Oct. 21, 1947. H. A. BAKKE 2,429,448

CIRCUIT CONNECTOR

Filed Aug. 15, 1946

Fig.1.

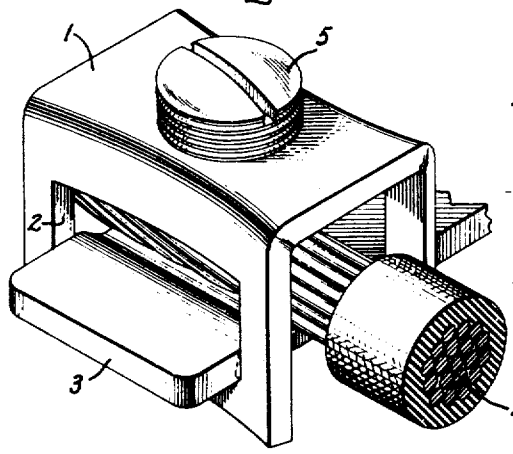


Fig.2.

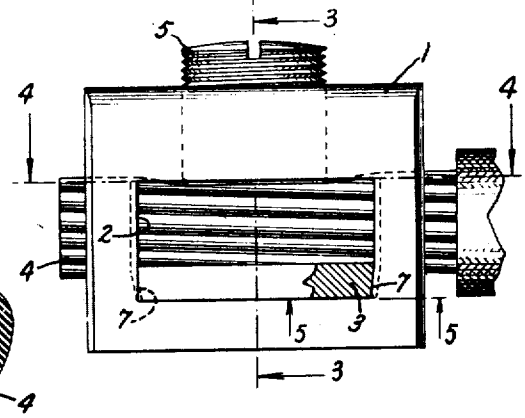


Fig.3.

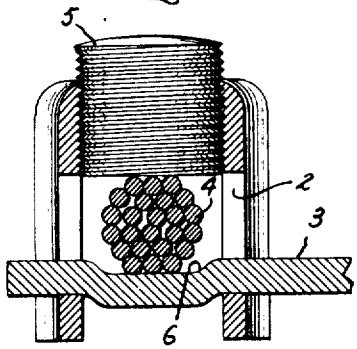


Fig.4.

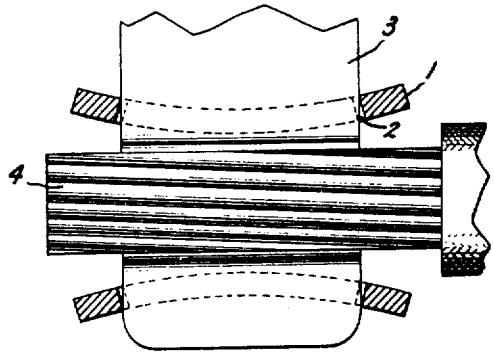
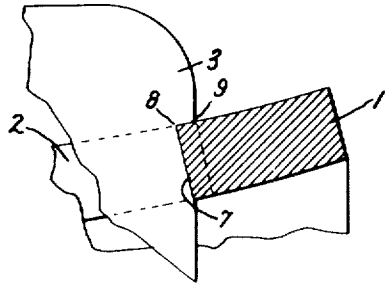


Fig.5.



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UNITED STATES PATENT OFFICE

2,429,448

CIRCUIT CONNECTOR

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Application August 15, 1946, Serial No. 690,641

2 Claims. (Cl. 173—324)

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My invention relates to a connector for making electrical circuit connections and is particularly designed for use in electric socket meters but has other uses.

My improved connector uses a conductor stirrup part which is slotted for the insertion of a crossbar terminal. Another terminal, which may be a cable, is inserted in the stirrup above the crossbar and then clamped against the crossbar by a screw. My connector is designed to securely hold the crossbar in place so as not to slip and become misplaced when the screw is loosened. This is accomplished by a resilient wedging action which is easily loosened, if desired, by a light knock with a screwdriver or other tool. The same features used for locking the crossbar in place prevent spreading of the stirrup when the screw thereof is tightened.

The features of my invention which are believed to be novel and patentable will be pointed out in the claims appended hereto. For a better understanding of my invention, reference is made in the following description to the accompanying drawing in which Fig. 1 is a perspective view of my connector as used to make a connection; Fig. 2 is a side view of the connector of Fig. 1; Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 2; Fig. 4 is a cross-sectional view taken on line 4—4 of Fig. 2; and Fig. 5 is a detail sectional view taken on line 5—5 of Fig. 2 but with no pressure applied by the screw.

