Oct. 7, 1930. A. D. KEENE 1,777,312

CONNECTING PLUG

Filed Aug. 15, 1929

Fig. 1.

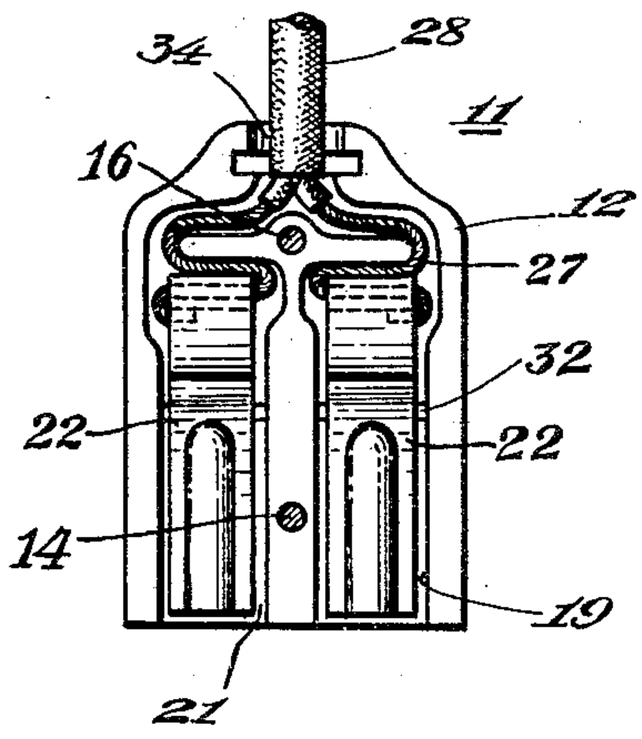


Fig. 2.

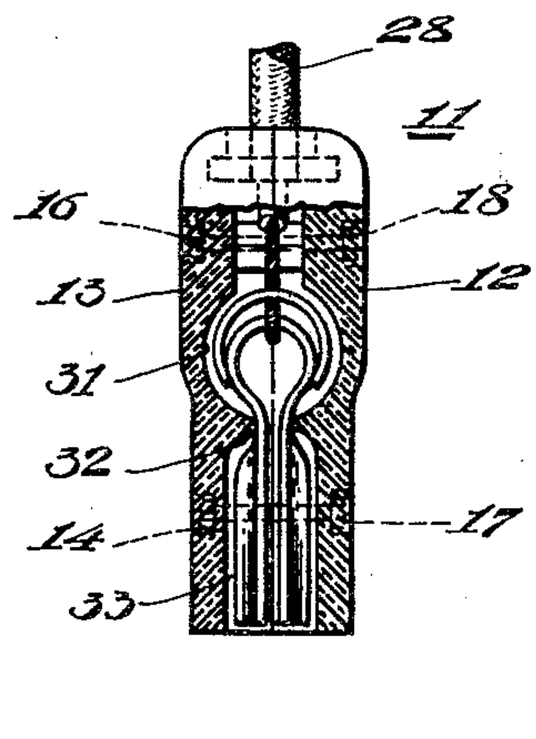


Fig. 3.

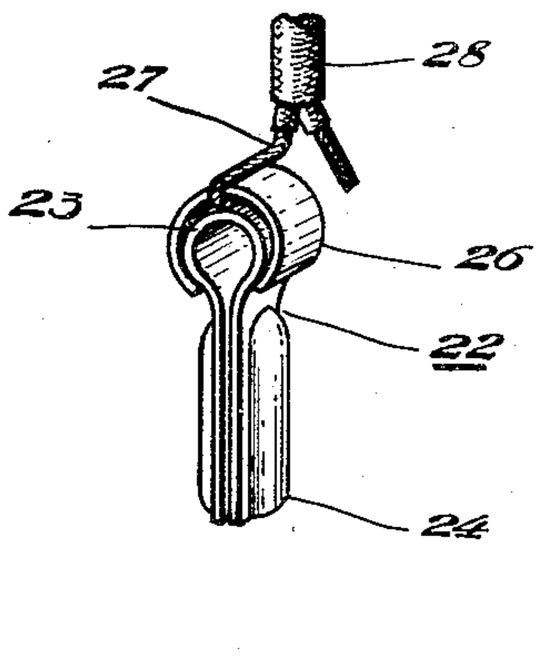
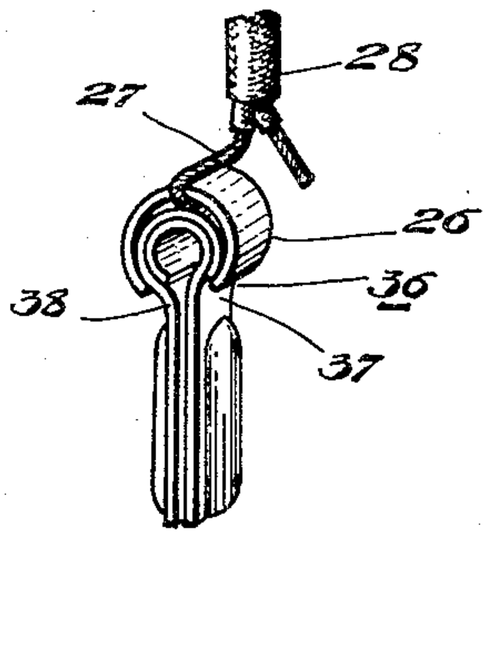


Fig. 4.



