March 8, 1938. A. BROWNSTEIN 2,110,197

ELECTRICAL ATTACHMENT FITTING

Filed Jan. 18, 1934

Fig. 1.

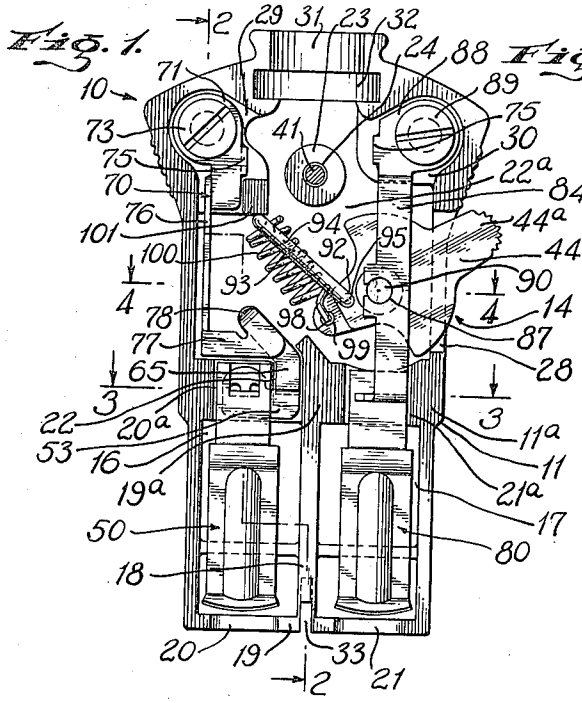


Fig. 2.

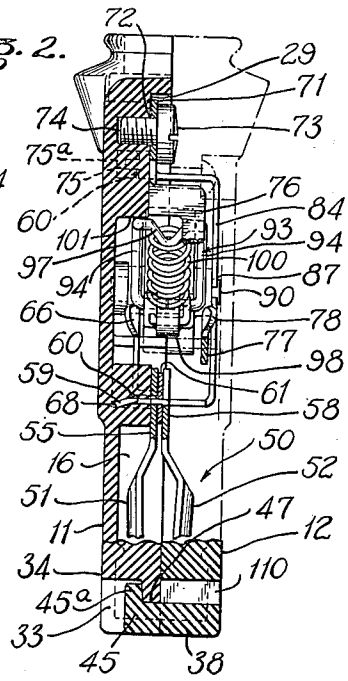


Fig. 3.

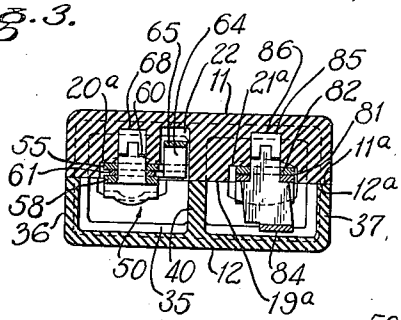


Fig. 5.

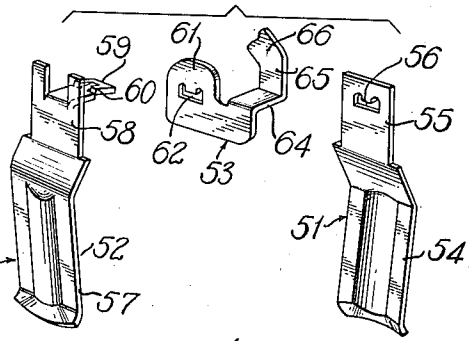


Fig. 6.

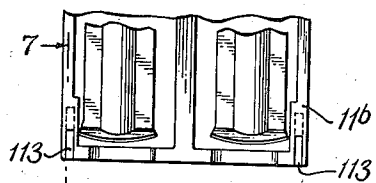


Fig. 7.

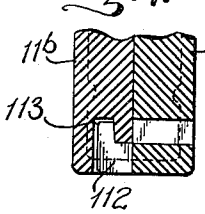


Fig. 4.

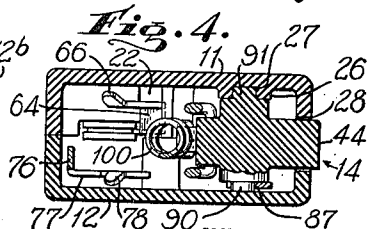
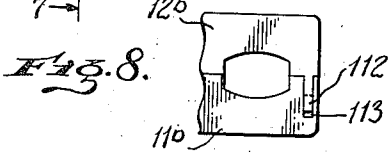


Fig. 8.



