

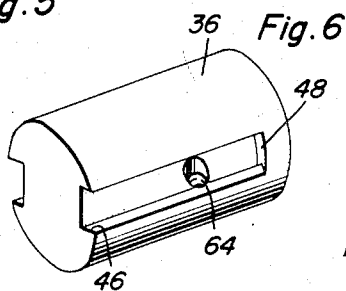
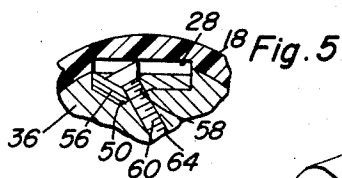
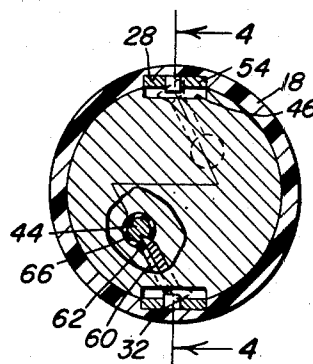
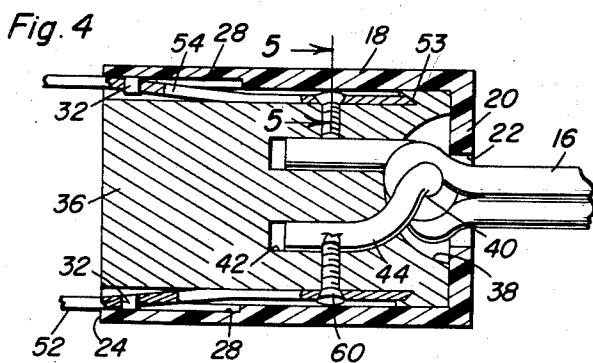
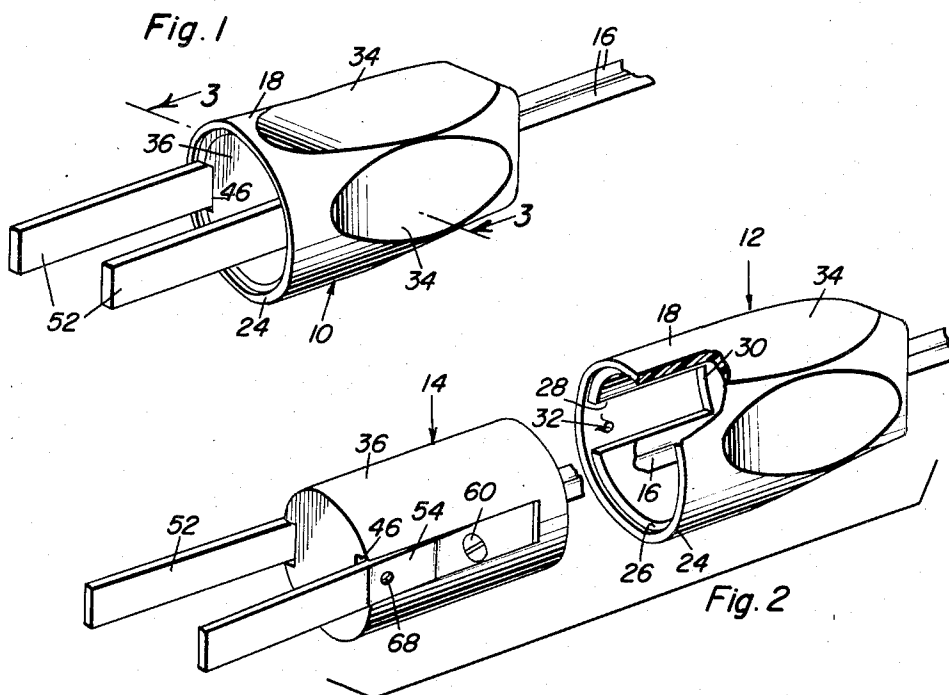
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ELECTRIC PLUG CONSTRUCTION

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ELECTRIC PLUG CONSTRUCTION

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3 Claims. (Cl. 339-97)

This invention generally relates to an electric plug construction and more specifically provides an improved and novel construction in a two-piece plug construction which may be easily disassembled for repair, replacement or the like.

An object of the present invention is to provide an electrical connector plug having an outer housing and an inner terminal body member together with a pair of identical projecting contact elements wherein the contact elements form a portion of the means for retaining the two elements of the plug construction in assembled relation.

