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E. F. TAYLOR

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SAFETY WALL SOCKET CONNECTION AND PLUG

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Fig. 1.

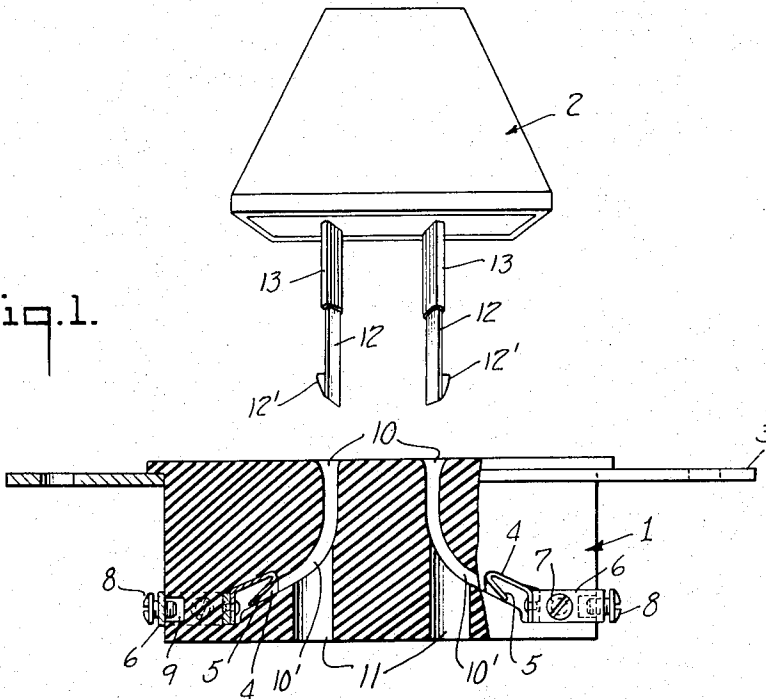


Fig. 2.

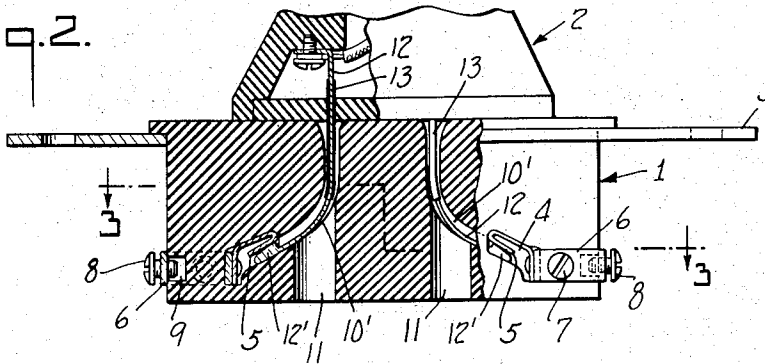
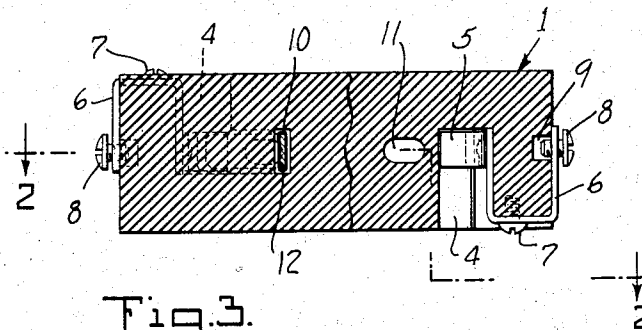


Fig. 3.



INVENTOR.

EDGERTON F. TAYLOR

BY

Bartlett Fyre Scott & Keel
ATTORNEYS

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SAFETY WALL SOCKET CONNECTION AND PLUG

Edgerton F. Taylor, New York, N. Y., assignor to
Jack C. Lewis, New York, N. Y.

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11 Claims. (Cl. 173—330)

This invention relates to wall sockets and plugs for making electrical connections.

One object of the invention is a novel and improved socket and plug of the above indicated character, characterized by its safety features against shock, short circuit, etc.

A further object of the invention is a socket of the above indicated character which is constructed and provided with means for obviating the insertion of metallic objects other than connecting plugs into contact with the socket terminals.

A further object of the invention is a plug of the above indicated character which is readily usable either with the novel and improved socket of this invention or with the standard fitting.

A further object of the invention is a novel and improved socket and plug of the above indicated character which is characterized by the low cost in manufacture.

For a better understanding of the invention reference may be had to the accompanying drawing wherein—

Fig. 1 shows a side view of a plug and a sectional view of a socket embodying the invention;

Fig. 2 is a sectional view along the line 2—2 of Fig. 3; and

Fig. 3 is a sectional view of the socket along the line 3—3 of Fig. 2.

