

Nov. 17, 1964

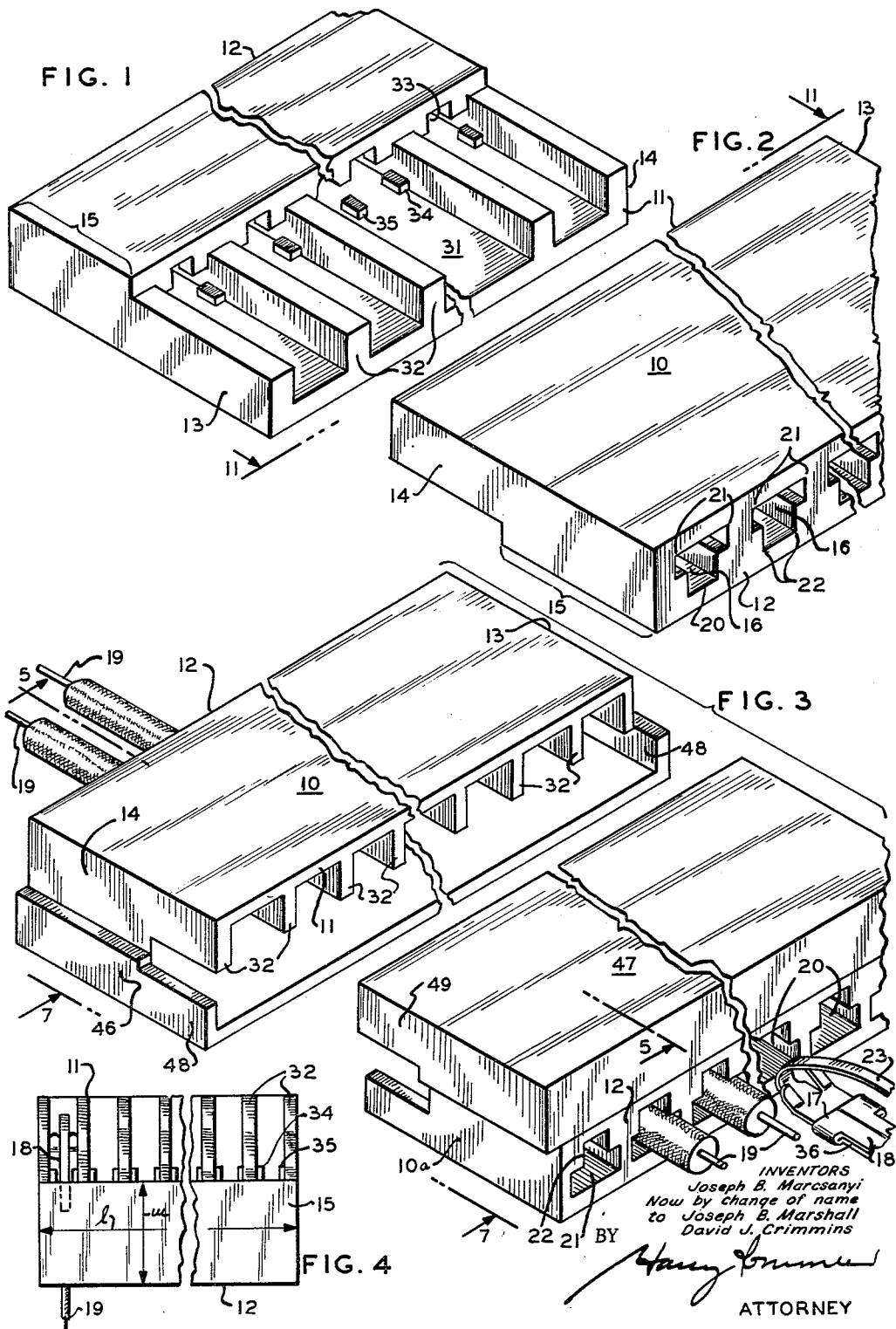
D. J. CRIMMINS ET AL

3,157,448

TERMINAL CONNECTOR

Filed May 28, 1962

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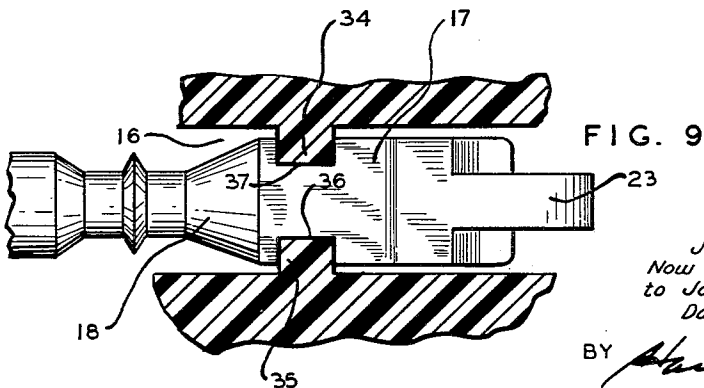
