March 21, 1933. C. I. HALL 1,902,498

CONTROL DEVICE

Filed Oct. 8, 1929

Fig. 1.

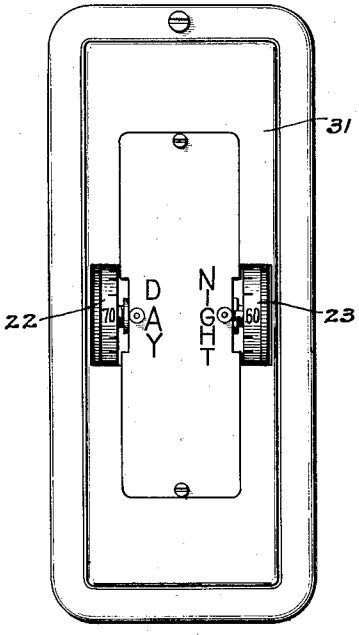


Fig. 2.

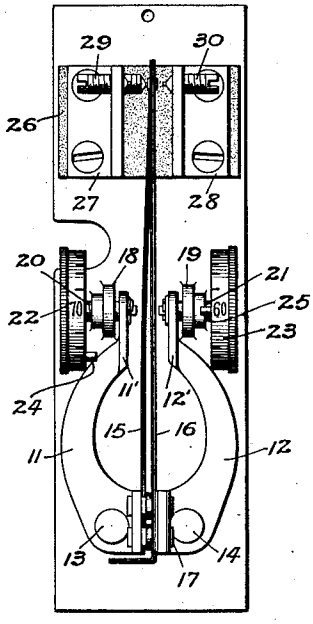
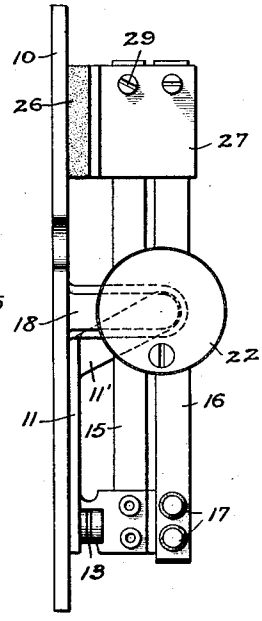


Fig. 3.



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UNITED STATES PATENT OFFICE

CHESTER I. HALL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK

CONTROL DEVICE

Application filed October 8, 1929. Serial No. 398,253.

My invention relates to control devices and has for its particular object a heat-control device made in a compact form and capable of adjustment for different operating temperatures for day and night operation.

Another object of my invention is the provision of a dial indicating means associated with the adjustment means of said device to provide a relatively wide temperature scale whereby the device may be readily and accurately adjusted by rotating the dial to the precise temperature desired as indicated upon the dial.

A still further object of my invention is a room thermostat in which a plurality of heat responsive devices are arranged to form a compact and neat unit in harmony with its surroundings, each device being individually controlled by means of an adjusting dial extending through a cover provided to protect the device from dust, dirt, and tampering.

In previous devices it has been difficult to provide adjusting means which would control the heat-responsive means easily and accurately, and the lack of proper arrangement prevented the construction of compact units. In other devices where a plurality of heat-responsive means are used the heat-responsive means are invariably placed side by side resulting in an unwieldly device. As a result protecting covers have been large and cumbersome and not readily designed to fit in pleasingly with surroundings. It is an object of the present device to overcome these objections.

My invention will be better understood from the following description when considered in connection with the accompanying drawing, and its scope will be pointed out in the appended claims.

In the accompanying drawing, Fig. 1 illustrates the plan view of the invention; Fig. 2 is a plan view with the protective covering removed; and Fig. 3 is a side view of the device with the cover removed.

