April 6, 1926. 1,579,199

W. J. ADAMS

CURRENT CONTROL DEVICE

Filed May 5, 1921

Fig. 1.

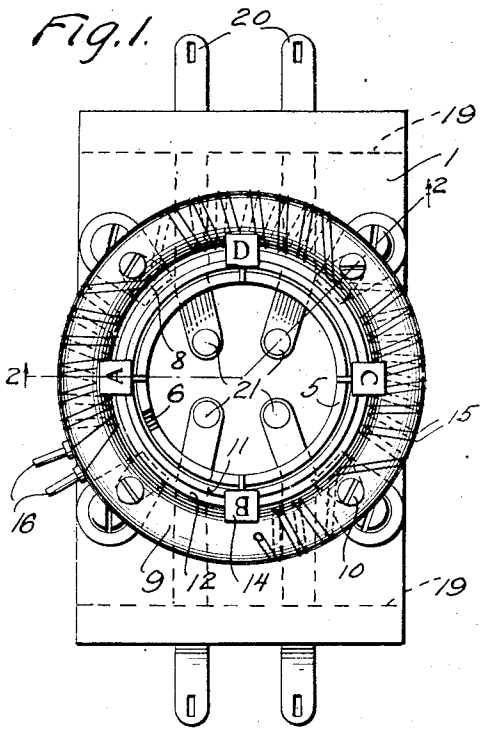


Fig. 2.

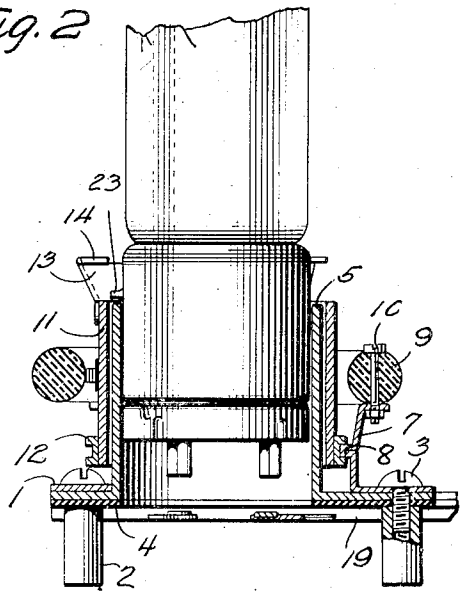


Fig. 3.

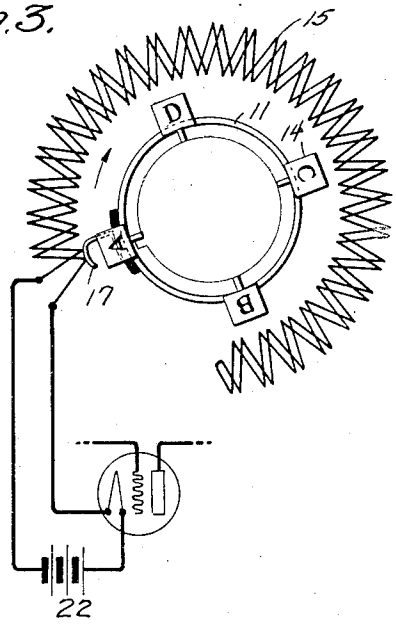
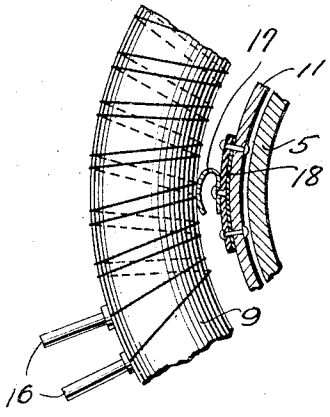


Fig. 4.



Inventor:
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by W. E. Beatty Atty.

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UNITED STATES PATENT OFFICE.

WILLIAM J. ADAMS, OF IRVINGTON, NEW YORK, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CURRENT-CONTROL DEVICE.

Application filed May 5, 1921. Serial No. 466,946.

To all whom it may concern:

Be it known that I, WILLIAM J. ADAMS, a citizen of the United States, residing at Irvington, in the county of Westchester, State of New York, have invented certain new and useful Improvements in Current-Control Devices, of which the following is a full, clear, concise, and exact description.

This invention relates to current regulating means and more especially to a resistance compensating socket for an electrical device.

Vacuum tubes are usually designed to operate upon certain predetermined voltages for various circuits and with a filament resistance lying within a certain range of variation. If the resistance of the filament of a vacuum tube lies outside of the permissible range of variations, the tube will not operate in the desired manner. Since it is commercially impracticable, in the manufacture of vacuum tubes, to maintain the resistance of the filaments within the permissible range, it is often necessary to compensate the filament resistance. This may be accomplished by classifying tubes according to the amount that their filament resistances differ from the permissible range of filament resistance variation and, when one of the classified tubes is used, providing the necessary resistance compensation therefor.

It is the object of this invention to provide a vacuum tube socket having means for compensating for such variations in the resistance of the filaments of vacuum tubes. This object is attained by associating with the socket a rheostat which is adapted to be included in the filament circuit of a tube mounted in the socket. This rheostat is preferably of such a structure that the insertion of a vacuum tube into the socket is effective to include in the filament circuit the compensating resistance.

