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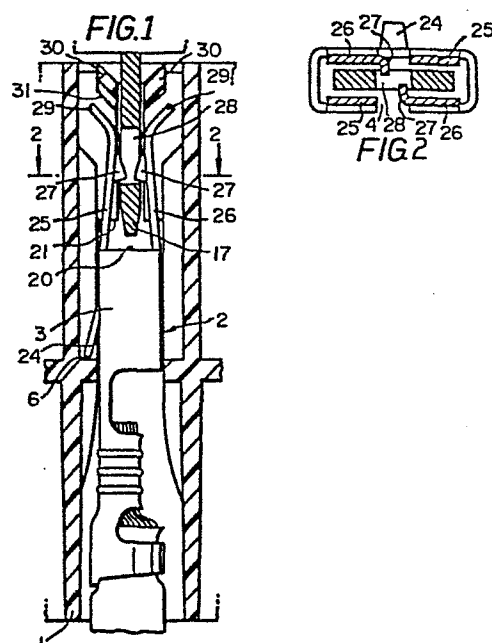
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54 Electrical tab receptacle.

57 An electrical tab receptacle (2) formed from sheet metal has a box-like body (3) with opposed pairs of spring arms (25, 26) extending forwardly in convergent manner and having turned out ends (29) defining a divergent entry to a tab receiving space. A latch projection (27) is formed on opposite, inner, sides of one of the arms (26) of each pair and present rear-facing shoulders in the tab receiving space, arranged to engage a tab recess or aperture (28) of a complementary tab (17) to resist withdrawal of the tab (17) from the receptacle. Outward flexure of the arms (26) releases the latch projection (13) and the receptacle (2) is suitably mounted in a housing (1) with the capacity for limited movement in the tab receiving direction between forward and rearward housing shoulders (21, 6). A projection (30) at the front of the housing is formed on its rearward face with a ramp (31) adapted to deflect the arms (26) transversely outwards on rearward movement of the housing relative to the receptacle.



ELECTRICAL TAB RECEPTACLE

1 This invention relates to an electrical tab receptacle having
a latch adapted positively to lock in an aperture in the tab to
resist inadvertent separation of the tab and receptacle.

5 This Application is divided from our European Patent
Application No. 82303054.9 to which reference is hereby
directed.

10 In our U.S. Patents 3,976,348 and Re. 30,277, we have
disclosed an electrical tab receptacle formed from sheet metal
with a box-like body of generally rectangular section and open
at an end, and including opposed spring arms defining between
them a tab receiving space, a latch projection being formed on
one of the spring arms and presenting a rear-facing shoulder in
the tab receiving space arranged to engage a recess or aperture
in a tab when received between the opposing spring arms to
15 resist tab withdrawal.

20 The tongue extends within the body, the free end of the
tongue projecting externally of a rear end body, and the
shoulder being within the body. In such arrangement the
receptacle may be disengaged from the tab by depressing the
exposed free end of the tongue, and in one embodiment the
receptacle is contained within a housing capable of limited
relative movement to the receptacle whereby a pull on the
housing will actuate the housing to depress the free end of the
tongue.

25 Tab receptacles of this kind have met with substantial
commercial success, particularly in automotive applications, where
the integrity of the electrical circuitry has been substantially
improved. However, the use of such receptacles is limited to
connectors having relatively few receptacles, and in which the
alignment between the tabs and receptacles is relatively precise.
30

It is an object of the invention to obtain the advantageous
positive locking feature in receptacles having a wider application
and capable of providing low frictional forces on engagement and

1 disengagement such that they can conveniently be employed in multi-way connectors.

According to the invention, an electrical tab receptacle as described in the third paragraph on page one is characterised in
5 that the spring arms are arranged in pairs extending forwardly cantilever fashion from opposite sides of the body at that end, the spring arms converging forwardly and an end of at least one arm of each pair being bent outwardly to define a divergent entrance to the tab receiving space, latch projections being
10 formed on one arm of each pair, at opposite inner sides relatively, so that the projections engage a tab aperture at opposite sides and do not interfere.

