PLUG-AND-SOCKET CONNECTORS

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5 Claims. (Cl. 339—198)

This invention relates to plug-and-socket connectors and has for an object to provide improved connector units permitting a plurality of contacts to be secured in a monobloc insulating member without the use of retaining springs or back plates. According to the present invention, contacts having a surface recess, preferably a circumferential groove, are retained in bores of a molded insulating block by applying to the outer side of the insulating block a further insulating member provided with suitably located pegs preferably integral with said member, which extend through apertures in a wall of the block into the recess of each connector accommodated in such bore. The further insulating member may be a similar block having further parallel holes for the accommodation of additional contacts, or it may be, for example, a panel of insulating material which in an assembly of blocks each having holes to accommodate contacts, is applied to the apertured wall surface of the last block of the group.

The accompanying drawing illustrates by way of example one embodiment in which the contacts are contact bushings formed with integral coaxial wire attachment sleeves in which a wire end may be secured by crimping, soldering, or in any other suitable manner.

FIGURE 1 is a perspective view showing a connector member composed of two blocks, each containing three contacts, and an end panel or peg plate, and:

FIGURE 2 is an exploded cross-section thereof.

Referring now to the drawings, the insulating body of a connector member is built up of two identical molded blocks 1, each having three parallel cylindrical bores 1a for the accommodation of contacts 4. The upper part of each contact 4, which is shown in the drawings as a socket 4a, is co-axially joined by a stem 4b to a wire-attachment sleeve 4c adapted to be crimped to a conductor wire. A circumferential groove 5 separates the outer portions of the socket and sleeve. Each block 1 is further provided with a series of cross- bores 2 penetrating, through one of the side surfaces of the block, right into one of the bores 1a, and the opposite side wall of each block is provided at the corresponding places with integral pegs 3 so arranged and dimensioned as to fit into the holes 2 of an adjacent similar block, and to project through these into the peripheral grooves 5 of the contacts 4. Since such an assembly would provide no pegs to project through the holes 2 of the first block 1 and loosely the contacts 4 therein, a separate peg plate 6 made of insulating material and having similar pegs 3 is applied to the outer surface of that block, all the blocks and the peg plate 6 being finally held together by suitable means, for example screws or bolts 7. When the assembly is thus completed, all contacts 4 are securely held in the bores 1a of each block 1 by the pegs 3 of the adjacent block 1 or end plate 6, the projecting pegs 3 of the last block may either be removed or, if desired, accommodated in suitably arranged holes of a counter plate 8, which may contain threads for engagement by the screw-threaded ends of the bolts 7.

It will be readily appreciated by those skilled in the art, that the construction described with reference to the drawings is applicable not only to socket units but also to plug units equipped with pin-type contacts 9 as indicated in chain-dotted lines in the case of one of the contacts.

The illustrated construction, in addition to enabling contact of either socket or pin type to be retained in an insulating connector-body moulding without the use of springs or back plates and at the same time preserving a monobloc construction of the insulating moulding, also enables each wire to be attached to its contact, for example by crimping or soldering, before the contact is inserted, and to be then placed into its correct position without the use of special tools. The construction also enables any contact to be removed without the use of special tools, and the co-operation of the pegs and holes will not only hold each contact in place, but will also line up adjacent mouldings in their true position relative to each other so as to ensure matching with a mating complementary connector member. Additionally it has the advantage that no metal parts are used for retention of the contacts so that the electrical creepage paths are increased and improved, particularly since the rear end of each contact i.e. the points of its wire-attachment sleeve, may be set well back from the outer surface of the insulating body of the connector member. Various details of the illustrated embodiment may be modified without departing from the scope of the invention. Thus the blocks 1 need not be of rectangular cross-section, and the pegs 3, instead of being of circular cross-section, could be rectangular or square, if desired with a pointed or shaped end to provide lead in a resiliency feature, and the holes 2 could be shaped accordingly.

What I claim is:
1. A plug-in type electric connector member, comprising a first block made of insulating material and having a plurality of parallel through bores and a side face parallel to said bores, connector contacts respectively accommodated in said bores for at least part of the length of each contact, the block having apertures respectively extending into said bores from said side face, and each contact having a surface recess facing such aperture associated with the bore accommodating the contact, and a further block, secured to said first block in contact with said side face thereof, said further block carrying mutually insulated pegs respectively extending through said apertures of the first block into the recesses of the individual contacts to restrain displacement of the contacts along the said bores.

2. An electric connector member as claimed in claim 1, wherein the further block likewise consists of insulating material, the pegs being integral parts of said further block.

3. An electric connector member as claimed in claim 1, wherein said first block has, at the side of said bores opposite to said flat surface, a second flat surface parallel to said first-mentioned flat surface, and wherein the connector member includes additional block of insulating material substantially identical with said first block, and additional connector contacts respectively accommodated in the bores of the additional block, said additional block being attached to the first block with the apertured flat surface of the additional block in contact with the second
3. A connector as claimed in claim 1, wherein the recesses are circumferential grooves provided in each contact.

4. A connector member as claimed in claim 2 wherein said further block is an insulating panel having no contact-accommodating bores.

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