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C. E. GILBERT
ELECTRICAL CONTACT
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Fig. 1

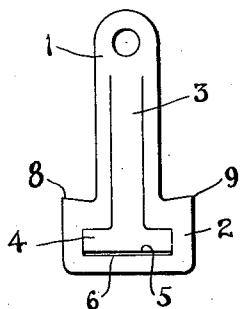


Fig. 2

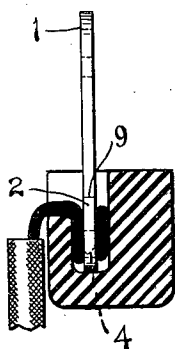


Fig. 3

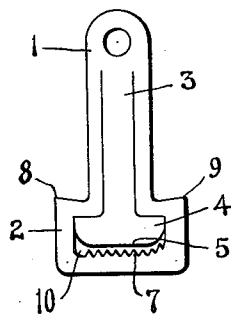


Fig. 4

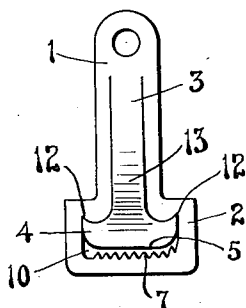


Fig. 5

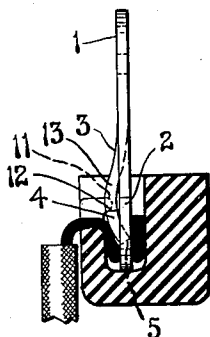


Fig. 6

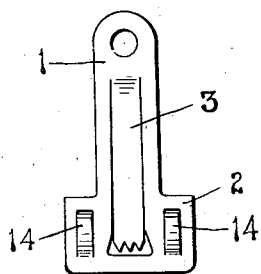
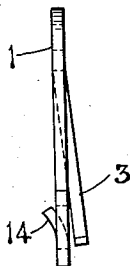


Fig. 7



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ELECTRICAL CONTACT

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5 Claims. (Cl. 173-361)

This invention relates to a new and useful improvement in electrical contact elements for electrical connectors such as plugs, sockets, and the like, or other electrical devices.

The contact elements in common use are ordinarily attached to the connector body by rivets, bolts or other rigid attaching means. Furthermore, they are usually provided with binding screws or other equivalent devices by means of which the wires are attached after the insulation has been stripped therefrom.

This invention provides a contact element which may be assembled with the connector body simply by inserting it in a suitably shaped recess thus dispensing with all rivets, bolts, or other fastenings, which although devoid of bindings, screws, or other wire connecting means requiring the use of tools can make and maintain perfect electrical contact with a wire even through the insulation thereof, and which may be manufactured and assembled with the connector with great ease, speed and economy from a single piece of conducting material.

The nature of the invention will be clearly understood by reference to the drawing, of which

Figure 1 is a front view of one form of contact element;

Fig. 2 is a side view of the same sealed in a recess of a connector;

Fig. 3 is a front view of a modified form of the contact element of Fig. 1;

Fig. 4 is a front view of another form of contact element;

Fig. 5 is a side view of the element of Fig. 4 in position within a suitable recess of a connector body;

Fig. 6 is a front view of still another form of the contact element; and

Fig. 7 is a side view of the element of Fig. 6.

The element shown in Fig. 1 is made of any suitable conducting material and consists of a blade 1, the term blade being used herein in its broadest sense as designating that part of the contact element of whatever shape designed to connect with some other electrical device, a base portion 2 preferably integral with the blade; a tongue 3 terminating in a head 4. Immediately below the free edge 5 of head 4 a slight clearance is provided to accommodate the electric wire, and the opposing edge 6 may be plain as shown in Fig. 1 or provided with serrations 7 as shown in Fig. 3. Also the clearance may be increased in one portion in a manner similar to that shown at 10 in Fig. 3 to facilitate the insertion of the wire as will be explained. If desired the upper corner

of base 2 may be extended somewhat into two points 8 and 9 which will insure retention in a soft rubber connector.

To attach the connector shown in Fig. 1 to an electric wire the tongue 3 is flexed slightly and the wire from which the insulation has been removed inserted between edges 5 and 6, then head 4 is pressed into line again with the base 2 with the result that the wire will be securely gripped between the two edges, that is to say, the contact is completed before the element is inserted in the connector.

