Nov. 15, 1927. 1,649,305

P. HARTMANN

ELECTRIC CONNECTION DEVICE

Filed Aug. 29, 1921

Fig. 1.

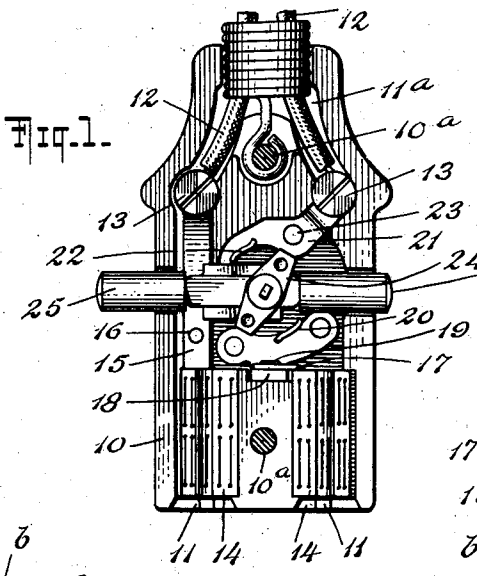


Fig. 3.

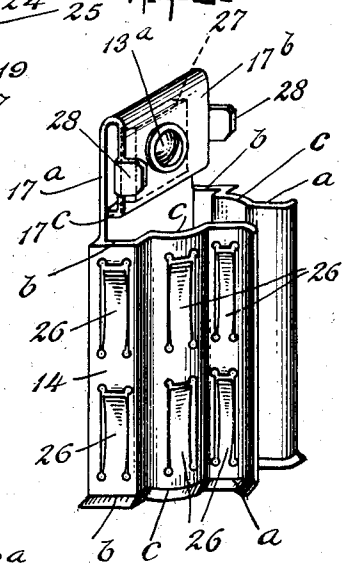


Fig. 2.

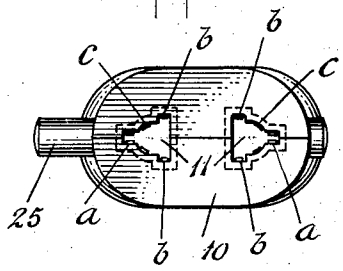


Fig. 4.

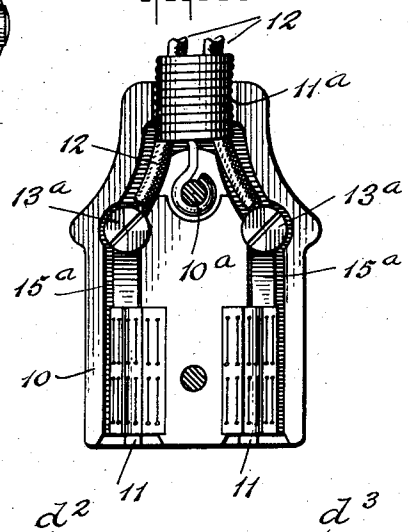


Fig. 5.

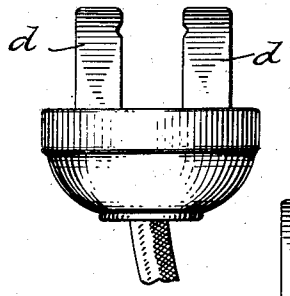
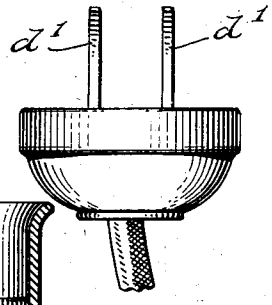


Fig. 6



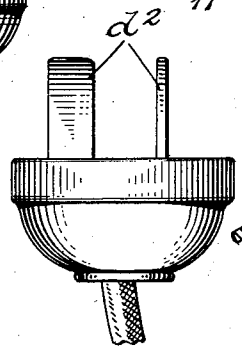


Fig. 7.

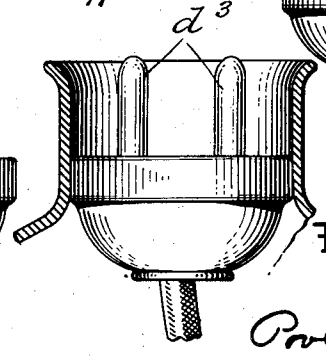


Fig. 8.

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UNITED STATES PATENT OFFICE.

POVL HARTMANN, OF BROOKLYN, NEW YORK, ASSIGNOR TO ELECTRIC OUTLET COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

ELECTRIC CONNECTION DEVICE.

Application filed August 29, 1921. Serial No. 496,486.

