

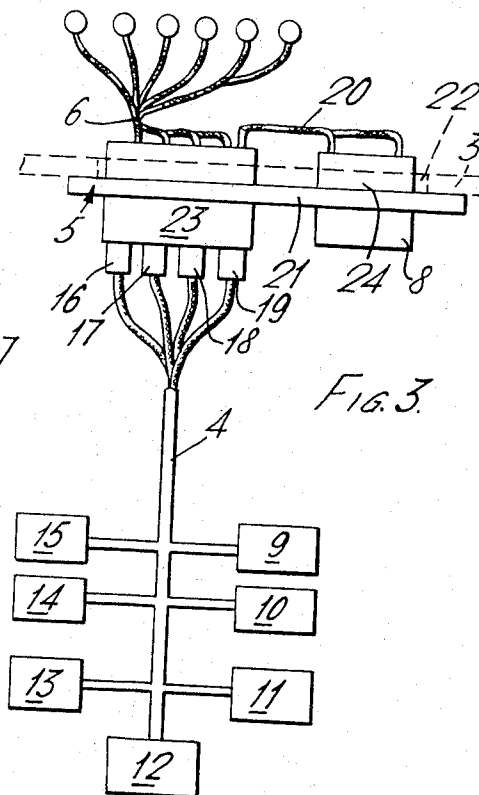
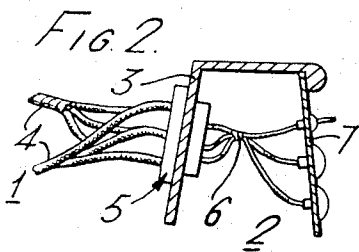
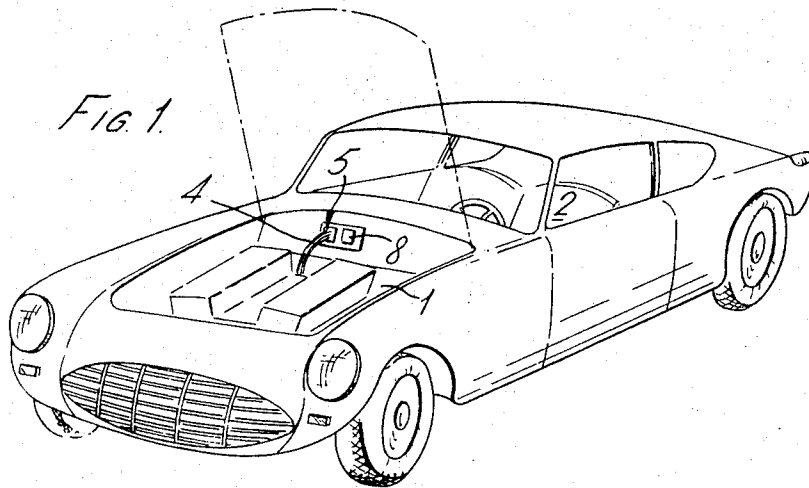
Sept. 12, 1967

G. H. J. MUNRO  
CONNECTOR HOUSING

3,341,745

Filed May 13, 1964

5 Sheets-Sheet 1



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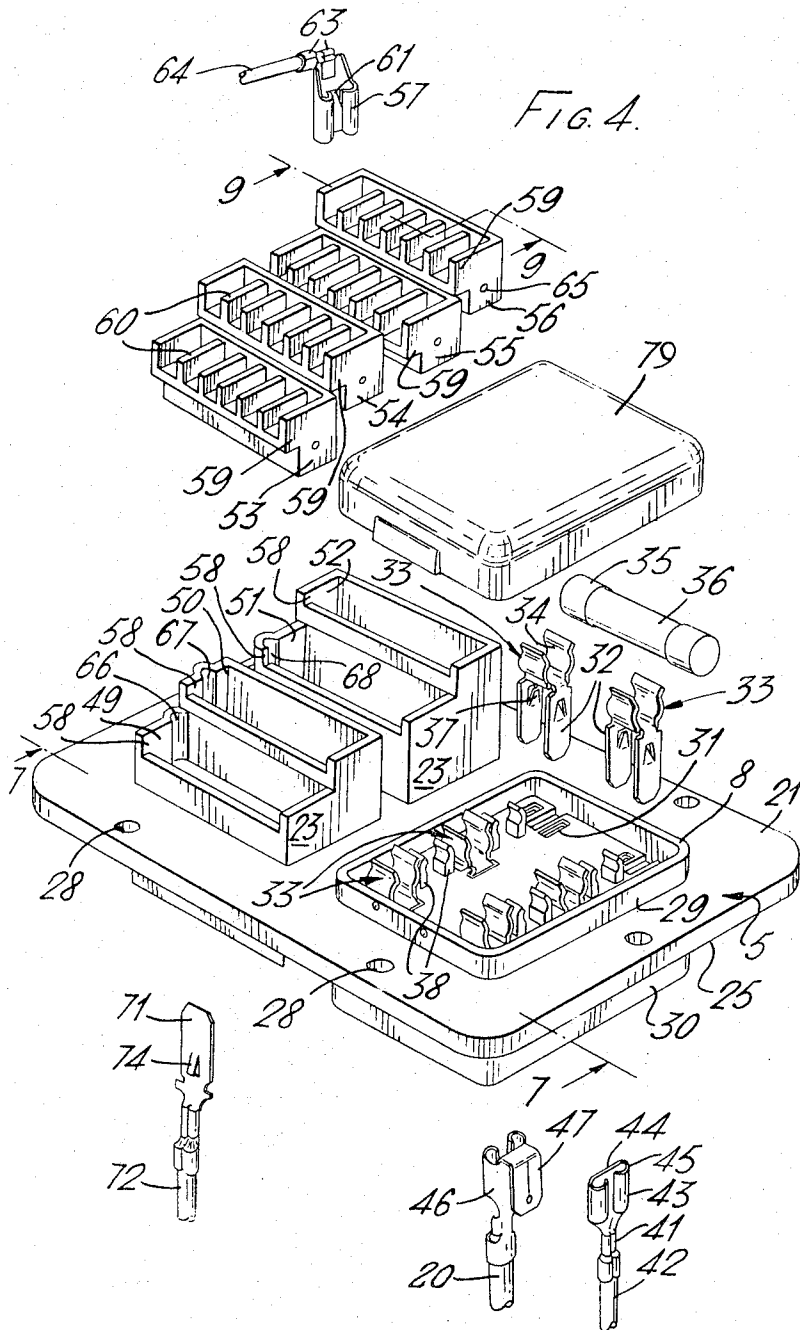
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5 Sheets-Sheet 2



