

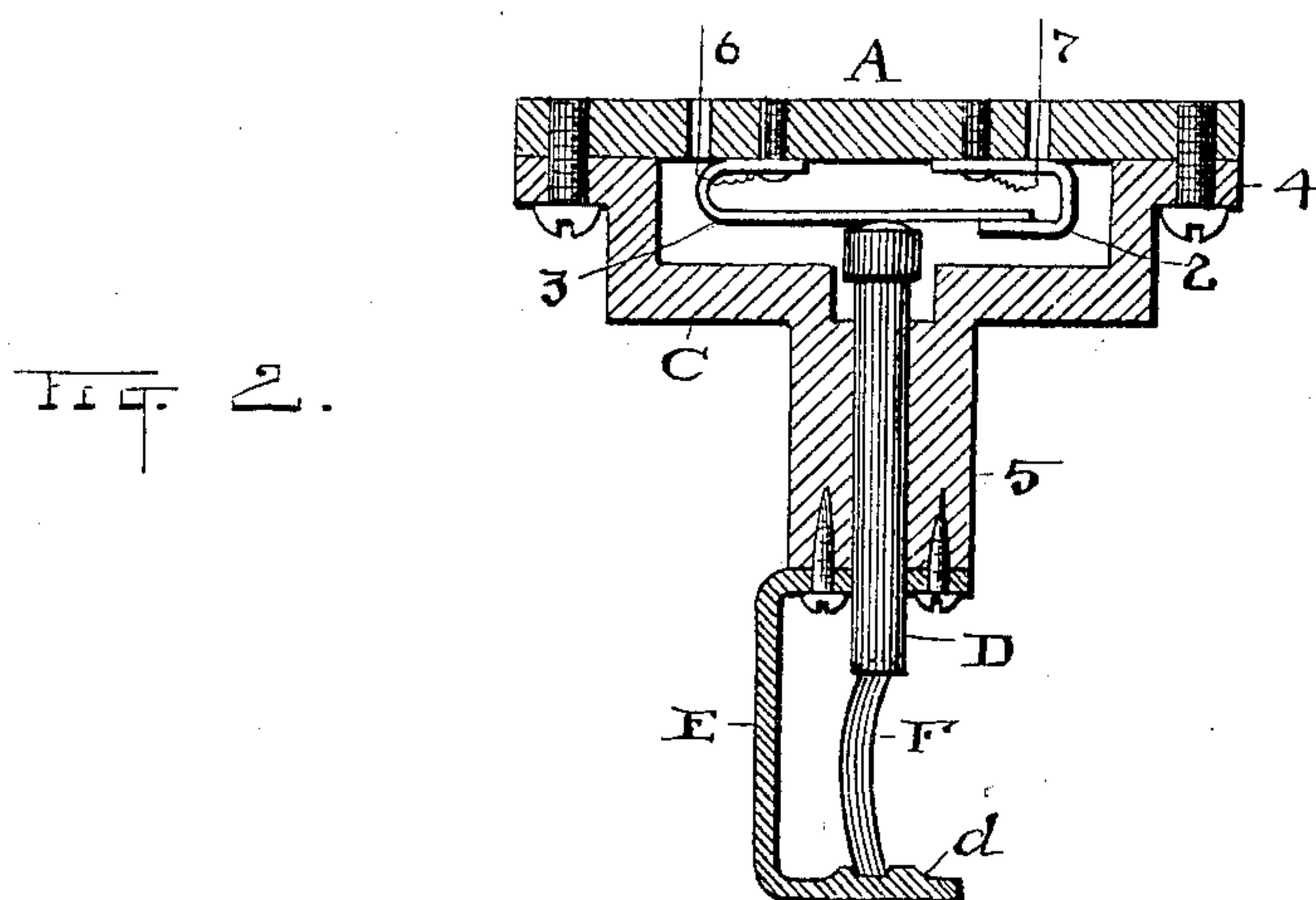
