Oct. 8, 1929. L. BARNETT 1,730,873

ELECTRIC ATTACHMENT FITTING

Filed Dec. 22, 1927

Fig. 1.

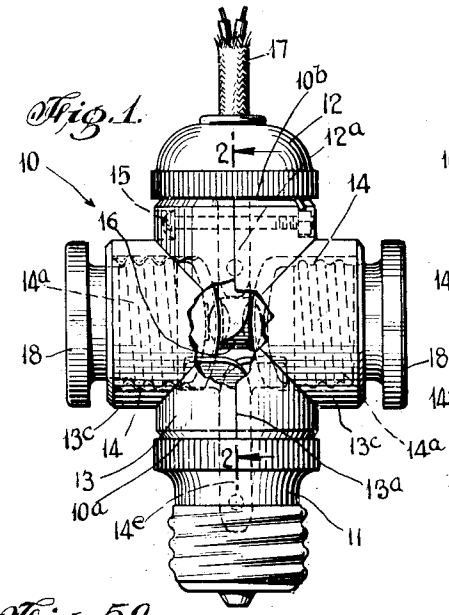


Fig. 2.

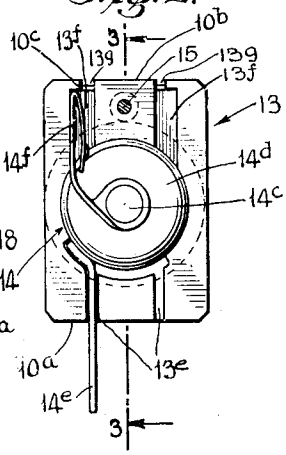


Fig. 3.

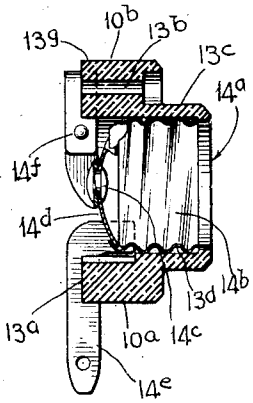


Fig. 5a.

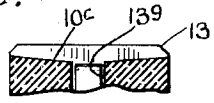


Fig. 4.

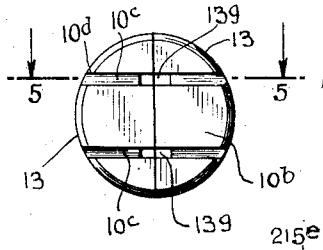


Fig. 5.

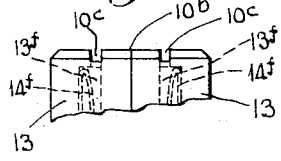


Fig. 6.

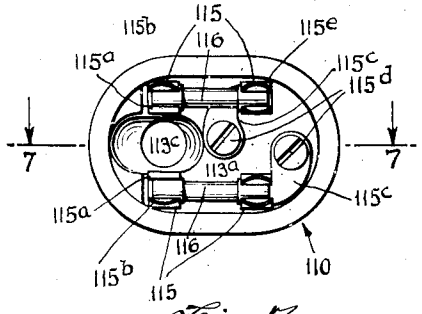


Fig. 8.

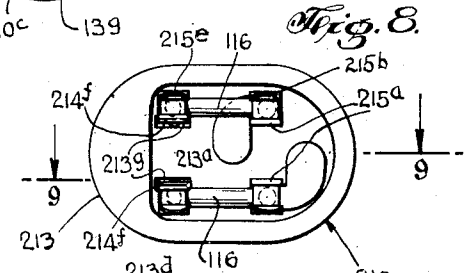


Fig. 7.

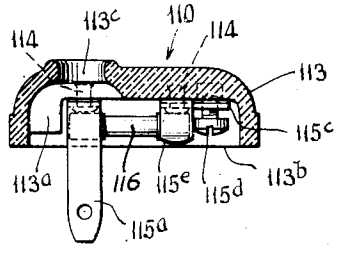
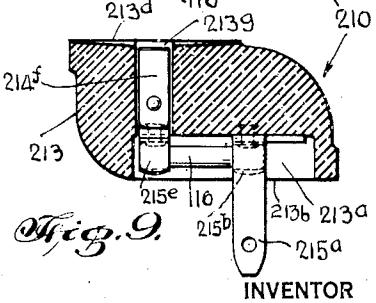


Fig. 9.



