June 24, 1958 J. L. HERROLD 2,840,792

MEANS FOR ADJUSTABLY MOUNTING AN ELECTRICAL PLUG CONNECTOR

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Fig. 1.

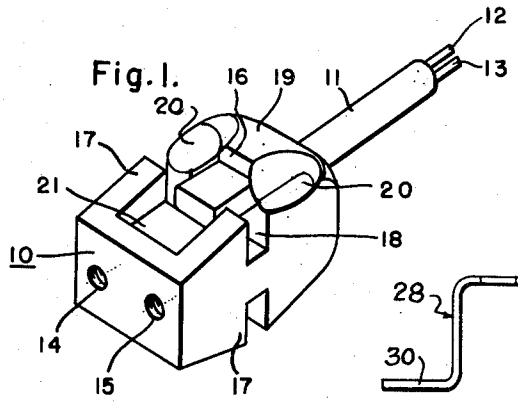


Fig. 5

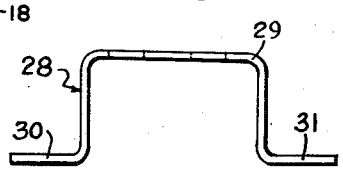


Fig. 2.

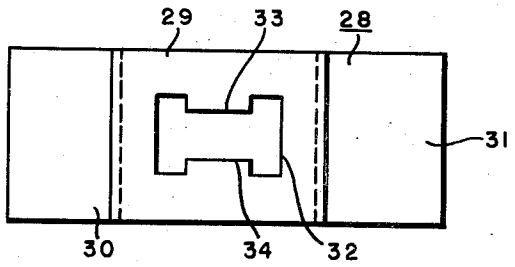


Fig. 3.

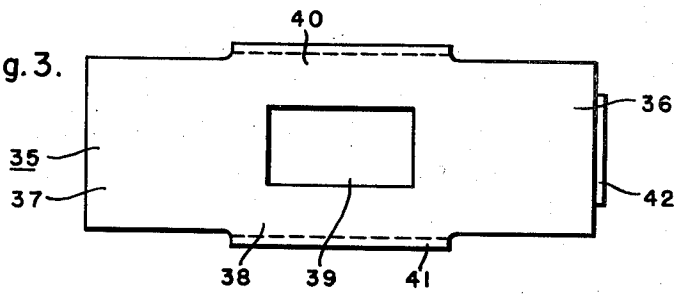
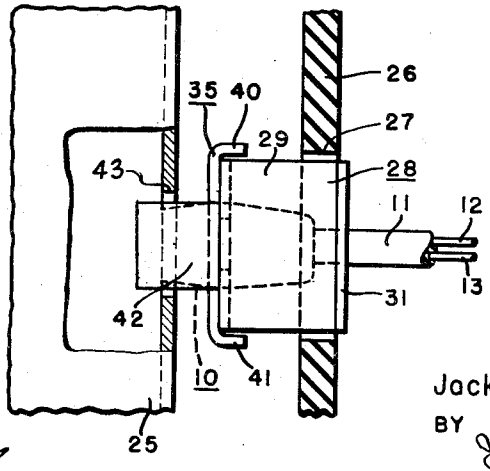


Fig. 4.



WITNESSES

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MEANS FOR ADJUSTABLY MOUNTING AN ELECTRICAL PLUG CONNECTOR

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4 Claims. (Cl. 339—126)

This invention relates to means for mounting power cord connectors for devices such as television receivers where dangerously high voltages are present. Because of the presence of such high voltages, the Underwriters 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 panel without the use of tools.

It has been proposed to utilize a connector provided with a plug portion which may be pushed or pressed into a mating hole in the receiver panel, during which insertion it is somewhat deformed and after which it snaps into place and cannot be separated from the panel. This push-in type of plug connector is normally mounted in a substantially fixed position in the panel of the receiver. It has been found that the mounting of this type of plug connector directly to the panel is not entirely satisfactory because tolerances in the assembly of the chassis in the cabinet of the receiver makes mounting in a fixed position undesirable.

It is an object of this invention to provide an improved means for mounting an electrical plug connector of the above-mentioned type.

It is another object of this invention to provide a means for mounting an electrical plug connector of the above-mentioned type which is adjustable so that tolerances in the assembly of the chassis in the cabinet of the receiver may be discounted.

These and other objects are effected by my invention as will be apparent from the following description taken in accordance with the accompanying drawing, throughout which like reference characters indicate like parts, and in which:

Figure 1 is a perspective view of the end of a push-in type of cord connector;

Figs. 2 and 3 are front views of the members used to mount the cord connector;

Fig. 4 is a side view of the improved means for mounting the cord connector showing the assembly attached to a chassis; and

Fig. 5 is an edge view of one of the members shown in Fig. 2.

Referring to Fig. 1, there is shown a push-in type plug of a cord connector through which power is applied to mechanisms within the cabinet of the television receiver. The plug **10** of the cord connector is molded upon the end of a wire connector **11** containing the two power wires **12** and **13**, which are electrically connected at their plug ends **10** with the two conductor sockets **14** and **15**, which are arranged to receive corresponding elements (not shown) in the receiver. The plug **10** is provided with a peripheral groove **16**. Adjacent to the

four corners of this plug connector are lugs **17** presenting faces perpendicular to the central axis of the plug. Forwardly of the lugs **17**, the groove **16** is deepened as at **18**. The plug **10** also has portions **19**, which are shown in staggered relation to the lugs **17**. As also shown, the portions **19** are set off from the body of the plug as by means of the grooves **20** which are positioned opposite to the lugs **17**. Also, between the lugs **17** the material of the plug may be further reduced in cross-section on opposite sides as at **21**.

