

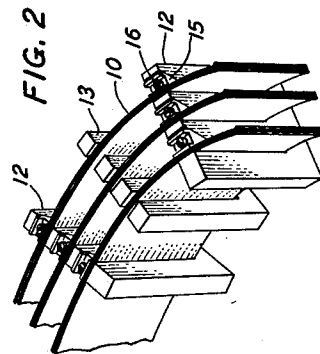
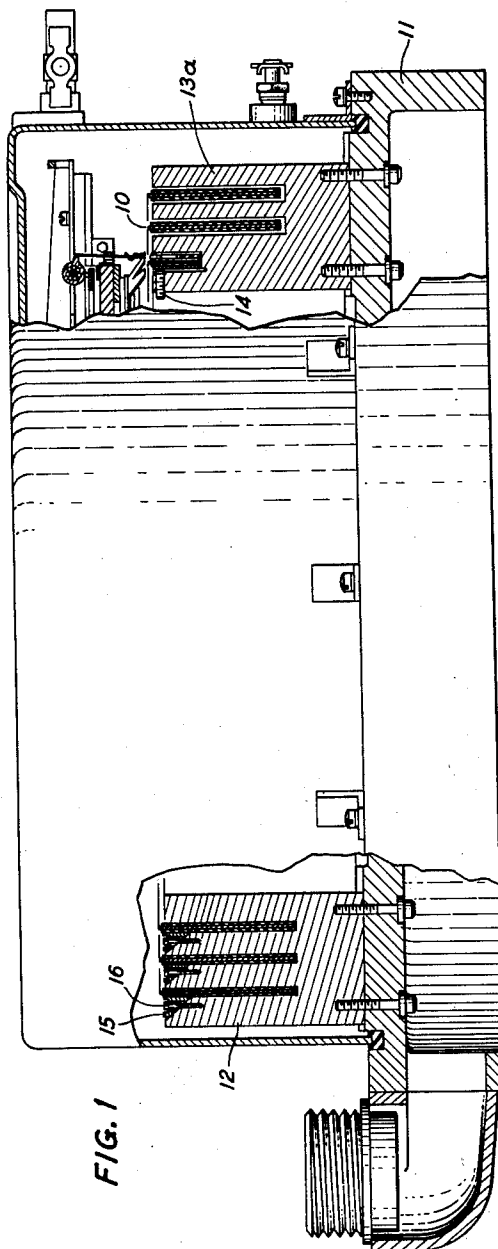
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POTENTIOMETER CARD MOUNTING MEANS

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POTENTIOMETER CARD MOUNTING MEANS

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6 Claims. (Cl. 201-48)

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This invention relates to resistors of the card type used in potentiometers and like devices, and more particularly to means for accurately mounting and orienting resistor cards in desired configurations.

In potentiometers of both the spiral and circular type used in calculating and like systems requiring a high degree of accuracy, considerable effort is made to locate a particular turn of the resistor card at a specified angular point of the spiral or circle. This has been done by making a card somewhat longer than the curve which it is to follow, laying it around a curved form and then clamping discrete points thereof to the form to fix a desired turn at the correct angular position. The portions of the card between clamped points bulge slightly from the form giving a scalloped configuration. The excess length and bulging in such devices are necessary for proper location of the discrete points, since the minimum length of card between two points is limited by the configuration of the form around which it is laid.

It is an object of this invention to obviate the necessity of making the resistor card of potentiometer and like devices of excess length, while still allowing it to be fixed at discrete points along its length.

A feature of this invention resides in resistor card supports and guides located at discrete intervals along the curve to which it is desired that the card conform.

Other and further objects and features of this invention will appear more fully and clearly from the following description of an illustrative embodiment thereof taken in connection with the appended drawing in which:

Fig. 1 is a view in elevation of a potentiometer with parts broken away to show details of the invention; and

Fig. 2 is a perspective view of a portion of the resistor card of Fig. 1 showing details of its mounting means.