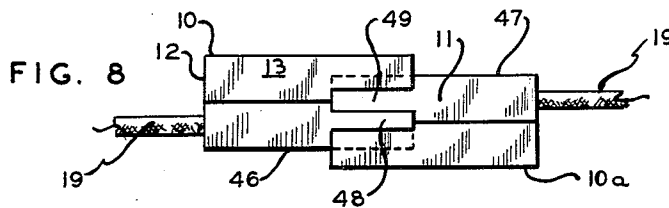
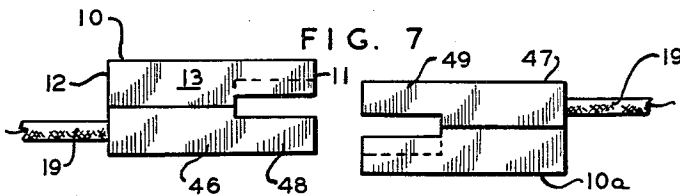
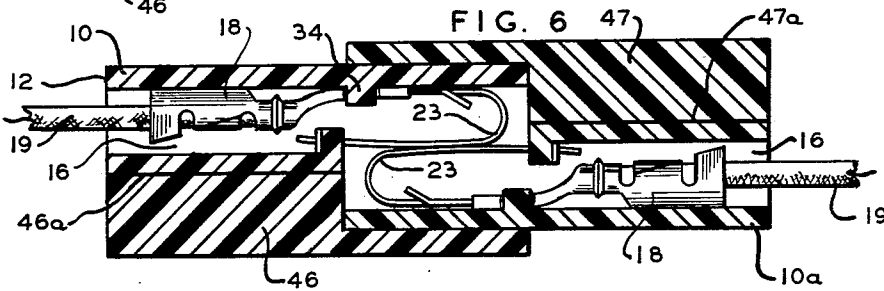
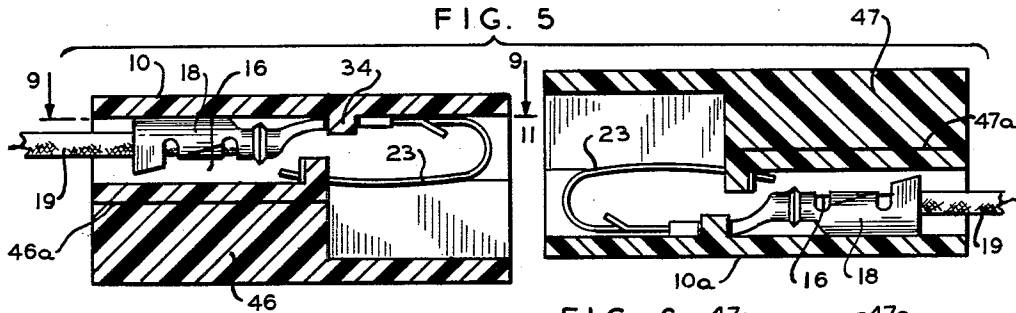
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TERMINAL CONNECTOR

