May 20, 1952 F. H. BURGESS 2,597,286

ELECTRIC CONNECTOR BLOCK

Filed July 27, 1949

FIG. 1.

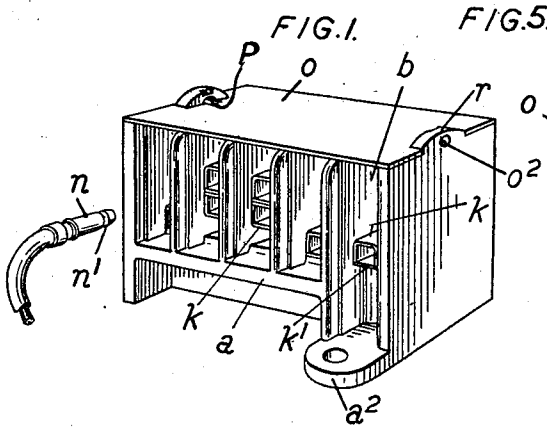


FIG. 5.

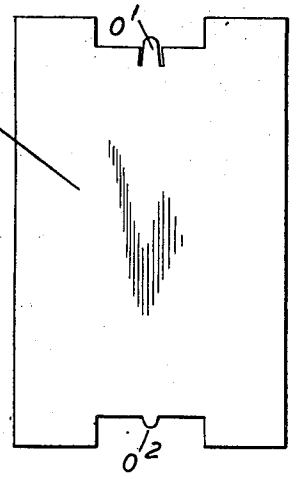


FIG. 2.

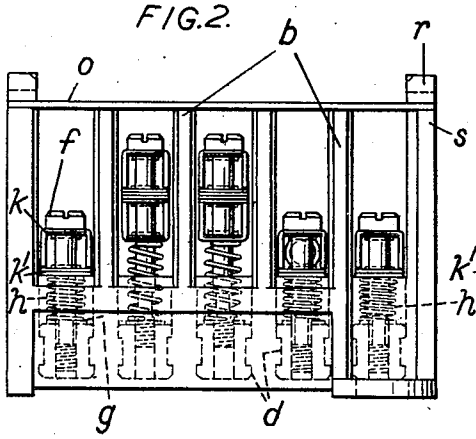


FIG. 4.

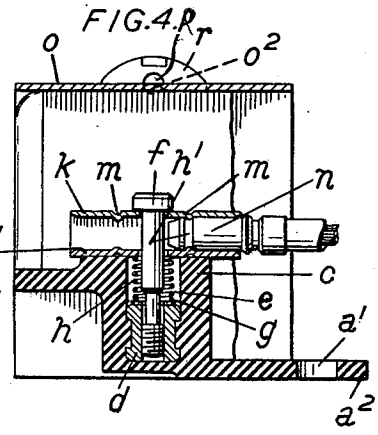


FIG. 3.

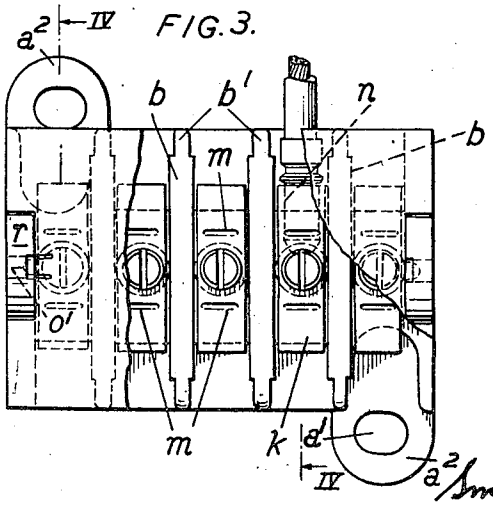
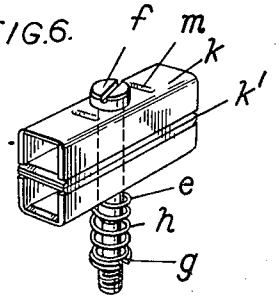


FIG. 6.



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Patented May 20, 1952 2,597,286

UNITED STATES PATENT OFFICE

2,597,286

ELECTRIC CONNECTOR BLOCK

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Application July 27, 1949, Serial No. 107,012
In Great Britain December 31, 1948

1 Claim. (Cl. 173—328)

1

This invention relates to improvements in electric connector blocks and sockets therefor, and is particularly concerned with arrangements in which ferrules, crimped or soldered on the ends of cables, are received in clamps mounted in blocks made of insulating material, each pair of clamps constituting a socket being adapted to be tightened by a screw into positive locking engagement with a ferrule and being associated with a spring for maintaining resilient pressure engagement if the screw should be loosened.

The object of the invention is to provide an improved arrangement of compact construction and of relatively light weight which can be simply and economically produced.

According to this invention, each pair of clamps provides a socket space of substantially uniform rectangular shape in cross section and is formed with a transverse rib or ribs adapted for interlocking engagement with a groove in a ferrule. The clamps of a socket, disposed in opposed relation, may each be of channel shape. Or one clamp may be of channel section and the other may be a flat plate disposed across the mouth of this channel member. The sides of a socket provide strengthening walls which prevent deformation due to the pressure of the screw which is provided for tightening the clamps into engagement with the ferrule, and the top of the socket constitutes a flat surface for seating the head of the screw. The clamps can be simply and economically produced from flat strip and the provision of ribs extending inwardly into the socket space for engagement in the groove in a ferrule not only results in a saving in space, as contrasted with arrangements in which interlock is provided by the engagement of shouldered surfaces on the clamps with external flanges on the ferrule, but it also simplifies production inasmuch as it avoids undue stressing of the metal while avoiding the necessity for the provision of specially shaped blanks from which the clamps can be produced.

