Feb. 5, 1946. N. Y. PRIESSMAN 2,394,479

RESISTOR DEVICE

Filed Nov. 29, 1944

FIG. 1

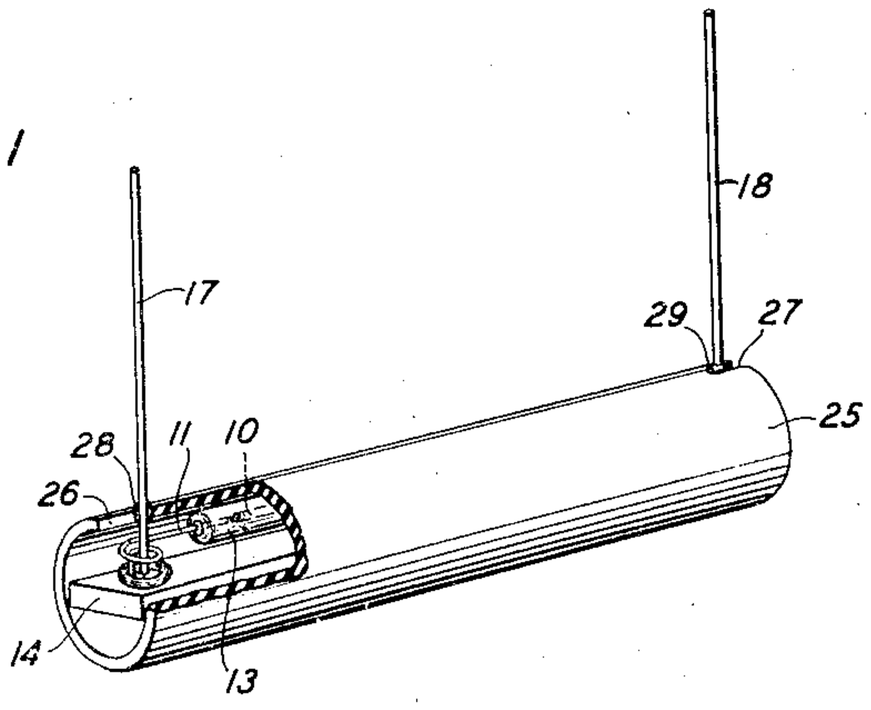


FIG. 2

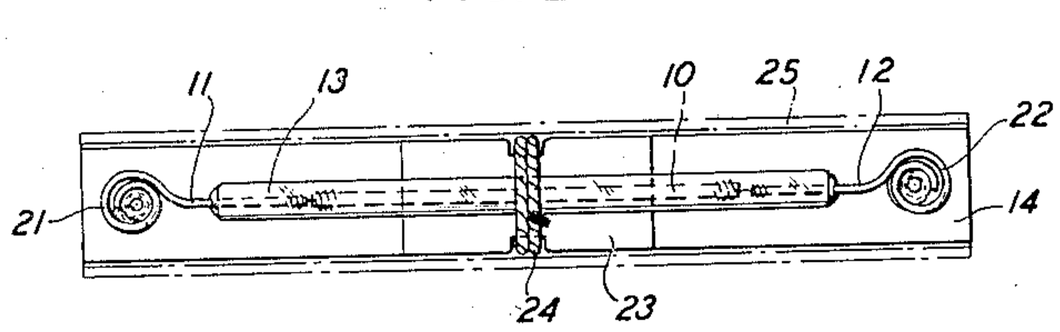
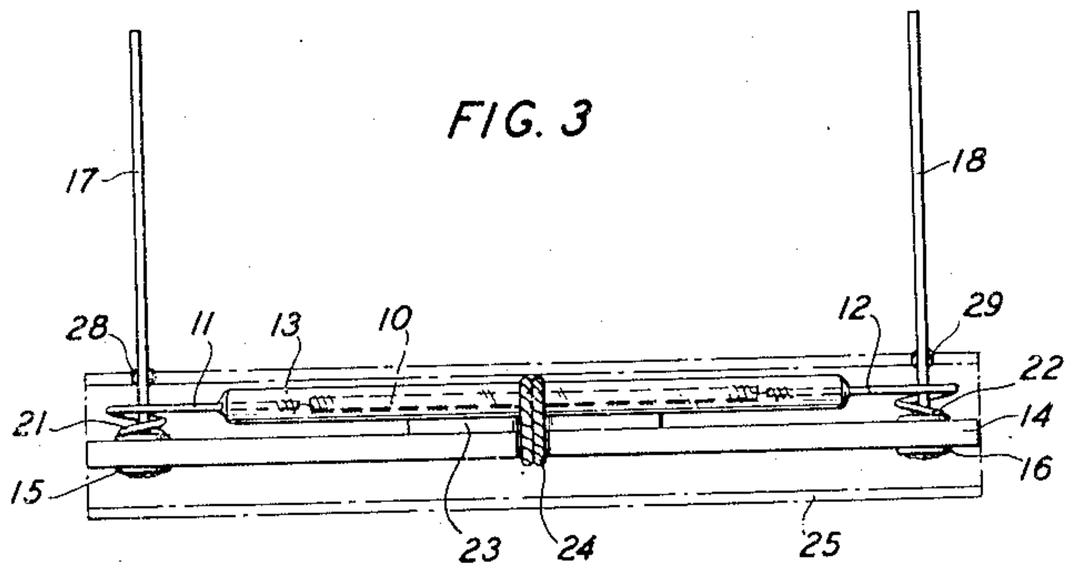