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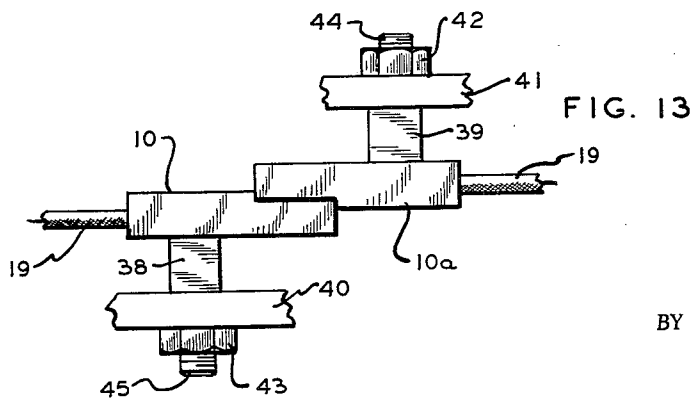
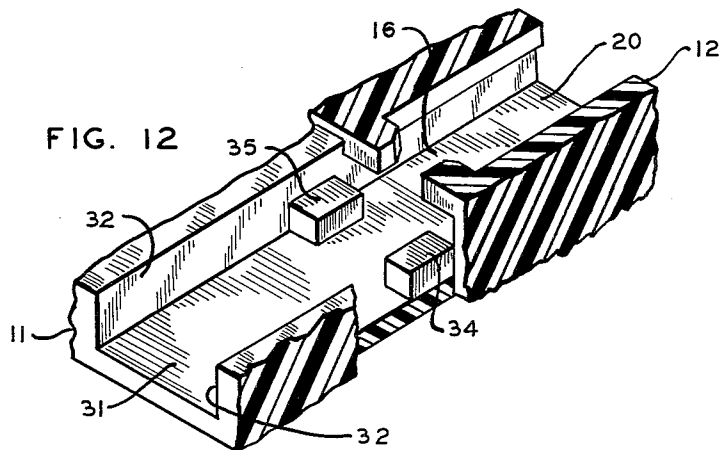
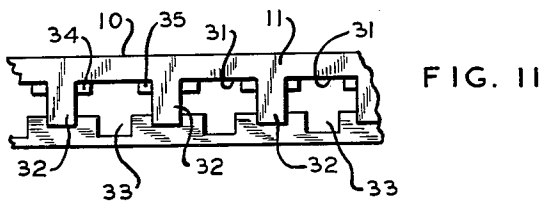
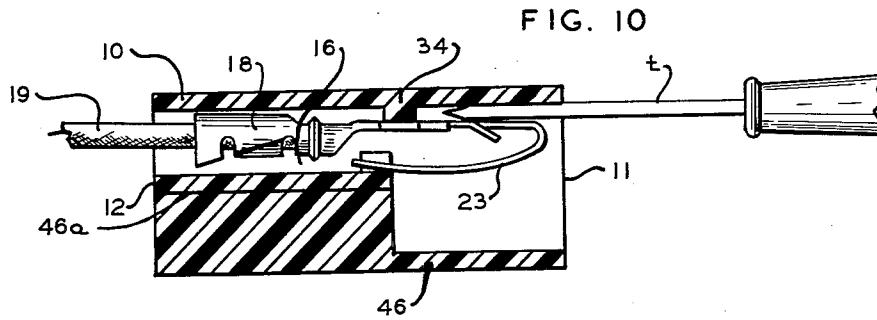
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TERMINAL CONNECTOR

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3 Sheets-Sheet 3



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3,157,448

TERMINAL CONNECTOR

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2 Claims. (Cl. 339-49)

This invention relates to a terminal connector having means for receiving terminals therein in predetermined registered position for electrical connection with other conductors, circuits, components or engaging means. The invention includes novel means for registration and interlatching of the terminals with a holder plate of novel structural features, below more particularly exemplified, securely holding the terminals in position, flexibly latched and protected against accidental disengagement without excessive stress, and without danger of dislocation but subject to ready disengagement from the connector when desired.

