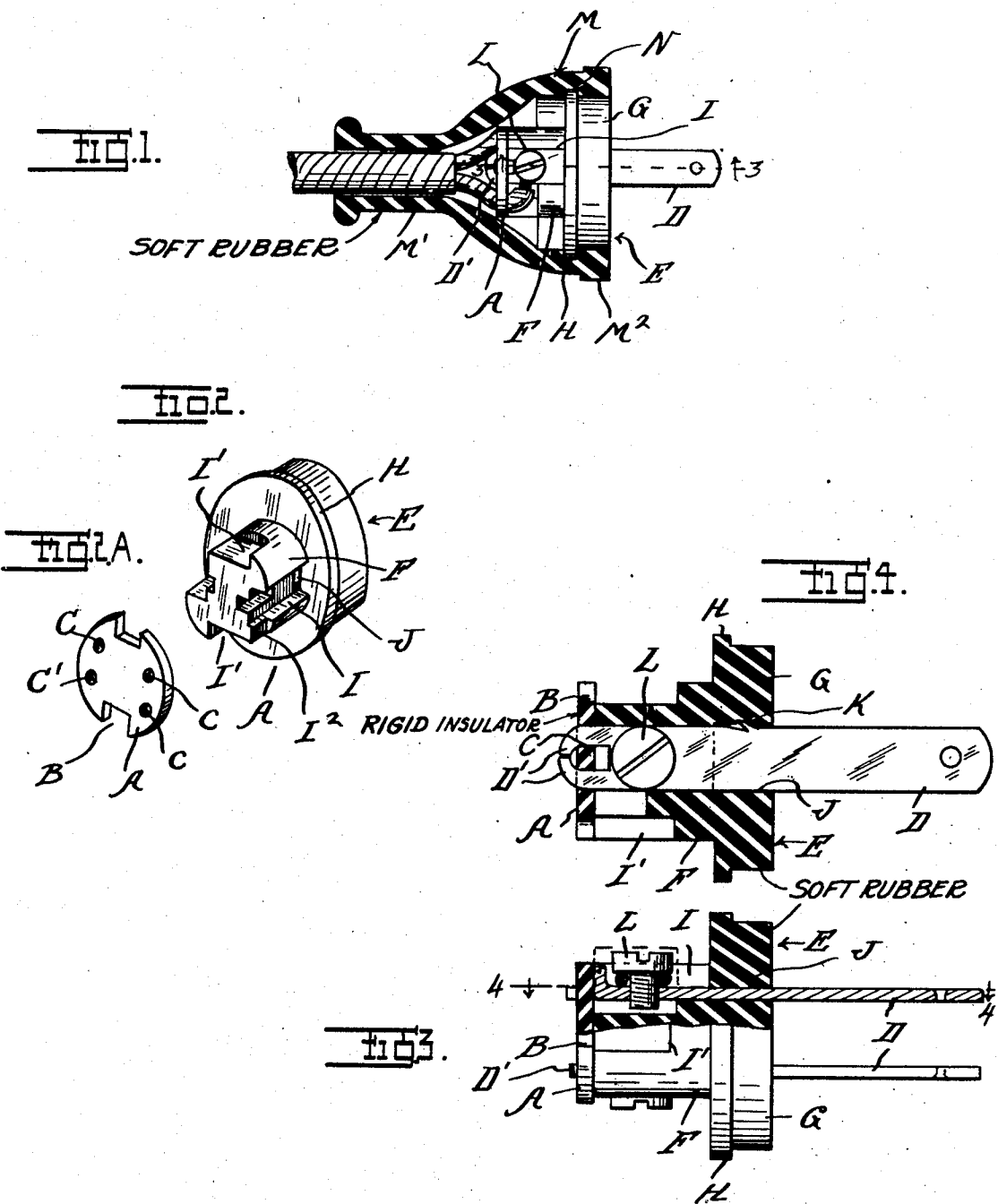


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ELECTRICAL PLUG CONNECTER
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ELECTRICAL PLUG CONNECTER

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6 Claims. (Cl. 173—361)

