

986,023.

Patented Mar. 7, 1911.

Fig. 1.

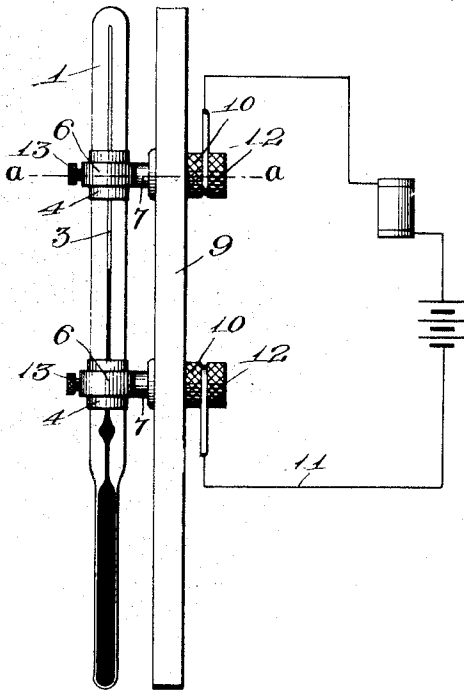


Fig. 2.

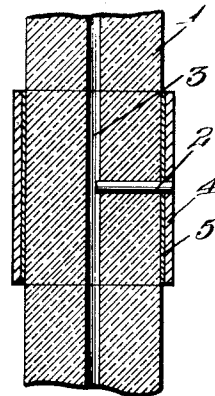
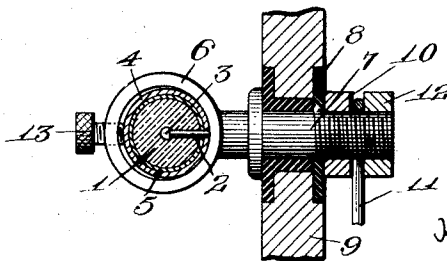


Fig. 3.



Witnesses

Nelson C. Cox

J. H. Simmons

Inventor

Harry Y. Norwood

By

Charles R. Riet

his Attorneys

UNITED STATES PATENT OFFICE.

HARRY Y. NORWOOD, OF ROCHESTER, NEW YORK, ASSIGNOR TO TAYLOR INSTRUMENT COMPANIES, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

THERMOSTAT.

986,023.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed November 29, 1909. Serial No. 530,412.

To all whom it may concern:

Be it known that I, HARRY Y. NORWOOD, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Thermostats; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

The present invention relates to thermostats of the type in which one or more contacts are arranged to be engaged by an expansible conducting body such as mercury in order to establish an electrical circuit of which the expansible body forms a part, and the object of this invention is to provide for securing the contacts to the casing containing the expansible body in such a manner that greater life to the instrument is insured.

To these and other ends the invention relates to certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings: Figure 1 is a view showing the instrument and the means supporting the same; Fig. 2 is a detail and enlarged sectional view of the instrument, and Fig. 3 is a section on the line *a-a* of Fig. 1.

An electric contacting thermostat is usually a regular mercury and glass thermometer having platinum wires fused into the glass with one end of each wire projecting into the bore and into the path of the mercury to complete the electric circuit while the other end projects from the exterior of the stem and has a suitable conductor secured thereto. These platinum wires at the point where they enter the glass are very brittle and are easily broken, thus requiring the exercise of great care in handling them both during the process of manufacturing as well as in use, for once they are broken they cannot be repaired, and an instrument thereafter has no utility for the purpose for which it was designed.

In this invention a suitable casing 1, preferably made of glass, with a bulb and a bored stem as in an ordinary thermometer, has fused therein one or more conductors 2,

preferably in the form of platinum wires 55 extending transversely through the stem of the casing, and each projecting at its inner end into the bore 3 thereof and at its outer end from the outer surface of the stem.

At the outer end of each conductor wire 60 is electrically connected an enlarged contact 4 which preferably is in the form of a copper sleeve surrounding the stem in proximity to the conductor 2, and having the wire end embedded therein. In order that this contact will lie in most intimate engagement with the glass and the conductor 2, the contact is preferably deposited thereon electrolytically in accordance with any electroplating process. The glass is first coated, as at 5, with a film of silver deposited from an ammoniacal solution of silver nitrate in accordance with well known silvering methods, or with other material which will make possible the electrolytic deposition of copper or other suitable conductor. The platinum wire is by this means firmly embedded in the band of copper and this band cannot be shifted without breaking the glass so that the platinum wire cannot break away where it enters the glass. The thin film of silver or other material deposited by chemical action is in the most intimate contact possible with the surface of the glass, conforms to the most minute inequalities in its surface, and is with difficulty stripped from it, and the copper band when deposited by electrolysis thereon forms a solid contact which is practically indestructible. Every part of the band may serve as a point of contact so that the conductor wire may be easily connected thereto in order to complete a circuit.

As a simple means for supporting the thermometer and at the same time establishing electrical connection with its contacts 4, there may be provided sleeves 6 each having a stem 7 projecting therefrom and passing through an insulating bushing 8 in a suitable wall or support 9, said stem being secured in the bushings in any suitable manner as by a nut 10, and the circuit wires 11 being held in engagement with the nuts 10 by nuts 12 also fitting on the stems 7. Two or more of the supporting sleeves 6 are axially aligned and the thermostat stem is fitted into them so that its contacts 4 lie within the sleeves 6. In this position, the screws 13 or other suitable devices may be

caused to frictionally engage the contacts
4 to maintain the thermometer against
movement in the sleeve.

A thermostat constructed in accordance
5 with this invention has the conductors or
platinum wires supported in such a manner
that the breaking thereof is prevented and
thus the life of the thermostat is greatly in-
creased. The size of the thermostat con-
10 tacts are also greatly increased thus permit-
ting a quicker connection of the instrument
to the signaling circuit.

I claim as my invention:

1. An electrical alarm thermostat embody-
15 ing a stem of insulating material having a
bore therein, an expansible conductor in the
bore, a stationary conductor extending
through the wall of the stem into the bore,
and a contact plate or body on the exterior
20 of the stem, consisting of metal deposited
upon the stem by electrolysis and having the
outer end of the stationary contact embedded
therein.

2. An electrical alarm thermostat embody-
ing a tubular stem of insulating material 25
having a bore therein, an expansible con-
ductor in the bore, a stationary conductor
extending through the wall of the stem into
the bore, and an annular contact plate or
body encircling the stem consisting of metal 30
deposited upon the material thereof by elec-
trolysis and having the outer end of the
contact embedded therein.

3. An electrical alarm thermostat embody-
ing a stem of insulating material, an expansi- 35
ble conductor in the stem, a stationary con-
ductor extending through the wall of the stem,
a deposited metallic film upon the exterior
of the stem and the external end of the con-
ductor, and a contact plate electrolytically 40
deposited upon said film.

HARRY Y. NORWOOD.

Witnesses:

WALTER B. PAYNE,
HENRY W. HALL.