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R. C. HYDE

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ELECTRICAL TERMINAL

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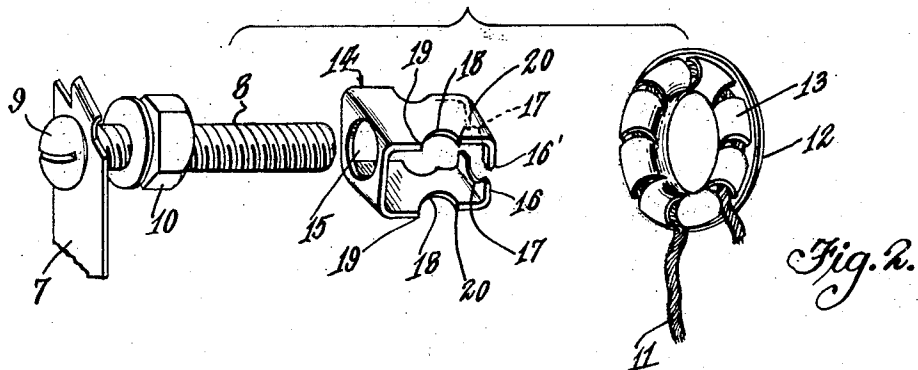


Fig. 1.

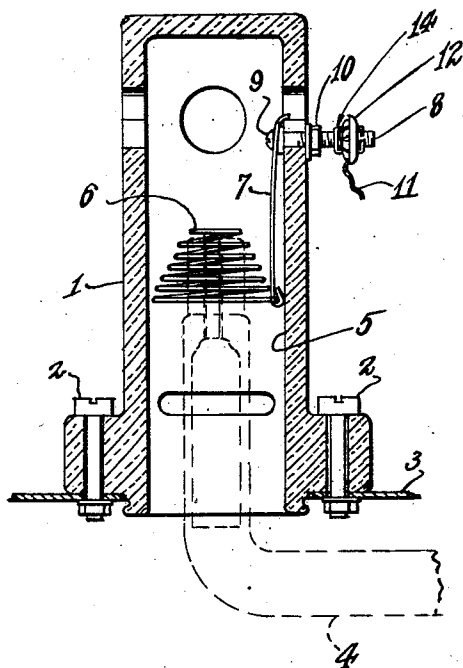
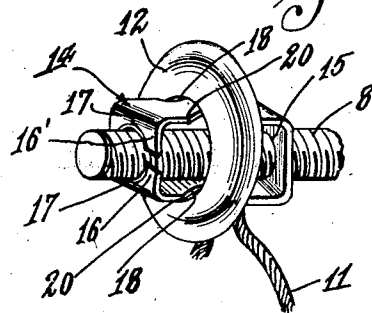


Fig. 3.



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ELECTRICAL TERMINAL

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My invention relates to electrical terminals and connectors, and has particular reference to a readily attachable terminal connector which resists detachment.

5 In connection with the assembly of electrical apparatus, it is frequently desirable to employ an electrical connector which may be readily assembled upon a terminal, but which resists detachment therefrom. For example, 10 in the assembly of certain electrical apparatus in the field involving a multiplicity of connections, it has been the practice in the past to either solder connecting wires to the terminal, or to clamp the wires between lock- 15 nuts on the terminal post. Either of these methods is lengthy, and considerable time is lost in making these connections.

It is, therefore, an object of the invention to provide a terminal connection in which a 20 connector may be readily slipped onto the terminal post and which when once in place will not slip off the post.

Another object of the invention is to provide an electrical terminal connection in 25 which the connector, when pressed toward the terminal post, will expand to permit the post to slip therethrough but which, when an effort is made to withdraw the connection from the post, will resist such withdrawal.

30 Other objects and advantages will be apparent from a study of the following specifications, read in connection with the accompanying drawing, in which

35 Fig. 1 is a sectional view through a piece of electrical apparatus (such as a gaseous tube terminal receptacle), equipped with a wire terminal connector constructed in accordance with my invention;

40 Fig. 2 is an exploded view of the terminal post shown in Fig. 1, and the connector constructed in accordance with my invention in dis-assembled relation; and

45 Fig. 3 is a perspective view of the terminal connector illustrated in Figs. 1 and 2 in assembled relation.

Referring to the drawing, I have illustrated in Fig. 1 a gaseous discharge tube terminal receptacle comprising a housing 1 50 formed of suitable insulating material, such as porcelain, which may be attached in any

suitable manner, such as by screws 2, to a supporting plate 3 upon which the gaseous discharge tube 4 is to be mounted. The receptacle housing 1 is illustrated as being provided with a bore 5 to receive the electrode 55 of the gaseous tube 4, which impinges upon and bears against a suitable spring 6 connected by means of a strap 7 to an electrode terminal post 8. The terminal post 8 may be secured to the housing 1 as by clamping the 60 housing between the head 9 of the threaded bolt 8' constituting the terminal post and a lock-nut 10 threaded thereon.

It is the usual practice to assemble the background or supporting plate 3 and the 65 receptacle 1 prior to the attachment of the electrical conducting wires 11 to the terminal post or posts 8, this prior assembly being accomplished in the factory so that the assembled structure may be transported in 70 assembled condition to the particular location in which the device is to be used.

