June 23, 1942. J. ROGOFF 2,287,762

CURRENT TRANSFORMER TERMINAL CONNECTOR

Filed July 25, 1939

Fig. 1

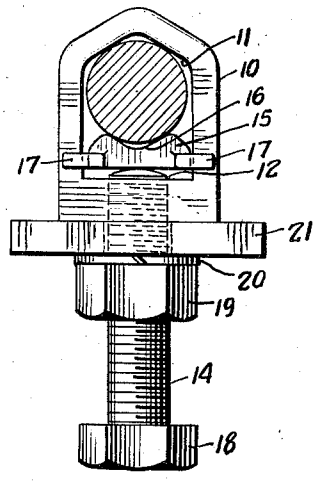


Fig. 2

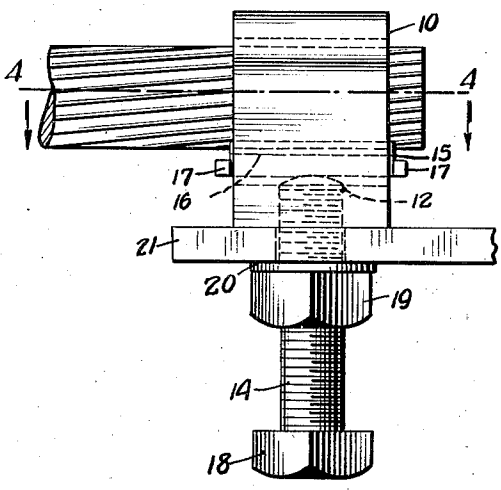


Fig. 3

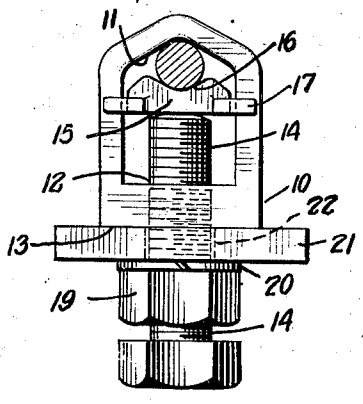
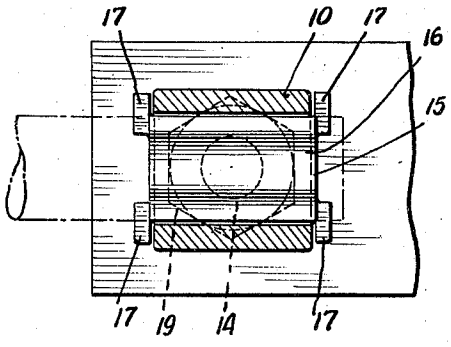


Fig. 4



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CURRENT TRANSFORMER TERMINAL CONNECTOR

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2 Claims. (Cl. 173—269)

My invention relates to terminal connectors such as are used for joining wires or cables to current transformer terminals or to similar flat bar extensions.

The principal object of my invention is to provide a terminal connector which is low in cost and inexpensive to install and maintain.

Another object of my invention is to provide a terminal connector which can be rotated to any angle on the flat bar so that connections to heavy cables can be made without bending or twisting the cable.

Still another object of my invention is to provide a connector wherein the current path between cable and flat bar is direct and passes thru only one interposing part.

A further object of my invention is to provide a terminal connector capable of accommodating any one of a variety of cables and various thicknesses of flat bar.

Another object of my invention is to provide a terminal connector which clamps both cable and flat bar with a single clamping bolt and nut.

Current transformers are used with metering or current measuring instruments and are usually owned by the utility company supplying electric power to the consumer. To avoid a multiplicity of sizes they are made in a few standard capacities. One end of the current transformer is usually connected to the utility company's service entrance cable and the other end is joined to the consumer's cable. Inasmuch as these cables may be constructed and insulated differently, they may be and usually are of different sizes. In addition the utility may move the current transformer from one customer's premises to another's, or the customer may increase his electrical consumption and therefore increase the size of his cable. All of these reasons, and others, require a terminal connector for the current transformer which will accommodate a wide range of cable sizes and which will clamp any one of the cables equally efficiently. Sometimes, where current consumed is large, the customer may have two or more cables which must be joined to the current transformer and the terminal connector must be suitable for clamping a multiplicity of cables.

