

(No Model.)

H. S. PETIT & H. S. BRESSON.
THERMAL CIRCUIT CLOSER FOR FIRE ALARMS.

No. 388,505.

Patented Aug. 28, 1888.

Fig 1.

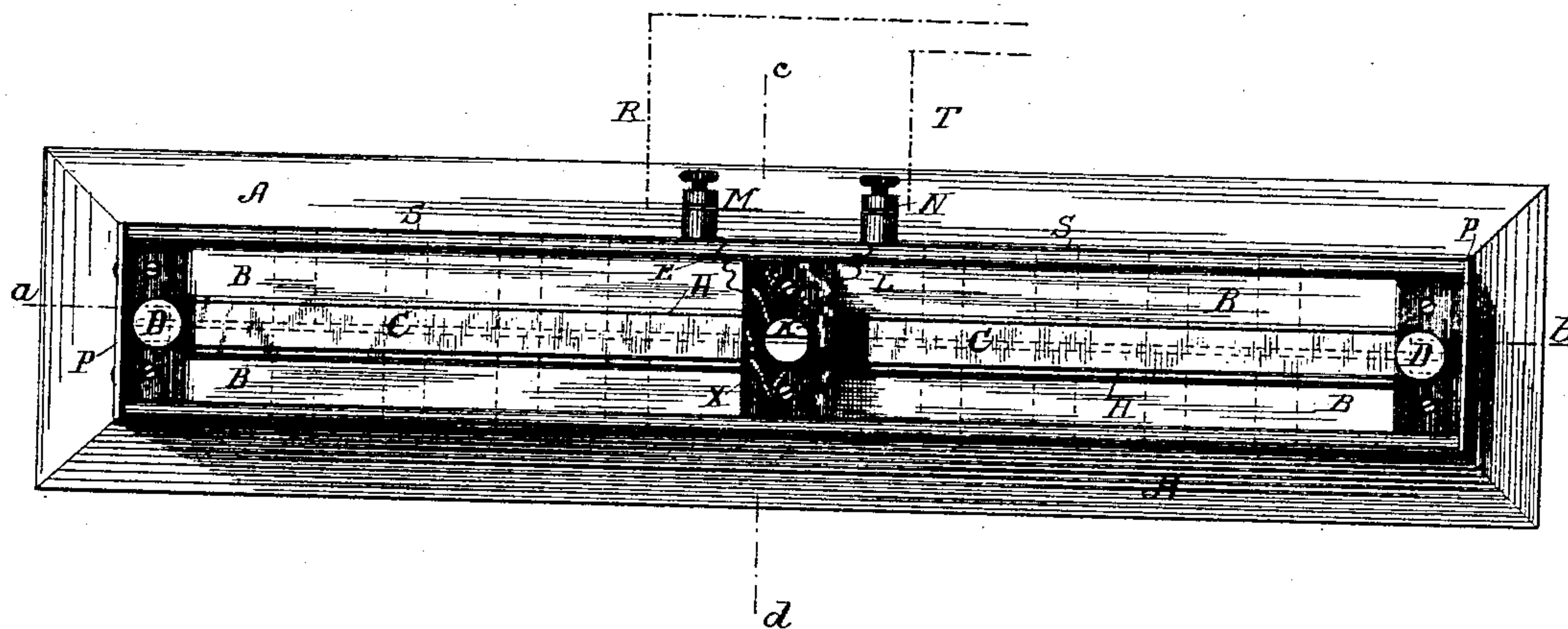


Fig 2.

