

Dec. 1, 1964

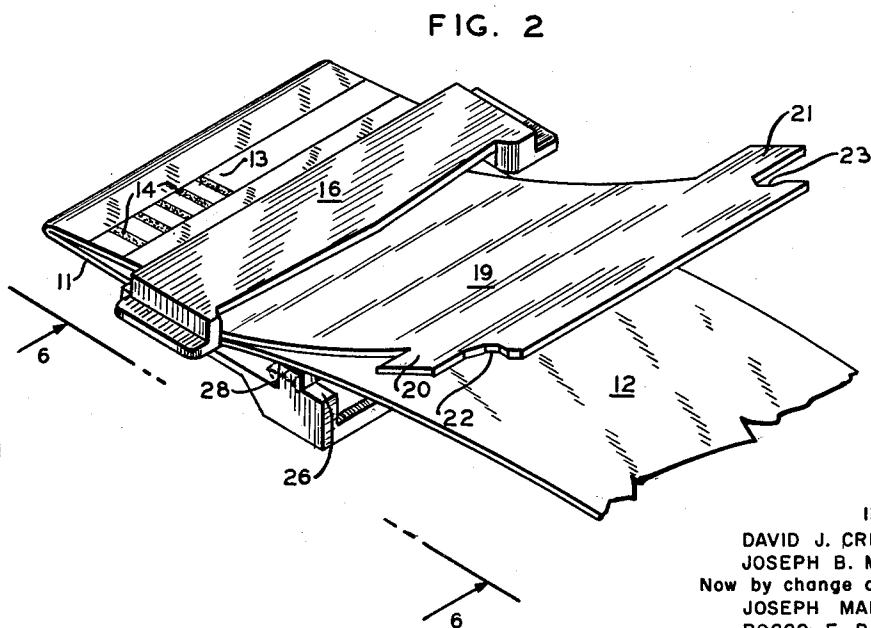
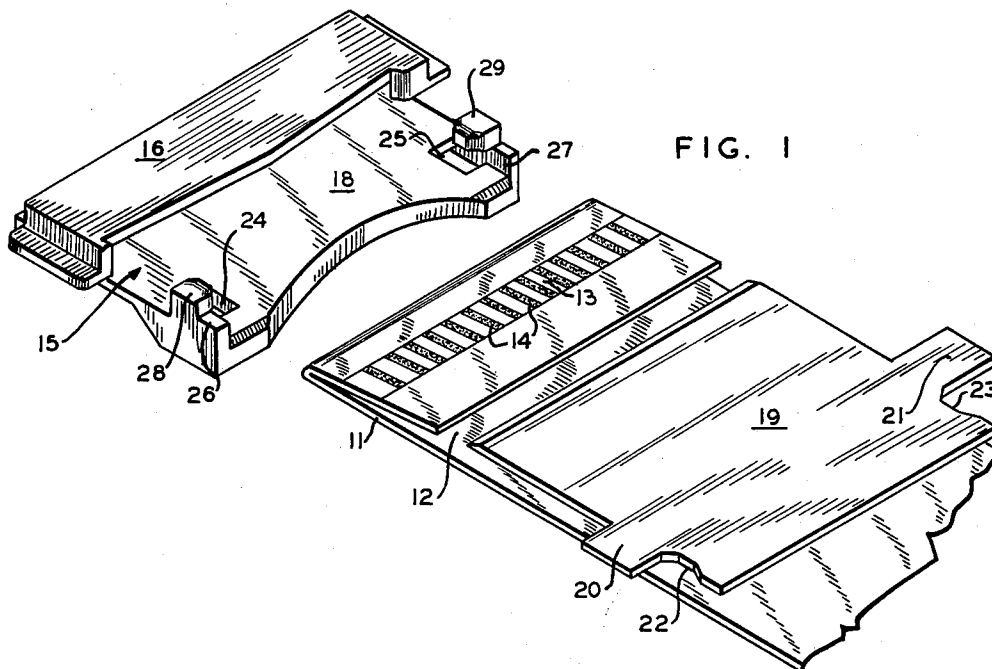
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3,159,447

