

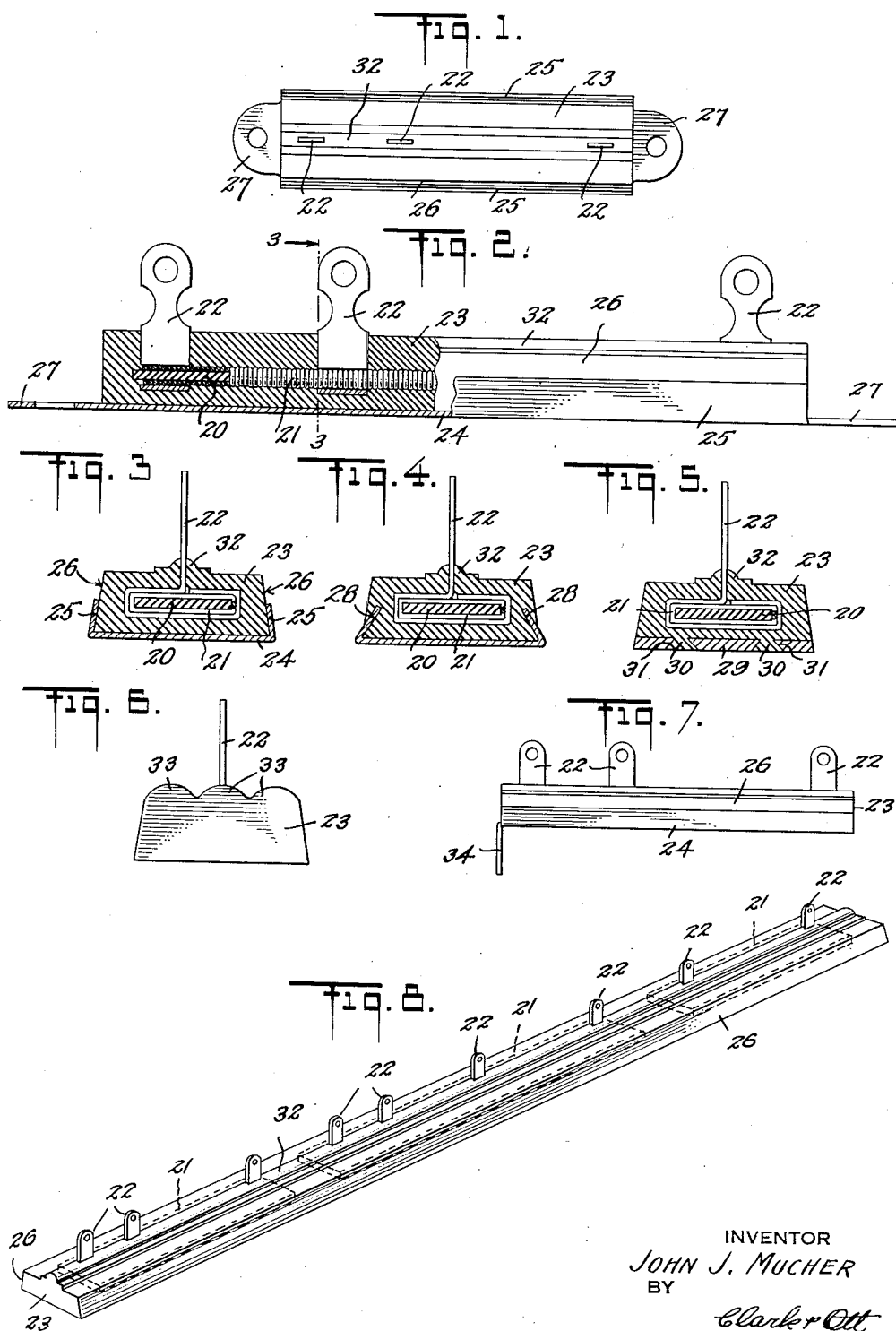
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ELECTRICAL RESISTOR

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ELECTRICAL RESISTOR

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2 Claims. (Cl. 201-64)

This invention relates to electrical resistors or voltage dividers which are applicable in general to common electrical circuits and which are particularly designed for use in radio receiving, transmitting and signaling circuits. The advances which have been made in the present day intricate and delicate radio circuits wherein minute balancing of impedance is indispensable, have created a demand for resistance units or voltage dividers of extreme accuracy and stability in order to comply with the precision required by the modern vacuum tubes and electronic devices.

The invention primarily resides in an improved resistance unit or voltage divider embodying a molded jacket of insulation material having a low degree of moisture absorption and an improved method of producing the same.

The invention comprehends a resistance unit or voltage divider which may be of any desired length and with a plurality of conductor attaching tabs located in various positions throughout the length of the unit, in which the unit is embedded or encased in a molded jacket of insulation material with the attaching tabs protruding from the jacket.

As a further object, the invention provides a resistance unit or voltage divider which includes a plurality of resistance elements connected either in parallel or in series and arranged in either end to end relation or superposed relation and embedded in a jacket of insulation material which completely seals the same and provided with conductor attaching tabs extending through the jacket and protruding therefrom.

As a still further object, the invention contemplates in a device of the indicated character, a heat conducting means associated with the molded jacket of the unit for mounting the same on the apparatus with which the unit is used, which functions to more rapidly dissipate the heat generated by the resistance unit within the jacket.

With the above recited and other objects in view, reference is now made to the following specification and accompanying drawings in which there has been disclosed, by way of example, several embodiments of the invention, while the claims cover variations and modifications thereof which fall within the scope of the invention.

