No. 794,497. PATENTED JULY 11, 1905.

J. D. GOULD.

THERMOSTAT.

APPLICATION FILED OCT. 8, 1904.

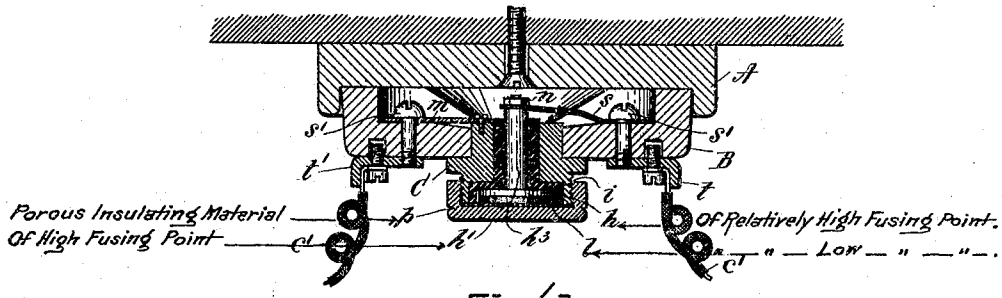


Fig. 1.

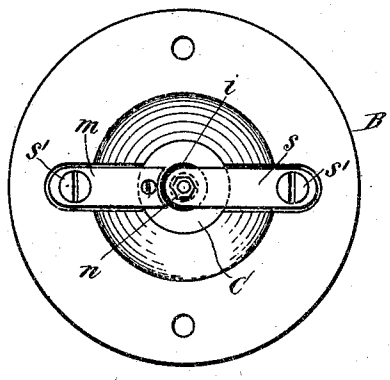


Fig. 2.

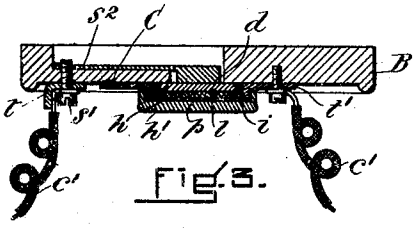


Fig. 3.

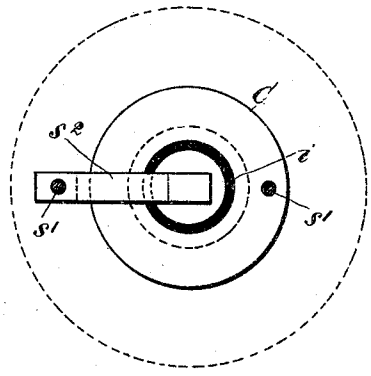


Fig. 4.

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No. 794,497. Patented July 11, 1905.

UNITED STATES PATENT OFFICE.

JOHN D. GOULD, OF NEW YORK, N. Y.

THERMOSTAT.

SPECIFICATION forming part of Letters Patent No. 794,497, dated July 11, 1905.

Application filed October 8, 1904. Serial No. 227,748.

To all whom it may concern:

Be it known that I, JOHN D. GOULD, a citizen of the United States of America, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Thermostat, of which the following is a specification.

The invention relates to thermostats for use in fire-detecting circuits; and it consists of a small plate of metal of relatively low fusing-point arranged between two pieces or plates of metal of relatively high fusing-point and with a sheet of porous insulating material interposed between the low-fusing plate and one or both of the high-fusing plates, an insulating envelop around the periphery of the low-fusing metal plate to prevent lateral flow of such metal when fused under the influence of heat and to cause it to flow through the interstices of the porous sheet, by which electrical connection will be made between the two plates of high-fusing metal and thereby close the alarm-circuit through metallic terminals with which the high-fusing metal plates are connected. Also for the purpose of obviating an accidental failure of the low-fusing metal when melted to make the electrical connection between the two plates of high-fusing metal a spring may be employed to press one of the latter plates constantly toward the plate of low-fusing metal and by that means cause the high-fusing plate to occupy the space which may have been left by the flowing away of the fused metal and at the same time assist in forcing such fused metal through the porous sheet.

