Nov. 11, 1941. G. EATON 2,262,272

ELECTRIC PLUG

Filed Nov. 28, 1938

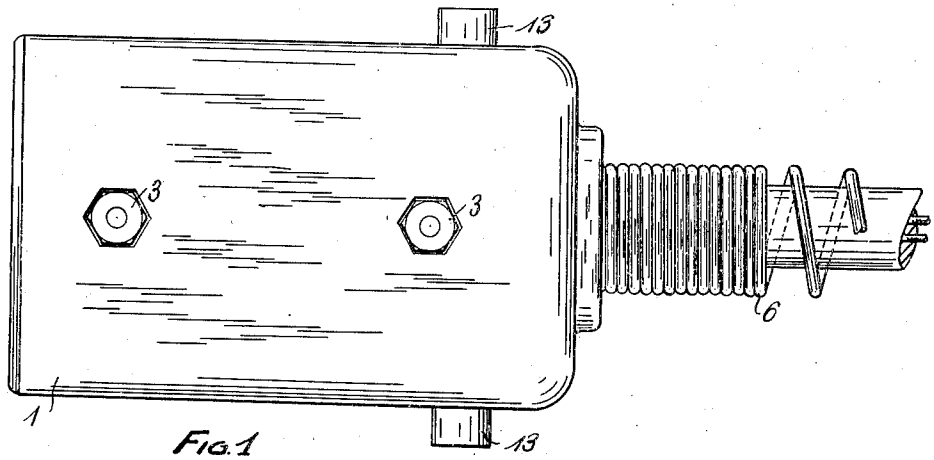


FIG. 1

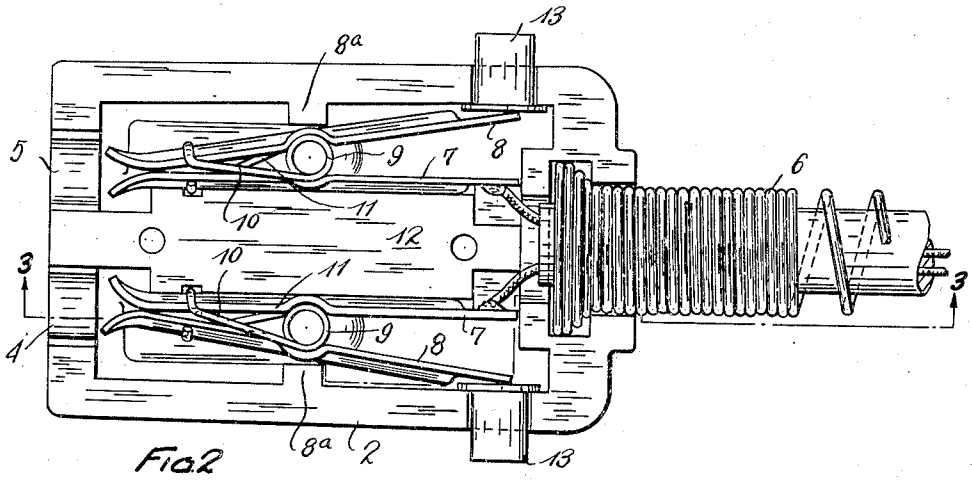


FIG 2

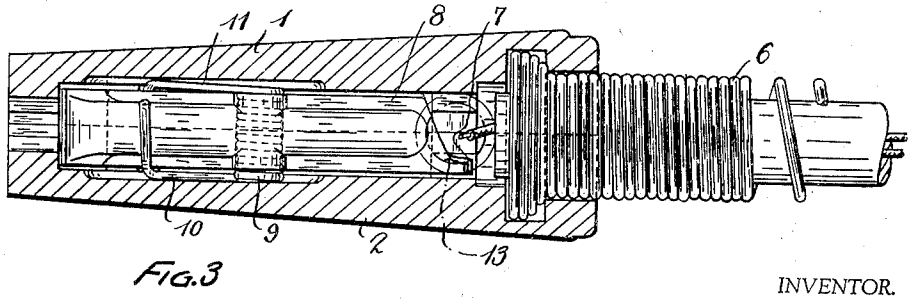


FIG. 3

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ELECTRIC PLUG

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4 Claims. (Cl. 173—332)

This invention relates to the art of electric plugs.

In my prior Patent Serial No. 1,905,452, April 25, 1933, there is disclosed an electric plug for use in connection with electric toasters, etc., and there is provided means for facilitating the application and removal of the plug. In this patent there is employed a single button member which, upon being depressed, will open the clip members which are normally in closed position. Thus it is not necessary to employ the other hand for holding the toaster or the like while connecting or disconnecting the plug, and such form of plug serves very well in connection with toasters, etc.