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ELECTRICAL ATTACHMENT FITTING

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Application January 18, 1934, Serial No. 707,064

13 Claims. (Cl. 200—51)

This invention relates to electrical attachment fittings. It is particularly directed to a socket connector for electrical appliances.

An object of this invention is to provide a device of the character described consisting of a two part housing and having highly improved means for attaching the housing parts together.

A further object of this invention is to provide a device of the character described having improved means for attaching the current carrying portions to the housing, the construction being such that all of the current carrying portions are mounted on one of the housing parts only.

Another object of this invention is to provide a neat, compact and rugged device of the character described, comprising comparatively few and simple parts, which shall be relatively inexpensive to manufacture, easy to assemble, and withal practical and efficient to a high degree.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claims.

In the accompanying drawing, in which is shown one of the various possible illustrative embodiments of this invention,

Fig. 1 is an elevational view of a device embodying the invention with one of the housing parts removed;

Fig. 2 is a cross-sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 1;

Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 1;

Fig. 5 is a perspective view of one of the current carrying portions, with the parts thereof separated;

Fig. 6 is a partial, elevational view of one end of the improved device, illustrating a modified construction;

Fig. 7 is a cross-sectional view taken on line 7—7 of Fig. 6; and

Fig. 8 is a partial, bottom plan view of the device shown in Fig. 6.

Referring now in detail to the drawing, 10 designates a socket connector embodying the invention, here shown to comprise a pair of mating housing parts or sections 11 and 12, made of any suitable insulating material and having meeting faces 11*a* and 12*a*. All of the current carrying portions and the switch 14 are mounted on the housing part 11.

The face 11*a* of the housing section 11 is formed with a pair of parallel pockets 16 and 17 separated by a wall 18. The end wall 19 of said section is formed with a pair of notches 20 and 21 communicating with the pockets 16 and 17, respectively. Said section 11 is further formed with a transverse wall 19*a* having grooves 20*a* and 21*a*, likewise communicating with the pockets 16 and 17, respectively, and forming depressed surfaces having narrow, perpendicular slots 68 and 86, for the purpose hereinafter explained. The transverse wall 19*a* is provided with a cut away portion 22 in the upper edge thereof communicating with the groove 20*a*.

In the upper portion of the housing section 11 is formed an enlarged chamber or depression 22*a*. Extending upwardly from the bottom surface of the depression 22*a* is a tubular portion 23 located on the mid-section of the housing part 11 and formed with a through opening 24. There also extends upwardly from the bottom surface of said chamber 22*a* a shallow boss 26 having a cylindrical opening 27. Said boss 26 is located substantially in alignment with and above the groove 21*a*. An elongated groove 28, is provided in an edge of one side wall of the chamber 22*a* for the purpose hereinafter appearing.

Adjacent the upper end of and on opposite sides of the section 11 are formed depressed surfaces 29 and 30 having transverse narrow slots 75*a*. Said housing section is also formed with a semi-circular neck 31 provided with a semi-circular groove 32.

The bottom end of the wall 18 and the bottom wall 19 is formed with an L-shaped notch 33 extending to the rear surface 34 of the housing part 11, thus forming an edge 47.

The other insulating housing section 12 is substantially similar in appearance to the part 11 but differs therefrom in several respects, as will appear hereinafter. Said section 12 is hollowed out or chambered, to form a bottom wall 35 and side walls 36 and 37. Said section is also formed with a lower end wall 38 aligned with the wall 19 and likewise formed with notches registering with the notches 20 and 21 of the section 11 and forming therewith openings for receiving a pair of parallel prongs on the electrical appliance.

Extending from the bottom wall 35 is a rib 40 substantially similar to the rib 18 and contacting the same. There also extends from the bottom wall 35 a tubular portion similar to the tubular portion 23 and forming therewith a through

opening for receiving an attaching bolt 41. The edge of side wall 37 of the housing part 12 is provided with a groove similar to groove 28 and forming therewith a slot for a switch lever 44, described in detail hereinafter. Said section 12 is also formed with a semi-circular neck portion 31 having a groove 32 and forming with the complementary neck portion of the section 11, an opening for receiving a duplex cable and a flexible guard therefor.