The invention relates to plug connectors for the connecting of electrical conductors with the service socket, having more particular reference to constructions designed for use with the conductor cords of laundry irons. Connecters used for this purpose are subjected to a great deal of abuse in the frequent attachment and detachment from the sockets and as a consequence plugs formed of hard, brittle materials are frequently broken. To avoid this difficulty certain constructions of plug have been made with soft rubber insulators, but these are open to another objection, viz: lack of rigidity in positioning and holding the terminal contacts, and for producing an effective cord lock which will prevent accidental disengagement of the electrical conductors. It is therefore one of the objects of the present invention to obtain a construction combining the advantages of the rigid and flexible type. To this end the invention consists in the construction as hereinafter described.

In the drawing:

Figure 1 is a sectional elevation of the plug connector;

Figures 2 and 2A are perspective views of the rigid insulator member;

Figure 3 is an enlarged longitudinal section on line 3—3 of Figure 1;

Figure 4 is a section on line 4—4 of Figure 3.

A is a member formed of a rigid insulating material such as hard rubber, "Bakelite" or other compositions. As shown, this member is in the form of a disk having notches B on opposite sides thereof and also provided with pairs of apertures C C' at diametrically opposite points intermediate the notches B. D are contact members of straight bars of metal which at one end are bifurcated to permit of inserting the furcations thereof through the apertures C C' and then clinching them as indicated at D'. This will rigidly attach the contact bars to the member A and will properly space the same for engagement with the terminal socket.

E is a member formed of an insulating material and which may be either of a rigid or a yielding character. This member has a hub portion F and a radially projecting flange G with a comparatively narrow bead or flange H surrounding its periphery. The hub portion F is formed with diametrically opposite grooves I therein and with apertures J connecting with these grooves and extending through the flange G. These apertures and bottoms of the grooves are spaced so as to correspond with the spacing of the terminal contacts which extend therethrough and project out-

ward beyond the member E for insertion in the socket. The hub F is also recessed at I' to form grooves extending laterally from the grooves I with a right angle corner I² therebetween.

The member E is engaged with the member A and contacts D by inserting the latter through the grooves I and apertures J until the disk A bears against the end of the hub F. To prevent disengagement the contact bars D have formed thereon a saw tooth K which can be passed through the aperture J in one direction but which will bite into the wall of said aperture to prevent movement in the reverse direction. Thus the members after being once assembled will be retained in this relation.

With the construction as thus far described, the conductor cord may be attached to the plug by first passing it through the notches B in the disk A and bending it laterally to pass through the recesses I' and around the sharp corner I² into the groove I. The conductors are then attached to the contact bars by clamping screws L engaging threaded apertures in the contact members. This will produce an effective cord lock and at the same time will hold the contact members properly spaced for insertion in the socket. To complete the structure there is provided a soft rubber hood or jacket M having a neck portion M' for fitting around the insulated conductor and an enlargement M² for fitting around the member E including the hub portion F thereof. An annular groove N in the inner wall of the portion M² is adapted to engage the bead H to lock the parts from longitudinal displacement. As the jacket is made of soft rubber it may be readily sleeved over the conductor and stretched over the member E until the groove N is engaged with the bead. Thus the outer soft rubber covering will protect the inner parts from injury while the rigid element to which the contacts are attached and around which the cord is locked will prevent accidental disengagement.

As above stated, the member E may be made of either rigid or flexible material. Where rigid material is used this may be either hard rubber, "Bakelite" or equivalent material. However, I prefer to make this member of soft rubber which will stand greater abuse and will still function to hold the members in proper relation to each other.

What we claim as our invention is:

1. A plug connector comprising an insulator member provided with a hub portion and a flange portion, said hub portion having longitudinal grooves in its periphery and said flange portion

being apertured in alignment with said grooves, terminal contact members in said grooves passing through the aligned apertures and extending forward from said insulator member, an insulated conductor having strands connected to the portion of said terminal contacts in said grooves, a rigid disk adjacent said hub portion and attached to the ends of said terminal contact members and a soft rubber jacket sleeved upon said conductor having an enlargement enclosing said hub and flange.

