

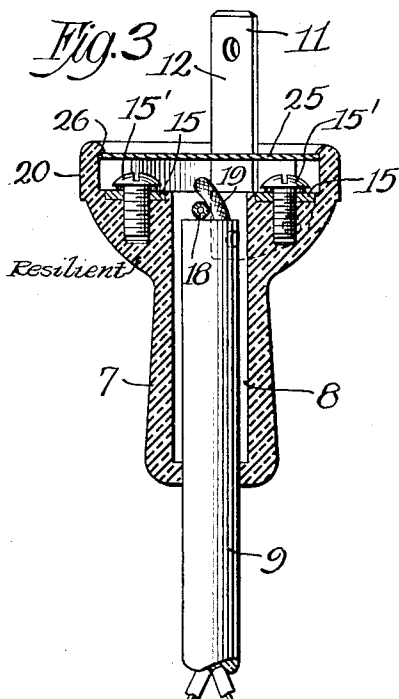
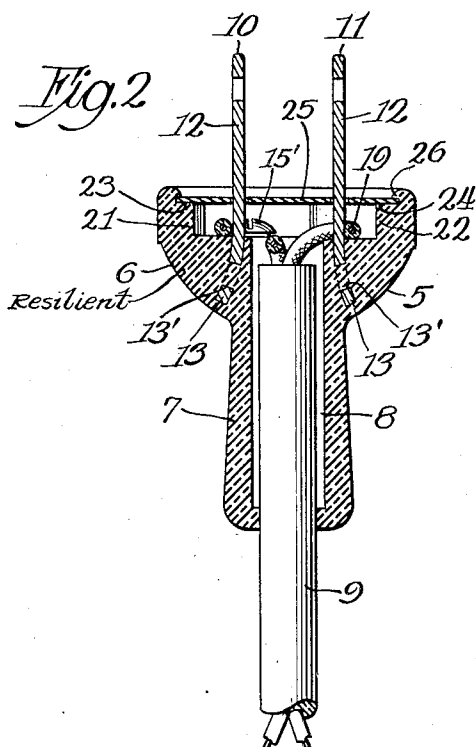
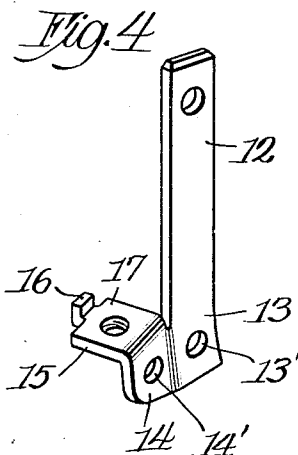
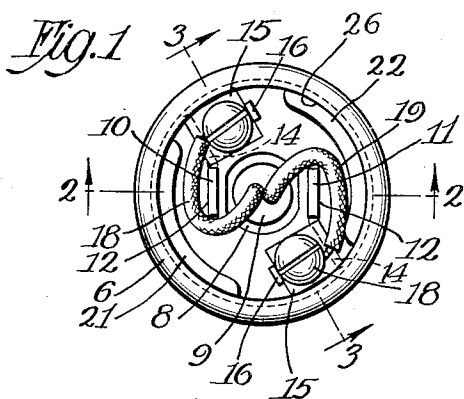
Jan. 21, 1936.

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2,028,375

ELECTRIC PLUG CONNECTER

Filed Feb. 26, 1930



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UNITED STATES PATENT OFFICE

2,028,375

ELECTRIC PLUG CONNECTER

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Application February 26, 1930, Serial No. 431,595

4 Claims. (Cl. 173—361)

This invention relates to electric connector plugs and, while adaptable to many forms of plug construction, is particularly designed for use in connection with plugs embodying a resilient main body which yieldingly or resiliently maintains the contact prongs in their normal spaced relation.

The objects of the invention are: to provide a plug in which the contact prongs are securely anchored and held against accidental removal in the course of ordinary use; to provide an improved structure in which an electric conductor may be satisfactorily connected to the respective prongs with great facility; to provide an improved structure which is convenient to use, economical and low in cost of manufacture; and, in general, it is the object of my invention to provide an improved electric plug connector of the type referred to.

Other objects and advantages of my invention will be understood by reference to the following specification and accompanying drawing in which I have illustrated an electric plug connector embodying a selected form of my invention.

In the drawing:

Fig. 1 is a front end view, a cover plate being removed to more clearly illustrate the construction.

Figs. 2 and 3 are sections on the lines 2—2 and 3—3, respectively, of Figure 1.

Fig. 4 is a perspective of one of the contact prongs forming a part of my improved plug structure.

Referring now to the drawing, my improved plug includes a main body 5, preferably of resilient material such as soft rubber. The main body includes a head or front end part 6 and a rearwardly extending handle part 7 formed integrally, for instance, by molding. The body 5 is provided with an axially disposed aperture 8 for receiving a conductor 9, which, in the present instance, is a duplex rubber-covered, or otherwise insulated, conductor. As shown in Fig. 1, the head part 6 of the plug body is preferably round in cross section, and the handle part 7 may conveniently be made of the same cross-sectional shape, although reduced in diameter, as indicated in the sectional views, Figs. 2 and 3.

Contact prongs 10 and 11 are associated with the plug body 5, the inner end portions of said prongs being embedded in the head part of the body, preferably by being molded in place during the formation of the body. The contact prongs 10 and 11 are of like construction, and hence it will be sufficient to describe only one of them.

