July 12, 1932. M. W. McARDLE 1,867,319

CIRCUIT CONNECTING PLUG

Filed July 19, 1930

Fig. 1.

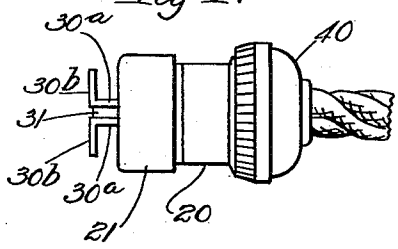


Fig. 2.

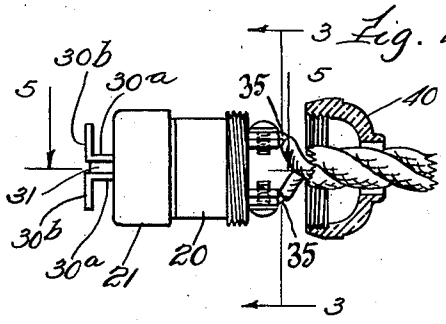


Fig. 3

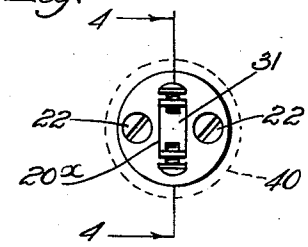


Fig. 4.

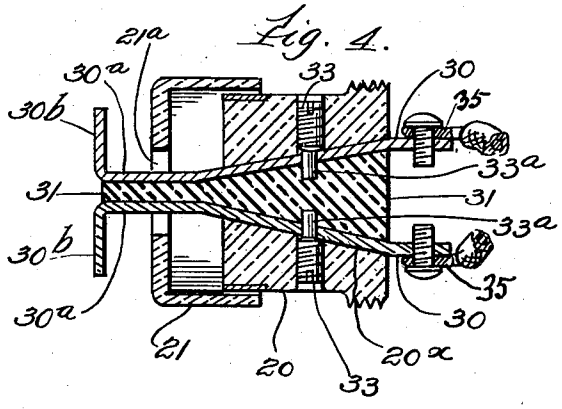


Fig 5.

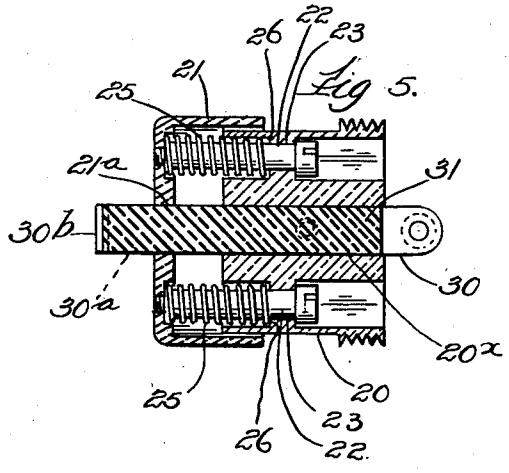
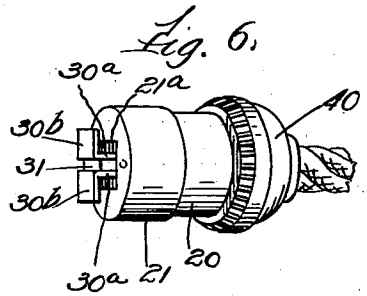


Fig. 6.



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Patented July 12, 1932 1,867,319

UNITED STATES PATENT OFFICE

MICHAEL W. McARDLE, OF CHICAGO, ILLINOIS

CIRCUIT CONNECTING PLUG

Application filed July 19, 1930. Serial No. 469,106.

The purpose of this invention is to provide an improved form of circuit-connecting plug adapted to cooperate with an apartment electric circuit installation having outlets for receiving circuit-connecting plugs, and arranged for engaging the plug contacts against direct withdrawal and specifically adapted to cooperate with an electric circuit installation for apartments which is disclosed in my pending application Serial No. 463,109 filed July 19, 1930.

The present invention consists of the elements and features of construction herein shown and described as indicated in the claims.

In the drawing:

Figure 1 is a side elevation of a circuit-connecting plug embodying this invention.

Figure 2 is a similar view showing the plug partly dissected by unscrewing the cap which encloses the circuit wire securements by binding screws.

Figure 3 is a detail elevation as might be seen at the line 3—3 on Figure 2.

Figure 4 is a section at the line 4—4 on Figure 3 on an enlarged scale.

Figure 5 is a section at the line 5—5 on Figure 2 on the same enlarged scale.

Figure 6 is a perspective view of the device in entirety.

Referring to the drawing, it may first be noted that the terminal contacts for engagement with a circuit installation are deflected oppositely away from each other, whereby the device is in T-form and thereby adapted for engagement against direct withdrawal from the engaged circuit elements. And the construction in detail is somewhat determined to accommodate this feature.