My invention relates to electric connection devices of the type commonly termed plugs and customarily comprising a plug or male member and a socket or female member each specially constructed for co-operation with each other. The primary object of my invention is to provide a device adapted for universal use and including a socket or female member of novel construction arranged to accommodate various types of existing plugs or male members instead of being restricted to a single form of plug constructed in a predetermined and special manner. My invention further contemplates an arrangement in which an efficient switch mechanism is included whereby the current of electricity may be conveniently controlled. Other objects of the invention will appear from the description hereinafter and the features of novelty will be pointed out in the appended claim.

In the accompanying drawings, which illustrate examples of my invention without defining its limits, Fig. 1 is a sectional view of the device in one form; Fig. 2 is an end view thereof; Fig. 3 illustrates a preferred form of socket in perspective; Fig. 4 is a view similar to Fig. 1 showing the device in another form; and Figs. 5, 6 and 7 and 8 are diagrammatic views illustrating a variety of plugs or male members of existing construction which may be operatively combined with my novel device.

As shown in the drawings the device comprises a socket or female member consisting of a carrier 10 of insulating material or any substance which is a non-conductor of electricity and constructed with a pair of recesses 11 spaced apart and extending longitudinally of the device as shown in Figs. 1 and 4. The carrier 10 is provided with an axial bore 11^a through which electric wires 12 may be threaded and connected with the terminals or more specifically the binding screws 13 located within said carrier. In the preferred form and in order to permit the device to be readily assembled the carrier 10 is preferably constructed of two complemental sections fitted in surface engagement and secured together by means of bolts or the like 10^a. Sockets 14 of metal are fitted within the recesses 11 so as to extend lengthwise thereof and are fixed in position therein in the manner which will appear more fully hereinafter.

Referring more particularly to the form illustrated in Fig. 1, the one socket 14 is constructed with an integral extension 15 which extends to and is connected with the one terminal screw 13, the extension 15 being provided for instance with a threaded aperture for the reception of said screw 13, or being otherwise constructed for connection therewith. The extension 15 may be provided with an aperture for the accommodation of a rivet 16 whereby it is secured in place and the one socket 14 is fixed against withdrawal from its recess 11. The other socket 14 is formed with an integral extension 17 which is bent over a metallic member 18 and secured thereto by means of a rivet or the like 19 whereby the second socket 14 is fixed in position in its recess 11; the member 18 is suitably fastened in the carrier 10 and is provided with a preferably integral contact member 20 for co-operation with the switch mechanism to be more fully described hereinafter. A metallic plate 21 is connected with the other terminal screw 13, for instance by being provided with a screw threaded aperture for the reception thereof and terminates in a contact member 22 located in co-operative relation to the contact member 20; the plate 21 may be fixed in place in any suitable manner as by means of a rivet 23. A switch member 24 is pivotally mounted in the carrier 10 between the contact members 20 and 22 and co-operates therewith to close and break the electric connection through the sockets 14 at will; in the illustrated example the switch member 24 is swung into and out of engagement with the contact members 20 and 22 by means of a double plunger 25 movable in opposite directions transversely of the device. The switch member 24 and double plunger 25 may be constructed and operate in any well-known way to move the member 24 into and out of engagement with said contact members 20 and 22, it being understood that said member 24 and plunger 25 are intended to be representative of any suitable type of switch mechanism whereby the circuit through the sockets 14 may be closed and broken.

In the form shown in Fig. 4 the switch mechanism is omitted and both sockets 14

are provided with extensions 15ª, corresponding to the extension 15 and connected with the terminal screws 13ª for instance by being provided with screw threaded apertures for the reception of said screws.

In both of the illustrated examples of the invention the sockets 14 represent means whereby the device is adapted to operatively accommodate co-operating members of various types to complete an electrical connection and accordingly have cross-sectional contours adapting said sockets for connection with plugs of various standard types. Thus as shown each socket includes recesses *a* which project in directions transverse to the major axis of the carrier 10 and face inwardly, the two recesses *a* being in registry with each other as illustrated in Fig. 2; each socket further includes a pair of recesses *b* which project in directions at right angles to the recess *a* and face toward and register with each other in each pair; in addition, each socket includes intermediate curved walls which connect the walls of the recesses *a* and *b* of each socket and form intermediate recesses *c* of curved outline. As shown in Fig. 2, the recesses *a*, *b* and *c* of each socket communicate with each other and are formed by properly shaping the walls of the sockets, yet each recess or cooperating pair of recesses defines an individual socket adapted to receive different types of contact members which customarily form part of conventional plugs. Thus, the recesses *a* are adapted to receive contact members *d* arranged on the plug as shown in Fig. 5, said members *d* passing between the walls of said recesses *a* and pressing them apart to provide efficient contacts, while the pairs of recesses *b* are intended for the accommodation of contact members *d'* located on the plug, as in Fig. 6, and facing in directions at right angles to the directions in which the contact members *d* face. A plug having its contact members d^2 arranged at right angles to each other, as shown in Fig. 7, is adapted for connection with the device by inserting one member d^2 in the recess *a* of the one socket 14 and the other member d^2 in the pair of recesses *b* of the other socket 14; a plug of the type generally found in electric irons and other electrical appliances and in which the contact members d^3 usually comprise cylindrical rods, as shown in Fig. 8, is connected with the device by inserting said members d^3 into the intermediate recesses *c*. It will be understood that the sockets 14 are arranged and proportioned so as to make the operative connection of the various types of plugs with the device in the described manner readily possible. In the preferred arrangement the sockets are mounted in the carrier 10 in any convenient way so as to be bodily adjustable in directions transverse to the axis of said carrier; that is to say, so as to be movable toward and away from each other in order to provide for variations in the spacing of the contact members of different types of plugs. The various recesses may be so dimensioned that the different blades of the various types of plugs will engage the walls of said recesses with sufficient friction to complete and bring about a perfect electrical connection. In order to reduce the possibility of an unreliable and inefficient connection as far as possible, it is preferred to provide the sockets 14 with a plurality of resilient members 26 located at suitable spaced intervals upon the various walls of the several recesses *a*, *b* and *c* of the sockets 14. The resilient members 26 have one end free and disconnected and extend inwardly from the walls of said recesses and preferably comprise integral parts thereof formed, for instance, by slitting the material of which the sockets are made, as indicated.