From the rib 40 extends a hook-shaped portion 45 received within the L-shaped slot 33 of the housing part 11, having an end 45a and engaging the edge 47. Thus the housing parts may be secured together by means of a single attachment bolt 41 and the hook engagement between the hook 45 and the edge portion 47. In assembling the housing parts, the hook 45 is first engaged with said edge portion 47 and the housing parts then swung or brought together and the bolt inserted through the tubular portions 23 and screwed tight.

As stated above, the current carrying portions of the device 10 and the switch are all mounted on the housing part 11 to facilitate manufacture and assembly. Thus the current carrying portions and the switch may first be mounted on the one housing section 11 and then the other housing section 12 applied thereto to complete the device. To this end, there is provided a prong receiving member 50 received within the pocket 16 and within the chamber formed in section 12, and made of three parts 51, 52 and 53, shown in detail in Fig. 5. The portion 51 is formed with a spring element 54 having a flat portion 55 formed with a slot 56. The member 52 is likewise formed with a spring element 57, similar to the spring element 54 and symmetrically disposed with respect thereto. Extending upwardly from the spring element 57 is a flat portion 58 formed with a transverse tab 59 cut therefrom. The tab 59 is formed with a plurality of rearwardly extending prongs 60 cut from the edges thereof and bent out of the plane of said tab. The third member 53 is formed with a flat portion 61 having a slot 62 similar to the slot 56. Extending from the portion 61 at right angles thereto, is an arm 64 from which extends upwardly a second arm 65 parallel to the portion 61 and having an inclined spring end 66. The member shown in Fig. 5 is assembled by passing the tab 59 through the slot 62 and then through the slot 56. The portions 55 and 58 thus contact opposite surfaces of the portion 61. The portions 58, 61 and 55 are received within the groove 20a and the tab 59 is forced into the slot 68 formed in the transverse wall 19a.

Upon forcing the tab 59 into the slot 68 the prongs 60 will press against a surface of said slot 68 and prevent the current carrying member 50 from being pulled out. If desired, the portions 55, 58 and 61 may be soldered to one another after the members 51, 52 and 53 are assembled. It will be noted that the arm 64 is received within the groove 20a and the arm 65 projects upwardly from said groove, the bent end 66 being inclined upwardly and outwardly.

There is also attached to the depressed wall 29 a current carrying member 70 having an ear 71 contacting said depressed wall and formed with a screw threaded opening 72, for a screw 73, the shank whereof is adapted to be received in an opening 74 formed in said depressed wall 29. Extending from the ear 71, at right angles thereto, is a tab 75 similar to the tab 59 and formed with prongs 60, said tab extending into the slot 75a formed in said depressed wall 29 and firmly fixing the current carrying member 70 to said wall. Extending from the ear 71 is a downwardly extending portion 76 disposed in a plane at right angles to said ear. The portion 76 projects into the chamber formed in the housing part 12 and extending from the lower end thereof is a portion 77 having an upwardly and outwardly extending end portion 78 disposed parallel to the end portion 66 of the member 53. The upper ends of the portions 66 and 78 may be flared outwardly somewhat so that a switch member, described hereinafter, may be pressed between said portions for closing the switch.

There is further mounted on the housing part 11 a second prong receiving member comprising a pair of similar, symmetrically disposed members 80 having spring elements similar to the spring elements 54 and 57 for receiving the prong therebetween. The upper ends of the members 80 are formed with flat, mutually contacting portions 81 provided with registering slots 82. The flat contacting portions 81 are received within the groove 21a and contact the transverse wall 19a.

A strip 84 having a tab 85 at the bottom end thereof extends through the slots 82 in the contacting portions 81 and is received in the slot 86, formed in the transverse wall 19a. The strip 84 is disposed parallel and adjacent to the wall 35 of the housing part 12 and is formed with a circular opening 87 aligned with the opening 27 in the boss 26 of the housing part 11. At the upper end of the strip 84 is provided an ear 88 contacting the depressed wall 30 and likewise provided with a screw threaded opening for receiving a binding screw 89 and being formed with a tab similar to the tab 75 received within the slot 75a in said depressed wall.