The potentiometer shown in Fig. 1 is of the type disclosed in the application of William C. Tinus, Serial No. 315,756, filed October 20, 1952, to which reference is made for further details thereof. This potentiometer is of the type having a spiral resistor card and mechanism for causing a brush or brushes to follow the spiral. A straight card, a circular card or a plurality of concentric circular cards may also be supported in accordance with this invention.

The card 10 is mounted on the base 11 by means of equally spaced clamping supports 12.

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Intermediate guide members 13 similar to the supports 12, but having no clamping means or function, aid in initial orientation of the resistor card.

Certain of the intermediate members located at the end of the spiral serve as means for fixing the end of the card. One such means, designated 13a, is shown at the right in Fig. 1. The inner end of the card 10 is clamped in a slot of the member 13a by means of a set screw 14.

The supports 12 and the intermediate members 13 are provided with sufficient slots, three in the illustrative embodiment, to accommodate the number of card turns in the spiral.

The supports 12 are provided at each slot with clamping means for securing the card in the proper location. The clamping means may comprise wedges 15 operated by screws 16 threaded into the supports 12. Each wedge rides on an inclined surface formed adjacent to the top of each slot. Other suitable clamping means may also be employed.

The proper clamping points may be determined by use of reference or fiducial marks on each support 12 and corresponding marks on the resistor card. At each clamping point the reference mark on the support is at a given angular position and that on the resistor card at the turn corresponding to such angular position. The procedure is to move the card within its slot until the two points are in register and then to clamp the card in place.

The correct clamping points may also be determined electrically. This may be done by setting the brush or contactor at a given angular position, then moving the resistor card while measuring the voltage drop, and clamping the card in place when this voltage drop is that to be associated with the angle at which the brush is set.

One method of adjusting the resistor card is to temporarily tighten all of the clamps except the one to be adjusted. Then by the use of a wedge or wedges in the adjacent guide members that portion of the card may be laterally moved and fixed at the proper point. This procedure may be followed along the whole card.

The use of discrete supports and guides allows the use of a card of substantially the exact length required. No excess length is needed because the card portions between supports and guides may be either in the form of a chord or have a slight loop outward. The guide members between supports, besides being useful during ad-

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justment and clamping, aid in keeping the card in closer conformance with the desired curve.

What is claimed is:

1. In a potentiometer having a base, a spiral resistor card and a contactor adapted to follow the spiral, means for fixing said card to the base in a substantially true spiral with the turns thereof in the proper angular location with respect to the contactor, said means comprising a plurality of equally spaced supporting blocks mounted on the base at discrete intervals along said card each in alignment with a radius of the spiral, each block having substantially parallel slots perpendicular to said radius, each slot for receiving a portion of the card, and means for clamping the card to each of said supporting blocks.

2. The method of adjusting the resistance card of a variable resistor, said card having a plurality of adjacent convolutions that comprises providing a plurality of discrete card supports equally spaced along the card; a plurality of card guides intermediate each support and equally spaced along the card, ascertaining points on the card that correspond from the electric circuit viewpoint to the angular location of the supports, adjusting the card to locate each of said points exactly in the proper support, using said guide means to aid in obtaining and maintaining proper card configuration during the adjusting, and fixing the card to each support.

3. The method as set forth in claim 2 in which fiducial marks on the supports and the card are fixed in correspondence with each other.

4. The method as set forth in claim 2 in which the voltage drop along the card is measured while

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locating said point, and the card is fixed to each support at the point corresponding to the voltage drop for the angular position of that support.

5. In a variable resistor, means for supporting a spiral resistor card comprising a plurality of supports located along the card at discrete intervals, a plurality of guides located along said card at discrete intervals and intermediate the supports, the spacing of supports and guides being such that a guide is located at each end of the spiral, and means for fixing the card to each support and to the end guides.

6. A variable resistor comprising a base, a resistor card, a rotatable contactor and means for mounting the resistor card on the base in a generally arcuate configuration, so that spaced, discrete turns thereof are each located accurately at an angular position that assures correct electrical reproduction of the corresponding angular position of the contactor, said means comprising a plurality of discrete equally spaced slotted supporting blocks fixed to said base, each block aligned with a radius of the card arc and each having means for clamping the resistor card in a block slot at the required location.

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