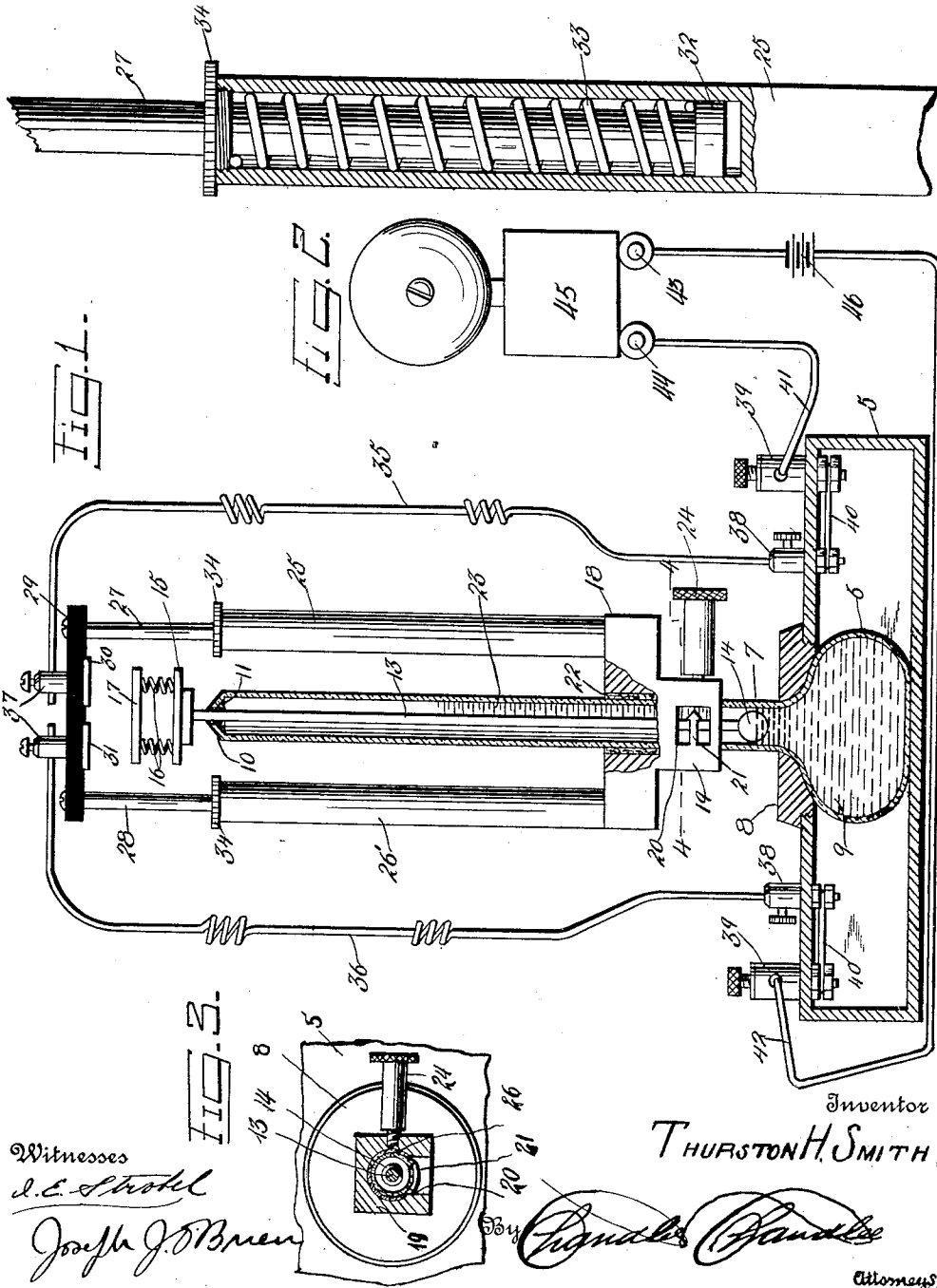


T. H. SMITH.
THERMOSTATIC DEVICE.
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1,030,025.

Patented June 18, 1912.