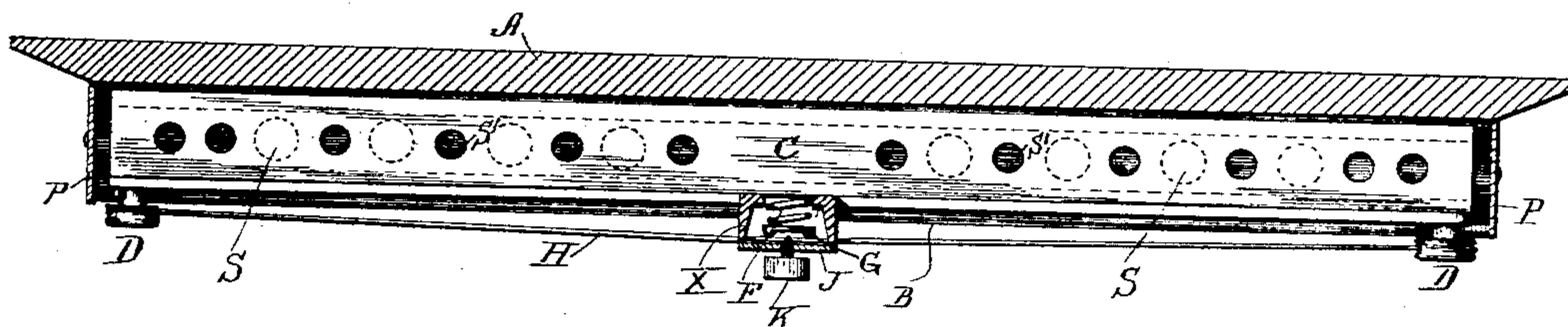


Fig 3.

