

M. NEMMERT & G. SCHNABEL.
ELECTRICAL THERMOSTAT.
APPLICATION FILED NOV. 24, 1911.

1,049,516.

Patented Jan. 7, 1915

Fig. 1

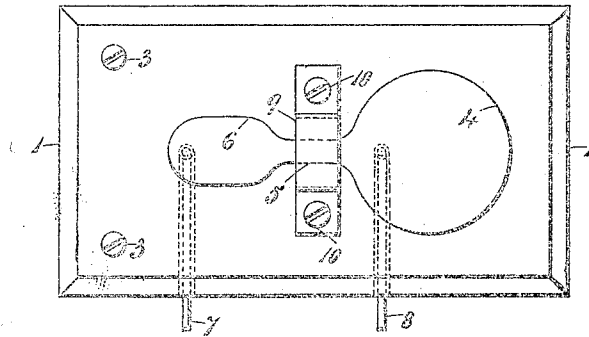


Fig. 2

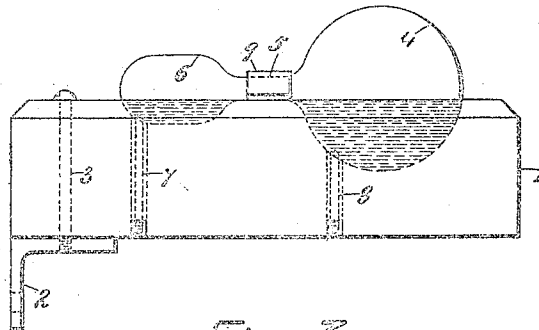
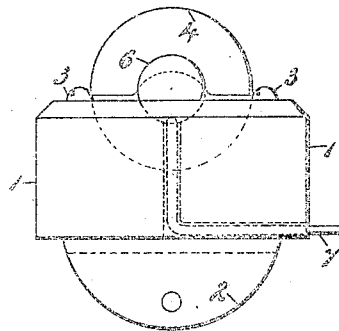


Fig. 3



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UNITED STATES PATENT OFFICE.

MAX NEMMERT AND GEORGE SCHNABEL, OF HAMILTON, ONTARIO, CANADA.

ELECTRICAL THERMOSTAT.

1,049,516.

Specification of Letters Patent.

Patented Jan. 7, 1913.

Application filed November 24, 1911. Serial No. 662,132.

To all whom it may concern:

Be it known that we, MAX NEMMERT, a citizen of the United States, and GEORGE SCHNABEL, a citizen of the Dominion of Canada, and residing, respectively, at 72 Stirton street and 165 Bay street north, both in the city of Hamilton, in the county of Wentworth, in the Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Electrical Thermostats, of which the following is a specification.

Our invention relates to electrical thermostats and it has more particular reference to that type of device adapted to close a signal circuit when a certain temperature is attained.

The object of our invention is to provide a device which will be simple, inexpensive and efficient, and one that will automatically send in an alarm when the temperature rises to a predetermined degree.

With this object in view, our invention consists essentially of a hermetically sealed container having a restricted portion and containing a diatomic metallic element which is normally divided into two parts by an effective gas, said diatomic element being adapted to expand under heat and complete a circuit through the aforesaid restricted portion.

Our invention also consists in the novel construction and combination of parts, as hereinafter set forth and specifically pointed out by the appended claim.

The accompanying drawing is in illustration of our invention, Figure 1, being a plan view of the improved electrical thermostat; Fig. 2, is a side elevation of the same; and Fig. 3, an end view thereof.

Like reference numerals designate the same parts in the several figures.

According to the form of our invention illustrated, 1, is a base or block of insulating material—porcelain for example—having secured thereunder an angular wall bracket 2, by means of screws 3, 3. Formed in the upper face of the aforesaid block 1, are suitable recesses in which is seated a hermetically sealed vessel or glass container consisting of a large globular portion 4, a restricted or horizontal capillary neck portion 5, and a smaller cylindrical portion 6, having semispherical ends.

Either or both portions 4 and 6, may be partially filled with mercury to a level nor-

mally below the horizontal neck portion 5, and the rest of the space is charged with an effective gas adapted to absorb heat such as water gas. Upon the temperature rising to a predetermined degree the heat absorbing gas instantly condenses and the two portions of mercury in the parts 4, and 6, expand and coalesce in the neck portion 5, or approximate sufficiently to close the electrical circuit and allow the current to pass.

Obviously the quantity of mercury contained in each part 4, and 6, will be dependent upon the temperature degree at which it is desired that the heat expansion will cause union through the neck portion 5.

7, and 8, are the leading in wires which connect with the alarm device or automatic signal, and they are sealed into the parts 4, and 6, respectively without insulation. For the purpose of this specification the wires 7, and 8, are termed the stationary contacts and the mercury the movable one.

9, is a clamping strap held in place by screws 10, 10, for holding the sealed vessel *in situ* on the block, 1.

By sealing the naked end of the wires 7, and 8, into the hermetically closed vessel or container where they are always covered with the mercury oxidation is effectively prevented as no air can enter. Furthermore the shifting of the heat absorbing gas when the mercury cools down after each closing of the circuit will insure a fresh surface of mercury being exposed and thereby nullify any volatilization when the "break" occurs.

From the foregoing description it will be readily seen that by our invention we provide an extremely simple and effective thermostatic device, while the connecting element being hermetically sealed is unaffected by damp or the ravages of vermin and remains absolutely unaffected by exterior influences other than the predetermined degree of heat. Finally we find by experiment that our improved thermostat is instantaneous in action whereas devices heretofore constructed have all necessitated some seconds to close the circuit after the "critical" temperature has been reached.

Slight changes might be made in the general shape and disposition of the parts shown and described without departing from our invention, and we do not restrict ourselves to the precise form set forth, others being possible that fairly fall within the scope of the appended claim.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:—

5 An electrical thermostat comprising a pair of spaced expansion chambers and a horizontally disposed connecting portion lying below the tops and above the bottoms of said chambers, bodies of mercury in the lower portions of each of said chambers
10 normally below said connecting portion, the upper portions of said chambers being filled

with a gas lighter than air and conductors sealed into each of said expansion chambers.

Signed at Hamilton, Province of Ontario, Dominion of Canada, this 20th day of November, 1911.

MAX NEMMERT.
GEORGE SCHNABEL.

Witnesses:

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