Feb. 16, 1937. N. GIZZARELLI 2,071,067

PLUG CONNECTER

Filed May 20, 1936

Fig. 1.

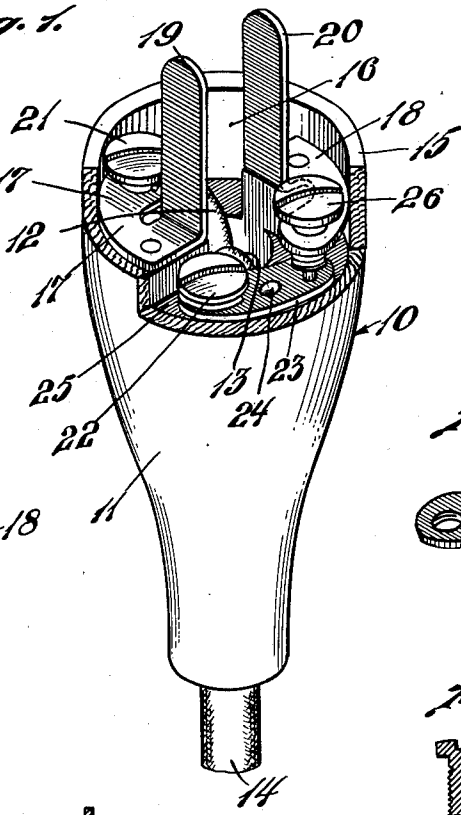


Fig. 3.

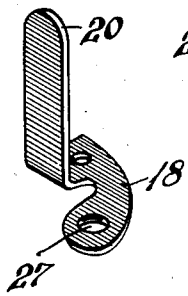


Fig. 4.

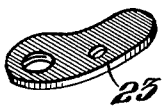


Fig. 5.

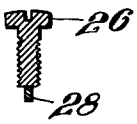
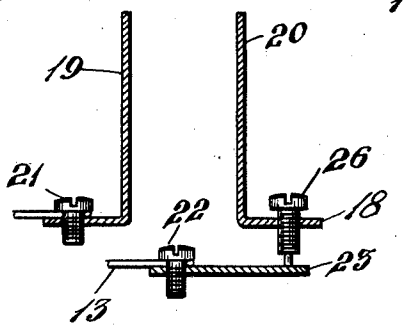


Fig. 2.



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Patented Feb. 16, 1937

2,071,067

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PLUG CONNECTER

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Application May 20, 1936, Serial No. 80,758

4 Claims. (Cl. 200—115.5)

My invention relates to plug connecters for household electrical appliances such as electric irons, sewing machine motors, washing machine motors, and the like.

Household electrical appliances are commonly placed in position such that they may be cut in and out of circuit by inserting into suitable wall sockets a pair of conducting blades forming parts of plugs. The major portion of such a plug is a body of insulating material connected to the end of a flexible conducting cord. Such plugs are in general of the unfused type and although it has been proposed to employ fuses with plugs to be used with household appliances, the fused plugs as a matter of fact have not made a serious impression on the art.

It is an object of my invention to provide a fuse for a plug having in general a common form and so arranged that the fuse is readily accessible.

Another object of my invention is to provide a fused plug in which the fuse member is confined in use, but is visible immediately upon withdrawing the plug from the socket.

Still another object of my invention is to provide a fused plug the body of which is composed of only a single piece of insulation.

A further object of my invention is to provide a fused plug arranged for replacement of the fuse with maximum facility.

A still further object of my invention is to provide a fused plug which can be manufactured with a minimum of variation from the prevailing form.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a perspective view of a fused plug in accordance with my invention, parts being broken away for purposes of illustration;

Fig. 2 is a sectional elevation, somewhat diagrammatic in character, of the conducting portions of the plug shown in Fig. 1;

Fig. 3 is a perspective view of one of the conducting members illustrated in Fig. 1 having a contact blade and an aperture for a screw type fuse;

Fig. 4 is a detail perspective view of the terminal plate illustrated in Fig. 1 against which one end of the screw fuse abuts;

Fig. 5 is a sectional detail view of the screw fuse shown in Fig. 1.

