

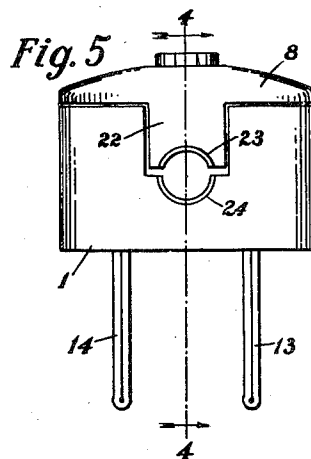
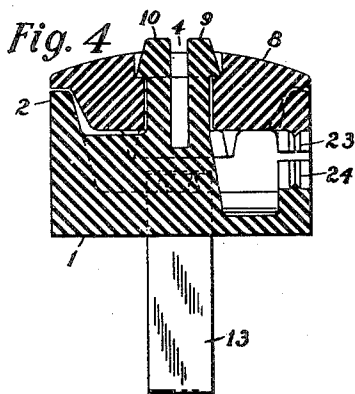
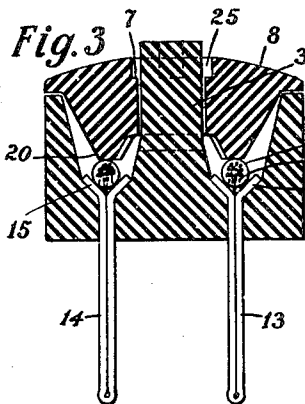
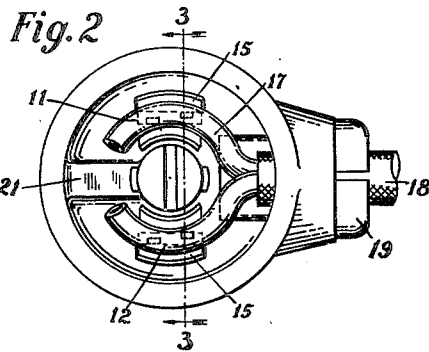
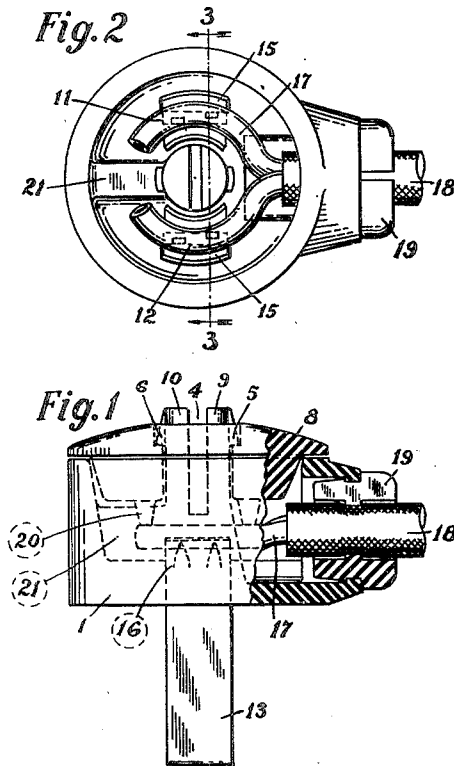
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L. J. IRRGANG

2,475,243

SOCKET CONNECTOR PLUG

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Louis J. Irrgang - INVENTOR.

BY *A. D. T. Libby*
attorney

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SOCKET CONNECTOR PLUG

Louis J. Irrgang, Jersey City, N. J.

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This invention relates to an improved type of connector plug for making electrical connections to an electrical socket.

It is the object of my invention to provide a connector plug which may be easily and quickly taken apart for attaching or detaching an electrical cable without being obliged to strip the conductors composing the cable of their insulation, and without the use of tapped holes, screws, and the trouble of winding the stripped wires around the screws and tightening them.

Another object of my invention is to provide a connector plug in which the possibility of the insulated wires within the plug coming into contact with each other is eliminated.

Another object of my invention is to provide terminal connectors to the plug which may be readily and quickly installed into position.

A further object of my invention is to provide an improved type of plug wherein the incoming electrical cable is securely gripped so that there is substantially no strain, due to a pull on the cable, on the electrical contact parts.

These and other objects will be clear from a reading of the specification taken in connection with the annexed drawing, wherein:

Figure 1 is a part-elevational, part-sectional view through my improved type of socket connector plug, with an electrical cable attached thereto.

Figure 2 is a plan view of Figure 1, but with the top part or cap of the plug removed.

Figure 3 is a view on the line 3—3 of Figure 2, but with the cap in position.

Figure 4 is a view on the line 4—4 of Figure 5 of a modified form of construction.

Figure 5 is a view in full elevation of Figure 4, looking from right to left, but without any cable in place.

In the various views, which are all on a much enlarged scale, 1 is the body of a plug having an upstanding annular rim 2 and a centrally disposed projecting post 3. The post 3 is split at 4 into two parts 9 and 10 for a considerable distance from its end, and these ends are provided with oppositely tapered portions or lugs 5 and 6, the base of each taper extending beyond the body of the post for the purpose of engaging an annular shoulder 7 formed by what in effect is a counter-bore 25 in the cap 8. The body 1 and the cap 8 are preferably made of suitable insulating material having some resilience whereby the two parts 9 and 10 are forced toward each other by the tapered portions when the cap is pushed down over them into operative position. Also,

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the parts 9 and 10 may be moved by a pinching action toward each other to move the lugs 5 and 6 off the shoulder 7 so that the cap 8 may be removed from the body 1.

