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ELECTRICAL CONNECTOR HOOD ASSEMBLY

Filed June 22, 1959

2 Sheets-Sheet 1

FIG. 1

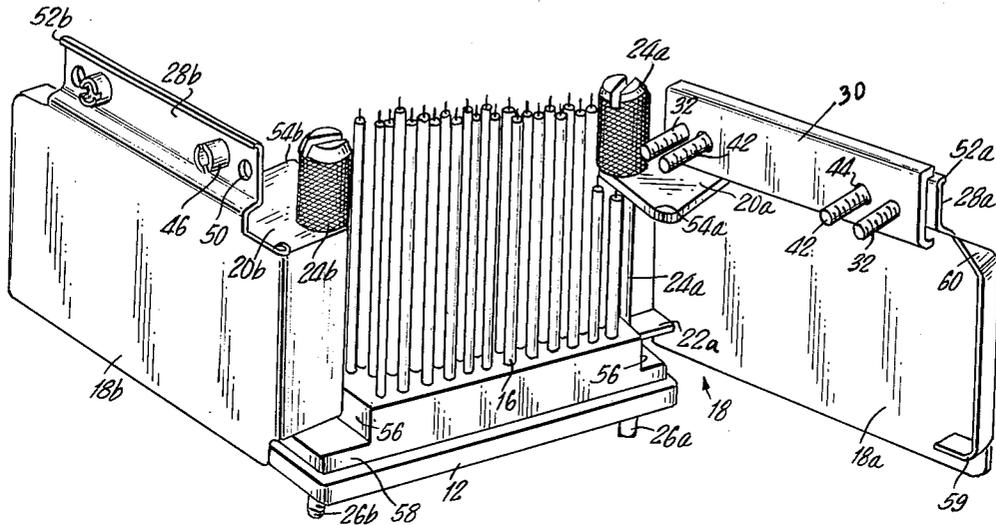


FIG. 2

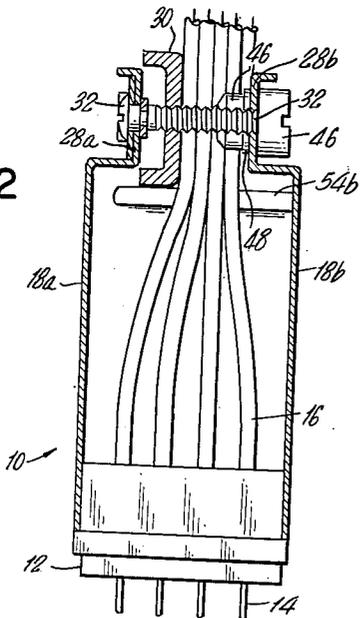
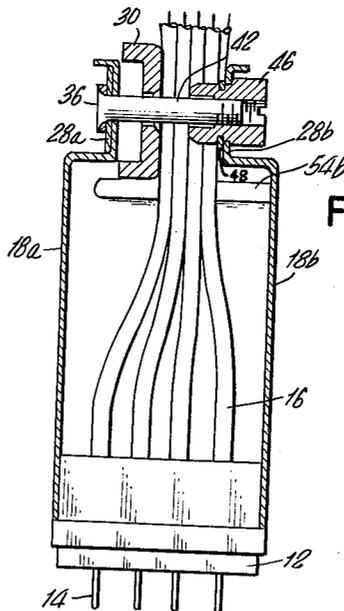


