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ELECTRICAL CONNECTORS

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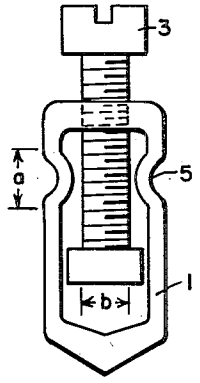


Fig. 1.

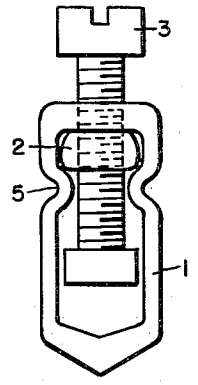


Fig. 2.

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ELECTRICAL CONNECTORS

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3 Claims. (Cl. 339—272)

Our invention relates, generally, to electrical connectors and, more particularly, to connectors for making terminal connections to electric meters and the like.

Electrical connectors of the socket type having undulated sides to obtain an elastic grip on conductors, particularly aluminum conductors, are known in the prior art. In connectors previously known abroad, the body or socket of each connector was made of sheet steel and was undulated along the whole length of each side surface to obtain the desired elasticity.

The foregoing connectors had the disadvantage that their operation was weak or soft, that is, the terminal screw had to be screwed in a substantial distance before the desired grip-pressure was obtained. On the other hand, when the characteristics of the connector are such that its operation is too hard, the danger arises that the connectors of correspondingly greater thickness will break during the manufacturing process, particularly when undulating, or when fastening the terminal screw.

An object of our invention is to overcome the aforesaid disadvantages of prior electrical connectors.

A more specific object of our invention is to provide a connector having sufficient elasticity to secure good electrical contact, even when an aluminum conductor is utilized.

Another object of our invention is to provide a connector which requires a relatively small amount of turning of the terminal screw to obtain a satisfactory grip-pressure.

Other objects of our invention will be explained fully hereinafter or will be apparent to those skilled in the art.

In accordance with our invention, the undulations of the side surfaces of the body or socket of a connector extend only over a part of said surfaces. The socket is made from a material, such as brass, which will deform over its yield point and obtain its elastic properties only after undulation, thereby preventing the breaking of the socket during the manufacturing process or operation of the connector.

For a better understanding of the nature and objects of the invention, reference may be had to the following detailed description, taken in conjunction with the accompanying drawing, in which:

Figures 1 and 2 are views, in end elevation, of two connectors embodying the principal features of the present invention.

As shown in Figs. 1 and 2 of the drawing, the undulation 5 extends only over a distance "*a*," which is approximately the same as the smallest diameter "*b*" of the socket 1, that is, the diameter of the terminal screw 3. It is advisable to make the socket 1 of a material other

than steel, such as brass, which will deform over its yield point and obtain its elastic properties only after undulation. Such a terminal connector has an operating characteristic which is rather hard, that is, only a small amount of turning of the terminal screw 3 is necessary to obtain a satisfactory grip-pressure. However, the connector also has the necessary elasticity to secure a good contact pressure, even in case aluminum conductors are utilized. The utilization of a soft material, such as brass, which obtains its elastic properties only after the undulation will prevent the breaking of the socket during the manufacturing process or operation of the connector.

A contact pressure of 500 kg. (1100 lbs.) per screw at only, for instance, 0.3 mm. (0.012") tensioning-distance is obtained with said terminals. At said tensioning-distance of only ⅓ mm. (0.012") an energy accumulation of ½ mkg. (0.72 ft. lb.) is obtained.

When the socket is made of brass, the thickness of the socket walls is greater than when the socket is made of steel. Generally, the sides of the socket are made 1 mm. (0.039") thick, so that the terminal connectors are made nearly as narrow as the conventional steel constructions, which, because of the undulation extending along the whole length of the socket, have considerable width so long as the conductor is not inserted into the socket and the terminal screw tightened.

A particularly advantageous modification of the terminal connector is shown in Fig. 2. As shown, the undulation 5 of the socket 1 is utilized to secure the threaded insert 2 in its position as well as to provide the desired elasticity to take care of expansion and contraction of the conductors held by the connector.

Since numerous changes may be made in the above described construction and different embodiments of the invention may be made without departing from the spirit and scope thereof, it is intended that all matter contained in the foregoing description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

We claim as our invention:

1. A terminal connector having an integral socket of a generally rectangular cross section, a terminal screw extending through one end of the socket, two opposite sides of the socket having a single undulation in each side, and the undulation in each side extending only over a part of the surface of said side.

2. A terminal connector having a socket of a generally rectangular cross section, a terminal screw extending through one end of the socket, two opposite sides of the socket having a single undulation in each side, the undulation in each side extending only over a distance corresponding to the diameter of the terminal screw, and said socket being composed of a material, such as brass, which obtains its elastic properties only after being undulated.

3. A terminal connector as claimed in claim 2, characterized by an energy-accumulation capacity of approximately 1/10 mkg. (0.72 ft. lb.) per screw at a deformation distance of approximately ⅓ mm. (0.012").

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