Witnesses

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THERMOSTATIC DEVICE.

1,030,025.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THURSTON H. SMITH, a citizen of the United States, residing at Peekskill, in the county of Westchester, State of New York, have invented certain new and useful Improvements in Thermostatic Devices; 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 improvements in thermostatic fire indicating devices whereby the abnormal increase of temperature in a room will close an electric circuit and energize an alarm instrument or bell and notify the occupants of the abnormal increase in temperature.

One of the objects of the invention is the provision of a fire indicating device having an adjustable member so arranged that the electrical circuit connected to the device and an alarm bell will be closed at different temperatures.

Another object of the invention is the provision of a resiliently supported contact member in a thermostatic device and an indicating contact member moved under the influence of a thermostatic fluid such as mercury whereby an electrical circuit will be closed by the contacting of the two contact members when an abnormal temperature has been reached.

With the above and other objects in view the invention consists in certain constructions, combinations and arrangements of parts, clearly described in the following specification and clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical sectional view through the thermostatic tube and the thermostatic vessel of the device with the resilient supporting rods carrying the upper contact member shown in elevation. Fig. 2 is a detail longitudinal sectional view through one of the spring rods or supports. Fig. 3 is a detail transverse sectional view taken on the line 4—4 of Fig. 1.

Referring to the accompanying drawings 5 denotes the base of the device which is

formed hollow to receive the bowl 6 of the thermostatic liquid holding vessel, the upper end of which vessel is formed with an elongated tubular neck 7 projecting through an opening in the hollow base 5 and through a holding collar 8, which collar 8 serves to hold the bowl 6 in the hollow base 5. The bowl 6 and the neck 7 of the vessel are formed out of transparent material such as glass and a supply of mercury 9 is arranged in the bowl and in the lower portion of the neck 7. The upper end of the tubular neck 7 is contracted at 10 and a suitable packing element 11 is arranged therein. A rod 13 is disposed in the tubular neck 7 for vertical movement therein and the lower end of said rod 13 is provided with a spherical terminal or ball 14 which floats in the mercury or liquid 9 and the upper end of said rod 13 extends above the contracted end 10 of the neck 7 which carries a small plate or member 15 thereon, which member or plate serves as a support for cushion springs 16, on the upper ends of which springs a contact member 17 is mounted.

A block 18 is slidable on the tubular neck 7 and said block is formed with a pendant portion 19 also slidable on the neck and which pendant portion is formed with an opening 20 across which opening an indicator 21 projects. The block 18 and the pendant portion 19 carry a felt lining 22 which contacts with the tubular neck 7. The tubular neck 7 is formed with a suitably graduated scale 23 whereby the action of the thermostatic device can be regulated. The block 18 and the pendant portion 19 are held to the neck 7 by means of a screw 24 which is threaded through said pendant portion 19 and is provided with a swiveled contact member 26 adapted to engage with the tubular neck, or thermometer tube.

The block 18 supports two vertically disposed tubular members 25 and 26' in which rods 27 and 28 slide. On the upper ends of the rods 27 and 28 which project above the tubular members or casings 25 and 26' a non-conducting plate 29 is mounted. On the non-conducting plate 29 contact members 30 and 31 are secured, which contact members

are adapted to engage with the metallic plate 17 on the upper end of the rod 13. The lower ends of the rods 27 and 28 are provided with shoulders 32 which are engaged by contraction springs 33 arranged in the casings 25 and 26', and said springs 33 are held in the casings by means of nuts 34 threaded thereon. Current carrying wires 35 and 36 are connected with the contact members 30 and 31 by means of binding posts 37 arranged on the non-conducting plate or bar 29. The lower terminals of the wires 35 and 36 are connected with binding posts 38 mounted on the hollow base 5 and said binding posts 38 are electrically connected to binding posts 39 by means of clips or connections 40 arranged within the hollow base 5.