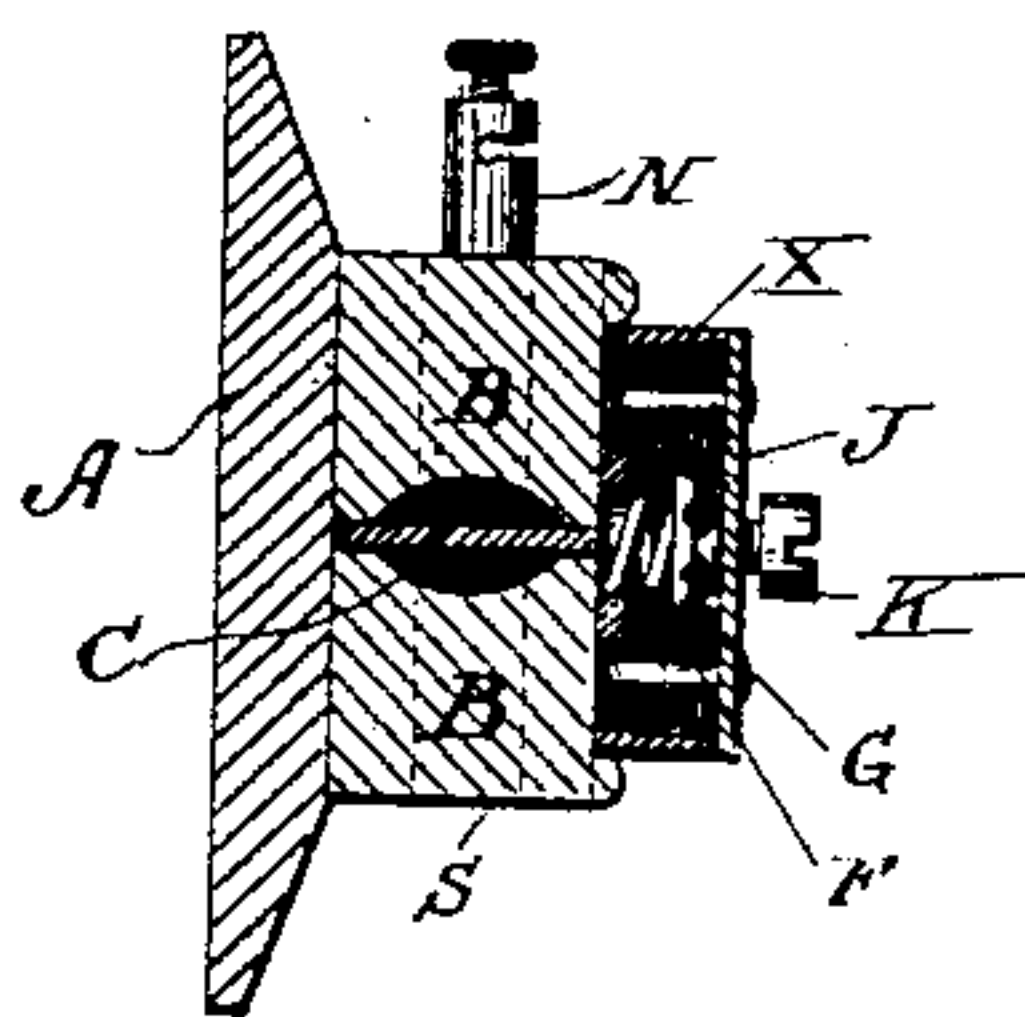


Fig 4.

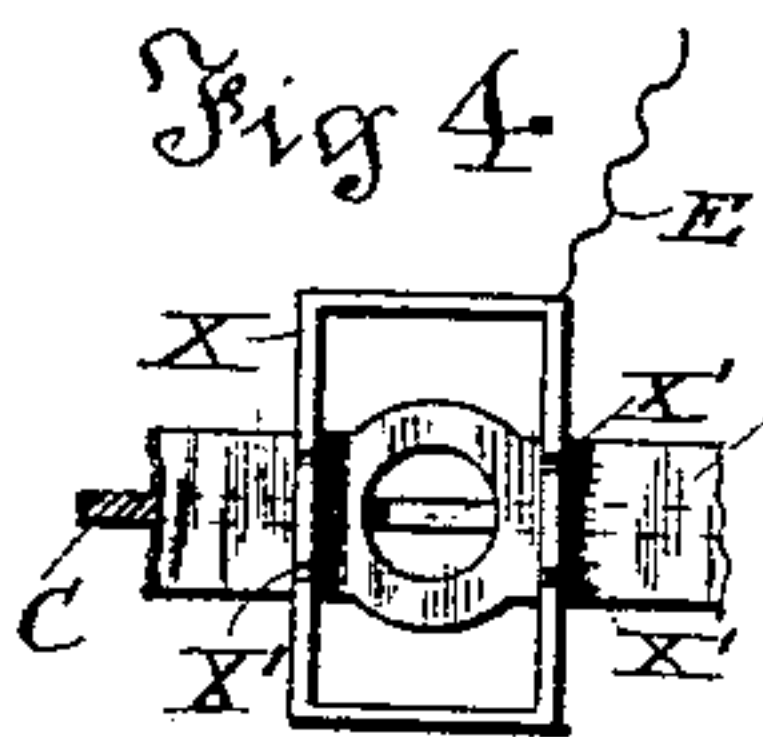


Fig 5.

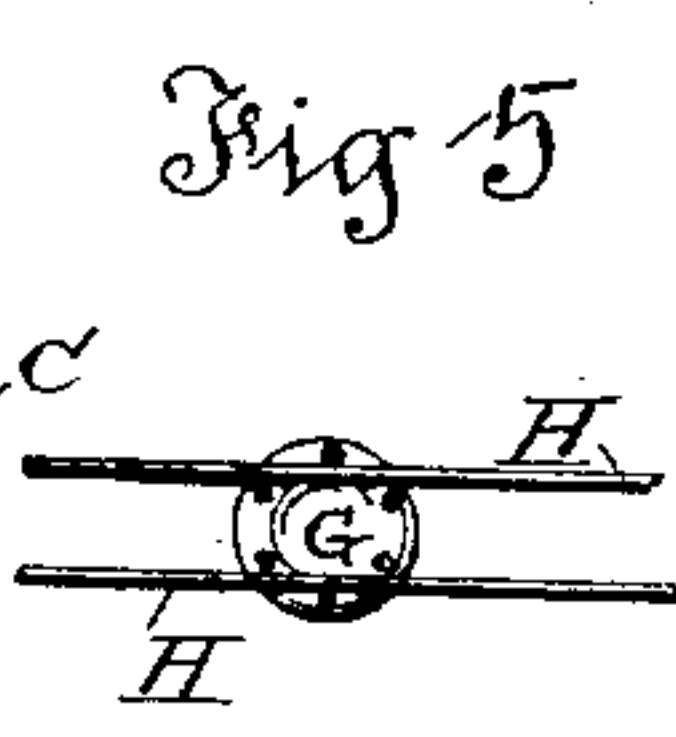
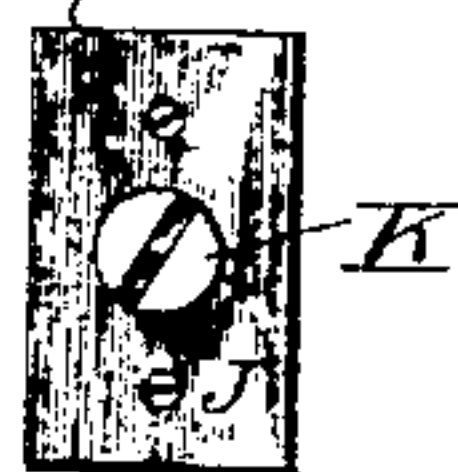


