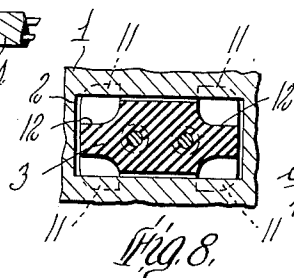
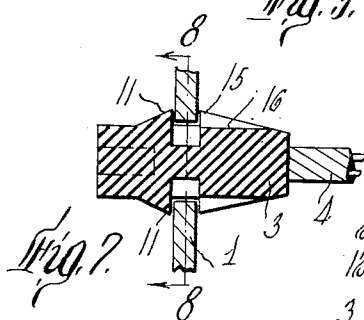
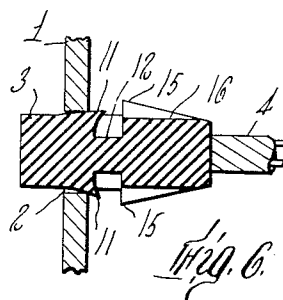
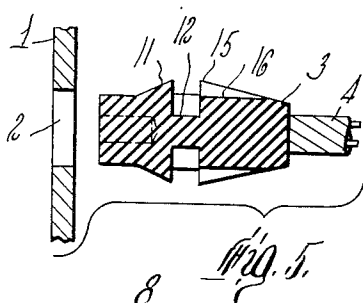
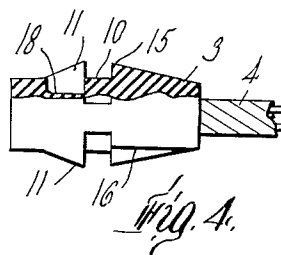
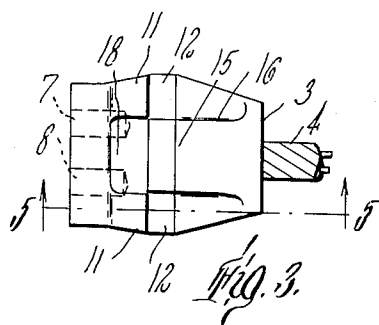
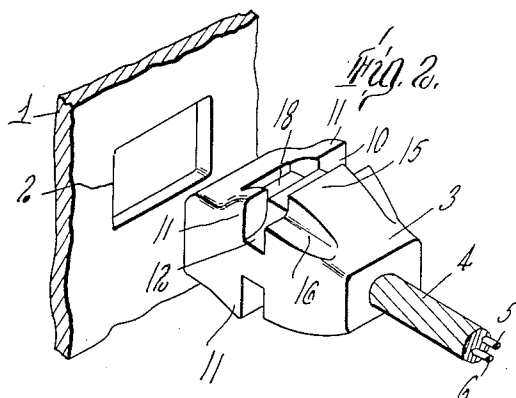
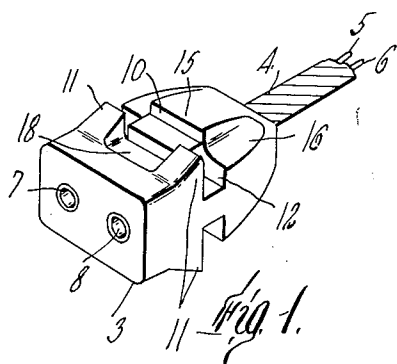


June 21, 1955

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ELECTRICAL PLUG CONNECTOR HAVING MEANS
TO MOUNT IT IN AN APERTURED PANEL
Filed Sept. 27, 1954

2,711,522



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2,711,522

**ELECTRICAL PLUG CONNECTOR HAVING
MEANS TO MOUNT IT IN AN APERTURED
PANEL**

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Application September 27, 1954, Serial No. 458,382

4 Claims. (Cl. 339—126)

This invention relates to power cord connectors for devices such as television receivers where dangerously high voltages are present. Because of the presence of such high voltages, the Underwriter Laboratories requires that the cord connector be attached to the back panel of the receiver so that the connector will be detached from the receiver when the panel is removed, exposing parts normally subject to these high voltages. Thus whenever these parts are exposed, the receiver is disconnected automatically from the power source. The Underwriters Laboratories further requires that this cord connector must not be detachable from this cover without the use of tools. In order to meet these conditions it has been customary heretofore to rivet the cord connector to the panel.

This invention has for an object to provide such a cord connector which cannot be removed from the panel without the use of tools, but which can be readily assembled with the panel without the use of tools, or the necessity of riveting.

In accordance with this invention, therefore, the connector is provided with a plug portion which may be pressed into a mating hole through the panel during which insertion it is somewhat deformed, after which it snaps into place and cannot be readily separated from the panel.

For a more complete understanding of this invention, reference may be had to the accompanying drawings in which

Figure 1 is a perspective view of the end of the cord connector which is engaged with the panel.

Figure 2 is a fragmentary perspective view showing the cord connector end and the panel before the cord connector is placed in position.

Figure 3 is a top plan view of the connector.

Figure 4 is a side elevation partly broken away and in section of the connector.

Figures 5, 6 and 7 are vertical sectional views showing successive stages in the insertion of the connector within a hole in the panel.

Figure 8 is a detail sectional view on line 8—8 of Figure 7.

