

(No Model.)

M. MARTIN.
THERMOSTATIC INSTRUMENT.

No. 471,130.

Patented Mar. 22, 1892.

Fig: 1.

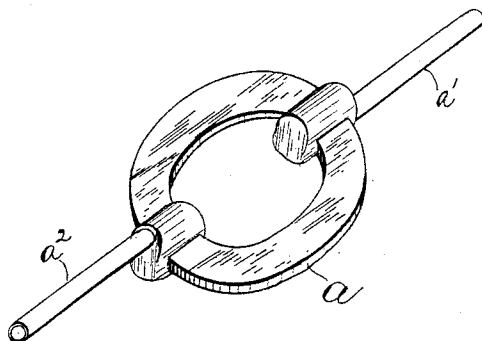


Fig: 2.

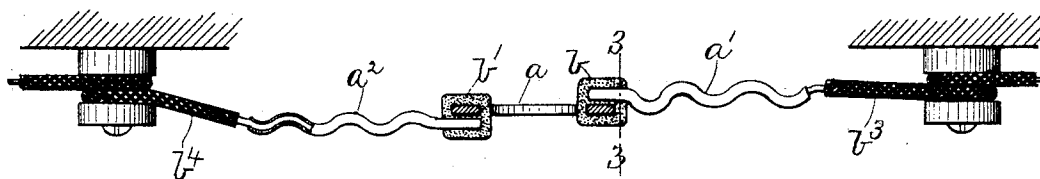


Fig: 3.

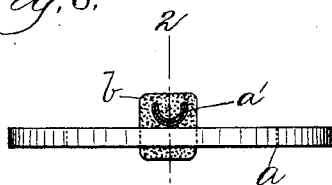


Fig: 5.

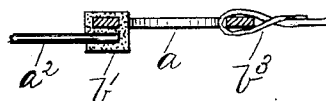


Fig: 4.

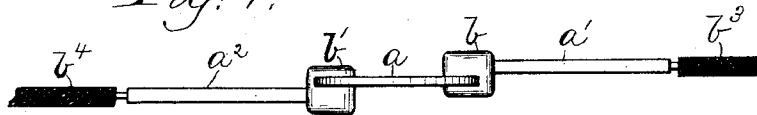
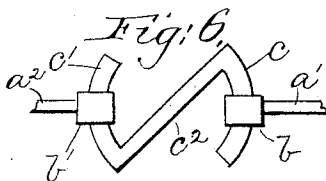


Fig: 6.



Witnesses,
Howard F. Eaton
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UNITED STATES PATENT OFFICE.

MORRIS MARTIN, OF MALDEN, MASSACHUSETTS.

THERMOSTATIC INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 471,130, dated March 22, 1892.

Application filed June 3, 1891. Serial No. 395,008. (No model.)

To all whom it may concern:

Be it known that I, MORRIS MARTIN, of Malden, county of Middlesex, and State of Massachusetts, have invented an Improvement in

5 Thermostatic Instruments, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to thermostatic instruments of that class in which a circuit is automatically opened by the melting of a fusible material when the temperature in the vicinity of the instrument has reached a predetermined point.

15 My present invention has for its object to provide a simple, strong, and efficient instrument capable of being readily affixed in position and constructed as will be described, so that a positive and reliable connection may

20 be made between the instrument and the line-wires which are secured to it.

In accordance with my invention a bridge or member of conducting material, preferably a metallic ring, constituting the active member of my improved thermostat, is secured to a circuit to form part thereof by means of terminal connections made as hollow tubes of any desired form in cross-section, but preferably cylindrical, which are fastened to the said

30 ring by fusible material, preferably solder, capable of fusing at any desired or required temperature. The terminal connections or hollow tubes are for the best results bent or twisted in the direction of their length after the ends of the line-wires have been inserted

35 into them to effect an increased contact of surface with the said line-wires, and thus obtain a more positive and reliable connection. The fusible material joining the terminal connections or tubes to the active member or ring

40 is preferably made to encircle the said ring as a loop or band, whereby a stronger and more reliable junction between the terminal or tube and the ring is obtained.

45 My invention in thermostatic instruments therefore consists in the combination, with an active member adapted to form part of an electric circuit, of one or more hollow terminals to form part of the said electric circuit

50 and a fusible connection joining said hollow terminal to the active member to complete

the said electric circuit, substantially as will be described.

