G. S. SHUTE.

Thermostat for Fire-Alarms.

No. 207,139. Patented Aug. 20, 1878.

Fig. 1.

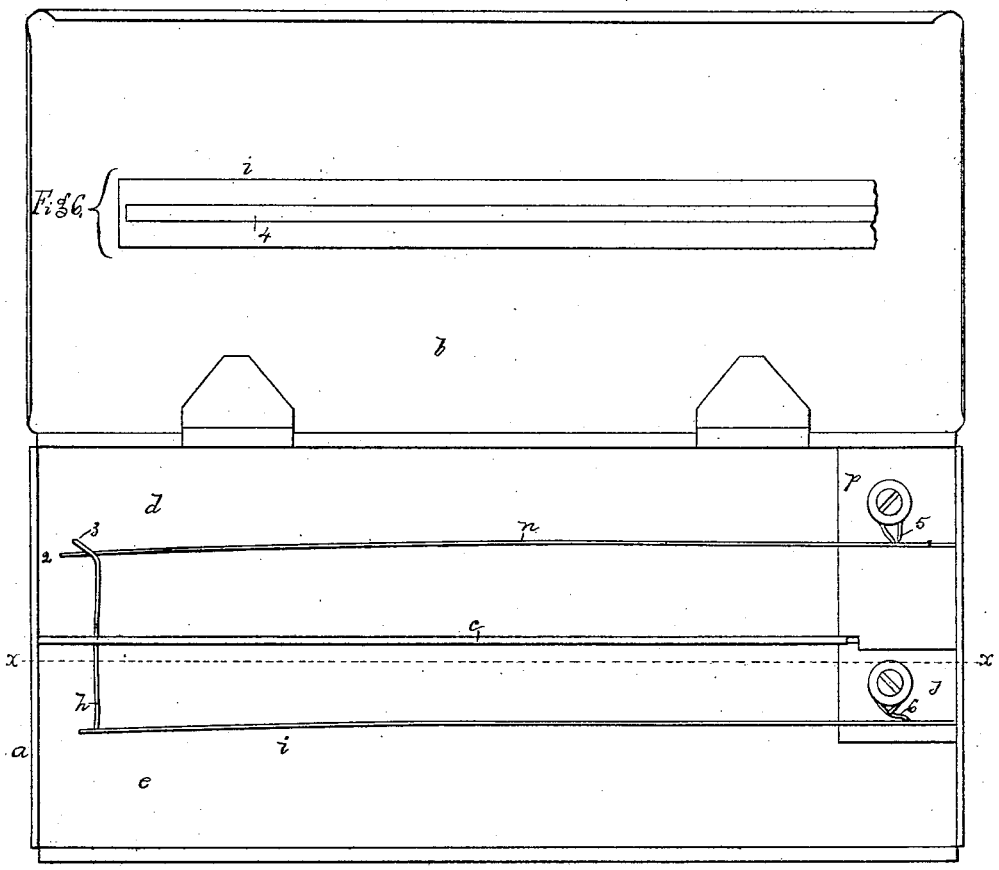


Fig. 2.

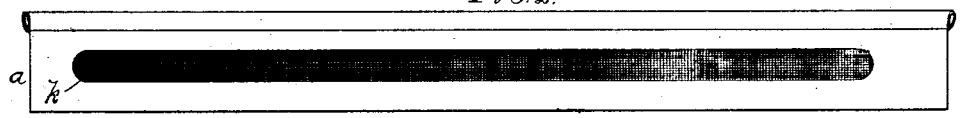


Fig. 3.

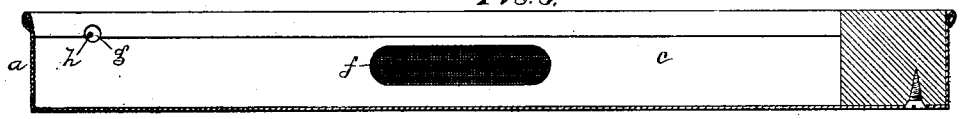


Fig. 4.

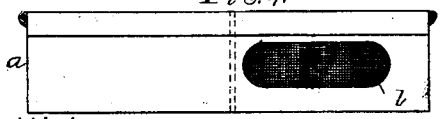
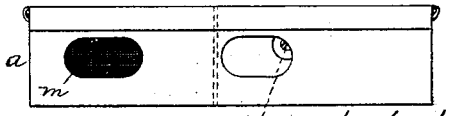


Fig. 5.