Fig 6.



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRI STEVEN PETIT AND HENRI STEVEN BRESSON, OF VITORIA, SPAIN.

THERMAL CIRCUIT-CLOSER FOR FIRE-ALARMS.

SPECIFICATION forming part of Letters Patent No. 388,505, dated August 28, 1888.

Application filed March 26, 1888. Serial No. 268,593. (No model.) Patented in Belgium March 4, 1887, No. 76,572; in France March 9, 1887, No. 182,081; in Luxemburg March 10, 1887, No. 814; in England March 12, 1887, No. 3,792; in Spain March 20, 1887, No. 10,776; in Italy August 30, 1887, No. 22,218, and in Portugal November 3, 1887, No. 1,189.

To all whom it may concern:

Be it known that we, HENRI STEVEN PETIT and HENRI STEVEN BRESSON, subjects of the King of Belgium, and residents of Vitoria, Spain, have invented a new and useful Improvement in Electric Fire-Alarms, (for which we have obtained patents in Belgium, No. 76,572, dated March 4, 1887; in France, No. 182,081, dated March 9, 1887; in Luxemburg, No. 814, dated March 10, 1887; in England, No. 3,792, dated March 12, 1887; in Spain, No. 10,776, dated March 20, 1887; in Italy, No. 22,218, dated August 30, 1887, and in Portugal, No. 1,189, dated November 3, 1887,) of which the following is a specification.

This invention relates to fire-alarms, or alarm-giving apparatus of that class, in which a contact is made or broken by excessive or rapid rise of temperature, whereby an electric alarm-signal is caused to sound.

The object of the invention is a contact apparatus to be combined with an alarm-signal and battery, and adapted to set such alarm-signal in action by rapid rise of temperature in the neighborhood of the apparatus.

A further object is to construct such apparatus so that it will act at low or high temperatures of the atmosphere without the temperature of the atmosphere needing to be compensated for by special adjustment.

A further object is to construct an apparatus that it may be very minutely adjustable for the purpose required.

To these ends the invention consists in the combination of parts, substantially as hereinafter set forth, and specifically pointed out in the claims, reference being made to the accompanying drawings, in which—

Figure 1 is a plan view of the aforesaid contact apparatus; Fig. 2, a longitudinal section thereof on line *a b*, Fig. 1. Fig. 3 is a cross-section thereof on line *c d*, Fig. 1. Figs. 4, 5, and 6 are detail plan views of certain parts.

The contact apparatus essentially comprises a metallic body of comparatively small mass—for instance, a wire band or thin rod stretched upon or by a metallic frame of comparatively large mass, contacts being arranged so that the tension of body of small mass restrains

their operation. With rapid rises of temperature the wire or the like, being of less mass, receives heat more quickly than the frame supporting it, being of large mass, consequently expands more quickly than the latter and loses more or less tension, so that the contacts are enabled to operate the alarm-signal when a certain desired amount of tension is lost by the wire. This principle is embodied in the following construction.