Referring to Figs. 2, 3, 4 and 5, at **25** and **26** (Fig. 4), there is indicated the chassis and the back panel respectively of the television receiver. The back panel **26** has an opening or aperture **27** therein. In Figs. 2 and 5 there is shown a first connector-retaining member **28** having a central portion **29** which is substantially U-shaped and which is arranged to extend forwardly through the aperture **27**. The member **28** has integral end flanges **30** and **31** which engage the outer face of the panel **26**. The central portion **29** is provided with an aperture **32** and has oppositely disposed tab portions **33** and **34** which extend inwardly in the direction of the center of the aperture **32**, and except for which the aperture **32** is substantially rectangular in outline. The marginal portions on the outer face of the tab portions **33** and **34** engage the portions **19** of the plug **10** when the plug connector is in fully inserted position and prevents excessive inward motion of the plug when being snapped into place. In Fig. 3 there is shown a second connector-retaining member **35** having opposite end portions **36** and **37** which may engage the inner face of the panel **26**. The member **35** also has an intermediate portion **38** provided with an aperture **39** which is substantially rectangular in outline. The intermediate portion **38** of the member **35** also has opposed flange portions **40** and **41** which may bear against the top and bottom edges respectively of the central portion **29** of the member **28** to prevent independent rotation of the member **28**. The member **35** is also provided with an integral tongue portion **42** extending inwardly into a slot **43** provided in the chassis **25**.

The back faces of the lugs **17** of the plug **10** may be inclined to the axis of the plug so that they may be inwardly deformed by engagement with the marginal portions of the tab portions **33** and **34** about the aperture **32** and the marginal portions of the member **35** about the aperture **39**.

It will thus be seen that when the plug **10** is pushed into position the lugs **17** and portions **19** together engage the outer surfaces of the connector-retaining members **28** and **35**. The portions **19** of the plug prevent excessive inward motion of the plug when being snapped into place in the connector-retaining members **28** and **35**. The flanges **30** and **31** of the member **28** and the portions **36** and **37** of the member **35** are thus located on opposite faces of the panel **26**. Since the flanges **30** and **31** may be separated from these end portions a distance greater than the thickness of the panel **26**, the assembly provides an adjustable or "floating" mounting for the electrical plug connector.

While my invention has been shown in a preferred embodiment, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications without departing from the spirit thereof.

I claim as my invention:

1. In combination with a panel having an opening therein and an electrical plug connector having a peripheral groove, means for mounting said plug connector in an adjustable position with respect to said panel comprising a first connector-retaining member having a central portion extending within the opening in said panel,

and having end flanges positioned adjacent to the outer side of said panel for preventing said first connector-retaining member from passing through the opening in said panel, said central portion having an aperture therein, with marginal portions on the outer face of said central portion about said aperture being in engagement with portions of said plug connector on one side of said groove, and a second connector-retaining member positioned adjacent to the inner side of said panel and having an aperture therein, with marginal portions on the outer face of said second connector-retaining member about said aperture being in engagement with portions of said plug connector on the opposite side of said groove.

2. In combination with a panel having an opening therein and an electrical plug connector having a peripheral groove, means for mounting said plug connector in an adjustable position with respect to said panel comprising a first connector-retaining member having a substantially U-shaped central portion extending within the opening in said panel, and having end flanges positioned adjacent to the outer face of said panel for preventing said first connector-retaining member from passing through the opening in said panel, said central portion having an aperture therein, with marginal portions on the outer face of said central portion about said aperture being in engagement with portions of said plug connector on one side of said groove, and a second connector-retaining member positioned adjacent to the inner side of said panel and having an aperture therein in alignment with the aperture in the first connector-retaining member, with marginal portions on the outer face of said second connector-retaining member about said aperture being in engagement with portions of said plug connector on the opposite side of said groove.

3. In combination with a panel having an opening therein and an electrical plug connector having a peripheral groove, means for mounting said plug connector in an adjustable position with respect to said panel comprising a first connector-retaining member having a substantially U-shaped central portion extending within the opening in said panel, and having end flanges positioned adjacent to the outer face of said panel for preventing said first connector-retaining member from passing through the opening in said panel, said central portion having an aperture therein, with marginal portions on the outer face of said central portion about said aperture being in engagement with portions of said plug connector on one side of said groove, and a second connector-retaining member positioned adjacent to the inner side of said panel and having an aperture therein in alignment with the aperture in the first connector-retaining member, with marginal portions on the outer face of said second connector-retaining member about said aperture being in engagement with portions of said plug connector on the opposite side of said groove, said second connector-retaining member having flange portions extending adjacent to the top and bottom edges of said central portion of said first connector-retaining member for preventing independent rotation of said first connector-retaining member.

4. In combination with a panel having an opening therein and an electrical plug connector having a peripheral groove, means for mounting said plug connector in an adjustable position with respect to said panel comprising a first connector-retaining member having a substantially U-shaped central portion extending within the opening in said panel, and having end flanges positioned adjacent to the outer face of said panel for preventing said first connector-retaining member from passing through the opening in said panel, said central portion having an aperture therein, with marginal portions on the outer face of said central portion about said aperture being in engagement with portions of said plug connector on one side of said groove, and a second connector-retaining member having opposite end portions positioned adjacent to the inner side of said panel, and having an intermediate portion having an aperture therein in alignment with the aperture in the first connector-retaining member, with marginal portions on the outer face of said second connector-retaining member about said aperture being in engagement with portions of said plug connector on the opposite side of said groove.

References Cited in the file of this patent

UNITED STATES PATENTS

2,711,522	Goodwin	June 21, 1955
2,756,403	Francis et al.	July 24, 1956