

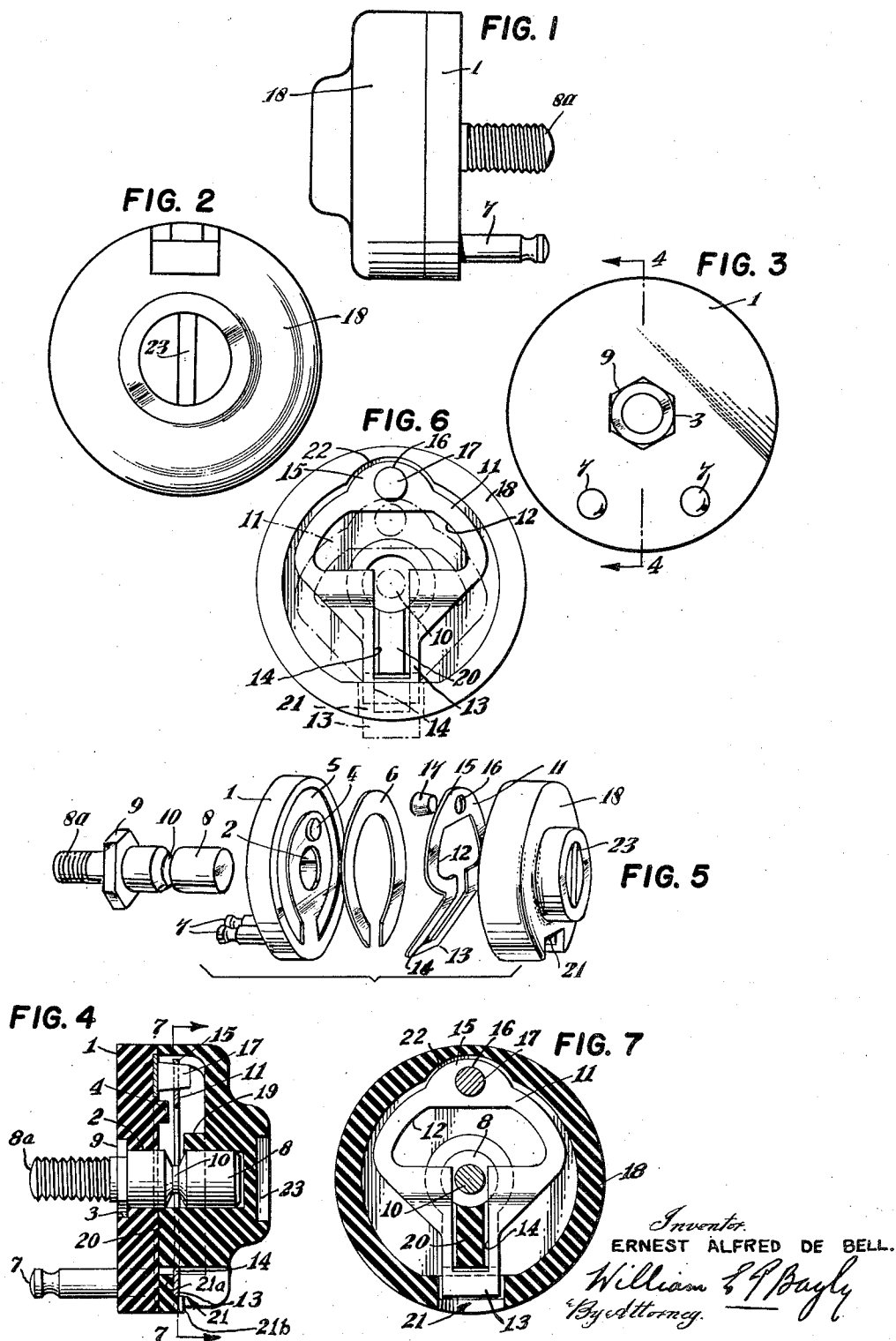
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VARIABLE RESISTORS

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VARIABLE RESISTORS

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1 Claim. (Cl. 201—55)

This invention relates to variable resistors of the kind having a base with a moulded resistive track and a brush carrier is rotatably mounted in the base to enable a brush to sweep around the resistive track.

The invention is suitable for electronic circuits and electrical apparatus, more particularly to miniature types of devices.

An object of this invention is to provide a variable resistor with a minimum number of parts which is easy to assemble and occupying a minimum amount of space.

According to this invention the variable resistor consists of a base having a resistor track on one face thereof wherein a stub shaft mounted in said base has a groove adapted to enter into sliding engagement with a resilient metal brush carrier, and an open ended cover mounted on the stub shaft is held in face to face relationship with the brush carrier thereby enabling the cover and carrier to rotate as a unit.

A feature of the invention is that the stub shaft can be used as a terminal by the brush holder having shoulders which engage with the stub shaft to provide an electrical connection between the carrier and stub shaft.

