Aug. 14, 1934. J. L. McWEENY 1,970,051

GROUNDED RESISTANCE UNIT

Filed April 30, 1931

Fig. 1.

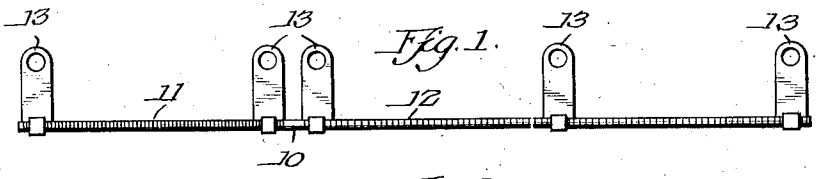


Fig 2.

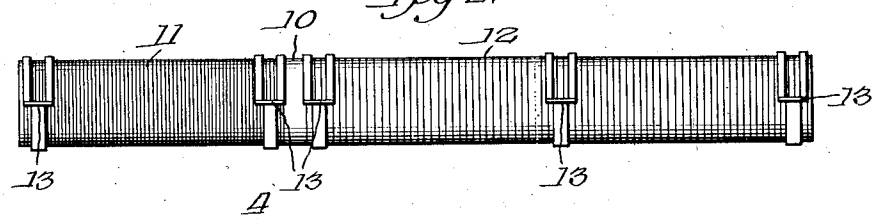


Fig. 3.

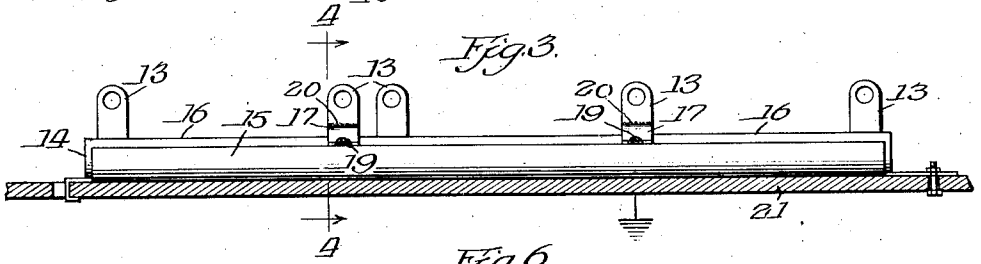


Fig 6.

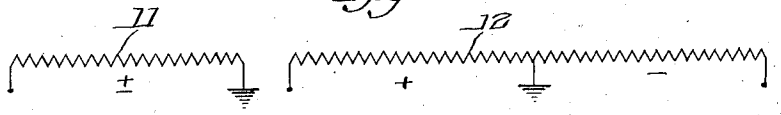


Fig 7.

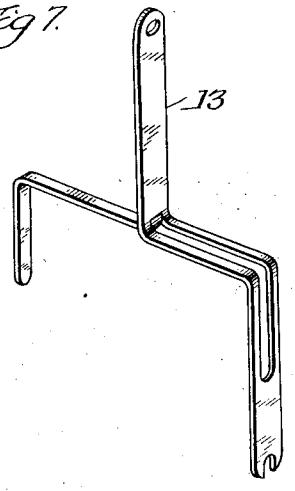


Fig 4.

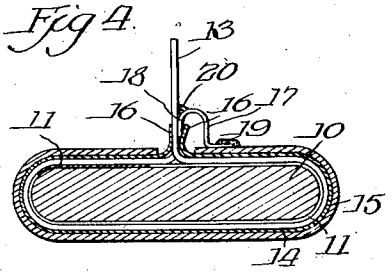
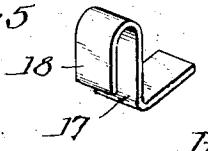


Fig 5



Witness
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UNITED STATES PATENT OFFICE

1,970,051

GROUNDED RESISTANCE UNIT

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Application April 30, 1931, Serial No. 533,933

2 Claims. (Cl. 201—63)

My invention relates to resistance devices and more particularly to a novel construction of fixed resistor whose primary purpose is to provide in one unit, both positive and negative potential relative to the potential of ground.

In the manufacture of fixed resistors adapted for use in the common radio and similar apparatus, it is frequently necessary and desirable to provide in a single unit on the chassis, a fixed resistor having a plurality of separate fixed resistances incorporated therein. By winding two or more separate lengths of wire upon a common base member, and by the use of wires of different cross sections, having a plurality of taps thereon, it is possible to provide all the resistances necessary in a given circuit in one single resistor unit.

However, the requirement of some electrical circuits necessitate the provision in the resistor of either a positive or a negative biasing potential thereacross, which by the use of resistors at present known and used in the trade, requires additional labor on the part of the mechanic engaged in chassis assembly, thus materially increasing the cost of a unit so constructed.

It is an object of my invention, to provide, in a single unit on a chassis, a plurality of separately wound, fixed resistances, wound of different sizes of wire, providing dissimilar potentials of predetermined values, and having one or more ground connections to the chassis, readily and simply effected by utilizing the protective metal housing adapted to facilitate the mounting of the device on the chassis, which usually is grounded.

