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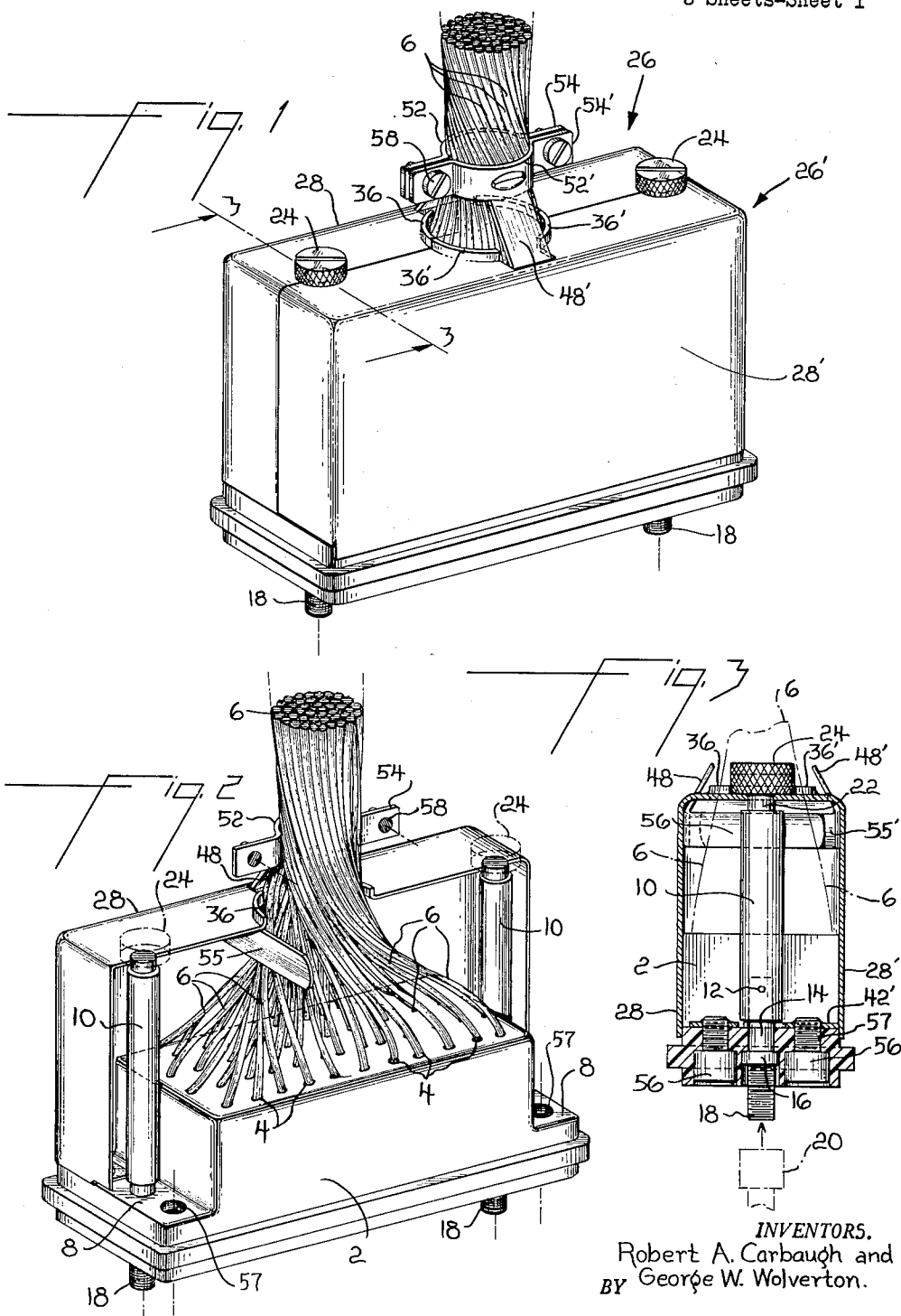
R. A. CARBAUGH ET AL