Figure 1 is a perspective view of a thermostatic instrument embodying my invention. 55 Fig. 2 represents in section and elevation the thermostat shown in Fig. 1 in operative position, the section being taken on line 2 2, Fig. 3; Fig. 3, a section of the instrument shown in Fig. 2 on line 3 3, and Figs. 4, 5, and 6, 60 modifications to be referred to.

The active member of my improved thermostatic instrument is preferably made as a metallic ring *a*, to which, as herein shown, are joined, preferably on substantially diametrically-opposite sides, two terminal connections *a' a'*. The terminal connections *a' a'*, as herein shown, are made as hollow metallic tubes, preferably cylindrical in form, and the said tubes are joined to the metallic ring *a* by 70 bands or loops *b b'*, of solder or other fusible material.

The thermostatic instrument in practice forms a part of the circuit represented in Fig. 2 by the line-wires *b³ b⁴*, and the said instrument 75 is secured to the line-wires by inserting the bared or uninsulated ends of the said wires into the hollow tubes, and in order to obtain a maximum contact of surface between the said tubes and line-wires the tubes are bent 80 or crimped in the direction of their length to form a series of continuous bends after the wires are inserted therein. The bands or loops *b b'* of fusible material encircle the ring *a* and form a strong and efficient joint, and to still 85 further increase the connection between the hollow tubes and the ring *a* I prefer to compress together or otherwise close the ends of the tubes enveloped by the fusible bands, as represented in Fig. 3. 90

In operation the fusible connections melt at a predetermined temperature, which may be varied by varying the composition of the fusible material, and when melted the member or ring *a* becomes active and drops away 95 from the terminal connections and opens or breaks the circuit, thereby operating a suitable alarm mechanism in the circuit, and not herein shown, but which may be such as commonly employed with thermostatic instru- 100 ments of this class.

In order to provide against carelessness on

the part of the workman who may be connecting the instruments in circuit, I prefer to connect the terminal tubes to opposite faces of the ring, as clearly shown in Figs. 1, 2, and 4, so that when the solder melts the ring *a* must fall and open the circuit, for if both terminal tubes are connected to the same face of the ring the terminal tubes might still hold the ring after the solder had melted.

10 The hollow terminal connection, bent or twisted as described, may be employed as a convenient means for coupling the ends of two wires, which after being inserted in the said tube are bent or crimped together with
15 the tube to form a sure and reliable connection.

I prefer to employ two terminal connecting-tubes on substantially diametrically-opposite sides of the member or ring *a*; but I do not
20 desire to limit myself in this respect, as only one such terminal may be employed, one of the line-wires being positively connected to the ring, as shown in Fig. 5. So, also, I do not desire to limit my invention to a ring for
25 the active member, as any other convenient form of conducting-bridge may be used—such, for instance, as shown in Fig. 6, wherein two segments *c c'* are united by a cross-bar *c²*.

I do not herein claim, broadly, the combination, with an electric line-wire, of a hollow
30 connection inclosing the end of the said wire and crimped longitudinally, as the same forms the subject-matter of another application, Serial No. 422,345, filed by me February 23, 1892.
35

I claim—

1. In a thermostatic instrument, the combination, with an active member adapted to form part of an electric circuit, of one or more
40 independent hollow terminals to form part of the electric circuit and a fusible connection joining said hollow terminal to the active member to complete the said electric circuit, substantially as described.

45 2. In a thermostatic instrument, the combination,

with an active member adapted to form part of an electric circuit, of one or more hollow terminals to form part of the said electric circuit and a band or loop of fusible material encircling the active member and
50 enveloping the hollow terminal to complete the electric circuit, substantially as described.

3. In a thermostatic instrument, the combination, with an active member consisting of a metallic ring to form part of an electric
55 circuit, of hollow terminal connections on substantially diametrically-opposite sides of the said ring and fusible material joining the said terminal connections to the said ring, substantially as described.

4. In a thermostatic instrument, the combination, with an active member consisting of a metallic ring, of hollow terminal connections
60 located on opposite faces of said ring and bands or loops of fusible material encircling the said ring and joining the terminal connections thereto, substantially as described.

5. In a thermostatic instrument, the combination, with an active member to form part
65 of an electric circuit, of a hollow terminal to form part of the said electric circuit, a fusible connection joining said terminal to the active member to complete the electric circuit, and a line-wire inserted into said hollow terminal, the said terminal and wire being bent or
75 crimped, substantially as described.

6. In a thermostatic instrument, the combination, with an active member, of a hollow
80 terminal closed at one end and a fusible connection joining the closed end of the said hollow terminal to the active member, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MORRIS MARTIN.

Witnesses:

JAS. H. CHURCHILL,
E. L. RICHARDS.