June 19, 1951 R. O. LAUNEY, JR 2,557,790

RESISTANCE STRIP

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Fig. 1

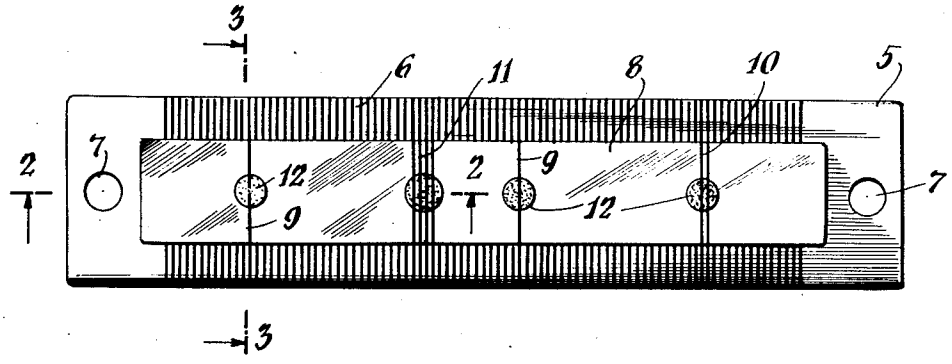


Fig. 2

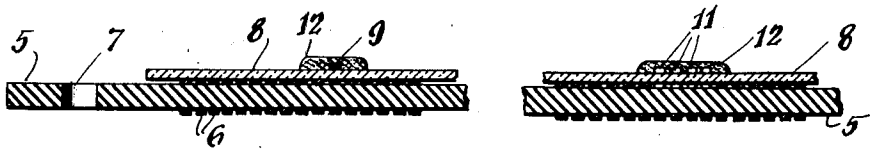


Fig. 3

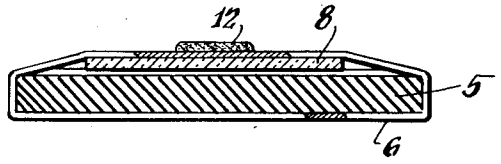
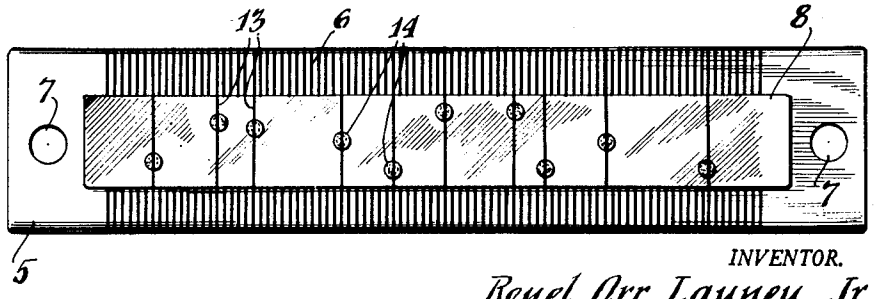


Fig. 4



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RESISTANCE STRIP

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2 Claims. (Cl. 201—63)

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This invention relates to a structurally and functionally improved design of electrical resistance strip or unit and especially aims to provide a tap structure for association with or as part of such unit.

As is well understood by those skilled in the art, considerable difficulty has been experienced in providing lead taps in connection with a resistance. The latter usually includes a body of dielectric material upon which a coil of wire is wound. This wire may have a diameter as fine as .0009". In certain instances a lead or contact is to be connected to one strand of the wire providing the resistance. In other instances, it may be connected to several strands. A number of these lead connections may be furnished throughout the length of the resistance. According to the degree of fineness of the wire used, the spacing of the convolutions of the same etc., it has been increasingly difficult to provide such connections. In fact, when a wire of very small diameter is in contemplation, it has almost been impossible commercially to provide the desired result.

By means of the present invention, a structure is furnished such that an operator may without especial skill and with substantially no difficulty, provide a lead contact or tap which will connect to either a given strand or a number of strands of the wire of the resistance strip and regardless of the fineness of the wire which is being used.

Moreover, contact or lead connections may be economically produced and will be maintained throughout the life of the unit, in that the tapped strand or strands will not be weakened in providing the desired terminal or contact.

A further object is that of furnishing a structure of this nature within which any desired number of taps or contacts may be provided without danger of adjacent contacts electrically interfering with each other.

Still another object is that of teaching a novel method by means of which the desired tapped resistance may be economically provided.

