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TERMINAL MEANS

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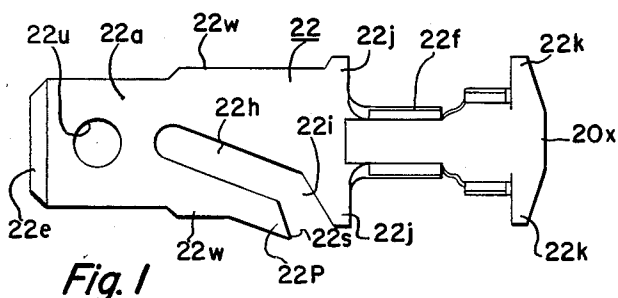


Fig. 1

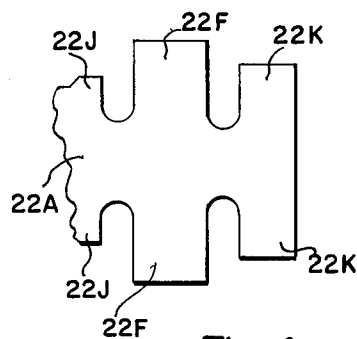


Fig. 4

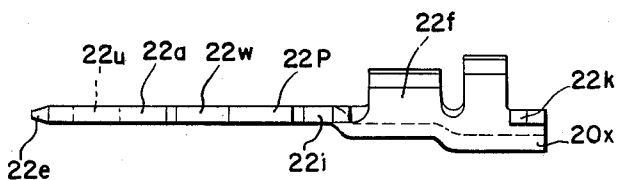


Fig. 2

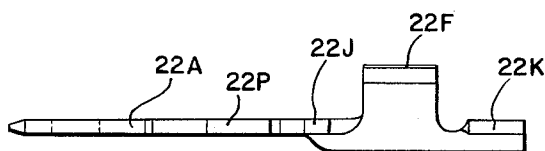


Fig. 3

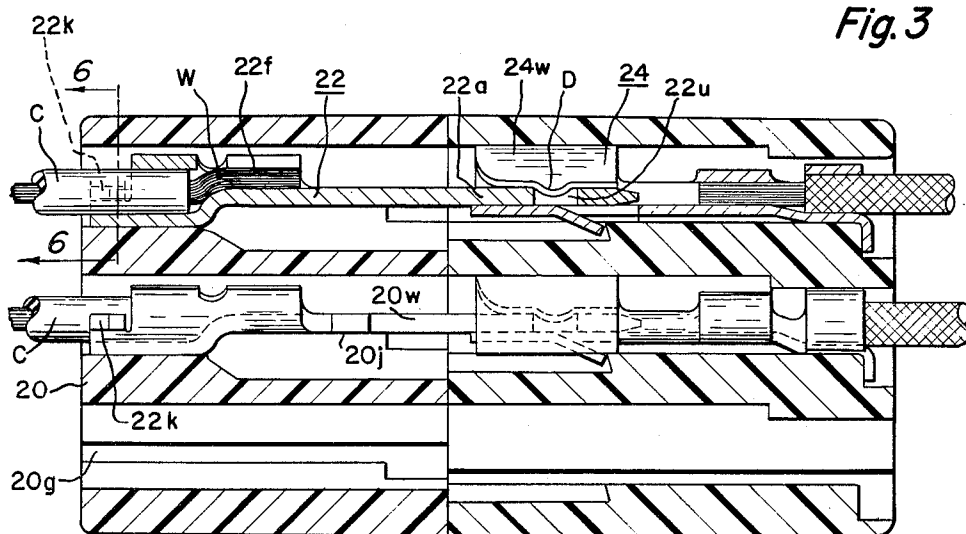


Fig. 5

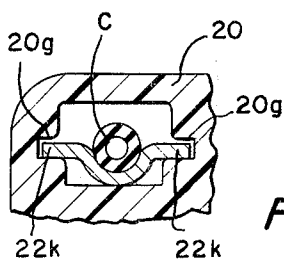


Fig. 6

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TERMINAL MEANS

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This invention relates to electrical connectors, and particularly to terminals adapted to facilitate connection therewith relative to multiple mating terminal means.

An object of this invention is to provide new and improved terminal means having structural features to facilitate connection therewith relative to multiple mating terminal means.

Another object of this invention is to provide male terminal means having increased stability relative to an insulating housing and adapted to facilitate connection involving multiple terminal mating means.

Another object of this invention is to provide terminal means having multiple stabilizing portions remote from each other and adapted to facilitate connection involving multiple mating terminal means.

A further object of this invention is to provide electrical terminal means having multiple longitudinally-spaced stabilizing tabs in other than planar relation to each other whereby wobbling of the terminal means relative to a mounting housing therefor is minimized so as to facilitate connection involving multiple mating terminal means.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein preferred embodiments of the present invention are clearly shown.

In the drawings:

FIG. 1 is a plan view of terminal means in accordance with the present invention.

FIGS. 2 and 3 are side elevational views of terminal means in accordance with the present invention and FIG. 4 is a fragmentary plan view of an end of a blank for forming said terminal means.

FIG. 5 is a cross-sectional elevational view of a connector including the terminal means of FIGS. 1 and 2 in an insulating body.

FIG. 6 is a cross-sectional elevational view taken along line 6-6 in FIG. 5.