Although current transformers are fairly standard in design and capacity, various manufacturers equip their transformers with different sizes of flat bars. Inasmuch as the current transformers owned by any single public utility company may be made by several manufacturers, it is necessary that the current transformer terminal connector be suitable for use on any one of several thicknesses of flat bar. Therefore the terminal connector must not only accommodate a range of cable sizes, it must also accommodate a range of flat bar sizes.

Because current transformers are usually used where heavy currents must be measured, the cables connected to them are usually heavy. The connections are often made in enclosures where space is restricted. Very often the cable is at an angle to the current transformer terminal bar. Unless the connection can be made at an angle it would be necessary to bend the cable—a difficult operation in restricted space. Therefore, the current transformer terminal connector should be able to join the cable at an angle to the flat bar.

In addition to accommodating a large range of conductor sizes at any angle, the current transformer terminal connector must be compact so that it may be easily taped. Current transformers are usually used indoors and all live parts should be insulated.

In order to provide a clamp of minimum expense my terminal connector is provided with a single bolt and nut. The clamp is mounted on the transformer bar and the bolt is inserted from the opposite side of the bar through the hole which is punched therein. The bolt forces the pressure bar against the cable and the assembly is completed by tightening the nut against the flat bar. The nut not only clamps the connector to the bar, it also locks the assembly tight against vibration.

I accomplish these and other objects and obtain my new results as will be apparent from the device described in the following specification, particularly pointed out in the attached claims, and illustrated in the accompanying drawing, in which:

Fig. 1 shows an end view of the terminal connector mounted on the maximum size cable and bar.

Fig. 2 shows a side view of the same.

Fig. 3 shows an end view of the terminal connector mounted on the minimum size cable and maximum size bar.

Fig. 4 is a sectional view along line of 4—4 of Fig. 2.

Reference numeral 10 designates the tubular connector body, with a V shaped bottom 11 and a threaded aperture 12, transversely positioned through the side 13 opposite the V shaped bottom to receive a bolt 14. A pressure bar 15, V shaped as at 16, with extending ears 17 for

channelling the bar within the body of the connector is provided. The bolt 14, with hexagonal head 18, has associated with it lock nut 19 and washer 20. The flat bar terminal 21 connecting to current transformer (not shown), has an aperture 22 for entrance of the bolt.

The connector is mounted on the transformer bar 21 and the bolt 14 inserted from the opposite side through aperture 22. Rotating the bolt forces pressure bar 15 against the conductor within the body 10, and the assembly is completed by tightening the lock nut 19 which simultaneously locks the bolt against the conductor as well as the connector on the plate, in the desired position, about the axis of the bolt, so that bending heavy conductors is made unnecessary.

In the position shown in Fig. 3, the connector can accommodate the smallest size conductor, and provision is made in this position for maximum size plate. The bolt has a length sufficient to lock both into position.

I have thus described my invention, but I desire it understood that it is not confined to the particular forms or uses shown and described, the same being merely illustrative, and that the invention may be carried out in other ways without departing from the spirit of my invention, and, therefore, I claim broadly the right to employ all equivalent instrumentalities coming within the scope of the appended claims, and by means of which, objects of my invention are attained and new results accomplished, as it is obvious that the particular embodiments herein show and described are only some of the many that can be employed to attain these objects and accomplish these results.

What I claim and desire to secure by Letters Patent, is as follows:

1. An electrical connection comprising a rigid tubular connector body; a stationary plate, said connector body provided with an inner cable engaging surface, and an outer plate engaging surface; a pressure bar within said body guided by the walls of said body and provided with a cable engaging surface; a pressing and supporting screw threaded through the plate engaging surface of said body and projecting through the stationary plate to press the pressure bar against the cable within the connector body and to support the cable, the pressure bar, and the connector body on the stationary plate, said screw having a length sufficient to grip a cable of minimum diameter and extend through the stationary plate; and a nut positioned on said screw for simultaneously locking the screw against rotation and the connector body to the stationary plate.

2. An electrical connection of the type described in claim 1 characterized by having the inner cable engaging surface shaped V-shaped to center the cable, and by having the pressure bar face V-shaped with a cable engaging surface at the apex of the V-shaped face, to allow maximum approach of the pressure bar to the cable engaging surface of the connector body, to engage a cable of minimum diameter.

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