Referring to Figures 2, 5, 6 and 7, at 1 is indicated the back panel of a television receiver having a hole 2 there-through for receiving the plug of a cord connector through which power is applied to mechanisms within the receiver casing. As shown best in Figure 2, the hole 2 is substantially rectangular in outline. The plug 3 is molded upon the end of a wire connector 4 containing the two power wires 5 and 6 which are electrically connected at their plug ends 3 with the two conductor sockets 7 and 8 shown in Figure 1 which are arranged to receive corresponding elements (not shown) of the receiver. This plug 3 is provided with a peripheral groove 10 which is arranged to be in the same plane with the panel 1 when the plug connector is in the operative position shown in Figures 7 and 8. Adjacent to the four corners of this plug connector are lugs 11 presenting faces perpendicular

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to the central axis of said plug, which, when the connector is in position, may engage the back face of the panel about the margin of the hole 2, as shown best in Figure 7. The back faces of the lugs 11 are inclined to the axis of the plug so that they may be inwardly deformed by engagement with the margins of the panel hole 1 as shown in Figure 6 and be pushed therethrough.

Forwardly of these lugs, the groove 10 is deepened as at 12 to form portions into which the lugs 11 may be deflected when the plug is being pushed into position. This is shown best in Figure 6 where two of the lugs 11 are shown partly so deformed. When the plug is pushed fully into position, these lugs 11 spring out back of the back face of the panel, as shown in Figure 7, and prevent the plug from being pulled forwardly out from the panel. The plug 3 also has portions 15 which engage the front face of the panel, as shown in Figure 7, when the plug connector is in fully inserted position and prevent excessive inward motion of the plug when being snapped into place in the panel. As shown these portions 15 are in staggered relation to the lugs 11. The plug construction as thus described permits insertion of the plug in the panel by direct thrust without requiring any twisting of the plug which might result in faulty alinement of the contact sockets 7 and 8 with mating parts in front of the panel.

As shown, also, the portions 15 are set off from the body of the plug as by means of the grooves 16 which are positioned opposite to the lugs 11. Also, between the lugs 11 the material of the plug may be further reduced in cross section on opposite sides as at 18. These portions 18 add to the height of the lugs 11 and increase their flexibility and with the grooves 16 provide for saving in the amount of stock necessary in molding the connecting plug. The lugs 11 and the members 15 together engage opposite faces of the panel and prevent the plug connector from being removed from the panel.

It will thus be seen that it is an easy matter to assemble the connector to the panel, but very difficult to remove it after it has once been assembled, and that there are no rivets or other fastening means employed to secure the parts together.

From the foregoing description of an embodiment of this invention it will be evident to those skilled in the art that various changes and modifications may be made therein without departing from its spirit or scope.

I claim:

1. In combination with a panel having a hole there-through, of a deformable plug connector having a peripheral groove for receiving the marginal portions of said panel about said hole, the connector material surrounding said groove at the entrance end thereof presenting spaced lugs engageable with the inner face of said panel, said groove adjacent to said lugs being deepened to permit sufficient deformation of said lugs for passage thereof through said hole, said connector presenting material outwardly of said groove for engaging with the outer face of said panel about the margin of said hole, said connector including contact elements embedded therein and accessible at the inner end thereof, and conductors extending through the opposite end of said connector and in electrical connection with said contact elements.

2. In combination with a panel having a hole there-through, of a deformable plug connector having a peripheral groove for receiving the marginal portions of said panel about said hole, the connector material surrounding said groove at the entrance end thereof presenting spaced lugs engageable with the inner face of said panel, said groove adjacent to said lugs being deepened to permit sufficient deformation of said lugs for passage thereof through said hole, said connector presenting material outwardly of said groove in staggered relation to said lugs

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for engaging with the outer face of said panel about the margin of said hole, said connector including contact elements embedded therein and accessible at the inner end thereof, and conductors extending through the opposite end of said connector and in electrical connection with said contact elements.

3. In combination with a panel having a substantially rectangular hole therethrough, of a deformable plug connector having a peripheral groove for receiving the marginal portions of said panel about said hole, said connector presenting lugs adjacent to the corners of said hole at the inner margin of said groove normally presenting faces substantially perpendicular to the lengthwise axis of said connector and engageable with the inner face of said panel adjacent to said corners and having inclined faces away from said groove, said groove adjacent to said lugs being deepened to permit deformation of said lugs by engagement with the edges of said panel about said hole on said inclined faces when said plug is pushed into said hole, said connector presenting parts on the opposite side of said groove for engagement with the outer face of said panel about the margin of said hole, said connector including contact elements embedded therein and accessible at the inner end thereof, and conductors extending through the opposite end of said connector and in electrical connection with said contact elements.

4. In combination with a panel having a substantially rectangular hole therethrough, of a deformable plug connector having a peripheral groove for receiving the mar-

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ginal portions of said panel about said hole, said connector presenting lugs adjacent to the corners of said hole at the inner margin of said groove normally presenting faces substantially perpendicular to the lengthwise axis of said connector and engageable with the inner face of said panel adjacent to said corners and having inclined faces away from said groove, said groove adjacent to said lugs being deepened to permit deformation of said lugs by engagement with the edges of said panel about said hole on said inclined faces when said connector is pushed into said hole, said connector presenting parts staggered with relation to said lugs on the opposite side of said groove for engagement with the outer face of said panel about the margin of said hole, said connector including contact elements embedded therein and accessible at the inner end thereof, and conductors extending through the opposite end of said connector and in electrical connection with said contact elements.

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