

Oct. 18, 1932.

B. O. TEMPLETON
ELECTRICAL RESISTANCE DEVICE

1,883,098

Filed July 1, 1930

FIG. 1

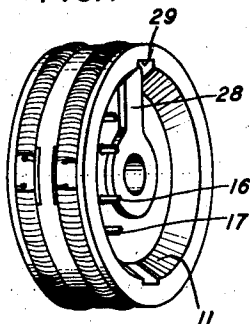


FIG. 2

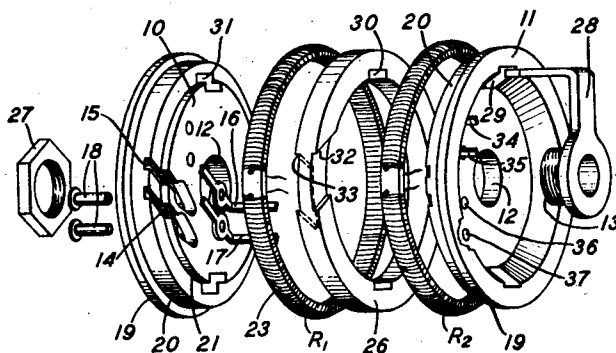


FIG. 3

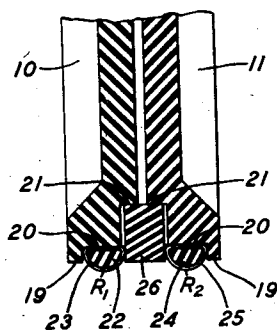


FIG. 4

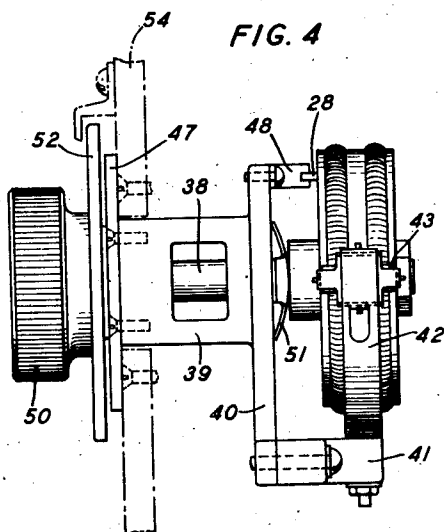
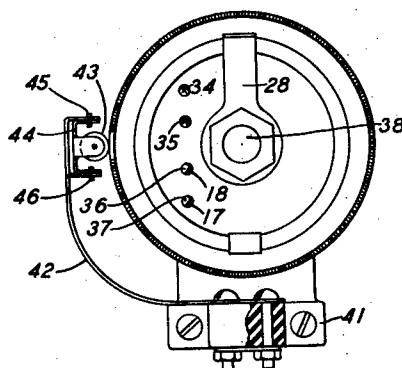


FIG. 5



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ELECTRICAL RESISTANCE DEVICE

Application filed July 1, 1930. Serial No. 465,101.

This invention relates to electrical resistance devices for use in the radio art or electrical testing apparatus and the like.

The object of this invention is to provide a resistance of this character which will be simple, cheap to manufacture, efficient in operation and wherein the component parts are easily assembled together or taken apart.

According to this invention resistance elements are formed by winding, as on a toroidal winding machine, wires on completely closed rings of insulating material which form the cores of the elements. These elements are placed on a mounting which consists of a pair of disc wheels each having portions arranged to cooperate with similar portions in a spacer ring for holding the resistance elements in coaxial relation. The discs have flanged portions which cooperate with the spacer ring for effecting side pressure against the resistance elements when the discs are secured together which operation is effected through the tightening of a nut screw engaging a hub on which the discs are mounted and an arm mounted on the hub extends through keyways in the disc wheels between them and the spacer ring for preventing relative movement and to serve as a stop for limiting the angular movement of the coils under the manual operation of a knob which is mounted on one end of an operating shaft. The disc wheels are provided with means for mounting wire terminals in a manner to protrude outwardly from one side of one of the discs for connecting the coils in their associated circuit.

In the drawing:

Fig. 1 is an assembly view of the resistance shown in perspective;

Fig. 2 is an exploded view thereof;

Fig. 3 is a cross sectional view of Fig. 1;

Fig. 4 is a side assembly view of the resistance showing its operating mechanism; and

Fig. 5 is a front view of Fig. 4.

In the drawing 10 and 11 indicates similar discs each having a central aperture 12 arranged to fit over a hub member 13 which is used for securing the component parts of

the device together in a manner that will be hereinafter described in detail.

