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This invention relates generally to electrical sockets, and has particular reference to a socket adapted to receive and make electrical contact to a test probe or the like.

The object of the invention is to provide a socket of the general type which is economical to assemble and is readily adapted for mounting onto a test panel or the like.

A further object of the invention is to provide a socket in which inner and outer conductors are separated by a resilient insulating member and are self-restrained therein.

A still further object of the invention is to provide a socket assembly having a center conductor and an enclosing insulating member which has interlocking means to prevent relative axial movement therebetween, with an outer conducting shell disposed about the insulating member with means thereon to retain the interlocking means in engagement.

Other objects of the invention will, in part, be obvious, and will, in part, appear hereinafter.

In the drawings:

Fig. 1 is a view in elevation of a socket member embodying the features of the invention;

Fig. 2 is a view of the socket member of Fig. 1 as seen from the right end;

Fig. 3 is a view in section taken on line 3—3 of Fig. 2; and

Fig. 4 is a view in section similar to Fig. 3 in which the socket is assembled onto a test panel, with a lead wire connected thereto and a test probe inserted therein.

Referring to the drawing, there is illustrated socket 10, which is adapted for assembly into a test panel 12 or the like, to receive and make electrical contact to an insertable test probe 14.

The socket 10 comprises generally a center conductor 16, an insulating member 18 disposed about the center conductor, and an outer conducting shell 20 disposed about the insulating member.

The center conductor 16 comprises a series of longitudinally extending resilient arms 22 at one end, forming a central aperture 24 to receive the test probe 14, and a terminal portion 26 at the other end to receive an electrical lead wire 28. Intermediate the arms and the terminal portion, a peripheral recess 30 is provided in the center conductor, which extends an appreciable distance longitudinally thereof.

The insulating member 18 is preferably formed of a resilient organic plastic such as nylon, polyethylene, polytetrafluoroethylene, or the like, which is sufficiently resilient to permit assembly thereof, but has sufficient strength to retain the parts in assembly as will appear hereinafter.

The insulating member comprises generally a cylindrical arm-enclosing portion 32 having an internal cavity 34 receiving the arms 22, and an end portion 36 disposed about the portion of the center conductor having the recess 30. The end portion 36 is provided with a restricted opening 38 extending from the end of the insulating member to the central cavity, thereby forming an internal peripheral flange-like portion 40 seated in the recess 30 of the center conductor. At the opposite end of the insulating member, a radially extending flange 42 is provided for a purpose to appear hereinafter.

The outer shell 20 is disposed about the cylindrical arm-enclosing portion 32, and has a radially extending flange portion 44 at one end disposed against the flange 42 of the insulating member. The other end of the outer shell terminates about the end portion 36 of the insulating member, and is provided with an inwardly crimped portion 46, which protrudes into the end portion about the recess 30 in the insulating member. The outer surface of the outer shell is preferably provided with threads 48, to permit a nut 50 to be assembled thereon.

The illustrated construction, the interlocking flange-like portion 40 of the insulating member and the recess 30 of the center conductor prevent longitudinal movement therebetween, and the inwardly crimped end 46 of the outer shell both retains the flange-like portion in the recess and retains the outer shell in assembly thereon.

The various parts of illustrated socket assembly are easily assembled, since the resiliency of the plastic insulating member permits the flange-like portion of the insulator to be snapped over an end of the center conductor to seat in the recess, and thereafter, the assembly of the outer shell and the crimping of the end thereof about the flange-like portion retains the parts in secure assembly, with no additional retaining rings or collars being necessary.

As illustrated in Fig. 4, the socket is easily assembled into a test panel opening by means of the nut 50, so that the panel is gripped between the nut and the shell 20 on the end of the outer shell. The radial flange 42 on the insulating member prevents accidental shorting between the outer shell and the inner conductor by an inserted test probe, and also cooperates with the crimped end 46 in preventing axial movement between the insulating member and the outer shell.

Since certain obvious modifications may be made in the device without departing from the scope of the invention, it is intended that all matter contained herein be interpreted in an illustrative and not in a limiting sense.

I claim:

1. An electrical connector, comprising a center conductor having longitudinally extending resilient arms at one end and resilient end means at the other end for receiving an electrical lead wire, an insulating housing formed of resilient organic plastic and having a radial flange at one end disposed about the center conductor, and an outer conducting shell having external threads disposed about the insulating member, said center conductor and said insulating member having peripheral interlocking portions to prevent axial movement therebetween, said outer shell having a radial flange seated against the flange of the resilient member and peripheral means projecting into said resilient insulating member about said interlocking means to cooperate with said flanges in retaining the shell in assembly thereon and retaining said interlocking means in engagement.

2. An electrical connector, comprising a center conductor having resilient arms at one end to receive and resiliently engage a male connecting portion at the other end for connecting an electrical lead wire thereto, and peripheral recess disposed thereabout intermediate the resilient arms and said other end, an insulating member disposed about said center conductor, said insulating member enclosing said resilient arms and having a radial flange at the end adjacent said arms, a portion seated in said peripheral recess to prevent longitudinal movement of the insulating member relative to the center conductor, and an outer conducting shell having external threads disposed about the insulating member, said shell having a radial flange seated against the flange of the resilient member and means protruding into the periphery of the insulating member about the portion disposed in the recess to cooperate with said flanges in retaining the shell in assembly thereon and retaining said portion in the recess.

3. An electrical connector, comprising a center conductor having resilient arms at one end to receive and resiliently engage a male connecting portion at the other end for connecting an electrical lead wire thereto, and containing a peripheral recess disposed thereabout intermediate the resilient arms and said other end, an insulating member formed of a resilient organic thermoplastic disposed about the center conductor, said insulating member encircling the resilient arms and having a portion circumscribed, disposed in said recess to prevent longitudinal movement of the insulating member relative to the center conductor,
3. An electrical connector, comprising a center conductor having longitudinally extending resilient arms at one end to receive and resiliently engage a male connector, means at the other end for connecting an electrical lead wire, and a peripheral recess disposed about the center conductor and extending an appreciable distance longitudinally between the arms and said other end, an insulating member formed of resilient organic plastic disposed about the center conductor, said insulating member having a radially extending flange at one end, an internal opening extending longitudinally therethrough, said opening receiving the resilient arms, and having a restricted portion adjacent the portion receiving the arms forming an internal flange-like member seated in the recess in the center conductor preventing axial movement of the insulating member relative to the center conductor, and an external shell having external threads disposed about the insulating member, said shell having a peripheral portion protruding into the resilient insulating member about the portion disposed in the recess retaining the shell in assembly thereon and retaining said portion in the recess, and said shell and said insulating member having radially extending flange portions disposed at the end thereof adjacent the resilient arms.

4. An electrical connector, comprising a center conductor having longitudinally extending flange portions disposed at the end thereof adjacent the resilient arms.

5. An electrical connector, comprising a center conductor having longitudinally extending resilient arms at one end and terminal means at the other end for receiving an electrical lead wire, an insulating housing formed of resilient organic plastic disposed about the center conductor, and an outer conducting shell having external threads disposed about the insulating housing, said center conductor having a peripheral recess, and said insulating member having a internal flange-like member seated in said recess interlocking the insulating member and the center conductor against axial movement relative to each other, said outer shell having a radially extending flange at one end and an inwardly crimped peripheral portion at the other end, said inwardly crimped peripheral portion being disposed about the portion of the insulating member disposed in the recess, one end of said insulating member extending beyond the end of the shell having the radially extending flange, said end of the insulating member having a radially extending flange bearing against the radially extending flange on the outer shell.

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