Wires 41 and 42 are connected with the binding posts 39 and with the binding posts 43 and 44 of the alarm or signal bell 45 which may be arranged distantly from the thermostatic device or near the same. Current is supplied to the wires of the circuit by means of a suitable generator or battery 46.

In using the device the block 19 is arranged on the tubular neck 7 so that the upper contact members 30 and 31 will be spaced above the contact members 17 a distance equal to the distance between the maximum normal degree mark of the scale 23 and the abnormal degree mark of said scale, which indicates the maximum limit of the safe temperature of the room as determined beforehand. Should the indicating finger 21 be arranged so as to indicate the 100th degree mark on the scale 23 the contact members 17 will not engage with the contact members 30 and 31 until the temperature in the room reaches the 100th degree, when the rod 13 will be elevated by the expansion of the mercury 6 so the contact member 17 will be brought into contacting position with the contacts 30 and 31. When the contact member 17 engages with the contact members 30 and 31 current will flow from the generator 46 through the wire 40 and the wire 41 to the bell 45, thereby sounding an alarm and notifying the occupants of the room or other interested parties that an excessive temperature has been developed in the room in which the thermostatic device is arranged.

Any number of the devices may be arranged in a common circuit with an annunciator or with a series of alarm bells or signal instruments whereby different parts of a house or building may be safe-guarded.

What is claimed is:—

1. A thermostatic device comprising a thermometer tube having indications thereon, a supporting member slidable on the tube and having an opening therein, means

engaged through the supporting member to hold the same at any adjusted position, a movable contact member extending into the tube, a pointer projecting from one wall of the opening formed in the supporting member and coacting with the indications on the tube, a fluid contained in the tube to operate the contact member under the temperature changes, rods slidably carried by the supporting member, springs engaged with the rods for forcing the same downwardly and permitting upward yielding action thereof, a pair of contact members carried by the upper ends of said rods and adapted to be engaged by the first contact member upon upward movement thereof and an electrical circuit closed thereby and including said contact members and an alarm.

2. A device of the class described comprising in combination, a vertical container, an expansible body in said container, a contact member movable in the container under the action of said expansible body, an electrical circuit including an alarm, an insulating block and a pair of contact members carried by the block, said block being adjustably and resiliently mounted upon the vertical container whereby when the spring contact member is moved to engage the said pair of contacts, the circuit will be closed and the engagement cushioned.

3. In a thermostatic device, a base, a thermometer tube having an enlarged lower end mounted in the base, an expansible fluid in the tube, said tube having a restricted upper end, a packing arranged therein, a float having a rod portion movable in the tube and through said restricted end, a contact member supported resiliently on the upper end of the rod, a block having a reduced portion, said block being slidably mounted upon the tube, a clamping member engaged through said reduced portion to hold the block in an adjusted position, an indicator carried by the block for coaction with graduations upon the tube, a pair of rods supported upon the block, means holding said rods normally downward and permitting resilient upward movement thereof, contact members mounted upon said rods for engagement with the first named contact member and an electrical circuit including an alarm device and said contact members upon the rods and closed by said engagement.

4. In a thermostatic device, a thermometer tube, a float member movable in the thermometer tube, springs mounted on the float member, a contact member mounted on the springs, a block clamped to the thermometer tube, an indicator on said block, vertical casings mounted on the block, springs disposed in the casings, rods movable in the casings against the tension of

the springs and extending above said cas-
ings, a non-conducting member mounted on
the ends of the rods, contact members
mounted on the non-conducting member to
5 engage with the contact member of the float
member and an alarm circuit connected
with the contact members mounted on the
non-conducting member.

In testimony whereof, I affix my signa-
ture, in presence of two witnesses.

THURSTON H. SMITH.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."