With these and other objects in mind, reference is had to the attached sheet of drawings illustrating practical embodiments of the invention and in which:

Fig. 1 is a face view of a resistance strip;

Fig. 2 is a fragmentary sectional view taken along the lines 2—2 and in the direction of the arrows as indicated in Fig. 1;

Fig. 3 is a transverse view taken along the lines 3—3 and in the direction of the arrows as indicated in Fig. 1; and

Fig. 4 is again a face view of the resistance strip and showing an arrangement of lead terminals which may be incorporated therein.

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As shown especially in Fig. 1, the resistance may be in the form of a strip 5 of suitable dielectric material upon which is wound a length of wire in the form of convolutions 6, the ends of which are conveniently coupled to terminals. The individual convolutions are spaced from each other and supported against movement with respect to the strip. The latter may have openings 7 adjacent its opposite ends through which securing elements (not shown) extend for the purpose of mounting the unit. As afore brought out, the diameter of wire 6 may be quite fine, but usually, will not be smaller than .0009". For the purpose of clarity in illustration the strip 5 has been shown as flat. As will be readily understood, it may be shaped to have any desired contour. The individual convolutions of the wire may be traversed by a movable contact member.

Now with a view to providing in such a resistance a lead tap or contact which is individual to a definite convolution or group of convolutions of the strand 6, a strip or layer 8 of dielectric material is employed. As shown, this insulating member embraces a single body portion. It will be apparent that it might include any desirable number of parts. It will be assumed that terminals or lead connections are to be associated with single, double, and a greater number of strands of coil 6 in a given resistance. To this end and as indicated at 9, the strip may be passed below individual strands embracing groups of the desired number. These, as indicated at 10, include a pair of predetermined strands and as at 11 an entire group of strands may also extend above the face of strip 8.

In this way, the desired strands are isolated from adjacent strands in a way such that they are readily accessible. Conducting material 12 is now associated with the thus isolated strands. This material may be in the form of a solder spray or other suitable substance. In any event, it impinges against the face of strip 8, completely enveloping a portion of the desired strand or strands and may form a contact of reasonable area upon the outer face of the insulating layer without interfering with convolutions adjacent to those which are selected. When so established, the contacts or taps 12 may readily receive and retain the ends of leads or conductors (not shown). The outer ends of the latter may be in turn connected to contacts or any other desired portions of an associated apparatus.

For the purpose of clearly illustrating the struc-

ture which is involved, the convolutions 6 have been shown as spaced in a somewhat exaggerated manner. Also the thickness and spacing of the parts has been exaggerated in Figs. 2 and 3 in order to emphasize the structure which is involved.

In certain instances where the resistance is of relatively small size of where a number of taps or contacts are to be connected to strands closely adjacent each other, difficulties may be experienced due to the proximity of the "tapped" strands. In order to overcome this and as shown in Fig. 4, the strands 13 which pass over the outer face of strip 8 may have their contacts 14 disposed in staggered relationship. As is obvious, spacing both length and width-wise of the strand is thus provided. This assures sufficient distance between the taps 14 so that leads or other parts may be connected, one to each of the same, without electrical interference.

Thus, among others, the several objects of the invention as specifically afore-noted are achieved. Obviously numerous changes in construction and rearranging of the parts might be resorted to without departing from the spirit of the invention as defined by the claims.

I claim:

1. A resistance including in combination a strip of di-electric material, a coil of wire wound around said strip and terminating short of the ends thereof, a second strip of di-electric material having a length greater than the wire-wound zone of said first strip, said second strip being disposed beyond one of the side faces of the first named strip to overlie most of the convolutions of the wire coil and with its ends projecting beyond the opposite ends of such coil, at least one of the wire convolutions of said coil overlying said second strip and a terminal portion defined by solder supported upon the outer face of said second strip and within which a portion of the strip-overlying convolution is embedded.

2. A resistance including in combination a strip of di-electric material, a coil of wire wound around said strip and terminating short of the ends thereof, a second strip of di-electric material having a length greater than the wire-wound zone of said first strip, said second strip being disposed beyond one of the side faces of the first named strip to overlie most of the convolutions of the wire coil and with its ends projecting beyond the opposite ends of such coil, certain of the wire convolutions of said coil overlying said second strip, convolutions intervening said overlying convolutions being disposed below said second strip, terminal portions defined by solder supported upon the outer face of second strip and within which a portion of the strip-overlying convolutions are embedded and said terminal portions being disposed upon said strip out of registry with each other.

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