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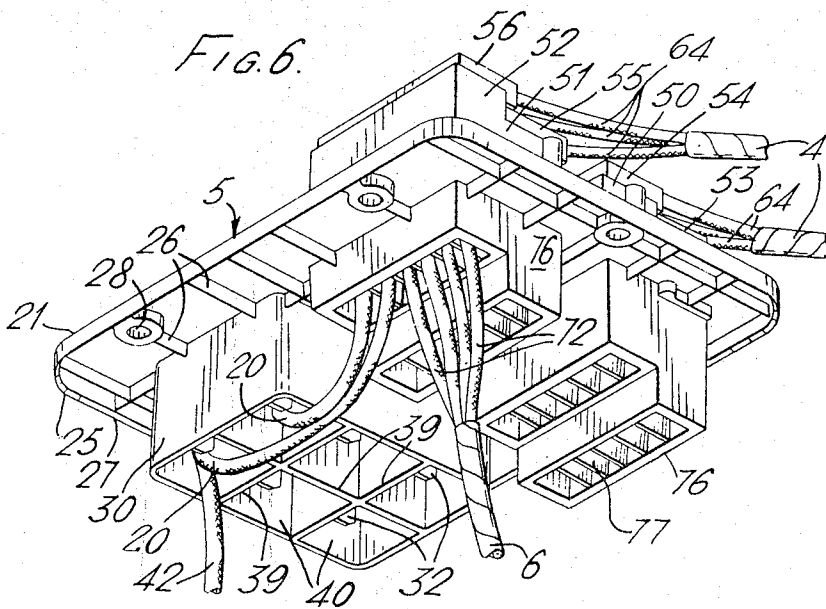
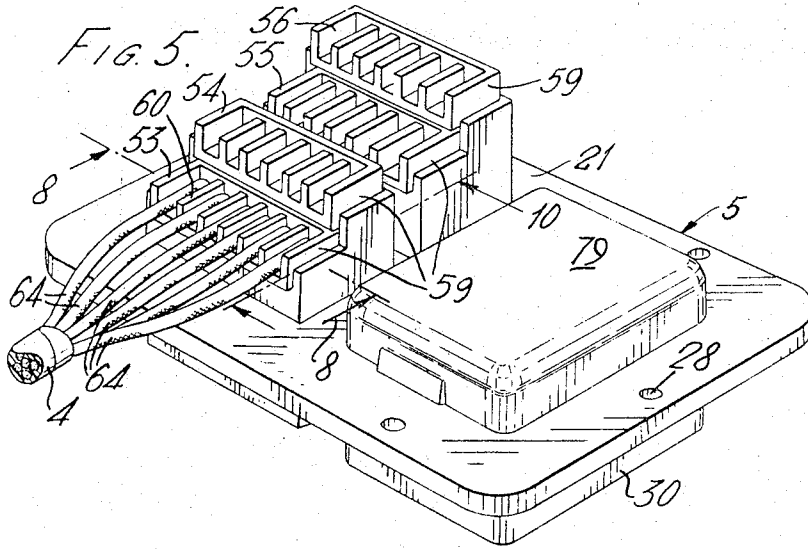
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5 Sheets-Sheet 3



