(Model.)

T. W. SHEPHERD.

THERMOSTAT.

No. 493,601. Patented Mar. 14, 1893.

Fig: 1.

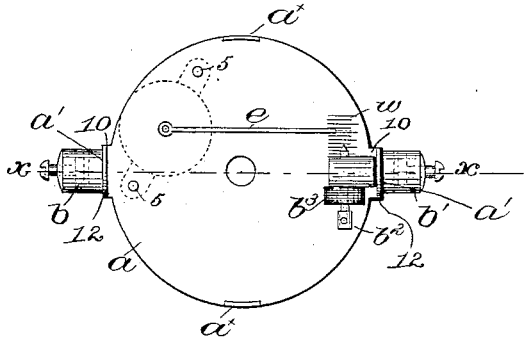


Fig: 3.

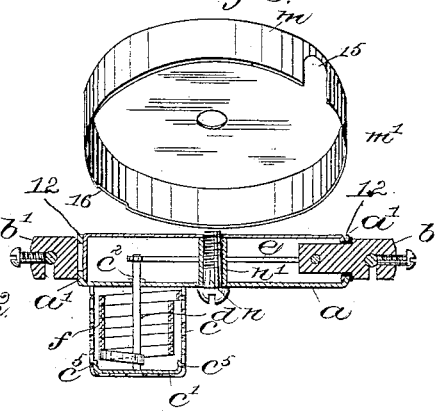


Fig: 2.

Fig: 5.

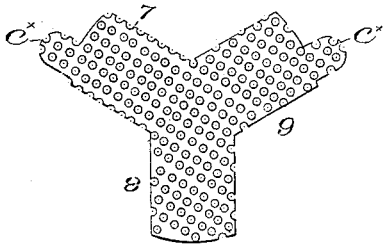
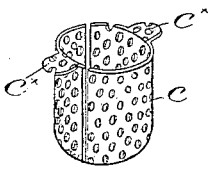


Fig: 4.



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UNITED STATES PATENT OFFICE.

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THERMOSTAT.

SPECIFICATION forming part of Letters Patent No. 493,601, dated March 14, 1893.

Application filed August 6, 1891. Serial No. 401,838. (Model.)

To all whom it may concern:

Be it known that I, THOMAS W. SHEPHERD, of Peabody, county of Essex, State of Massachusetts, have invented an Improvement in Thermostats, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to provide an improved thermostat, and means by which it may be adjusted to operate at any predetermined temperature.

The particular features comprising this invention will be hereinafter described and specified in the claims.

Figure 1, represents in a rear side view a thermostat embodying this invention, the cover being removed. Fig. 2, a section on the dotted line x—x, Fig. 1, the lamina and its inclosing case being also shown in section, Fig. 3, the cover shown in perspective as it will appear when lifted from the back and, Figs. 4 and 5, details showing the perforated inclosing case and the blank from which it is formed.

Referring to the drawings, the back or supporting plate a, has as represented two upturned ears $a^{\times}$ to be referred to, and two other ears a', the latter consisting of laterally extended portions 10 and the vertical portions 12.

The back or plate a has secured to its rear side, the preferably perforated inclosing case c which is herein represented as formed from a single Y-shaped plate of perforated metal, shaped substantially as shown in Fig. 5, the edges of the portions 7, 8, and 9, of the plate, when struck up by a single blow, meeting properly to form a cylindrical case as shown in Fig. 4, the ears $c^{\times}$ being formed at its inner or open end by which to secure the case to the back a as by screws 5, see Fig. 1.

A lock nut b^3 preferably of insulating material may be placed upon the contact screw b^2, to assist in keeping the screw in proper adjusted position and also to prevent the screw from contacting with the back plate or the cover if the binding screw should loosen or become misplaced.

A lamina f herein represented as in the form of a coil or spiral has one of its ends secured to the perforated case c and its other end to the staff or spindle d, expansion and contraction of the lamina rotating the staff, and moving the contact arm c toward and from its contact screw b^2. The lamina being mounted in this manner is entirely free from its supporting wall and manifests the utmost sensitiveness to changes in temperature while the contacts are protected as will be described, from all dust and dirt.