FIG. 3



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RESISTOR DEVICE

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5 Claims. (Cl. 201—63)

This invention relates to conductive devices and more particularly to mounting means for such devices.

Electrically conductive units which are designed for use in mobile structures such as road vehicles, airplanes or boats, must be protected from shock, atmospheric variations and other hazards encountered in such use. The provision of suitable protective means or structure in such situations often makes the difference between a practically useful device and one that is only theoretically possible.

An object of this invention is to provide conductive devices such as resistors and the like with mounting means that will protect them against the adverse effects of mechanical shock and atmospheric variation.

Features of this invention reside in rigid supports and housing means, resilient connecting means, shock absorbing cushioning means and flexible snubbing means for the protection of an electrically conductive unit.

Other and further objects and features of this invention will appear more fully and clearly from the following detailed description of an illustrative embodiment thereof taken in connection with the appended drawing in which:

Fig. 1 is a perspective view of one form of the device with a portion of the housing cut away to show internal structure;

Fig. 2 is a plan view of the internal structure of the device with the housing shown in dot-dash lines; and

Fig. 3 is an elevational view of the device also showing the relation of the housing to the rest of the structure by means of dot-dash lines.

Referring to the drawing, 10 is a conductive body, for example, a slim rod of resistance material. Conductors 11 and 12 are respectively secured to opposite ends of the body 10 by suitable means. The conductive body 10 may be enclosed in an envelope 13, for example, a glass tube or envelope, which may be sealed at the ends to the conductors 11 and 12, respectively.

A mounting member 14, which may be a slab of insulating material such as phenol plastic, is provided with metal lined orifices, such as eyelets 15 and 16. Conductive leads 17 and 18 are provided for making external connections.

Conductor 11 and lead 17, conductor 12 and lead 18 are secured together and soldered respectively into eyelets 15 and 16. A portion each of conductors 11 and 12 intermediate the ends of the tube 13 and the eyelets 15 and 16, respectively, is looped or coiled as indicated at 21 and 22.

The loops or coils 21 and 22 are arranged to suspend the tube 13 in slightly spaced relation with respect to the mounting 14. A pad 23 of resilient material such as sponge rubber or the like is inserted between the tube 13 and the mounting 14. Means for holding the tube 13 snugly against the pad 23 comprise a few turns of cord 24 wrapped around the tube and mounting means and suitably secured.

The housing 25, which may be a tube of phenol plastic or other like suitable insulating material, is of such internal diameter as to snugly include the mounting 14 in diametral relation therein. The housing 25 may be provided adjacent each end with orifices for the accommodation of leads 17 and 18 or with slots 26 and 27 for this purpose. The slots are preferred because they contribute to ease of assembly. If slots are used a small amount of cementing material 28 and 29 may be provided for securing the leads in the slots.