The drawings, illustrating procedures and devices useful in carrying out the invention, and the description below, are exemplary only of the invention, which shall be deemed to cover all other devices and procedures coming within the scope and purview of the appended claims.

In the drawings, wherein similar reference characters indicate like parts:

FIG. 1 is a fragmentary, perspective view of a flat, elongated terminal connector plate of this invention,

FIG. 2 is a partly fragmentary, perspective view thereof, showing the bottom of FIG. 1,

FIG. 3 is an exploded, partly fragmentary, perspective view of a pair of connector units embodying the invention,

FIG. 4 is a fragmentary plan view of a connector plate embodying the invention, and showing a terminal inserted and latched therein,

FIG. 5 is a fragmentary sectional view, taken at line 5-5 of FIG. 3 showing the connector units disengaged,

FIG. 6 is a similar view, showing said units interengaged, electrically connecting the terminals therein,

FIG. 7 is an end elevational view of the connector units, taken at line 7-7 of FIG. 3,

FIG. 8 is a similar view of said units shown interengaged,

FIG. 9 is a fragmentary, enlarged, horizontal, partly sectional view, taken at line 9-9 of FIG. 5, showing a terminal in latching engagement with the connector,

FIG. 10 is a vertical, sectional view of a connector unit having a terminal engaged therewith, shown about to be disengaged therefrom by a tool,

FIG. 11 is a fragmentary elevational view of a connector plate, taken at line 11-11 of FIG. 2,

FIG. 12 is a fragmentary perspective view of a section of a connector unit of the invention, partly broken to illustrate details of construction, and

FIG. 13 is an end elevational view of connector units, shown secured to the brackets juxtaposed for interconnection.

As shown in the drawings, the terminal connector of this invention comprises an elongated plate 10 having parallel longitudinal edges 11, 12 (FIGS. 1 and 2) which may be visualized as front and rear edges, respectively, thereof, and transverse ends 13, 14. The plate 10 has a section 15 (FIGS. 1 and 2) of greater height, disposed transversely thereon for a portion of the width thereof. Said portion 15 is provided with a plurality of transverse parallel apertures 16 (FIG. 2) extending therethrough for positioning therein of the latching portions 17 of terminals 18 secured to the wires, cable or to other con-

ductors 19 to be connected to other conductor elements, components or circuits. The plate 10 and associated parts herein described may be molded or otherwise fabricated, preferably of dielectric plastic or other material which may be readily formed to the desired configuration herein described. The end 12 of the section 15 is formed with T-shaped openings 20 (FIG. 2) communicating with the openings 16 therein, said openings 20 having portions 21 of a width preferably slightly greater than the cross section of the latching portions 17 of the terminals 18 and with second portions 22 of lesser width for receiving the tensioned contact nosings 23 of the terminals 18. The second portions 22 of the openings of the rear wall 12 of section 15 are of lesser width than the transverse cross section of the terminals 18 so the said terminals cannot be improperly inserted into said section, and, when properly inserted therein, will be registered in predetermined desired position. Plate 10 is provided with a plurality of walls 32 extending upwardly therefrom in parallel relation, the space between these walls being aligned with the apertures 16 in section 15 thereof and the walls extending, from section 15 to the front edge 11 of the plate 10, and with slots 33 at the end of section 15 aligned with the space between said walls (FIGS. 1, 2, 11).

