Nov. 20, 1962 D. J. CRIMMINS 3,065,444

TERMINAL CONNECTOR

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FIG. 1

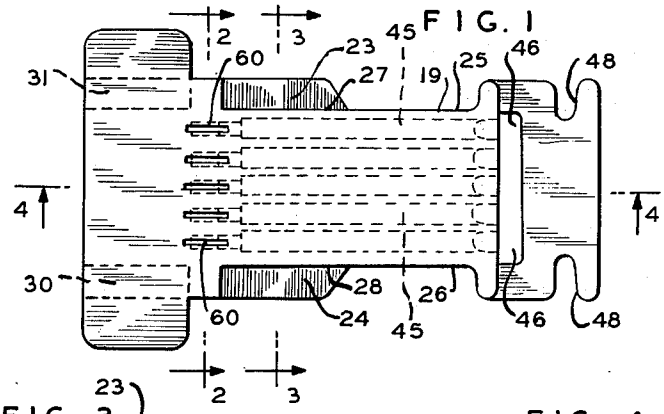


FIG. 2

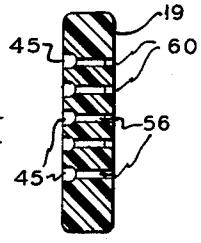


FIG. 3

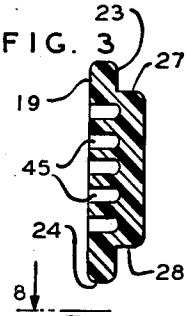


FIG. 4

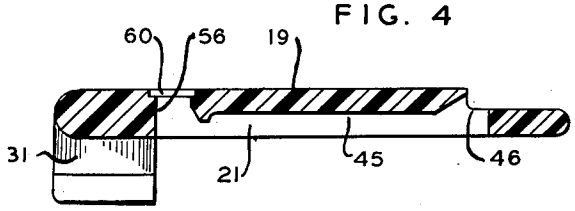


FIG. 5

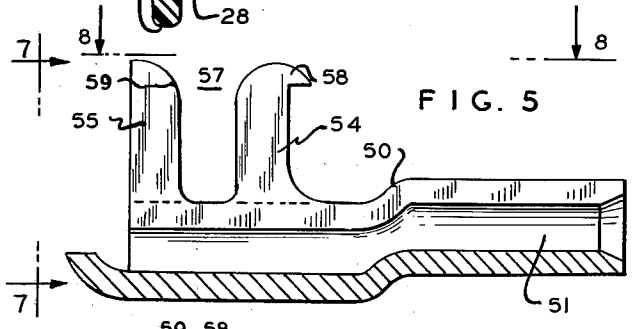


FIG. 6

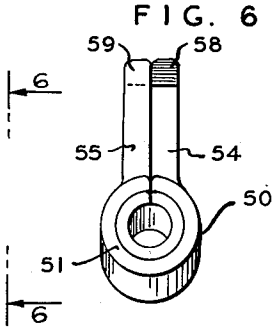


FIG. 7

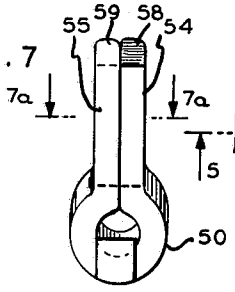


FIG. 8

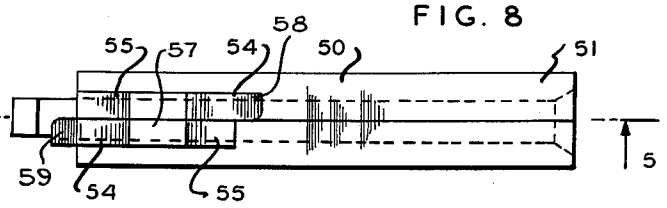


FIG. 7a

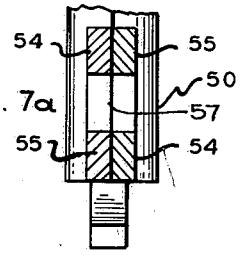
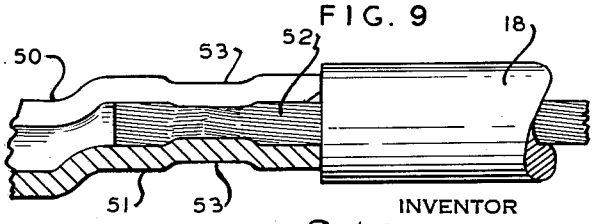


