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KARL-FRIEDRICH SCHMITT ET AL

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ELECTRICAL PLUG

Filed Jan. 16, 1967

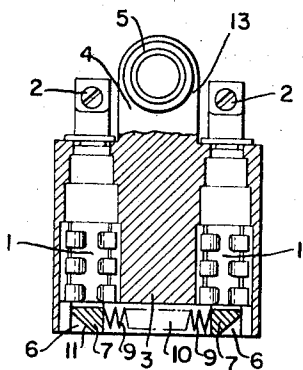


FIG. 1.

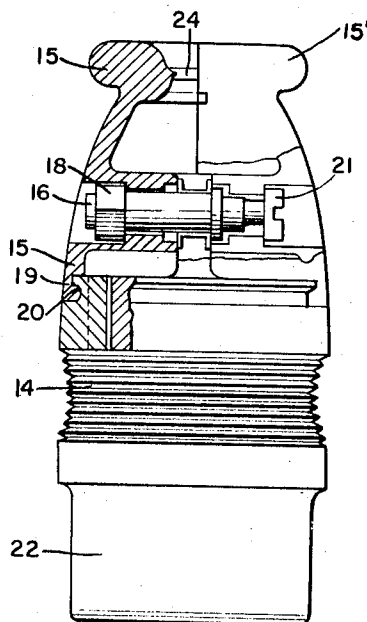


FIG. 2.

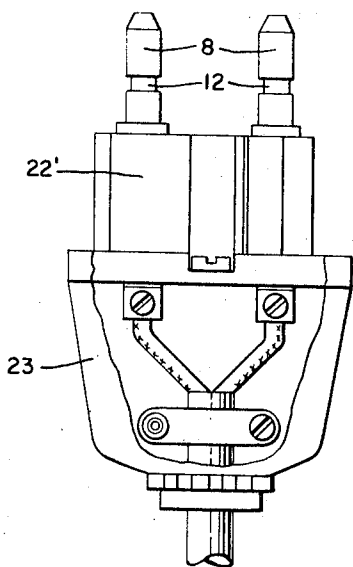


FIG. 3.

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ELECTRICAL PLUG

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10 Claims

ABSTRACT OF THE DISCLOSURE

An electrical plug made from a hollow housing, a body member within the housing, and two half-shell members attached to one end of the housing. The body member has a projection extending from one end thereof between the half-shell members with a transverse alignment bore in the projection. Each half-shell member has a corresponding alignment bore, and the three parts are secured together by a bolt passing through the three alignment bores. The half-shell members are aligned with respect to the housing by means of beads on the interior surface of the half-shells which engage a recess in the exterior surface of the housing.

Background of the invention

The invention relates to electrical plugs consisting of an insulating body containing electrical sockets or prongs, a housing surrounding the insulating body, and two half-shells attached to one end of the housing to receive electrical conductors.

Connector sockets are known whose insulating bodies are constructed of two identical halves. These halves contain recesses in which the sockets, together with their connecting leads, are disposed. Both halves of the insulating body are held together by means of a screw and a nut.

These prior art connector sockets, however, do not always permit safe installation of the connecting leads, since the sockets sometimes change their position while the two halves are being placed together.

It is the object of the present invention to provide an electrical plug of the above-noted type which guarantees safe installation, and which furthermore provides a safe contact even in very dirty surroundings.

Summary of the invention

The above-noted object of the invention is achieved by providing a projection on the insulating body which extends between the two half-shells, with a transverse alignment bore in the projection and a pair of matching transverse alignment bores in the two half-shell members, and beads on the inner surface of the two half-shell members to engage a recess on the outer surface of the housing. The assembly is held together by a bolt passing through the three transverse alignment bores.

In a preferred embodiment of the present invention, in which socket contacts are contained within the insulating body, a coaxial guide channel is provided in front of each contact socket, and a pair of spring loaded slides close the front of the sockets to prevent dirt from entering. The front surface of each slide is beveled so that the slide will be pushed aside when prongs are inserted into the sockets.

Brief description of the drawings

FIGURE 1 is a plan view of one body member of the invention in partial cross section.

FIGURE 2 is a plan view of the body member of

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FIGURE 1 mounted within a housing between two half-shell members in partial cross section.