This invention will be better understood by having reference to the following specification and accompanying drawing wherein Fig. 1 is a plan view of the socket; Fig. 2 is a section on line 2—2 of Fig. 1; Fig. 3 is a diagrammatic representation of the socket and Fig. 4 is a detail.

The plate 1 is supported by the pins 2 which are attached to the plate by means of bolts 3. Interposed between the pins and the plate is an insulating member 4. In the center of the plate 1 is an aperture in which is arranged the tubular member 5 having a bayonet slot 6. Resting on the plate 1 and attached thereto by means of the bolts 3 are supports 7 which are provided mid-way their ends with inwardly extending projections 8. A torus 9 of insulating material is mounted on the upper ends of the supports 7 and is attached thereto by means of bolts 10. Surrounding the shell 5 is a sleeve 11 which is provided at its lower end with a grooved member 12 into the groove of which fit the projections 8 to rotatably support the sleeve. Carried by the upper end of the sleeve are radially arranged vanes 13, the inner ends of which project to the outer surface of the vacuum tube base. Each of these vanes is provided with a designating member 14, upon which are suitable indicia.

A bifilar resistance 15 is wound around the torus beginning at a point adjacent the bayonet slot 6 of the shell 5 and continuing approximately three-quarters the length of the torus. Binding posts 16 are mounted on the torus and the ends of the resistance attached thereto. Carried by the sleeve 11, preferably directly beneath one of the vanes 13, is a brush 17 which is adapted to simultaneously contact with the two strands of the bifilar resistance. This brush is insulated from the sleeve 11 by means of the insulation 18. At each end of the plate 1 on the under side thereof are provided insulating strips 19 to which are attached the contact members 20, the inner ends 21 of which are adapted to engage the terminals of a vacuum tube inserted in the socket.

As shown in Fig. 3 the binding posts 16 are connected by means of suitable conductors to the contact members for the filament of a vacuum tube and a battery 22 is included in the filament circuit.

Vacuum tubes to be used with this socket are first graded according to the variation of their filament resistance from a permissible range of variation, and marked with indicia corresponding to that appearing upon the vanes 14. When the tube is inserted in the socket the pin 23 on the base thereof is first engaged with the vane bearing the same designation as is marked on the tube; the tube is then rotated until the pin 23 engages the bayonet slot 6 in the shell 5 whereupon the tube is locked in the socket. The resistance winding is so de-

signed that the rotation of the sleeve 11 has carried the brush 17 through a sufficient arc to include in the filament circuit the necessary resistance to compensate for the variation of the filament resistance of the tube from standard.

While this invention has been described in its adaptation for compensating for variation in filament resistance its use is not limited thereby, but it may be utilized wherever it is desirable to have means for varying the effective resistance of a filament circuit.

What is claimed is:

1. A vacuum tube socket comprising a shell, a resistance unit surrounding said shell, and means for including said resistance unit in a circuit of a vacuum tube mounted in said shell, said means comprising an annular rotatable member surrounding said shell and a brush carried by said member to engage said resistance unit whereby the effective resistance may be varied.

2. A vacuum tube socket comprising a shell, a rotatable sleeve surrounding said shell, an insulating torus surrounding said sleeve, a bifilar resistance winding on said torus, and a brush on said sleeve to engage said resistance winding.

3. A vacuum tube socket comprising a shell having a bayonet slot to cooperate with a pin on a vacuum tube to lock the tube in the socket, a rotatable sleeve surrounding said shell, an insulating torus surrounding said sleeve, a bifilar resistance winding on said torus, a brush on said sleeve to engage said resistance winding, and means on said sleeve to be engaged by said pin on the base of a vacuum tube, whereby the sleeve may be rotated.

4. A vacuum tube socket comprising a shell, a rotatable sleeve surrounding said shell, an insulating torus surrounding said sleeve, a resistance winding on said torus, a brush on said sleeve to engage said resistance winding, and vanes on said sleeve.

5. A vacuum tube socket comprising a base, a shell carried by the base, a sleeve, a resistance unit, brackets for supporting said resistance unit concentric with said shell, coacting means on said sleeve, and brackets for rotatably supporting said sleeve.

6. A vacuum tube socket comprising a base, a shell mounted thereon, a sleeve having a groove, a resistance unit, brackets for supporting said resistance unit coaxial with said shell, and projections from said bracket engaging said groove for rotatably supporting said sleeve.

7. A vacuum tube socket comprising a shell, a resistance unit associated with said shell, said resistance unit being adapted to be included in the filament circuit of a vacuum tube, and means operable by a vacuum tube upon its insertion in said socket for varying the resistance of the filament circuit.

8. A device of the character described comprising a vacuum tube socket having a shell to receive a vacuum tube and contact members for the electrodes thereof, circuit connections for supplying current to the contact members for the cathode of a tube, and means for varying the resistance of the cathode circuit, said means being operable by a tube in the insertion thereof into said shell.

9. A device of the character described comprising brackets, a torus mounted on said brackets, a bifilar resistance winding on said torus, a rotatable member supported by said brackets, and a contact element carried by said member.

10. In combination, a shell adapted to receive a vacuum tube, a torus of insulating material surrounding said shell, a resistance winding on said torus, a rotatable member coaxial with said torus, and a contact element carried by said member to engage said resistance winding.

In witness whereof, I hereunto subscribe my name this 2nd day of May A. D., 1921.

WILLIAM J. ADAMS.