FIG. 9



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FIG. 10

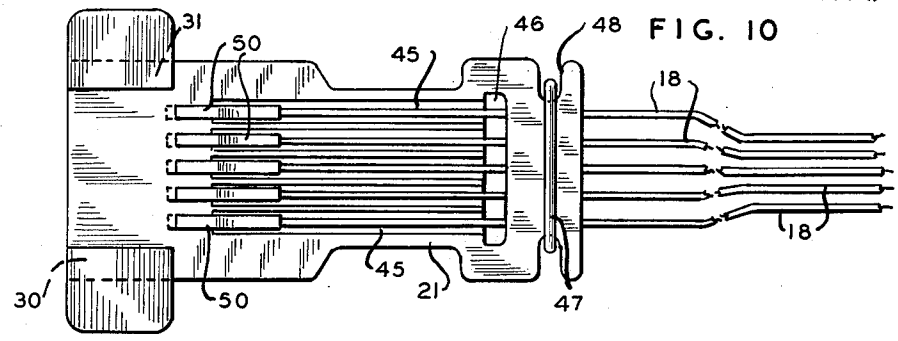


FIG. 11

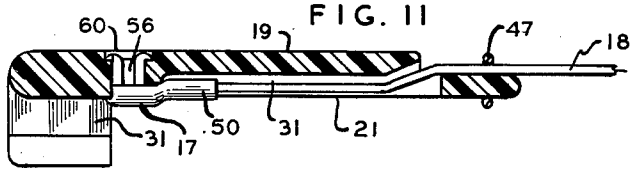


FIG. 12

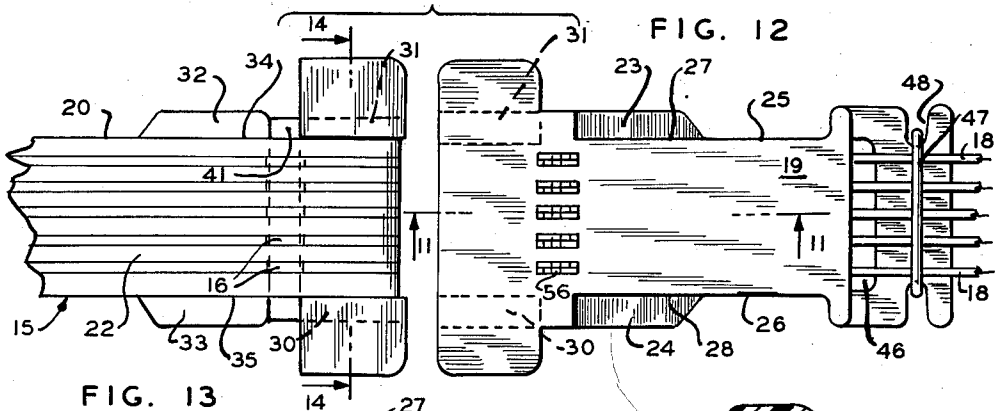


FIG. 13

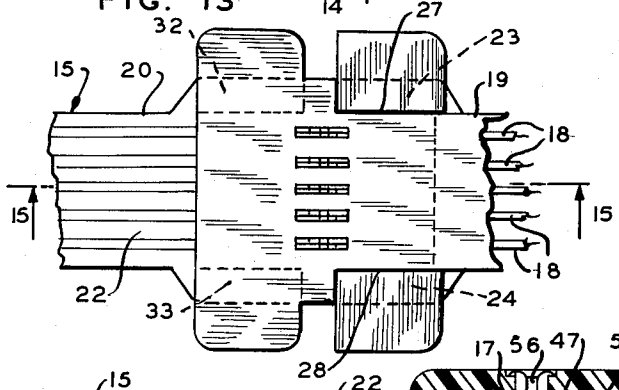
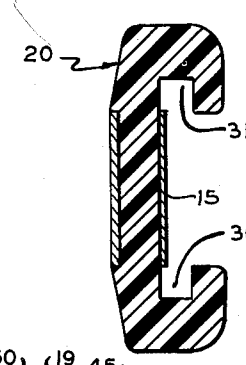