The contact element shown in Fig. 3 is designed for connection to a wire without removing the insulation therefrom. For this reason the serrated edge 7 is provided which insures that when the head is pressed back into line with the base 2, as above described, its free edge 5 will force the insulation against the serrations 7, the insulation will be pierced and electrical contact with the conductor established. To facilitate the connection of the wire the clearance between edges 5 and 7 may be enlarged in one portion sufficiently so that the insulated wire will slip readily there-through as shown at 10 in Fig. 3. After the wire has been inserted through this enlarged portion it may be pushed sideways between edge 5 and teeth 7 and the connection completed as described above.

The third type of contact element is shown in Figs. 4 and 5. This differs from the contacts of Fig. 3 in that tongue 3 is bent somewhat out of the general plane of the element as shown at 13 so that even when the lower edge of the head 4 lies directly above edge 7 the upper edge and particularly the corners 12 thereof will also project slightly. These corners provide a means whereby the element may be positively retained in a suitably shaped connector body.

Still another form of contact element is shown in Figs. 6 and 7. In this the tongue 3 resembles generally the tongue shown in Fig. 1 but this contact is also provided with separate tongues 14 which are bent slightly out from the general plane of head 4 and serve as a means for retaining the contact element in a suitably shaped recess in the same manner as corners 12 of the contact element shown in Fig. 4.

In all of these contact elements it will be noted that they are extremely rigid since they may be made from single pieces of metal and the outer margins remain unbroken. Also in each instance the wire may be fully connected before the element is applied to the connector, a great convenience and distinct improvement over those

types of contact element which depend upon the connector body to make and maintain electrical contact. Also these contact elements may be manufactured by the simplest and most inexpensive sort of stamping methods and may be assembled in the connector with electrical contact already completed by simply pushing them into a suitable recess. All screws, rivets and other such means both for attaching the wire to the contact element and for mounting the element are dispensed with. Consequently no tools are required for either assembly and the most inexperienced person can perform them properly with ease. The contact elements described may be used not only in rigid connector bodies such as those molded from "Bakelite", for example, but also in soft rubber connectors. In the latter case they may, if desired, be applied to connectors having recesses without shoulders, the elasticity of material causing the walls of the recess to mold themselves around the retaining lugs and base providing in effect the shoulders referred to which will prevent the element from slipping out accidentally.

25 I claim:

1. An electric contact element consisting of a blade terminating at one end in a head of greater width than said blade, the edges of said head adjacent said blade forming an angle of less than 90 degrees with the longitudinal axis of said blade, a flexible tongue supported by said blade the free end of which projects into an aperture in said head so as to provide a clearance, between the edge of said free end of said tongue and one edge of said aperture, of less width than the diameter of an electrical conductor.

2. A contact element for an electrical connector consisting of a flat conducting blade provided with a longitudinal opening, a resilient tongue registering with said opening and rigidly attached at one end to said blade, the free end of said tongue lying in the corresponding end of said opening so as to provide a clearance, between an edge of said free end of said tongue and one edge only of the corresponding end of said opening, of less width than the diameter of an

electrical conductor but to otherwise substantially close said end of said opening.

3. A contact element for an electrical connector consisting of a flat conducting blade provided with a longitudinal opening, a resilient tongue registering with said opening and rigidly attached at one end to said blade, the free end of said tongue lying in the corresponding end of said opening so as to provide a clearance, between the edge of said free end of said tongue and one edge only of the corresponding end of said opening, of less width than the diameter of an electrical conductor but to otherwise substantially close said end of said opening, said edge of said opening being provided with serrations.

4. A contact element for an electrical connector consisting of a flat conducting blade provided with a longitudinal opening, a resilient tongue registering with said opening and rigidly attached at one end to said blade, the free end of said tongue lying in the corresponding end of said opening so as to provide a clearance, between an edge of said free end of said tongue and one edge only of the corresponding end of said opening, of less width than the diameter of an electrical conductor but to otherwise substantially close said end of said opening, said free end of said tongue being provided with serrations opposed to said edge of said opening.

5. A contact element for an electrical connector consisting of a flat conducting blade provided with a longitudinal opening, a resilient tongue registering with said opening and rigidly attached at one end to said blade, the free end of said tongue lying in the corresponding end of said opening so as to provide a clearance, between the edge of said free end of said tongue and one edge only of the corresponding end of said opening, of less width than the diameter of an electrical conductor but to otherwise substantially close said end of said opening, said element also having a portion adjacent said end of said opening extending outwardly from the general plane of the blade and presenting a sharp angular edge towards the other end of said blade.

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