FIGURE 3 is a plan view of a second electrical plug for use in combination with the plug shown in FIGURE 2.

Description of the preferred embodiment

Referring to FIGURE 1, contact sockets 1 are self-cleaning multiple safety contacts with independently flexible individual contacts, and are floatingly connected by means of screws 2 within an insulating body 3. The insulating body contains, on the side toward the connecting lead, a projection 4 with a transverse alignment bore 5. A coaxial guide channel 6, which in its rest position is closed by slides 7, is disposed in front of the contact sockets. Slides 7 prevent dirt from entering the contact sockets. During operation, the slides 7 are pushed by the plug prongs 8 (FIGURE 3) under pressure of the springs 9 into a transverse channel 10. The displacement of slides 7 is facilitated by the beveled top surface 11 of the slides. When the plug prongs 8 are inserted, the slides come to rest against indentations 12 in the plug prongs and thus provide a mechanical safety lock, which can be manually disengaged by applying sufficient withdrawal pressure to the prongs.

The above-noted embodiment is assembled as follows:

First, the essentially cylindrical socket insert 13 (FIGURE 1) is inserted from the rear into a hollow housing 14 (FIGURE 2). There, socket insert 13 rests against a frontal, inwardly directed collar (not shown in the drawings). Then, the upper half-shell 15, into whose bore 16 a hollow rivet 17 with a nut 18 attached thereto had previously been attached, is placed with its bead 19 in the recess 20 of the housing. Subsequently, the lower half-shell 15', which is identical to the upper half-shell 15, is also placed with its bead in the recess of the housing. Finally, the machine screw 21 is placed through the bore of the lower half-shell 15', through the bore 5 and through the bore 16 of the upper half-shell 15 and is screwed into the nut 18. The upper ends of the half-shells are shaped to provide a lead wire clamp for the lead wire, and pressure is applied to this lead wire clamp by machine screw 21. As protection against electric shock hazard, the housing is provided, on its plug-insertion side, with a protective collar 22 which receives the insulated base 22' of the plug 23.

It will be understood that the above description of the present invention is susceptible to various modifications, changes, and adaptations.

What is claimed is:

1. An electrical plug comprising, in combination:

(A) a hollow plug housing member having an annular recess in the exterior surface thereof near one end thereof;

(B) a pair of half-shell members joined to the exterior surface of said housing member at said one end thereof, each of said half-shell members having a bead on the interior surface thereof near one end thereof for engagement in said annular recess, and each of said half-shell members having a transverse alignment bore;

(C) a plug body member within said housing member, said plug body member having a projection extending from one end thereof between said half-shell members, and said projection having a transverse alignment bore; and

(D) means passing through the three transverse bores, while the same are in alignment with each other and while said beads of said half-shell members are received in said recess for securing said two half-shell members, said housing member, and said body member together to form a unified electrical plug.

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2. An electrical plug as defined in claim 1, wherein said means passing through the three transverse bores comprises a machine screw and a nut.

3. An electrical plug as defined in claim 1, wherein both half-shells are identical.

4. An electrical plug as defined in claim 1, wherein said housing member and body member are cylindrical in shape.

5. An electrical plug as defined in claim 1, and further comprising a collar of insulating material attached to the other end of said housing member.

6. An electrical plug as defined in claim 2, wherein said nut is mounted on a hollow rivet inserted through the bore of one of said half-shells.

7. An electrical plug as defined in claim 1, and further comprising a lead wire clamp formed on the other end of said half-shell members.

8. An electrical plug as defined in claim 1, and further comprising contact sockets disposed within said plug body member.

9. An electrical plug as defined in claim 8 and further comprising a coaxial guide channel disposed in front of each contact socket, a pair of slides disposed within a transverse guide channel and movable into a corresponding one of said coaxial guide channels, said slides having

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a frontally beveled surface, and spring means urging said slides toward said corresponding coaxial guide channels.

10. An electrical plug for use in combination with the electrical plug defined in claim 9, comprising a second body member, two prongs joined to said second body member and projecting therefrom, said prongs being positioned to engage said contact sockets in the first mentioned body member, and indentations in said prongs for engaging said slides when said prongs are inserted into said contact sockets.

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U.S. Cl. X.R.

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