E. J. FROST.

Electric Thermostats.

No. 165,413. Patented July 13, 1875.

Fig. 1.

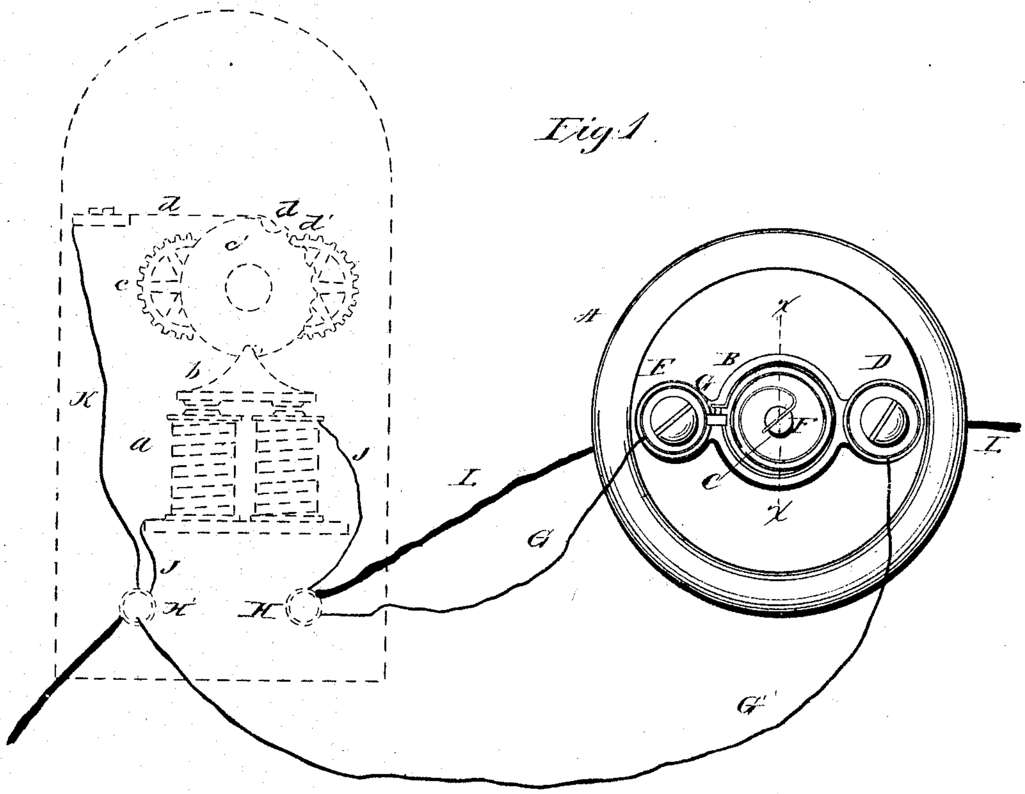


Fig. 2.

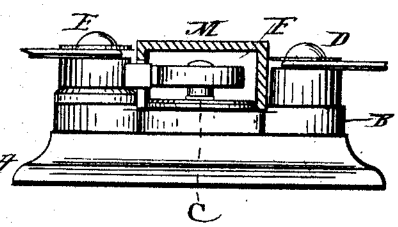


Fig. 4.

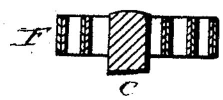
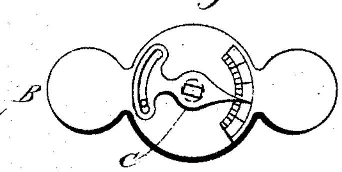


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWARD J. FROST, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO JACOB HOEHNLEN, OF SAME PLACE.

IMPROVEMENT IN ELECTRIC THERMOSTATS.

Specification forming part of Letters Patent No. **165,413**, dated July 13, 1875; application filed December 24, 1874.

To all whom it may concern:

Be it known that I, EDWARD J. FROST, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Electro-Thermostatic Fire-Alarms; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a face view of the device embodying my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a view of the under side thereof. Fig. 4 is a transverse section in line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

The object of my invention is to produce a thermostat occupying but small space, fully protected from dust, &c., and easily adjustable. To this end I take a thermostatic strip of any two metals of different rates of expansion, and coil the same into a flat spiral, attaching the inner end of the spiral to a screw which forms at once the support of and means of adjustment of the spring. The free end of the spiral is in contact with or contiguous to (depending on whether the circuit be an open or closed one) an insulated contact-point.

The spiral is protected by a cap or box, having a groove in one side, through which the free end of the spiral projects.

Referring to the drawings, A represents the base-plate, which may be made of any suitable non-conducting material, and supporting the metal plate B in which is mounted the pin C. From the plate B there rise the binding screw or post D, and the insulated binding screw or post E. F represents a compound strip, which is made of two or more different metals, or other materials having conducting qualities which will expand and contract unequally, due to the effects of an increase or decrease of temperature. This strip is wound into a flat spiral, and has one end secured to the pin C, and the other or free end is adapted to come in contact with a platinum-point, G, on the post E, or a projection thereon.

In the drawing, I show this form of thermostat arranged with circuits, and in the method fully set out in my patent No. 156,560, of November, 3, 1874, to which reference is made for a full description of the alarm mechanism and circuits herein shown.

In order that the thermostat may properly control the circuits at any predetermined temperature, the pin C is adapted to be turned, and held in position by a set-screw, or otherwise.

In the present case the under side of the plate B is chambered or hollowed, and graduated, and the pin C carries an index, one portion of which is formed with a slotted arc for the passage of the adjusting-screw, said index moving in the chamber or hollow of the plate B, so as to be concealed therein, whereby the same is not accessible, and the adjustment may remain unknown to improper parties.

Another advantage of this system of circuits is that if the wires are detached or cut either by accident or design, or the thermostat is injured, and its efficiency is destroyed, the alarm will be given, and the location of the accident known. The lines or circuits can always be kept in proper order.

A box or casing, M, will be provided for inclosing the compound strip, which protects the strip from dust or dirt, while allowing the air full influence thereon.

It is evident that by changing the position of the contact-point, this thermostat may be used to break a closed circuit or close an open circuit.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The thermostat consisting of a compound strip formed into a flat spiral, a central adjusting-screw, and the casing or covering, substantially as set forth.

2. The combination, with the spiral compound strip and central adjusting-screw, of the index plate and index concealed in a hollow in the base of the thermostat, substantially as set forth.

EDWARD J. FROST.

Witnesses:
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