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1,562,932

C. B. WALKER

MOUNTING FOR THERMOSTATIC ELEMENTS

Filed Oct. 7, 1924

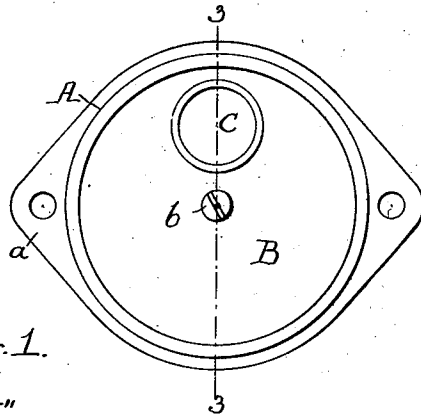


Fig. 1.

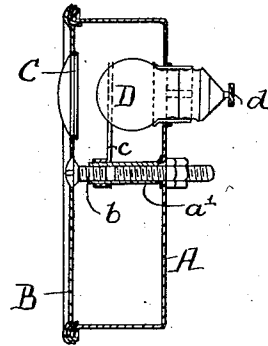


Fig. 3.

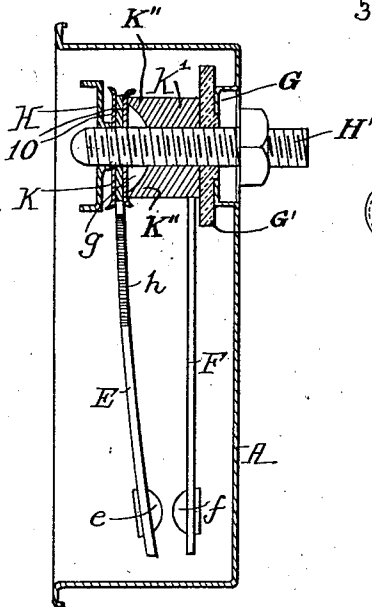


Fig. 5.

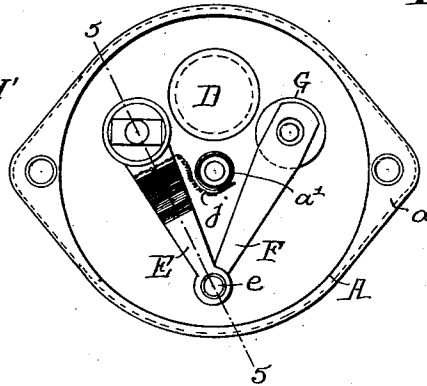


Fig. 2.

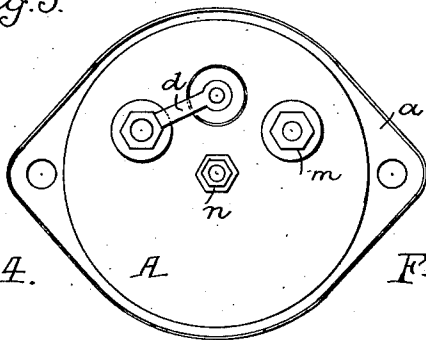


Fig. 4.

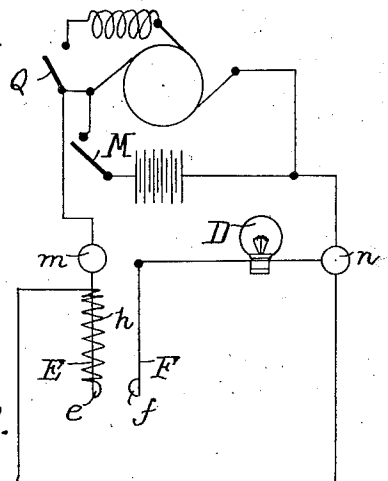


Fig. 6.

Charles Bell Walker
By *[Signature]*

UNITED STATES PATENT OFFICE.

CHARLES BELL WALKER, OF MOSELEY, ENGLAND.

MOUNTING FOR THERMOSTATIC ELEMENTS.

Application filed October 7, 1924. Serial No. 742,154.

To all whom it may concern:

Be it known that I, CHARLES BELL WALKER, a subject of the King of Great Britain, and residing at 10 Bloomfield Road, Moseley; in the county of Warwick, England, electrical engineer, have invented certain new and useful Improvements in Mountings for Thermostatic Elements, of which the following is a specification.

This invention relates to means for indicating the charged or discharged condition of a battery and is adapted more especially for use on motor vehicles.

A device constructed according to this invention comprises a casing containing an electric light bulb which should be conveniently of small dimensions, and a switch consisting of two arms of thermostatic metal, the arms being arranged in such a manner that they both bend in the same direction under the action of increase of temperature. One of the arms has a winding by which it is heated by current supplied from the battery.

This invention is illustrated in the drawing herewith, in which:—

Figure 1 is a front elevation of the device.