INVENTOR

Alvin D. Keene

Patented Oct. 7, 1930 1,777,312

UNITED STATES PATENT OFFICE

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CONNECTING PLUG

Application filed August 15, 1929. Serial No. 386,190.

My invention relates to electrical connecting devices and particularly to electrical connecting sockets.

An object of my invention is to provide a relatively simple, inexpensive, and easily manufactured and assembled resilient socket member for a connecting plug that shall embody a minimum number of individual parts.

Other objects of my invention will either be apparent from the specification or will be pointed out hereinafter.

In practicing my invention, I provide a connecting plug of the usual two-part molded-material type and locate therein two socket clips, each made of resilient sheet metal bent to substantially hairpin shape, with the intermediate portion thereof substantially rounded. A resilient clamping member, of C-shape, fits around the intermediate rounded portion of each socket clip and the end of a supply circuit conductor is resiliently clamped between the member of C-shape and the rounded intermediate portion of the socket clip.

In the single sheet of drawings,

Figure 1 is a view, in longitudinal section, of a connecting plug embodying my invention,

Fig. 2 is a view, in longitudinal lateral section therethrough,

Fig. 3 is a view, in perspective, of a socket clip embodying my invention, and,

Fig. 4 is a view in perspective, of a modified form of socket clip embodying my invention.

A connecting plug designated by the numeral 11 in Fig. 2, comprises two co-operating molded portions 12 and 13, each of which are substantially rectangular in shape. The two portions 12 and 13 may be substantially alike and when located in face-to-face position as shown in Fig. 2 of the drawings are complementary to each other and may be held together by short machine screws 14 and 16 and co-operating nuts 17 and 18. The inner face of each of the members 12 and 13 is provided with an elongated recess 19 on one side of the longitudinal median line, and a similar recess 21 on the other side of the median line.

Two socket members or clips, one form of which is shown in Fig. 3 of the drawings, are located in the respective recesses 19 and 21. Each socket clip 22 may comprise a single piece of resilient metal which is bent to substantially U or hairpin shape, the intermediate portion 23 thereof being made substantially rounded and of an appreciable diameter. It is understood that the two leg portions of the socket member 22 are normally located relatively closely together as is shown in Fig. 3 of the drawings, suitable provision being made at the outer end portions of the adjacent faces for permitting the entrance of a flat contact pin. The central longitudinal portion 24 of each of the leg portions is pressed outwardly, in the manner shown in Fig. 3 of the drawings so that the socket clip may co-operate with a rounded or circular contact pin.

An auxiliary resilient clamping member 26, of substantially C-shape, is located around the U-end of the member 22 and is of larger diameter than the U-end, so that the end portions only of the member 26 engage the U-end of the socket member.

The clamping member 26 is adapted to secure a flexible conductor 27 to the socket member, the conductor 27 being one of a pair of the usual twin conductor lamp cord used with connecting plugs. The twin conductor cord is designated by the numeral 28 and may be of any suitable or desired length, the other end (not shown) being provided with the usual plug terminal member. The insulation is removed from the end of each of the individual conductors for a relatively long distance and the bared metallic flexible conductor is passed between the clamping member of C-shape and the portion 23 of the socket member. As was hereinbefore stated, the clamping member 26 is made of somewhat larger diameter than the circular portion 23 and when the flexible conductor 27 is located between these members the clamping action of the member 26 will operate to compress the flexible conductor 27 and thereby effect good electrical connection between the cord and the socket member without the use of a solder joint therebetween or the use of a machine

screw to hold the conductor cord against the socket.

The respective recesses 19 and 21 comprise two portions, each of which may be of the same width but of different depths. That portion of the recesses 19 and 21 occupied by the leg portions of the socket member is shallower than is the portion 31 in which the clamping member 26 and the U-end of the socket member are located. Each inner face of the two parts 12 and 13 of the casing is provided with a lug portion 32 located between the deeper portion 31 of each recess and the shallower portion which may be designated by the numeral 33.

The lateral depth of the portion 33 of the recesses 19 and 21 is made sufficient so that the two leg portions of the socket member may spread apart when engaging a contact pin and the lug portions 32 of the two part casing may either initially engage the leg portions adjacent to the U-end of the socket member, or there may be initially a small clearance therebetween. In each case the lug members or shoulders limit the lateral spread of the two parts of the socket members.