As shown in Fig. 4, the contact prongs com-

prise a substantially straight front or outer end portion 12 and a rear or inner end portion 13 constituting a base portion which is preferably offset or bent slightly with respect to the plane of the outer end portion 12. The base portion 13 is also provided with an edgewise extension 14 and the latter is provided with a laterally extending ear 15 having a wire-retaining lug 16 formed at its free end. The base portion 13 and extension 14 constitute anchoring means and are preferably provided with openings such as shown at 13' and 14', respectively, through which the rubber or other body material flows during formation of the plug body, and whereby the contact prong is securely and permanently anchored in the body. By offsetting the inner end portion 13 and ear 14 with respect to the plane of the outer portion 12, I avoid the formation of a comparatively thin wall-like portion of the plug body between the inner end of the contact prong and the conductor-receiving opening 8. (See Fig. 2.) The holding power of the plug body upon the inner end of the contact prong is accordingly increased, and the possibility of pulling out the prong by breaking the plug body is considerably reduced.

Preferably, the ear 15 which constitutes a terminal plate is embedded in the front end of the plug body, as indicated in Fig. 3, so that the front or outer face 17 of the ear is exposed for facilitating connection of an electric conductor to the prong. Any suitable means may be used for connecting the conductor to the terminal plate 15, but I prefer to provide a binding post or screw 15' which engages a threaded opening in the terminal plate and is adapted to clamp a conductor between the head of the screw and the exposed face of the terminal plate. The respective wires 18 and 19 of the duplex conductor 9 are disposed in any suitable manner; for instance, around the respective contact prongs 10 and 11 as shown in Fig. 1, and connected respectively to the said prongs.

The head or front end of the body includes a forwardly extending annular flange 20 which may conveniently be provided with internal shoulders or ledges 21 and 22, respectively, on opposite sides of the contact prongs. These shoulders 21 and 22 also provide seats as indicated at 23 and 24 on which a closure plate 25 may be supported and serves with the annular flange 20 to enclose the terminal plates 17 and the conductor connections thereto. The cover plate 25 is apertured, as indicated, to fit over the prongs 10 and 11. For holding the

cover plate in place the flange 20 is provided with an inwardly extending lip part 26 which overlies a marginal portion of the cover plate as clearly shown in Figs. 2 and 3 and constitutes with the ledges 21 and 22, an annular seat for the peripheral edge of the cover plate. Assembling of the cover plate with respect to the body is permitted by reason of the distortability of the plug body incident to its construction of resilient material, such as soft rubber. In this connection, it will be noted that two separate ledges 21 and 22 are employed, for the reason that if a single continuous ledge were used, it might stiffen the annular flange 20 and thus interfere with the convenient flexing or bending of the flange in the application and removal of the cover plate. Moreover the ledges 21 and 22 are disposed in an annular series and are so arranged that there is an unobstructed space between the adjacent ends of successive ledges, and the prongs are so disposed that the contact plates 15 and binding posts 16 lie opposite these spaces or intervals so as to be conveniently accessible from the front of the body 6 when the cover plate 25 is not in place.

I am aware that changes may be made in the above-described structure without departing from the spirit of my invention, the scope of which should be determined by reference to the following claims, the same being construed as broadly as possible consistent with the state of the art.

I claim as my invention:

1. In an electric connector of the class described, the combination of a resilient material body having a conductor-receiving opening extending therethrough, an elongated contact prong having an inner end portion extending longitudinally into the body portion alongside said opening, said inner end portion having an edgewise extension bent outwardly relative to the plane of said end portion and embedded away from said opening, an ear extending laterally from the upper edge of said extension and embedded in the front end of the body so as to have its top surface substantially flush with the front end surface of the body, said ear being adapted to have an electric conductor connected thereto, and a lipped flange of resilient material formed integral with and extending forwardly from the front end of said body to form, with said front end, a receptacle for the connection between the conductor and prong.

2. In an electric connector of the class described, the combination of a resilient material body having a conductor-receiving opening ex-

tending therethrough, an elongated contact prong having an inner end portion extending longitudinally into the body portion alongside said opening, said longitudinally extending inner end portion being bent outwardly from the normal plane of the prong so as to diverge from said opening, thereby to provide adequate body support for the prong intermediate said opening and said longitudinally extending inner end portion, means facilitating the connection of an electric conductor to said prong adjacent the front end of the body, and a lipped flange extending forwardly from the front end of said body to form, with said front end, a receptacle for the connection between the conductor and prong.

3. In an electric connector of the class described, the combination of a resilient material body having a conductor-receiving opening extending therethrough, an elongated contact prong having an inner end portion extending longitudinally into the body portion alongside said opening, said inner end portion having an edgewise extension bent outwardly relative to the plane of said end portion and embedded away from said opening, said inner end portion and its extension being also bent outwardly relative to the plane of the outer projecting prong portion so as to diverge from said opening, thereby to provide adequate body support for the prong, an ear extending laterally outwardly from the upper edge of said extension, said ear being adapted to have an electric conductor connected thereto, and a lipped flange extending forwardly from the periphery of said body to form, with said front end, a receptacle for the connection between the conductor and prong.

4. In an electric connector of the class described, the combination of an insulating material body member having a conductor receiving opening extending therethrough, a pair of sheet metal contact prongs having inner end portions embedded in said body on opposite sides of said opening, extensions respectively projecting laterally from an edge of the embedded portion of each of said contact prongs, said extensions being bent to obtuse angular relation to the planes of the respective contact prongs from which said extensions project, and lips extending respectively from the outermost edges of the respective extensions and disposed on the front end of the body so as to constitute terminals adapted to have conductors connected thereto.

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