Figure 2 is a view corresponding to Figure 1 but with the front cover removed.

Figure 3 is a vertical section taken on the line 3, 3, of Figure 1; but with the thermostatic strips omitted.

Figure 4 is a rear view of the device.

Figure 5 is a sectional view to an enlarged scale, taken in the plane indicated by the line 5, 5, of Figure 2; and,

Figure 6 is a diagram to illustrate the wiring.

A is the casing of the device having a suitable flange *a* provided with screw holes for the attachment of the device to a convenient part of the motor vehicle. B is a push-in cover secured by a centre screw *b* and provided with an aperture C having a red glass. Immediately beneath the aperture within the casing A there is provided an electric bulb D which has one contact to the casing A and the other to a strip *d* at the back of the casing. The bulb is secured in place by a wire spring *c* mounted on the central pillar *a'* of the casing A. E F are two strips of thermostatic metal each mounted upon a pillar G and they are arranged so that they lie one over the other at their ends as clearly indicated in Figure 2. These strips are arranged in such a manner that when they

bend, owing to a change of temperature which is common to the two, they both move in the same direction and by the same amount whereby contacts *e f* are maintained a slight distance apart. The strip, E is wound with fine resistance wire *h* such winding being placed in shunt with the battery so that the strength of the current which flows in the wire will depend upon the voltage of the battery. The support for the strip E consists of a pillar or boss G whereon is positioned an insulating disk G', on this insulating disk is positioned a hollow cylinder K' having a recess K at the end remote from the insulating disk so that two supporting points K'' are provided. Through these parts pass an adjusting bolt H' and on this adjusting bolt is positioned the base portion of the thermostatic element E, this base portion being protected by spring members 10, one of which rests on the points K'' while the other is pressed upon by an adjusting nut H. Thus the movement of the nut in one direction will bend the base of the element E into the recess K and consequently move the free end of this element away from element F. Corresponding movement of the nut H in the opposite direction allows the spring 10 to flex the base of the element E in the opposite direction, thus bringing its free end closer to the element F. It will be seen by reference to Figure 6 that the winding *h* is always in circuit with the dynamo but is only in shunt with the battery when the cut out switch M is closed and the battery consequently under charge. Q is a switch for cutting out the dynamo fields.

When the battery reaches the predetermined voltage, the current in the winding *h* will have become sufficient to heat the strip E to a temperature which causes it to bend sufficiently for the contact *e* to touch the contact *f* thus bringing the lamp D into shunt with the battery so that the lamp lights up and gives an indication that the battery is fully charged. The occupant of the vehicle may then open the switch Q to disconnect the fields of the dynamo which causes the cut-out switch M to open automatically owing to current reversal and disconnect the winding *h* and lamp D from the dynamo.

It will be noted with reference to Figure 4 that the strip *d* connects the central terminal of the lamp to the strip F and that the

winding *h* is connected to the casing and consequently to the other terminal of the lamp by the wire *j* (see Figure 2). The lead wires from the battery and dynamo are therefore connected to the terminals *m n* shown at the back of the device in Figure 4.

By the use of a device as described above the battery is kept from overcharging that is to say, it is kept from electrolytic action which would otherwise take place, with the consequent wastage of water and undesirable strengthening of the acid.

The apparatus may be adapted to indicate the discharged condition of a battery in a very similar manner; but in such case the flowing of the current from the battery through the resistance wire, may by heating one of the strips, cause it to bent out of contact with the other. Thus the fall of the battery voltage to a predetermined point, by reducing the current in the resistance wire would allow the strips to contact and give indication.

Having fully described my invention, what I claim and desire to secure by Letters Patent, is:—

1. A mounting for thermostatic circuit closing elements comprising a support, an insulator mounted upon said support, a hollow cylinder mounted on the insulator and having the end remote from the insulator recessed to provide spaced supporting points,

an adjusting bolt passing through the support, insulator and cylinder, a thermostatic element having one end mounted on the adjusting bolt and supported on each side of said bolt by the spaced supporting points of the cylinder, and an adjusting nut on said bolt for pressing the portion of the thermostat between the supporting points into the recess of the thermostatic element.

2. A mounting for thermostatic circuit closing elements comprising a support, an insulator mounted upon said support, a hollow cylinder mounted on the insulator and having the end remote from the insulator recessed to provide spaced supporting points, an adjusting bolt passing through the support, insulator and cylinder, a thermostatic element having one end mounted on the adjusting bolt and supported on each side of said bolt by the spaced supporting points of the cylinder, an adjusting nut on said bolt for pressing the portion of the thermostat between the supporting points into the recess of the thermostatic element, and protecting springs on opposite sides of the base portion of the thermostatic element one of said springs being engaged by the other and the other by the supporting points.

In witness whereof I have hereunto signed my name this 23rd day of September, 1924.

CHARLES BELL WALKER.