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H. D. WILSON, JR
ELECTRICAL CONNECTER

2,041,100

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FIG. 1

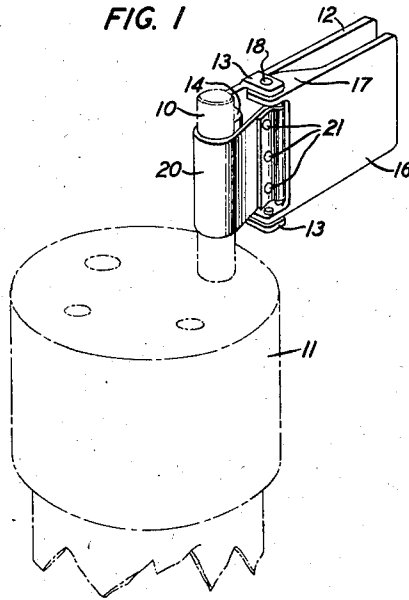


FIG. 2

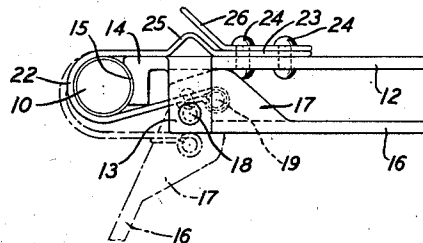
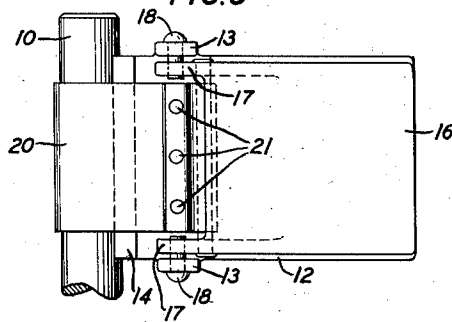


FIG. 3



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ELECTRICAL CONNECTER

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4 Claims. (Cl. 173-273)

This invention relates to electrical connectors and more particularly to connectors for terminals of power devices, such as high voltage electron discharge devices.

5 One object of this invention is to obtain an efficient and positive connection between the terminals of an electrical device and a conductor.

Another object of this invention is to construct a connector so that it may be easily and quickly 10 attached to and removed from a terminal of a device.

In one embodiment of this invention, a connector comprises a rigid arm, a movable lever, and a resilient metallic loop or band secured to 15 the arm and lever. The lever is pivoted to the fixed arm and lies parallel thereto in the closed position. The resilient loop or band is secured to a pin or rod on the lever and is provided also with a nodal portion adjacent the rigid arm to 20 form a yielding or expansible section whereby clamping of the connector causes the resilient loop to produce a wiping action on the terminal of the device and also sets the connector in locking position.

25 In accordance with a feature of this invention, portions of the rigid arm and the loop or band substantially surround the terminal of the device and thereby provide a large contact surface.

In accordance with another feature of this invention, the lever is eccentrically pivoted to the rigid arm so that the resilient loop or band performs an efficient gripping action on the terminal and is easily locked in operative position or released.

35 The invention and the features thereof will be understood more clearly and fully from the following detailed description with reference to the accompanying drawing in which:

Fig. 1 is a perspective view showing a connector 40 illustrative of this invention in association with a terminal on an electron discharge device;

Fig. 2 is a side view of the connector shown in Fig. 1 illustrating both the open and closed positions of the resilient loop or band; and

45 Fig. 3 is a plan view of the connector shown in Figs. 1 and 2.

Referring now to the drawing, connectors constructed in accordance with this invention may be used advantageously for electrically associating a conductor with a terminal of an electron discharge device, such, for example, as a terminal pin 10 extending from an insulating cap or base 11 of such a device. The connector comprises a rigid member of electrically conductive 55 material, for example, a brass casting or formed

metallic member including a rigid plate portion or arm 12 having parallel apertured extensions or arms 13. The rigid member or casting includes also a flange or lip 14 provided with a shallow groove 15 which substantially conforms 5 in curvature to the terminal pin 10. A lever member, which also may be a brass casting or formed metallic member includes a plate portion or arm 16 having parallel extensions or arms 17. The extensions or arms 17 are disposed one adjacent each of the extensions or arms 13 and are provided with apertures loosely receiving axles or pins 18 which extend into apertures in the extensions or arms 13. The apertures in the 15 arms 17 are eccentric with respect to the center of the arms so that the lever member is eccentrically pivoted and supported from the rigid member. The extensions or arms 17 preferably are of such size that they act as stops to limit movement of the lever member to a position 20 where the plate or arm 16 is substantially parallel to the plate portion or arm 12.

