

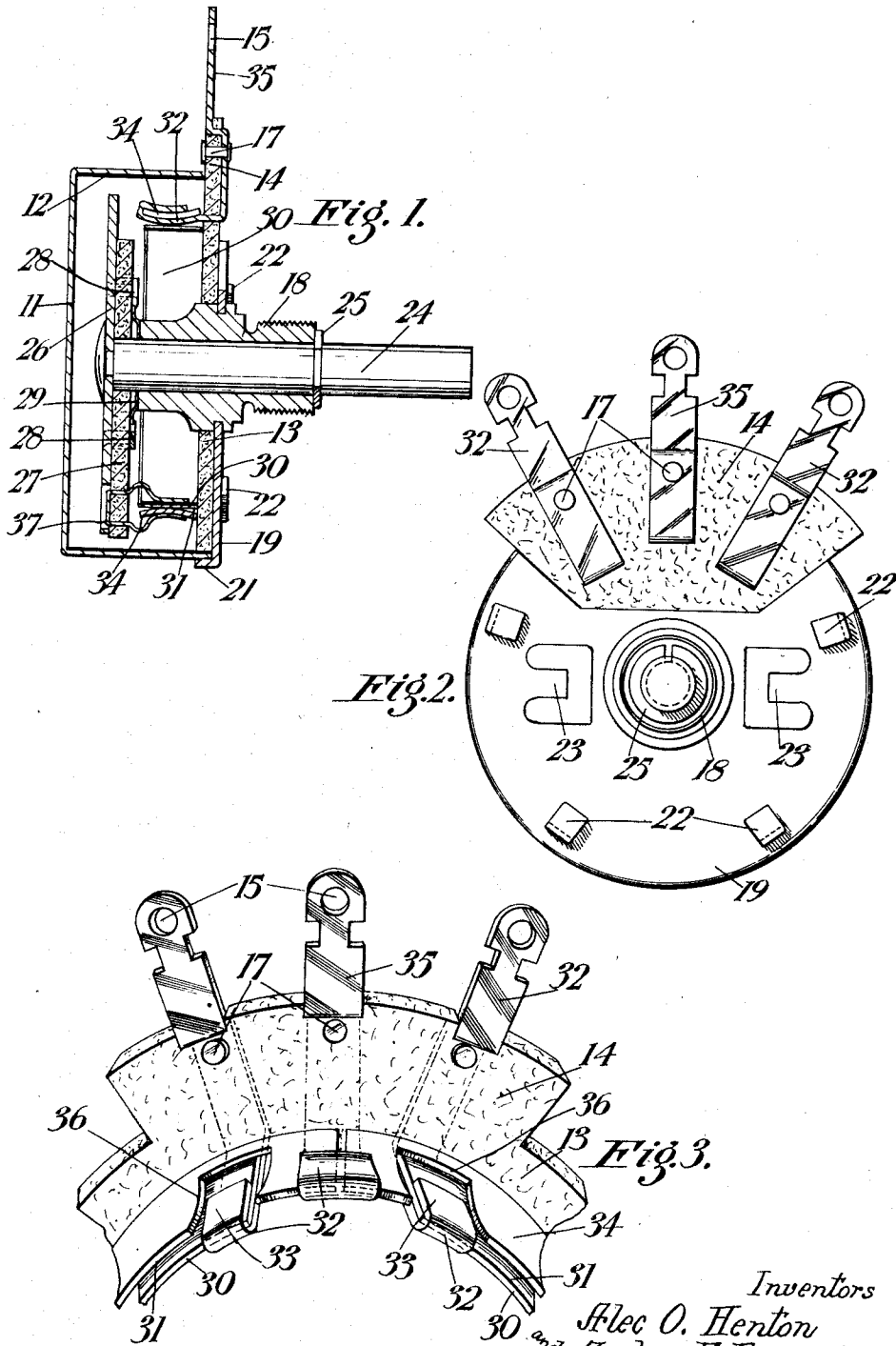
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RHEOSTAT

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RHEOSTAT

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This invention relates to potentiometers or other rheostats—and particularly to such as are for use in radio apparatus—of the kind which includes a resistance strip of part-tubular shape and a similarly-shaped concentric conducting strip disposed adjacent thereto, with an interposed insulating means.

In the past such conducting and resistance strips have been fitted snugly against the inner periphery of a circular insulating casing and bridged at adjacent edges by a ball spring-supported in an arm which is rotatable to carry the ball along the edges.

Our main object is to provide an improved rheostat which will be inexpensive to manufacture and assemble and with which very satisfactory operation will be obtained.

It is a further object to arrange for the conducting strip to act for the reinforcement of the resistance strip, and for the two, with the interposed insulating means, to be supported by conductor supports.

It is a still further object to use a spring contact adapted to bridge said strips by engaging the inner and outer periphery of the combined strip, the spring contact being rotatably mounted so as to be movable therealong. In this way good contact is assured.

Preferably the conducting strip is arcuate, or approximately arcuate, in cross-section, for strengthening purposes, preferably being convex toward the insulating means. Conveniently a conductor support has a bent-over portion which hooks round the associated strip.

For a better understanding of the invention, attention may be directed to the following description, in which reference is made to the accompanying drawing, wherein:

Figure 1 is a sectional elevation of one form of potentiometer according to the invention;

Figure 2 is an end elevation thereof taken from the right; and

Figure 3 is a fragmentary perspective view showing the manner in which the strips are attached to the conductor supports.