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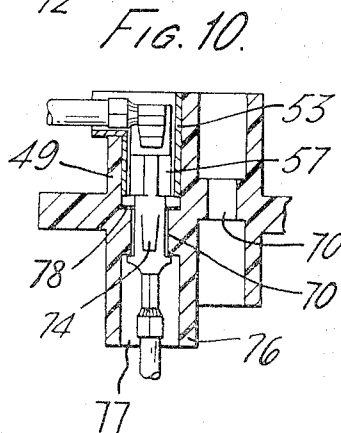
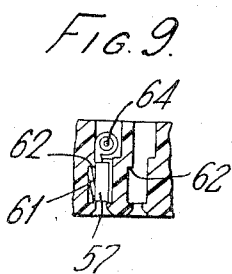
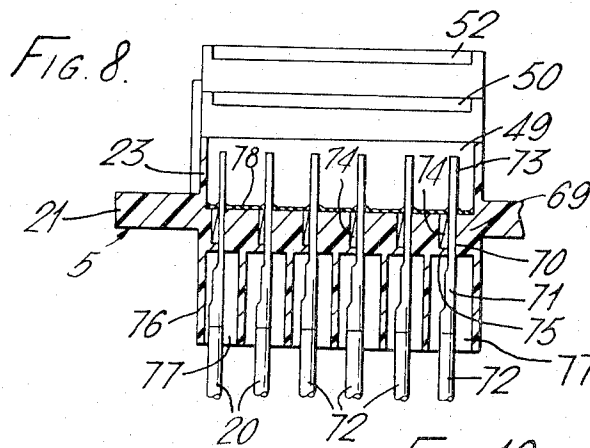
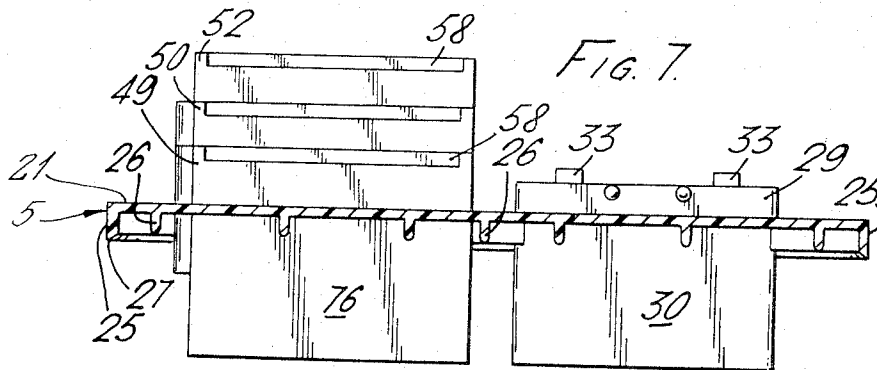
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3,341,745

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5 Sheets-Sheet 4



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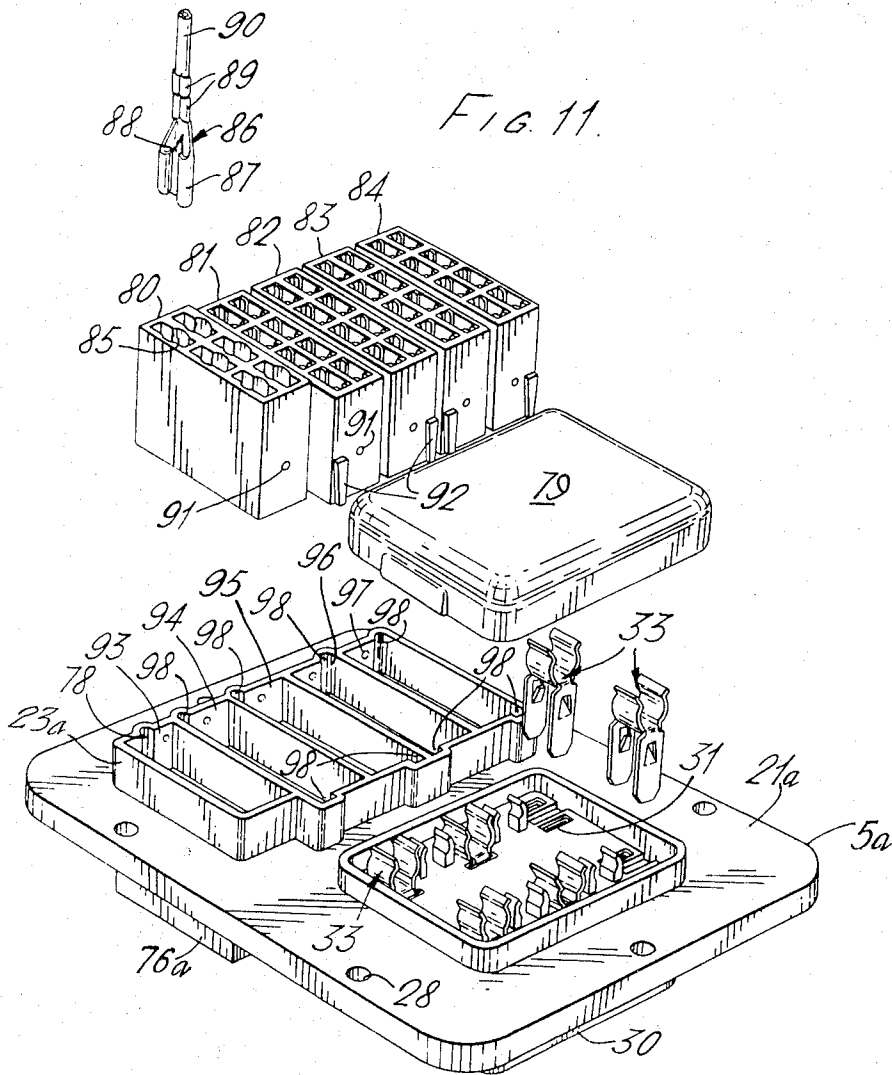
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5 Sheets-Sheet 5



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3,341,745

**CONNECTOR HOUSING**

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20,002/63

8 Claims. (Cl. 317—116)

**ABSTRACT OF THE DISCLOSURE**

A panel electrical connector for mounting on a panel over an aperture thereof, the connector having a dielectric housing provided with a plate member having adjacent terminal-carrying sections with electrical terminals therein, one terminal-carrying section being provided with flange means defining recess means in which the electrical terminals are disposed, a dielectric terminal block member having electrical terminals therein matable with the recess means and electrical terminals therein, and conductor means connected to the electrical terminals with some of the conductor means extending between the electrical terminals in the terminal-carrying sections.