PLUG CONNECTOR FOR FLAT CONDUCTOR CABLE

Filed Sept. 21, 1962

3 Sheets-Sheet 1



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FIG. 3

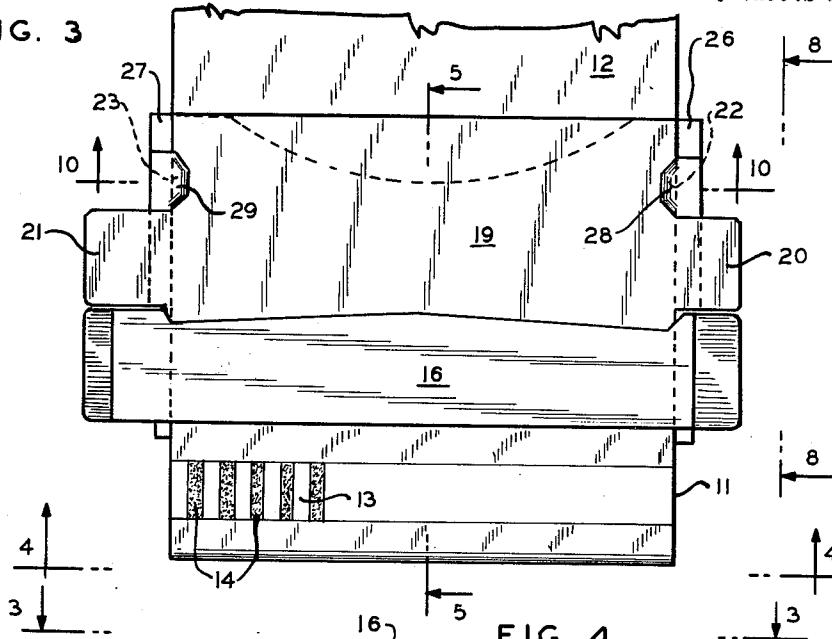


FIG. 4

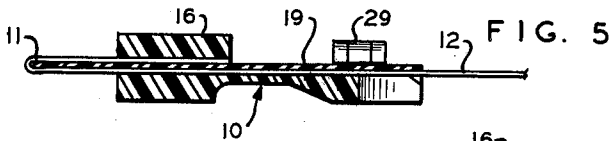
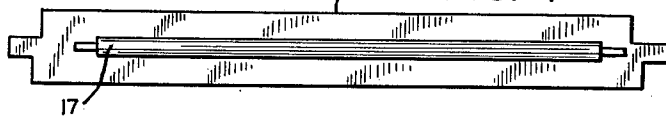


FIG. 6

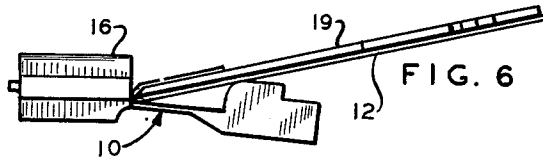


FIG. 7

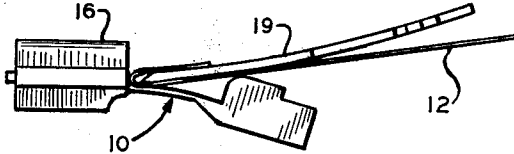
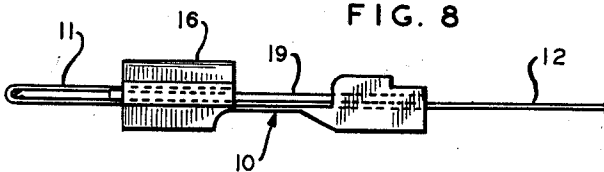