An electrical tab receptacle according to the invention is capable of relatively wide application and providing low frictional
15 forces on engagement and disengagement while the relative disposition of the latch projections avoids their interfering with one another.

Suitably, the latch projections are formed on its arms having the outwardly-bent end portions and preferably all of the
20 arms have outwardly-bent end portions to facilitate tab entry.

The bent out portions of the arms having the latch projections suitably provide release members for disengaging the latches. The receptacle may be mounted in a housing adapted for limited movement relative to the receptacle and formed with a
25 projection arranged to engage the bent out end portions of the latch spring arms on relative rearward movement to effect release.

The invention will now be described, by way of example, with reference to the accompanying drawings, in which:

30 Figure 1 is a fragmentary sectional elevation of a multi-way connector according to the invention;

Figure 2 is a section taken on the line 2-2 of Figure 1 but with the connector housing omitted; and,

Figure 3 is a sectional elevation of the housing of the
35 connector viewed from the right of that Figure.

1 In the embodiment of Figures 1 and 2, a multi-way
connector housing 1 has a plurality of cavities for tab
receptacles 2. Each receptacle 2 comprises a box-like body 3
having an open seam 4 and at a rear end being integrally formed
5 with a crimping portion secured to a conductor wire. The body
3 is formed on the side opposite the seam 4 with a latch 24 for
releasably securing the receptacle in the housing by engagement
with a forward facing shoulder 6. At the forward end, the body
3 is formed with a pair of spring arms 25, 26 at both of a pair
10 of opposite sides of the body. The spring arms 25, 26 converge
forwardly to define a tab receiving space, and at their forward
ends 29 are bent out in divergent manner to define an entrance
for a tab 17 inserted between the arms. One arm 26 of each
pair is formed at a side adjacent the other arm 25 with a tongue
15 27 of generally triangular form and bent inwardly to define a
rear facing shoulder for locking engagement in a tab aperture
28. The arms 26 are diagonally opposed as seen in Figure 2 so
that the locking tongues 27 are disposed at opposite sides of the
tab aperture 28, and do not interfere.

20 The housing for the receptacle is suitably provided with
projections 30, having rearwardly facing inclined surfaces 31 at
opposite sides of the receptacle cavity to engage both spring
arms 26 on relative rearward movement of the housing, to effect
outward flexure and release of the locking tongues from the tab
25 aperture 28.

As seen in Figure 3, the projections 30 are suitably
recessed at sides 32 adjacent ends of arms 25, so that the
projections only act on the arms 26 on the rearward movement of
the housing relative to the receptacle.

30 The receptacle 2 is assembled into the housing with the
latch 24 engaging shoulder 6 and positioned in a forwardly
extending housing slot 19. Shoulders 20 at opposite sides of the
forward end of the receptacle body 3 are spaced rearwardly of
housing shoulders 21, whereby relative movement of the housing
35 1 rearwardly of the receptacle 2 is possible in order to engage

- 1 the inclined surfaces 31 of the housing projections 30 with the spring ends 24 for release of the latch projections 27 from the tab apertures 28 by cam action as has been described.

CLAIMS:

1 1. An electrical tab receptacle (2) formed from sheet
metal with a box-like body (3) of generally rectangular section
and open at an end, and including opposed spring arms (25, 26)
defining between them a tab receiving space, a latch projection
5 (27) being formed on one of the spring arms (25 or 26) and
presenting a rear-facing shoulder in the tab receiving space
arranged to engage a recess or aperture (28) in a tab (17) when
received between the opposing spring arms (25, 26) to resist tab
withdrawal, characterised in that the spring arms (25, 26) are
10 arranged in pairs extending forwardly cantilever fashion from
opposite sides of the body (31) at that end, the spring arms
(25, 26) converging forwardly and an end of at least one arm
(25 or 26) of each pair being bent outwardly to define a
divergent entrance to the tab receiving space, latch projections
15 (27) being formed on one arm (26) of each pair, at opposite
inner sides relatively, so that the projections (27) engage a tab
aperture (26) at opposite sides and do not interfere.