Another object of the present invention is to provide an electrical connecting plug construction including novel means for connecting the contact elements of the plug to the terminal ends of lead wires without the necessity of stripping the insulation from the lead wires and then coiling the bared wire around a terminal post or screw.

Other important objects of the present invention will reside in its simplicity of construction, ease of assembly and disassembly, novel construction to prevent accidental damage to the plug, adaptation for its particular purpose and its relatively inexpensive manufacturing cost.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of the electrical plug of the present invention;

Figure 2 is an exploded perspective view showing the two elements of the plug construction in disassembled position;

Figure 3 is a transverse, vertical sectional view taken substantially upon a plane passing along section line 3-3 of Figure 1;

Figure 4 is a longitudinal, vertical sectional view taken substantially upon a plane passing along section line 4-4 of Figure 3 showing further structural details of the plug construction;

Figure 5 is an enlarged detailed view showing the specific construction of the fastening screw together with its association with one of the contact elements; and

Figure 6 is a perspective view showing the central body member with the contact elements removed therefrom and showing the orientation of the screw-threaded bores therein as well as the contact element receiving grooves.

Referring now specifically to the drawings, it will be seen that the numeral 10 generally designates the electrical connecting plug construction of the present invention which includes an outside housing generally designated by the numeral 12 and an inner central body member generally designated by the numeral 14 for attachment to a pair of lead wires 16.

The outer housing 12 is generally in the form of a tubular cylindrical member 18 of insulating material having

an inwardly extending peripheral flange at one end thereof which defines an opening 22 for permitting passage of the lead wires 16. The other end of the tubular member 18 is open as generally indicated by the numeral 24.

The open end 24 of the tubular member 18 is generally recessed as designated by the numeral 26 about the inner periphery thereof and a pair of diametrically opposed longitudinal grooves 28 extend inwardly of the open end 24 of the cylindrical member 18 and terminate in an end wall 30 for a purpose described hereinafter. Extending inwardly from the bottom of the grooves 28 is a projection or lug 32 in each groove 28 which is spaced from the side edges thereof and positioned adjacent the open end 24 of the tubular member 18. The outer surface of the tubular member 18 is provided with finger-gripping recesses or concave portions 34 for facilitating the manipulation of the electrical connecting plug 10.

The central body member 14 is generally a solid cylindrical member 36 having a concaved recessed portion 38 in one end thereof for abutment against the inner surface of the flange 20 of the housing 18 whereby the lead wires 16 may be knotted as indicated by the numeral 40 for securing the lead wires 16 to the plug 10 and permitting the body member 36 to be assembled in relation to the housing 18. The body member 36 is provided with a pair of longitudinally and inwardly extending sockets 42 in the end thereof communicating with the recessed portion 38 for receiving terminal end portions 44 of the lead wires 16.

The peripheral surface of the body member 36 is provided with a pair of diametrically opposed longitudinal grooves 46 which extending substantially throughout its length and terminates adjacent the recessed end in end walls 48. The grooves 46 have a bottom wall that is provided with an angulated portion designated by the numeral 50 for a purpose described hereinafter.

Positioned within the grooves 46 is a pair of elongated contact elements in the nature of resilient prongs 52. The prongs 52 are provided with a generally outwardly bowed central portion 54 and the inner portion thereof is received within the grooves 46 and the outer portion thereof projects beyond the end 24 of the housing 18 as well as the end of the body member 36 for reception in a suitable female socket (not shown). As illustrated in Figure 5, the inner end of the prongs 52 are provided with a transverse angulated portion 56 and an opening 58 for receiving a screw-threaded fastener 60 having the pointed end 62 thereon. The screw-threaded fastener 60 is received within a screw-threaded bore 64 disposed in the body member 36 and communicating with the sockets 42 wherein the pointed end 62 of the screw-threaded member 60 will penetrate the insulation 66 on the terminal end 44 of the lead wires 16 thereby connecting the contact elements or prongs 52 to the lead wires 16.

Adjacent the offset portion 54 of the prong 62, an aperture 68 is provided for receiving the projection 32 in the grooves 28 in the housing 18. Since the prongs 52 are resilient and generally outwardly bowed, it will be seen that the bowed portion or offset portion 54 will be received within the grooves 28 and guided thereby. As the body member 36 is inserted into the housing 18, the projections 32 will be received in the apertures 68 thereby locking the housing 18 and the central body member 36 in assembled relation. When it is desired to disassemble the central body member 36 from the housing 18, it is only necessary to squeeze inwardly the remote end of the prongs 52 thereby disengaging the lugs or projections 32 from the apertures 68.

