

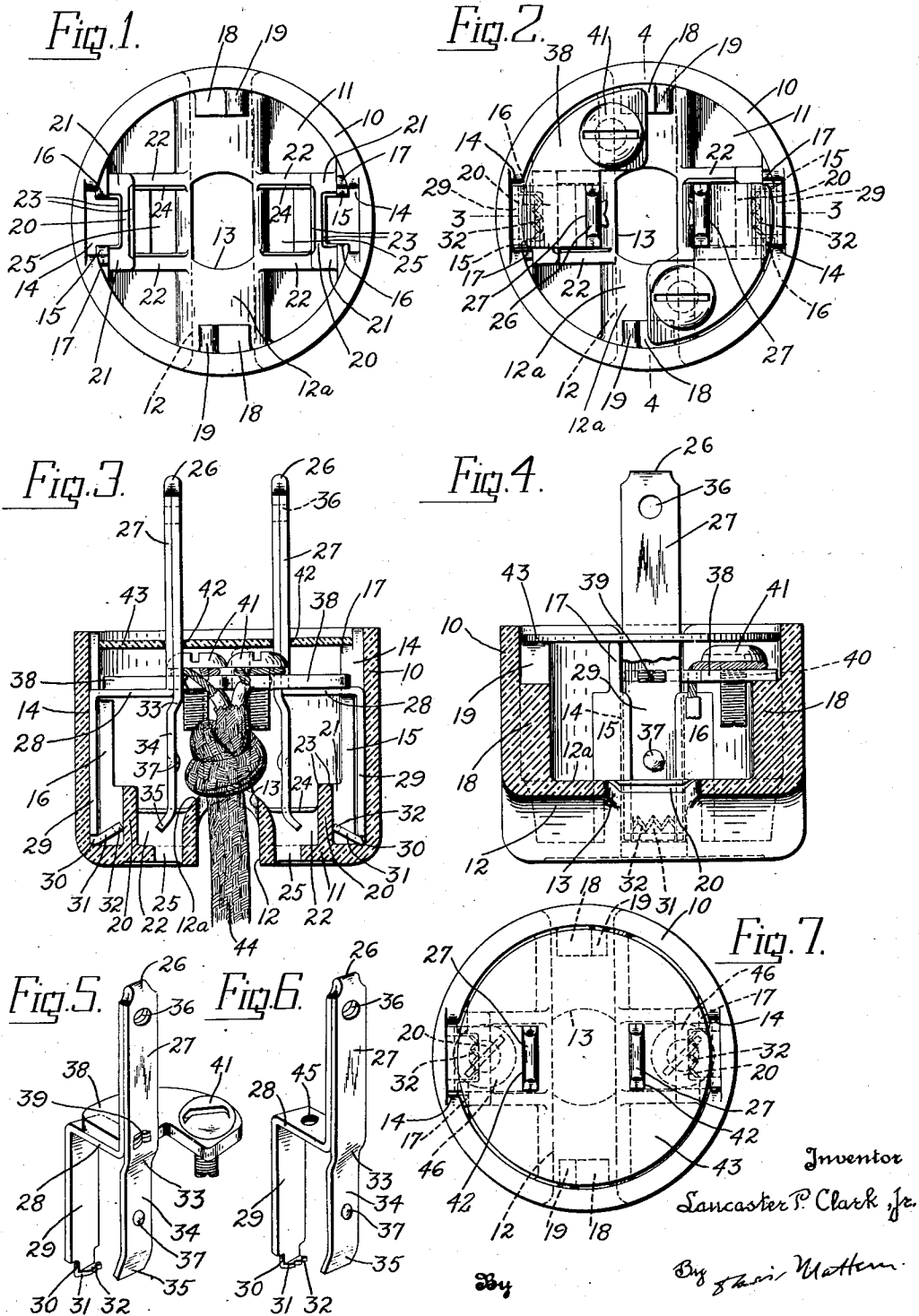
Aug. 13, 1935.

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2,010,847

ELECTRICAL PLUG DEVICE

Filed Nov. 19, 1931



UNITED STATES PATENT OFFICE

2,010,847

ELECTRICAL PLUG DEVICE

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Application November 19, 1931, Serial No. 575,990

1 Claim. (Cl. 173—361)

The present invention relates to improvements in electrical plug devices, and has for an object to provide a construction in which the plug contact units may be securely fixed in the plug housing without the use of screws or other extraneous fastening devices, and without the necessity of molding the same into the housing during the molding of the latter. A further object is to provide a structure in which the contact units will be reliably held against displacement or distortion. Another object is to provide a housing which may be conveniently molded, and which will have the desirable characteristics of light weight, compactness, and strength, and which will at the same time provide ample room for the convenient attachment of wires.

With the above and other objects in view, an embodiment of the invention is shown in the accompanying drawing, and this embodiment will be hereinafter more fully described with reference thereto, and the invention will be fully pointed out in the claim.

In the drawing:

Fig. 1 is a plan view of the plug housing, according to the present embodiment of the invention.

Fig. 2 is a plan view showing the plug housing with the contact units inserted therein, and with the closure disk removed.

Fig. 3 is a vertical sectional view taken along the line 3—3 of Fig. 2, the contact units being shown in elevation, and the closure disk being shown in place.

Fig. 4 is a vertical sectional view taken along the line 4—4 of Fig. 2, the closure disk being shown in elevation and a portion of the contact unit being broken away.

Fig. 5 is a perspective view of one of the contact units of the type illustrated in Figs. 2 to 4.

Fig. 6 is a perspective view of a modified form of contact unit.

Fig. 7 is a plan view of the plug device showing contact units of the type illustrated in Fig. 6 in place therein.

