(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 128 472**
A2

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **84106239.1**

(22) Date of filing: **30.05.84**

(51) Int. Cl.³: **H 01 R 31/06**, H 01 R 13/502

(30) Priority: **03.06.83 US 500982**

(43) Date of publication of application: **19.12.84**
Bulletin 84/51

(84) Designated Contracting States: **DE FR GB IT**

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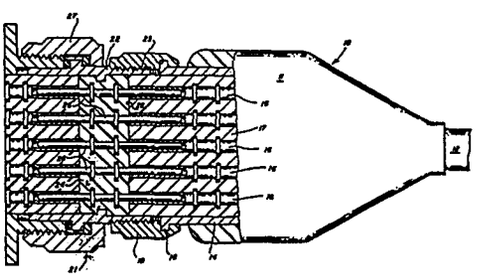
(54) Field repairable molded connector.

(57) A multi-pin connector having a molded termination end comprises a plurality of termination contacts (16) mounted in the termination end, and a plugshell assembly (21) including a plurality of plugshell contacts (26). Means (19, 27) are provided for removably securing the plugshell assembly to the termination end with the plugshell contacts in electrical communication with the termination contacts, and for mechanically securing the multi-pin connector to the molded termination end of another connector.



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FIELD REPAIRABLE MOLDED CONNECTOR

This invention relates to multi-pin molded connectors having contacts which are field repairable.

Molded connectors are well known in the art. Such connectors comprise a termination end including a plurality of male or female contacts which are positioned in the connector body which is molded onto the end of a cable. The molded connector end is advantageous since it provides a tamper-proof and weather-tight connection to the cable for the plurality of contacts. The individual contacts protrude beyond the face of connector, however, and are thus prone to being bent or otherwise damaged. In this event, it is necessary to replace the entire cable since the molded connector end is integral therewith. Since the cable may be 50 or more feet long, and the connector may comprise 100 or more contacts, such replacement is often expensive.

It would thus be desirable to provide a molded connector end for a cable in which the contacts and other components of the connector end can be repaired in the event of damage.

According to the invention, a molded connector comprises a first portion which is integrally molded onto a cable and a second removable portion which presents a plurality of contacts for mating engagement with another connector unit. In the event it is desired to change the contacts or other connector components which may become damaged, new connector elements may be substituted without replacing the entire molded connector.

It is therefore an object of the invention to provide a molded connector having connector contacts which are replaceable.

It is another object of the invention to provide a molded connector which includes a first portion molded onto a cable and a second portion comprising an assembly of removable and replaceable connector contacts.

These and other objects of the invention will become apparent from the following detailed description taken in conjunction with the accompanying drawing figures in which like reference numerals designate like or corresponding parts throughout the figures.

Figure 1 shows a sectional view of a molded connector according to the invention.

Figure 2 is an exploded view partially in section of the molded connector of Figure 1.

Referring now to the drawings, there is shown in Figure 1 a molded connector generally designated by the reference numeral 10. The connector comprises an enlarged molded end 11 which is secured to a cable 12 and is formed around a cylindrical shell 14. A plurality of termination contacts 16 are disposed within the cylindrical shell 14 and are held in place by a mass of insulating material 17. The shell 14 includes a flange 18 on which is mounted a coupling ring 19. Each of the termination contacts 16 is coupled to one of the conductors contained within the cable 12 in a manner which is well known in the art.

A plugshell contact assembly 21 includes an outer housing 22 having a portion 23 which is matable

with the coupling ring 19. The portion 23 may be threaded, or a bayonet or snap ring coupling depending on the form of the coupling ring 19. A mass of insulating material comprises the plugshell body 24 and a plurality of plugshell contacts 26 are held in position thereby. It will be seen that the plugshell contacts 26 are equal in number and are arranged to mate with the plurality of termination contacts 16. A coupling nut 27 is mounted on the plugshell body 22 and is used to mechanically secure the plugshell contact assembly 21 and the entire connector 10 to a mating connector unit (not shown). The mating connector unit may be the termination end of another cable, a panel mounted connector, or the like.

As shown, each of the plugshell contacts 26 has male connector portions on both ends, but those skilled in the art will recognize that contacts having male or female ends may be used as required. Likewise, although the termination contacts 16 are shown as having female ends, male ends may likewise be used. However, according to the invention, the termination contacts 16 should not protrude beyond the face 28 of the insulating material 17 so as to be protected thereby. The only contact portions of the connector 10 which are exposed are those portions of the plugshell contacts 26 which extend beyond the plugshell body 24. In this way, the plugshell contacts 26 are the only contacts in the connector which are susceptible to being broken or bent through mishandling. It will be appreciated that the plugshell contacts 26 are easily replaceable as a unit by loosening the coupling ring 19, uncoupling the plugshell assembly 21 from the molded connector end, and replacing the same with a new

assembly. It will further be appreciated that the coupling nut 27, which may become bent through mishandling, is also field repairable since by detaching the plugshell contact assembly 21 from the termination end, the coupling nut 27 may be removed from the rear of the plugshell contact assembly 21 and replaced.