A socket may be adapted for receiving a ferrule at each end. Also instead of providing a pair of clamps on each screw, a number of pairs may be arranged on a screw to provide a plurality of tiers.

In order to enable the invention to be readily understood, reference will now be made to the accompanying drawing illustrating by way of example one construction for carrying the invention into effect, in which drawing:

Figure 1 is a perspective view of a 5-way block fitted with single and double tier sockets, and showing a ferruled cable end separately.

2

Figure 2 is a side elevation of Figure 1 in which the screws of the single tier sockets have been tightened while those for the double tier socket have been loosened.

Figure 3 is a plan of Figure 2 with parts of the cover removed.

Figure 4 is a section on the line IV—IV of Figure 3.

Figure 5 is a plan of the cover, each end of which illustrates alternative arrangements for securing it in the block.

Figure 6 is a perspective view of a double tier socket assembly.

Referring to the drawing, a block moulded from insulating material is formed with end walls b and parallel intermediate vertical partitions b^2 to provide deep chambers each adapted for the reception of either a single tier or a double tier socket. The partitions may be of reduced thickness at the ends b^1 for the purpose of reducing weight and extending the creepage path between adjacent chambers. The block is adapted to be secured to a panel or the like by screws passing through openings a^1 in feet a^2 extending laterally in opposed directions from each corner of a central longitudinal base a^3. Each foot constitutes the bottom of an end chamber on one side of the base. The remaining chambers as well as each end chamber on the other side of the base have bottoms formed by strengthening ribs a disposed a short distance above the bottom of the block.

The socket in each chamber is supported on a short pedestal c raised above the lateral ribs a. Deep vertical recesses e in the base a^3 have moulded in their lower ends, tapped inserts d, each adapted for receiving the threaded end of a long screw f of a socket. Between its ends each screw f has a portion of reduced diameter, and around this reduced portion is disposed a split C-shaped washer g which rests on the exposed upper surface of the insert d and between which and the lower member of the socket is disposed a helical compression spring h.

Each socket comprises a clamp k of U-shape in cross section, and a flat plate k^1. A single tier socket comprises an inverted U-shape clamp k bearing on a flat plate k^1 to provide a rectangular passage for the reception at each end of a ferrule n crimped or soldered on the end of a cable. Each double tier socket comprises a pair of U-shaped clamps k and flat plates k^1 so arranged that the flat plates are in contact, with the U-member of the upper socket inverted while that of the lower socket is upright. The screw f of a socket, with either a single or a double tier

arrangement, extends freely through alined openings in the superposed members k and k^1, its head bearing on the flat upper surface of the inverted U-clamp k. Each socket constitutes an assembly adapted for mounting in and withdrawal from, the block as a unit, as best seen in Figure 6.

Near the central openings for the passage of the screw, each member k, k^1 of a socket is formed on opposite sides of the respective openings, with an indentation which provides a short transverse rib m projecting into the rectangular passage formed by members k, k^1, the spaced ribs m of each member k being formed on its horizontal wall. Each tubular ferrule n on the end of a cable has a circumferential groove n^1 near its outer end, and this groove is adapted to be entered by the opposed interior ribs m of a socket. The nose of each ferrule n is of conical shape, and a member of each socket may be chamfered at its ends as shown in Figures 2, 4 and 6.

When the screw f of a socket is tightened, with a ferrule n inserted therein, the members k, k^1 are pressed against the end of the pedestal formation c, and ribs m are caused to be locked in the groove n^1 of the ferrule n for positively securing it in position, as best seen in Figure 4. When the screw f is loosened, as in the case of the double tier sockets in Figure 2, the clamps k and flat plates k^1 can be separated against the action of the spring h for permitting endwise withdrawal or introduction of a ferrule n.

The top of the block may be closed by a flat cover plate o of thin flexible insulating material formed with end projections o^1, o^2 adapted to be sprung into holes or recesses p in recessed parts r of the end walls of the block.

Having thus described my invention, I claim:

A multiple socket for receiving a plurality of ferrules connected to the ends of a plurality of conductors comprising an upper clamp member and a lower clamp member each including a channel shaped member of substantially U-shaped transverse cross section, said members being assembled in opposed relation with their open sides facing each other, at least one flat plate disposed across the opposed open sides of said channel shaped members, said channel shaped members and said plate providing two adjacent sockets each of substantially rectangular transverse cross section and each adapted to receive therein a ferrule having a transversely extending groove on the exterior surface thereof, said channel shaped members and said plate each having inwardly projecting ribs on their inner surfaces adapted to engage within the grooves on the outer surface of ferrules received within each of said multiple sockets, a screw passing transversely through said channel shaped members and plate for forcing said channel shaped members toward said plate and into locking engagement with the ferrules received within the sockets formed by said channel members and plate with the ribs on said channel shaped members and on said plate in the grooves of the ferrules received within the said sockets, said screw having a head overlying one of said channel shaped members and having an abutment adjacent its opposite end and spaced from the other of said channel shaped members, and an expansion spring extending between said last mentioned channel shaped member and said abutment for maintaining resilient pressure engagement between the clamp members and plate and the ferrules inserted within the sockets formed by said members and plate when the screw is loosened.

FRANK HENRY BURGESS.

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