(No Model.)

R. L. GUION.

ELECTRICAL THERMOSTAT.

No. 354,131. Patented Dec. 14, 1886.

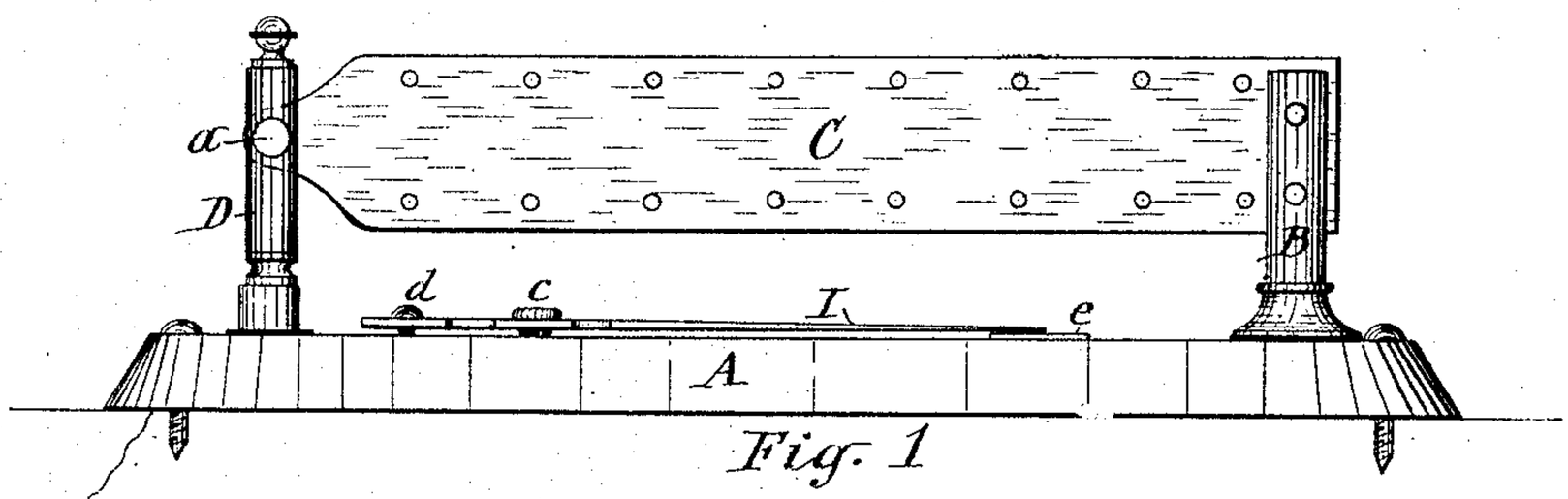
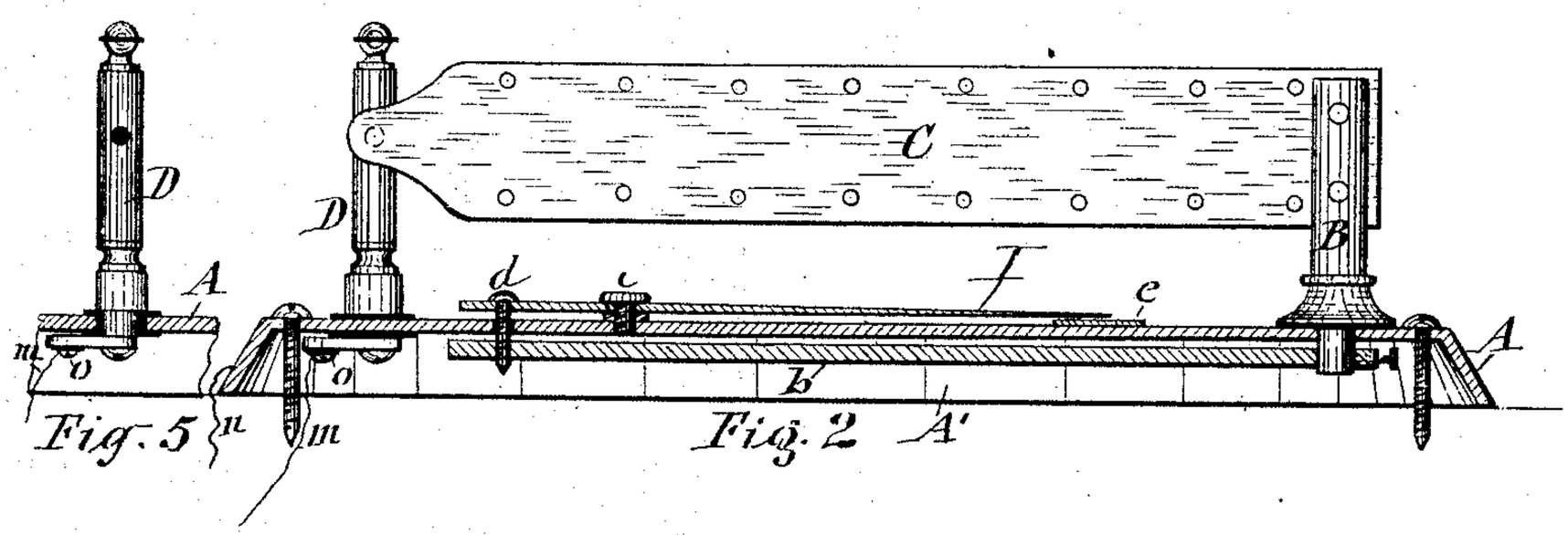