The body 1 has a pair of oppositely disposed openings 11 and 12 therein through which the formed terminals 13 and 14 may be passed. As will be seen from Figure 3, the terminals 13 and 14 are each made of one piece of suitable metal and have their body ends 15 flared outwardly to engage slanting side walls of the inner part of the body 1. Sharp projecting fingers 16 are formed from each of the flared portions 15 for the purpose of penetrating the insulation of the conductors 17 and going between the layers of the strands of the conductors 17 forming part of the cable 18. The cable 18 is preferably held by a snap ring 19, preferably of insulating material such as described in my Patent 2,420,826, issued May 20, 1947, the ring 19 being held to the body 1 in the manner disclosed in said patent. By using this means for attaching the cable 18 to the plug, substantially all strain is removed from the conductors 17 per se.

From Figure 2, it will be noted that all that is necessary for installing the cable is to strip off the outer coating of the cable and bend the conductors 17 around their respective passages within the body 1 and over the piercing fingers 16.

The cap 8 is provided with lugs 20, one for each terminal or conductor, so that when the cap is pushed down into locking position as shown in Figure 1, the lugs 20 force their respective conductors into contact-engaging position as shown in Figure 3. The body 1 is provided with a dividing or protecting wall 21 which separates the trough or cable passageway so that the ends of the conductors cannot possibly come into engagement with each other.

In Figures 4 and 5, the construction is the same as has been described, except for the manner of gripping the cable. In this form, the cap 8 is provided with a downwardly extending lug 22 which has an arcuately formed V-shaped ridge 23 adapted to engage nearly one-half of the cable when the cap is forced into position. The body 1 is also formed with a V-shaped ridge 24 similar to 23 so that when the cap 8 is forced into locking position, the cable is securely gripped.

From what has been said, it will be observed that certain of the details of the construction may be varied somewhat without departing from the spirit of my invention or the scope of the appended claims.

What I claim is:

1. A socket connector plug of insulating material comprising a body having a centrally located homogeneous post, the post being split for a distance and having resilience so the two parts of the post may be forced toward each other and spring back to normal position when released, each split portion having on its outer surface a retaining lug, a cap to fit over the body and having a hole to receive said post, and a shoulder to be engaged by said lugs when the cap is pushed over the post to locking position, the body having openings therein to receive contact terminals, the ends of which are flared to engage flared surfaces on the interior of the body, the inner ends of the terminals having pointed fingers bent inwardly toward each other from said flared surfaces for piercing the insulation and going into contact with the electrical conductor, and parts on the cap for engaging the conductors to force them onto said terminal fingers.

2. A socket connector plug as set forth in claim 1, further characterized in that a homogeneous cable-gripping means is positioned on a projection of the cap and another homogeneous cooperative gripping means is positioned on the body opposite the cap-gripping means.

3. A socket connector plug of insulating material comprising a body and a cap for closing the body, the body and cap each having homogeneous cooperative parts one of which extends from the body through the cap which allows the cap to be snapped over the body extending part and automatically locked thereto in operative position, said co-operative parts comprising gripping lugs on the part that extends through the cap while the cap has an annular shoulder adapted to be engaged by said lugs an orifice in the side of the body to receive an electrical cable, terminals positioned in holes in the body but not fastened thereto and having piercing means to go into the electrical conductors of the cable, and means on the cap for forcing the cables onto said fingers and at the same time pressing the terminal ends into firm engagement with the body when the cap is pushed into locking position.

4. A socket connector plug of insulating material having a body and cap, terminals carried by the body but not fastened thereto, an orifice in the body for an electrical cable, the body having a trough to receive the conductors of the cable, the terminals having piercing fingers to go into the conductors of the cable, and a cap having means for forcing the conductors onto said piercing fingers and the terminal ends into firm contact with the interior of the body, the cap also having an annular shoulder centrally located just below its top, means including a centrally located homogeneous split portion of the body extending through the cap and having lugs thereon to pass over the annular shoulder on the cap for automatically snap locking the cap in operative position when it is pushed onto the body, and means within the body for preventing the ends of the conductors from coming into contact.

5. A screwless connector plug of insulating material having a body and a cap, the body having a cable orifice and contact terminals extending from the body, the inner ends of the terminals

having ends formed to engage holding seats within the body and also having piercing fingers to go into and make electrical contact with a cable conductor brought into the body through said orifice, and positioned over said fingers, the body having an integral split extending homogeneous post of resilient material with an outwardly tapering formation at the end, the large end of the taper being positioned toward the base of the post and forming a locking shoulder, while the cap has a counter-bore forming a shoulder to be brought automatically into locking position with said large end of the tapered formation when the cap is pushed into place over the tapered portions of the post, the cap having means for engaging the conductors and forcing them down onto the piercing fingers, and at the same time forcing the terminal ends against their holding seats.

6. A screwless connector plug of insulating material having a body and cap, the body having terminals, the terminals having pointed fingers to pierce an electrical conductor brought into the body and positioned over the fingers, the cap having means for pressing the conductor over the fingers and at the same time holding the terminals in operative position in the body, the body having a homogeneous upstanding post which is at least partially split, the split portions having diametric enlargements forming locking shoulders with surfaces tapering inwardly from the periphery of said enlargements to the ends of said split portions, said split portions extending through the cap when in operative position and being capable of being squeezed toward each other, the cap having an internally positioned annular shoulder adapted to interlock with the shoulders on said split portions when the cap is pushed into operative position on the body, the interlock being released by squeezing the outer ends of said split ends toward each other.

LOUIS J. IRRGANG.

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