March 4, 1969 M. W. BANG 3,431,529

LINEAR MOTION POTENTIOMETER WITH PROTECTED SLIDE

Filed Oct. 12, 1967

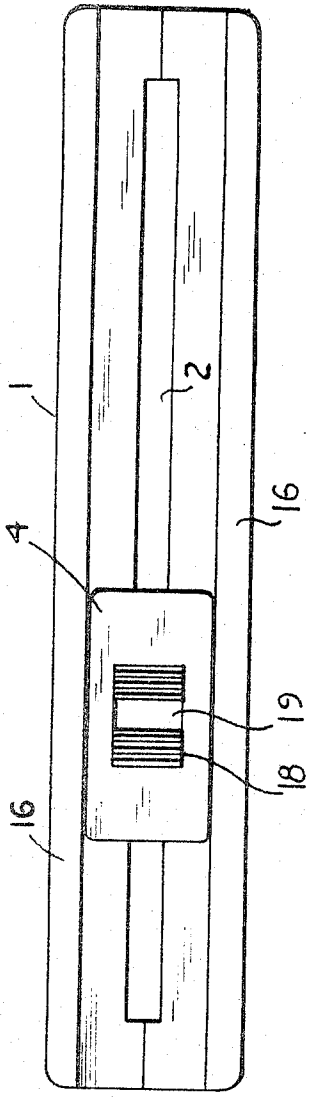


FIG. 1

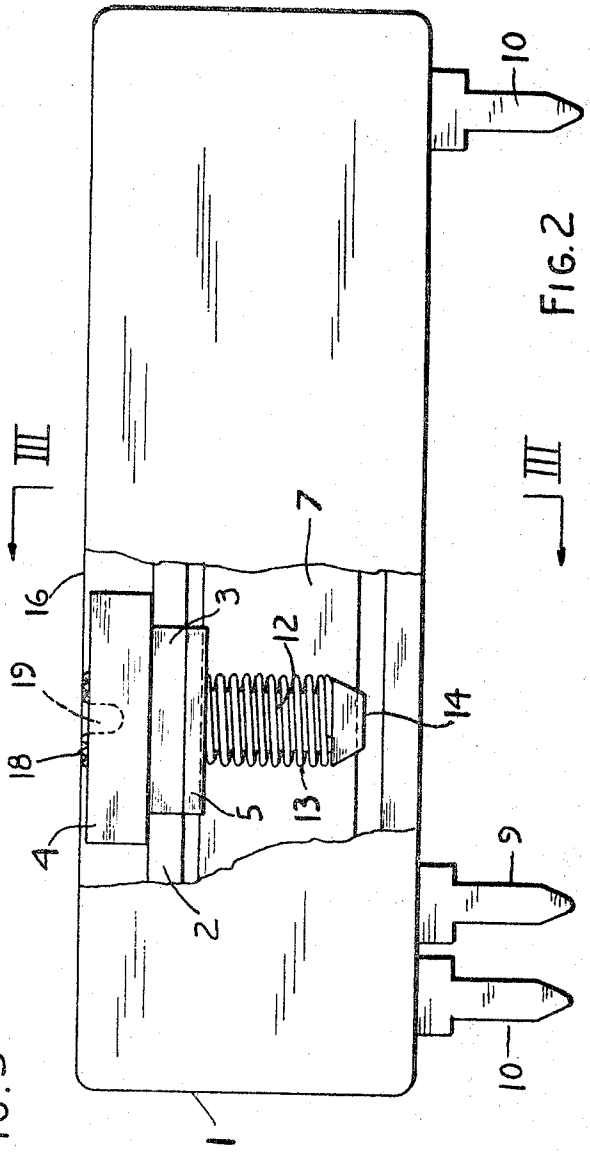


FIG. 2

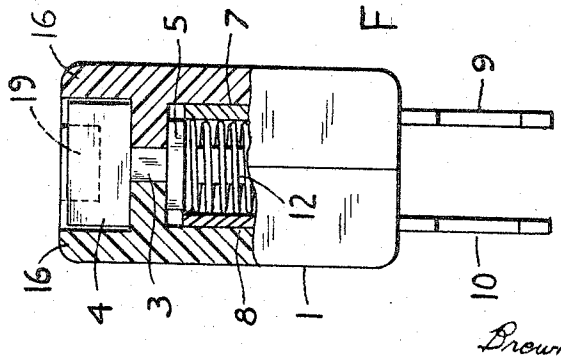


FIG. 3

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LINEAR MOTION POTENTIOMETER WITH PROTECTED SLIDE

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U.S. Cl. 338—183 2 Claims
Int. Cl. H01c 5/02, 5/06

ABSTRACT OF THE DISCLOSURE

The elongated case of a linear motion potentiometer is provided in one of its side walls with a longitudinal slot containing a slide that is movable lengthwise of the case for sliding a bridging contact along a collector and a resistance element in the case. The slotted wall of the case is provided along its opposite side edges with parallel flanges beside the slide that extend away from that wall at least as far as the slide extends in order to protect the slide from accidental actuation.

