Mar. 27, 1923. 1,450,125

M. L. WEBB

AUTOMATIC HEAT CONTROL

Filed March 14, 1921

Fig. 1.

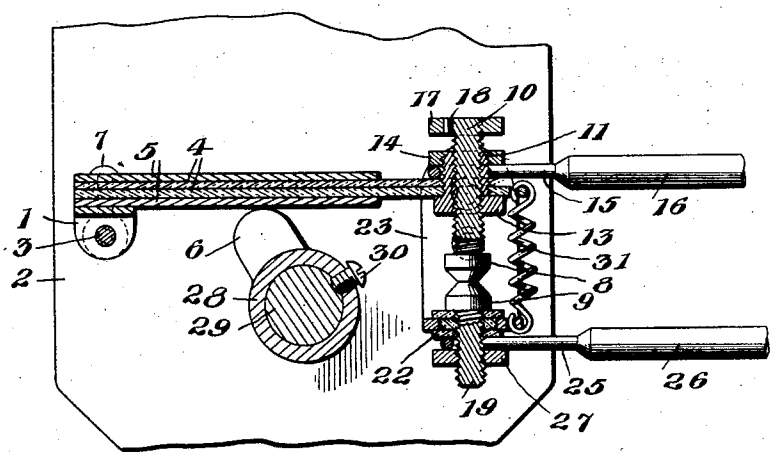


Fig. 2.

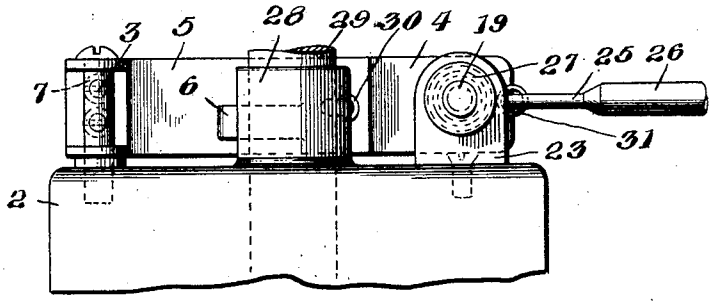
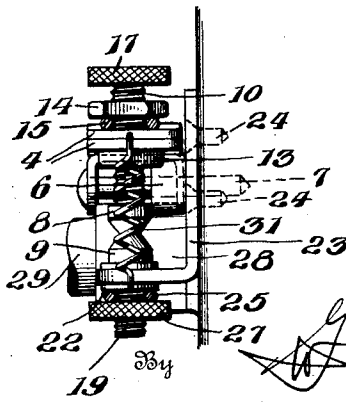


Fig. 3.



Witness.
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UNITED STATES PATENT OFFICE.

MAURICE L. WEBB, OF BLACKWELL, OKLAHOMA.

AUTOMATIC HEAT CONTROL.

Application filed March 14, 1921. Serial No. 452,265.

To all whom it may concern:

Be it known that I, MAURICE L. WEBB, a citizen of the United States, residing at Blackwell, in the county of Kay and State of Oklahoma, have invented new and useful Improvements in Automatic Heat Controls, of which the following is a specification.

The invention relates to an automatic heat control.

The object of the present invention is to improve the construction of circuit closing and breaking devices for electric heat control and to provide a simple, practical and efficient automatic electric heat control of strong, durable and comparatively inexpensive construction, adapted to be connected in circuit with heater coils and capable of operation by the rotary movement of a shaft to open and close the circuit for causing the fire to go out and for starting the same.

Another object of the invention is to provide an electric heat control device in which the contacts will be firmly maintained in electrical engagement when the parts are arranged for closing the circuit.

With these and other objects in view the invention consists in the novel construction, combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings in which like numerals of reference designate corresponding parts in the several figures;

Figure 1 is a horizontal, sectional view of an automatic heat control constructed in accordance with this invention.

Figure 2 is a side elevation of the same.

Figure 3 is an end elevation of the automatic electric heat control.

In the accompanying drawing in which is illustrated the preferred embodiment of the invention, 1 designates an approximately U-shaped bracket composed of upper and lower arms and the vertical connecting portion and pivoted to the base 2 of a machine by means of a vertical screw 3 which passes through the upper and lower arms or portions of the bracket and is threaded at its lower portion into the said base of the machine. The bracket 1 which has a limited pivotal movement to open and close an electric circuit as hereinafter fully explained, has mounted upon it an insulating horizontal support or arm and composed of strips 4 of fiber or other suitable insulating material backed by exterior metallic strips 5 of steel or other suitable material which are adapted to stiffen and brace the fiber strips and at the same time form an inner wearing surface for a cam 6 which is adapted to actuate the pivoted arm or support for opening the heating circuit. The fiber strips 4 and the metallic strips 5 are fitted flat against one another and are arranged with their side faces in vertical planes and they are rigidly secured to the bracket by means of horizontal screws 7 or other suitable fastening devices. The fiber strips and the metallic backing strips form a horizontally movable insulating arm or member which carries one of a pair of electrodes or contacts 8 and 9 and the electrode or contact 8 is movable toward and from the other electrode or contact 9 which is adjustably mounted in a fixed support. The movable contact or electrode 8 is carried by a horizontal screw 10 which is mounted for threaded adjustment in a sleeve 11 interiorly and exteriorly threaded and provided at its inner end with an annular flange or head 13 which fits against the inner fiber or insulating strip 4. The sleeve 11 is preferably threaded into apertures of the fiber strips and the exterior threads of the sleeve receive a lock nut 14 which rigidly clamps the sleeve to the fiber strips and which also clamps the terminal portion 15 of a cable or conductor wire 16 to the sleeve, the sleeve 11 and the screw 10 forming electrical connections between the contact or electrode 8 and the cable or conductor wire 16. The screw 10 which is adjustable in the interiorly threaded sleeve 11 to arrange the electrode or terminal 8 in proper position in relation to the fixed electrode or contact 9 is equipped at the outer end with a knurled head 17 preferably by being threaded on the outer end of the screw and secured against relative rotary movement by means of a pin or key 18. The knurled head enables the screw 10 to be readily adjusted to move the electrode or contact 8 inwardly and outwardly with respect to the insulating supporting arm or member.