Fig. 1



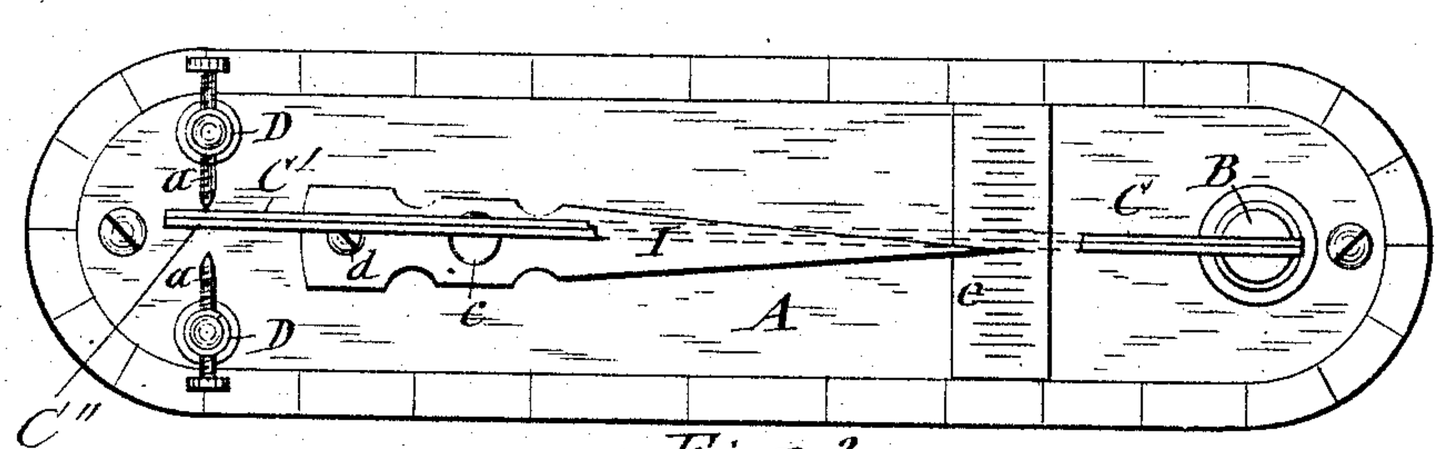


Fig. 3

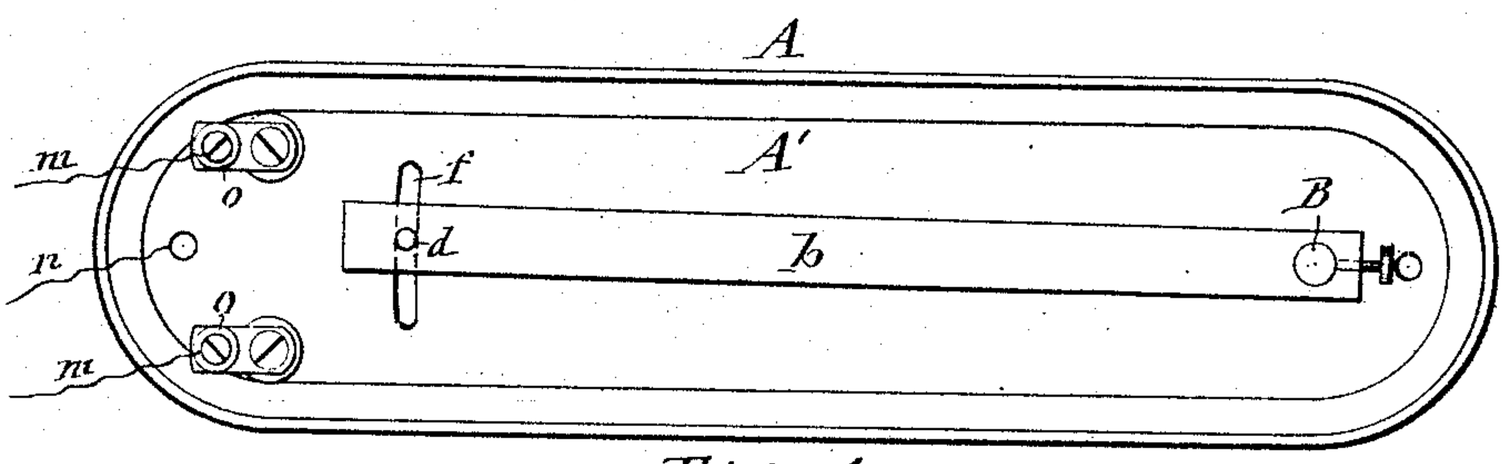


Fig. 4

WITNESSES

W. Bendixon

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per Dodd, Lacey & Hay

his attys

UNITED STATES PATENT OFFICE.

RICHARD L. GUION, OF ELMIRA, NEW YORK.

ELECTRICAL THERMOSTAT.

SPECIFICATION forming part of Letters Patent No. 354,131, dated December 14, 1886.

Application filed March 11, 1886. Serial No. 194,782. (No model.)

To all whom it may concern:

Be it known that I, RICHARD L. GUION, of Elmira, in the county of Chemung, in the State of New York, have invented new and useful Improvements in Thermostats, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention consists in a novel construction of a thermostat designed to open or close an electric circuit and to be adjustable in its operation.

The invention is fully illustrated in the annexed drawings, wherein Figure 1 is a side view of my improved thermostat. Fig. 2 is a longitudinal section. Fig. 3 is a top plan view with a portion of the thermostatic bar broken away to better illustrate subjacent features. Fig. 4 is an inverted plan view; and Fig. 5 is a detached sectional view of the insulation of one of the posts, which is mounted on the base and carries one of the electric contact-points.

The same letters of reference indicate the same or corresponding parts.

A represents a metallic base on which the thermostat is mounted. Said base is formed with a cavity, A′, on its under side, for the purpose hereinafter explained. On one end of said base is pivoted the post B, to which is firmly attached one end of the thermostatic bar C, which extends horizontally therefrom. This bar is composed of a thin flat plate of steel, C′, and a plate of rubber, C″, rigidly secured to each other side by side. The object of this construction is to cause said bar to deflect laterally under the influence of the changes of temperature, said deflection being due to the unequal capacities of expansion and contraction of the two plates of which the bar C is composed. The rubber plate, expanding more rapidly under the influence of heat than the steel plate, produces a deflection of the ends of the bar toward the side on which the steel plate is carried.

