

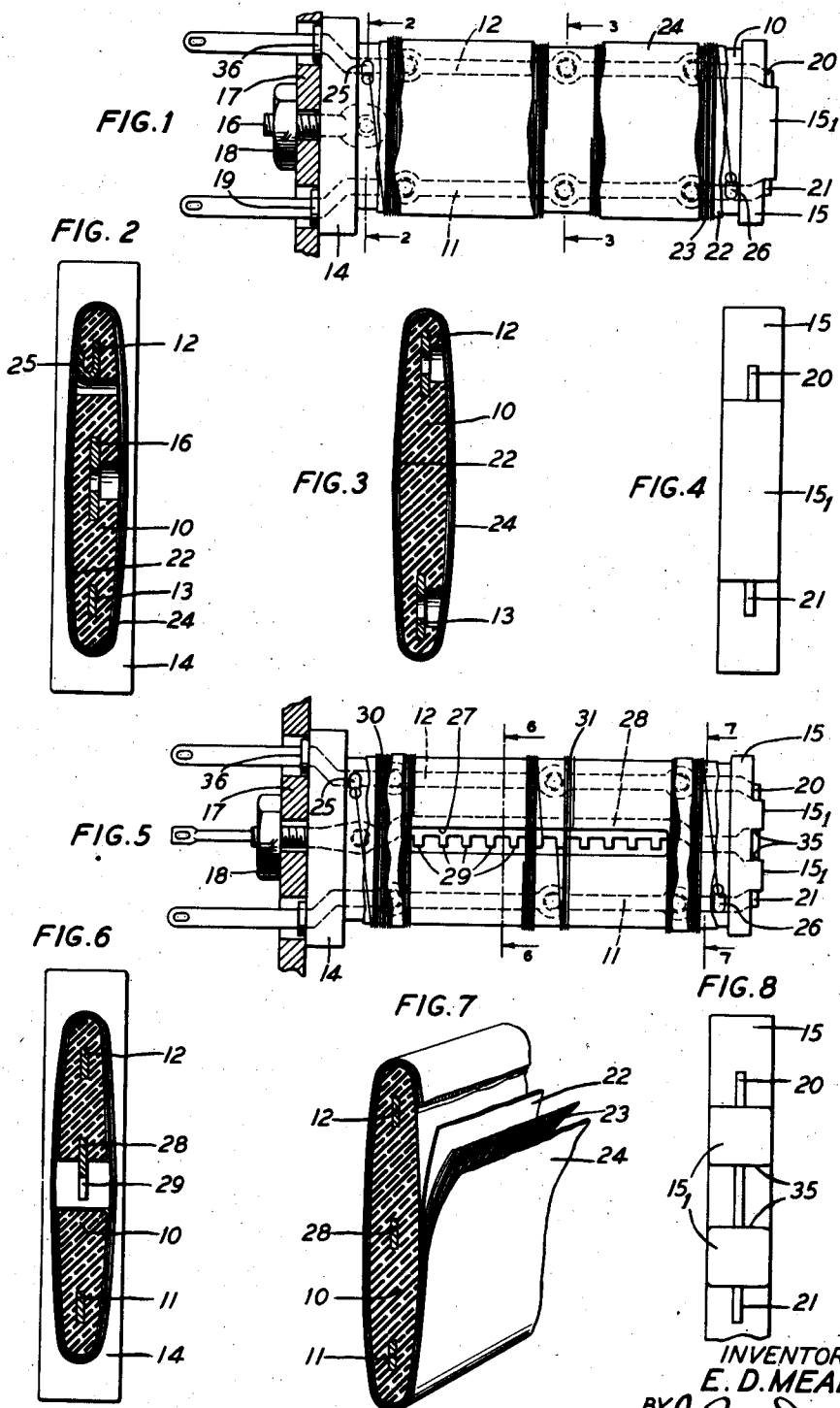
June 19, 1934.

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1,963,755

ELECTRICAL RESISTANCE

Filed Dec. 15, 1931



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1,963,755

ELECTRICAL RESISTANCE

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Application December 15, 1931, Serial No. 581,084

4 Claims. (Cl. 201—64)

This invention relates to electrical resistance devices and more specifically to a type of resistance used in telephone switchboards. The type now in use is disclosed in Patent 1,677,240, dated July 17, 1928 to F. S. Kochendorfer et al in which a resistance wire is wound around a flat core made of partially cured phenolized asbestos to form a coil, a number of sheets of the same material being each treated to soften the material to permit it to be wrapped around the coil in overlapping relation where they are held by U shaped metal strips after a second heat treatment in a mold under pressure. This type of construction is expensive to manufacture.

The object of this invention is to improve and simplify the construction of such resistance devices and to lower the manufacturing cost thereof.

According to this invention a pair of punched terminals are embedded in an elongated core of molded insulated material and around the core is wound a resistance wire to form the coil. The core has a substantially oval cross-section to prevent slack of the wire occurring on the sides of the core and at the same time permitting to exert a minimum amount of tension when winding the wire around the core which thus prevents the breaking of the wire. On the core proper is wrapped, or otherwise applied, a coating of insulating yieldable material to serve as a cushion for the resistance wire in order to prevent the breaking of the wire due to humidity swelling the core. Reinforcing portions are provided at both ends of the core, one serving as a base for the core and the other portion serving for the protection of the winding in the handling of the resistance. Both ends of the terminals extend beyond the base of the core for soldering with the wires of the associated circuit and the other ends of the terminals protrude through the front end of the core for the purpose of connecting a testing apparatus whenever it is desired to test the resistance, the terminals being provided with lugs which protrude through the surface of the core proper for attaching the ends of the resistance wires to the terminals and the base of the core is provided with a stud embedded therein for securing the resistance on its mounting bar, which, in turn, is mounted on a suitable framework.