The device comprises a main body member, 20, and a terminal or head member, 21, both made of non-conductive material and connected for limited relative movement longitudinally of the main body member, 20, by headed screws, 22, 22, extending through parallel bores, 23, 23, in the main body member, said bores being counterbored from the other end to admit around the screws coil springs, 25, 25, stopped against the shoulders, 26, 26, formed by the last mentioned counterbore, and reacting on the terminal or head member, 21, into which the screws are screwed for attaching said terminal head member to the main body member, 20, for movement relatively to the latter limited in the direction of the reaction of the springs by the stopping of the screw heads on the shoulders, 24, 24, and in the other direction by the compressibility of the springs and the spacing of the terminal head member, 21, from the body member, 20, determined by the length of the screws.

Circuit terminal contacts, 30, 30, are formed of flat metal strips which extend through the main body member in an axial aperture, 20^x, thereof which is wide enough to accommodate the two strips spaced apart a substantial distance for admitting between them an insulating member, 31, which is held to the two contacts and to the body member by screws, 33, 33, set in laterally of the body member, 20, and having reduced terminals, 33^a, 33^a operating as pins engaging apertures formed in the contacts, 30, 30, registering with recesses in the insulating member, 31; and in view of the dimensions of the contacts and said insulating member being such as to fully occupy the axial aperture of the body member, the engagement effected by the pin terminal of the screws, 33, renders the contacts and the insulating member rigid with the body member. The axial aperture, 20^x, is formed wider at the outer end than at the inner end for the purpose of accommodating the contacts formed as shown for being more widely spaced at the outer than at the inner ends for attaching the circuit wires, 35; and the insulating member, 31, is correspondingly formed tapered widening toward the outer end, the other end portion of the insulation being narrower or thinner and parallel-sided for extending between and suitably spacing apart parallel portions, 30^a, 30^a, of the contacts which protrude from the body member and through an aperture, 21^a, in the terminal head member, 21, beyond which the contacts are flexed oppositely away from each other, as mentioned above, and as seen at 30^b.

Upon considering this construction it will be understood that the flexure of the contacts

transversely of their general direction of protrusion rendering each of the contacts in hook form and the total assembly in T-form, adapts the device to be engaged with the members of the electric circuit connected by the plug in a manner to prevent withdrawal of the plug in the reverse of the direction of protrusion of the contacts of the body member. The circuit wire connections to the outer ends of the contacts, 30, 30, are shielded by a screwed on cap, 40, apertured for admitting the circuit wire.

I claim:

1. A circuit connecting plug comprising in combination with a main body member and a terminal member, co-axially mounted one upon the other and movable relatively in the direction of their common axis, means connecting said main body member and terminal for limiting the relative co-axial movement, and spring means reacting between the main body and the terminal for holding them normally extending to the limit of the connecting means, said main body and terminal having aligned axial apertures, a pair of circuit contacts mounted insulatedly from each other in the main body member fixedly with respect to said body member as against longitudinal displacement relative to the latter and protruding therefrom at opposite ends thereof and at the end toward the terminal member protruding through said terminal member and a substantial distance therebeyond, said contacts at the ends thus protruding from the terminal being deflected in opposite directions away from each other in T-form, the opposite ends protruding at the opposite end of the body member being arranged for attachment of circuit wires.

2. A circuit connecting plug comprising in combination with a main body member and a terminal member co-axially mounted one upon the other and movable relatively in the direction of their common axis, both made of electrically non-conductive material, means connecting said main body member and terminal for limiting the relative co-axial movement, and spring means reacting between the main body and the terminal for holding them normally extending to the limit of the connecting means, said main body and terminal having aligned axial apertures, a pair of circuit contacts mounted insulatedly from each other in the main body member fixedly with respect to said body member as against longitudinal displacement relative thereto and protruding therefrom at opposite ends thereof and at the end toward the terminal member protruding through said terminal member and a substantial distance therebeyond, said contacts at the ends thus protruding from the terminal being deflected in opposite directions away from each other in T-form, the opposite ends protruding at the opposite end of the body member being arranged for attachment of circuit wires, and means for enclosing said last mentioned ends and the circuit-wire-connecting means thereof, said enclosing means being formed for admitting inleading circuit wires to said connections.

3. The construction defined in claim 1, the terminal being in cup form for telescoping over the end of the main body member and enclosing the protruding contacts at the range of relative movement of the terminal with respect to the main body member.

4. The construction defined in claim 1, the main body member being formed with an axial aperture widening from the inner end outwardly forming shoulders adapted to position the contacts longitudinally of said body member, an insulating member conformed in respect to thickness at a portion of its length to the varying width of said axial aperture throughout the length of the body member and throughout the remainder of its length being parallel sided, said insulating member being interposed between the contacts, and means for securing said contacts and said intervening insulating element together and to the main body member.

In testimony whereof, I have hereunto set my hand at Chicago, Illinois, this 15th day of July, 1930.

MICHAEL W. McARDLE.