand, springs mounted at one end on said indicator hand and bearing at their opposite ends on said links for pressing them together, contact screws carried by said links upon opposite sides of and in the path of the depending end of said bar, said links and screws oscillating on said indicator hand under pressure of the thermostatic bar thereon, an electric circuit connected with said bar and with said screws and closed by the contact of said bar with said screws.

5. A circuit closer comprising a base, a thermostatic member mounted thereon, a pivoted indicator hand, links pivoted on said indicator hand and mounted to yieldingly resist the pressure of said thermostatic member, contact screws carried by said links in the path of said member, and an electric circuit connected with said member and with said screws and closed by the contact of said member with said screws.

In witness whereof, I have hereunto set my hand this 23rd day of April, 1917.

FREDERICK S. DENISON.