3,056,942

CONNECTOR BLOCK SHIELD

Filed Dec. 22, 1959

3 Sheets-Sheet 1



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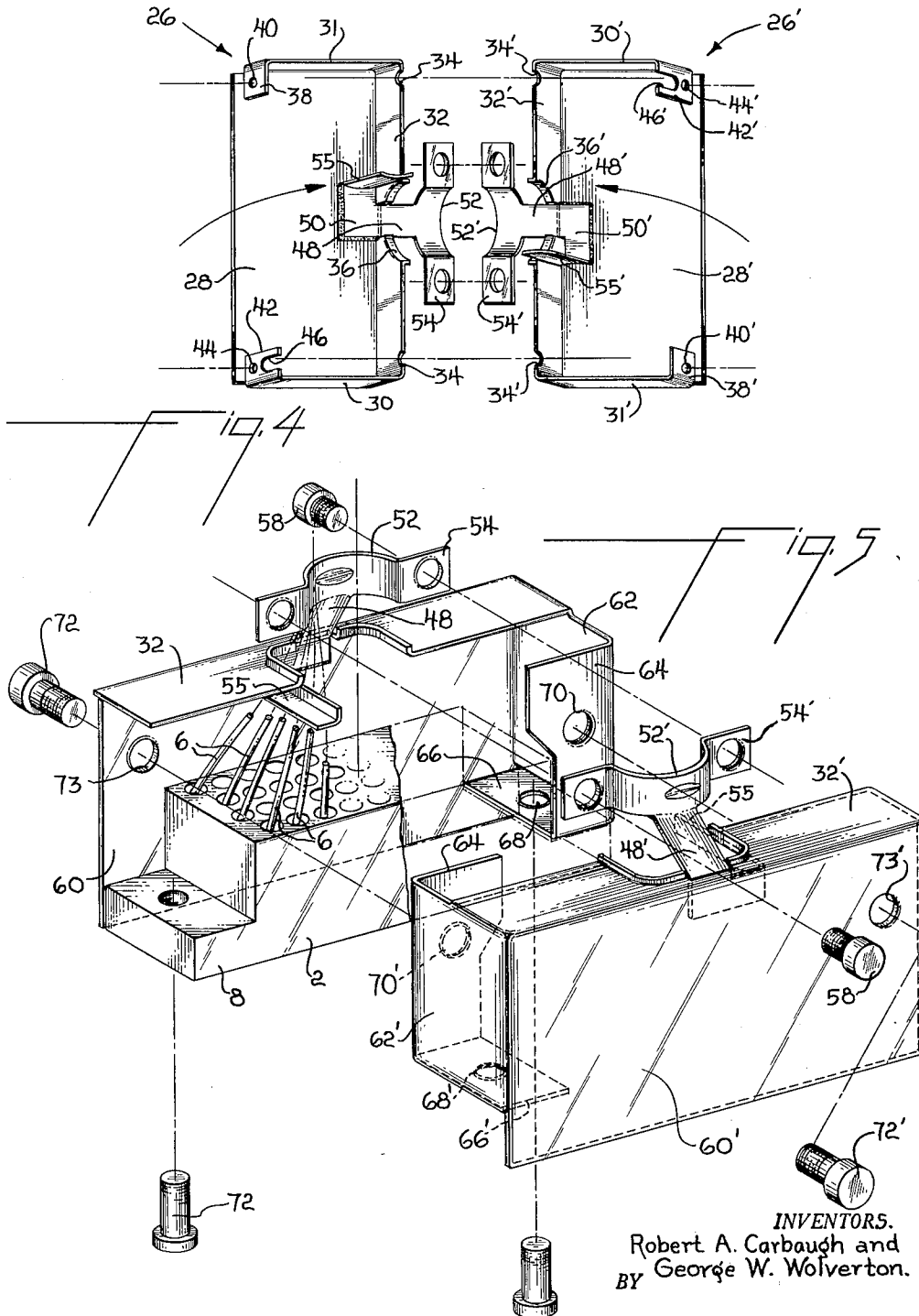
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CONNECTOR BLOCK SHIELD