Referring specifically to Fig. 2 of the drawing, 10 designates a base upon which are pivotally mounted the levers 11 and 12 as indicated at 13 and 14. The levers 11 and 12 have a sliding engagement with the base and are thus guided and supported by the base. These levers may be mounted in any other manner to permit rotation such as by spring pivots. Attached to these levers are bimetal heat-responsive strips or elements 15 and 16. They are attached to the levers by means of elements 17. The bimetal strip 16 is electrically insulated from its support. Levers 11 and 12 are provided with up-turned parts 11′ and 12′. Extending through supports 18 and 19 and engaging threads therein are the screws 20 and 21 which are attached to the up-standing parts 11′ and 12′. The connections between 11′, 12′ and the screws 20 and 21 permit free rotation of the screws. Mounted on the screw members are the dials 22 and 23 which indicate the temperatures to which the screws may be adjusted. The dials may be made separately and locked to the screw members in any suitable manner after they have been properly adjusted to give proper calibration. 24 and 25 indicate stops mounted in the dials. By adjusting the dials to rotate levers 11 and 12 about their pivots the relation of the bimetal strips and the contacts on the brackets is changed, thus determining the operating temperatures. It will be thus seen that a micrometer adjustment is permitted.

Mounted on an insulating base 26 are brackets 27 and 28 which support the screws 29 and 30 carrying the contacts for the bimetal elements by means of which electrical circuits may be completed. 31 in Fig. 1 designates a cover for the device. As indicated on the drawing in Fig. 1, the two elements may be adjusted for day and night temperatures. An automatic switch, not part of this invention and not shown, is used to switch the circuits from one to the other of the two heat-responsive elements.

From the above it will be seen that I have provided a heat-control unit which may be readily and accurately adjusted and still of a relatively small size.

The embodiment of the invention illustrated and described herein has been selected for the purpose of clearly setting forth the principles involved. It will be apparent,

however, that the invention is susceptible of being modified to meet the different conditions encountered in its use and I therefore aim to cover by the appended claims all modifications within the true spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a room thermostat, a base, pivoted levers carried thereby and adjacent each other, an upright portion on said levers near the pivot of said levers and carrying thereon heat-responsive strips one of said strips being placed above the other, a second raised portion on the other end of said levers provided with a screw-engaging socket, said second raised portion being in a plane substantially parallel to a plane passing through said heat-responsive strips, supports integral with said base and supporting screw members for adjusting the levers about their pivots, drum dials on said screw members for delicately adjusting the same in a direction transverse said heat-responsive strips, brackets mounted on said base spaced from said lever pivots and carrying thereon stops, said heat-responsive strips adapted to contact therewith, and a cover for said thermostat provided with slots for permitting said drum dials to extend therethrough in a perpendicular manner to permit adjustment of said adjusting means to determine the operating temperatures of said heat-responsive devices.

2. A room thermostat including an enclosing casing having a base and a removable cover provided with a pair of openings therein, two pairs of stops mounted one above the other in the same plane at one end of the base in spaced apart alignment for independent adjustment transverse the base, a pair of bimetallic thermal strips extending substantially in edgewise alignment centrally of the base and in substantially the same plane and each having one end thereof movable between a corresponding pair of said spaced apart contacts, a pair of oppositely disposed lever arms, each having one end thereof secured to the other end of a corresponding one of said thermal strips and mounted adjacent the other end of the base for movement transverse the base to adjust the position of the corresponding thermal strip between the pair of spaced apart contacts cooperating therewith with the free ends of the lever arms extending on opposite sides of the thermal strips and adjacent thereto, and a pair of adjusting screws mounted transversely of the base in opposing alignment and each having a drum dial partially extending through a corresponding one of the openings in the cover for effecting micrometer adjustment of the free end of a corresponding one of said lever arms.

3. A room thermostat having in combination, a base, a cover therefor having slots therein, a pair of levers pivoted at one end to said base in sliding engagement therewith, upright portions on said levers at their ends, heat responsive elements carried on said upright portions at the pivoted ends of said levers one above the other in substantially the same plane, and screw adjusting means supported on said base rotatably engaging the upright portions on the other ends of said levers for individually and positively adjusting said levers about their pivots, and an adjusting drum carried by each of said screw adjusting means extending through the slots in said cover to permit adjustment of said levers.

In witness whereof I have hereunto set my hand this 4th day of October, 1929.

CHESTER I. HALL.