The discs 10 and 11 are provided with recesses 14 and 15 in which the terminals 16 and 17 are mounted and secured therein by rivets or eyelets 18 as shown in Fig. 2.

The discs 10 and 11 are each formed with similar flange portions 19 and cylindrical portions 20 and 21 as shown in Figs. 2 and 3. On the cylindrical portion 20 of disc 10, there is mounted a resistance element R_1 which consists of a completely closed core 22 of insulating material on which the resistance wire 23 is coiled. Similarly on the cylindrical portion 20 of disc 11 is mounted a resistance element R_2 of a construction similar to that of the resistance element R_1 and comprises the core 24 and the resistance wire 25 coiled thereon. These resistance elements may be coiled on a toroidal winding machine.

On the cylindrical portions 21 of discs 10 and 11 and in position intermediate these discs there is mounted a spacer ring 26 of a diameter similar to that of flange portions 19 of discs 10 and 11. This ring is provided for imparting sidewise pressure on the resistance elements R_1 and R_2 upon the tightening of nut screw 27 on the threaded portion of hub 13, when the parts are in assembled position as shown in Fig. 1. The hub 13 carries at its other end a right angled lever 28 which engages keyways 29, 30 and 31 in the disc 11; the spacer ring 26 and the disc 10, respectively, for maintaining these parts and the resistance elements carried thereby against relative movement one with respect to the other.

The spacer ring 26 is provided on two opposite sides with tangentially disposed grooves 32 and 33 each provided for leading the ends of the resistance wires 23 and 25 toward their respective terminals 16—17 and 34—35 to which they are connected as by soldering. As shown in Figs. 1, 2 and 5 the ends of terminals 16—17 extend through respective holes 36 and 37 in the disc 11. Similarly, the ends of wire 25 of resistance R_2 are connected to the terminals 34 and 35 carried by disc 11, these pairs of terminals

being provided for connecting the resistance wires 23 and 25 in their energizing circuit in a well known manner.

The resistance unit thus formed is mounted on the end of a shaft 38 which is rotatably mounted in a bracket 39. This bracket has an arm 40 on the free end of which is mounted an insulating block 41 provided for supporting a brush 42. This brush is provided with a roller 43 which bridges the resistance elements R_1 and R_2 , the roller being mounted on an oscillating carriage 44 which is pivoted at 45 and 46 in order to permit an equalized pressure on the resistance elements R_1 and R_2 under the tension of brush 42. The bracket 39 has a flanged portion 47 provided for mounting the resistances on a mounting board 54 represented diagrammatically in Fig. 4. A knob 50 secured to the other end of the shaft 38 is provided for rotating the resistance an angular distance defined by the stop 48 and the end of arm 28 as shown in Fig. 4 and a spring washer 51 is provided between the hub 13 and the bracket 39 for frictionally maintaining the resistance in its adjusted position with respect to the bridging roller which position is indicated by a dial 52 in cooperation with an index member 53 mounted on the panel or board 54.

What is claimed is:

1. In an electrical resistance device, a pair of plates each having a plurality of shoulder portions, a spacer ring mounted on a number of said portions and cooperating with the other portions to form grooves, resistance coils mounted in said grooves, means for securing said ring to said plates and said coils on said portions, a stationary arm having a roller engaging each of said coils and means for moving said coils with respect to said roller.

2. In an electrical resistance device, a pair of plates, a spacer ring interposed between said plates and arranged to form a plurality of circular grooves, resistance coils in said grooves, terminals carried by said plates, the terminals of one plate extending through the other plate, a keyway in said ring and in each of said plates, a hub for mounting said plates, and means carried by said hub protruding through said keyways for holding said plates and said rings against relative movement one with respect to the other.

3. In an electrical resistance device, a pair of discs, each having a plurality of shoulder portions, a ring engaging one shoulder portion in each disc, the other shoulder portions cooperating to form a plurality of annular grooves, a toroidal shaped coil mounted in each groove, fastening means for securing said cores on said discs, and said ring, and means carried by the first mentioned means for preventing the relative movement of said discs and said ring.

4. In an electrical resistance device, the

combination with toroidal shaped resistance coils, of a pair of disc wheels, a spacer ring, said wheels and said ring cooperating to form a mounting for each of said coils, a hub for said mounting, means carried by said hub and protruding through said wheels and said ring, a bracket, a shaft rotatably mounted in said bracket and secured at one end to said hub, a brush mounted on said bracket and engaging each of said coils, a knob mounted on the other end of said shaft for changing the position of said coils with respect to said brush, and a stop mounted on said bracket cooperating with said means for limiting the movement of said coils with respect to said brush.

In witness whereof, I hereunto subscribe my name this 28th day of June, 1930.

BRYCE O. TEMPLETON.

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