

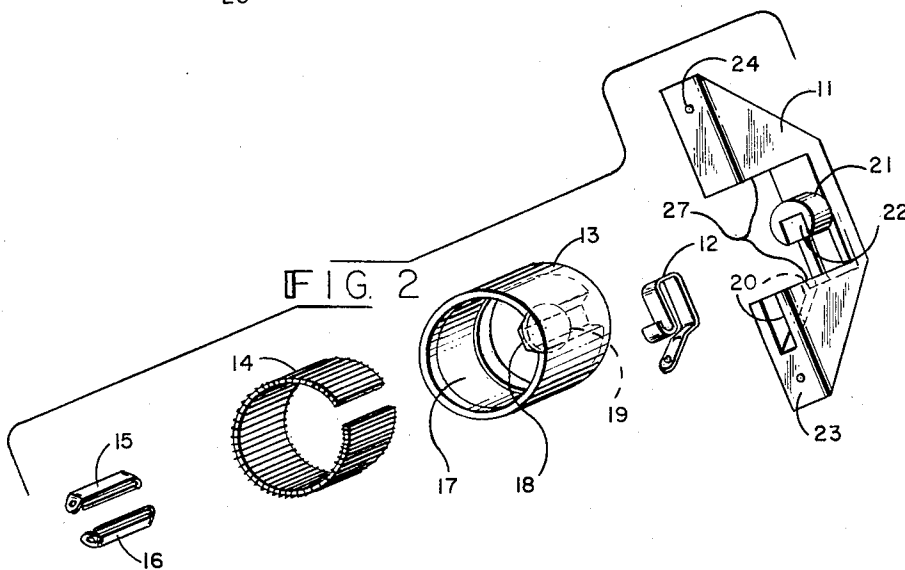
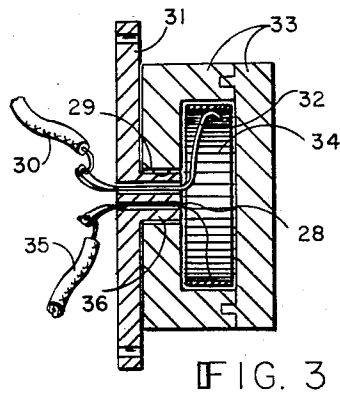
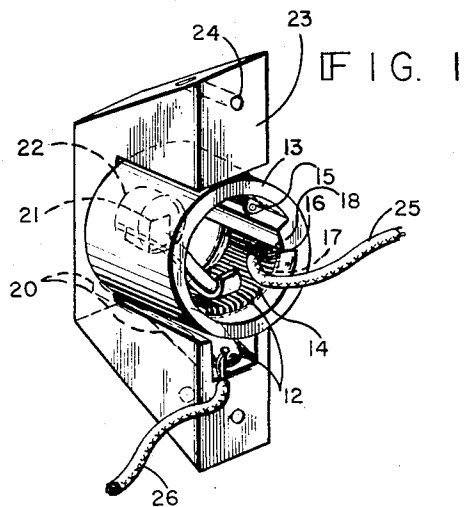
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RHEOSTAT

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RHEOSTAT

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This invention relates to rheostats. In particular it relates to novel rheostats of improved structures and utility.

Rheostats, including those used to form potentiometers, are a common component of electrical systems. Normally rheostats are mounted inside the housing of an electrical system, with control knobs either inside or outside the housing. When replacement of a rheostat is required, the repairman must gain access to the inside of the housing. In complicated equipment where space is at a premium, such as electronic computers in aircraft, it is difficult to gain ready access to the interior of a housing. Any delay in replacing a defective rheostat could be a serious one to the military operation.

One object of this invention is to provide a completely exteriorly mounted rheostat which is easily and readily connected and detached.

Another object of this invention is to provide such a rheostat as above which is compact, simple, inexpensive and easier to fabricate.

Further objects of the invention will hereinafter appear from the following description of the preferred embodiments illustrative of the invention and shown in the accompanying drawings in which

Figure 1 is a perspective view of the assembled device as viewed from the base.

Figure 2 is a view in perspective of the component parts of the device.

Figure 3 is a longitudinal vertical cross-section of another form of the device.

The device consists of a rheostat which is completely exterior to and mounted on the outer panel of an electrical device and comprises a mounting bracket, a circular rotatable insulated holder for the resistance strip, which holder also acts as a rotary knob for the manual operation of the device, and a stationary yielding spring metal tongue contact. When the device is connected to interiorly positioned electrical components, the conducting leads are concealed, passing directly through the base of the device and through apertures in the panel.