The post B is restrained from turning and confined adjustably in its position by means of an arm, *b*, which is arranged in the cavity A′ in the under side of the base A, and is rigidly attached to the protruding end of the pivot of the post B, as shown in Fig. 2 of the drawings, said arm being held at its free end by an indicator or pointer, I, which is adjustably clamped in its position by the screw *c*, about which it turns when unclamped. A screw or other suitable coupling-pin, *d*, passing through a transverse slot, *f*, in the base A, fastens the arm *b* to the indicator I back of the screw *c*. Thus by unclamping the indicator and turning it to one side the arm *b* is swung laterally, and the thermostatic bar C is caused to change its position correspondingly.

A graduated plate, *e*, is secured to the top of the base A, directly under the point of the indicator, to show the degree of the angle in which the bar C is set from the longitudinal central line of the base A.

At opposite sides of the free end of the bar C are two metallic posts, D D, secured to the base A, and properly insulated therefrom by rubber bushings and rubber washers, as illustrated in Fig. 5 of the drawings. To said posts are attached adjustable electric contact-points, consisting of screws *a a*, working in screw-threaded eyes transversely through the posts. These screws can be set to carry their adjacent ends a greater or less distance apart, and thus permit a greater or less deflection of the thermostatic bar C when actuated by change of temperature.

At the free end of the bar C the rubber side C″ thereof is either entirely cut away or an opening of sufficient size is made through it to allow the adjacent steel portion of said bar to come in contact with the screw *a* at that side of the bar.

The steel plate of the thermostatic bar C renders said bar capable of conducting an electric current, which is allowed to pass from the said bar through the base A. The apparatus is in an electric circuit obtained by wires *m m*, running from the battery (not necessary to be here shown) to binding-screws *o o* on the lower ends of the posts D D, and by a wire, *n*, running from the frame A either to the ground or back to the battery, and with this electric circuit can be connected an electric alarm-bell of any suitable and well-known style and construction; or it may be used for various other purposes, exemplifications of which are shown in another application for Letters Patent of even date herewith, and the serial number of which is 198,075.

The operation of my improved thermostat is as follows: By turning the indicator I the

thermostatic bar C is set in the requisite position to allow it to come in contact with one of the screws or contact-points *a* when said bar is deflected by the degree of heat at which it is desired to close the electric circuit. When the bar C is subjected to said degree of heat, it warps or deflects laterally at its free end and comes in contact with one of the screws *a*, and then the electric current passes from the wire *m* through the post D, screw *a*, steel plate of the bar C, post B, frame A, and thence through the wire *n* either to the ground or battery.

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

1. The combination of the base A, the post B, pivoted on said base, the electric conducting thermostatic bar firmly attached to and extending from said post and adapted to deflect laterally under the influence of the changes of temperature, electric contact-points at opposite sides of the free end of the thermostatic bar, an arm rigidly attached to the post B, a clamp, *c*, for restraining the movement of said arm, and an electric circuit connected with the post and contact-points, substantially as set forth.

2. The combination of the base A, the post B, pivoted on said base, the electric conducting thermostatic bar C, firmly attached to and extending from said post and adapted to deflect laterally under the influence of the changes of temperature, the posts D D, provided with electric contact-points *a a* at opposite sides of the bar C, the arm *b*, rigidly attached to the post B, the indicator I, clamped adjustably in its position and connected with the free end of the arm *b*, and an electric circuit connected with the posts B D D, substantially as set forth and shown.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Elmira, in the county of Chemung, in the State of New York, this 9th day of March, 1886.

RICHARD L. GUION. [L. S.]

Witnesses:

FERD D. POTTER,

THEO. G. SMITH.