2. A tab receptacle as claimed in Claim 1, characterised
in that the latch projections (13) are formed on the arms (8)
20 having the outwardly-bent end portions (10).

3. A tab receptacle as claimed in Claim 1 or in Claim 2,
mounted in a housing cavity and retained between forward and
rearward housing shoulders arranged to permit limited relative
movement between the housing and the receptacle in the tab
receiving direction, characterised in that the forward shoulder
25 (11) is formed on its rear face (12) with a ramp arranged to
engage the or an arm (8, 26) of the receptacle on relative
rearward movement of the housing, to bias the arm (8, 26) with
its latch projection (15, 27) transversely outwardly.

30 4. A tab receptacle and housing as claimed in Claim 3,
characterised in that the housing is formed with forward
shoulders (30) at opposite sides of the cavity, arranged to
engage arms (26) at opposite sides of the receptacle, the
shoulders (30) being recessed adjacent the arms (25) so that

- 1 only the arms (26) formed with latch projections (27) are flexed transversely outwards on relative rearward movement of the housing.

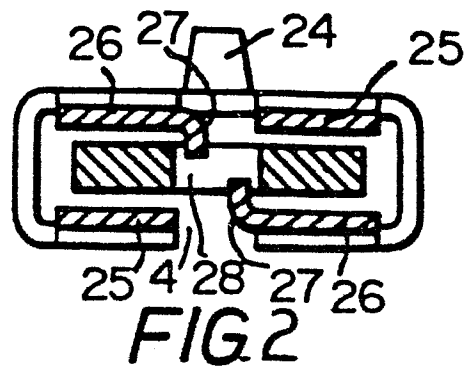
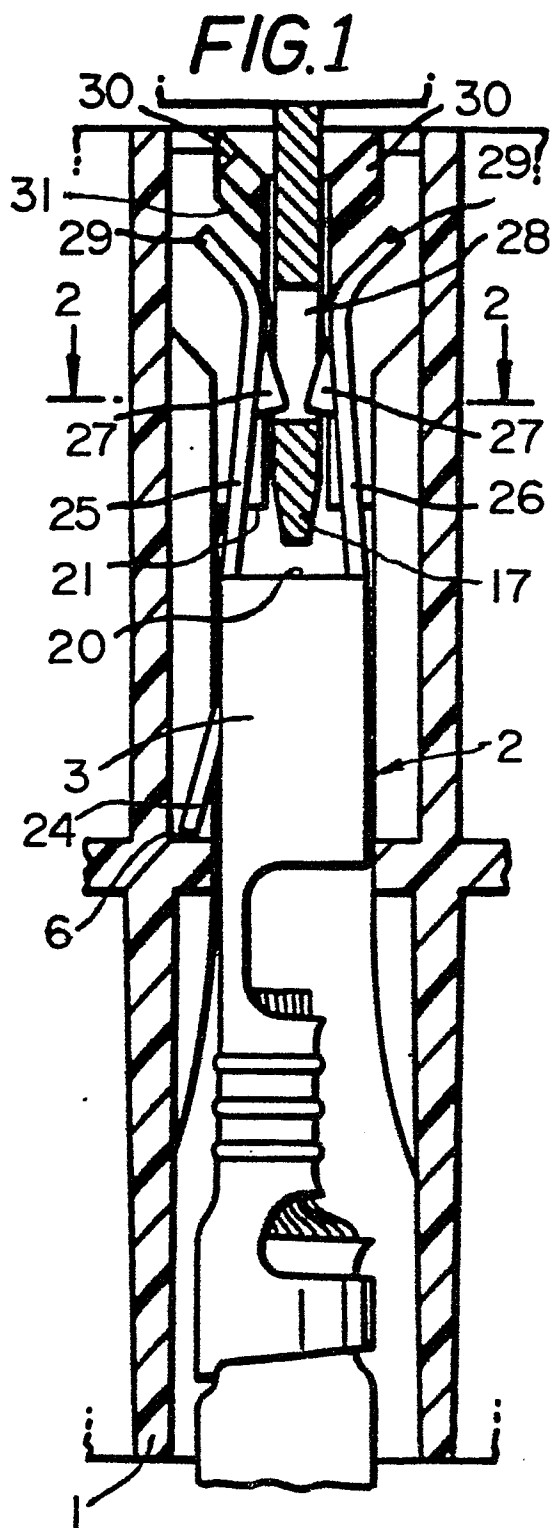
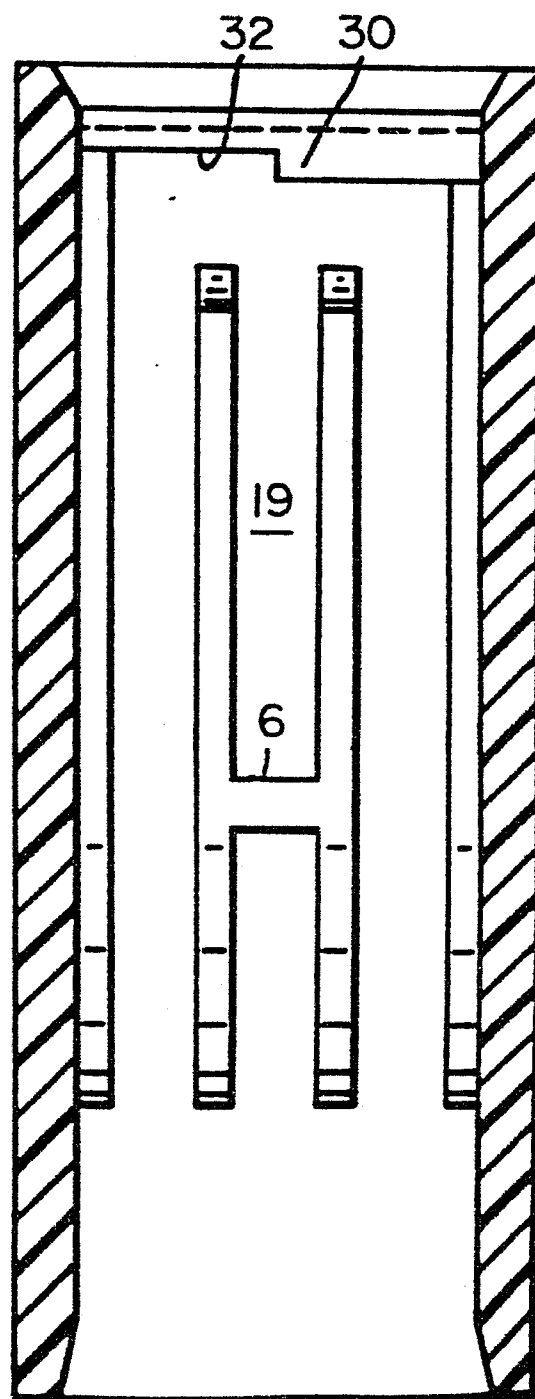


FIG. 3





European Patent
Office

EUROPEAN SEARCH REPORT

01 271 95

Application number

EP 84 10 6669

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
A	EP-A-0 024 981 (VERIN) * Page 4, line 9 - page 5, line 2; figures *	1,3	H 01 R 13/115
A	EP-A-0 005 370 (BICC-BURNDY) * Abstract; figures *	1,3	
A	US-A-2 625 578 (BURNDY) * Column 3, lines 4-14; figures *	2	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 3)
			H 01 R
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 10-09-1984	Examiner RAMBOER P.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			