Assuming the use of slots in the tube or housing 25, the device is assembled by bending over one lead 17 or 18 in substantially parallel relation with the rest of the structure and sliding the assembly into the tube. The bent-over lead is then turned up into its slot and cementing material applied at 28 and 29. It may be advantageous in some cases to apply a small amount of cementing material to the edges of the mounting 14 before it is inserted in the housing 25 in order to secure these two parts together. However, in most cases, if a snug fit is provided, no cement is necessary. It will be noted that securing of the leads 17 and 18 in the slots 26 and 27 insures against rotation or endwise movement of the assembly within the housing.

The coiled portions 21 and 22 of the leads 11 and 12 provide a resilient mounting for the conductor element and also provide means for absorbing longitudinal movement of the assembly due to thermal expansion or contraction. The pad or cushion 23 absorbs shock due to relative movement between the resistor and the mounting and the cord 24 acts as a snubbing means for limiting the relative movement of these parts.

Although not specifically indicated in the drawing, it is believed obvious that the ends of the housing 25 may be sealed with a suitable material for moisture-proofing or otherwise protecting the various parts of the device, if required. The use of such a sealed housing, would in some cases, make it possible to omit the insulating envelope 13.

Although this invention has been disclosed by

means of a specific illustrative embodiment thereof, it will be understood that it is not intended to be limited thereby but by the scope of the appended claims only.

What is claimed is:

1. A resistor device comprising an assembly including a resistor body, a plurality of flexible leads connected to spaced portions of said body, an envelope of insulation enclosing said body and a portion of each of said leads, a mounting strip of insulation, a plurality of elongated flexible conductors, means for joining each lead to a corresponding conductor and securing the junction thus formed to the mounting strip, each of said leads having a looped portion between the envelope and the junction, a pad of resilient material interposed between the envelope and the mounting strip, binding means for maintaining the envelope and mounting strip in contact with opposite faces of the pad, and a tubular housing for containing said assembly, the opposite wall portions of said housing being in contact with opposite edges of the mounting strip, the housing wall having openings adjacent ends of said housing to receive portions of the conductors for aiding in securing the assembly in the housing.

2. A resistor device comprising a resistor body, an insulating envelope enclosing said body, a pair of flexible leads connected to spaced portions of said body and projecting from opposite ends of said envelope, a mounting strip of insulation, flexible conductors, means on said strip for joining each of said leads to a corresponding flexible conductor and securing this junction to the mounting strip, each of said leads having a coiled portion between the envelope and the junction, a resilient pad between the envelope and the mounting strip, means for binding the envelope and mounting strip to said pad, and a housing fitting snugly around the foregoing assembly, said housing having in its wall, openings for cooperation with portions of said conductors to aid in securing the assembly in the housing.

3. Means for resiliently mounting a relatively long, slim, fragile resistor element, comprising a mounting strip, connector means secured to spaced portions of said strip, flexible leads, one extending from each end of said resistor to a corresponding connector, to suspend said resistor in spaced relatively parallel relation to said mounting strip, each lead including a looped portion between the resistor and the connector, a pad of resilient material interposed between the resistor and the mounting strip, and flexible means for binding the resistor and the mounting strip snugly against opposite sides of said pad.

4. A resistor device comprising an elongated rod of resistance material, flexible leads connected to opposite ends of said rod and extending from an envelope of insulation enclosing said rod, a mounting strip of insulation, a plurality of flexible conductors, eyelet means including solder for joining each lead to a corresponding conductor and securing the rod to the mounting strip, each of said leads having a looped portion between the end of the envelope and the eyelet, a pad of resilient material interposed between the envelope and the mounting strip, flexible means for binding the envelope, mounting strip and pad together, and a cylindrical housing snugly fitting against opposite edges of the mounting strip, the housing having slots adjacent each end to receive portions of said conductors, and means for securing the conductors in said slots.

5. A shock-inhibiting mounting for a relatively long, slim resistor element, comprising an elongated rectangular mounting strip, connecting sleeves secured through said strip adjacent opposite ends thereof, flexible leads extending from each end of said resistor to a corresponding connecting sleeve, to suspend said resistor in spaced, relatively parallel relation to said mounting strip, each lead including a looped portion between the resistor and the connecting sleeve, a pad of resilient material between the resistor and the mounting strip, and flexible means for binding the resistor, the pad, and the mounting strip together.

NEIL Y. PRIESSMAN.