A rigid pin or rod 19 is fitted in apertures disposed centrally in the extensions or arms 17 and is loosely encompassed by one end of a resilient 25 loop or band designated generally by the numeral 20, which end is bent over and secured to the body of the loop or band such as by a plurality of rivets 21. The loop or band, which may be a material having good electrical conductivity 30 and a relatively high tensile strength, such for example, as phosphor bronze, includes a U-shaped portion 22 adapted to engage the terminal pin 10, an end portion 23 secured to the plate portion or arm 12 as by rivets 24 and a nodal 35 yielding or expansible portion 25. A terminal strip 26 for expediting the attachment of a conductor to the connector may be secured to the plate portion or arm 12 by the rivets 24.

When it is desired to associate the connector 40 with a terminal pin, the plate portion or arm 16 is moved away from the plate portion or arm 13 so that the U-shaped portion 22 of the resilient band is expanded, as shown in dotted outline in Fig. 2, and the terminal pin 10 may be inserted 45 therein and in contact with the flange or lip 14. The plate portion or arm 16 is then moved to a position substantially parallel to the plate portion or arm 12 so that the U-shaped portion 22 produces a wiping action on the terminal pin 10 50 and holds the terminal pin against the flange or lip 14. The resilient or expansible portion 25 serves to hold and set the lever in the locked position so that a positive connection is assured. It will be noted that the flange or lip 14 and the 55

U-shaped portion 22 are substantially coextensive with the terminal pin 10 and make contact with substantially the entire lateral surface of the terminal pin so that a large surface and low resistance contact are obtained.

Although a specific embodiment of the invention has been shown and described, it will be understood, of course, that modifications may be made therein without departing from the scope and spirit of this invention as defined in the appended claims.

What is claimed is:

1. An electrical connector comprising a rigid member having a portion adapted to engage a terminal and having also parallel arms extending therefrom, pins extending from said arms, a lever having arms disposed one adjacent each of said first arms and pivoted on said pins, said lever being adapted to be moved to a position substantially parallel to said rigid member, and a flexible metallic member secured to said rigid member and to said second arms at points behind said pins relative to said portion when said lever is in said parallel position, said flexible member having a portion adapted to partly encompass said terminal, said points lying between said pins and said rigid member whereby the pull of said flexible member locks said lever against said rigid member and securely holds said terminal against said portion when said lever is in said parallel position.

2. An electrical connector comprising a rigid member having a portion adapted to engage a terminal, an axle carried by said member, a lever pivoted on said axle, said lever having means thereon limiting movement of said lever in one direction to a position substantially parallel to said rigid member, and a metallic band secured at one end to said member and attached loosely at the other end to said lever at points beyond said axle with reference to said portion when said lever is in said parallel position, said band having a substantially U-shaped portion adapted to partly encompass said terminal and an expansible portion and having also a yielding nodal portion adjacent the end thereof secured to said rigid member.

3. An electrical connector comprising a rigid metallic member including a plate portion, a flange at one end of said plate portion having a groove for receiving a terminal of an electrical device, and an arm extending from said plate portion, a lever having an arm in juxtaposition to said first arm, an axle connecting said arms, said axle being eccentric with respect to said second arm, said second arm being adapted to engage said plate portion to limit movement of said lever in one direction to a position substantially parallel to said plate portion, an elongated substantially U-shaped metallic band secured at one end to said rigid member and adapted to encompass said terminal, and means securing the other end of said band to said lever at a point beyond said axle relative to said flange when said lever is in said parallel position.

4. An electrical connector comprising a rigid metallic member including a plate portion, a flange at one end of said plate portion having a groove for receiving a terminal of an electrical device, said groove conforming to and adapted to engage a portion of said terminal, and a pair of parallel arms, axles carried by said arms, a lever having arms disposed one adjacent each of said first arms, said lever arms having eccentric apertures for receiving said axles and being adapted to engage said plate portion to limit movement of said lever in one direction to a position substantially parallel to said plate portion, an elongated substantially U-shaped metallic band secured at one end to said plate portion and adapted to engage substantially all of the remaining portion of said terminal, said metallic band having a nodal expansible portion adjacent said rigid member, and a pin secured to the other end of said band and extending through said lever arms at points beyond said axles relative to said flange when said lever is in said parallel position, said points being between said axles and said plate portion whereby the pull of said band locks said lever against said rigid member when said lever is in said parallel position and holds said terminal securely to the connector.

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