The electrodes or contacts 8 and 9 are preferably cylindrical at their outer por-

tions and tapered and truncated at their inner contacting portions and the fixed adjustable contact or electrode 9 is supported by a horizontal screw 19 which is mounted in openings in insulating disks or washers 20, 21 and 22 of fiber or any other suitable insulating material. The insulating washer 20 is arranged in an opening in an upwardly extending arm of a substantially L-shaped bracket or support 23 which is secured by a screw 24 or other suitable fastening device to the frame of the machine and the insulating washers 21 and 22 are arranged at the inner and outer faces of the outwardly extending portion of the L-shaped bracket 23. The contact or electrode 9 which forms a head for the inner end of the screw 19 fits against the inner insulating washer 21 and the terminal portion 25 of a cable or conducting wire 26 is clamped against the outer insulating washers 22 by a clamping nut 27 threaded on the outer portion of the screw 19. By mounting of the screw in the insulating washers 20, 21 and 22 insulates the screw from the supporting bracket 23 and the screw 19 forms the electrical connection between the cable or conducting wire 26 and the contact point or electrode 9.

The cables or conducting wires are connected with heater coils (not shown) and when the electrodes or contacts are in electrical engagement or contact with each other, the circuit is closed and flows through the cables to the heater coils for starting the fire and when the electrodes or contacts 8 and 9 are separated the current is broken and the fire is caused to be extinguished. The cam 6 is preferably formed integral with a collar or sleeve 28 which is secured on a vertical shaft 29 by a screw 30 or other suitable fastening means and when the shaft is rotated the cam 6 is carried into and out of engagement with the inner steel plate 5 of the insulating supporting arm or member. The cam 6 is adapted to swing the insulating supporting arm or member outwardly for separating the electrodes or contacts to open the circuit and when the cam 6, by the rotation of the shaft 29, is carried out of engagement with the said insulating supporting arm or member or in a direction to admit of inward movement of the same the said insulating arm or member is moved inwardly by a coiled spring 31 to carry the electrode or contact 8 into electrical engagement with the electrode or contact 9 for closing the circuit. One end of the coiled spring 31 is hooked into an aperture of the supporting bracket 23 and the other end is hooked into an aperture of one of the fiber strips of the insulating arm or member but the spring may be connected with the said parts in any other desired manner and it will be apparent that by employing the spring and the cam for operating insulating arm or member that the electric heat control will operate in any position and the shaft 29 is adapted to be manually operated or may be connected with automatic means for partially rotating it to maintain the temperature at a predetermined degree. While the device is described as an automatic heat control it may be of course employed for various purposes for opening and closing an electric circuit.

What is claimed is:

1. A device of the class described including fixed and movable transversely disposed electrodes or contacts, insulated means for supporting the fixed electrode or contact, an insulating arm or member disposed longitudinally carrying the movable electrode or contact and comprising a pivoted bracket, insulating strips fitted together and secured to the bracket and exterior metallic strips backing the insulating strips and also secured to the said bracket, means for urging the arm or member in one direction and a shaft provided with a cam located intermediate of the ends of the arm and arranged to engage one of the metallic strips for positively moving the arm or member in the opposite direction.

2. A device of the class described, including a pivoted bracket, an insulating arm or member secured to the bracket and comprising a plurality of strips of insulating material and backing strips of metal, an interiorly threaded sleeve piercing the insulating strips and carried by the said arm or member, an adjustable screw mounted in the threaded sleeve and provided with a contact or electrode, a fixed contact or electrode arranged to be engaged by the said contact or electrode, insulating means for supporting the fixed contact or electrode and means for moving the arm or member to carry the movable contact or electrode into and out of engagement with the fixed contact or electrode.

3. A device of the class described including a pivoted insulating arm or member, an interiorly and exteriorly threaded sleeve piercing the insulating arm or member, a clamping nut mounted on the sleeve for securing the same and a conductor to the said arm or member, an adjusting screw mounted in the sleeve and provided with a movable contact or electrode, a fixed contact or electrode arranged to be engaged by the said contact or electrode, means for supporting and insulating the fixed contact or electrode and for connecting a conductor therewith and means for operating the pivoted arm to engage the electrodes or contacts with each other and to separate the same.

In testimony whereof I have hereunto set my hand.

MAURICE L. WEBB.