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 [31] **47285/67**

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[54] **SLIDING ELECTRICAL CONTACT**
9 Claims, 6 Drawing Figs.

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339/217, 339/278
 [51] Int. Cl..... **H01r 13/26**
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176, 258, 278, 217

ABSTRACT: A sliding electrical contact having a contact button on an arm in which transfer of material from the arm to the button by a wiping action during operation is prevented by recessing or cutting away the part of the arm from which wiping occurs or lifting it clear of the wiping surface by means of projections on the arm.



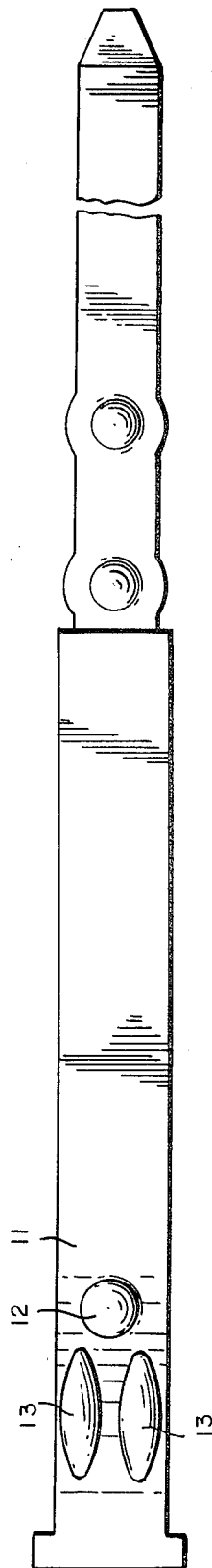
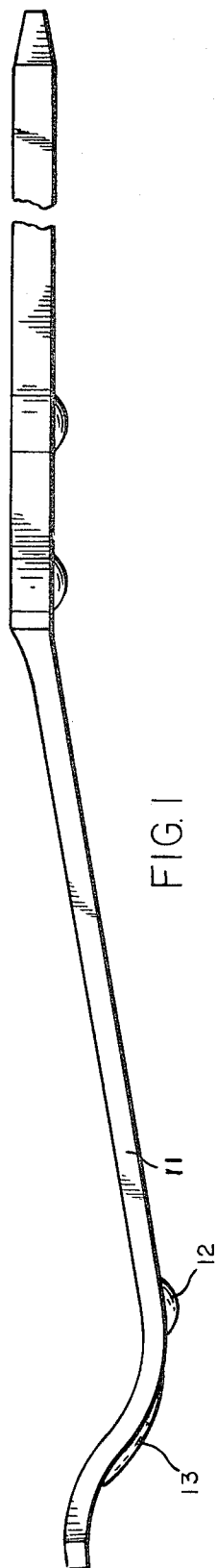