Similar reference characters indicate corresponding parts throughout the several figures of the drawing.

Referring to the drawing, the plug device housing, according to the present embodiment of my invention, is molded from hard rubber, "Bakelite", or other suitable material, and is of generally cylindrical hollow form comprising a cylindrical side wall 10 and a bottom wall or base 11 having a transverse channel 12 therein which forms a transverse rib 12^a interiorly of the bottom,

an outlet opening 13 being provided centrally of the channel through which the lead wire is adapted to be extended. The channel 12 permits this lead wire to be carried laterally to one side or the other, when another plug device is plugged in, and as will hereinafter more fully appear.

Upon the interior of the wall 10 and diametrically opposed at each side of the transverse rib there is provided a vertically disposed channel 14 having retaining flanges 15 and 16 at each side and which extend from the base to a point substantially spaced below the upper end of the wall 10. A vertically disposed rib 17 extends upwardly from the upper end of the flange 15, its upper end being spaced below the upper end of the wall 10 and forming a shouldered support for the closure disk hereinafter more fully referred to. Reinforcing ribs 18 are formed upon the interior of the wall 10 at each end of the transverse rib and are provided at their upper ends with reduced vertically disposed ribs 19 having their upper ends spaced below the upper end of the wall 10 and adapted to support the closure disk at points between the points of support provided by the ribs 17. The upper ends of the ribs 18 are spaced substantially below the upper end of the wall 10 and are adapted to form supports for portions of the contact units, as will presently more fully appear.

At the lower end of the channels 14 and inwardly spaced therefrom, a vertical wall 20 is formed on the base, its ends being connected at one side to the ribs 15 and 16 by reinforcing wall portions 21—21 and being connected at the other side to the transverse rib 12^a by somewhat shorter reinforcing wall portions 22—22. The upper edges of the wall 20 are preferably beveled or chamfered, as at 23, as are also the inner edges of the wall portions 22—22, as at 24. The base 11 is provided at each side of the rib 12^a and between the wall portions 22—22 with a rectangular plug receiving opening or slot 25.

A pair of plug devices or units are secured in the housing, and as shown in the illustrated embodiment, Figs. 2 to 5, each is preferably formed by bending a strip of suitable metal upon itself, as at 26 to form a double thickness substantially rigid plugging portion 27, the outer leg of which is bent outwardly, as at 28, and downwardly as at 29, the lower end of the portion 29 being reduced in width by cutting in the edge at the side, as at 30, and being bent inwardly and upwardly, as at 31, preferably at an angle of less than 45°, and having a series of sharp tooth-like projections 32 at its edge. The inner leg is

provided with an offset bend 33 at a point below the bend of the portion 28, and a single thickness resilient contact portion 34 extends below said bend 33, being diagonally bent at its lower end, as at 35, to facilitate entry of a plug. The plugging portion 27 is provided near its upper end with a hole 36 and the spring contact portion 34 is provided with a pressed out boss 37, which snaps into the hole 36 of a similar plug unit when the latter is plugged into the device through the slot 25. Upon the portion 28 there is disposed a binding post supporting plate 38 having an arcuate outer edge and a right angular inner edge, and secured to the plugging portion 27 by staking, as at 39. A tapped hole 40, Fig. 4, is provided at the extended end of the plate 38 and is engaged by a screw 41 which serves as a binding post for securing the end of a lead wire to the unit.

In the assembled relation the binding post end of the plate 38 is seated and supported upon the upper end of the rib 18.

In assembling the units the leg portion 29 is engaged in the channel 14, the reduced width of the lower bent end portion 31 being slightly narrower than the space between the flanges 15 and 16, so that the portion 29 may be slid downwardly in the channel behind said flanges 15 and 16. The spacing of the wall 20 from the channel is such that the end portion 31 must be forced into relation with said wall under slight compression, so that its toothed edge 32 will bite into the surface thereof, the angle of said portion 31 being such that upward pull on the plug causes the toothed edge to bite more firmly, thus effectually retaining the device against vertical displacement. The channel 14 and the retaining flanges 15 and 16 accurately align the plug devices vertically and prevent any possibility of lateral displacement and distortion.

The plugging portions 27 of the two plug units, are snugly engaged in slots 42 of a closure disk or washer 43 of insulating material fitted within the wall 10 and seated upon the ends of the ribs 17 and 19, which support the washer at four equally spaced points.

The lead wire 44 is extended through the opening 13 and secured to the binding posts, the arrangement providing ample room for attaching it with facility.

In Figs. 6 and 7 I have shown a modified form of plug and contact unit in which a tapped hole 45 is provided in the lateral portion 28 and is engaged by a binding post screw 46, the lead wires in this case being secured directly to the portion 28.

I have illustrated and described a preferred satisfactory embodiment of my invention, but it is obvious that changes may be made therein, within the spirit and scope thereof, as defined in the appended claim.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

In an electrical device, an insulating housing having a vertically disposed channel interiorly thereof comprising a vertically disposed side wall and vertically disposed end walls, and spaced apart oppositely disposed retaining flanges at each side of said channel in parallel relation to said side wall and extending inwardly from said end walls, said flanges forming opposed vertical grooves at each side of said channel, a contact making member comprising a portion inserted in said channel having vertical marginal edge portions disposed in said grooves and retained against lateral displacement thereby, and a reduced securing flange portion connected to said first mentioned portion extending angularly in the direction opposed to the direction of insertion of said contact member and projecting through the space between said flanges, and a vertical securing wall in said housing laterally opposed to said vertical side wall and bitingly engaged by the edge of said securing flange portion to secure the contact making member in the housing against vertical displacement, said securing flange portion being wedged between said vertical side wall and said vertical securing wall.

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