FIG. 3



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FIG. 4

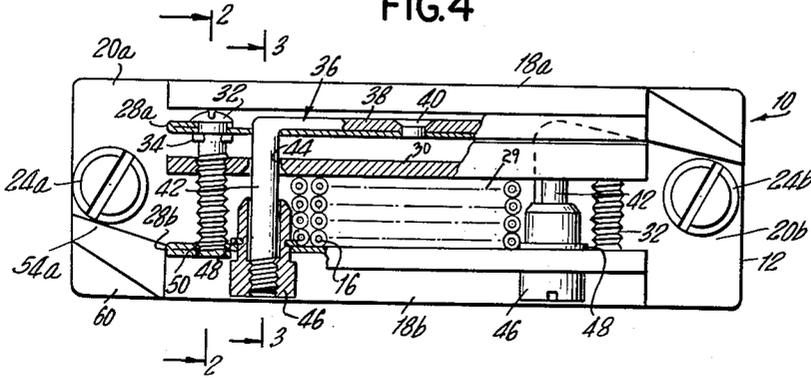


FIG. 5

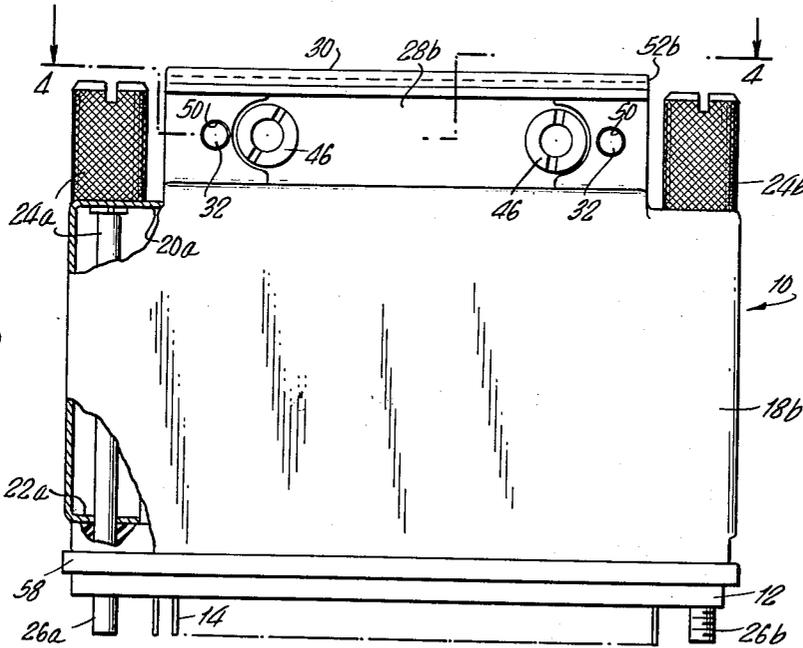
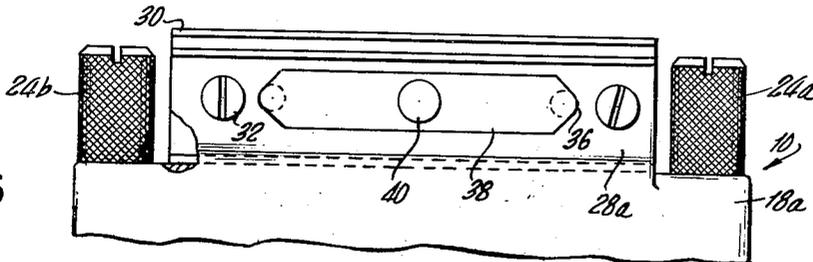


FIG. 6



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ELECTRICAL CONNECTOR HOOD ASSEMBLY
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Our invention relates generally to an electrical connector and more specifically to a hooded connector.

Objects of the invention are to provide a connector with a conveniently operated hood for protecting the electrical connections and preserving their integrity; to provide a hooded connector in which the hood may be opened without the possibility of loss of any of the parts; which may be quickly and easily assembled to the connector; which is sufficiently rugged to withstand vibration when used with devices in motion, which may be mounted to aligning or securing means; which may be made of identical halves, simplifying manufacture and assembly; and to which may be mounted an adjustable clamp, pre-settable to enable the hood to be opened and closed without further adjustment.

These and other objects of our invention are accomplished and new results obtained as will be apparent from the device described in the following specification, particularly pointed out in the claims and illustrated in the accompanying drawing, in which:

FIGURE 1 is a perspective view of our invention with the hood in opened position,

FIGURE 2 is a longitudinal sectional view taken through the pressure bar pre-setting bolt, i.e. through plane 2-2 of the closed hooded connector illustrated in FIGURE 4,

FIGURE 3 is a similar view taken through the clamping bolt, i.e. through plane 3-3 of FIGURE 4,

FIGURE 4 is a transverse partially sectioned view taken through both pre-setting and clamping bolts, i.e. through plane 4-4 of the closed hooded connector illustrated in FIGURE 5,

FIGURE 5 is a side elevation of the closed hooded connector shown with parts of the hood removed, and

FIGURE 6 is a similar fragmentary view of the opposite side of the connector.

The invention as illustrated generally comprises a multiple circuit connector with double pivoting hood walls forming a wire passageway which may be readily opened to permit inspection and/or removal of any of the connections.

Specifically, the invention comprises the hooded connector 10, composed of an insulation base 12 in which the terminals 14 are mounted and connected to the wires 16.