The connector comprises a stirrup or U-shaped conductor 1 having aligned approximately rectangular-shaped openings or slots 2 in its sides through which a connector bar 3 may be inserted. Then a cable 4 to be electrically connected to bar 3 may be inserted in the end of the stirrup above the bar 3, and a screw 5 threaded through the head of the stirrup may be screwed down clamping the cable 4 against bar 3. The invention concerns certain details of this structure which improve the usefulness and life of this type of connector. The bar 3 is preferably slightly recessed or offset as shown at 6 to provide a depressed seat for the cable 4. This allows the use of a larger size cable 4 for a given size and strength of connector than would otherwise be the case. The offset at 6 in the bar terminal 3 is not depended upon to prevent the pulling of the bar 3 and stirrup apart when the screw 5 is loose.

The resilient side walls of the stirrup which contain the openings 2 have a permanent inward bend as best shown in Fig. 4. This strengthens the walls and forms springs thereof. Also the lower side edges of the openings 2 therein have

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a narrowing taper toward the bottom and form wedges for the crossbar 3. That is, the width of the openings 2 is reduced at the bottom as best indicated in Fig. 2 at 7. The width of these openings over about three-fourths of their upper portions is uniform and sufficient for the connector bar to be easily inserted therethrough, but narrows down at the lower edge as explained. Fig. 5 represents the approximate conditions at one side with the bar 3 inserted in place but before there has been any resilient wedging action. As a consequence when a connection is being made, no difficulty is experienced in inserting the connector bar 3 and cable 4. However, as the screw 5 is turned down and the cable 4 pressed against bar 3, the bar is wedged down into the narrow portions of the openings and tightly held therein. The resiliency of the side walls of the stirrup permits the bends therein partially to straighten out as the wedging action progresses, since this widens the openings. Thus in Fig. 5 the point 8, which is at the lower outer corner of the opening, is forced over to position 9. As the bar 3 is forced against the bottom edges of the openings, it is thus held tightly clamped by the resilient wedging action explained. This wedging action prevents spreading of the stirrup side walls beyond the slight bending action explained, since the bar 3 being wedged in the slots acts as a crossbar at the lower end of the stirrup to hold the walls from spreading.

One difficulty experienced in meter connections of this general type has been that when a meter is disconnected for testing, repair, replacement, etc., the connectors are likely to pull apart and get out of place. With my connector the bar terminal 3 remains wedged in the bottom of the stirrup slots when the screw 5 is loosened and the cable 4 removed, and hence, cannot slip out accidentally and cause a short circuit or other inconvenience. However, it can be instantly loosened by giving it a sharp upward tap with a screwdriver or other tool in any case where its removal from the stirrup is desired.

The connector is designed so that, except for the threading for the screw 5, it can be formed from sheet copper parts by stamping machinery and is, therefore, relatively low in cost.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A connector comprising a stirrup shaped conductor having a screw threaded through its head and having aligned openings through its side walls, which openings are wider at the top near the head than at the bottom farthest from

the head, the side walls being resilient and curved so as to widen the openings when straightened, and a conductor bar inserted through said openings, said bar having a width which permits its easy insertion through the openings at their widest point, but requiring straightening action of the side walls and a widening of the slots when in the bottoms thereof, said connector being adapted to clamp another conductor between the screw and conductor bar.

2. A connector comprising a stirrup shaped member of resilient conductor metal, a screw threaded through its head, aligned, approximately rectangular openings through the side walls of said member which openings have a narrowing taper toward their bottom ends farthest

from the head, said side walls having an inward bend such that the effective width of the openings may be widened by a resilient straightening of such side walls, a conductor bar inserted through said side wall openings, said bar having a width which permits easy insertion through the wide portions of the openings but which, when forced down to the bottoms of such openings, produces a wedging action and requiring a straightening action of the side walls to widen the openings sufficiently to accommodate the bar, said parts being dimensioned to permit a cable to be clamped between the screw and bar, said bar being offset opposite and away from the screw to provide a seat for such cable.

HANS A. BAKKE.