Referring to the drawing the socket of my invention is indicated generally by the numeral 1 and the plug by the numeral 2. The socket 1 is provided with a conventional flange plate 3 for attachment to a recess in a wall. The socket body is formed with transverse recesses 4 formed in the opposite sides thereof and adjacent its inner edge. Electrical terminals 5 are disposed at the bottoms of these recesses and are carried by U-shaped metallic elements 6, the latter being fastened to the socket body in any suitable manner, as, for example, by the screws 7. Each of the members 6 is provided with a screw terminal 8 for the attachment of electrical wire not shown and recesses 9 formed in the socket body are indicated for accommodating the screws 8. The recesses 4 extend to a point slightly beyond the central line of the body of the socket, and channels 10, for the reception of the plug terminals or prongs, terminate at the inner ends of these recesses 4 where the contact elements 5 are located. These channels 10 first extend in a direction at right angles to the face of the socket or surface of the wall to which the socket is attached, but are provided with curved portions 10' which flare away from each other and enter the

recesses 4. The bottom of the socket body is provided with recesses 11 which recesses terminate at the curved parts 10' of the channels. These recesses 11 form a substantial continuation of the straight parts of the channels 10. The width of the recesses 11 is substantially less than the width of the channels 10, 10' and preferably these channels are oblong in cross-section, as shown in the drawing, with the longer dimension disposed in the plane of the channels. The plug 2 is provided with prongs 12 having any conventional end 12' for engaging and making contact with the contact elements 5. These prongs 12 are of any suitable spring resilient metal which permits the automatic bending and flexing of the prongs when the plug is inserted in position. These prongs follow the curved channels 10, 10' to engage the contacts 5 and are of slightly greater width than the recesses 11 so that the ends 12' of the prongs follow the channels and slide easily over the recesses 11 without entry therein. Upon withdrawal of the plug, the resilient prongs spring back to their parallel position, as shown in Fig. 1, ready for insertion in the safety socket shown in the drawings or it may be used with the conventional straight channel socket. These prongs 12 are provided with an insulating layer 13 which extends a part way down towards the terminals 12'. This insulation 13 may be of any suitable character, as, for example, rubber.

With sockets of the character above set forth it is practically impossible to insert nails, hairpins and other metallic objects into the channels 10, 10' and into engagement with the electrical contacts 5 because, upon the insertion of such metallic elements, they would follow the recesses or channels 11 which are in alignment with the straight parts of the channels 10 instead of bending around to make contact with the contacts 5. The socket, therefore, is safe against shocks or short circuits resulting from the insertion of such metallic objects by children, and no closures or other obstructing means is needed for the channels 10. Moreover, by reason of the insulated prongs 12, at 13 the plug 2 may be partially withdrawn without any possibility of short circuit by the placing of a metallic object across the insulated parts 13 of the prongs. Electrical connection between the prongs 12 and contacts 5 is broken before the prongs are removed sufficiently to expose the uninsulated parts of prongs 12. The plug, as above indicated, is universally useful either with a safety socket of this invention or with conventional straight channel plugs and

both the plug and the socket may be manufactured on a quantity production basis at low cost. This special socket is also useful for a 220 volt or higher voltage circuit or other special circuit in a house or building where there is also a 110 volt or normal house lighting circuit. The high voltage or special devices would have attached thereto the special plug 2 of this application for use with the socket, while the plugs for the low voltage or standard circuit would be of the standard rigid prong construction which could not be inserted in the special socket.

I claim:

1. A combined socket and plug electrical connection, comprising a socket body having curved prong receiving channels and recesses in alignment with a part of said channels and a plug having resilient prongs adapted to follow the curved channels and to slide over said recesses without entry therein, said recesses and channels being formed with different cross sections and of a character to permit the prongs to follow the channels but to prevent entry thereof into the recesses and to permit metallic elements of a construction different from that of the prongs to enter said recesses, thereby preventing such elements from following the unaligned parts of the channels.

2. In a combined socket and electrical plug of the character set forth in claim 1, wherein the socket channels flare away from each other at their inner ends.

3. In a combined socket and electrical plug of the character set forth in claim 1, wherein said prongs are insulated for a portion of their length.

4. An electrical wall socket connection comprising a main body of insulated material, said body having a prong receiving channel leading to an electrical contact, said channel for a part of its length being substantially straight but formed with a curve intermediate its ends and a recess in said body forming a continuation of the straight part of said channel, said recess being of less width than the width of the channel.

5. In an electrical wall socket connection of the character set forth in claim 4, wherein a transverse recess is formed in the body and terminates at the inner end of said channel and an electrical contact terminal is disposed in said transverse recess.

6. In an electrical wall socket connection of the character set forth in claim 4, wherein a

transverse recess is formed in the body and terminates at the inner end of said channel and an electrical contact terminal is disposed in said transverse recess, the said electrical terminal being carried by a U-shaped metallic member which passes from the transverse recess around to one side of the socket.

7. In an electrical wall socket connection of the character set forth in claim 4, wherein the recess is of oblong shape in cross-section with the longer dimension disposed in the plane of the curved channel.

8. In an electrical wall socket connection of the character set forth in claim 4, wherein the recess is of a shape in cross-section having a dimension longer than its width disposed in the plane of the curved channel.

9. The combination with a socket of an electrical wall socket connection of the character set forth in claim 4 with a plug terminal having a resilient prong adapted to follow said curved channel, said prong being of a width greater than the width of the recess.

10. A combined socket and plug electrical connection comprising a socket body having a curved prong receiving channel and a recess in alignment with a part of said channel and a plug having a resilient prong adapted to follow the curved channel, said recess and said plug being of a character to permit the unobstructed insertion of said resilient prong along said channel without entry into said recess, said recess and said channel being formed with different cross sections and of a character to permit the prong to follow the channel but to prevent the entry thereof into the recess and to permit metallic elements of a construction different from that of the prong to enter said recess thereby preventing such elements from following the unaligned part of the channel.

11. A combined socket and plug electrical connection comprising a socket body having curved prong receiving channels which diverge away from each other at their inner portions with contacts therein and the plug is usable in either said socket body or in a standard socket body and having resilient contact prongs adapted to follow the curved diverging channels, and said socket having means adjacent the inner portions of the channel for preventing metallic elements of a construction other than that of the prongs from engaging said contacts.

EDGERTON F. TAYLOR.