A pair of bosses 34, 35 are positioned on the upper side 31 of plate 10 in line with the slots 33 therein and directly therebelow. The latching portions 17 of the terminals 18 are provided with marginal slots 36, 37 (FIG. 9) so that, on positioning the terminal 18 in the plate 10, as indicated in FIG. 3, with the contact nosing 23 of the terminal disposed in registry with the narrow portion 22 of an opening 20 (FIG. 3) and the latching portion 17 of the terminal disposed in line with the wider portion 21 of said aperture (FIG. 3), the latching portion 17 passes through the aperture 16 in the section 15 and the slotted portions 36, 37 thereof engage the bosses 34, 35 (FIGS. 9 and 4) while the tensioned nosing 23 of the terminal 18 is received in the slot 33 at the front of section 15.

The invention thus described enables the terminals to be effectively interlatched with the plate 10 and so that, by disposing walls 32 of the plate 10 in registered abutment with walls of a similar second plate (such as marked 10a) in FIGS. 5, 6, 13, the tensioned contact nosings 23 of the terminals which extend beyond the sections 15 of each plate are effectively electrically engaged with each other.

In the FIG. 13 there are schematically illustrated brackets 38 and 39, plates 10 and 10a being secured thereto and the brackets 38 and 39 being movable for example, in slotted rails or grooved guides 40, 41 thus moving the elongated plates 10, 10a into registry contact of the portions 31 thereof for interengagement of the tension contact nosings thereof as shown in FIG. 6. Latching means such as nut members 42, 43 (FIG. 13) may be provided engageable with threaded ends 44, 45 of the brackets 38, 39. It will be understood that the brackets 38, 39 might in point of fact be any other registering means found convenient for registration of a pair of similarly formed plate members such as 10, 10a (FIG. 13), or for the registering of a plate member 10 with a complementary conductor means for engagement of the latter with the tensioned contact nosings 23 in the plate member 10.

Another convenient form for the aligned registration of a pair of similarly formed plate members 10, 10a in inverse relation is shown in FIG. 3; complementary bracket members 46, 47 adhesively or otherwise secured to the sections 15 of the plates, as, for example, by being directly secured to the interfaces 46a, 47a (FIG. 6) of sections 15 and having extended therefrom the marginal flanges 48, 49 (FIG. 3) for overlapping registration with the ends of the plates 10, 10a, so that said plates may be interengaged as shown in FIGS. 7 and 8 in precise

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registry for contact engagement of the tensioned nosing 23 thereof (FIGS. 5 and 6).

The terminals 18 are effectively interlatched with the plates as shown in FIG. 9. In order to remove them therefrom, it is merely necessary to insert a tool *t* (FIG. 10) from plate end 11 to elevate the latching portion 17 of terminal 18 clear of the slot engaging bosses 34, 35 (FIG. 10) whereupon the terminal may be withdrawn to the left as in the example shown in FIG. 10, out of the plate 10.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A terminal connector for electrically interconnecting a plurality of wire terminals, each of said terminals having marginal locking slots and a resilient contact finger located in a different plane, comprising: a pair of flat elongated plate members having side wall means, said plate members being adapted to be interengaged in opposed inverse relation, each of said plate members having a terminal receiving section extending for a portion of the width thereof, said section being provided with a plurality of parallel transverse apertures therethrough to receive said wire terminals, each aperture having a wide portion and a narrow portion to define a T-shaped cross-section, the narrow portion being adapted to receive the resilient

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contact finger of a wire terminal, said fingers in the coupled condition of the connector being in contact with each other, a plurality of upstanding wall members on each of said plate members extending from said terminal receiving sections and parallel to the apertures therein, said wall members defining passageways of the same width as the wide portion of the apertures and in line therewith for reception of the marginal edges of said terminals, and bosses on said plates within the passageways for locking engagement with said marginal locking slots.

2. A terminal connector as defined in claim 1, and further including a bracket member attached to each of said plate members, said bracket members having marginal flange means thereon adapted to interengage with each other to register the attached plate members.

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