However, there are some instances where it might not be very practical to use the form of plug above referred to, as for instance in the case of an electric iron with a guard at the rear of the terminals, the purpose of the guard being to serve as a means of support for the iron when not in use, as will be readily understood. Such a guard or support might interfere with the functioning of the above mentioned type of plug since the guard would prove an obstruction to the hand of the user in grasping the plug when applying or removing the same.

Therefore, the object of the present invention is to device an electric plug with means so arranged that they can be manipulated from the sides of the plug for releasing the clip members during the application and removal of the plug, and without any interference by the guard or any other such support or projection on an electric iron or the like.

Other objects will appear from the following description and claims when considered together with the accompanying drawing.

For a better understanding of the construction of the clip members, reference may be had to my co-pending application Serial No. 56,258, filed December 26, 1935.

Fig. 1 is a plan view of my present improved form of device;

Fig. 2 is a plan view of the interior of my device with the one casing member removed; and

Fig. 3 is a view taken on line 3—3 of Fig. 2.

It is to be understood that the present form of disclosure is merely for the purpose of illustration and that there may be devised various modifications without departing from the spirit of this invention as herein set forth and claimed.

Referring now to the accompanying drawing in detail, the casing is of substantially oblong form and comprises the two duplicate casing members 1 and 2 of electric insulation material which are connected together by means of the usual means indicated in the drawing in a general way by reference numeral 3. The front end of the casing is provided with the usual openings 4 and 5 to permit application of the clip members to the prongs of the electric appliance in the usual manner. The rear end of the casing is suitably formed to receive the end of the cable and its sheath 6, for connection of the electric wires to the ends of the clip members in the casing, as will be understood.

The two clips are also of duplicate form and each comprises a pair of duplicate members 7 and 8 which extend normal to the front and rear walls 1 and 2 of the casing and which are pivotally connected together at about mid-length thereof. This means of pivotal connection consists of a spring in each case, with the coil portion 9 thereof arranged between the clip members 7 and 8 to serve as a bearing therefor as well as a means for normally forcing the same towards closed position. As indicated in the drawing, the clip members are formed with portions within which the coils 9 may seat. The end portions 10 and 11 of the springs extend angularly forwardly and have their ends terminating across the ends of the opposite clip member, in each instance, as clearly indicated in Fig. 2. With this arrangement, the forward ends of the clip members are forced normally towards each other so as to close the clip in each instance, the rear end portions thereof being divergent with respect to each other. As indicated in the drawing, the clip members are reinforced by the longitudinally extending ribs and the ends of the springs terminate so far forward that they always ensure effective closing engament of the clip members upon the terminals, and thus a dependable electric connection.

Each of the casing members 1 and 2 is provided with a middle longitudinally extending partition or wall between the spaces within which the clips are located. The inner or adjacent clip members 7 extend in engagement along this partition wall which is here indicated by reference numeral 12, the inner clip members extending practically parallel to each other, while the outer clip members 8 diverge outwardly. The rear ends of the clip members 7 have welded thereto, or secured in any other suitable manner, the ends of the electric wires which are led in through the cable and sheath 6. The rear ends of the partition walls 12 are

cut away at the corners thereof so as to accommodate the passage of the wires, as indicated in Figs. 2 and 3.

The rear ends of the clip members 8 are adapted to be engaged by the duplicate buttons 13 of electric insulation material arranged at the opposite sides of the plug. These buttons may be round or of any other shape, the opening therefor in each instance being formed half in the one casing member and half in the other casing member, thereby making the casing members of duplicate form in this as well as in other respects, as above stated. The inner ends of the buttons 13 are formed with the flanges 13*a* which are larger than the openings through which the buttons extend so as to prevent the same from falling out of the apertures therefor. Depression of these buttons by the thumb and finger of the user's hand will cause the clip members 8 to be rocked about their axes so as to open the forward ends of the clips for facilitating application or removal of the plug. As indicated in the drawing, the rear end of the partition wall 12 has sufficient full portions against which the rear ends of the clip members 7 have bearing engagement so that the clip members 7 will not be disturbed from their still position during the rocking movement of the clip members 8 by inward depression of the buttons 13. The middle portion of the clip member 8, in each instance, is provided with an abutment on the inner wall of the casing in the region of the spring coil, as indicated at reference numeral 8*a*, as a means of further ensuring the proper assembly of the parts during operation of the buttons 13 as well as at other times. Again it should be emphasized that both casing members are formed with the same depressions and projections which supplement each other for the accommodation of the parts when in assembly.