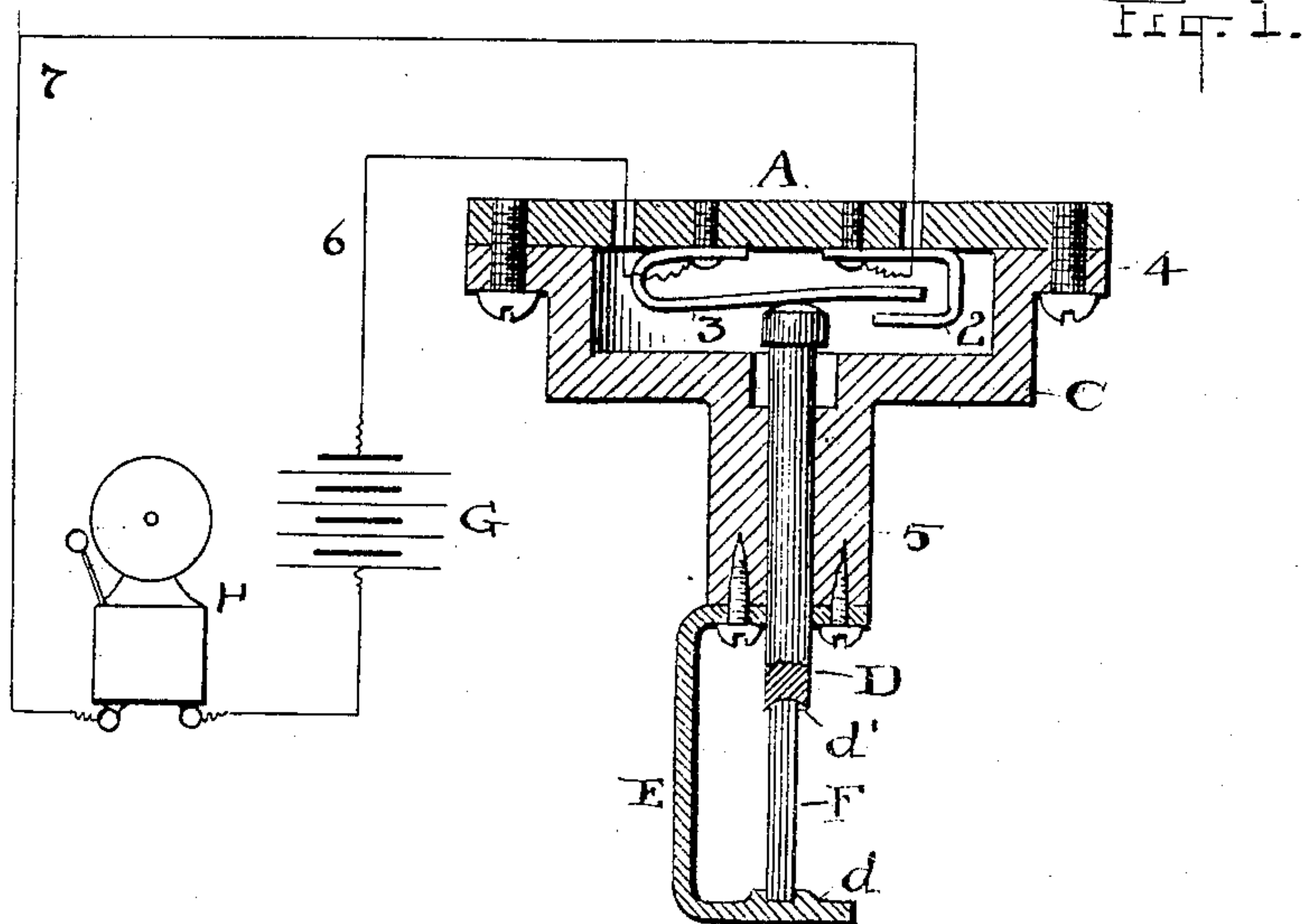
No. 627,837.