In the drawings:

Fig. 1 is a plan view of a resistance unit constructed in accordance with the present invention.

Fig. 2 is an enlarged side view thereof with parts broken away and shown in section to disclose the underlying structure.

Fig. 3 is a transverse sectional view taken approximately on the line 3-3 of Fig. 2.

Figs. 4 and 5 are similar views showing slightly modified adaptations of the mounting means.

Fig. 6 is an end view of a modified form of jacket construction.

Fig. 7 is a side view illustrating a further modification of the invention; and

Fig. 8 is a perspective view of a plurality of resistance units constructed in accordance with the invention, illustrating the same in longitudinal alignment with the molded insulation jacket encasing and connecting the units.

Resistance units of the type herein disclosed are intended to a large extent to replace those types disclosed in prior United States Letters Patent Nos. 1,976,624, 1,982,475, 2,021,802, 2,036,071, 2,039,974 and 2,046,129. These types of resistance units are manufactured with mounting centers which differ in length by fractions of an inch and which are produced in lengths from 1" to 10" with conductor attaching tabs having varying relative locations so as to fulfill the needs of individual requirements of the apparatus circuits in which the resistors are incorporated. It is, therefore, apparent that if units with molded insulation jackets were manufactured to conform to the individual requirements of each user, special molds would be required with fixed dimensions of length, mounting apertures and allowance for conductor attaching tabs. The cost of designing a special mold for each type of resistance unit would be prohibitive when it is understood that the number of each particular type of resistance unit ordered at any one time may be limited to 50 or 1000 units and no further orders therefor received.

While various methods differing in detail from each other may be followed, it is preferred that in manufacturing a unit which embraces the present invention an insulating jacket be molded in surrounding sealed relation to a number of resistance units by placing these units in a common mold cavity together with moldable insulation material. Care should be taken to be sure that the units are spaced from the walls of the cavity and preferably from each other. Thereupon the insulating material which is preferably of the thermo-setting type is reduced to a plastic condition and compressed within the mold, so that this material is formed into a homogeneous mass completely encasing the units.

Referring to the drawings by characters of reference, the resistance unit illustrated in Figs. 1 to 3 of the drawings, which is of the wire wound

type, includes a core 20 of insulation material upon which is wound a resistance wire 21 of any desired diameter and which may be subdivided into any number of predetermined or fixed resistance values by means of a plurality of conductor attaching tabs 22 preferably of a flat conducting material, one end of each of which embraces the resistance wire and core with the remaining free end protruding outwardly from the core. The unit thus defined is embedded in a molded insulation jacket 23 which completely encases the unit except for the portions of the conductor attaching tabs which protrude therefrom. A mounting means 24 which is preferably constructed of a suitable metal or other material which functions to rapidly dissipate the heat generated by the resistance unit within the jacket, is associated with the jacketed unit and as disclosed in Figs. 1 to 3 of the drawings, the same consists of a flat sheet applied to the surface of the jacket opposite to that from which the attaching tabs protrude with side flanges 25 engaging the beveled side faces 26 of the jacket. One or both of the opposite ends of the mounting means protrudes beyond the end of the jacket and is apertured to provide attaching extremities 27.

In the form of the invention shown in Fig. 4, the side flanges 28 are illustrated as embedded and anchored within the insulation jacket 23, while in the form of the invention shown in Fig. 5, the mounting means 29 is attached to the insulation jacket 23 by keys 30 forming an integral part of the jacket and molded into key openings 31 formed in the mounting means. In order to reinforce the jacket in the regions where the attaching tabs 22 protrude therefrom and to prevent warping of the structure, a longitudinal rib 32 is molded integral with the jacket. In Fig. 6 of the drawings, a jacket is formed with a plurality of longitudinal ribs or corrugations 33 which function as a reinforcement and serve to minimize surface leakage by providing a greater surface area between the tabs and the ground. If desired, as shown in Fig. 7 of the drawings, the protruding extremity or ear 34 of the mounting means 24 may be disposed in a plane per-

pendicular to that of the mounting means or plate.

It is of course obvious that any number of units in any desired relationship with respect to each other may be conveniently grouped and these units may each have resistance wire or an equivalent of the same or have different values and as shown in Figs. 1 and 2, that the terminals may be spaced as desired. Obviously, numerous other changes in construction and rearrangement of the parts might be resorted to without departing from the spirit of the invention as defined by the claims.

What is claimed is:

1. As an article of manufacture, a resistor including a plurality of independent resistance elements, connecting members having their inner ends coupled to each of said elements, their bodies extending outwardly therefrom, a jacket of molded thermo setting di-electric material enclosing and intimately engaging all of said elements and the inner ends of said members, and a continuous uninterrupted reinforcing rib extending from substantially one end of said jacket to the other of the same and common to all of said elements, said members extending through said rib.

2. As an article of manufacture, an electrical resistor including a resistance element, a plurality of connecting members having their inner ends secured to said element, their bodies projecting outwardly therefrom, a molded thermo-setting jacket enclosing and intimately engaging said element and the inner ends of said connecting members, said jacket being formed of di-electric material, a continuous uninterrupted reinforcing rib extending from one end of said jacket to the other end of the same and forming a part of said jacket and through which the bodies of said members extend, a shell forming a base for said resistor, and means forming a part of said shell and jacket and providing an interlocking keying structure to prevent movement of said shell away from the base face of said jacket.

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