Rotatably mounted between the strip 84 and the housing part 11 is the switch lever 44 having outwardly extending, aligned pintles 90 and 91 journaled in the openings 87 and 27, respectively. The switch lever 44 projects through the registering slots 28 in the housing parts 11 and 12. The lever 44 is provided with a radial handle 44a on one side of the axis thereof and with an opening 92 on the opposite side of the axis. Hinged on said lever is a metal switch member 93 preferably made of a single piece of wire and having parallel portions 94 from which extend inwardly pintles 95 received within the opposite ends of the opening 92. The portions 94 are interconnected by an inwardly bent portion 97 forming a hump. The outer end of the lever 44 is reduced, as at 98, and formed with an opening 99. A coil compression spring 100 engages at one end thereof, within the opening 99 and receives the inwardly humped portion 97 of the member 93 in the opposite end thereof.

It will be noted that the opening 92 is off-set from a line passing through the opening 99, the axis of the lever and the handle 44a.

The operation of the switch will now be understood. In the position shown in Fig. 1 of the drawing, the switch is open, the spring 100 pressing the member 93 upwardly into contact with a stop portion 101 formed on the housing part 11. Should the lever handle 44a be pressed downwardly, however, the lever will swing in a clockwise direction, causing the spring 100 to be compressed. When the inner end of the spring 100 passes to the opposite side of the member 93, the spring will snap the member 93 in a coun-

terclockwise direction, into contact with the spring ends 66, 78.

A duplex conductor cord may extend into the device 10, through the neck thereof, so that one wire thereof may be attached to the binding screw 73 and the other wire thereof attached to the binding screw 89. When the switch is closed, the current will pass through the current carrying member 50, through the switch member 93 and through the current carrying member 70, to the binding screw 73. The current will also pass through the current carrying members 80, through the strip 84, to the other binding screw 89. The offset of opening 93 prevents the switch from "sticking" at dead center. The offset is thus in the lever 44.

The housing parts are preferably molded. For this purpose section 12 may be formed with a slot 110 aligned with the end 45*a* of the hook portion 45, the slot 110 being formed by a member inserted within the mold to permit molding of the member 45 with the housing part 12.

In Figs. 6, 7 and 8 is shown a modified construction comprising housing parts 11*b* and 12*b*, but instead of a central hooked portion 45 and slot 33, the housing part 12*b* is formed with a pair of hooks 112 received within openings 113 formed in the housing part 11*a*. The hooked portions 112 may be located on opposite sides of the housing.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiments set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing, is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. An electric attachment fitting comprising a pair of mating housing parts made of molded insulating material, one of said housing parts having an integral, molded hook portion adjacent one end and engaging said other housing part at an adjacent end, and fastening means adjacent the other ends of said parts for attaching said housing parts together.

2. An electrical attachment fitting comprising a pair of mating housing parts made of molded insulating material, current carrying portions disposed within said housing parts, one of said housing parts having a hook portion fixed with respect to said housing part engaging a portion of the other housing, said housing parts being provided with aligned through openings, and a fastening member extending through said openings for attaching said housing parts together.

3. An electrical attachment fitting comprising a pair of molded chambered mating housing parts, current carrying portions received between said parts, one of said parts having an integral projecting hook portion molded therewith, and the other of said housing parts being formed with a slot for receiving said hook portion, and having an integral, molded edge portion adjacent said slot engaging said hook portion.

4. An electrical attachment fitting comprising a pair of molded chambered mating housing parts, current carrying portions received between said parts, one of said parts having an integral projecting hook portion molded therewith, and the other of said housing parts being formed with a slot for receiving said hook portion and having an integral, molded edge portion adjacent said slot engaging said hook portion, and fastening means for attaching said housing parts together.

5. An electric attachment fitting of the character described comprising a pair of mating housing parts, means for attaching said housing parts together, said housing parts being provided with prong receiving openings at one end, and pockets adjacent said openings, spring contacts within said pockets for engagement with the prongs inserted into said openings, a pair of binding screws within said housing, a metallic strip attached to one of said binding screws and having a spring end, and a member attached to one of said spring contacts and having a spring end spaced from and parallel to said first spring end, an elongated strip interconnecting the other binding screw with the other spring contact, a switch lever journaled for swinging movement on one of the housing parts and on said elongated strip, a member pivoted on said lever and adapted to move between said spring ends, and a spring interposed between said lever and the outer end of said first pivoted member.

