July 6, 1948. L. J. IRRGANG 2,444,739

CONNECTOR PLUG

Filed Nov. 10, 1944

Fig. 1

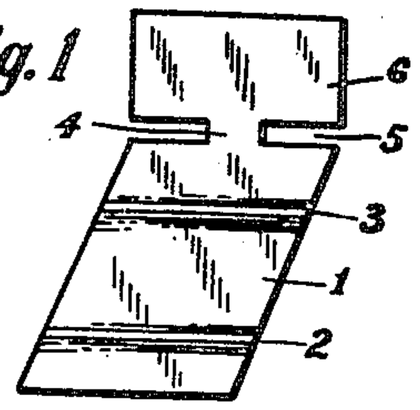


Fig. 2

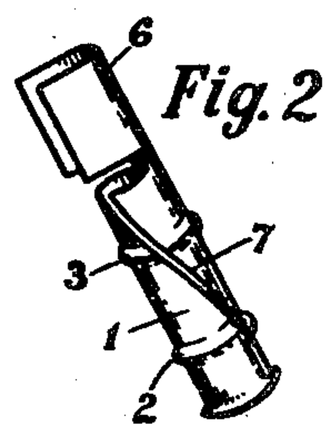


Fig. 3

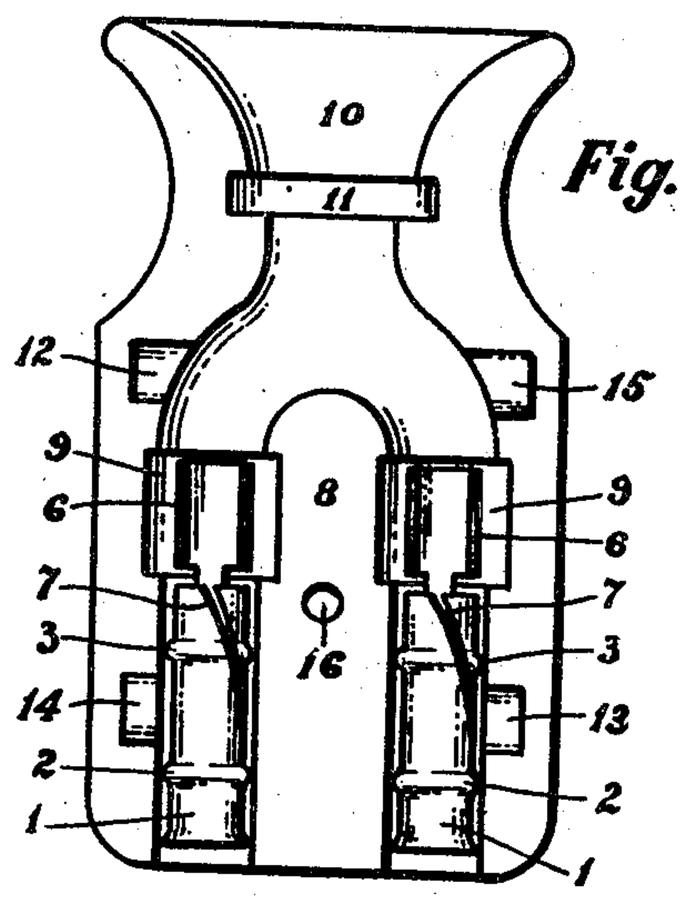


Fig. 4

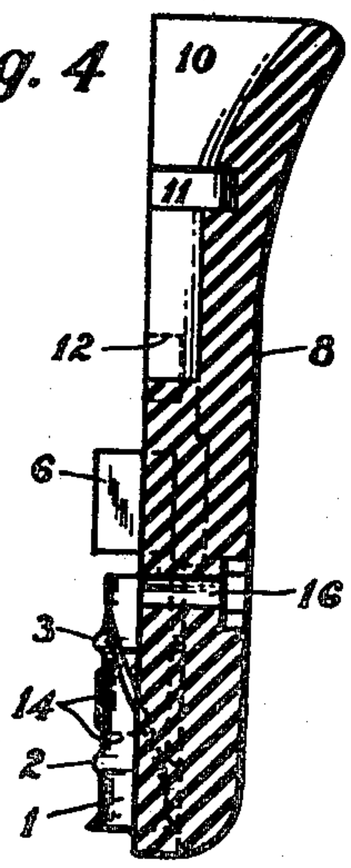
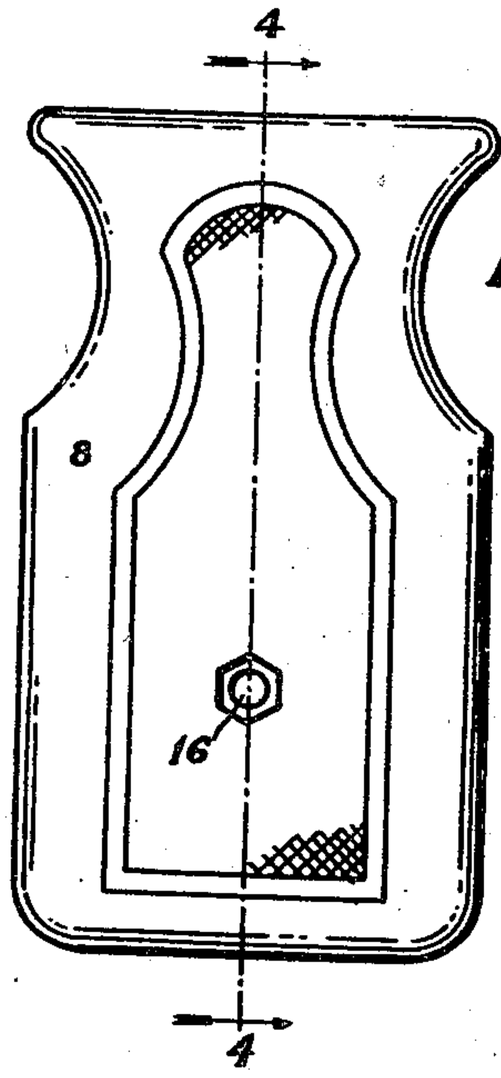


Fig. 5



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2,444,739

UNITED STATES PATENT OFFICE

2,444,739

CONNECTOR PLUG

Louis J. Irrgang, Jersey City, N. J.

