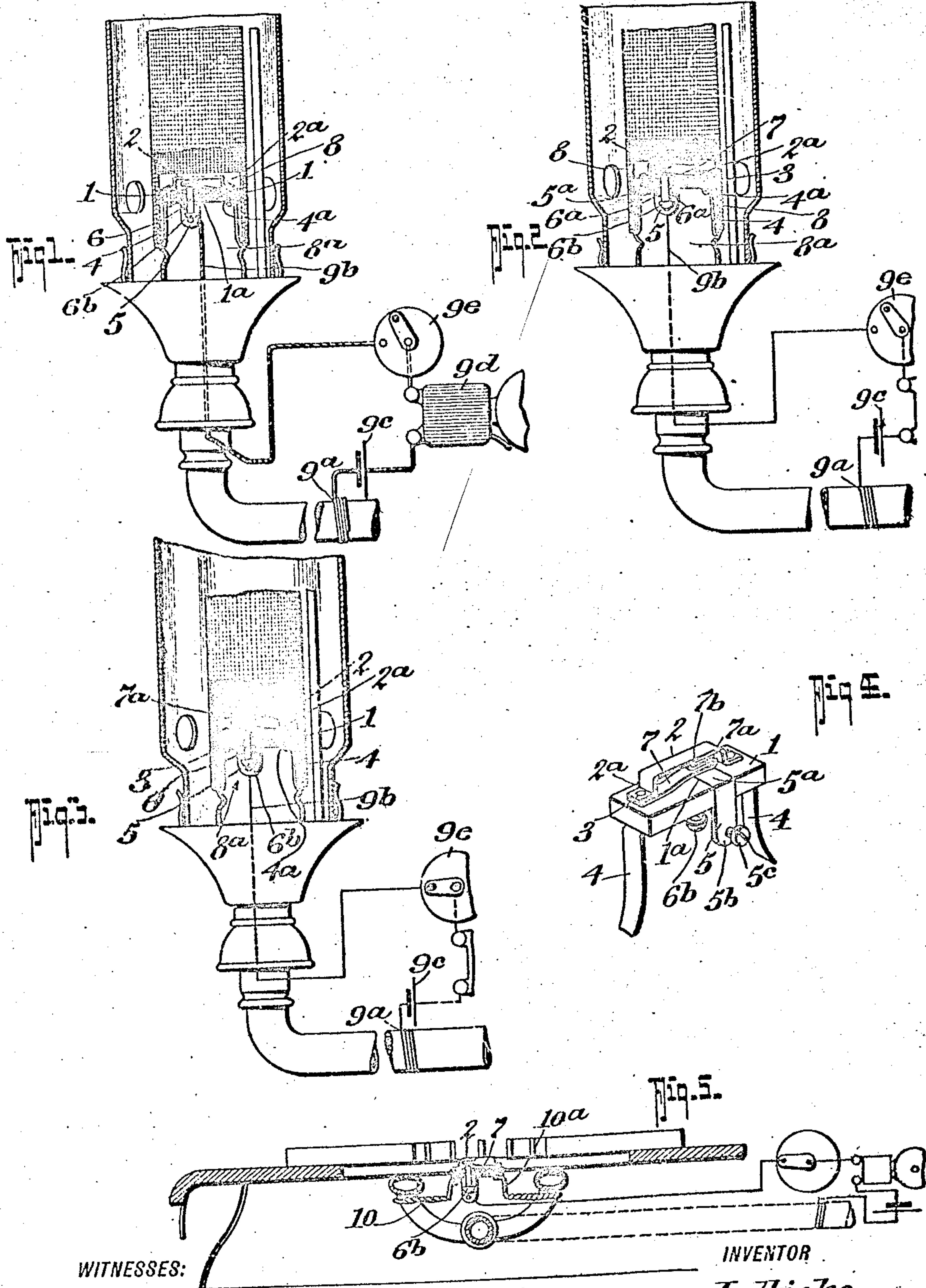


No. 895,460.

PATENTED AUG. 11, 1908.

H. L. HICKS.  
THERMOSTATIC CIRCUIT CONTROLLER.  
APPLICATION FILED FEB. 15, 1908.



John T. Schott  
H. Woodard

Herman L. Hicks.

BY

Fred S. Dietrich  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

HERMAN L. HICKS, OF MARTINS FERRY, OHIO.

THERMOSTATIC CIRCUIT-CONTROLLER.

No. 895,460.

Specification of Letters Patent.

Patented Aug. 11, 1908.

Application filed February 15, 1908. Serial No. 416,029.

To all whom it may concern:

Be it known that I, HERMAN L. HICKS, residing at Martins Ferry, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Thermostatic Circuit-Controllers, of which the following is a specification.

My invention relates to certain new and useful improvements in thermostatic circuit controllers and the like, and it is more particularly adapted for use in connection with burners for gas-stoves, gas-jets and lamps, etc.

Primarily, my invention has for its object to provide a very simple and effectively constructed thermostat which can be readily applied to the burner to serve its intended purposes.