6. An electric attachment fitting comprising an insulating housing, a current carrying portion therein, said housing having a surface and a slot in said surface, said current carrying portion having a tab extending into said slot, said tab having a pair of rearwardly extending prongs cut from the edges thereof to fix said current carrying portion to said housing.

7. An electric attachment fitting of the character described comprising a housing made of insulating material and comprising a pair of mating parts chambered to form a pocket and having an opening for receiving a prong of an electric appliance, a member within said housing for receiving said prong, comprising a pair of spring elements, a pair of flat portions extending from said spring elements, at least one of said flat portions being provided with a slot and contacting a surface of one of said housing parts, said surface having a slot perpendicular to said surface and registering with the slot in said one of said flat portions, and a tab extending through said slot in said flat portion and said slot in said surface.

8. An electric attachment fitting of the character described comprising a housing made of insulating material and comprising a pair of mating parts chambered to form a pocket and having an opening for receiving a prong of an electric appliance, a member within said housing for receiving said prong, comprising a pair of spring elements having extensions, at least one of said extensions having a slot and contacting a surface of one of said housing parts, said surface being provided with a slot perpendicular to said surface and registering with the slot in said one of said extensions, and a tab extending through said slot in said extension and said slot in said surface.

9. An electric attachment fitting of the character described comprising a housing made of insulating material and comprising a pair of mating parts chambered to form a pocket and having an opening for receiving a prong of an electric appliance, a member within said housing for receiving said prong, comprising a pair of spring elements having extensions, at least one of said extensions being formed with a slot and contacting a surface of one of said housing parts, said sur-

face being provided with a slot perpendicular to said surface and registering with the slot in said one of said extensions, and a tab extending through said slot in said extension and said slot in said surface, said tab having rearwardly extending prongs cut from the edges thereof.

10. An electric attachment socket comprising a housing made of insulating material having a surface formed with a slot, a pair of spring elements having flat portions extending therefrom, one of said flat portions having a slot registering with the slot in said surface, and contacting said surface, and the other of said flat portions being provided with a tab cut therefrom and bent at an angle thereto and extending through the slot in the other flat portion and into said slot in said surface.

11. An electric attachment socket comprising a housing made of insulating material having a surface provided with a slot, a pair of spring elements having flat portions extending therefrom, one of said flat portions having a slot registering with the slot in said surface, and the other of said flat portions being provided with a tab cut therefrom and bent at an angle thereto and extending through the slot in the other flat portion and into said slot in said surface, said tab having a rearwardly extending prong cut from an edge thereof to hold said tab within said slot in said surface.

12. An electric attachment fitting comprising a pair of mating housing parts, means for attaching said housing parts together, said housing being provided with prong receiving openings at one end, and pockets adjacent said openings, contacts within said pockets for engagement with the prongs inserted into said openings, a pair of binding screws within said housing, a metallic strip attached to one of said binding screws and having a spring end, and a member attached to one of said contacts, and having a spring end spaced from and parallel to said first spring end, an elongated strip interconnecting the other binding screw with the other contact, a switch lever mounted between the housing parts, a member pivoted at the inner end thereof on said lever and adapted to move between said spring ends, a coil tension spring mounted at the inner end thereof on said lever and contacting the outer end of said pivoted member, the pivotal point of said member being offset from a line interconnecting the axis of rotation of said lever and the point of connection of the inner end of said spring to said lever.

13. An electric attachment fitting comprising a pair of mating housing parts, means for attaching said housing parts together, said housing being provided with prong receiving openings at one end, contacts adjacent said openings for engagement with prongs inserted into said openings, and a switch mounted within said openings comprising a switch lever mounted between the housing parts, a member pivoted at the inner end thereof on said lever, a coil tension spring attached at the inner end thereof to said lever and contacting at the outer end thereof, the outer end of said pivoted member, the pivotal point of said member being offset from a line interconnecting the axis of rotation of said lever and the point of connection of the inner end of said spring to said lever.

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