Patented June 27, 1899.

F. WILKE.
ELECTRIC CIRCUIT CLOSING DEVICE.

(Application filed Apr. 8, 1899.)

(No Model.)



ATTEST

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FERDINAND WILKE, OF AKRON, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF THREE-FOURTHS TO SMITH G. TIBBS, LOUIS A. WECHT, AND JOHN GREYHER, OF SAME PLACE.

ELECTRIC-CIRCUIT-CLOSING DEVICE.

SPECIFICATION forming part of Letters Patent No. 627,837, dated June 27, 1899.

Application filed April 8, 1899. Serial No. 712,230. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND WILKE, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Electric-Circuit-Closing Devices; and I do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to means for automatically closing a normally open electric circuit; and the object of the invention is to provide a circuit-closing device in which there is a separate element which is sensitive to heat and will yield or surrender when a predetermined degree of temperature has been reached in the room or place where such device is located and by yielding to enable or allow the electrical circuit to be thereupon closed, all substantially as described and shown, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a central sectional elevation of the device with the parts in open-circuit relation, as occurs normally; and Fig. 2 is a like elevation with the parts in closed relation, as occurs abnormally, all as hereinafter fully described.

A represents the base of the device, which is designed to be attached to the ceiling or wall of a room or to some other exposed part or place where the temperature tests are to be taken. The said part A may itself be of insulating or non-conducting material, or a suitable insulation may be employed between it and the two contact members 2 and 3, fixed thereto. The contact member or point 2 may be simply a strip of sheet or plate metal or the like, such as copper, and in this instance is shown as bent twice at right angles to bring the upper free terminal portion or end into relation for making contact by the member 3 in a direction away from or opposite to the base A, while the member 3 is made of a strip of suitable spring metal and is so bent and fashioned that it will exert and maintain as much spring tension or resistance as the

further construction of the device demands and when released will at once throw itself into touch with the contact-point 2. The normal and necessary relation of these two parts, therefore, is one of separation, leaving an open and inoperative circuit. Over these contact members or points is the cap or housing C, within which said points or elements are inclosed and sealed from the outside atmosphere, and the cap is fastened to the base A through its flange 4 by screws or their equivalent. Projecting centrally from said cap and in this instance integral therewith is a neck portion 5, having a central axial bore in line with the spring contact-strip 3, and the plunger D extends through this bore and has its ends projecting beyond the bore at both ends to make operative connections at said ends. This brings the inner end of the plunger to bear directly upon or against the spring 3 about midway its length; but the bearing is a free one and the two parts are not fastened together. This also leaves the plunger free to be removed when occasion requires.

On the outer extremity of the neck 5 I employ what is shown here as a three-sided bracket E, fastened by nails or screws or otherwise on the end of said neck, and the outer right-angled portion *d* of the said bracket is preferably formed with a boss or seat opposite the outer end of plunger D, while the said end of the plunger is formed with a cavity *d'*. Between the said parts D and E and engaged in said boss and cavity, respectively, is a separate and independent fusible stick or piece F of such length and strength as to raise the bolt D and the spring contact part 3 out of contact, as in Fig. 1, and to hold said parts in that relation indefinitely and until a sufficient degree of heat be developed to soften the said stick and cause it to yield and bend, as seen in Fig. 2. The degree of heat or temperature at which such surrender shall occur depends entirely on the character of the stick and the needs of the place. In any event this will be determined by what may be regarded as reasonable precaution or the danger-point of temperature and in some cases may be as

low as, say, 75° Fahrenheit, while in others it may be 200° or upward. The stick F, therefore, is made of different degrees of quality in so far as its power of resistance is concerned, and these are numbered or marked in such way as to denote the kind or quality they are of. If the device were placed in a private residence as a precaution against fire, the stick might be made to yield, say, at 100° or thereabout, and so on according to circumstances.

It will be noticed that the stick F is wholly exposed outside the device and that though it yields or surrenders, as seen in Fig. 2, when it is unduly exposed it yet holds its place, and if not melted away by a fire it remains there to be taken out and straightened and used over again the same as before; or if it should be destroyed it can readily be replaced by any unskilled person about the house, even by a child, and without the use of any tool or other means whatsoever.

I have mentioned a private residence as a popular place of use for this device; but it is no less useful in all other places where danger from overheating or of fire may occur, and among these places are greenhouses, drying-rooms, or driers of many different kinds for fruit and other purposes, kilns for burning various articles and where excessive firing cannot be allowed, incubators, and almost numberless places and uses in which a device of this kind can be profitably employed.

The wires 6 and 7 run from the battery G to the contact-points 2 and 3, one of said wires passing through an alarm-bell or buzzer H.

The stick F might in some cases be made of non-fusible material; but in that case mechanical connections or means of some kind would be required to dislodge it in order to make contact. Such connection might be made with a closed door or window, so that the alarm would be caused to ring if the door or window were opened, or the same device, with a fusible stick, can be connected up for both automatic and mechanical operation, making it to serve for danger from heat or fire and also from attempts to steal through a door or the like.

What I claim is—

1. In a device substantially as described, a suitable base and the contact members there-

on, a cap fixed to said base and having a neck provided with a central bore from end to end and a bracket fixed to said cap, in combination with a plunger projecting through said neck at both ends, and a fusible stick engaged between the outer end of the plunger and the outer portion of said bracket, substantially as described.

2. The combination of the base and the cap thereon having an outwardly-projecting neck with a bore through its center, a bracket extending beyond the end of said neck and across the line of said bore, contact-points within the cap on said base, one of which is of spring metal, a plunger through said neck and bearing on said spring contact-point, and a separate stick engaged at one end by said plunger and at the other end by said bracket, substantially as described.

3. In an automatic circuit-closing device, the parts thereof comprising the casing, the contact members located in an electric circuit, and means to hold said members normally apart to keep the circuit open, consisting of a plunger engaging one of said contact members and a fusible stick bearing against the outer end of the plunger and exposed outside said casing, substantially as described.

4. The combination of the casing, the contact members arranged in an electric circuit, a slidable plunger in the said casing bearing against one of said contact members and extending out through the casing, a bracket-arm across the line of said plunger and an exposed fusible stick interposed between the plunger and said arm, substantially as described.

5. The casing and the contact members therein in a normally open circuit, a plunger supported in said casing with one end arranged to press one of said contact members out of contact, a fusible member engaging the opposite end of said plunger and exposed to the outer air and means to hold said fusible member in operative position against the end of said plunger to keep it depressed, substantially as described.

Witness my hand to the foregoing specification this 3d day of April, 1899.

FERDINAND WILKE.

Witnesses:

BERTHA A. WILSON,
OSBORN ESGATE.