By constructing a combination resistor such as contemplated, I am able to provide either a positive or a negative potential relative to "ground", or both positive and negative potentials, in each or all of the independently wound sections upon a single base, by the simple expedient of "grounding" the desired terminal clips directly to the metal housing by a simple and efficient operation.

My invention will be more readily understood by reference to the accompanying drawing, in which:

Fig. 1 is a side elevation of a wound and tapped strip constructed in accordance with my invention;

Fig. 2 is a top plan view thereof;

Fig. 3 is a side elevation of the completed unitary resistor of my invention as applied to a chassis;

Fig. 4 is a vertical sectional view of the resistor taken on the lines 4—4 of Fig. 3;

Fig. 5 is an enlarged perspective view of a ground clip such as applied to the resistor herein;

Fig. 6 is an electrical diagram of the resistor herein illustrated, and

Fig. 7 is an enlarged perspective view of the terminal clip utilized herein.

By reference to the drawing it will be seen that the device of my invention comprises a single strip of non-conducting material 10 adapted for use as a base, two sections 11, 12 of wire wound thereover, each section being independent and of dissimilar potential, and a plurality of novel terminal clips 13, best shown in Fig. 7. The clips 13 are self supporting, being bent around the resistance, to substantially interfit at the ends, and when applied to the wound base, are substantially immovable thereon.

After the wound base 10 has been provided with the taps 13, which are separated from each other a distance corresponding to the ohmetric readings of the resistance desired, rather than actual distance therebetween, the tapped base is inserted into a fibrous or non-conducting jacket 14, which is in turn inserted within the metal housing 15, and the marginal edges of the housing are then folded over to assume the cross sectional shape shown in Fig. 4, thus closing the unit against the admission of any foreign matter. As will be best shown in this figure, a portion of the marginal edges 16 of the jacket 14 are permitted to extend above the top limits of the metal housing. Thereafter the ground clip 17 is applied to the device by inserting one end 18 between the portion 16 and the terminal clip 13, thus "grounding" this particular terminal clip to the housing. Thereafter solder is dropped at the points 19 and 20, thus insuring electrical connection between the terminal clip and metal housing. If, as shown in Fig. 3, the housing is secured to a grounded chassis 21, this particular terminal clip will then be "grounded". As shown diagrammatically in Fig. 6, a single terminal clip in each section, whether at the end or between the ends thereof may be grounded in this fashion, thus providing for each independently wound section either a positive and negative potential on each side of this clip relative to the ground, or both a positive and negative potential between two clips in the same section.

Obviously the tapped resistor shown in Figs. 1 and 2 might be suitably applied directly to a chassis and grounded by some desirable means, but it is my conception that the housing shall serve the double purpose of not only a protector for the unit, and means of securing the same to the chassis readily as shown, but also to insure a higher maximum of heat radiating surface for

the resistance, thus increasing the efficiency thereof under abnormal loads.

Obviously my invention contemplates a strip having two or more independent resistances formed thereon, and is intended to include also either a noninductive type, or a combination noninductive and inductive type having independent resistance sections, the terminal clips being applied according to ohmetric readings, in the manner disclosed in my co-pending application, Serial No. 519,382, filed March 2, 1931, which issued as Patent 1,870,462, Aug. 9, 1932.

It is understood that certain modifications and variations are possible in the above described resistance unit, and I do not wish to be limited except as above stated, and in accordance with the appended claims.

I claim:

1. A resistance unit comprising a flat core of electrical insulating material, a winding of wire on said core and having high resistance to passage of an electric current, a plurality of terminals about said winding and in electrical contact therewith, said terminals comprising strips of metal having a section thereof divided longitudinally, the parts of the section so divided being separated and bent about and fastened upon said winding, the undivided section of said terminals extending away from said winding, said undivided sections of the several terminals extending in the same plane from said winding, a sheet of insulatory material about said winding and about the divided sections of said terminals and having confronting end sections extending from said windings upon each side of and substantially parallel to the extending sections of said terminals, a casing of sheet metal about said sheet of insulating material and having opposed edges confronting but slightly spaced from each other and pressing upon said sheet of insulating material and holding said end extensions thereof together and against the extending sections of said terminals, and means for grounding a selected number of said terminals, each means for grounding said terminals comprising a strip of metal having a section inserted inwardly and between an extending section of one of said terminals and said end sections of said insulating sheet material and being electrically connected to said extending section, and a section adapted to lie upon and electrically connected to said sheet metal casing.

2. A resistance unit comprising a plurality of flat cores of electrical insulating material, there being resistance material on or about each of said cores and an open space between certain of said cores, a plurality of terminals about each of said cores and in electrical contact with the resistance material thereof, a sheet of insulatory material about said cores and possessing confronting end sections extending from said resistances upon each side of and substantially parallel to the extending sections of said terminals, and a casing of sheet metal of high conductivity about a portion of said sheet of insulating material and having opposed edges confronting but slightly spaced from each other and pressing upon said sheet of insulating material and holding the uncovered end extensions thereof together, a terminal at each side of the open space being grounded to said casing and the other terminals being insulated therefrom, whereby a plurality of ground connections are provided for a plurality of resistances in a single highly conductive casing without short-circuiting all of said resistances.

JOHN L. McWEENY.