FIG. 1 illustrates a male-terminal means generally indicated by numeral 22 and having a ferrule portion 22f provided at a location intermediate lateral projections 22j and 22k provided integral with the terminal means. The projections 22j and 22k are located in pairs and parallel relative to each other coplanar with a body portion or male-blade and/or spade portion 22a. The projections 22j and 22k extend laterally outwardly further than lateral stabilizing wing portions 22w on each of opposite edges of the spade portion of terminal means 22. A tapered edge 22e is provided to facilitate engagement of the terminal means 22 relative to female terminal means generally indicated by numeral 24 in FIG. 5. The female terminal means are fitted into an insulating housing as disclosed by Patent 2,682,038—Johnson, belonging to the assignee of the present invention, and are adapted to engage the body portion 22a of the male-terminal means 22. A detent D is shown projecting downwardly from a curled wing portion 24w of the female terminal means 24 and this detent D is engageable with a cut-out portion 22u provided in the male body portion 22a. The ferrule portion 22f is crimped into electrical engagement with a stranded wire or conductor W of an insulated conductor C shown in FIG. 5. An insulating housing portion 20 for the male blades is provided with grooves

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20g engageable by the wings 22w, projections 22j, as well as end projections extending laterally outwardly and indicated by numeral 22k. This relationship relative to the grooves 20g can be best seen in FIGS. 5 and 6.

The projections 22k are located longitudinally away from the projections 22j such that the ferrule portion 22f is intermediate pairs of projections. Previously it has been found that male-terminal means can be easily wobbled or moved laterally relative to longitudinal recesses of an insulating body such as 20. This lateral movement and wobbling is particularly objectionable in connectors where a plurality of male blades must be fitted and mated relative to a complementary plurality of female terminal means. Quite often the conductors such as C reach the insulating body 20 from different directions causing misalignment of various male blades relative thereto. The projections in pairs such as 22j and 22k fit into the grooves 20g and maintain lateral stability of the male terminal means adjacent to an end 20x as well as relative to the body portion 22a of the male terminal means. Wobbling or lateral movement of the end 20x is opposed by the projections 22k which maintain lateral stability relative to projections 22j to assure proper alignment of the edge 22e and body portion 22a of the male terminal means relative to a plurality of female terminal means such as 24. The male terminal means illustrated in FIG. 1 has a ferrule portion 22f with a double pair of crimpable wings including one pair of wings adapted to be wrapped around a conductor such as C. It is to be understood that the ferrule portion 22f can be modified as shown in FIGS. 3 and 4 such that only one pair of wings is provided in a ferrule portion 22F relative to pairs of projections 22J and 22K all integral with a body portion 22A. Both the terminal means of FIGS. 1 and 3 can be provided with a laterally outwardly projecting prong 22P adapted to have a sharp end 22s that bites into a groove 20g along a side wall of an insulating housing such as 20. The prong 22P is formed by a slot including a laterally inwardly extending portion 22i and a longitudinally and laterally extending central portion 22h. Formation of the slot by the portions 22h and 22i is such that the prong 22P is made resilient in a lateral direction and can effectively hold the male terminal means 22 in engagement with the interior of the insulating body while the projections 22J and 22K maintain stability.

With reference to the outwardly projecting prong 22P of the male blade of FIG. 1, it is to be noted that the sharp end thereof need not bite into a side wall of the housing insulating material but rather the structure can also serve as a locking projection normally abutting against a shoulder formed by the side wall relative to the groove.

While the embodiments of the present invention as herein disclosed constitute preferred forms, it is to be understood that other forms might be adopted.

What is claimed is as follows:

1. Electrical connector means for conductors, comprising, a housing of insulating material having a passage therethrough including at least one pair of opposite and parallel laterally-outwardly extending grooves, male-blade terminal means including two pairs of laterally-outwardly extending projections adapted to fit into said grooves, and a ferrule portion adapted to be crimped into engagement with an end of a conductor and located intermediate pairs of said projections, one pair of said projections having a location specifically at an end remote from a central location of the other pair of substantially coplanar therewith such that the end immediately adjacent to said ferrule portion is partially stabilized against any movement and wobble relative to said housing.

2. A male contact terminal member for use with a female terminal and insulating housing comprising in com-

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bination, an elongated base including a connector portion at one end thereof adapted to be attached to a conductor, a blade portion at the other end thereof adapted to make electrical connection with said female terminal, said base including a slot therein having an entry at a side of said base intermediate the ends thereof and in advance of the connector portion and extending inwardly and longitudinally of the base toward the blade end thereof, said slot defining a longitudinally extending resilient prong connected to the base only adjacent to the blade end thereof, said prong being yieldable relative to said base, and two pairs of laterally-outwardly extending projections having locations integral on each side of said base such that planar stability is maintained against wobble in any direction whereby said blade portion would become misaligned relative to complementary female terminals engageable therewith relative to an insulating housing surrounding at least said male contact terminal member.

3. A male terminal adapted to be inserted into an insulating connector housing and a female terminal to make an electrical connection therewith comprising, a flat base member, conductor attaching means at one end thereof, blade means at the opposite end and adapted to interfit with said female terminal, a slot having its entry on the side of said member intermediate the conductor attaching means and the blade means and extending inwardly and then outwardly toward the blade end of the member to

define a prong connected to the member adjacent the blade end thereof only and being resiliently movable relative to said base for providing resistance to movement relative to said connector when the said terminal is inserted in said female terminal, stop means extending laterally outwardly from the base member in an intermediate location thereof and adapted to limit the insertion of the blade means with respect to the female terminal, and a pair of laterally-outwardly extending stabilizing tabs integral adjacent to the conductor attaching end and serving to maintain planar stability of said blade means against wobble in any direction whereby said blade means would become misaligned relative to complementary female terminals engageable therewith relative to an insulating housing surrounding at least said male blade means.

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