# E. J. FROST.

## ELECTRIC THERMOSTATS.

No. 186,553. Patented Jan. 23, 1877.

*Fig. 1*

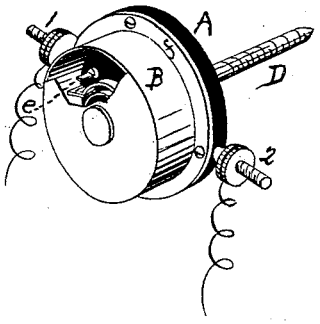



*Fig. 2.*

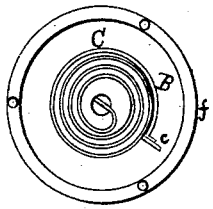



*Fig. 3.*

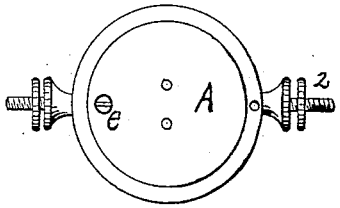
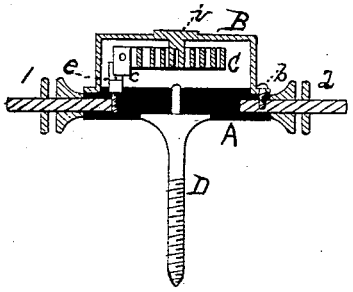



*Fig. 4.*




Witnesses:
F. B. Townsend
W. C. Chaffee

Inventor:
Edward J. Frost
by
Fred W. Royce
Attorney.

# UNITED STATES PATENT OFFICE.

EDWARD J. FROST, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN ELECTRIC THERMOSTATS.

Specification forming part of Letters Patent No. **186,553**, dated January 23, 1877; application filed December 22, 1876.

*To all whom it may concern:*

Be it known that I, EDWARD J. FROST, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electric Thermostats; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 is a perspective view of my improved thermostat, with a part of the cap broken away in order to show the contact-points. Fig. 2 is a view of the interior of the cap. Fig. 3 is a plan view of the base-plate, and Fig. 4 a vertical cross-section.

When thermostats are inclosed in a protecting case or cap, as ordinarily made, they are insulated therefrom, and the full effect of the heat (which it is desired to signalize) upon the thermostat is delayed or hindered.

In this improved thermostat the thermostatic strip is attached to the cap, so that it shall quickly be acted upon by any heat affecting the case. The cap, the contact-points, and binding-screws are all arranged upon an insulated base, to which is attached a screw, for readily attaching the same at any desired point.

Referring to the drawings, A is such base, preferably a round piece of hard rubber. Secured to this base is the screw D, by which it is secured at the desired place. The binding-posts 1 2 are attached to this base at opposite sides, preferably by being screwed into the periphery. One terminal or contact point, *e*, is let into the upper side of the base, so as to touch against, and form a metallic contact with, the post 1. B is the cap, provided with a flange, *f*, preferably formed of one piece of sheet metal by striking up or swaging into shape. To a central lug, projection, or screw, *i*, on the upper side thereof is fastened the thermostatic strip C, coiled for economy of space. This strip has its free end flattened and bent outwardly, as shown at *c*, so as to make a sure contact with *e*. The cap is fastened to the base by screws or pins passing through holes in the flange into the base. One of these, *b*, is so arranged that it bears on, and forms metallic contact with, the binding-screw 2, as shown in Fig. 4.

From this it will be seen that the cap and spring are in metallic contact with one binding-screw, and the post *e* with the other, leaving a break in the circuit between *c* and *e*, which will be closed by the expansion of the strip C under the influence of undue heat.

It will be readily seen that if it is desired to operate by breaking the circuit, a mere change in the relative position of *c* and *e* will cause the circuit to be normally closed, and to be broken by the expansion of C.

This makes a simple and effective form of thermostat, complete in itself for attachment. It is also exceedingly sensitive, for any and all increments of heat in the neighborhood of the case immediately affect, through convection, the strip C.

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

1. The combination, with a metallic inclosing case or cap, of the thermostatic strip, in metallic connection therewith, substantially as and for the purposes set forth.

2. The combination, with an insulating-base, of the cap or case and thermostatic strip, metallically connected, the binding-posts 1 2, the contact-point C, and pin *b*, substantially as and for the purpose set forth.

3. The combination, with the base of a thermostat, of an attaching-screw secured thereto, substantially as and for the purposes set forth.

4. As a new article of manufacture, a metallic thermostat, having a base provided with an attaching device, binding-screws, and protecting cap or case, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

E. J. FROST.

Witnesses:

JOS. N. MONTGOMERY,

H. E. HINDMARSH.