This invention relates to electrical connections through partitions and is particularly, though not exclusively, applicable to the wiring between the engine compartment and the dashboard of a motor vehicle.

Customarily, in automobile practice, the instruments at the dashboard are connected with electrical components in the engine compartment by one or more wiring harnesses which pass through a bulkhead separating the dashboard from the engine compartment. Generally, some of the circuits are fused and fuses are provided in a box disposed in the engine compartment where it is accessible for repair by replacement of the fuses. This occasions complications in the arrangement of the harness wires since some of the circuits have to pass through the bulkhead more than once in order to incorporate a fuse in the circuit. It is normal practice where a conductor of a harness passes through the bulkhead that an aperture is bored in the bulkhead and the space around the conductor within the aperture is sealed by a rubber grommet engaging the bulkhead around the aperture and resiliently engaging the conductor. This occasions difficulty in assembling; and owing to deterioration in service of the rubber grommets, the seal against passage of engine fumes through the aperture tends to break down. In general, there are a plurality of apertures in the bulkhead for the passage of conductors and there is consequently difficulty in ensuring that engine fumes do not leak back into the passenger compartment of the vehicle and also in threading the harness wires through the various bulkhead apertures.

In an assembly having compartments, a partition between the compartments and components in the compartments electrically connected by wires passing through the partition, according to the present invention, the partition is formed with an aperture, an electrical connector housing of insulating material mounted on the partition to close the aperture and including passageways for electrical connectors and a fuse unit, wires in one of the compartments making connection with wires in the other compartment through electrical connectors disposed in the passageways and at least some of the wires being connected to fuses in the fuse unit.

The invention further includes a motor vehicle comprising an engine compartment and a passenger compartment with a bulkhead between the compartments, electrical wiring between the compartments passing through the bulkhead at an aperture and comprising a wiring har-

ness in the engine compartment and a wiring harness in the passenger compartment, an electrical connector housing of insulating material being mounted on the bulkhead to close the aperture and including passageways for electrical connectors and a fuse unit, the wires of the harness making connection through the passageways and at least some of the wires being connected to fuses in the fuse unit.

The invention additionally includes a wiring assembly for the assembly of the method of the invention or for connecting between electrical components in the engine compartment and the passenger compartment of a vehicle through an aperture in a bulkhead between the compartments which comprises a housing of insulating material adapted to be mounted on the bulkhead to close the aperture, the housing being formed with electrical connector passageways for communicating between the compartments or between one of the compartments and fuses mounted on the housing, first wiring harness means having wires at one end for connection to electrical components in the passenger compartment and at the other end being formed with electrical connectors terminating in respective housing passageways, second wiring harness means having wires at one end for connection to electrical components in the engine compartment and at the other end having electrical connectors terminating in housing passageways and releasably connecting with respective connectors of the first harness means, at least some of the harness wires connecting with fuses carried by the housing.

The invention moreover includes an electrical connector housing for an assembly according to the invention which comprises an insulating plate for closing a bulkhead aperture, the plate being formed with electrical connector passageways and formed on one side around at least one group of passageways with flange means defining a recess or respective recesses, each adapted releasably to receive an insulating electrical connector block connecting complementary passageways for mating engagement with electrical connectors in the passageways and the complementary passageways, a further group of passageways defining a fuse box closable on the one side of the plate by a lid and adapted to receive fuses, and respective electrical connectors extending through the passageways to the other side.

Other objects and attainments of the present invention will become apparent to those skilled in the art upon a reading of the following detailed description when taken in conjunction with the drawings in which there are shown and described illustrative embodiments of the invention; it is to be understood, however, that these embodiments are not intended to be exhaustive nor limiting of the invention but are given for purposes of illustration and principles thereof and the manner of applying them in practical use so that they may modify them in various forms, each as may be best suited to the conditions of a particular use.

The invention will now be described by way of example with reference to the accompanying partly diagrammatic drawings in which:

FIGURE 1 is a perspective view of a motor vehicle from a forward end with the engine cover in lifted position;

FIGURE 2 is a fragmentary cross-sectional view of part of the bulkhead and dashboard of the motor vehicle of FIGURE 1;

FIGURE 3 is a schematic view of wiring harnesses for the vehicle of FIGURE 1 connected at a bulkhead aperture through a connector housing closing the aperture;

FIGURE 4 is an exploded perspective view from above

of a connector housing assembly for use in the vehicle of FIGURE 1;

FIGURE 5 is a perspective view of the housing of FIGURE 4 in an assembled condition with some of the wiring removed;

FIGURE 6 is a perspective view from below of the housing of FIGURES 4 and 5 taken from the other end with the housing in assembled condition and some of the wiring removed;

FIGURE 7 is a transverse cross-sectional view taken on the line 7—7 when viewed in the direction of the arrows of a body part of the housing assembly of FIGURE 4;

FIGURE 8 is a fragmentary cross-sectional view taken on the line 8—8 when viewed in the direction of the arrows of part of the housing assembly of FIGURE 5;

FIGURE 9 is a fragmentary cross-sectional view of part of an auxiliary connector block of the assembly of FIGURE 4 taken on the line 9—9 thereof;

FIGURE 10 is a fragmentary cross-section taken on the line 10—10 of FIGURE 5 with a pair of electrical connectors in mating relationship; and

FIGURE 11 is an exploded perspective view of an alternative form of the assembly of FIGURE 4.