In order to permit the ready attachment of electrical conducting wires to the terminal post or posts 8, I have illustrated a connecting 75 washer 12 which may be formed by striking out of the center of the disc of metal a plurality of fingers 13 so that the wire 11 may be wrapped around these outstanding fingers 80 and the fingers may then be pressed back upon the face of the washer 12 to clamp the wire thereto, thus forming an excellent electrical connection between the washer 12 and the wire 11.

To attach the washer 12 to the terminal 85 post 8, I provide a clip 14 formed of suitable conducting material and bent into the shape illustrated in Fig. 2. That is, an elongated strip of metal is bent into a substantially U-shape with an opening 15 perforating the base of the U of such size as will 90 readily slide over the circumference of the post 8.

The outer ends of the U-shaped piece of material may then be bent inwardly to provide 95 a pair of inwardly projecting fingers 16 and 16', each of these fingers being provided with an arcuate cut 17 so that the inner surfaces of the arcuate cuts on the fingers 15 and 16 form complementary portions of a 100

circle having substantially the same diameter as that of the post 8. If desired, the thickness of the metal surrounding the arcuate cuts 17 may be reduced to form a substantial knife edge which may be readily engaged between adjacent threads upon the posts 8.

The legs of the U are illustrated as having an arcuate cut-away portion 18 on opposite sides thereof to substantially reduce the cross sectional area of the metal in each of the legs, the arcuate cuts forming a seat in which the interior periphery of the washer 12 may seat.

The operation of my device may best be understood with reference to an assumed operation as follows:

After the conducting wire 11 has been attached to the washer 12, as hereinbefore described, the washer 12 may then be slipped over the outer end of the clip 14 by passing the finger ends of the clip through the central opening in the washer 12. During this operation, the fingers 15 and 16 will be compressed toward each other, thus reducing the width of the forward end of the clip, permitting the same to pass readily through the opening in the washer. The assembled clip and washer may now be placed upon the post 8 by inserting the post through the opening 15 and pressing the washer 12 toward the head of the post 8. During this operation the washer 12 will be bearing against the rear shoulders 19 of the arcuate cuts 17 and will exert substantially no force on the clip 14, tending to bring the fingers 15 and 16 together. Thus the forward end of the post 8 will readily press the fingers 15 and 16 apart a sufficient distance to permit the fingers to pass over the threaded end of the post 8 without necessitating the rotation or screwing of the clip into engagement with the threads.

After the assembled washer and clip have been pressed onto the post 8 to the proper distance, any outward pull on the washer 12 or upon the conducting wires 11 will press against the outer shoulders 20 of the arcuate cuts 17 which, in this instance, will compress the fingers 15 and 16 upon the threads of the post 8.

By experimenting, it has been found that an excellent electrical connection may be formed in this manner and by employing material for the clip 14 which is slightly resilient, the fingers 15 and 16 may be normally pressed into substantially tight engagement with the threads of the post.

It will, therefore, be observed that I have provided a terminal connection which may be placed into good electrical connection with the terminal post by a single motion, namely that of pressing the terminal connection onto the post, and which will resist removal from the post.

While I have illustrated and described the preferred embodiment of my invention, it is to be understood that I do not wish to be limited to any of the details shown or described, except as defined in the appended claims.

I claim:

1. In a terminal connection a clip formed of a substantially U-shaped piece of metal having the outer ends of the legs bent inwardly toward the longer axis of the U and having complementary arcuate cuts in the end surfaces of said ends aligned with an opening through the base of the U, and a washer to which a conductor may be attached surrounding the legs of said U.

2. In a terminal connection a clip formed of a substantially U-shaped piece of metal having the outer ends of the legs bent inwardly toward the longer axis of the U and having complementary arcuate cuts in the end surfaces of said ends aligned with an opening through the base of the U, a pair of transversely aligned depressions in each of the legs of said U, and a washer to which an electrical conductor may be attached surrounding the legs of said U and receivable in said depressions.

3. In a terminal connection a strip of metal bent into a substantially U-shaped cross section and having the ends of the legs of said U bent inwardly toward the major axis thereof, an opening to receive a terminal post perforating the base of said U, and a washer surrounding the legs of said U for pressing the ends thereof into engagement with a terminal post.

4. In a terminal connection a strip of metal bent into a substantially U-shaped cross section and having the ends of the legs of said U bent inwardly toward the major axis thereof, an opening to receive a terminal post perforating the base of said U, a pair of transversely aligned arcuate depressions in each of the legs of said U, and a washer to which an electrical conductor may be attached surrounding the legs of said U and seated in said depressions for pressing the ends of said U into engagement with a terminal post.

5. In a terminal connection a clip formed of a substantially U-shaped piece of metal having the outer ends of the legs bent inwardly toward the longer axis of the U and having complementary arcuate cuts in the end surfaces of said ends aligned with an opening through the base of the U, a washer to which a conductor may be attached surrounding the legs of said U, the metal surrounding said arcuate cuts in the ends of said U being reduced to engage between the threads of said post.

Signed at Los Angeles, California, this 15th day of July, 1931.

RALPH C. HYDE.