Upon insertion of the contact members of the various types of plugs into the recess *a*, *b* or *c*, as the case may be, these resilient members 26 will be depressed against their resiliency and will thereby be caused to firmly engage the various contact members to provide an efficient and reliable connection. At the same time, the resilient members 26 will exert a rubbing action upon the contact members of the various plugs as the latter are connected with the device and will thus clean said contact members and thereby still further increase the reliability of the connection. The resilient members 26, by having their disconnected free ends projecting in the direction of insertion of the plugs, do not interfere in any way with the connection of the plug with the device; the members 26, in fact, constitute a plurality of contact members which extend in the direction in which the plug is inserted into the sockets.

While the forms of sockets illustrated in Figs. 1 and 4 provide devices efficient for their intended purposes, the construction shown in Fig. 3 represents a preferred type of such sockets. In this form, the walls of the recess *a* constitute adjacent members having an inherent resiliency tending to press them toward each other and preferably having their free edges slightly curved, as indicated. In practice, the contact members *d* of the plug shown in Fig. 5 pass between these members and press them apart, so that said members engage the contact members *d* under pressure and provide an electrical contact of maximum efficiency. The socket, in the form being described, further includes an extension in the form of a metallic member which projects upwardly therefrom and is bent back upon itself to form spaced parallel legs 17ª and 17ᵇ, which

are perforated in registry with each other. A metallic unit, for instance in the form of a screw-threaded nut 27 or its equivalent, is located loosely between the legs 17^a and 17^b with its screw-threaded aperture in registry with the perforations thereof; the unit or nut 27 is maintained in its intended position, for instance, by bending the leg 17^b at its free end to form a flange 17^c. A binding screw 13^a passes loosely through the perforation of the leg 17^b into screw-threaded engagement with the nut or unit 27 and loosely through the perforation of the leg 17^a. With this arrangement the unit or nut 27 constitutes the medium in which the binding screw 13^a is fixed and avoids the necessity for extruding the metal of which the legs are constructed, thus providing an efficient construction of maximum strength and simplicity; the wire is clamped beneath the head of the screw 13^a and against the leg 17^b in the well known way. If desired, the leg 17^b may be provided with integral lugs 28 whereby the electric wire is maintained against unintentional dislocation from beneath the head of the screw 13^a in transverse directions. With the structure described, an efficient and simple means is provided for connecting the electric wire without necessitating extrusion of the metal at any point, it being understood that the unit or nut 27 is intended to be representative of any screw-threaded means which is independent of the perforated metallic member and in which the binding screw is fastened.

The invention is simple in construction and operation and provides a device capable of universal use in combination with a great variety of plug members, either of existing construction or of special type, for effecting electric connection of many kinds. The device provides an ideal plug connection for electric irons, toasters, percolators and other electrical appliances, and may be efficiently utilized for coupling together two or more electric cords when an increased length is temporarily or permanently required. In the form which includes the switch, the device provides an ideal controlling means for the electric current which is readily accessible and easily operated.

Various changes in the specific form shown and described may be made within the scope of the claim without departing from the spirit of my invention.

I claim:—

As an article of manufacture, a female contact member for a female contact plug to receive three widely different types of male contact plug members formed of a single piece of sheet metal and comprising a flat back portion, sides integral therewith disposed first at right angles to the back portion and on the same side thereof to receive one form of male contact member, then bent inwardly so as to provide partial cylindrical surfaces to receive another form of male contact member, and then bent outwardly at right angles to the back portion to receive still another form of male contact member.

In testimony whereof I have hereunto set my hand.

POVL HARTMANN.