The motor vehicle of FIGURE 1 comprises an engine compartment 1 and a passenger compartment 2 separated by a bulkhead 3. Electrical components in the engine compartments, such as, the distributor, voltage regulator, generator, windshield wiper motor, head and tail lights, etc., are electrically connected to the wires of a wiring harness 4 in the engine compartment, ends of the harness wires being secured in a connector housing 5 mounted at an aperture in bulkhead 3. As seen in FIGURE 2, a second harness 6 extends from connector housing 5 to connect harness 4 with associated electrical components, such as, switches, lamps and instruments mounted in dashboard panel 7. Connector housing 5 is formed of a body of insulating material mounted on bulkhead 3 to close the aperture therein, the housing being formed with electrical connector passageways communicating between the engine compartment and the passenger compartment through the bulkhead. The connector housing also includes a fuse unit 8 on the engine compartment side incorporating electrical fuses secured to connectors extending through the housing to the passenger compartment side 2 where the connectors are suitably connected to jumper wires 20 communicating with harness wires or housing passageways, as will be described below. It will be appreciated that only a single aperture need be formed in bulkhead 3, and since two separate harnesses 4 and 6 are used, the need to thread harness wires through bulkhead apertures is obviated.

The wiring assembly of FIGURE 3 comprises harnesses 4 and 6 disposed on opposite sides of bulkhead 3 and ends on the wires of the harnesses remote from bulkhead 3 are suitably connected to electrical components in engine compartment 1 or passenger compartment 2, respectively. Thus, ends of the wires of harness 6 remote from bulkhead 3 are connected to dashboard instruments, lights, switches, etc., while the ends of the wires at harness 4 remote from bulkhead 3 are respectively connected to rear and head lamps 9, windshield wiper motor 10, generator 11, distributor 12, battery 13, voltage regulator 14, and other electrical auxiliaries generally indicated at 15. Suitably the wires of harness 4 are connected to components 9 to 15 by releasable electrical connectors. At their other ends, the wires of harness 4 are arranged in groups terminating in respective connector blocks 16 to 19 of insulating material. Each of the wires is suitably provided with an electrical connector of receptacle form mounted in a passageway in a block and blocks 16 to 19 are suitably arranged to engage respective recesses in housing 5 so that the connectors therein mate with respective complementary connectors in this housing.

Housing 5 is formed with passageways receiving ends of the wires of harness 6, the ends terminating in connectors releasably secured in the passageways for mating connection to the connectors associated with the wires of harness 4. Fuse unit 8 comprises fuses mounted in suitable fuse connectors at the engine compartment side of housing 5, suitably covered by a removable cover plate or lid. The connectors associated with the fuses suitably extend through passageways to the passenger compartment side of housing 5 and jumper leads 20 are releasably connected at their one ends to the fuse connectors and at their other ends terminate in passageways of housing 5 for connection to leads of the harness 4. Alternatively, or in addition, leads from the fuse connectors may extend directly into harness 6.

Housing 5 comprises a generally flat plate 21 of rectangular form mounted on the engine compartment side of bulkhead 3 and closing an aperture 22 therein. Suitable gasket means may be provided between plate 21 and bulkhead 3 to seal against passage of fluid, such as, engine fumes through the bulkhead or, alternatively, the plate may be integrally formed with lip means for resiliently engaging the bulkhead to provide a substantially fluid-tight seal, as described below. The plate is formed with flange or skirt means 23 defining recesses for receiving connector blocks 16 to 19, flange means 23 extending on opposite sides of plate 21 through a depth sufficient to accommodate the leading ends of connector blocks 16 to 19 and also to shroud electrical connectors associated with the leads of harness 6. In addition, fuse box 8 is formed on plate 21 with flange or skirt means 24 adapted to shroud connectors associated with the jumper leads and rear ends of the electrical connectors associated with the fuses.

Examples of a housing 5 will be described in greater detail in connection with FIGURES 4 to 10 and FIGURE 11 which are described below.

In assembling the wiring assembly of FIGURE 3 to a vehicle, wiring harness 6 is suitably connected at one end to the associated connector passageways in housing 5 and at the other end the wires of the harness are connected to the associated electrical components at the dashboard. Housing 5 is then inserted from the passenger compartment through aperture 22 to which end it is suitably shaped, and on the engine compartment side housing 5 is positioned to cover aperture 22 and then secured to the bulkhead for example, by screws. Harness 4 is then suitably connected at ends remote from bulkhead 3 to the components in the engine compartment and the other ends of the wires of the harness are suitably positioned in connector blocks 16 to 19 which may then be releasably engaged with the recesses in flange means 23.