FIG. 8



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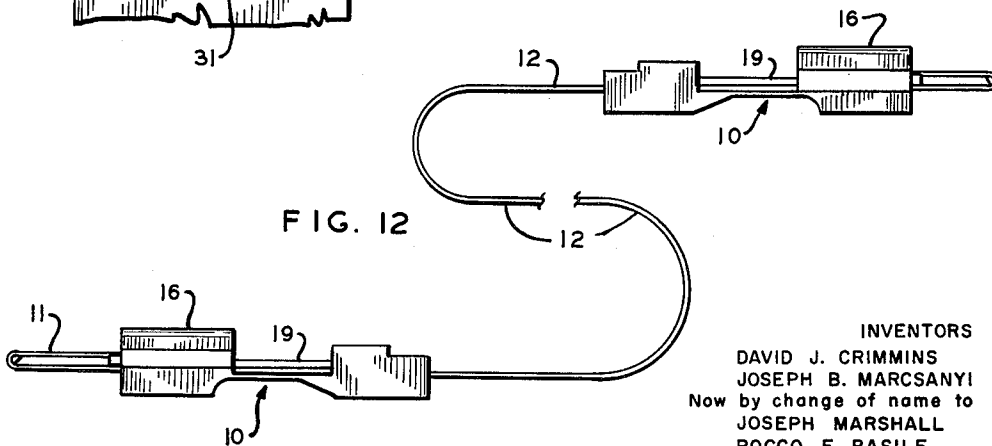
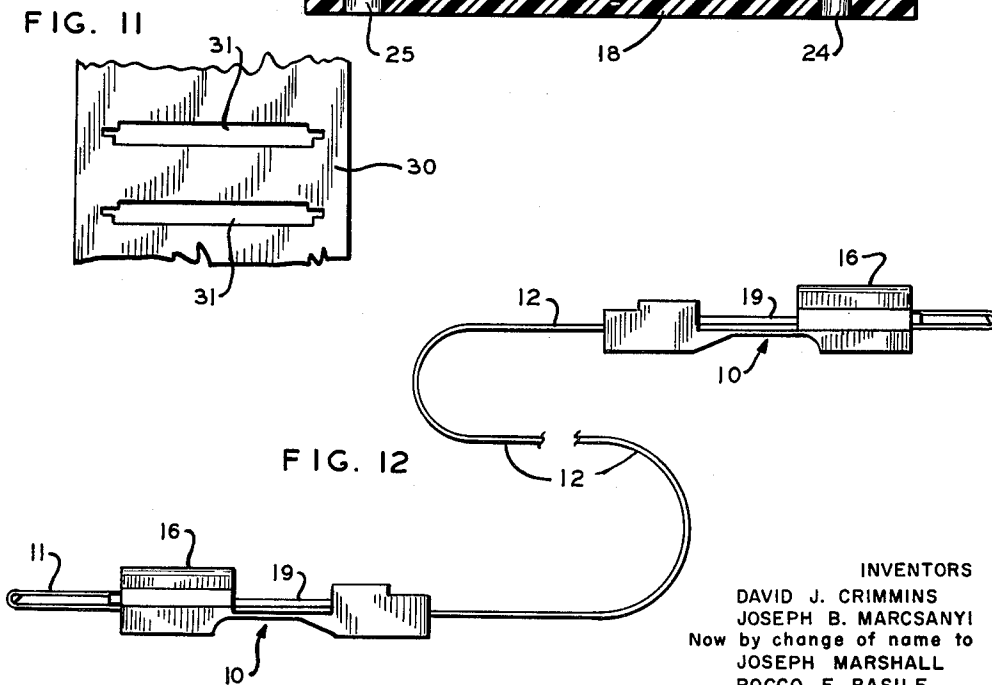
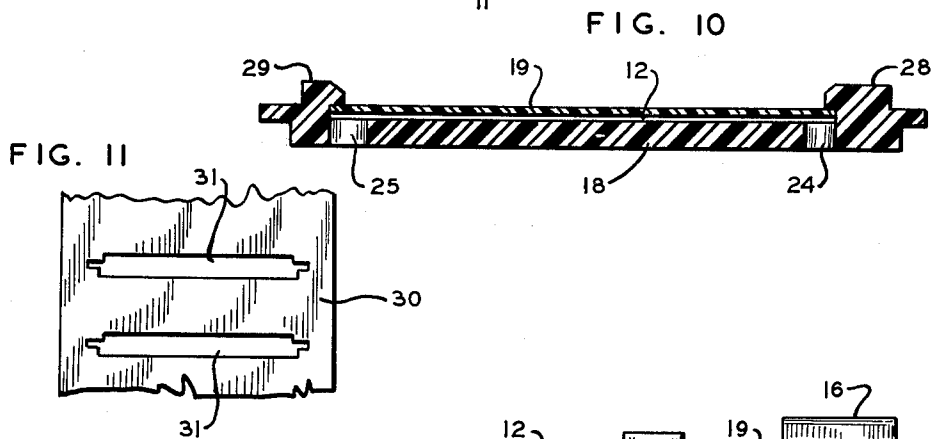
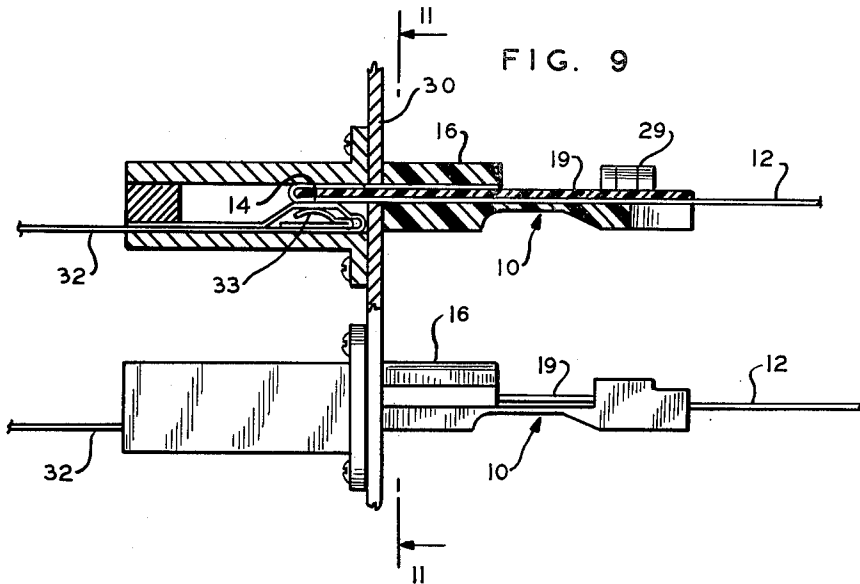
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PLUG CONNECTOR FOR FLAT CONDUCTOR CABLE