In the drawing, Fig. 1 is a side assembly view of the resistance with portions of the core and wire coverings cut away;

Fig. 2 is a cross-sectional view taken approximately on line 2—2 of Fig. 1;

Fig. 3 is a cross-sectional view taken approximately on line 3—3 of Fig. 1;

Fig. 4 is an end view;

Fig. 5 is a side view of the resistance shown in Fig. 1 modified;

Fig. 6 is a cross-sectional view taken approximately on line 6—6 of Fig. 5;

Fig. 7 is a cross-sectional view taken approximately on line 7—7 of Fig. 5 showing the core, the resistance wire and its insulated covering broken away; and

Fig. 8 is an end view of Fig. 5.

In the drawing 10 indicates a core of molded insulating material, such as bakelite, in which the terminals 11 and 12 are embedded. The core 10 is provided with a base portion 14 through which the ends of the terminals 11 and 12 protrude as shown in Fig. 1. In the base 14 is embedded a screw threaded stud 16 engaged by a nut screw 18 for securing the core on a mounting such as 17, the base 14 being provided with projections 36 and 19 which engage similarly sized apertures in the support 17 for locating and holding the core in its adjusted position on its support upon the tightening of nut screw 18 on stud 16 and thereby preventing the terminals from contacting with the support.

The core 10 is made of oval cross-section and is provided with a covering 22 of insulating yieldable material, such as cellulose acetate, to serve as a cushion for the resistance wire 23 wound thereon, the outer surface of the coil being, in turn, coated with an insulating varnish 24 as shown in Figs. 1, 2 and 3.

The terminal 12 is provided with a lug 25 adjacent the base 14 which protrudes through the surface of the core and of covering 22 for connecting one end of the resistance wire 23 to this terminal. Similarly, the terminal 11 is provided with a lug 26 for connecting the other end of the resistance wire 23 at the front end of the core. The other end portions 20 and 21 of terminals 11 and 12 protrude through the enlarged portion 15 of the front end of the core for the purpose of connecting a testing apparatus whenever it is desired to test the resistance, a projection 15 being provided for the protection of these terminals at this end of the core.

In the core 10 of the modification shown in Fig. 5 is embedded a third terminal 28 having a plurality of lugs 29 which extend into a rectangularly shaped opening 27 in the core 10 and on this core are mounted, in the manner described in connection with Fig. 1, a plurality of resistance coils 30 and 31. Coil 30 has one end

connected to lug 25 of terminal 12 and its other end to a lug 29 of terminal 28 as by soldering. Similarly, coil 31 has one of its ends connected to a lug 29 and its other end connected to lug 26 of terminal 11, thus making possible a winding of a plurality of resistances on a single core. The end of terminal 28 which protrudes through the base 14 is screw threaded for receiving the nut screw 18 for securing the resistance on support 17 and the other end of this terminal extends into a depression 35 in the end 15 of the core for the purpose of testing either of the resistance coils, the return side of the electrical circuit being through terminal 12 for the coil 30 and through terminal 11 for the coil 31.

In this resistance the oval cross-section of the core effectively prevents slack of the wire occurring on its sides while at the same time permitting to exert a minimum amount of tension when winding the wire around the core, which thus prevents the breaking of the wire and the covering of yieldable material between the core and the winding effectively prevents the breaking of the wire due to humidity swelling the core.

What is claimed is:

1. A resistance device comprising a solid molded core having terminals molded therein and projecting from both ends, a layer of cellulose acetate covering said core, a resistance wire wound on said core in superposed relation to said covering, said core having formed therewith an enlarged portion serving as a base for mounting the resistance device on a support and a securing element molded in said enlarged portion between the projecting terminals.

2. A resistance device comprising a solid molded oval core having terminals molded therein and projecting from both ends, a layer of yieldable material covering said core, a resist-

ance wire wound on said core in superposed relation to said covering, said core having formed therewith an enlarged portion serving as a base for mounting the resistance device on a support, and a securing element molded in said enlarged portion between the projecting terminals.

3. A resistance device comprising a solid molded core having terminals molded therein and projecting from both ends, a layer of yieldable material covering said core, a resistance wire wound on said core in superposed relation to said covering, said core having formed therewith an enlarged portion serving as a base for mounting the resistance device on a support, and a third terminal formed with a securing element molded in said core between said first named terminals and projecting through the ends of said core and having lugs projecting through an opening in the middle of said core to provide for connection of an intermediate part of the wire thereto.

4. A resistance device comprising a solid molded core having terminals molded therein and projecting from both ends, a layer of yieldable material covering said core, a resistance wire wound on said core in superposed relation to said covering, said core having formed therewith an enlarged portion serving as a base for mounting the resistance device on a support, a third terminal molded in said core between said first named terminals and projecting through the ends of said core and having lugs projecting through an opening in the middle of said core to provide for connection of an intermediate part of the wire thereto, said additional terminal being formed with a screw threaded portion to receive a clamping nut for securing the device to a support.

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