By virtue of this arrangement, only a single aperture is required in the bulkhead for electrical wiring of the vehicle which reduces assembly problems and simplifies connection of the wiring.

One embodiment of connector housings 5 is shown in greater detail in FIGURES 4 to 10 where like reference numerals will be used to refer to similar parts in the figures so far described. Housing 5 comprises a rectangular flat plate portion 21 formed as seen in cross-section at FIGURE 7 and in the underside view of FIGURE 6 with a peripheral lip or rib 25 circumscribing the plate portion 21 at its outer edge, strengthening ribs 26 being arranged on the underside of the plate portion between opposite sides of lip or rib 25 to strengthen the plate portion against bending, ribs 26 being arranged in a lattice form. The lower edge of rib or lip 25 is formed with a feather edge 27, the lower surface of the lip sloping downwardly and outwardly, as seen in FIGURE 7, to provide a relatively sharp outer edge projecting below strengthening ribs 26. The function of edge 27 is to engage a surface of the bulkhead so that when plate portion 21 is clamped to the bulkhead the feather edge is resiliently deformed to provide a substantially fluid-tight seal between housing 5 and

the bulkhead. Plate portion 21 is provided around its periphery with a distributed series of screw apertures 28 for receiving screws to secure plate portion 21 to the bulkhead. The material of housing 5 may suitably be a resilient plastics material such that tightening of screws securing the plate portion to the bulkhead effects bedding of the screws into the plastics material and resilient deformation of feather edge 27. A suitable material is sold under the trademark Cyclocac.

The plate portion is provided adjacent one end with fuse unit 8 which comprises on the upper side, as seen in FIGURE 4, a rectangular raised shoulder, skirt or flange portion 29 of rectangular form and on the opposite side of the plate a further flange or skirt portion 30 of similar peripheral contour to flange portion 29 but extending below plate portion 21 by a greater distance than flange portion 29 extends above plate portion 21. Plate portion 21 within flange portion 29 is formed with pairs of slit-like passageways 31 for receiving tab legs 32 of electrical fuse connectors 33 which comprise upper connector portions of open U-section 34 adapted to resiliently engage metallic end caps 35 of fuses 36. Tab legs 32 extend from opposite ends of receptacle portion 34 and are formed with resilient tongues 37 pushed inwardly from the legs to engage respective shoulders (not shown) in slit-like passageways 31 to secure fuse connectors 33 in position in the fuse unit.

A group of six fuse connectors is provided and between fuse connectors 33, there are provided upstanding pairs of ears 38 formed integrally with housing 5 to define spare fuse holders. Flange 30 below plate portion 21 is of sufficient depth to shroud tab legs 32 of the fuse connectors, and, as seen in FIGURE 6, flange means 30 is suitably strengthened by a lattice of partitions 39 which define compartments 40 of rectangular form for respective pairs of tabs 32.

As seen in FIGURE 4, leads to be connected with tab legs 32 of fuse connectors 33 are suitably of known connector receptacle form comprising a ferrule portion 41 secured electrically and mechanically to conductor 42 and formed with receptacle portion 43 having a web 44 and rolled-in side portions 45 arranged to resiliently receive a tab portion 32 between web portion 44 and the edges of rolled-in portions 43.

In order to effect more than one connection to tab 32, the modified form of connector shown at 46 may be utilized. This comprises a receptacle connector similar to connector 41 but having the addition of a tab 47 bent back from an upper end of the receptacle as seen in FIGURE 4 to provide a tab 47 extending in parallel spaced relationship with respect to the web of the receptacle on the opposite side to rolled-in portions 43. In order to effect a pair of connections to a single tab, receptacle 46 is first engaged with the tab and a second receptacle 43 is then engaged with tab portion 47 of receptacle 46. A pair of leads 42 and 20 then extend from a single fuse connector tab 32 downwardly below the housing. Leads 42 and 20 may extend directly into wiring harness 6 or alternatively may define jumper leads, as seen in FIGURE 6, connecting at their ends remote from fuse unit 8 with other housing passageways as described below.

Spaced sidewardly from fuse unit 8 and adjacent the other side of plate portion 21, housing 5 is formed with flange means 23 which define two pairs of recesses 49 and 50, and 51 and 52 of generally rectangular form arranged in step fashion. Recesses 49 to 52 are, respectively, arranged to receive insulating connector blocks 53, 54, 55, and 56, each of which is adapted to receive a plurality of receptacles 57. Recesses 49 to 52 are formed on one side with relieved portion 58 for receiving sidewardly extending portions 59 of housings 53 to 56, respectively. Sidewardly extending portions 59 project from a generally rectangular block form provided with passageways separated by ribs 60, each passageway being adapted to receive a flag receptacle 57, as shown in FIGURE 9.

Flag receptacles 57 comprise a web portion with rolled-in side portions adapted resiliently to receive a tab between the web and edges of the rolled-in portions. A resilient tongue 61 is pushed out of the web on the side opposite the rolled-in portions to engage behind a housing shoulder 62 for releasably retaining the receptacle in the housing passageway. Receptacle 57 is formed with ferrule portions 63 secured electrically and mechanically to conductor 64 and ribs 60 serve to separate adjacent ferrule portions 63, conductors 64 extending sidewardly from the housing as seen in FIGURE 5. The stepped form of flange means 23 in defining recesses 49, 50, 51 and 52 permits sideward extensions 59 of flag connector blocks 53, 54, 55 and 56 to overlap in the manner shown in FIGURE 5, and the space between the pairs of recesses 49, 50 and 51, 52 permits access to the wires associated with block 55 to the passageways in block 55.