It will be understood that the housing 18 and the central member 36 both may be constructed of insulating

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material and the projection 32 is an integral portion of the housing 13. Therefore, it will readily be seen that the only metallic elements of the device are the prongs 62 and the screw-threaded fasteners 60. Also, the device may be utilized in conjunction with an uninsulated wire and flat screws may be substituted for the pointed screws 60. Also, it will be noted that the screw-threaded bores 64 are disposed in angular relation to the radius or transverse axis of the body member 36 whereby the screw-threaded member will be provided with a longer screw-threaded bore 64 for more secure locking engagement with the terminal ends 44 of the lead wires 16.

The prongs 52 are provided with inclined end edges 53 for wedging engagement with a similarly shaped recess in the body member 36 to prevent the prongs from tilting inwardly when pressure is applied to the prongs. This will relieve any pressure on the screw fasteners and assure the spring action of the prongs for retaining the apertures 63 securely positioned over the lugs 32.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

What is claimed as new is as follows:

1. An electrical connector plug comprising an outer cylindrical tubular housing of insulating material, said housing having open end portions, a central body member received within said housing, a pair of contact elements secured to said body member and projecting longitudinally from one end thereof, means interconnecting the contact elements and the housing for removably retaining the body member within said housing, said means being disposed adjacent said one end of said body member, and means adjacent the other end of said body member for connecting lead wire to said each of said contact elements, said wire connecting means including a pair of longitudinal sockets in the end of the body member for receiving terminal ends of the wires said body having a pair of screw-threaded bores communicating with said sockets, and a pointed screw fastener connected to each of said contact elements and threaded into said bores with the pointed ends thereof penetrating the insulation on the insulated wire thereby electrically connecting the wires to the contact elements, said threaded bores and screw fasteners being disposed in angular relation to the transverse axis of said body member.

2. An electrical connector plug comprising an outer cylindrical tubular housing of insulating material, said housing having open end portions, a central body member received within said housing, a pair of contact elements secured to said body member and projecting longitudinally from one end thereof, means interconnecting the contact elements and the housing for removably retaining the body member within said housing, said means being disposed adjacent said one end of said body member, and means adjacent the other end of said body member for connecting lead wire to said each of said contact elements, said wire connecting means including

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a pair of longitudinal sockets in the end of the body member for receiving terminal ends of the wires said body having a pair of screw-threaded bores communicating with said sockets, and a pointed screw fastener connected to each of said contact elements and threaded into said bores with the pointed ends thereof penetrating the insulation on the insulated wire thereby electrically connecting the wires to the contact elements, said threaded bores and screw fasteners being disposed in angular relation to the transverse axis of said body member, said contact elements being generally in the form of resilient prongs having an aperture therein and normally engaging the inner surface of said housing, said housing having a groove on the inner surface thereof for guiding the prongs during assembly of the body member in the housing, and an inwardly extending projection in each of said grooves for releasable engagement in said apertures in the prongs.

3. An electrical connector plug comprising an outer cylindrical tubular housing of insulating material, said housing having open end portions, a central body member received within said housing, a pair of contact elements secured to said body member and projecting longitudinally from one end thereof, means interconnecting the contact elements and the housing for removably retaining the body member within said housing, said means being disposed adjacent said one end of said body member, and means adjacent the other end of said body member for connecting lead wire to said each of said contact elements, said wire connecting means including a pair of longitudinal sockets in the end of the body member for receiving terminal ends of the wires said body having a pair of screw-threaded bores communicating with said sockets, and a pointed screw fastener connected to each of said contact elements and threaded into said bores with the pointed ends thereof penetrating the insulation on the insulated wire thereby electrically connecting the wires to the contact elements, said threaded bores and screw fasteners being disposed in angular relation to the transverse axis of said body member, said contact elements being generally in the form of resilient prongs having an aperture therein and normally engaging the inner surface of said housing, said housing having a groove on the inner surface thereof for guiding the prongs during assembly of the body member in the housing, and an inwardly extending projection in each of said grooves for releasable engagement in said apertures in the prongs, said housing having an intumed peripheral flange at the end thereof adjacent the lead wires thereby forming an opening for passage of the lead wires so that the lead wires may be knotted for preventing accidental disengagement of the lead wires from the body member.

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