No. 810,501. PATENTED JAN. 23, 1906.

A. H. McNEIL.

ELECTRIC FIRE ALARM AND THERMO INDICATOR.

APPLICATION FILED MAY 1, 1905.

Fig. 1.

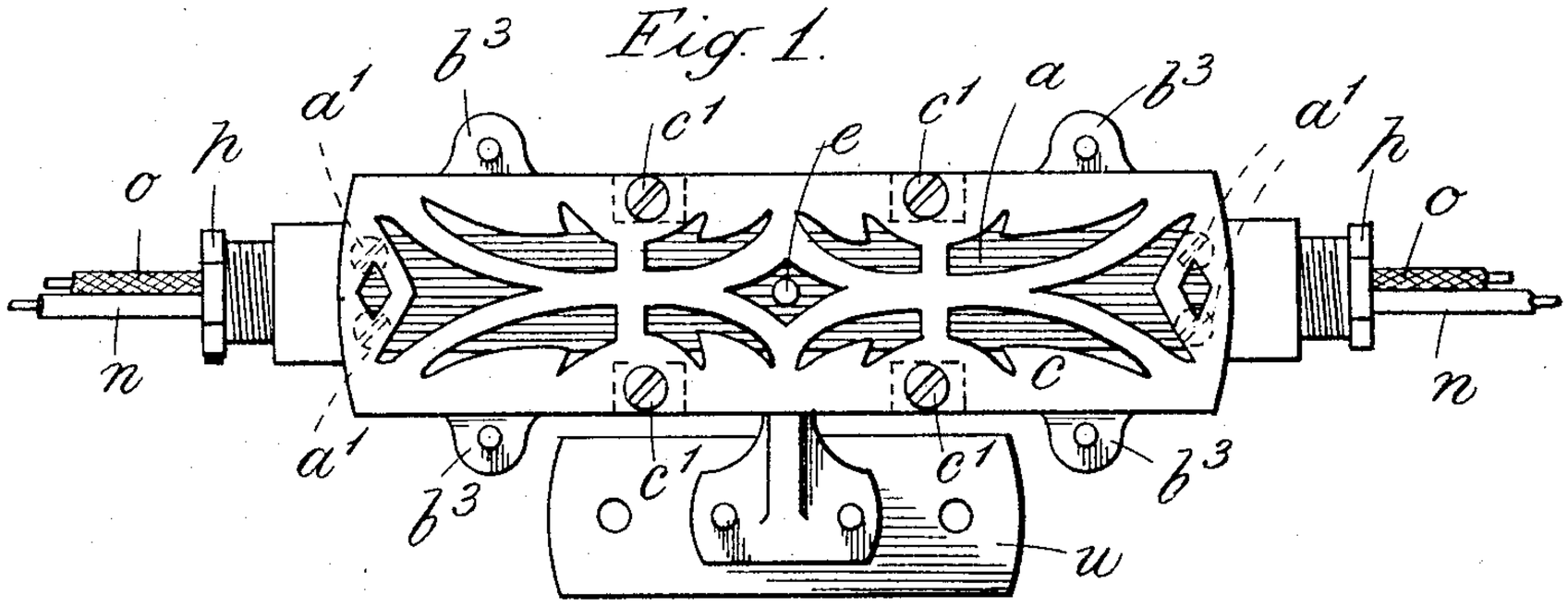


Fig. 2.