Blocks 53, 54, 55 and 56 are provided at opposite ends with small projections 65 adapted to engage complementary dimples (not shown) formed in recesses 49, 50, 51 and 52 with a snap fit releasably to secure the blocks in position in the recesses. Three of recesses 49, 50 and 51 are formed at one end with a groove 66, 67 and 68 disposed at a different position in the width of the recess from recess to recess and adapted to engage with a complementary rib, now shown, formed on a complementary end of each associated block 53, 54 or 55 in order to key the block to the corresponding recess, recess 52 and associated block 56 being free from ribs or recesses and the ribs and recesses serving to key the blocks uniquely in relation to the other blocks to an individual recess. In addition, the ribs and recesses serve to polarize the blocks in relation to the recesses since the blocks can thereby only be engaged with the recesses in one sense of orientation so that each of the connectors in a block can only mate with one of the connectors in the associated recess. In addition, the flag form of housings or blocks 53, 54, 55 and 56 effectively serve to polarize the blocks in relation to the recesses in view of recessed front portions 58 of the recesses.

As seen in FIGURES 8 and 10, recesses 49, 50, 51 and 52 are formed with floors 69 displaced slightly below plate portion 21 of housing 5. Floors 69 are formed with a plurality of slots or connector passageways 70 each receiving a tab connector 71 as seen in FIGURE 8. Tab connectors 71 comprise lower ferrule portions secured to conductors 72 extending from below the housing and at their upper ends are formed with tab portions 73 extending through slots 70. Tab portions 73 are formed with sidewardly and downwardly inclined lances 74 engaging behind shoulders 75 formed in the housing to releasably secure the tab connectors in position. The tab connectors project above floor 69 for releasable engagement with receptacle portions of flag connectors 57 disposed in blocks 53, 54, 55 or 56. Flange or skirt means 76 extend below the housing on the opposite side of plate portion 21 and similar to flange means 23 to form connector passageways 77 individual to connectors 71 and extending below plate portion 21 for sufficient depth to shroud the ferrule portions of connectors 71. It will be appreciated that owing to the stepped relation of recesses 49, 50, 51 and 52 on the upper side of the plate portion, and in view of the need of a similar depth of flange portions 23 and 76 to accommodate mating connectors 71 and 57, flange portions 76 below plate portion 21 similarly define a stepped relationship, as seen in FIGURE 6.

As seen in FIGURES 8 and 10, a thin gasket of fabric (reinforced neoprene) rubber-like material 78, such as, for example, neoprene, polyurethane, or the like, is positioned on the floor of recesses 49, 50, 51 and 52, the gasket comprising a thick sheet of material formed with slits for respective tab connectors 71 which project upwardly through the slits to seal the passageways 70 in substantially fluid-tight manner. Conductors 72 extending downwardly from tab connectors 71 may lead directly into wiring harness 6 for the dashboard wiring in the pas-



senger compartment or they may define ends of jumper leads from fuse unit 8 as do leads 20 in FIGURE 6.

As seen in FIGURES 4 and 5, fuse unit 8 is provided with a lid 79 which snap fits onto flange means 29 to form a removable closure for the fuses in the fuse unit and suitably the fit of lid 79 is sufficiently snug to provide a substantially fluid-tight seal through the fuse unit. In addition, a gasket may be provided in the fuse unit in the same manner to that provided in recesses 49 to 53 as described with reference to gasket 78.

In assembling the connector housing of FIGURE 5 to wiring harnesses for a motor vehicle, housing 5 is first provided with fuse connectors 33 which are pushed into the slots from above as seen in FIGURE 4 releasably to be locked in position through tongues 37. Leads 72 from the passenger compartment harness are secured in passageways 70 through the housing at recesses 49 to 52 by pushing tab connectors 71 upwardly, as seen in FIGURE 4, to lock the connectors through the action of lances 74. Jumper leads, as required, are connected between fuse connector tabs 32 as described in relation to conductors 42 and 20, the jumper wires being led to respective passageways 70 in housing recesses 49 to 52 or led directly into the wiring harness on the passenger compartment side. The harness wires of harness 6 at their other ends are then suitably connected to the electrical components in the vehicle dashboard and then housing 5 is passed through a bulkhead aperture and positioned on the engine compartment side to cover the aperture when it is secured in position by passing screws through holes 28 to engage the bulkhead. This serves to urge feather edge 27 against the bulkhead to seal housing 5 against the bulkhead in substantially fluid-tight manner, the screws engaging sides of screw apertures 28 to seal the screws to the apertures against the passage of fluid. Suitable gaskets 78 are positioned in recesses 49 to 52 and leads of harness 4 associated with the engine compartment are secured in blocks 53 to 56 by pushing their flag connectors 57 downwardly, as seen in FIGURE 4, in the respective block passageways. The blocks are then connected to housing 5 in recesses 49, 51, 50 and 52 to effect electrical connection, as seen in FIGURE 10, between flag receptacles 57 in the blocks and tab connectors 71 in housing recesses 49 to 52. Suitable fuses 36 are then positioned between adjacent pairs of fuse connectors 33 to complete the fused circuits and the fuses are then covered by fuse box lid 79 to close the fuse box in substantially fluid-tight manner.