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3 Sheets-Sheet 2



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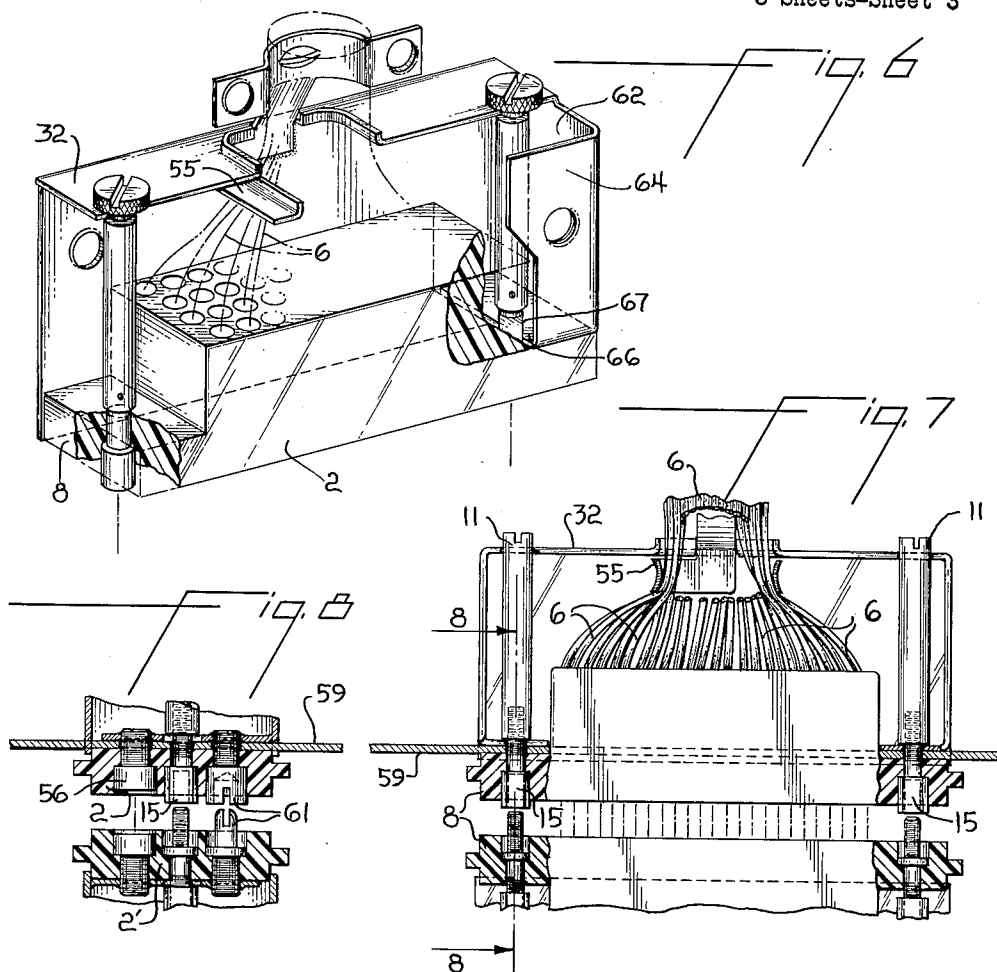
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3 Sheets-Sheet 3



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1

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CONNECTOR BLOCK SHIELD

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This invention relates to multiple connector blocks and particularly to an improved shield for such blocks.

A common method of disengageably connecting a plurality of electrical conductors is by means of a pair of dielectric blocks each having mounted therein a plurality of pin and socket contacts. Quite frequently, each connector block of each pair is provided with means for pulling the blocks together and for holding them against each other in order to assist in assembling the blocks and to avoid accidental disengagement. A common expedient is to provide jack screws in the blocks so that the two blocks can be pulled together by merely threading the parts of the jack screws together. It is also a common expedient to provide some form of shield for each block in order to protect the blocks and the conductors from damage. Advantageously, these shields should be of simple construction and should be readily removable from the blocks in order to permit access for repair and servicing or for changing the contacts in the block.

It is accordingly an object of the invention to provide an improved shield for a multiple connector block. It is a further object to provide a shield which can be removed from the block with a minimum of inconvenience and without disassembly of any of the parts of the block such as the jack screws. A still further object is to provide a two-part shield for connector blocks in which the two parts are identical to each other.

These and other objects are achieved in a preferred embodiment in which the shield is divided along a medial plane and each half provides suitable notches for the conductors extending from a connector block and, if required, for the jack screws. Each half also provides inwardly directed ears on its two opposite sides which ears are adapted to be engaged with the block either by means of fasteners extending through the block or by engagement with the jack screws themselves. A two-part clamp is also provided with one half of the clamp being secured to each of the sections of the shield, the two parts of the clamp being adapted to be secured together when the two halves of the shield are assembled to the block so that each shield half is held to the block and each shield half is also held to the other shield half by the clamp which surrounds the conductors.