INVENTOR

Louis Barnett.

Patented Oct. 8, 1929 1,730,873

UNITED STATES PATENT OFFICE

LOUIS BARNETT, OF BROOKLYN, NEW YORK

ELECTRIC ATTACHMENT FITTING

Application filed December 22, 1927. Serial No. 241,808.

This invention relates to attachment fittings for electric circuits of the plug-in type for use in connection with portable appliances, lighting systems, storage battery charging circuits, radio sets and other like electric apparatus.

One object of the invention is to provide an improved fitting of the character described which shall include in novel combination, current carrying parts having means for readily inserting in series circuit therewith standard types of resistances or fuses. Where fuses are connected in circuit they are incorporated so as to be safely inspected or replaced by even those unskilled in the electric art and without requiring disassembling the fitting.

Another object of the invention is to provide, in fittings of the character described improved means for guiding the detachable terminals of connecting circuit portions whereby the cooperating current carrying engageable parts are easily and simply brought into proper register or alignment for connecting said circuit portions.

A further object of the invention is to provide improved attachment fittings of the character described comprising few and simple parts which shall form a neat, rugged, compact structure, which shall be cheap to manufacture and practical and efficient to a high degree in use.

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 constructions hereinafter described and of which the scope of application will be indicated in the following claims.

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

Fig. 1 is front elevational view of an attachment fitting embodying the invention, showing one practical application in connection with a separable attachment plug and cap of standard construction, portions of the fitting being broken away to expose the interior construction.

Fig. 2 is a view showing the interior side of the improved fitting, corresponding to a section taken on line 2—2 in Fig. 1.

Fig. 3 is a cross-sectional view taken on lines 3—3 in Fig. 2, showing the resistance or fuse member removed from the receptacle connection.

Figs. 4 and 5 are top plan and side elevational fragmentary views, respectively, of the receptacle end of the fitting embodying the invention showing the improved guiding means to facilitate registering or aligning the detachable engageable current carrying parts of connectible circuit portions.

Fig. 5[a] is a cross-sectional view taken on line 5—5 in Fig. 4.

Fig. 6 is a bottom plan view of a modified construction of the invention in the form of a fused cap-plug.

Fig. 7 is a cross-sectional view taken on lines 7—7 in Fig. 6.

Fig. 8 is a top plan view of another modification of the invention in the form of a fused receptacle-plug.

Fig. 9 is a cross-sectional view taken on lines 9—9 in Fig. 8.

Referring in detail to the drawing, 10 denotes an attachment fitting embodying the invention adapted to connect with a suitable power receptacle outlet or as here shown plugged into a circuit between a separable attachment plug 11 and cap 12, of any well understood standard construction.

The fitting 10 may comprise a body of two, identical, mating halves 13 which are preferably molded of insulating material, such as porcelain, pheno-condensate compounds or other suitable substances. The halves 13 have flat interior surfaces 13[a], which when said fitting is assembled, are in abutment and preferably releasably retain between them current carrying portions 14. A clamping screw 15 extending through aligned passages 13[b] in the halves 13 may be provided for holding said halves and portions assembled to form a rigid unitary structural unit.

The current carrying portions 14 also may comprise two identical structures, each hav-

ing a receptacle connection 14^a which includes a screw shell contact 14^b and a center contact 14^c carried by an insulating disc 14^d which is mounted on the inner end of the shell contact 14^b as shown in Fig. 3. Permanently fixed to extend from and electrically connecting with the outer side of the shell contact 14^b, there is terminal blade 14^e. The center contact 14^c is projected through the disc 14^d and electrically connects with a spring contact terminal member 14^f which extends in the opposite direction with relation to the blade 14^e.