Witnesses.

E. C. Perkins.

W. J. Pratt.

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Att'ys.

UNITED STATES PATENT OFFICE.

GEORGE S. SHUTE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN THERMOSTATS FOR FIRE-ALARMS.

Specification forming part of Letters Patent No. **207,139**, dated August 20, 1878; application filed July 30, 1877.

To all whom it may concern:

Be it known that I, GEORGE S. SHUTE, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Thermostatic Fire-Alarms, of which the following is a specification:

This invention relates to a fire-alarm operated by heat; and the invention consists in the combination, within a case provided with two apartments, one of which is more exposed to the influence of the atmosphere than the other, of two parallel bars or springs, each composed of two metals of varying degrees of expansibility, whereby, when the temperature of the room in which the case is situated is raised suddenly above a certain degree, as in case of fire, the bar or spring in the most exposed apartment will be deflected more than the other, and cause a finger or circuit-closer supported and carried by one of the springs or bars to come in contact with the other spring or bar, thereby closing an electric circuit and setting in operation an alarm, either in the same building or at a distance.

If both springs or bars are acted upon gradually, they will move together, and the circuit will not be closed until at or above a certain temperature, at which the springs may be adjusted to close as their ends move in the arc of a circle.

Figure 1 is a plan view of the case with the lid open; Fig. 2, a side view of the case at the side of the most exposed apartment; Fig. 3, a longitudinal section on the line *x x*, Fig. 1; Figs. 4 and 5, end views of the case; and Fig. 6, a side view of one of the springs or bars disconnected or broken off, and laid on the inner side of the cover of the opened case of Fig. 1.

The case *a*, made of metal or other suitable material, is provided with a cover, *b*, and with a partition, *c*, by which to divide the case into two apartments, *d e*.

The apartment *d* is supplied with air, chiefly through the preferably-grated opening *f* and the small opening *g*, made for the reception of the circuit-closing finger *h*, attached to the spring *i*, which is supported in a block of wood or rubber, *j*, in the most exposed apartment *e*, which has its side opened or exposed for the passage of air and heat, as at *k*, and its ends opened, as at *l* and *m*. The spring *n* in apartment *d* is connected with a block, *p*, of wood or rubber. This spring or bar *n* will be so held that by means of a screw, *r*, arranged to press against one side thereof, the outer end, 2, of the spring or bar may be caused to assume a position nearer to or farther from the downwardly-bent end 3 of the finger *h*, as seen in dotted lines, Fig. 4.

In practice, the end 3 of the finger will rest at about one-eighth of an inch from the end of the spring *n*; but this distance may be more or less, as it is desired to close the circuit slower or faster, owing to a sudden increase of temperature, as by fire.

Each spring has attached to its side a strip of a different metal, as at 4, so that the two metals composing each spring have different degrees of expansibility under the action of heat.

If the room in which the case is located is quickly heated to a dangerous degree, the atmosphere, entering the most exposed apartment *e* quickly and the least exposed apartment *d* slowly, causes the spring *i* to be deflected faster and to a greater extent than the spring *n*, and consequently the end 3 of the finger *h*, carried by the spring or bar *i*, will be brought against the end of spring *n*, and will complete the electric circuit, the wires 5 6, connected with the springs or bars, being properly joined on circuit, so as to sound any usual alarm near or at any desired distance or location.

This invention forms a very simple and cheap alarm, which may be placed in any building or room, and be connected with an alarm or signal to be sounded, and which may also designate the room or the house, &c., if connected on circuit with headquarters of fire-brigade.

In practice, the springs *n i* are tested before being placed in the case, so as to select for each case two springs of like degrees of expansibility.

I claim—

A box or case having two apartments, one of which is more exposed or opened to the atmosphere than the other, and two parallel

springs or bars of different degrees of expansibility, one inclosed in each of the apartments, in combination with a circuit-closing finger, connected directly with, and supported and carried by, one of the springs or bars, whereby, when the more exposed bar is moved by heat more rapidly than the other, the finger will connect the two bars to close an electric circuit to give an alarm, substantially as set forth.

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

GEORGE S. SHUTE.

Witnesses:
CHARLES GIBBS,
HENRY T. FITTS.