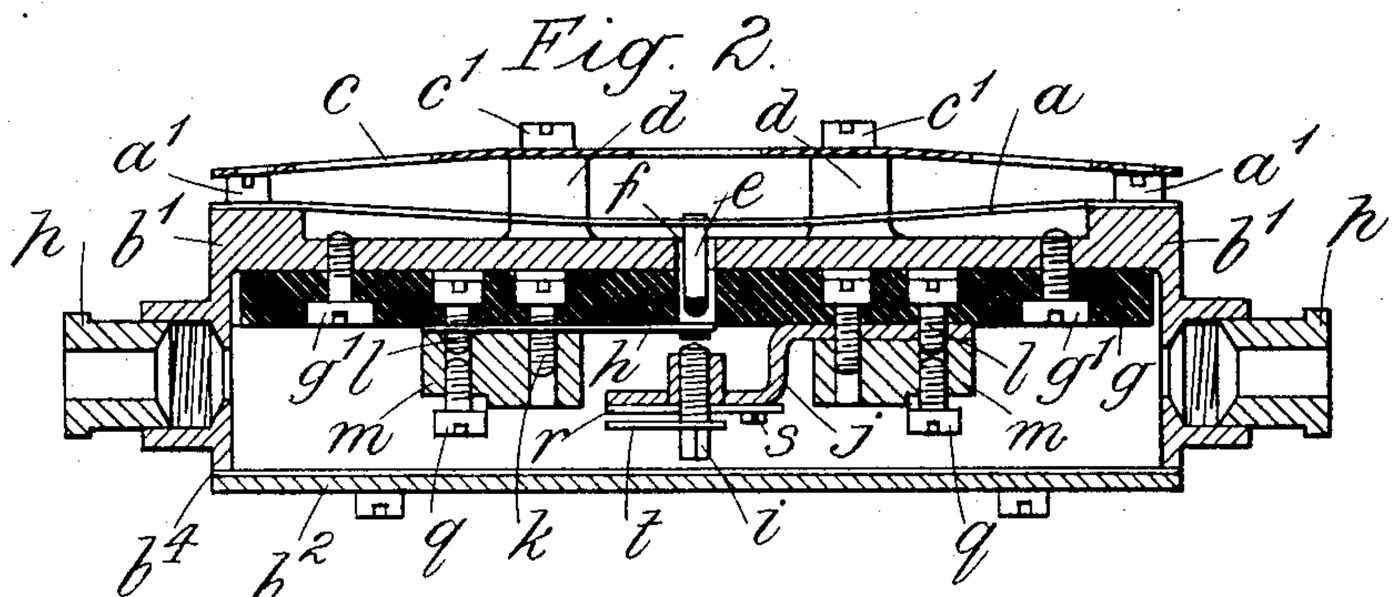
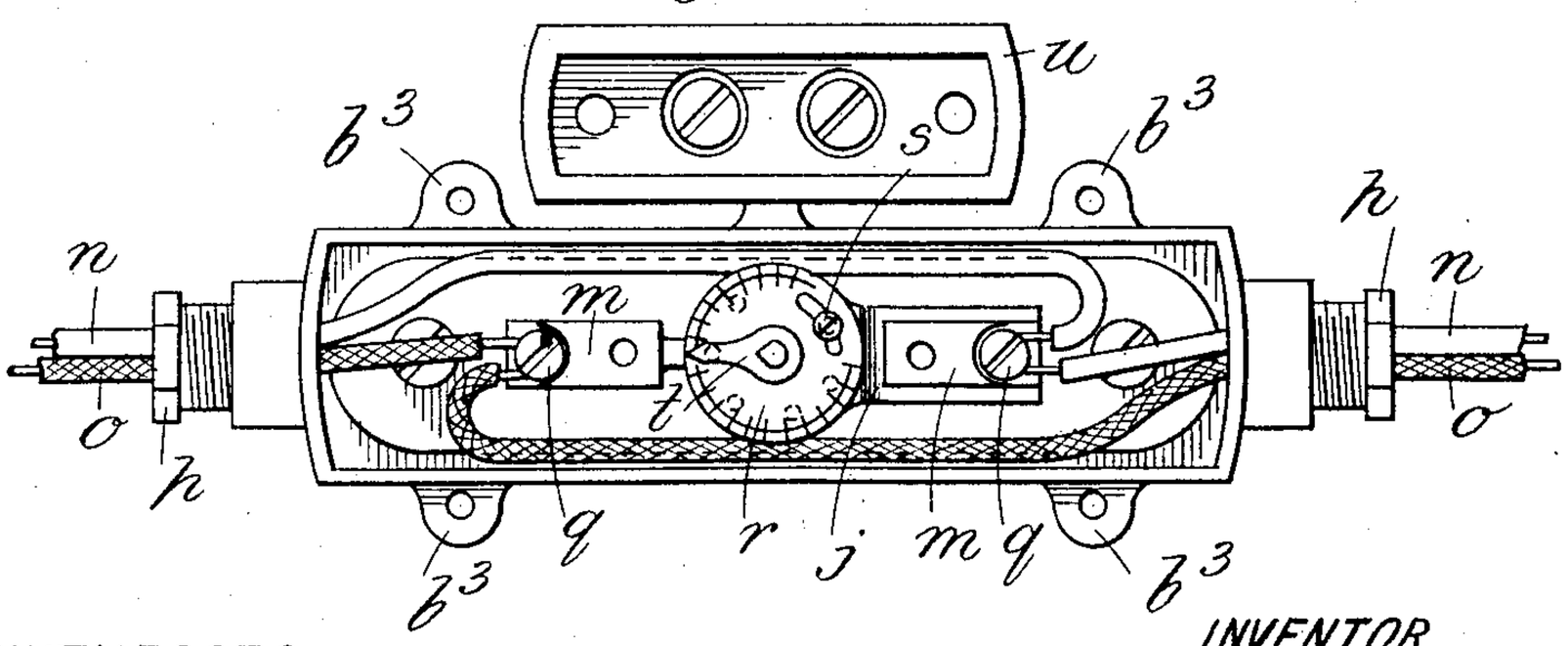


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

ALFRED HENRY McNEIL, OF CLAPTON, LONDON, ENGLAND, ASSIGNOR TO THE PEARSON FIRE ALARM LIMITED, OF LONDON, ENGLAND.

ELECTRIC FIRE-ALARM AND THERMO-INDICATOR.

No. 810,501. Specification of Letters Patent. Patented Jan. 23, 1906.