A is a base-plate, preferably of hard wood. B B are two parallel bars, of wood or other suitable material, integral with or fixed to the base-plate A, so that a long narrow space is left between said bars. The opposed faces of the bars B are hollowed out, as shown in Fig. 3, and a suitable number of channels, S', are cut through the bars communicating with the hollowed space between them. The ends of the bars B B may be connected by plates P, fastened by screws thereto.

Freely sliding between the bars B, but laterally supported thereby, is a metallic frame, C, preferably of T-shaped cross-section. At each end of the frame C, on the outer face thereof, is a button or grooved circular stud, D, preferably integral with the frame C. Holes S' may be cut in the web of the frame, so that its weight may be reduced somewhat without detracting from its strength. The endless wire H is stretched around the buttons D. The frame C carries at its center the frame or bracket X, the walls of which rise above the level of the wire H, the latter passing through or undersaid bracket. If the bracket X be a rectangular walled inclosure, as shown in Fig. 4, the wire H may pass through perpendicular slots X' in the side walls thereof. In the base of the bracket X is a spring, F, preferably a spiral spring, and on the latter is a disk, G, having pins projecting from its circumference to hold it in place by the passage of the wire H between the pins. The spring F presses the disk G against the wire H. The bracket X supports the insulating-plate J above the wire H, and perpendicularly above the center of the plate G is a set-screw, K, passing through the insulating-plate J. The terminals M and N are in connection, re-

spectively, with the set-screw K and bracket X through wires E and L.

R and T are the leads of a circuit comprising an electric alarm-signal and battery. 5 When the temperature rises slowly in the neighborhood of the apparatus, the frame C and wire H expand substantially at an equal rate, and the tension of the wire H is maintained. When, however, as in a case of out- 10 break of fire, the temperature rises with comparative rapidity, the wire H expands more quickly than the frame C, and as it loses tension the spring F presses up the disk G until the latter is in contact with the set-screw K 15 and the circuit of the battery and alarm signal is closed. The adjustment is effected by screwing up or down the screw K. The point of the screw K and the disk G may be of platinum. The plate J may be metallic and insu- 20 lated in the usual manner from the bracket X supporting the same.

We claim in electric contact apparatus—

1. The combination, with a body of large mass, of a body of small mass tensioned there- 25 on, said bodies being expansible by heat, and contacts adapted to be brought in operation by loss of tension of said body of small mass upon a sudden rise of temperature.

2. The combination, with a metallic frame, 30 of a metallic wire stretched thereon, and contacts adapted to be brought into operation by loss of tension of said wire upon a sudden rise of temperature.

3. The combination, with a metallic frame, 35 of a metallic wire stretched thereon, a stationary contact, a movable contact opposed to said stationary contact, and a spring adapted to press said movable contact onto said station-

ary contact upon a sudden rise of temperature, said wire holding said contacts apart by 40 its tension.

4. The combination, with a metallic frame, C, of buttons D on the extremities of said frame, a wire, H, stretched around said buttons, con- 45 tact-plate G, spring F, and contact K, substantially as set forth.

5. The combination of a support, A B B, a metallic frame, C, buttons D thereon, a wire, H, stretched around said buttons, bracket X 50 on said frame, spiral spring F within said bracket, plate G, supported by said spring and insulated, and contact-screw K, supported by said bracket, substantially as set forth.

6. The combination of a base-plate, A, two bars, B, thereon, said bars being perforated 55 and recessed on their opposing faces, a metallic frame, C, supported between said bars, buttons D on the extremities of said frame, an endless wire, H, stretched around said buttons, a bracket, X, on said frame C, and in- 60 sulating-plate J, supported by said bracket, a spiral spring, F, supported by frame C, a plate, G, on said spring, pins on said plate G, an adjustable contact-screw, K, on said plate J, and terminals M N in electric connection 65 with said contact-screw J and plate G, respectively, substantially as and for the purpose set forth.

In testimony whereof we have signed this specification in the presence of two subscrib- 70 ing witnesses.

HENRI STEVEN PETIT.

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Witnesses:

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