In the drawings which form a part of this specification, Figure 1 is a central sectional elevation of a convenient embodiment of this invention in which a spring is provided to insure continual contact between the plates of high-fusing and low-fusing metal. Fig. 2 is a plan of the base of the thermostat shown in Fig. 1 removed from the cap and viewed from above. Fig. 3 is a sectional elevation of my improved thermostat without the use of a spring to act upon the metal plates. Fig. 4 is a plan of the metal portions of the thermostat shown in Fig. 3 looking downward thereon, the outer broken-line circle indicating the outline of the base of insulating material.

Referring to the drawings, A is the cap which is to be secured to the wall or ceiling.

B is the base.

h is a metal plate of relatively high fusing-point; l, a metal plate of relatively low fusing-point; p, a porous sheet of insulating material; h', another metal plate of high fusing-point, which in this instance is made in the form of a cap to be screwed to the metal chamber C, which contains the insulating-envelop i, which surrounds the peripheries of the two plates h l, as also the metal stem h^3, which in this construction I find convenient to use for the bearing of the spring s, which is connected with the stem h^3 by means of a nut n, secured upon a screw on the upper end of the stem h^3. The spring s is electrically connected with a terminal t by a screw s', which passes through the base B and engages the metal terminal t. The metal chamber C is connected with another terminal t' by means of a metal strip m and another screw s', which passes through the base B.

c' c' are the circuit-wires.

In Fig. 3 the metal strip s^2 has not the spring action of the part s in Fig. 1, but at the same time serves as an electrical connection between the metal plate h and the terminal t and has a bearing upon the plate h at d. Under usual conditions when the thermostat shown in Fig. 3 is subjected to heat sufficient to fuse the metal plate l that metal by reason of its expansion will be forced through the interstices or pores of the sheet p and make electrical connection between the plate h and the cap h', thereby completing the circuit through the terminal t, metal strip s^2, plates h, l, and h', and thence to the terminal t', which in this instance is upon the flange of the metal chamber C, and, as illustrated in Fig. 1, when the plate of fusible metal l is melted the action of the spring s upon the plate h, through the stem h^3, will tend to force the fused metal l through the interstices of the sheet p, so as to make electrical connection between the plate h and the cap h', the surrounding envelop i preventing the flow of the metal l

laterally, the same in the construction shown in Fig. 1 as that shown in Fig. 3.

The principle of operation of this thermostat is the same as that embodied in the thermostats shown in my Patent No. 771,144 of September 27, 1904, and other patents granted to me in respect to the employment of the flow of the fusible metal when melted through an intervening insulating porous sheet or envelop; but the construction and arrangement of the parts is different, and the plate of metal of low fusing-point can be more readily and conveniently renewed whenever it has been melted, distorted, or disarranged by the influence of heat. It will be observed that this may be done by simply unscrewing the metal cap h' and inserting a new plate l and insulating-sheet p in their proper place within the insulating-envelop i and screwing the cap h' back in place.

I claim—

1. In an electrical thermostat, a metal plate of relatively low fusing-point and a relatively porous insulating-sheet upon one side thereof, the two located between two metal plates of relatively high fusing-point in close contact therewith, an insulating-chamber which peripherally incloses the plate of low-fusing metal, and a terminal for a circuit-conductor electrically connected with each high-fusing plate, for the purpose described.

2. In an electrical thermostat, a metal plate of relatively low fusing-point, located between a metal plate of relatively high fusing-point, and a sheet of porous insulating material, the whole contained within a chamber of metal of relatively high fusing-point, but electrically insulated therefrom, and metallic terminals respectively electrically connected with the high-fusing plate and the inclosing metallic chamber.

3. In an electrical thermostat, a metal plate of relatively low fusing-point, located between a metal plate of relatively high fusing-point, and a sheet of relatively porous insulating material, the whole within a chamber of metal of relatively high fusing-point, but electrically insulated therefrom, a spring which tends to press the plates of high and low fusing metals together and terminals electrically connected respectively with the plate of high-fusing metal and the metal chamber.

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