The embodiment of FIGURE 11 differs from that of FIGURES 4 to 10 in that insulating connector blocks 80, 81, 82 and 83 associated with engine compartment harness 4 are adapted to receive straight receptacle connectors as against the flag connectors of the previous embodiment. As a result, insulating connector blocks 80, 81, 82, 83 and 84 are of rectangular block form, each provided with a plurality of parallel through passageways 85 for receiving straight connectors 86 in releasable manner. Each connector 86 comprises a receptacle portion 87 for releasably receiving a tab, the web of the receptacle being formed with a lance 88 for releasably locking the receptacle in a housing passageway 85. Ferrule portions 89 extend from an upper end of receptacle portion 87 and are secured to the core and insulation of an insulated conductor 90.

Conductors 90 are arranged in groups, each group being associated with an individual block of blocks 80 to 84, block 80 being adapted to receive the group of six connectors 86, and blocks 81 to 84 are each adapted to receive groups of eight connectors 86. The groups of conductors 90 associated with the blocks lead to wiring harness 4 for connection to electrical components in the engine compartment. Blocks 80 to 84 are provided with respective bosses 91 and ribs 92, bosses 91 being arranged to engage complementary dimples (not shown) in recesses 93 to 97 for releasably retaining the blocks in position while ribs 92 are arranged to engage complementary grooves 98 for polarizing blocks 80 to 84 in relation to

their recesses 93 to 97 to ensure that each connector in a block is mateable with only one of the complementary tab connectors in the associated recess, and also to identify each block uniquely with one of recesses 93 to 97. Ribs 92 and complementary recesses 98 at the rear of housing 5a, as seen in FIGURE 11, are of arcuate sectional form whereas the ribs and recesses at the forward side, as seen in FIGURE 11, are of rectangular form which serves to facilitate polarization of blocks 80 to 84 relative to associated recesses 93 to 97.

Recesses 93 to 97 are defined by flange means 23a forming walls for the recesses which are of generally rectangular form. Flange means 23a is of constant height from the surface of plate portion 21a through all of recesses 93 to 97 and flange means 76a below plate portion 21a to define a shroud for tab connectors, such as, connectors 71 of FIGURE 4 inserted in passageways formed in floors of recesses 93 to 97 in the same way as has been described in connection with FIGURES 4 to 10.

Otherwise, in FIGURE 11, like reference numerals refer to similar parts in FIGURES 4 to 10.

It will, therefore, be appreciated that the aforementioned and other desirable objects have been achieved; however, it should be emphasized that the particular embodiments of the invention, which are shown and described herein, are intended as merely illustrative and not as restrictive of the invention.

What is claimed is:

1. A vehicle panel connector comprising, in combination, a dielectric housing and electrical terminal means, said dielectric housing including plate means mountable on a vehicle panel over an aperture thereof, said plate means having a first terminal-carrying section and a second terminal-carrying section adjacent each other, said first terminal-carrying section having first terminal means disposed therein, said first terminal means having first sections extending outwardly from one surface of said plate means for receiving fuse means therein and second sections extending outwardly from another surface of said plate means, said second terminal-carrying section having recess means therein, second terminal means disposed in alignment in said recess means, dielectric terminal block means mateable with said recess means, third terminal means in said terminal block means mateable with said second terminal means, and electrical conductor means connected to said second sections of said first terminal means and said second and third terminal means with some of said electrical conductor means of said second sections being connected to said second terminal means.

2. A vehicle panel connector according to claim 1 wherein said first sections of said first sections of said first terminal means and said second terminal means extend outwardly from the one surface of said plate means.

3. A vehicle panel connector according to claim 1 wherein said plate means includes lip means for sealing engagement with said vehicle panel.

4. A vehicle panel connector according to claim 1 wherein said first terminal-carrying section includes flange means therearound and cover means disposably on said flange means to seal said first sections of said first terminal means.

5. A vehicle panel connector according to claim 1 wherein said recess means includes gasket means through which said second terminal means extend to provide a seal therefor.

6. A vehicle panel connector according to claim 1 wherein said electrical conductor means connected to said third terminal means extend outwardly from said terminal block means at substantially a right angle with respect to the insertion axes of said third terminal means.

7. A vehicle panel connector according to claim 1 wherein said recess means and said terminal block means include polarizing means to assure proper mating between said second and third terminal means.

8. A panel connector for connecting to a panel over an aperture thereof comprising a dielectric housing having a plate member for connection to said panel, said plate member having a first terminal-carrying section and a second terminal-carrying section with each section being provided with openings extending therethrough, first terminal members disposed in said openings of said first terminal-carrying section and including first terminal sections extending outwardly from one surface of said plate member and second terminal sections extending outwardly from another surface of said plate member, flange means extending outwardly from said one surface of said plate member around said second terminal-carrying section and defining recess means therein, second terminal mem-

bers disposed in said openings in said second terminal-carrying section; terminal block means having third terminal members therein mateable with said recess means and said second terminal members therein, and conductor members connected to said terminal members with some of said conductor members extending between said second terminal sections and said second terminal members.

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