The upper end of the two part casing may be provided with an opening 34 therein through which the twin conductor 28 may extend, and if desired the usual spring member (not shown) may be provided in order to prevent undue kinking of the twin conductor cord 28 where it leaves the casing comprising the parts 12 and 13.

Fig. 4 illustrates a modification which I may use. A contact clip 36 comprises two resilient metal parts 37 and 38, each part including a substantially straight leg portion and an inner rounded portion, the rounded portions interfitting one with the other and the leg portions extending parallel to each other in opposed relation. A rounded spring metal clamping member 26 is located on the outside of the two rounded portions and engages them with its ends only. A stranded conductor 27 is clamped between the member 26 and the outer rounded portion of the clip, as was hereinbefore described in connection with the device shown in Fig. 3.

The device embodying my invention thus provides a two part molded casing having recesses therein with shoulders for co-operating with a contact socket member or clip made of resilient metal. A clamping member of C-shape, is effective, not only to resiliently hold the usual supply circuit conductor of flexible wire in electrical engagement with the socket member, but is also effective in aiding the clamping action of the resilient socket clip, which clip is so shaped as to cooperate with either rounded or flat contact pins.

Various modifications may be made in the device embodying my invention without departing from the spirit and scope thereof, and I desire therefore that only such limitations shall be placed thereon as are imposed by the prior art or are set forth in the appended claims.

I claim as my invention:

1. A connecting plug including a metal contact clip having two straight parallel-extending portions and rounded inner end portions, and a rounded metal spring member fitting over the rounded end portions to yieldingly press the parallel-extending portions toward each other.

2. A connecting plug including a metal contact clip having two normally parallel-extending straight portions and rounded inner end portions, and a rounded metal spring member fitting over the rounded end portions of the clip and engaged therewith at the ends only of the rounded spring member.

3. A connecting plug including a metal contact clip having two normally parallel-extending straight portions and rounded inner end portions, a rounded metal spring member fitting over the rounded end portions of the clip and engaged therewith at the ends only of the rounded spring member, and a flexible current conductor clamped between the rounded ends of the clip and the rounded spring member.

4. A connecting plug including two cooperating casing portions each having two recesses in one face thereof and a shoulder between the two recesses, a contact clip adapted to be located in the recesses and embodying two substantially straight and normally parallel-extending leg portions and rounded inner end portons, a rounded open ring member of resilient metal located around the rounded inner end portions and adapted to yieldingly clamp a current conductor against the rounded inner end portions and the leg portions against each other, the two shoulders in the casing serving as stops to limit the lateral spread of the leg portions when engaging a contact pin.

5. In a connecting plug having a pair of cooperating casing portions, each portion having a recess therein, a contact clip in said recess embodying strips bent to substantially U-shape with rounded inner end portions, and a resilient clamping member of substantially C-shape operatively engaging the end of U-shape to yieldingly press together the leg portions of the member of U-shape.

6. In a connecting plug having a pair of cooperating casing portions each with a recess therein, a contact clip in said recesses embodying a resilient metal strip bent to substantially hairpin shape and having the U-end of rounded shape, and a resilient clamping member of substantially C-shape operatively engaging the circular portion only of the end of U-shape to yieldingly

press together the leg portions of the member of hairpin shape.

7. In a connecting plug having a pair of cooperating casing portions each having a recess therein, a contact clip in said recess embodying a resilient metal strip bent to substantially hairpin shape and having the U-end of rounded shape, and a resilient clamping member of substantially C-shape operatively engaging the circular portion only of the end of U-shape to yieldingly press together the leg portions of the member of hairpin shape and to yieldingly secure a current conductor between the member of C-shape and the U-end of rounded shape.

8. In a connecting plug having a pair of cooperating casing portions each having a recess therein, a contact clip in said recess embodying a single resilient metal strip bent to substantially hairpin shape, the U-end thereof being of substantially circular shape and of a predetermined diameter, and a resilient clamping member of substantially C-shape and of a larger diameter than the U-end of the contact clip surrounding the same and operatively engaging it with its end portions only and adapted to secure a conductor between it and the U-end of the member of U-shape.

9. In a connecting plug assembly, a contact clip embodying a resilient metal strip bent to substantially hairpin shape with the U-end thereof of substantially circular shape, a resilient clamping member of substantially C-shape operatively engaging the U-end portion only, and a two-part casing, each casing part having in one face two recesses separated by a shoulder, for receiving therein the contact clip, the shoulders limiting the lateral spread of the two parts of the contact member.

In testimony whereof, I have hereunto subscribed my name this 24th day of July, 1929.

ALVIN D. KEENE.