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CONTACT FOR RHEOSTATS AND METHOD FOR AFFIXING THE SAME

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fig. 1.

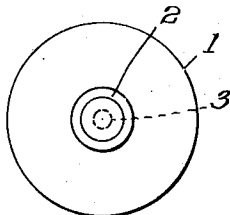


fig. 3.

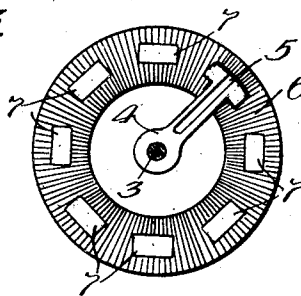


fig. 2.

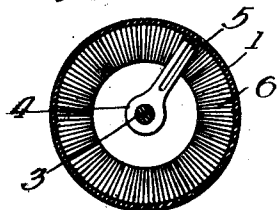


fig. 4

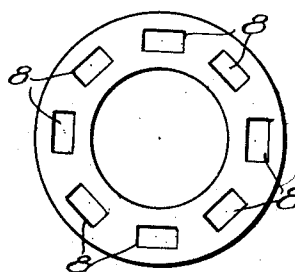
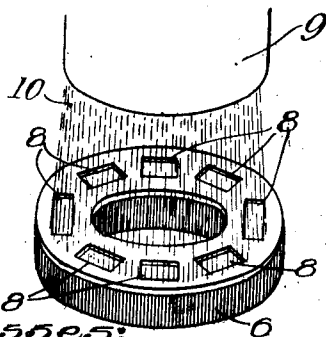


fig. 5.



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UNITED STATES PATENT OFFICE

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CONTACT FOR RHEOSTATS AND METHOD
FOR AFFIXING THE SAME

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7 Claims. (Cl. 201—55)

This invention relates to rheostats and is more particularly directed to improvements in contact points on the resistance element thereof.

One object of my invention is to insure better contact between the resistance wires and the contact arm-wiper.

Another object of the invention is to overcome the undesirable effects of the oxidation of resistance elements of rheostats.

10 A further object is to provide a smooth contact surface caused by the inevitable constant rubbing thereof by the arm-wiper.

15 A further object is to increase the surface of the contact unit and thus to spread and diminish the heat produced.

A further object of the invention is to provide an economical method of effecting the above and other objects.

In the drawing:

20 Fig. 1 is a plan view of a rheostat with the cover in place.

Fig. 2 is a plan view of a rheostat with the cover removed showing the resistance wires and the contact arm-wiper.

25 Fig. 3 is an enlarged view similar to Fig. 2 with metal contact points affixed to the resistance wires.

Fig. 4 is a plan view of the disc used for affixing the metal contact points.

30 Fig. 5 is a perspective view showing the metallic contact points being sprayed with the disc (Fig. 4) in position on the resistance wire of the rheostat (the contact arm-wiper in this view being removed.)

35 The same numbers are given to like parts in the various figures of the drawing.

In the drawing 1 is the case of a rheostat and 2 is the knob of the contact arm-wiper journaled on the pin 3. 4 is the contact arm-wiper and 5 that part thereof contacting with the resistance wire 6. 7 are the metallic contacts affixed to the resistance wire 6. 8 are the perforations in the circular disc for forming the metallic contacts 7. 9 is one form of jet or a mechanism for spraying the metallic contact points 7 through the perforations 8 of the circular disc.

45 In the smaller rheostats heretofore used, the contact arm-wiper contacted directly with the resistance wires, and in the large rheostat in which brass contact points were used, the same were affixed by means of being embedded in the vitreous enamel or by means entirely different from the inexpensive means set forth herein.

50 Due partly to the comparative thinness of the

resistance wires but mainly due to oxidation, the contact between the arm and the wires has frequently been very poor, resulting in materially reduced efficiency of the resistance unit. By means of metallic contact points such as brass 60 and the like which are comparatively free from oxidation, the mentioned defect heretofore existing is overcome and the efficiency of the rheostat is materially increased, resulting in smoother and more efficient operation.

65 The metallic contact points may be applied substantially in the following manner:

A disc of metal or card-board or other suitable material, preferably of substantially the same, or larger, diameter as the rheostat to be effected, having perforations equivalent to the desired number and size of the metal contacts to be formed, is placed upon the resistance wires of the rheostat with the contact arm-wiper removed. Then the brass or other metal, heated to a predetermined temperature, is sprayed against the disc, Fig. 4, by means of the jet 9. After the spraying is completed, the disc is removed and the contact points, as shown in the drawing, result.

80 By means of the foregoing, the continual rubbing of the contact wiper arm will produce a comparatively smooth surface, and will keep that surface clean.

By means of the greater radiating surface of 85 the brass contact points, the heat will be spread and will be more readily dissipated especially since brass has a high degree of heat conductivity.

I prefer to use brass rather than other metals 90 because of its economy and utility, because aluminum wears off too quickly, copper is subject to a far greater degree of oxidation and platinum and tungsten are far more expensive. It will be understood, however, that while I use brass as the preferred form, I do not confine myself to any particular metal.

The jet shown in the drawing is one large enough to cover the entire disc although it will be obvious that a smaller jet or mechanism may be used and each contact point may be sprayed 100 separately or in groups.

It is obvious, as I have found by actual experiments and tests, that when contact is made by means of the arm-wiper and the metallic contact points that far greater efficiency results than has heretofore been obtainable.

105 Although I have shown the preferred form of my invention yet it will be understood that I do not limit myself to the drawing shown or the

specifications recited but include all forms and variations of the device and method which do not depart from the spirit and scope of my invention.

Having described my invention and explained the manner of its use, what I claim and desire to secure by Letters Patent is:

1. A rheostat of the type described comprising a core member, a resistance wire wound thereon, a contact element in adherent union with and at a plurality of spaced points on said wire, said contact element adapted to be adhered between parallel lengths of wire and also upon the surface of said core, and an arm adapted to coact with said contact element.
2. An article of the class described comprising a core member having a circular central opening therethrough, a winding thereon arranged in a series of loops encircling said core member, a plurality of regularly spaced contact members connected to groups of loops of said windings, said contact members comprising an adherent metal secured to said wires and to the surface of said core member.
3. An article of the class described comprising a core member having a circular central opening therethrough, a winding thereon arranged in a series of loops encircling said core member, a plurality of regularly spaced contact members connected to groups of loops of said windings, said contact members comprising an adherent metal secured to said wires and to the surface of said core member, and a wiper arm adapted to coact with said contact members, said wiper arm capable of rotation for making a contact therewith by a wiping motion thereover.

4. A rheostat having a solid core in the form of a flat disk and having a medial opening there-through, a resistance wire wound upon said core and bearing against the surface thereof, and a plurality of contact portions of adherent material secured to the turns of the wire and to the surface of the core member.

5. A rheostat having a solid core in the form of a flat disk and having a medial opening there-through, a resistance wire wound upon said core and bearing against the surface thereof, and a plurality of similarly shaped contact portions of adherent material secured not only to the turns of the wire but also to the surface of the core member.

6. The method of manufacturing rheostats which consists in the steps of winding a resistance wire upon a core member, depositing a molten metal at spaced intervals around the periphery of said core member and allowing the same to cool in this position whereby the same adheres both to the wire and to the surface of said core member.

7. The method of manufacturing rheostats which consists in the steps of winding a resistance wire around a core member and then depositing rectangularly shaped spots of molten metal upon a surface of said core member at spaced intervals around the periphery thereof, said molten metal being capable of adhering upon cooling both to the wire and to the surface of said core member.

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