FIG. 3

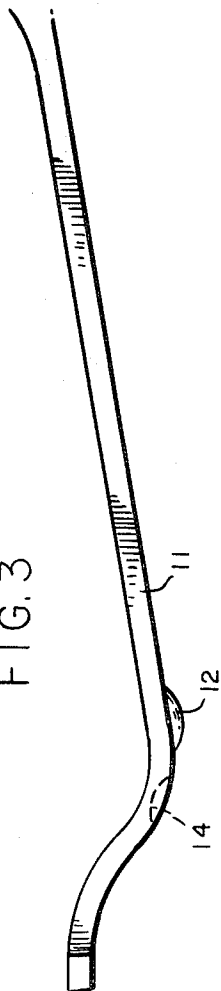


FIG. 4

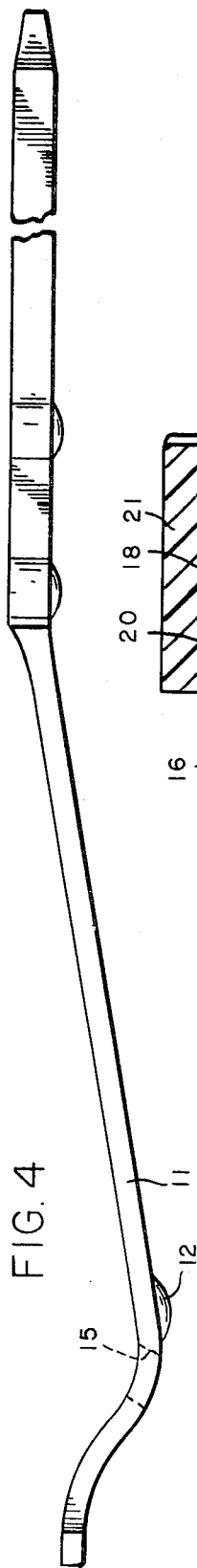


FIG. 6

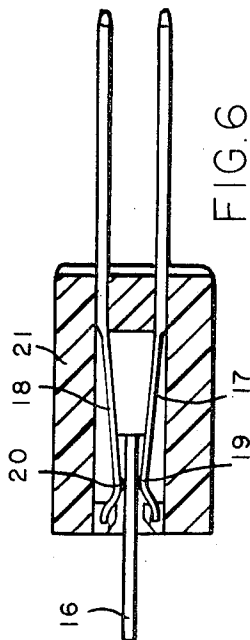
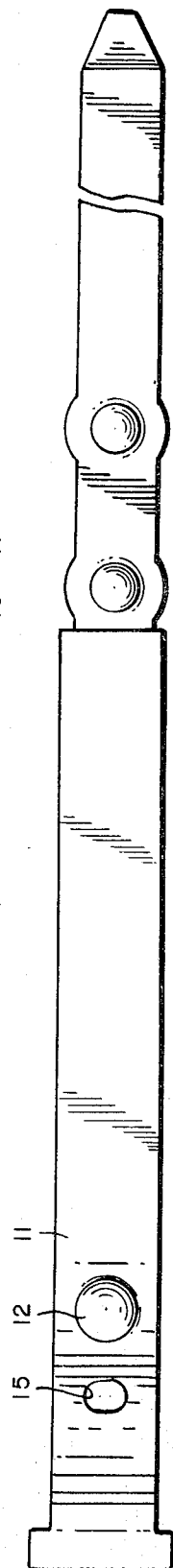


FIG. 5



SLIDING ELECTRICAL CONTACT

This invention relates to an electrical contact which slides over a surface in order to complete or interrupt an electric circuit. In particular the invention is concerned with a contact button carried on an arm. In one application of the invention a number of pairs of arms carrying contact buttons are mounted in a connector for engagement with a printed circuit board inserted in the connector, the board being pushed between the contacts of each pair of arms so that they engage opposite sides of the board.

When relative sliding movement takes place between such a button and a surface, the material forming the arm tends to be transferred onto the button by a wiping action. Any material transferred in this way tends to have a deleterious effect upon the electrical properties of the contact button.

It is an object of the present invention to reduce such transfer of material onto a contact button.

With this object in view, there is provided according to the present invention a sliding electrical contact comprising an arm carrying a contact button and having means for reducing transfer of the material forming the arm onto the button during sliding of the contact on a surface comprising means for preventing contact during sliding between the surface and at least part of the arm which is close to the contact button and in line with it along the line of sliding.

Advantageously the means for preventing contact comprise a projection carried on the arm close to the said part of the arm.

Conveniently two projections are carried on the arm close to the said part of the arm, one on each side of the line of sliding.

Alternatively the means for preventing contact may comprise an indentation in the said part of the arm or a hole through the said part of the arm.

Embodiments of the invention will now be described by way of example with reference to the accompanying drawings, in which:

FIG. 1 is a side elevational view of a contact arm,

FIG. 2 is a bottom plan view of the arm shown in FIG. 1,

FIG. 3 is a side elevational view of another embodiment of contact arm,

FIG. 4 is a side elevational view of yet another embodiment of contact arm,

FIG. 5 is a bottom plan view of the arm shown in FIG. 4, and

FIG. 6 is a cross section of a connector body incorporating a pair of sliding contacts in accordance with the invention.