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Filed Sept. 21, 1962, Ser. No. 225,301

7 Claims. (Cl. 339-176)

This invention relates to a connector designed to enable the ready assembly of a flexible flat conductor cable thereon in registered interlocked position in an arrangement such as to connect, or dispose one or more of the conductors of said cable for electrical connection with, other conductors. The connector of this invention provides a convenient means for disposing one end of a flat conductor cable in predetermined registered projecting position therein such that said connector, with the conductor so extending therefrom, may be readily interconnected electrically with another conductor and may be readily disengaged therefrom and interengaged with other conductors from time to time as desired. The invention provides a convenient and accurate means for effectively disposing the conductor end of a flat conductor cable for connection and disconnection in a rapid fashion with other conductors or equipment, and incorporates novel features for registration and interlocking of conductor cables therein and for maintaining the parts assembled and interlocked in accurate registration.

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 perspective view of the bar and blade members of the connector of this invention, the latter being shown about to be positioned within the folded end of a flat conductor cable, shown fragmentarily,

FIG. 2 is an assembly view of a flat conductor cable initially positioned on the blade for registry with the bar opening,

FIG. 3 is a plan view of the bar, blade and conductor cable in assembled relation,

FIG. 4 is an end elevational view thereof taken at line 4-4 of FIG. 3,

FIG. 5 is a longitudinal sectional view taken at line 5-5 of FIG. 3,

FIG. 6 is a side elevational view taken at line 6-6 of FIG. 2, showing the blade about to be inserted into the bar and within the folded over end of the flat conductor cable therein,

FIG. 7 is a similar view, showing the parts further assembled,

FIG. 8 is a side elevational view, taken at line 8-8 of FIG. 3, showing the parts fully assembled,

FIG. 9 is a side elevational, partly sectional view of an electrical element having a plurality of other conductors with which conductor cables, secured to connectors of this invention, may be selectively engaged,

FIG. 10 is a transverse sectional view, taken at line 10-10 of FIG. 3,

FIG. 11 is a fragmentary plan view of the panels alone taken at line 11-11 of FIG. 9, with the connectors omitted, and

FIG. 12 is a broken side elevational view of a flexible conductor cable whose opposite ends are secured to connectors of this invention.

The drawings show a form of the connector 10 (FIG. 6)

of this invention secured to the end 11 of a flat conductor cable 12 comprising a plurality of conductors 14 covered by a thin insulation, preferably doubled upon itself and having a portion 13 (FIG. 3) scraped or otherwise treated so as to expose all or selected conductors 14 of the conductor cable. The connector 10 comprises (FIG. 1) a plate 15 provided at one longitudinal end with a bar 16 secured to the plate in spaced parallel relation so as to define an opening 17 (FIG. 4) at that longitudinal end of the plate. The plate has a relatively planar surface 18 on which the conductor cable 12 may be positioned, with the folded end 11 of the conductor cable inserted through the opening 17, to extend partially therebeyond, thus disposing exposed portions of the conductor beyond the plate (FIG. 2) with the said folded end of the cable positioned within the bar and plate. A blade 19 is provided (FIG. 6) proportioned to be received within the opening 17 of the plate and within the folded end 11 of the cable, and to press the latter against the bar 16 and plate 15. The blade 19 (FIGS. 1 and 3) is provided with marginally outwardly extending tabs 20 and 21 and with marginally recessed portions 22, 23. The plate 15 is provided with apertures 24, 25 (FIG. 1) spaced from the bar 16 and with adjacent marginal flanges 26, 27 for guiding the conductor cable 12 and blade 19 over the plate on assembly of the parts (FIGS. 3 and 8) and is further provided with finger stud portions 28, 29, extending from the flanges 26, 27 and overlying the apertures 24, 25. On assembly of the parts as above described, the blade 19 may be inserted into the intermediate bar 16 (FIG. 2) to dispose the recessed portions 22, 23 of the blade over the finger studs 28, 29 (FIG. 6); then, by pressing down the blade 19 around recessed area 22, 23 or up on the plate 15, the blade 19 may be snapped past said finger studs and disposed therebeneath to thereby (FIG. 8) secure the cable 12 between the blade and the plate. The blade 19 may be made flexible for this purpose or the plate 15 made flexible and flexed until the blade 19 is extended into the opening 17 whereupon the plate may be moved upwardly so as to snap the studs 28, 29 past the recessed portions 22, 23 of the blade 19, or both the blade 19 and plate 15 may be made flexible for this purpose.

