F. W. MALLETT.

Thermostats.

No. 216,047. Patented June 3, 1879.

Fig. 1.

Fig. 3.

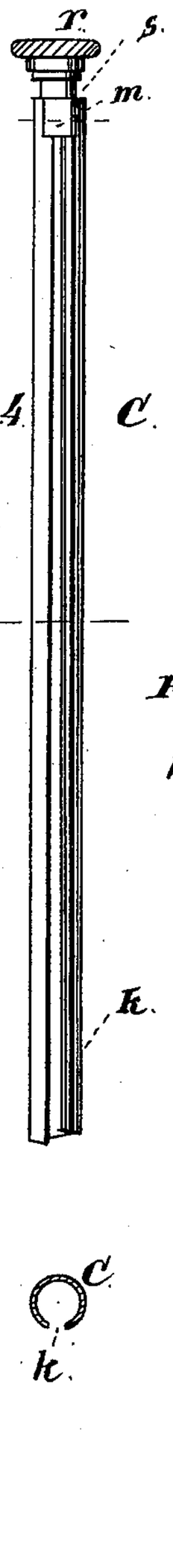

Fig 4.

Fig. 6.

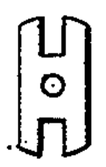

Fig. 7.

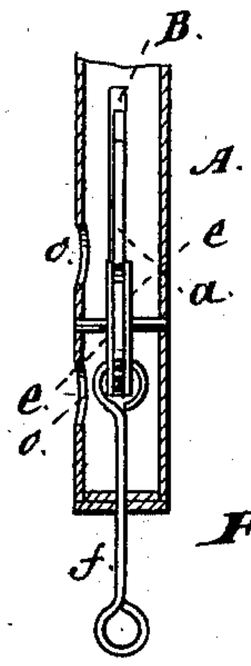

Fig. 5.

Fig. 2.

Fig. 9.

Fig. 8.

Fig. 10.

Fig. 11.

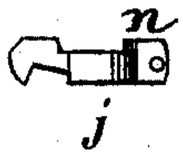

Fig. 12

Witnesses:
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UNITED STATES PATENT OFFICE.

FRANCIS W. MALLETT, OF CHICAGO, ILL., ASSIGNOR TO ALFRED H. ANDREWS, HERBERT L. ANDREWS, AND THOMAS S. HAYDEN, OF SAME PLACE.

IMPROVEMENT IN THERMOSTATS.

Specification forming part of Letters Patent No. **216,047**, dated June 3, 1879; application filed November 18, 1878.

To all whom it may concern:

Be it known that I, FRANCIS W. MALLETT, of the city of Chicago, Cook county, State of Illinois, have invented a new and useful Improvement in Thermostats, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation; Fig. 2, a front view of the lower end of the device; Fig. 3, a longitudinal section. Figs. 4 to 12 are details.

My improved thermostat consists of a tubular piece of zinc, connected with which are locking and holding devices, which will be held in a locked position by means of a tubular piece of tin within the zinc tube, as hereinafter set forth.

In the drawings, A represents a tube, made of zinc, at one end of which are slots B B′. *a* is a connecting piece or link, supported on a pin, which passes through the tube A. *b c* are hooks, formed by cutting away parts of *a*. *d* is an arm extending out from *a*. *e e* are two plates, slotted at each end, one on each side of *a*. These plates are supported on the same pin which passes through *a*, and their width is such that they fill the space between the sides of the tube.

f is a wire, the outer end of which is to be secured to some stationary point, and the inner end has an eye, which passes over the hook *b*. *g* is another wire, the inner end of which has an eye, which passes over the hook *c*. The other end of this wire is connected, in use, with a wire which extends to a suitable annunciator.

h is a band upon the outside of A, having an extension, *i*, on the under side. *j* is a hook, the central part of which is circular and open, as shown in Fig. 11. It is pivoted to *i*, the end passing through a slot in the case or tube A. The hook proper projects through the tube, and is so arranged that it can be made to engage with the end of the arm *d* on *a*. The back or upper side of this hook is cut away, as shown in Fig. 12. The circular part of the hook *j* fits within A.