Referring to the drawings and in particular to FIGS. 1 and 2, there is shown a sliding electrical contact comprising an arm 11. The arm 11 is electroplated with tin. The arm 11 carries a gold contact button 12 secured to it by welding, riveting, or plating. The arm 11 is intended to be slid over a surface in use to cause the contact button 12 to complete or interrupt an electric circuit. The arm 11 carries means for reducing transfer of the tin onto the button during sliding. The means for reducing transfer comprises means for preventing contact between the surface over which the arm slides and at least part of the arm which is close to the contact button and in line with it along the line of sliding (i.e. longitudinally of the arm 11 in the embodiments illustrated).

In the embodiment illustrated in FIGS. 1 and 2 the means for preventing contact between the arm 11 and the surface over which it slides is constituted by a pair of projections 13 carried on the arm 11, one on each side of the line of sliding.

In the embodiment illustrated in FIG. 3, the means for preventing contact comprises an indentation 14 in the arm 11, the indentation 14 being longitudinally aligned with the contact button 12.

In the embodiment shown in FIGS. 4 and 5 the means for preventing contact comprises a hole 15 bored through the arm 11 and longitudinally aligned with the contact button 12.

In use, the arm 11 is slid longitudinally over a surface to cause the contact button 12 to complete or interrupt an electric circuit. By virtue of the projections 13, indentation 14, or hole 15, part of the arm 11 which is close to the contact button 12 and in line with it along the line of sliding is prevented from touching the surface over which sliding is taking place. Transfer of tin from the arm 11 onto the contact button 12 is therefore reduced. The dimensions of the projections 13, indentation 14, or hole 15 should be such as to protect the majority of the contact button 12 from having tin transferred on to it. Alternatively the dimensions should be such as to protect the entire contact button 12.

FIG. 6 shows a connector for making connections to a printed circuit board 16. Sliding contacts 17 and 18 with contact buttons 19 and 20 are mounted in a connector body 21 and form one of several pairs of contacts each of which embraces the edge of the board 16 when the connector is pushed onto the board. The contacts 17 and 18 of each pair slide over opposite faces of the board until their contact buttons 19 and 20 make the required connections. Connecting leads are attached to the free ends of the contacts.

I claim:

1. A sliding electric contact comprising an arm carrying a contact button and having means for reducing transfer of the material forming the surface of said arm onto the surface of said button during sliding of the contact on a slidable surface comprising means for substantially preventing contact during sliding between that portion of said slidable surface which is aligned with said contact button along the line of sliding and any surface on said arm other than that of said contact button.

2. A sliding electrical contact as claimed in claim 1, wherein the means for substantially preventing contact comprise an indentation in said arm, said indentation being positioned in alignment with said contact button along said line of sliding.

3. A sliding electrical contact as claimed in claim 1, wherein the means for preventing contact comprise a hole through said arm, said hole being positioned in alignment with said contact button along said line of sliding.

4. A sliding electrical contact as claimed in claim 1, wherein the means for substantially preventing contact comprise a projection carried on said arm and positioned out of alignment with said contact button along said line of sliding.

5. A sliding electrical contact as claimed in claim 4, wherein two projections are carried on said arm, each positioned out of alignment with said contact button along said line of sliding, one on each side of the line of sliding of said portion of said slidable surface.

6. A sliding electrical contact as claimed in claim 1 wherein the material forming the surface of said arm is different from the material forming the surface of said button.

7. A sliding electrical contact as claimed in claim 6 wherein the surface of said button is a noble metal and the surface of said arm is other than a noble metal.

8. A sliding contact in accordance with claim 7 wherein the surface of said button is gold and the surface of said arm is tin.

9. In an electrical connector having a sliding contact comprising an arm and a contact button on said arm, the material on at least the surface of said contact button being different from the material on at least the surface of said arm, and a contact surface cooperating with said sliding contact, the improvement comprising means for substantially preventing contact during sliding between that portion of the said contact surface which is aligned with said contact button along the line of sliding and any surface on said arm other than that of said contact button, whereby transfer of material from the surface of said arm to the surface of said button is reduced.