In its generic nature, the invention embodies a non-fusible base to which an expandible bridge is secured, the bridge being fastened at its ends and in electrical connection with a pair of resilient fingers by means of which the device is held in place. A relatively fixed contact member is secured to the base to cooperate with a spring contact member interposed between the fixed contact and the bridge whereby the expansion and contraction of the bridge will move the spring contact member out of or into engagement with the fixed contact as the case may be to open or close an electrical circuit which may be used to operate an alarm. A fixed contact is provided with means whereby it may be adjusted to vary the operation of the device so as to control the circuit at definite temperatures.

More specifically my invention embodies certain novel details of construction, combination and arrangement of parts, all of which will be first described and then specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which:

Figure 1 is a central vertical longitudinal section of a burner embodying my invention, the burner being of an incandescent mantle type, and the parts being shown in the position they assume before the burner is lighted.

Fig. 2, is a similar view showing the position of the parts just after the burner is lighted and before the bridge member has become sufficiently heated to permit the circuit being opened. Fig. 3, is a similar view showing the position of the parts when the circuit is

opened. Fig. 4, is a detail perspective view of my invention *per se*. Fig. 5, is a view showing how my invention may be adapted for use in connection with the burner of a gas-stove.

Referring now to the accompanying drawings in which like letters and numerals of reference indicate like parts in all of the figures 1 designates a base of slate, stone or other fire-proof material, which base forms the support for a bridge member 2, whose ends 2<sup>a</sup> are apertured to permit passage of the fastening members 3, which may be either rivets or bolts, as conditions may require, the members 3 passing through the ends 4<sup>a</sup> of resilient legs 4, by means of which the device is held in place, as will be hereinafter more fully explained.

The fixed contact member comprises a plate 5 of angular form the upper portion 5<sup>a</sup> of which rests in a slot 1<sup>a</sup> in the base 1 and is threaded to receive the adjustable contact screw 6 which is locked by a check nut 6<sup>a</sup> in its adjusted position, and is provided with a turn head 6<sup>b</sup> by means of which the screw can be turned to adjust the same. The plate 5 of the fixed contact carries a binding screw 5<sup>c</sup> on its downwardly projecting portion 5<sup>b</sup> to which one of the terminals of an electric circuit may be connected.

7 designates the movable contact member which consists of a spring metal body secured at one end by one of the members 3 and in electrical contact with the bridge 2. At such end the movable contact 7 passes over the fixed contact 6 and is bent back as at 7<sup>a</sup> to form a U-shaped end and terminating in an upwardly extending portion 7<sup>b</sup> which contacts with the under-side of the bridge 2 at a point about midway the ends thereof.

In the practical application of my invention the same is adapted for use in connection with lamps, gas burners of the illuminating type or of the stove burner type and it has for its object to automatically open an electric circuit when hot and close such circuit upon cooling. In the drawings I have shown two forms of my invention, one to a gas burner of the illuminating type and the other to a gas burner for gas stoves.

Referring particularly to Figs. 1 to 3 it will be seen that the burner 8 which may be of any approved type has the usual central chamber 8<sup>a</sup> into which my device is fitted, the spring feet 4 holding the device in place



and making electrical contact with the metallic parts of the burner. The electric circuit is made through the metallic parts of the burner by connecting one terminal 9<sup>a</sup> of an electric circuit to the gas pipe and the other terminal 9<sup>b</sup> being connected to the fixed contact plate 5, and includes a battery 9<sup>c</sup>, an alarm 9<sup>d</sup> and may include a cut-off 9<sup>e</sup>, as indicated.

10 Assume the parts to be in the position shown in Fig. 1, before the burner is lighted the movable and fixed contacts will be in engagement with one another and the electric circuit is closed. Upon ignition of the  
15 burner thereof the heat thereof will cause the bridge 2 to expand and inasmuch as the ends of the bridge are fixed the same will be compelled to buckle in the center. Owing to the contact of the spring member 7 with the underside of the bridge, the buckling will be upward or away from the contact members. Thus after the bridge has expanded a predetermined amount the movable contact 7 will be raised up by its resiliency from the fixed  
20 contact screw 6 and open the electric circuit. The operator may then close the switch 9<sup>e</sup>. Should by any accident or otherwise the flame be extinguished from the burner, the bridge 2 upon cooling will force the movable  
25 contact into engagement with the fixed contact as it assumes its normal position, as shown in Fig. 1, and close the electric circuit, thus operating the alarm.

By virtue of the U-shaped portion of the  
35 movable contact member, the bridge 2 will buckle upwardly a predetermined amount upon opening the circuit, and conversely in cooling. The bridge will first close the circuit for the members 7 and 6 and then as the  
40 bridge 2 continues to contract in cooling the U-shaped portion 7<sup>d</sup> of the movable contact member 7 will give and thus prevent any undue strain being exerted on the bridge thus taking all stress and strains off the angled  
45 portions of the bridge and prevent their breaking.