Preferably a stop means is provided to limit the rotary movement of the cover or knob in either direction to enable the maximum and minimum resistance to be attained.

The brush carrier is preferably in the form of a spring-link metal member which engages in a location slot provided in the cover or knob, and said carrier is slotted to slidably engage with a key integral with the interior of the knob.

The shaft may be provided with a circumferential groove for receiving the slot in the carrier so that when the components are assembled together, said carrier takes up the form of a bow spring, thereby pressing the brush against the face of the resistor, and also retaining the knob in the operative position.

The invention will now be described with reference to the accompanying drawings in which:

Fig. 1 is an elevation of a miniature type of variable resistor,

Fig. 2 is a plan view,

Fig. 3 is a rear view,

Fig. 4 is a sectional elevation on line 4—4 of Fig. 3,

Fig. 5 is an exploded view of the complete assembly and

Fig. 6 is a plan of an open ended cover and spring assembly and,

Figure 7 is a sectional elevation on line 7—7 of Figure 4.

Referring to the drawing:

A moulded base 1 of insulation material has a central aperture 2 terminating with a hexagonal recess 3 on the rear face (Fig. 3), an off-set projection 4 (Fig. 5) and an interrupted circular recess 5 on the other face. A resistor track 6 of compressed powdered resistor material

and a thermo-setting binder is placed in the interrupted recess 5 and terminal tags 7 are moulded in the base 1 and into electrical continuity with the respective ends of the resistor track 6.

A stub shaft 8, having flat intermediate faces 9 and a circumferential groove 10, is inserted into the central aperture 2 in such a manner that the flat faces 9 abut against the hexagonal recess 3 in the base and the threaded end 8^a of the shaft 8 projects from the rear face of the base 1 as shown in Figs. 1 and 3.

A brush carrier 11 constructed from spring metal approximately of a T-shape is perforated on a horizontal axis, denoted by numeral 12, the vertical limb 13 of said T-shaped carrier is slotted vertically as indicated by numeral 14, and said limb 13 is bow-shaped prior to assembly as shown in Fig. 5.

The brush carrier 11 is formed with a hump 15 on the periphery and is perforated at 16 to receive a carbon brush 17.

An open ended cover or knob 18 has a centre hub 19, and a key 20 extending radially from the bush of the hub 19 and a transverse slot 21 is provided in the rim of the cover 18 in line with key 20. The rim of said cover 18 is formed with a shallow recess 22 diametrically opposite to the key 20, and a screw slot 23 is provided on the outer surface to allow the resistor to be set with the help of a screwdriver when such resistor is mounted behind a panel exposing only the raised central portion of the knob 18.

The resistor is assembled in the following manner: the stub shaft 8 is inserted into the base 1 with the flats 9 and 3 abutting against each other to prevent the shaft 8 from rotating, the threaded end 8^a thereof projecting beyond the outer face of the base 1, as shown in Fig. 1. The T-shaped carrier 11 is placed inside the cover 18 by inserting the end of the vertical limb 13 through the slot 21, the key 20 coinciding with the slot 14 and the upper portion of the carrier as denoted by numeral 12 is curved outwardly as shown by the broken chain line in Fig. 6. In this position the brush carrier 11 is off-set in relation to the axis of the cover 18. The base 1 with the resistor 6 is placed face to face and in axial alignment with the open end of the cover 18 and pressed into contact with cover and the stub end of the shaft 8 is caused to pass through the horizontal perforation 12 in the carrier 11 into the hub 19 in the cover 18.

The vertical limb 13 of the carrier 11 is then pressed radially inwards by a suitable instrument, causing the vertical slot 14 therein to slide over the circumferential groove 10 in the shaft 8 until the vertical limb 13 of said carrier 11 snaps into a shallow recess 21^a provided in the bottom 21^b of the slot 21 in the cover 18, whereby the carrier 11 is rotatably connected to the shaft 8. The carrier 11 is then placed under tension causing the brush 17 carried thereby to press against the resistor track 6, and the projection 4 on the base 1 limits the rotary movement of the brush 17 around the track 6.

The illustrated construction may be modified in details. Thus, instead of having a flat abutting surface or surfaces on the shaft and base, the shaft may be moulded in the base.

I claim:

In a variable resistor the combination of a base having a central aperture, a semi-cylindrical resistance track arranged on one face of the base, a stub shaft non-rotatably mounted in said base, said stub shaft being formed with a circumferential groove, a brush carrier perforated on a horizontal and vertical axis, the vertical perforation in said carrier receiving the grooved portion of said stub shaft, a brush mounted in said carrier engaging with the resistor track, an open ended cover having on the inside

a radial key, and a transverse slot in the rim of said cover in alignment with the key, the vertical slot in said carrier slidably engaging the radial key whereby the brush carrier and the open ended cover are held in face to face relationship and the cover and carrier rotate as a single unit. 5

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