From the above it will be understood that upon depressing the buttons 13, the clip members 8 will be opened so as to then present the open ends of the clips in register with the openings 4 and 5 of the casing, whereby the plug may be applied to or removed from the electric appliance with the use of but one hand and without having to touch the appliance at all with the other hand. Upon removal of the plug from the appliance and upon release of the buttons 13, the parts will assume the position indicated in Fig. 2.

Furthermore, with the present form of device, the buttons are capable of being operated by the finger and thumb at the sides of the plug outside of the zone occupied by the guard or support above referred to and hence without any interference by such means when employed with an electric iron for instance. In this way, the same convenience which I have provided in the plug for electric toasters, etc. can now be enjoyed in connection with the other class of electric appliances as above referred to.

The construction and arrangement of the parts in such a manner that the casing members are exact duplicates means a saving in cost of manufacture and assembly of the parts.

What I claim is:

1. An electric plug comprising an electric insulated casing of substantially oblong form, a pair of terminal prong receiving sockets removably enclosed within said casing, said sockets each comprising a pair of members having pivotal connection with each other substantially mid-length thereof and having their pivotal axes parallel to each other and substantially normal to the front and rear walls of the casing, said members being yieldingly constrained laterally towards each other for socket formation and prong engagement, each inner socket member having means of electric cord connection to the rear end thereof, release means of electric insulation material extending through each side of the casing near the rear end thereof and having an internal portion for maintaining the same in assembly and for engagement with the rear end portion of the adjacent outer socket member in each instance for opening the same, means for holding the inner socket members in proper position during rocking movement of said outer socket members, and the outer parts of said release means being adapted for depression by the thumb and finger of the user's hand for opening the sockets.

2. An electric plug comprising an electric insulated casing of two duplicate half sections of substantially oblong form, a pair of terminal prong receiving sockets removably enclosed within said casing, said sockets each comprising a pair of members having pivotal connection with each other substantially mid-length thereof and having their pivotal axes parallel to each other and substantially normal to the front and rear walls of the casing, said members being yieldingly constrained laterally towards each other for socket formation and prong engagement, each inner socket member having means of electric cord connection to the rear end thereof, the half sections of said casing having complementary duplicate ribs forming together a middle longitudinally extending portion against which the adjacent inner members of the sockets engage as a fixed abutment, release means of electric insulation material extending through each side of the casing near the rear end thereof and having operative engagement with the rear end portion of the adjacent outer socket member in each instance for opening the same by rocking movement thereof with respect to said inner socket members, and the outer parts of said release means being adapted for depression by the thumb and finger of the user's hand for opening the sockets.

3. An electric plug comprising an electric insulated casing of substantially oblong form, a pair of terminal prong-receiving sockets removably enclosed within said casing, said sockets each comprising a pair of members having pivotal connection with each other substantially mid-length thereof and having their pivotal axes parallel to each other and substantially normal to the front and rear walls of the casing, said members being yieldingly constrained laterally towards each other for socket formation and prong engagement, each inner socket member having means of electric cord connection to the rear end thereof, release means of electric insulation material extending through each side of the casing near the rear end thereof and having an internal portion for maintaining the same in assembly and for engagement with the rear end portion of the adjacent outer socket member in each instance for opening the same, abutment means extending along the middle of said casing for engagement by the adjacent inner members of the sockets upon opposite sides of said abutment, and the outer parts of said release means being adapted for depression by the thumb and finger of the user's hand for opening the sockets.

4. An electric plug comprising an electric insulated casing of substantially oblong form, a pair of terminal prong-receiving sockets removably enclosed within said casing, said sockets each comprising a pair of members having pivotal connection with each other substantially mid-length thereof and having their pivotal axes parallel to each other and substantially normal to the front and rear walls of the casing, said members being yieldingly constrained laterally towards each other for socket formation and prong engagement, each inner socket member having means of electric cord connection to the rear end thereof, release means of electric insulation material extending through each side of the casing near the rear end thereof and having an internal portion for maintaining the same in assembly and for engagement with the rear end portion of the adjacent outer socket member in each case for opening the same, means for holding the inner socket members in proper position during rocking movement of said outer socket members, said means including an abutment extending along the middle of said casing interior for engagement by the adjacent innner members of the sockets, and including also an abutment upon the opposite inner sides of the casing for engagement by the outer socket members in the region of the pivotal axis of the socket members in each instance, and the outer parts of said release means being adapted for depression by the thumb and finger of the user's hand for opening the sockets.

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