FIG. 14



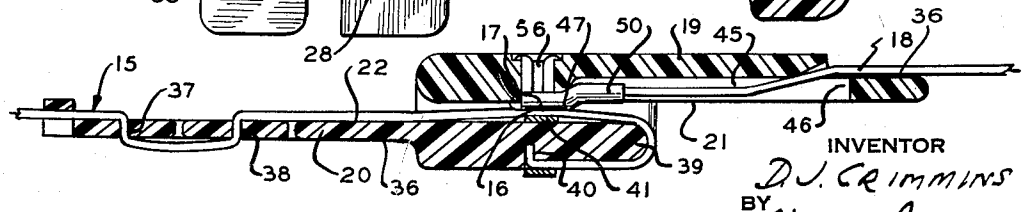


FIG. 15

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3,065,444

TERMINAL CONNECTOR

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Filed May 23, 1960, Ser. No. 30,940
3 Claims. (Cl. 339—176)

This invention relates to a device for electrical connection and disconnection of wire terminals to like or unlike terminals and novel means for holding said terminals in position for ready electrical connection and disconnection when desired by sliding contact movement of the parts, considerably reducing wear and tear, greatly facilitating interengagement and disconnection of the parts. The invention utilizes a pair of plates to which the terminals are secured, said plates having interengaging means aligning the plates for said sliding contact movement.

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 plan view of a plate to which the wire conductors may be secured pursuant to the invention,

FIG. 2 is a transverse sectional view thereof, taken at line 2—2 of FIG. 1,

FIG. 3 is a transverse sectional view thereof, taken at line 3—3 of FIG. 1,

FIG. 4 is a longitudinal sectional view thereof, taken at line 4—4 of FIG. 1,

FIG. 5 is an enlarged longitudinal sectional view of a contact cap embodying the invention, to be secured to a wire terminal and adapted to engage the plate to secure the wire terminal thereto,

FIG. 6 is an end elevational view thereof, taken at line 6—6 of FIG. 5,

FIG. 7 is an opposite end elevational view thereof, taken at line 7—7 of FIG. 5.

FIG. 7*a* is a horizontal sectional view taken at line 7*a*—7*a* of FIG. 7.

FIG. 8 is a top plan view thereof, taken at line 8—8 of FIG. 5,

FIG. 9 is a fragmentary longitudinal sectional view of a wire terminal shown secured to a contact cap of the invention,

FIG. 10 is a plan view of the planar contact face of the plate to which the wire members are secured pursuant to the invention,

FIG. 11 is a longitudinal fragmentary sectional view, taken at line 11—11 of FIG. 12,

FIG. 12 is a plan view of plates carrying the wire conductors and flat conductor cable prior to interengagement,

FIG. 13 is a similar fragmentary view of the parts shown assembled for electrical connection of the conductor cable and wire terminals,

FIG. 14 is a vertical sectional view taken at line 14—14 of FIG. 12, and

FIG. 15 is a longitudinal sectional view, taken at line 15—15 of FIG. 13.

The invention is designed for the convenient and effective connection and disconnection of the flat terminals such as bared portions 16 (FIG. 12) of flat connector cable 15 (the latter may be of plastic material, having a plurality of cables formed or embedded therein longitudinally in parallel relation) with conductor wires 18. The flat conductor cable 15 and wires 18 are respectively secured to a pair of plates 20, 19 (FIG. 12) having flat

planar faces 21, 22 (FIG. 15) and complementary means for urging and holding said faces interengaged when registered (FIGS. 13 and 15). Plate 19 (FIG. 12) has rails 23, 24 extending laterally of the body portion 19 and beyond the side longitudinal edges 25, 26 thereof and, parallel thereto, shouldered portions 27, 28 (FIG. 3) being provided on said rails as essentially extended portions of the longitudinal edges 25, 26 of faces 36 of plates 19, 20 opposite to their contact faces 21, 22 (FIG. 15) thus defining the shouldered rails which are received in complementarily shouldered slots 30, 31 of the other plate 20. The latter is similarly provided with laterally extending rails 32, 33 (FIG. 12) with the shouldered portions 34, 35 extended at the rails from face 36 of plate 20 opposite the planar face 22 (FIG. 15). The flat conductor cable 15 may be secured to plate 20 by any suitable means, as by passing said conductor cable through slots 37, 38 in said plate (FIG. 15) and positioning the cable around the end 39 of the plate 19 and into a recess 40 therein. Said end of the cable may be held in the recess by a flexible elastic or metallic band 41 (FIG. 15) overlying the end of the cable and underlying the bared contact portion 16 thereof (FIG. 12).

