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ELECTRICAL CONTROL MOUNTING DEVICE

Filed June 21, 1968

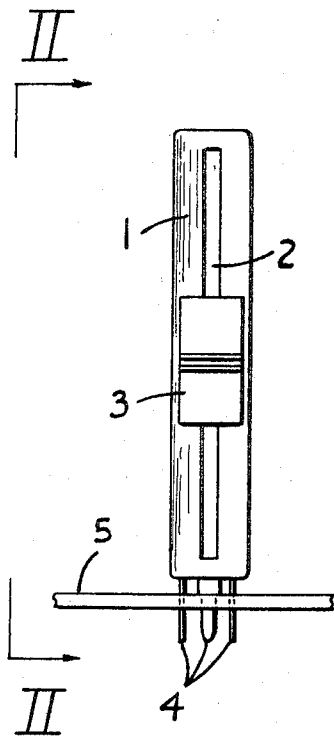


FIG. 1

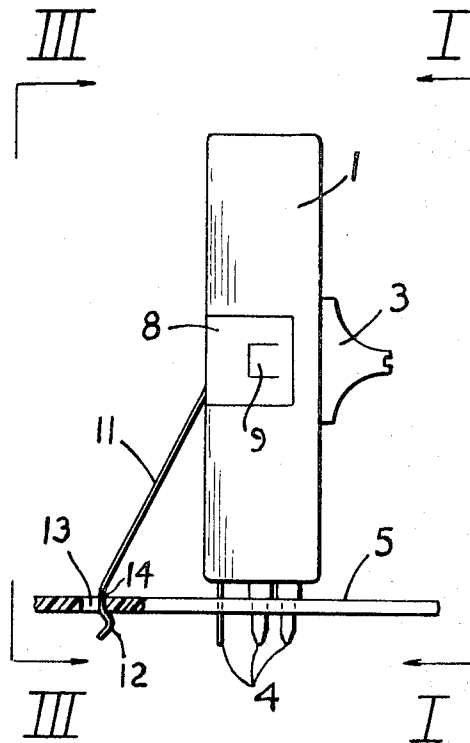


FIG. 2

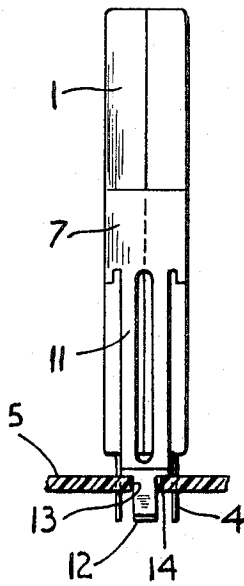


FIG. 3

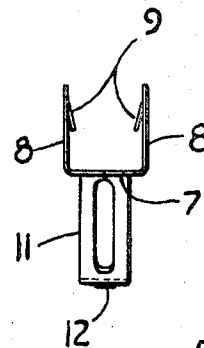


FIG. 4

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ELECTRICAL CONTROL MOUNTING DEVICE
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3 Claims

ABSTRACT OF THE DISCLOSURE

A U-shape spring clip, for clamping onto an electrical control mounted on a printed circuit board, has a back and forwardly extending sides and an open front and open ends. A leg is joined at one end to the clip and extends from it and also lengthwise of it. The free end of the leg has a foot formed for insertion in a hole in the circuit board to help hold the control on the board.

Electrical controls, such as rheostats, potentiometers and switches, are often provided with terminals that can be plugged into the openings in printed circuit boards. Usually, the connection thus established between the control and the board is the only one that holds the control in place, but there are situations in which it is desirable to have additional means for connecting a control to a circuit board, especially when the control is long and extends away from the board a considerable distance so that it is inclined to wobble.

It is among the objects of this invention to provide an electrical control mounting device which is simple and inexpensive in construction, which can be quickly clamped onto a control, and which can be quickly and easily attached to a circuit board to help hold the control thereon.

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

FIG. 1 is a front view of an electrical control mounted on a printed circuit board;

FIG. 2 is a side view thereof;

FIG. 3 is a rear view; and

FIG. 4 is a top or end view of the mounting device alone.