2. A plug connector comprising a rigid insulator member having a hub portion and a radially outwardly extending flange portion, said hub portion having longitudinal grooves in its periphery connecting with transverse segmental grooves at one end and said flange having apertures there-through in alignment with said longitudinal grooves, terminal contact members engaging said longitudinal grooves and passing through said apertures to extend outward from said insulator member, a tooth on each terminal contact member engaging said insulator member to hold said contact from movement rearward in said groove, an insulator disk to which the rear ends of said contact member are attached, said disk having notches therein at points angularly displaced from said terminal contact member, an insulated conductor having the covered strands thereof engaging the notches in said disk and extending through said segmental grooves to said terminal contacts, clamping screws for electrically connecting the bare strands with said terminal contact members and a flexible rubber boot or jacket sleeved on said conductor and having an enlarged portion covering said hub and contacting said flange.

3. A plug contact member comprising a rigid insulator member having a hub portion and a radially extending flange portion, said hub portion being longitudinally grooved in its periphery and said flange portion being apertured in alignment with said groove, terminal contact members extending through said grooves and aligned apertures and projecting forward beyond said insulator member, an insulator disk to which the rear ends of said terminal contact members are attached, said disk abutting against the end of said hub member and being notched in its periphery at points spaced from said contact members, an insulated conductor having the covered strands thereof engaging said notches and extending laterally therefrom to the portion of said terminal contacts located in said groove, clamping screws for electrically connecting the bare conductor strands to said terminal contacts and a soft rubber boot or jacket sleeved on said conductor and having an enlarged portion adapted to be snapped over said rigid insulator member.

4. A plug contact member comprising a rigid insulator member having a hub portion and a radially extending flange portion, said hub portion having longitudinal grooves in its periphery connecting with transverse segmental grooves in one end thereof, said flange member being apertured in alignment with said grooves, an insulator disk at the inner end of said hub member, said disk being notched at points circumferentially spaced from said longitudinal grooves to communicate with said segmental grooves, terminal contact

members having their inner ends secured to said disk and passing through said grooves and aligned apertures to project outward beyond said insulator member, an insulated conductor having the covered strands thereof engaging the notches in said disk and bent to pass through said segmental grooves to said terminal contact members, clamping screws for electrically connecting the bare strands to said contact members, a bead extending circumferentially about said flange and a soft rubber boot or jacket sleeved upon said conductor and having an enlargement for receiving said rigid insulator member being provided with an annular groove in its inner surface for snapping over said annular bead to hold the boot from displacement.

5. A plug connector comprising an insulator member having a hub portion and a radially outwardly extending flange portion, said hub portion having longitudinal grooves in its periphery connecting with transverse segmental grooves at one end and said flange having apertures there-through in alignment with said longitudinal grooves, terminal contact members engaging said longitudinal grooves and passing through said apertures to extend outward from said insulator member, a tooth on each terminal contact member engaging said insulator member to hold said contact from movement rearward in said groove, an insulator disk to which the rear ends of said contact member are attached, said disk having notches therein at points angularly displaced from said terminal contact member, an insulated conductor having the covered strands thereof engaging the notches in said disk and extending through said segmental grooves to said terminal contacts, clamping screws for electrically connecting the bare strands with said terminal contact members and a flexible rubber boot or jacket sleeved on said conductor and having an enlarged portion covering said hub and contacting said flange.

6. A plug connector comprising a flexible insulator member having a hub portion and a radially outwardly extending flange portion, said hub portion having longitudinal grooves in its periphery connecting with transverse segmental grooves at one end and said flange having apertures therethrough in alignment with said longitudinal grooves, terminal contact members engaging said longitudinal grooves and passing through said apertures to extend outward from said insulator member, a tooth on each terminal contact member engaging said insulator member to hold said contact from movement rearward in said groove, an insulator disk to which the rear ends of said contact member are attached, said disk having notches therein at points angularly displaced from said terminal contact member, an insulated conductor having the covered strands thereof engaging the notches in said disk and extending through said segmental grooves to said terminal contacts, clamping screws for electrically connecting the bare strands with said terminal contact members and a flexible rubber boot or jacket sleeved on said conductor and having an enlarged portion covering said hub and contacting said flange.

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