C is a tubular piece of tin having a slot, *k*, extending nearly its whole length. *l* is a short pin secured near the upper end of A, and projecting upon the inside thereof. *m* is a flattened place near the upper end of C. The lower end of C is beveled, and when C is inserted in A this beveled end comes in contact with that part *n* of the hook *j* which is not cut away, as shown in Fig. 3.

As shown, *a* passes through the slots B B′, and the arm *d*, when in the position shown in Fig. 1, is in one of these slots.

Some parts of this description assume that the device stands in a vertical position when in use, as shown in the drawings; but it may be placed in any position.

The wire *g* passes through the central opening in the hook *j*. The hooks *b c*, or one of them, should be arranged a little off from the center, so that a strain on the two will have a tendency to turn the link *a* on its supporting-pin.

o are holes in the tube A, located as shown, and so that the parts inside opposite such holes can be seen.

This thermostat is primarily designed to be used, in connection with an annunciator, for the purpose of giving an alarm in case of fire in some room of a building. The annunciator is to be located in any suitable place, and the thermostats are to be located in the several rooms, each being connected with the annunciator by wire, as usual.

The operation is as follows: The lower end of *f* is connected with some fixed point, and the other end is to engage with the hook *b*, and will be prevented from becoming disengaged by the plates *e* when the parts are adjusted within the tube, as shown in Fig. 3. By raising the arm *d*, the hook *c* can be carried away from the slots at the upper ends of the plates *e*, and then the inner end of the wire *g*, or the eye thereon, can be made to enter the slots in the plates and the opening in *a*. Then, upon bringing *d* into the position shown in Fig. 3, the hook *c* will enter such eye. Then the hook or catch *j* is to be made to engage with *d*, as shown in Fig. 3, which can be done by turning the tin tube C, the inner end of which, coming in contact with *j* at *n*, will force the hook over *d* and hold it there.

The hook *j* can be made to engage with *d*,

more or less, by turning C much or little. This tube C is connected to a stem, *r*, which has a neck, *s*, smaller than C, so that the pin *l* does not interfere with the rotation of C; but such pin *l* does act as a guide during the adjustment of the parts before turning C, and renders it certain that the inner end of this tube C will be in the right position when it is inserted in A.

The wire *g* passes loosely through the stem *r*, and at the annunciator the wire is connected with a spring, so that when the parts of my device are in the position shown in Fig. 3 there will be a sufficient amount of tension on the wires *f* and *g* and the connecting-link *a*. Then, in case of fire in the room where the thermostat is located, the zinc tube A will expand much more than C, leaving a little space between C and *j*, and the tension on the link *a* will, acting through *d* upon the hook *j*, cause the hook *j* to be released from *d*. Then the wire *g* will be released from the hook *c*, and the alarm will be given at the annunciator.

The plates *e* prevent the link *a* from rocking on its pin sidewise, and furnish guides and supports for it.

I am aware that a strip of zinc has been used in a thermostat; but a tube has advantages over a strip. The strip is liable to bend and crinkle; but the tube retains its form though subjected to considerable heat.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a thermostat, the combination of an outer tube or casing, A, of zinc, an interior tube, C, of some other suitable metal, and a connecting-piece, *a*, with its attachments, constructed substantially as described, and adapted to be easily disconnected at will, substantially as herein set forth.

2. The link or connecting-piece *a*, provided with an arm, *d*, and hooks *b c*, in combination with a zinc tube, A, hook *j*, and tubular piece C, having its inner end cam-like in form, substantially as and for the purposes specified.

3. In a thermostat, the tube A, tubular piece C, band *h*, hook *j*, and connecting piece or link *a*, in combination with the wires *f g* and plates *e*, substantially as and for the purposes set forth.

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