The halves 13 are each formed with an extension 13^c on the side opposite the surface 13^a. Each extension 13^c has a through passage 13^d and forms a housing into which the receptacle connection 14^a is snugly fitted. See Figs. 2 and 3. The surfaces 13^a have depressed therein spaced parallelly aligned pairs of grooves 13^e and 13^f, which coincide to receive the terminal blades 14^e and spring terminal member 14^f, respectively. Said blades 14^e extend outwardly from the plug end 10^a of the fitting 10 and the members 14^f are enclosed within the receptacle end 10^b of said fitting. The grooves 13^f are extended through the receptacle end 10^b to form slot openings 13^g. These grooves besides housing the members 14^f are made sufficiently wide to provide a passage to permit insertion, through said openings 13^g, terminal blades 12^a of the cap 12 or similar connectibles of other circuit portions for contacting with the spring members 14^f.

An insulating spacer member 16 may be clampingly retained between current carrying portions 14 for positively separating and bracing said portion between the body halves 13 as shown in Fig. 1.

From the above description and the drawing, it is clear that the fitting 10 comprises few, simple, duplicate parts which are readily assembled to form a neat, compact, rugged unitary structure.

In using the invention, the assembled fitting 10 may be connected in circuit as shown in Fig. 1. To guard the circuit to which the fitting is applied from being overloaded and to protect the appliance connected in said circuit, that is, for limiting the maximum current flow passing from the attachment plug 11, through the fitting 10 to the portable conductor wires 17 extending from the cap 12, fusible element members 18 of standard screw-plug type may be inserted into the receptacle connections 14^a, thus completing the normally open series circuit provided by the receptacle connections 14^a of said fitting in each line of the latter. These plug fuses 18 are conveniently and readily inspected and can be replaced when necessary with safety by the user.

If desired the fitting 10 may also be used to reduce the available power supply, as for example, by inserting a suitable resistance or lamp (not shown) in place of one or both plug fuses, the screw shell 14^b of the receptacle connection 14^a being adapted to engage standard "Edison" base of lamps or standard resistance elements having screw plug terminals.

In connecting the receptacle end 10^b of the fitting 10 with the blades 12^a of the cap 12, some difficulty is experienced entering said blades into the slot opening 13^g in said end 10^b. To overcome this inconvenience, parallel guiding grooves 10^c are provided in the end 10^b aligning with the openings 13^g as is clearly shown in Figs. 4, 5 and 5^a. The grooves 10^c preferably extend to the periphery 10^d of the end 10^b and all that is necessary to register the ends of the blades 12^a with the openings 13^g is simply to bring said blade ends in contact with the end 10^b or the periphery 10^d, rotate the cap 12 until each blade end engages a groove 10^c and then slide the blade end along the grooves until they enter the openings 13^g. If desired the groove 10^c may be sloped from the periphery to the openings 13^g as shown in Fig. 5^a to better guide the blade ends to said openings.

It is to be understood that the fitting 10 may be formed with either or both the cap 12 or the plug 11 integral therewith, but is preferably made as shown in the drawing and described above because of its more universal adaptability.

In Figs. 6 and 7 a modified construction of the invention in the form of a fused cap-plug is shown. Here the fitting 110 comprises a one-piece cap body 113 formed of molded insulating material having a recess 113^a extending in from the under or bottom side 113^b thereof. Secured in said recess by anchor eyelet rivets 114 are the current carrying parts 115 which are seen to comprise terminal blades 115^a projecting from said bottom side and spring clips 115^b secured to the attached end of the blades. Spaced from said blades and clips are terminal members 115^c having screws 115^d which serve as binding posts to secure thereto portable conductor wires of an extending circuit (not shown) in the well understood manner. Said members 115^c carry spring clips 115^e which align with the spring clips 115^b forming pairs for engaging with terminal ends of enclosed fuses 116. The fuses 116 are preferable the "midget" type such as used in automobile and radio practice, the tubes enclosing the fuse element of said fuses being formed of transparent material, such as glass, so that the fuse elements are visible for inspection. The body 113 is provided with a through opening 113^c extending in from the side of the body opposite the bottom side 113^b and communicating with the recess 113^a to permit passage of the portable conductor wires (not shown) for connecting with the terminal members 115^c. The construction of the fitting 110 is not only

simple and compact but is also safe and convenient to handle for it is obvious the fitting must necessarily be disconnected from circuit to inspect and replace the fuses 116 housed in the recess 113^a.

In Figs. 8 and 9, another modification of the invention is shown, in the form of a fused receptacle-plug fitting 210. The fitting 210 as seen from the drawing, is similar in every respect to the fitting 110 described above and shown in Figs. 6 and 7 with the exceptions that are hereinafter noted.