Application November 10, 1944, Serial No. 562,808

1 Claim. (Cl. 173—332)

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This invention relates to an electrical connector plug especially adapted for use with flat irons or heating structures having connecting studs like those used at the present time on electric flat irons. In this type of connector, the plug is composed of two complementary parts of suitable insulating material which are held together either by screws or spring clips or the equivalent. Furthermore, in the usual type of plug, the terminals which receive the cable conductors are made of flat pieces bent into oppositely disposed stud-engaging parts. Some of these parts have centrally disposed terminal recesses, while others have centrally disposed fingers, but these types of construction give what may be termed only line contacts on the studs carried by the apparatus to which the plug is to be connected. In flat irons considerable heat is set up which tends to expand the terminal members in such a way as to produce a relatively poor contact between the terminal and the contact stud.

It is one of the objects of my invention to provide an improved type of terminal whereby a very much larger area of contact can be made with the connector stud, thereby reducing the losses at this connection, adding to the stiffness of the terminal and insuring a better contact throughout its length.

Another object of my invention is to provide an improved type of terminal member provided with means for positively locating it in the insulating parts of the plug.

Another object of my invention is to provide improvements in the insulating parts of the plug which will prevent lateral and rotary shifting of these parts when they are assembled.

The objects of the invention will be readily understood by reference to the annexed drawing wherein:

Figure 1 is a plan view of the blank from which the terminal per se is to be made.

Figure 2 is a perspective view of the completed terminal ready for installation in the plug.

Figure 3 is a plan view of one-half of the plug with the terminals of Figure 2 placed therein, without the electrical cable.

Figure 4 is a section on the line 4—4 of Figure 5 through one-half of the plug.

Figure 5 is a front view of one of the plug members.

In the figures, 1 is a blank of the body portion of the terminal, having cross-ribs 2 and 3 formed therein. The blank 1 is preferably made of good conducting material such as beryllium copper

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which has high conductivity as well as age- or fatigue-resisting characteristics. Integrally connected to the body 1 by a neck 4 formed by notches 5, is an electrical conductor-receiving end 6. After the blank has been made as shown in Figure 1, it is formed into the shape of Figure 2, the edges of the body 1 coming closely adjacent to each other and forming a diagonally positioned slit 7 which extends from one end of the body to the other.

The electrical conductor-receiving end 6 is formed into U-shape, the arms of which are adapted to be bent around and compressed against its electrical conductor. If necessary, the receiving end 6 may be soldered to the conductor with high-temperature solder. The ribs 2 and 3 on the body 1 are adapted to enter recesses formed in the complementary plug members 8, thereby positioning them from lateral movement in the members 8. A clearance space 9 is provided for the conductor end 6. The members 8 have the usual opening 10 for the cable and an annular recess 11 to receive the large end of the usual guard spring around the cord or cable carrying the electrical conductors, the bared ends of which are fastened to the terminals in the manner heretofore described.

The members 8 are provided with diagonally disposed recesses 12 and 13 and cooperative diagonally disposed lugs 14 and 15 which are adapted to enter the recesses 12 and 13, thereby interlocking the parts 8 and preventing lateral as well as rotary motion of these parts.

I have found by experiment that the spiral slit in the body 1 of the terminal greatly enhances the contact-making characteristics of the terminal, which characteristics are further enhanced or amplified by the ribs 2 and 3 which are in engagement with the walls of the plug members 8, thereby assisting in preventing expansion of the body 1; hence insuring a large area of contact with the contact studs over a long period of time.

From what has been said, and especially as illustrated in Figure 3, it will be seen that the space occupied by the terminals 1 is much narrower than the space taken up by the usual type of terminals. As a result, with my improved type of construction, the outer walls of the plug members 8 are much thicker and, consequently, for any given material, they would be much stronger and would stand a greater amount of rough handling without breakage. This is a material advantage flowing from the use of my new type of terminal.

As shown in the drawing, the plug members are held together by a screw passing through a hole 16, although these parts may be made to receive some other type of fastening means.

What I claim is:

For an electrical connector of the type described, a single-piece sheet metal contact member having an elongated body initially having a shape so when it is formed it will have a spiral slit from end to end, the body also having at least one reinforcing rib intermediate its ends, said member having a conductor receiving end connected to the body by a relatively narrow neck, said end having upstanding side flanges adapted to be forced securely around the bared end of a conductor so the same will be substantially in alignment with the body axis.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,767,903	Sparkes	June 24, 1930
1,954,859	Andre	Apr. 17, 1934
2,102,383	Sanford	Dec. 14, 1937
2,347,713	Rogoff	May 2, 1944

FOREIGN PATENTS

Number	Country	Date
370,216	Great Britain	Apr. 7, 1932
374,938	Great Britain	June 20, 1932