The connector base may be one half of the coupling type, wherein a plurality of pin or socket connectors are joined to a plurality of mating connectors as a unit. In the drawing, one half of such a coupled unit is shown containing pin connectors 14. As will be subsequently described, the hood may be used for either half or to encompass both halves.

The hood 18 comprises a front cover 18a and a rear cover 18b which for manufacturing and assembly convenience is made from identical halves. Corresponding parts will be hereinafter referred to by the same numeral, followed by an "a" or "b" to indicate the designated half.

The hood covers are formed with upper ears 20a and 20b, and lower ears 22a and a similar ear in rear cover 18b which are perforated to receive the pivot bolts 24a and 24b. The pivot bolts 24a and 24b extend longitudinally to secure the hood covers to the connector base 12.

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Where aligning and/or securing bolts are used, for orienting and maintaining the connector parts in coupled relationship, the hood halves may be pivoted to extensions of these bolts. The pivot bolts 24a and 24b may be so constructed that the lower halves of the bolts comprise a threaded pin portion 26b and threaded socket portion 26a for engaging corresponding pin and socket portions of the opposite connector base unit, not shown. Where the hooded halves are intended to entirely cover a coupled unit, separate and independent pivot bolts or other fastening means may be used to mount the hood parts.

The pivot bolts 24a and 24b may terminate in knurled and slotted heads as shown to facilitate the attachment or loosening of the hood parts.

The upper portions of the front and rear hood halves are inwardly bent to provide walls 28a and 28b forming a passageway 29. To the front clamping wall 28a is separately mounted a clamping plate 30 which is individually supported on bolts 32 inserted through the wall 28a. The C ring washers 34 (see FIGURE 4) secure the bolts 30 during rotation in position on the wall 28a while, advancing or retracting the clamping plate 30 to the present position in the wire passageway formed between clamping plate 30 and wall 28b.

Clamping wall 28a is additionally provided with a U-shape bolt 36, which is centrally flattened as at 38, (see FIGURES 4 and 6) and riveted as at 40 to the clamping wall 28a to form the principal clamping means. The two legs 42 of the bolt (see FIGURE 1) extend through free apertures 44 in the clamping plate 28a and are engaged by inner threaded caps 46 (see FIGURES 3 and 4) mounted through the clamping wall 28b of hood pivoting cover 18b. The inner portion of the threaded caps 46 are transversely slotted and provided with C ring washers 48 to secure the caps rotatably to the clamping wall 28b. Apertures 50 (see FIGURE 1) are provided in clamping wall 28b to permit the clamping plate screws 32 to extend freely therethrough.

The upper flanges 52a and 52b of the clamping walls 28a and 28b are outwardly bent to strengthen them. Note that the ends of walls 28a and 28b may also be doubled by reverse bending (see FIGURES 2-4) for added strength. The heads of the threaded caps 46 may be slotted and/or hexagonally headed to permit use of a screwdriver or wrench.

The pivot pin ears 20a and 20b are formed so as to provide inwardly sloping transversely extending abutments 54a and 54b which, when the hood covers are closed, cam the bundle of wires away from the pivot bolts 24a and 24b to prevent accidentally pinching the insulation.

The hood covers may be provided with edge flanges 59 (see FIGURE 1) to closely fit against the connector base recess 56 and above flange 58. Corner reinforcements 60 may also be provided to strengthen the hood cover and to close the opening adjacent the camming abutments, as is shown in FIGURE 4.

In operation, the hood doors are first closed causing the wires to be cammed into a compact bundle in the passageway. The threaded caps 46 are then rotated on the bolt legs 42 to lock the hood covers to each other in a pre-determined position. Thereafter, the bolts 32 are adjusted to position the clamping plate and give the desired clamping pressures about the wires. A very accurate pre-setting is thus possible without further loss of position, should it be required to open the hood for inspection.

The hood may be made of stamped aluminum or an alloy thereof. When the hood is thus locked, the connections are fully protected. If it is not needed, in a specific installation, to protect the connections from being accidentally loosened, the clamping means may be eliminated as an integral part of the hood.

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The hooded connector illustrated and described, will preserve the integrity of the electrical connections. The hood may be opened without possibility of misplacing or loosening any of the component parts. The hood may be closed without the necessity of resetting the cable clamp adjustment. The final clamped connections are sufficiently sturdy to withstand vibration and accidental loosening.