It is well known that considerable inconvenience is caused by the blowing of the fuses in the main fuse box in dwellings due to the fact that appliances such as electric irons, washing machines and the like may draw more current than the fuse in the circuit to which it is connected will carry. Further, in case a short-circuit develops in the plug or in the flexible cord of the appliance or the appliance itself the main house fuse may blow. In either case, some or all of the lights of the house may be put out of use and at times it may be necessary to wait for someone from outside to come in to replace the fuse before the lights can be turned on again. By placing a fuse in the plug of a flexible cord for each appliance not only is the blowing of the house fuse or the fuses in the branch circuit of a dwelling prevented, but the fuse, if properly placed in the plug, can be renewed much more conveniently and by anyone familiar with the use of a screw driver so that it is never necessary to wait for some person more or less experienced in electrical matters to return home or to come in from the outside to renew the fuse; and the following is a more detailed description of the present embodiment of this invention, illustrating the preferred means by which these advantageous results may be accomplished:

With reference to the drawing, 10 designates a plug having a body 11 of insulating material preferably molded or formed integral so as to be in one piece. The body 11 has the general outline of a well-known type of plug body and it will be understood to have a central longitudinal aperture through which extends the insulated conductors 12 and 13 carried in the flexible cord 14 and which extend to the iron, motor or other household appliance. At one end, the body 11 is recessed or provided with a flange 15 providing a cup or cavity 16 within which are mounted the plates 17 and 18 to which are fixed in the usual manner the conducting blades 19 and 20 which extend axially of the body 11. Plates 17 and 18 further are fastened to the transversely extending surface of the bottom of the cavity 16 by rivets in the usual manner. Further, plate 17 has thereon the usual threaded terminal screw 21 making connection with the end of the conductor 12. In the particular arrangement shown, however, the conductor 13 makes contact with the terminal screw 22 threaded into a plate 23 which is held by a rivet or pin 24 on the transverse surface 25 of a recess cut into the bottom of the cavity 16.

The plates 18 and 23 serve as the terminals of a fuse means which may have the form of a fuse

screw 26 which is adapted to thread into the threaded aperture 27 in the plate 18 and to contact with the surface of the plate 23 at its lower end. The plate 18 is shown as projecting above the plate 23 for this purpose so that the fuse screw 26 can be threaded into plate 18 axially of the plug and is immediately visible and accessible as soon as the blades 19 and 20 have been withdrawn from the socket, or as soon as a sheet of paper or the like which is sometimes used as a closure has been removed from the cavity 16.

The fuse screw 26 illustrated is of a known type and is shown as having a reduced end 28 which acts as the fuse proper and is adapted to melt when an excess of current passes through it and breaks the circuit.

It will be seen, therefore, that a plug in accordance with my invention can be re-fused by merely pulling it from the socket and replacing the screw fuse 26. This can be done by anyone familiar with a screw driver, and the fuse member is further accessible and usually also visible as soon as the plug has been removed from the socket. In case the appliance goes out of operation, the plug can be readily tested to determine if its fuse is at fault by screwing down on the screw 26. If the fuse screw can be turned down, it shows that its lower end has melted off and a new screw must be put in place of the one previously used. However, when the plug blades or contacts are in circuit, the fuse is entirely confined by insulation so that there will be no free flash and no danger of igniting exterior objects or causing an alarm to people present.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. A plug connecter having a pair of spaced conducting circuit members, blades for insertion into a socket to place the plug in use, one of said blades connected in circuit with said spaced members and one of said spaced members having a threaded aperture, the axis of which intersects the other of such members, and a fuse screw in said aperture whose head is accessible when the plug is out of its socket but which is concealed when the plug is in the socket and whose tip is normally in contact with said other member.

2. A plug connecter comprising a body of insulation having a flange projecting at one end to form a cup whose bottom surfaces are generally at right angles to the longitudinal axis of the body, conducting blades fixed to said body at points in said cup and projecting therefrom parallel to the axis of said body, a pair of plates in circuit with one of said blades but spaced axially of said body and fixed to the transverse bottom surfaces of said cup, one of said plates having a fuse member mounted therein and normally in contact with said other plate and so arranged as to be accessible when said blades are removed from a socket but to be concealed when the connecter is plugged in.

3. A plug connecter comprising a body of insulation having a flange projecting at one end to form a cup whose bottom is recessed to provide a flat surface transverse to the longitudinal axis of the body, a pair of conducting blades fixed to said body at points within said cup for placing the connecter in use by insertion into the socket, a conducting plate integral with one of said blades and having a threaded aperture therein whose axis is at right angles to said bottom surface, a conducting plate fixed to said bottom surface and having a portion intersecting the axis of said threaded aperture, a screw type fuse member in said threaded aperture contacting with said second plate, and connections whereby said second plate is placed in circuit when the blades are in a socket.

4. A plug connecter comprising a body of insulation, conducting blades fixed to said body and projecting therefrom parallel to the axis of said body, a pair of spaced plates in circuit with one of said blades, and fuse means mounted in one of said plates and normally in contact with the other plate and arranged to be accessible for replacement upon removal of said blades from a socket but to be concealed when the connecter is plugged in.

NICKOLAS GIZZARELLI.