Although the invention has been described in such full, clear and exact terms to enable one skilled in the art to make and use the same, various alterations and modifications will occurred in the art, which alterations and modifications are intended to be within the scope of the invention as defined by the appended claims.

1. A multi-pin connector having a molded termination end (11) wherein the connector comprises a coupling nut (27) for joining the connector to a mating connector and a plugshell assembly (21) having a plurality of contacts (26) with ends which are mounted in a body of insulating material (24) and extend from one side of the insulation material for connection with another connector, characterized in that the plugshell assembly (21) is removable from the termination end (11) and the plugshell contacts (26) extend from the other side of the insulation material (24) for coupling with termination contacts (16) in the termination end.

2. The multi-pin connector of claim 1 further characterized in that the termination contacts (16) have ends which are protected by the face (28) of the termination end.

3. The multi-pin connector of claim 2 further characterized in that the plugshell contacts (26) may be uncoupled as a unit from the molded termination end (11) and replaced by another plugshell assembly.

4. The multi-pin connector of claim 3 further characterized in that the means (19) for removably securing the plugshell assembly to the termination end comprises a threaded coupling ring.

5. The multi-pin connector of claim 5 further characterized in that the coupling nut (27) is removeable from the rear of the plugshell assembly.

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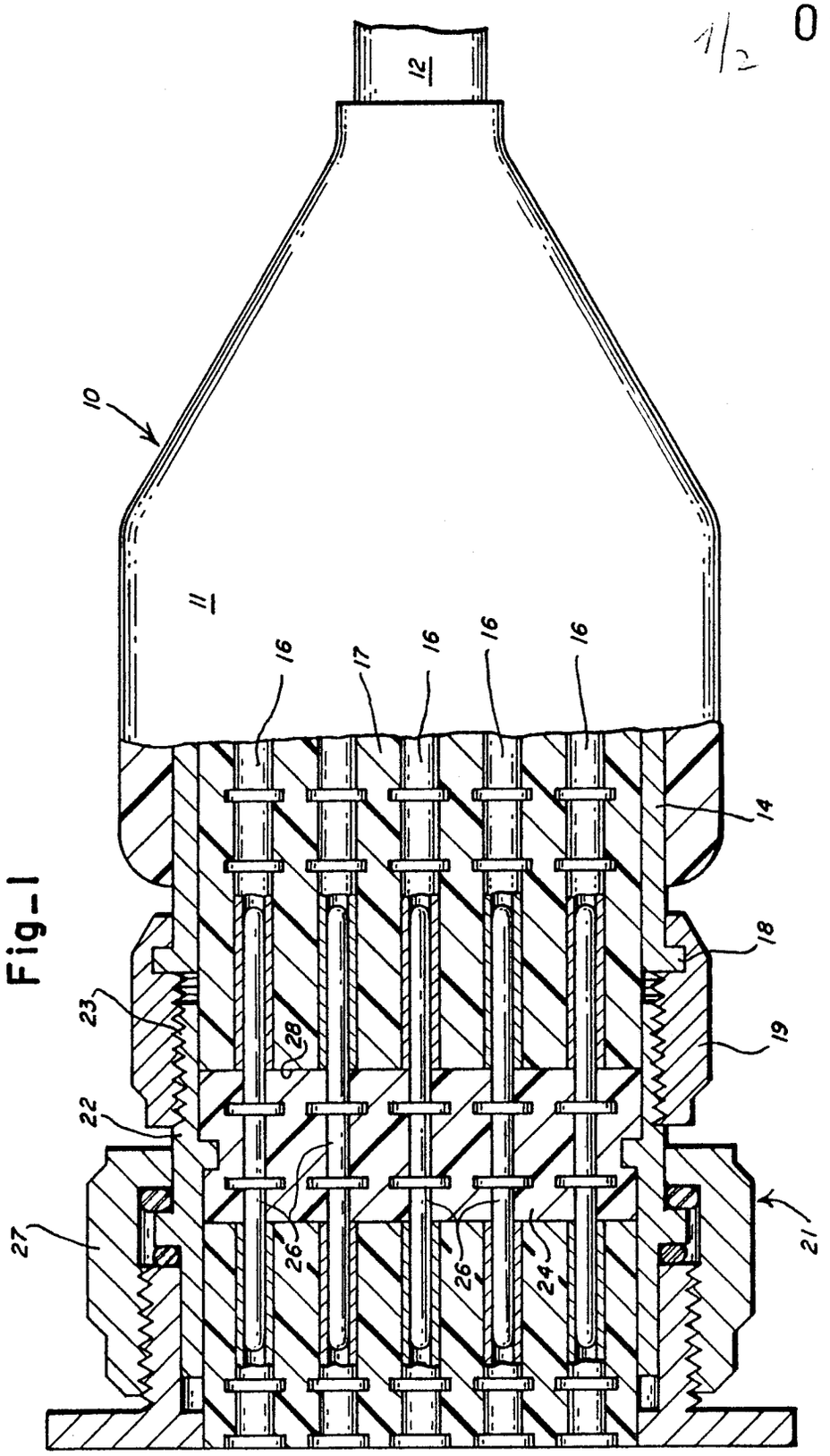

Fig_1

Fig_2