In adapting my invention for use in connection with stove burners the legs 4 may be omitted and the members 3 may be in the  
50 nature of screws or bolts and of such length as to pass through legs 10<sup>a</sup>, bracket members 10 may be secured to the stove burner to hold the device in the heat zone of the burner, it being understood that my improved thermostat when adapted for use  
55 with gas-stoves may be made larger than when used in connection with gas burners of the illuminating type.

Further modifications in the detailed construction, cooperation, design and purpose of parts may be readily made without departing from the spirit of the invention or the scope of the appended claims, and by providing the fixed contact member with the adjustable contact screw 6 the device may be

set to open the circuit at any predetermined temperature by simply adjusting the screw 6 toward or from the movable contact.

From the foregoing description taken in connection with the accompanying drawings, 70 it is thought the complete construction, operation and numerous advantages of my invention will be readily understood by those skilled in the art to which the invention appertains.

What I claim is:

1. A thermostat comprising a non-fusible insulating base, a bridge member mounted thereon and secured to the ends, a movable contact mounted on the base between the  
80 bridge member and the base and in electrical contact with the bridge member, said movable contact exerting tension against the underside of the bridge member, a relatively fixed contact cooperating with said movable  
85 contact, means for connecting the movable and fixed contacts to the electric circuit, said bridge member and said movable contact being arranged so that as the bridge member expands by heat the movable con-  
90 tact will disengage from the fixed contact to open an electric circuit and as the bridge member contracts on cooling will again close the electric circuit.

2. A thermostat comprising a non-fusible  
95 insulating base; a bridge member mounted thereon and secured at the ends, a movable contact mounted on the base between the bridge member and the base and in electrical contact with the bridge member, said movable contact exerting tension against the underside of the bridge member, a relatively  
100 fixed contact cooperating with said movable contact, means for connecting the movable and fixed contacts to the electric circuit, said  
105 bridge member and said movable contact being arranged so that as the bridge member expands by heat the movable contact will disengage from the fixed contact to open an  
110 electric circuit and as the bridge member contracts on cooling will again close the electric circuit, said relatively fixed contact member including a contact plate and an adjustable contact screw.

3. A thermostat comprising a non-fusible  
115 insulating base, a bridge member mounted thereon and secured to the ends, a movable contact member mounted on the base between the bridge member and the base and in electrical contact with the bridge member, said movable contact exerting tension against the underside of the bridge member, a relatively  
120 fixed contact cooperating with said movable contact, means for connecting the movable and fixed contacts to the electric  
125 circuit, said bridge member and said movable contact being arranged so that as the bridge member expands by heat the movable contact will disengage from the fixed  
130 contact to open an electric circuit and as the



bridge member contracts on cooling will again close the electric circuit, said movable contact comprising a resilient member secured at one end and provided with a U-shaped portion terminating in an angled end to engage the underside of the bridge member.

4. A thermostat comprising a non-fusible insulating base, a bridge member mounted thereon and secured to the ends, a movable contact mounted on the base between the bridge member and the base and in electrical contact with the bridge member, said movable contact exerting tension against the underside of the bridge member, a relatively fixed contact cooperating with said movable contact, means for connecting the movable and fixed contacts to the electric circuit, said bridge member and said movable contact being arranged so that as the bridge member expands by heat the movable contact will disengage from the fixed contact to open an electric circuit and as the bridge member contracts on cooling will again close the electric circuit, said relatively fixed contact member including a contact plate and an adjusting contact screw, said movable contact comprising a resilient member secured at one end and provided with a U-shaped portion terminating in an angled end to engage the underside of the bridge member.

5. A thermostat comprising a base of insulating material, a fixed contact plate mounted thereon, an adjustable contact screw in electrical connection therewith, a movable contact member mounted on said base and normally tending to move out of contact with such screw, a bridge member mounted over said movable contact and said screw and normally holding said movable

contact in engagement with said screw, said bridge member being expansible by heat to permit the movable contact member to disengage the screw at times.

6. A thermostat comprising a base of insulating material, a fixed contact plate mounted thereon, an adjustable contact screw in electrical connection therewith, a movable contact member mounted on said base and normally tending to move out of contact with such screw, a bridge member mounted over said movable contact and said screw and normally holding such movable contact in engagement with said screw, said bridge member being expansible by heat to permit the movable contact member to disengage the screw at times, and resilient feet mounted on the base and in electrical connection with the bridge member.

7. A thermostat comprising a base of insulating material, a fixed contact plate mounted thereon, an adjustable contact screw in electrical connection therewith, a movable contact member mounted on said base and normally tending to move out of contact with said screw, a bridge member mounted over said movable contact and said screw and normally holding said contact in engagement with said screw, said bridge member being expansible by heat to permit the movable member to disengage the screw at times, resilient feet mounted on the base and in electrical connection with the bridge member, said contact plate having means for connecting with the terminal of an electric circuit.

HERMAN L. HICKS.

Witnesses:

CHARLES G KING,  
ALVIN W. HALL.