In the drawing:

FIGURE 1 is a perspective view of a connector block having a shield in accordance with the invention assembled thereto;

FIGURE 2 is a view similar to FIGURE 1 but with one section or half of the shield removed;

FIGURE 3 is a view taken along the line 3-3 of FIGURE 1;

FIGURE 4 is a perspective view showing the two sections of the shield;

FIGURE 5 is a perspective view showing the two sections or halves of an alternative embodiment;

FIGURE 6 is a perspective view of an embodiment similar to that of FIGURE 5 but adapted for use with jack screws;

FIGURE 7 is a view similar to FIGURE 3 but showing the block and shield as assembled to a panel; and

FIGURE 8 is a view taken along the line 8-8 of FIGURE 7.

In the embodiment of FIGURES 1-4, the reference numeral 2 denotes a dielectric connector block having a

2

plurality of parallel openings therein in which there are mounted electrical contacts of the pin and socket type. It is understood that two such blocks are used for a complete assembly and that one of the blocks may have pin contacts and the other block may have socket contacts therein. In both blocks, however, the conductors 6 which are secured to the contacts will extend rearwardly from the blocks.

Flanges 8 extend from the opposite sides from the blocks and jack screws, generally indicated at 10, are rotatably held in these flanges. In the form shown in the drawing, these jack screws provide an enlarged cylindrical portion which has an extension 14 secured to its one end by means of a pin 12. This extension provides a collar 16, which lies within a recess in the flanges of the blocks, and has a threaded end 18 for cooperation with a complementary threaded socket 20 in the other block of the assembly. The upper end of the jack screw is of reduced diameter at 22 and has an enlarged turning knob 24 on its end. With this arrangement, the two connector blocks of an assembly can be put together by merely aligning the jack screws and threading the parts together.

The shield for the type of block shown in FIGURE 2 comprises two identical sections 26, 26' which are secured to the block and which surround the shanks of the jack screws and the conductors which extend from the block. Since the two sections of the shield are alike, a description of one will suffice for both and similar reference numerals, differentiated by prime marks, will be used to denote corresponding parts of the two halves. Referring to FIGURE 4, it can be seen that each section of the shield comprises a face panel 28 having side flanges 30, 31 and an end flange 32 extending therefrom. This end flange is notched along its edge at 34 for the accommodation of the jack screws and is centrally notched at 36 for the accommodation of the conductors 6. It will thus be apparent that when the two halves of the shield are put together circular openings are defined for these jack screws and for the wires.

An inwardly directed ear 38 on side flange 31 has a threaded opening 40 therein for the reception of either a fastener or guide pin. A similar ear 42 extending from flange 30 has a threaded opening 44 and a notch 46 which is adapted to surround the extension 14 of the jack screw. A clamp 48 is secured to face panel 28 as shown at 50 and has its base portion 55 bent normally of the plane of the panel 28 to function as a gathering finger for the conductors. The end 52 of the clamp is arcuate and has side extensions 54 having openings for the reception of clamping screws 58.

In use, the two halves of the shield can be assembled to the block 2 by merely fitting these halves over the block and inserting the fasteners 56 through openings 57 in the block and into the openings 40, 44 of the shield sections. Thereafter the screws 58 are inserted through the aligned openings of the clamp and the conductors are clamped securely between the arcuate sections of these clamps. If it is ever necessary to remove the shield in order to repair or change the wiring pattern of the conductors 6, either section can be taken off by merely removing the appropriate screws 56 and the clamping screws 58.

If desired, the fasteners 56 can be eliminated and the shield held in place by the jack screws and by the wire clamp 48, 48'. As is apparent from FIGURE 3, the ears 42, 42' will be clamped against the surface of the flange of the block when the jack screw is tightly threaded into the socket 20 of the mating connector block. Alternatively, the fasteners 56 can be replaced by guide pins 61 which are threaded into the openings 40, 44 as shown in FIGURE 8. These guide pins serve the dual function of clamping the shield halves to the dielectric block and

polarizing the two blocks so that they can be plugged together only in the proper manner.

As shown in FIGURES 7 and 8, connector assemblies in accordance with the invention can be used where one of the connector blocks must be mounted in a panel. An opening in the panel is provided which is large enough to permit passage of the body of the connector block but not large enough to permit passage of the flanges 8. Holes on each side of the opening are provided for the screws 56 or guide pin sockets 61 and for the extension 15 of the jack screw (FIGURE 8). The panel 59 can then be clamped between the ears of the shield and the flanges of the connector block by the guide pin sockets, the fasteners 56, and the extension of the jack screw. In the embodiment of FIGURE 7, it will be noted that the extension 15 of the jack screw is threaded into the central portion and the socket itself is non-circular to prevent rotation of the extension. This alternative to the arrangement of FIGURE 3 permits the jack screw socket member to perform the clamping function. Obviously, the clamping of the block to the panel in FIGURE 8 does not require the jack screw socket, the fastener 56 and the guide pin socket 61; any one of these members will independently perform the clamping function.