The step c', previously formed to the required shape, and to fit the inner diameter of the perforated case c forms a bearing for the outer end of the staff d, the step being readily attachable to the case c after the same has been struck up.

A cover m having a flange or rim m', represented in Fig. 3, as it will appear when lifted from the back plate a, has a portion 15 of its rim or flange cut away for the binding screw b, and a portion 16 cut away for the laterally extended portion 10 of the opposite ear a', so that when the cover is placed upon the back plate its flange m' will fit closely over and about the periphery of the back plate a, the cut away portions 15 and 16 of the flange being to receive the laterally extended portions 10 of the ears a', referred to, thus permitting the remaining portion of the flange to fit closely over and about the periphery of the back plate a to form a thoroughly dust-proof covering for the interior parts, the upturned or vertical portions 12 of the ears a' which protrude through to the outside of the cover closing the openings left by the cut away portions of the cover, as best shown in Fig. 2. The upturned ears $a^{\times}$ serve to better support the cover m which is herein represented as held in place by a central screw n passed through the back and cover into the supporting wall not shown, a thimble n' being interposed between the head of the screw and the back plate to arrest the screw before it shall have depressed the cover or back sufficiently to cramp the internal movable parts.

The thermostat herein represented, is adapted for an extended use, a wire being led from any electrically actuated mechanism, not shown, and is secured by the binding screw b and another wire is led to and secured by the other binding screw b', the circuit being completed through the contact arm and back

plate whenever the said arm contacts with the screw b^2, to actuate the mechanism referred to.

The back plate *a* immediately under the end of the contact arm may be provided with a suitable scale or indicating marks *w* with reference to which the screw b^2 may be adjusted to thus fix before hand the desired temperature at which the contact shall be closed.

This invention is not limited to the particular arrangement and construction herein shown.

I claim—

1. In a thermostat, the combination of a back, a support thereon, and a binding post secured to said support, a contact screw extended transversely through said binding post, a nut of insulating material on said screw to prevent the latter coming in contact with said back, a lamina, and a contact arm moved thereby, substantially as described.

2. In a thermostat, a back consisting of a plate having ears projecting laterally therefrom with the end of the ears upturned, the length of the laterally extended portions of the ear between the edges of the back and the upturned ends being substantially equal to the thickness of the metal of the cover; a lamina on said back; and a contact arm moved thereby; combined with a cover having a downturned annular flange or rim extending completely around its periphery, but cut away to receive the laterally extended portions of the ears, said cut away portions permitting the remaining portion of the flange or rim to fit down outside of, and to inclose within it the edges of the said back, leaving the upturned portions of the ears which protrude through to the outside of the cover to close openings left by the cut away portions, substantially as described.

3. In a thermostat, the back, and a cover having a downturned rim or flange therefor, combined with a screw extended through the said cover and back, and an interposed thimble, substantially as described.

4. The back *a*, and binding screws thereon, one of which is insulated from the back and provided with an adjustable contact screw, combined with the perforated case *c*, the lamina *f*, staff *d*, non-corrosive bearings c', c^2 and contact arm *e*, substantially as described.

5. In a thermostat, the combination with a back, of a cylindrical case supported thereby, a lamina coiled therein and having one of its ends secured to the case, a staff within said coil and to which the free end of the lamina is attached, and having one of its ends supported by the outer end of said case, and a contact arm moved by said staff and a co-operating contact therefor, substantially as described.

6. In a thermostat, the combination with a back, of a perforated cylindrical case comprising an end piece having three upturned legs which constitute the side walls of the case, and ears formed on said legs by which said case is secured to said back, and a lamina in said case, substantially as described.

7. In a thermostat, the combination with the back and a perforated cylindrical case supported thereby, of a staff journaled in said back a helical lamina located within said case and attached at one end thereto, and at its opposite end connected with said staff, a contact arm fast on and moved by said staff, and a co-operating contact for the contact arm, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS W. SHEPHERD.

Witnesses:

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