Referring to the drawings, the electrical control may be, for example, a potentiometer having a long rectangular vertical housing 1 provided in its front with a longitudinal slot 2, in which a slide 3 is mounted. As is well known, the portion of the slide inside the housing carries a contact that engages a collector strip and a resistance element. By moving the slide up and down the slot, the resistance of the potentiometer can be varied. Projecting from the lower end of the housing are electric terminals 4 that are inserted in small openings in a printed circuit board 5 for engagement with the usual electrical conductors thereon.

It is a feature of this invention that an additional mounting device is provided for holding the potentiometer in place on the circuit board. This device includes a U-shape spring clip that is clamped onto the central portion of the potentiometer housing. The clip, made from a strip of thin spring metal, is bent to provide it with a flat back 7 and forwardly extending sides 8. The back of the clip is flat against the back of the housing, and the sides of the clip press flat against the housing sides. To help hold the clip in position and also to prevent it from increasing the size of the central portion of the housing, the back and sides of the housing may be recessed to a depth equal to the thickness of the metal strip from which the clip is made. The clip then will fit against the housing, with its outer surfaces flush with the adjoining surfaces of the housing.

It also is desirable to form a positive lock between the clip and the housing. As shown in FIG. 4, this can be done

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by striking a rearwardly projecting tongue 9 inwardly out of each side of the clip, so that in their unstressed positions they will converge toward the back of the clip. The opposite sides of the housing are provided with depressions for receiving these tongues. The clip is forced onto the housing from its back, which causes the tongues to be sprung out into the sides of the clip until they reach the housing depressions, whereupon the tongues snap inwardly into those depressions and thereby prevent the clip from being pulled rearwardly off the housing. If the housing is formed from two longitudinal half sections meeting in a vertical plane extending through the front and back of the housing, the clip can be used for holding the two sections together.

Extending outwardly and downwardly away from the clip is a bracing leg 11. Although this leg could extend from either side of the clip, it is more suitable to have it extend away from the back of the clip. Preferably, the leg is inclined downwardly away from the clip and has its upper end integrally connected to the lower end of the back 7. The lower or free end of the leg has a narrow foot 12 that extends down through a hole 13 in the printed circuit board. The portions of the leg at opposite sides of the upper end of this foot form downwardly facing shoulders 14 that rest on top of the board to support the leg. To anchor the lower end of the leg in the board, the portion of its foot beneath the board is provided with a reverse bend that hooks under the lower edge of the hole to prevent the foot from being pulled out of it. The leg and foot have some spring in them. It will be seen that this leg helps to hold the potentiometer perpendicular to the circuit board and also forms an inclined brace that helps steady the potentiometer.

This mounting device is very inexpensive and can be quickly applied to an electrical control by merely pressing it on. It is connected to the circuit board at the same time that the control is plugged into the board.

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. However, I desire to have it understood that the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. An electrical control mounting device comprising a U-shape spring clip for clamping onto an electrical control disposed on a printed circuit board, the clip having a back and forwardly extending sides and an open front and open ends, and a single inclined leg joined at one end to said clip and extending away from it and lengthwise of it, the opposite end of the leg having a foot formed for insertion in a hole in the circuit board, the foot being narrower than the adjoining portion of the leg to provide laterally extending shoulders for engaging one side of the circuit board, and the foot being bent to hook over the other side of the board.

2. The combination with an electrical control having depressions in opposite flat sides, of a mounting device comprising a U-shape spring clip having a back and forwardly extending substantially parallel flat sides clamped onto said control, the clip sides being provided with inwardly and rearwardly inclined spring tongues projecting into said depressions, and an inclined leg joined at one end to the back of the clip and extending rearwardly away from it and along the control to space the free end of the leg from the control, said free end of the leg including a hook-like foot narrower than the adjoining portion of the leg to provide shoulders for engaging one side of the circuit board when the foot is inserted in a hole in the board.

3. An electrical assembly comprising a printed circuit board provided with terminal holes, an electrical compo-

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nent with terminals inserted in said holes and with depressions in its opposite sides, a U-shape spring clip spaced from said board and clamped onto said component, the clip sides being provided with inwardly and rearwardly inclined spring tongues projecting into said depressions, and a leg joined at one end to said clip and extending toward said board, the leg being inclined away from the clip, and the board being provided with an anchor hole spaced away from said terminal holes and receiving the free end portion of said leg, said free end portion including a hook-like foot narrower than the adjoining portion of the leg to provide shoulders engaging the side of the circuit board nearest the clip.

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