We have thus described our invention, but we desire it understood that it is not confined to the particular forms or uses shown and described, the same being merely illustrative and that the invention may be carried out in other ways without departing from the spirit of our invention, and therefore, we claim broadly the right to employ all equivalent instrumentalities coming within the scope of the appended claims, and by means of which objects of our invention are obtained and new results accomplished, as it is obvious that the particular embodiment herein shown and described is only one of many that can be employed to attain these objects and accomplish these results.

We claim:

1. A hood assembly for a connector having conductors leading therefrom, comprising: a pair of wall means forming an enclosure for the conductors including an exit passageway at one end for the conductors to extend through; one of said wall means including a pivot means which includes means securing said assembly to the connector to adapt said wall means to be pivoted away from the other wall means to simultaneously open said enclosure and said passageway; and locking means for locking said enclosure about the conductors.

2. The hood assembly of claim 1, wherein said one wall means is further provided with cam means to move the conductors away from said pivot means when said assembly is moved from its open to closed position.

3. The hood assembly of claim 1, wherein said locking means includes conductor clamping means and is positioned adjacent said exit passageway, whereby said enclosure may be locked and the conductors simultaneously clamped in said exit passageway.

4. The hood assembly of claim 3, wherein said clamping means includes an adjustable and presettable clamping plate, whereby the conductors may be clamped with a predetermined pressure when said enclosure is closed.

5. A hood assembly for a connector having conductors leading therefrom, comprising: a pair of wall means forming an enclosure for the conductors including an exit passageway having a longitudinal axis at one end for the conductors to extend through; each of said wall means including a pivot means having an axis parallel to said exit passageway longitudinal axis to adapt each said wall means to be pivoted away from said other wall means to simultaneously open said enclosure and said passageway, said pivot means securing said wall means to the connector; and locking means for locking said enclosure about the conductors.

6. The hood assembly of claim 5 wherein each of said wall means are further provided with cam means to move the conductors away from said pivot means when said assembly is moved from its open to closed position.

7. A hood assembly for a connector having conductors leading therefrom, comprising: a pair of wall means forming an enclosure for the conductors including an exit passageway at one end for the conductors to extend through; each of said wall means including a pivot means to adapt each said wall means to be pivoted away from said other wall means to simultaneously open said enclosure and said passageway; and locking means for locking said enclosure about the conductors; wherein said

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pivot means includes means securing said assembly to the connector.

8. A hood assembly for a connector having conductors leading therefrom, comprising: a pair of wall means forming an enclosure for the conductors including an exit passageway at one end for the conductors to extend through; each of said wall means including a pivot means to adapt each said wall means to be pivoted away from said other wall means to simultaneously open said enclosure and said passageway; and locking means for locking said enclosure about the conductors; wherein said locking means includes conductor clamping means and is positioned adjacent said exit passageway, whereby said enclosure may be locked and the conductors simultaneously clamped in said exit passageway.

9. The hood assembly of claim 8 wherein said clamping means includes an adjustable and presettable clamping plate, whereby the conductors may be clamped with a predetermined pressure when said enclosure is closed.

10. A hood assembly for a connector having conductors leading therefrom, comprising: a pair of side plates forming an enclosure for the conductors including an exit passageway at one end for the conductors to extend through; each of said side plates including a pivot secured to the connector on which said plate may be swung away from its open to closed position; at least one of said side plates having a clamping plate adjustably and presettable mounted thereon adjacent said exit passageway, whereby said clamping plate may be disposed to constrict said exit passageway, and thereby clamp the conductors with a predetermined pressure when said enclosure is closed.

11. A hood assembly for a connector having conductors leading therefrom, comprising: a plurality of wall means forming an enclosure for the conductors including an exit passageway for the conductors to extend through; one of said wall means including a pivot means whereby said one wall means may be pivoted away from the other said wall means to simultaneously open said enclosure and said passageway; means to clamp the conductors in said exit passageway disposed in part on said one wall means and in part on another of said wall means, said clamping means including an adjustable and presettable clamping plate to constrict said exit passageway when said enclosure is closed, whereby the conductors may be clamped with a predetermined pressure when said enclosure is closed.

12. A hood assembly for a connector having conductors leading therefrom, comprising: a plurality of wall means forming an enclosure for the conductors including an exit passageway for the conductors to extend through; one of said wall means including a pivot means whereby said one wall means may be pivoted away from the other said wall means to simultaneously open said enclosure and said passageway, said pivot means securing said wall means to the connector; means to clamp the conductors in said exit passageway disposed in part on said one wall means and in part on another of said wall means.

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