Referring to the drawings, the rheostat shown in Figures 1 and 2 as illustrative of my invention comprises a U shape mounting bracket 11 of insulating material, a stationary conducting spring tongue contact 12, preferably made of spring brass which is yielding in order to provide a good electrical contact, a rotatable resistance band holder 13, in the form of a hollow cylinder of insulating material, open at the bottom and enclosed on the top, a flexible resistance band 14 comprising an insulated fibre core wound with a plurality of close turns of fine resistance wire, with a terminal 15 on one end and a terminal 16 on the other end of the convolutions of wire. The inside wall of resistance band holder 13 is provided with an engaging recess 17 to receive and hold band 14 adjacent to its inside periphery and an inwardly disposed projection 18 positioned between terminals 15 and 16. The bracket 11 has an aperture 27 into which there projects perpendicular to the base and integral therewith a central insulated shaft 21 provided with a longitudinal slot

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22, and a lead-in slot 20 which is an extension of slot 22. The depth of aperture 27 is substantially the same as that of the holder 13. The slots 20 and 22 are continuous and house the spring contact 12 which is bent through the right angle turns of said slots to hold resistance band holder 13 on shaft 21. The top of the resistance band holder 13 is provided with a concentric hole 19 which accommodates the central shaft 21. The bracket 11 has a flat base 23 which is placed contiguous to the panel board of an electrical device and is fastened thereto by removable fastenings passing through holes 24.

Attached to the outer end of tongue contact 12 is a lead-in wire 26 and attached to either terminal 15 or 16 is a lead-in wire 25. Space is provided for an additional lead-in wire to the other terminal where the device is used as a potentiometer.

In operation, turning the band holder 13, which also acts as a manipulating knob, causes the entire resistance band 14 to move with the holder, clockwise and counter clockwise, with motion limited by the protruding stop 18; the tongue 12 remaining stationary as the band 14 is moved back and forth but always in contact with it.

The embodiment shown in Figure 3 comprises a mounting bracket 31, a stationary spring tongue contact 32, an arcuate resistance band 34 and a rotatable holder therefor 33. The holder 33 is enclosed on the top and has a central hole 29 in the bottom to receive the central shaft 36 upon which it revolves. The shaft 36 is provided with a central hole 28 to accommodate the lead-in wire 35 while the bracket 31 has a slot 30 to accommodate the contact 32.

In either embodiment, the lead-in wires are entirely concealed, passing through the base of the mounting bracket and an aperture in the panel board for connection to the equipment inside the electrical device.

Arcuate resistance bands useable in this invention are not limited to the flexible fine wire turnings on insulating cores shown in the above embodiments. They may also include inflexible fine wire bands as well as flexible and inflexible molded compositions of arcuate shape, one of whose surfaces is coated with a conductor. An example of the latter is an insulating arcuate molding coated on one side with a dispersion of carbon in a lacquer.

Although we have described our invention with a certain degree of particularity, it is understood that the present disclosure has been made only by way of example and that numerous changes in the details of construction and the combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as hereinafter claimed.

I claim:

1. A rheostat completely exterior to and mountable on an outer panel of an electric device, consisting of a U-shaped mounting bracket of insulating material having flat ends on its legs, being exteriorly and removably attachable to such panel, and having an integral central shaft perpendicular to said leg ends; a holder made of insulating material, rotatably positioned on said shaft and provided on its inside wall with a recess; an arcuate resistance band positioned in said holder recess; and a stationary yielding tongue contact positioned within a slot provided in said bracket continuous with a longitudinal slot provided in said shaft and having one end in contact with said band; the rheostat being connectible to interiorly positioned electrical components through an aperture in said panel.

2. The rheostat of claim 1 wherein the arcuate resistance band comprises a plurality of close turns of fine resistance wire.

3. The rheostat of claim 1 wherein the depth of said holder is substantially the same as the depth of said U legs.

4. A rheostat completely exterior to and mountable on the outer panel board of an electrical device, comprising an immobile mounting member of insulating material removably attached to said panel board, said member being U-shaped, having an integral depending central shaft provided with a longitudinal slot and being provided with a lead-in slot positioned in one of its legs, said longitudinal and lead-in slots being continuous, an arcuate resistance band, a circular rotatable receptacle of insulating material holding said band interiorly and adjacent to its periphery, a stationary yielding spring tongue contact, means for rotatably mounting said holder on said shaft, means for positioning said tongue in said continuous slots and for maintaining said tongue in contact with said band and means for providing wire terminations for said tongue and said band; said terminations being connectable to interiorly positioned components through apertures in such panel.

5. A rheostat completely exterior to and mountable on an outer panel of an electrical device, comprising an arcu-

ate resistance band, a circular rotatable receptacle of insulating material housing said band, a stationary spring tongue contact and an immobile inverted U shaped mounting bracket of insulating material; said bracket having an integral central shaft depending between the legs of said U; said receptacle being mounted on said shaft, said shaft being provided with a longitudinal slot, said bracket being provided with a lead-in slot in the inner portion of one of its legs, said longitudinal slot and said lead-in slot being continuous, said tongue being positioned in said continuous slot, one end of said tongue being in contact with said resistance band.

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