The one-piece body 213 of the fitting 210 is provided with a flat outer side 213^d opposite to the bottom side 213^b, said side 213^d having through passages 213^g therein communicating with the recess 213^a, the latter extending in from the bottom side 213^b. Into said passages 213^g extend the free spring ends of contact members 214^f which are adapted to detachably connect with blade terminals of a portable circuit (not shown) in the well understood manner. The end of the members 214^f attached to the body 213 have spring clips 215^e which align with spring clips 215^b secured to the blades 215^a to form pairs for removably engaging with the terminal of "midget" fuses 116. To use the fitting 210 the terminal blades 215^a are connected to a suitable power supply source receptacle outlet, in the well understood manner, and the blade terminals of a portable circuit are plugged in to the receptacle passages 213^g. To inspect the fuses 116 the fitting 210 must be removed from circuit.

In both the modifications shown in Figs. 6 to 9 inclusive, the fuse elements limit the maximum current flow passing through the fittings from the source to the connecting portable circuit.

If desired, one or both demountable fuses 116 may be replaced by other forms of current limiting means, such as coil resistance (not shown) in the well understood manner.

It will thus be seen that there is provided devices in which the several objects of this invention are achieved and which are 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 embodiment above 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. In an electric outlet fitting, a body having an opening adapted to receive a detachable current carrying terminal therein, said body having a transversely extending groove aligning with and substantially the width of said opening for guiding said terminal to register with the opening.

2. In an electric outlet fitting, a body having an opening in the mid-portion thereof adapted to receive therein a detachable current carrying terminal member, and means communicating with the periphery of the body for guiding said member to register with said opening.

3. A detachable electrical connection comprising terminal blade members, terminal spring members for contacting with said blade members, a body for housing said spring members, said body having socket openings wherein said blade members are inserted for contacting with said spring members, and grooves aligning with and substantially the width of said openings for guiding the blades to enter the openings.

4. An attachment fitting of the character described comprising in combination a body formed of a plurality of identical mating insulating portions, current carrying members of identical construction forming parts of a single circuit mounted between portions of said body, and current limiting means, said members each having means for connecting said current limiting means in series circuit therewith.

5. An attachment fitting of the character described comprising in combination a two piece mating insulating body portion, current carrying members forming parts of a single circuit held between said pieces and current limiting means, said members each having means for connecting said current limiting means in series circuit therewith, said body pieces each having a passage wherein a current limiting means is inserted into circuit without disassembling the fitting.

6. An attachment fitting of the character described comprising an insulated body portion, current carrying members of parts of a circuit extending through the body, ends of said members terminating in receptacle connection terminals, the other ends of said members terminating in plug connection terminals, the mid-portion of each of said members having a screw connection receptacle extending to the exterior of said body and joining in series with said circuit parts adapted to receive a current limiting element.

7. In an attachment plug of the character described, a current carrying member comprising a screw receptacle having a shell contact and a center contact insulated from said shell contact, a spring terminal connected to said center contact, said spring terminal extending laterally with respect to said shell contact, and a blade terminal connected to extend from said shell contact in alignment with said spring terminal.

8. A device adapted to be interposed between the two conventional parts of a separable attachment plug comprising an in-

sulating body having parallelly spaced flat sides, one of said sides having socket recesses extending perpendicularly into the body, spring terminals within said recesses adapted to receive the blades of a cap, contact blades projecting from the other side of said body perpendicularly therefrom adapted to engage the spring terminals of a separable plug, and screw receptacle means extending through said body between said sides adapted to receive current limiting means in series circuit with each of said terminals.

9. A device adapted to be interposed between two conventional parts of a separable attachment plug comprising an insulating body portion formed of identical mating halves, said body having parallelly spaced flat sides, one of said sides having socket recesses extending perpendicularly into the body, spring terminals within said recesses adapted to receive the blades of a cap, contact blades projecting from the other side of said body perpendicularly therefrom adapted to engage other spring terminals of a separable plug, current limiting means, each extending through one of said halves to the exterior thereof, and means for demountably connecting each current limiting means in series circuit between a spring terminal and a contact blade.

In testimony whereof I affix my signature.

LOUIS BARNETT.