Application filed May 1, 1905. Serial No. 258,373.

To all whom it may concern:

Be it known that I, ALFRED HENRY McNEIL, a subject of the King of Great Britain and Ireland, residing at 54 Thornby road, Clapton, London, England, have invented certain new and useful Improvements in Electric Fire-Alarms and Thermo-Indicators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to electric fire-alarms and thermo-indicators in which an electric circuit is completed at a certain predetermined temperature by a metal strip fixed at its ends and deflected toward a contact-screw adjusted to enable the alarm to act at the desired temperature by means of a pointer carried thereon and a dial suitably graduated to indicate various degrees of temperature corresponding with different positions of the adjustable contact; and it consists in inclosing the electrical contacts in a more or less air-tight box while leaving the thermal strip exposed.

In carrying out this invention the thermal strip is fixed on projections from a base-box, and a plunger attached to the strip passes through a hole into the box. The contacts are carried by an insulating-base fixed in the box, one contact being a flat spring arranged in the path of the insulated end of the plunger and the other a brass plate carrying an adjustable contact-screw and a fixed dial. The electrical leads are led into the box through glands or the like and connected to the contacts. The box is closed by a removable lid suitably packed.

In the accompanying drawings, Figure 1 is a front view of a thermally-operated contact apparatus constructed according to this invention. Fig. 2 is a longitudinal section of the same, and Fig. 3 is a back view with the cover removed.

The thermal strip *a* is firmly fixed at its ends by screws *a'* to the projecting parts *b'* on the base-box *b* and protected by an open-work shield-plate *c*, fixed by screws *c'* to projections *d*, formed on the base-box. A plunger *e*, attached to the middle of the thermal strip *a*, works loosely in a hole *f* in the base-box *b*, a slight permanent deflection being given to the strip in the direction of the base-box *b*, as shown in Fig. 2, in order to insure that the strip *a* shall move the plunger *e* inward when the deflection is increased by the lengthening of the strip upon a rise of temperature.

Inside the box *b* is an insulating-support *g*, of ebonite or other suitable material, secured to the perforated side thereof by the screws *g'* and provided with an opening which comes opposite and forms a continuation of the hole *f*. On the insulating-support *g* the contact-spring *h* and its coöperating adjustable contact-screw *i* are carried, the contact-spring *h* lying flat against the support *g* and normally closing the inner end of the plunger-opening *f*, while the contact *i* is screwed into a brass plate or bracket *j*. The contact-spring *h* and bracket *j* are held on the insulating-support *g* by screws *k l*, which also hold blocks *m*, of brass. The electrical leads *n o*, which enter the box through glands *p*, are connected to the blocks *m* by binding-screws *q*.

The dial *r* is mounted loosely on the contact *i* and secured to the bracket *j* by a screw *s* passing through a slot in the dial, which enables the dial to be adjusted. By means of the pointer *t* the contact *i* can be adjusted so that the apparatus will act at any temperature indicated on the dial.

The lid b^2 of the box is fixed by screws which enter lugs b^3, a layer of packing b^4 being interposed to insure a tight closure, and the box itself is attached by screws to a porcelain or similar insulator *u*.

In operation the plunger *e*, which is tipped with insulating material, first comes against the contact-spring *h*, then forces this spring into contact with the contact-screw *i*, thus completing the alarm-circuit and causing the alarm to be given.

By inclosing the contacts in the manner described they are effectively protected from dust and damp without interfering with the free action of the thermal strip.

It will readily be understood that the above construction may be modified in various ways without departing from the nature of this invention so long as the electric contacts are more or less inclosed and that the resistance to motion of the plunger or other contact operating device is small.

What I claim, and desire to secure by Letters Patent, is—

1. In an electric fire-alarm in which an electric circuit is completed at a predetermined temperature by the deflection of a thermal strip, a box or chamber having an opening in

one of its sides, an insulated contact-spring fixed inside the box and normally closing the said opening, an adjustable contact also mounted within the box in close proximity to the spring-contact, a thermal strip fixed at its ends outside the box, and a plunger attached to the thermal strip and arranged to project into the opening in the side of the box and to operate the contact-spring, substantially as described.

2. In an electric fire-alarm in which an electric circuit is completed at a predetermined temperature by the deflection of a thermal strip, a box or chamber provided with stuffing boxes or glands at its ends and an opening in one side, an insulating slab or support fixed inside the box, contacts mounted on the insulating-support, one of said contacts being adapted to close the opening in the side of the box, means for adjusting the other contact, electric leads or conductors connected to the contacts and passing through the stuffing-boxes, a thermal strip fixed at its ends outside the box, and a plunger on the strip adapted to enter the box through the opening in the side thereof and when the strip is deflected to the required degree to close the contacts and operate the alarm.

In testimony whereof I have affixed my signature in presence of two witnesses.

ALFRED HENRY McNEIL.

Witnesses:

KENNETH LESLIE SKINNER,
RICHARD WESTACOTT.