Advantageously, the portion 11 of the jack screw extends entirely through the end wall of the shield and has a kerf on its end to permit tightening. This arrangement permits the jack screw to be used with panels of different varying thicknesses.

FIGURE 5 shows an alternative embodiment of the invention which is adapted to be used with blocks of the type which do not provide jack screws. In this embodiment the side panel 60 has only a single side flange 62 extending therefrom which flange is bent inwardly at 64, and at 66 to define an ear for attachment to the connector block. Threaded openings 68, 70 are provided on these inwardly directed portions of the flange and the ear for the accommodation of screws 72 and the end panel or face panel 60 has an additional opening 73 which, when the two parts are together, is aligned with the opening 70. The wire clamp assembly of this embodiment is the same as the corresponding structure of the embodiment of FIGURE 1. In the use of this embodiment, the shield halves are merely placed against the block flanges and the fasteners 72 are threaded through the openings 73, 70 and through the block and the openings 68, 68' of the shield.

FIGURE 6 shows an embodiment similar to the embodiment of FIGURE 5 but providing a notch 67 in the ear 66 for the accommodation of jack screws. As with the embodiment of FIGURE 1, the end flange is also notched to accommodate the reduced diameter portions of the jack screws.

A salient advantage of both of the embodiments of the invention shown is that the shield is of relatively simple construction and is made up of two identical parts. Furthermore, these shields can be removed with a minimum of inconvenience when it is necessary to do so to change or service the wiring pattern of the connector block. The embodiments of FIGURE 1 and FIGURE 6 offer the additional advantage, over prior art devices of the same type, of obviating the necessity of disassembling the jack screw in order to permit removal of the shield. Since the two halves of the shield are identical and fit on the block flanges from opposite sides with the jack screws defining the plane of division between the two halves, these jack screws need not be disturbed in order to assemble or disassemble the shield parts to the block. By contrast, with many prior art devices, it was necessary to disassemble the jack screw in order to assemble or disassemble the shield from or to the block.

We claim:

1. A two part rectangular prismatic shield for use with a multi-contact connector, said shield being open at one end for reception of said connector and being divided along a plane extending medially through said open end and the opposite end, each part of said shield having an end flange to form said opposite end when said parts are together, semi-circular notches on said end flanges at each side to provide openings for jack screws extending from said connector, said end flanges each having a central notch to define an opening for the conductors from said connector, clamp means on each of said parts for clamping said conductors and for securing said parts together, each part of said shield having at least one side flange to form the sides of said shield, an inwardly turned ear on said side flange, and a slot in said ear for said jack screw whereby, said shield parts are clamped to said connector by said jack screw, and said shield parts are secured together by said clamp means.

2. A device as set forth in claim 1 wherein each of said parts of said shield has two side flanges and said ear is provided on one of said side flanges.

3. A device as set forth in claim 1 wherein each of said parts has a single side flange.

4. A multiple connector assembly comprising, a dielectric block having flanges extending from two opposite sides thereof, a plurality of contacts in said block, conductors secured to said contacts and extending rearwardly from said block, a pair of parallel jack screw members, one of said jack screw members being rotatably held in each of said flanges, each of said jack screw members having an elongated shank extending rearwardly of said block, and a two-part shield in surrounding relationship to said block, said shanks of said jack screw members, and the end portions of said conductors, said shield being divided along a medial plane thereof which coincides with the plane defined by said jack screw members, each part of said shield having side flanges on opposite sides thereof and an end flange to define respectively sidewalls and an end wall of said shield when said parts are together, said end flanges having a central notch to define an opening for said conductors and a notch on each side of said central notch to define openings for said jack screw members, an inwardly bent ear on each of said side flanges extending over said flanges of said block, fastening means securing each part of said shield to said block, two-part clamping means for said conductors, one part of said clamping means being secured to each of the parts of said shield adjacent to said central notch, fastening means for securing the two parts of said clamping means together in clamping engagement with said conductors, a pair of gathering fingers within said shield for said conductors, said gathering fingers each being integral with one of said parts of said shield and disposed adjacent to the central notch of its respective shield part, said shield being removable from said assembly without removal of said jack screw means.

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