Pursuant to the invention, the user may select particular conductors in the flat conductor cable 15 on plate 20 to be bared for connection with specific other wires 18 of plate 19, on assembly (FIG. 13) of said plates. The wires 18 may be positioned in a plurality of longitudinal grooves 45 (FIGS. 10 and 15) on the planar contact face 21 of plate 19; the wires 18 may extend through a slot 46 in plate 19 and may be further held on said plate by an encircling flexible or metallic band 47 (FIG. 12) which may be disposed in marginal recesses 48 in plate 19. Contact caps 50 (FIGS. 11, 5–8) are shown for securing wires 18 to plate 19 at the contact surface 21. Each cap comprises a longitudinally slotted body portion 51 to be fitted over the end 52 of wire 18 (FIG. 9) and may be staked or otherwise clamped on or secured thereto. Spaced studs 54, 55 (FIGS. 7, 7*a*, 8) extending from the body portion are adapted to frictionally engage an aperture 56 (FIGS. 4 and 12) in plate 19. The contact cap is preferably formed of metal or other flexible material and the parts so proportioned that the studs 54, 55 (FIG. 5) are formed as pairs 54, 55 of U-shape, and the studs in each pair being axially spaced apart as at 57 (FIGS. 5 and 8); the free ends of said studs may have nosings 58, 59 (FIG. 8) extended therefrom so that the studs will be compressed on insertion through the aperture 56, beyond which the studs expand and their enlarged ends 58, 59 interengage the enlarged ends 60 of the apertures 56 (FIG. 4).

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

1. A terminal connector comprising a pair of plates having flat planar surfaces and complimentary means on said plates for sliding interengagement of the plates to secure them together with their flat planar surfaces in adjacent parallel relation; one of said plates having means for securing a flat tape conductor thereto and for disposing a bare contact portion of said conductor on said planar surface of the plate in position for electrical engagement; means for securing a wire conductor to the second plate and for disposing a contact portion of said wire conductor on said planar surface of said second plate, said last named means comprising a tubular contact cap adapted to be crimped onto said wire conductor, the top surface of said cap defining the said contact portion thereof, stud pairs extending outwardly from said tubular contact cap, the studs in each pair being axially spaced, one stud in each pair having an enlargement at the end thereof facing axially outward, the second plate having an aper-

ture therein opening into the said planar surface of said plate, the aperture having a wider portion on the side opposite said planar face, whereby said stud enlargements spring into and engage the widened ends of the apertures; and means for registering said plates when moved together in interlocking relation face to face with their flat planar surfaces in adjacent parallel relation, thereby pressing said bared contact portion of said tape and wire conductor so disposed on said planar surfaces together for electrical interengagement.

2. A terminal connector comprising a pair of plates having flat planar surfaces and complimentary means on said plates for sliding interengagement of the plates to secure them together with their flat planar surfaces in adjacent parallel relation; one of said plates having means for securing a flat tape conductor thereto and for disposing a bare contact portion of said conductor on said planar surface of the plate in position for electrical engagement; means for securing a wire conductor to the second plate and for disposing a contact portion of said wire conductor on said planar surface of said second plate, said last named means comprising a tubular contact cap adapted to be crimped onto said wire conductor, the top surface of said cap defining the said contact portion thereof, stud means extending outwardly from said tubular contact cap and being axially spaced, said stud means including an enlargement at the end thereof facing axially outward, the second plate having an aperture therein opening into the said planar surface of said plate, the aperture having a wider portion on the side opposite said planar face, whereby said stud enlargements spring into and engage the widened ends of the aperture; and means for registering said plates when moved together in interlocking relation face to face with their flat planar surfaces in adjacent parallel relation, thereby pressing said bared contact portion of said tape and wire conductor so disposed on said planar surfaces together for electrical interengagement, said last named means comprising axial rails extending laterally beyond the marginal edges of the plates and members on the plates provided with slots for slidably receiving said rails.

3. A terminal connector as defined in claim 1, wherein each stud pair is of U-shaped outline and the enlargement on the stud in one pair is extended oppositely to the enlargement on the stud in the other pair.

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