It is among the objects of this invention to provide a linear motion potentiometer with a contact-moving slide that is protected by the case from accidental movement.

In accordance with this invention, an elongated potentiometer case is provided in one wall with a longitudinal slot, in which a contact-moving slide is slidably mounted. The portion of the slide outside of the case is quite thin and is disposed between flanges extending along opposite side edges of the case. The flanges extend away from the slotted wall of the case at least as far as the slide.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which:

FIG. 1 is a front view of the potentiometer;

FIG. 2 is a side view thereof, with parts broken away; and

FIG. 3 is a cross section taken on the line III—III of FIG. 2.

Referring to FIGS. 1 to 3 of the drawings, the long rectangular case **1** of a potentiometer may be formed from any suitable material, such as a molded plastic or other rigid material. Preferably, the case is made from two molded half sections that are joined together in any suitable manner, such as by adhesive for example. The front side or top of the case is provided centrally with a slot **2** through it that extends lengthwise of the case for nearly its full length. Slidably mounted in the slot is a slide. It has a narrow central portion **3** that fits in the slot, a head **4** that slidingly engages the outer surface of the front wall at opposite sides of the slot, and laterally projecting flanges **5** that substantially engage the inner surface of that wall. Consequently, the slide cannot move inwardly or outwardly, but can move lengthwise of the case.

A metal collector strip **7** and an electrical resistor strip **8** are mounted inside the case along its opposite sides. The collector strip is provided with an integral terminal **9** that extends through the back of the case, while each end of the resistor strip is connected to a metal terminal **10** likewise extending through the back. Integral with the slide inside the case there is a post **12** projecting into the space between the two flat strips. Mounted on this post is a flexible metal coil **13** that forms a contact member slidingly engaging both of the strips. The width or thickness of the post transversely of the housing is considerably less than the inside diameter of the coil so that the coil will be spaced from opposite sides of the post and can be compressed between the two strips that it engages. The coil may be retained on the post by providing the inner end of the post with a head **14**. As the slide is moved along the slot, each of the two strips that the wire coil presses against is engaged at a multiplicity of points by the coil so that good electrical contact is always afforded.

It is a feature of this invention that the potentiometer is made in such a way that there is practically no danger of the slide being moved accidentally by something brushing against the potentiometer. Accordingly, the head **4** of the slide is not provided with the usual projecting knob for moving it, but is a substantially flat, thin, rectangular block. Also, the case is provided with a pair of parallel integral flanges **16** extending along the opposite side edges of its slotted wall. These flanges, which are beside the slide head and close to it, extend away from that wall at least as far as the slide projects from the slot; that is, the depth of the flanges is at least as great as the thickness of the exposed portion of the slide so that the slide does not project beyond the flanges. The result is that something brushing against the potentiometer at the slotted side of the case is almost certain to be prevented by flanges **16** from engaging the sunken slide in such a way as to move it. It should be borne in mind that in practice the potentiometer is less than two inches long and the distance between the flanges is only about $\frac{3}{16}$ inch, so that unless something is deliberately inserted between the flanges to move the slide, it will not be moved.

To facilitate moving the slide when that is desired, the outer surface of its head may be provided with knurls **18** and also with a central transverse slot **19** for receiving the tip of a small screwdriver or other implement by which it can be moved.

According to the provisions of the patent statutes, I have explained the principle of my invention and have illustrated and described what I now consider to represent its best embodiment.

I claim:

1. A linear motion potentiometer comprising an elongated case provided in one of its side walls with a central longitudinal slot therethrough, spaced parallel resistor and collector strips mounted in the case and extending lengthwise thereof, terminals connected to the strips and extending out of the case, a bridging contact in the case in sliding engagement with both strips, a mutually operable slide disposed in said slot and movable lengthwise thereof only, said slide having a head outside of the case projecting laterally in opposite directions from said slot and slidable along the outer surface of said slotted wall of the case, and means connecting the slide with said contact for moving the contact lengthwise of the strips, said slotted wall being provided along its opposite side edges with parallel flanges beside said slide head extending away from said wall at least as far as the slide extends, whereby to protect the slide from accidental actuation.

2. A linear motion potentiometer according to claim **1**, in which said slide head is a rectangular block and the outer face of the head is provided with a plurality of knurls and a transverse slot to facilitate intentional movement of the slide.

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U.S. Cl. X.R.
338—202, 194, 199

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,431,529 March 4, 1969

Mogens W. Bang

It is certified that error appears in the above identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, line 44, "mutually" should read -- manually --.

Signed and sealed this 24th day of March 1970.

(SEAL)
Attest:

Edward M. Fletcher, Jr.
Attesting Officer

WILLIAM E. SCHUYLER, JR.
Commissioner of Patents