On assembly of the parts as above set forth and shown in FIG. 4 the connector of this invention will have firmly secured thereto the conductor cable 12 (the latter is of flexible material as well known in this art). On registration of the parts as above noted, the conductor cable will be pressed slightly between sides of undercut on 28 stud and recess 22 at one side and similarly between sides of undercut on 29 stud, and recess 23 at the other side, further keying and interlocking the parts and preventing accidental dislocation or disassembly thereof. The assembly thus described may be inserted into any equipment such as schematically shown at 30 in FIGS. 11 and 12, wherein said equipment is shown as provided with apertures 31 to receive the connector 10 and cable assembled therein or receive the extending folded end 11 of cable 12 for connection (as in FIG. 9) in electrical equipment member 30 with second conductors 32, which may give adequate spring pressure to individual conductors in said fixture 30 by the spring or other means 33. By this arrangement the conductor of this invention may be used to make rapid connection of cable conductors to other conductors or fixtures as desired. In addition to the procedures described, the connector of this invention may be secured to opposite ends of the flat conductor cable as shown in FIG. 12 to thus adapt the connector for use as a "jumper" for connection of ends of conductor cables with other cables or equipment. The foregoing examples of uses for the connector of this invention are illustrative only and not limitative thereof.

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

1. A connector for holding a flat flexible conductor cable disposed for electrical connection to another conductor, said connector comprising a plate having marginal edges and a relatively planar surface on which said conductor cable is adapted to be positioned, a bar secured to said plate in registry with one end thereof in spaced relation to said plate, to thereby define therewith an opening for passage of the cable when disposed on the plate therethrough for connection to said other conductor, said plate being further provided with a finger stud extending from one marginal edge overlying and spaced from said planar surface, and a blade member adapted to be positioned within a fold of said conductor cable and to be positioned on the plate underneath said bar, said blade having a marginally recessed portion for registration with said stud to snap thereover and then underlie the stud to thereby press the conductor cable against said planar surface.

2. A connector as set forth in claim 1, and further including an aperture in said planar surface spaced from said opening and adjacent said one marginal edge and directly below said stud to receive a portion of said conductor cable pressed therein by said blade member.

3. In a connector for connection of a flat conductor cable to another conductor as set forth in claim 2, a second aperture provided in said planar surface spaced from said opening and adjacent the other marginal edge of the plate, and a second finger stud extending from the plate in overlying relation to said second aperture.

4. In a connector for connection of a flat conductor cable to another conductor as set forth in claim 3, flanges

at the marginal edges of said plate for guiding the flat conductor cable on so positioning said cable on the plate, said flanges being registered with said apertures and guiding said conductor in position over said apertures.

5. In a connector for the connection of a flat conductor cable to another conductor as set forth in claim 3, said plate being substantially bendable so that said blade with the conductor cable folded thereupon may be intermediate the bar and plate and through the opening defined thereby, said blade being bendable so that it may be positioned on the conductor cable with the opposite end of the blade flexed away from the plate and then said opposite end of the blade moved against the studs of the plate member to snap between said studs and plate.

6. In a connector for the connection of a flat conductor cable to another conductor as set forth in claim 1, a flange at each marginal edge of said plate for guiding the flat conductor cable and so positioning the same on the plate.

7. In a connector for the connection of a flat conductor cable to another conductor as set forth in claim 1, and marginally outwardly directed tab portions on said blade member facilitating manipulation on said blade member and conductor cable.

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