W. B. FARRAR.
Mercurial Thermostat.

No. 200,382. Patented Feb. 19, 1878.

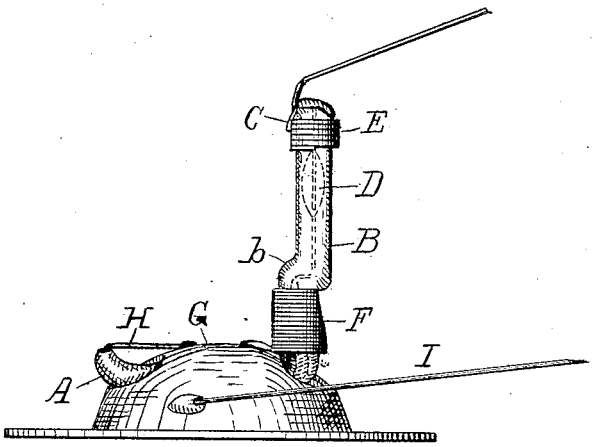

Fig. 1.

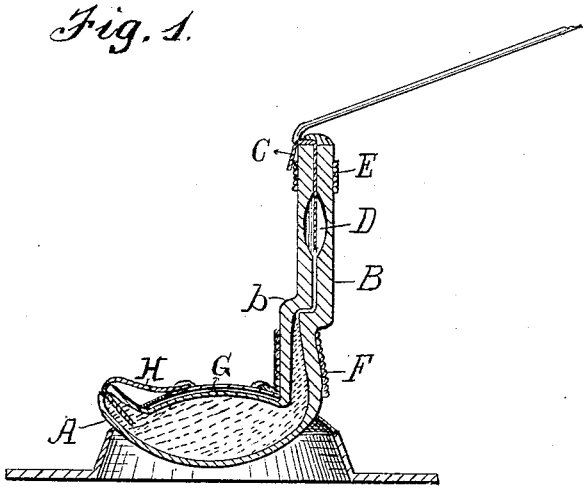

Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

WARD B. FARRAR, OF CHICAGO, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN MERCURIAL THERMOSTATS.

Specification forming part of Letters Patent No. **200,382**, dated February 19, 1878; application filed August 1, 1877.

To all whom it may concern:

Be it known that I, WARD B. FARRAR, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Electric Mercurial Thermostat, which is fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation of a thermostat embodying my improvements, and Fig. 2 a transverse section of the same.

My invention relates especially to thermostats which are intended to be inserted in walls or ceilings of rooms, and connected with an electrical alarm, for the purpose of producing a signal automatically if a fire occurs in the room where placed.

In the drawings, A represents a glass bulb, provided with a tube, B, which is of the same construction as the mercury-bulb tube ordinarily employed in thermostats of this class, except in the particulars hereinafter named. The tube B is constructed with a sharp angular bend, *b*, a slight distance from the bulb A. The tube has the usual small bore running through it, in the outer end of which is inserted a short piece of fine platinum wire, C. Around the inner end of the wire C the bore in the tube B is enlarged, so as to form a small chamber, D, as shown in Fig. 2 of the drawings.

A wire, E, is coiled a few times around the outer end of the tube B, and the outer end of the platinum wire C is soldered to this coil. A similar wire, F, is coiled around the tube next to the bulb A, and to it is attached, by soldering or otherwise, the shield G, which is constructed of the usual form, to surround and protect the bulb of mercury. A platinum wire, H, is soldered to the shield at one end, and enters the mercury in the bulb at the other, in the usual manner, and a connecting-wire, I, is also soldered to the shield, to furnish an attachment for one of the circuit-wires. The other line or circuit wire is attached to the free end of the wire coil E, which thus furnishes a sufficiently strong attachment for the line-wire.

It will be seen that the shield is attached to and supported by the coiled wire F, so that it not only has a substantial support, but also leaves the bulb free, the end of the bulb which projects through the shield not being relied upon to support the latter.

The bend in the tube B, and corresponding bend in the bore, is an effectual stop to prevent the jumping of the mercury in the tube under the impulse of a sudden and severe jar.

The chamber D affords space in which the mercury may accumulate when the heat is intense, and thus relieves the pressure in the bulb and tube, which would otherwise occur, and frequently cause the bursting of the bulb.

It will thus be seen that the improvements described add materially to the strength, durability, and reliability of the thermostat, for the purpose of giving alarms of fire.

It is understood, of course, that the device is connected with a battery and signal apparatus in the usual well-known manner, and is inserted, as usual, in the wall or ceiling of a room.

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

1. The wire E, coiled around the upper or outer end of the tube, forming the connection between the line-wire and platinum wire C, substantially as and for the purpose set forth.

2. The wire F, coiled around the tube at the bulb end thereof, in combination with the shield attached thereto, substantially as and for the purpose set forth.

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