In the construction illustrated, use is made of a metal cup-shaped casing 11 the internal periphery of which may be lined with fibre or other insulating material 12, whilst the open end is closed by an insulating plate 13, for example, of a moulded material, part 14 of which extends beyond the edge of the casing. To the said extending part are secured three metal conductor supports 32 and 35 arranged more or less radially and formed with openings 15 at their outer ends

or in other ways adapted for attachment to conductors, and having their radially-inner ends intumed and entered through holes in the insulating plate 13. Use may be made of one or more rivets 17 for securing each of them in position.

The insulating plate 13 has a hole in it coaxial with the casing 11, such hole receiving a bush 18. Secured externally to this, against the insulating plate, is a metal plate 19, one part of which is cut away in the vicinity of the conductor supports aforesaid whilst elsewhere the periphery 21 is flanged over the adjacent edge of the casing 11, which edge lies against the periphery of the non-extended part of the insulating plate 13. The casing has projections 22 passed through holes in the metal plate 19 and bent over to secure the whole together.

The bush is screw-threaded externally of the casing to facilitate its being mounted in a supporting panel (not shown). Lugs 23 may be pressed out from the metal plate 19 to be passed through and bent back against the panel.

Journalled in the bush is an operating shaft 24 located against endwise movement in one direction by means of a circlip 25. The shaft is adapted to be operated in any convenient manner. The inner end of the shaft (inside the casing) extends through and is riveted over a metal plate 26 to which is secured an insulating plate 27, for example, of a moulded material. The securing may be effected by lugs 28 being pressed out from the metal plate 26 and passed through holes in the insulating plate 27, the lugs being then bent over. A spring washer 29 spaces the insulating plate from the adjacent end of the bush and thus locates the shaft in the other direction.

The resistance strip aforesaid may consist of a carbon compound applied, for example, to a strip 30 of paper bent to be of part-tubular form, and externally thereof and concentric therewith is disposed a similarly-bent strip 31 of an insulating material. The respective ends of this combined strip 30, 31 (which are slightly radially-inwardly offset) are gripped by the intumed portions of the two outer conductor supports 32, 32, the intumed portions preferably engaging the inner periphery of the combined strip and being slightly bent over, as shown at 33, to engage it on its external face.

Against the external surface of the insulating strip 31 is a brass or other conducting strip 34, of tubular form, the ends of which are secured in a substantially similar manner to that described

above to the middle one 35 of the conductor supports. Preferably this conducting strip 34 is of arcuate cross-section, being convex towards the insulating strip 31 as shown, and it thus serves for reinforcing the insulating strip and resistance strip. It is cut away as necessary, as shown at 36, to be clear of the two outer conductor supports 32.

A single spring contact 37, substantially of U shape, is mounted in the insulating plate 27 carried by the rotatable shaft so as to be insulated therefrom, and its spring fingers respectively engage the resistance strip 30 and conducting strip 34.

Thus, by turning the actuating shaft the resistance between the middle conductor support 35 and the two outside conductor supports 32 can be varied very accurately, and at all times a good conductive contact is ensured. Moreover, the parts can be inexpensively manufactured and assembled.

The words "conductor supports" in the claims are intended to mean that the parts 32 and 35 subserve two functions, namely of supporting the resistance and conducting strips, and of conducting current to and from the resistor. Whether the parts 32 and 35 are actually terminals is unimportant to the functions stated. They are shown to be terminals to which external wires may be connected in the openings 15.

Obviously details of the particular construction described may be modified in a number of ways.

What we claim as our invention and desire to secure by Letters Patent of the United States is:

1. A rheostat including a resistance strip of part-tubular shape, a similarly-shaped concentric conducting strip disposed adjacent thereto and externally thereof, said conducting strip being substantially arcuate in cross-section, insulating means interposed between said strips, conductor supports for said strips near their free ends, and a spring contact adapted to bridge said strips and rotatably mounted to be movable therealong, one

arm of said contact engaging the outer periphery of said conducting strip and another engaging the inner periphery of said resistance strip.

2. A rheostat including a resistance strip of part-tubular shape, a similarly-shaped concentric conducting strip disposed adjacent thereto, said conducting strip being substantially arcuate in cross-section and convex towards said resistance strip so as to act for the reinforcement thereof, insulating means interposed between said strips, conductor supports for said strips, and a spring contact adapted to bridge said strips by engaging the inner and outer peripheries of the combined strip and rotatably mounted to be movable therealong.

3. A rheostat including a resistance strip of part-tubular shape, a similarly-shaped concentric conducting strip disposed adjacent thereto and acting for the reinforcement thereof, insulating means interposed between said strips, conductors having bent-over portions which hook round the associated strips and serve for the support thereof, and a spring contact adapted to bridge said strips by engaging the inner and outer peripheries of the combined strip and rotatably mounted to be movable therealong.

4. A rheostat including a resistance strip of part-tubular shape, a pair of conductor supports holding the ends of said strip in spaced relation, a similarly-shaped concentric conducting strip disposed adjacent thereto, said conducting strip being cut away in the vicinity of said pair of supports to be clear thereof, a third conductor support interposed between said pair of supports and engaging both ends of said conducting strip, said conductor supports all being secured to an insulating panel, insulating means interposed between said strips, and a spring contact adapted to bridge said strips by engaging the inner and outer peripheries of the combined strip and rotatably mounted to be movable therealong.

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