

(19)



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(11)

EP 0 788 670 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

29.07.1998 Bulletin 1998/31

(21) Application number: **95932892.3**

(22) Date of filing: **17.10.1995**

(51) Int Cl.⁶: **H01R 13/436**, H01R 13/52

(86) International application number:
PCT/IB95/00886

(87) International publication number:
WO 96/13079 (02.05.1996 Gazette 1996/20)

(54) **SEALABLE CONNECTOR ASSEMBLY HAVING SECONDARY LOCK**

ABDICHTBARE VERBINDERANORDNUNG MIT ZWEIFACHVERRIEGELUNG

**ENSEMBLE CONNECTEUR ETANCHE POURVU D'UN SYSTEME DE VERROUILLAGE
SECONDAIRE**

(84) Designated Contracting States:
DE FR GB IT

(30) Priority: **25.10.1994 GB 9421459**

(43) Date of publication of application:
13.08.1997 Bulletin 1997/33

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US-A- 3 594 696 **US-A- 4 973 268**
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Description

This invention relates to electrical connector housing assemblies and in particular to those connector assemblies having a secondary locking function and further to those housing assemblies that include seals for preventing external contamination from effecting the electrical interconnection therein.

It is conventional industry practice to incorporate multiple terminals into a single connector housing, thereby enabling mass connection and disconnection with mating terminals housed in a complementary connector housing. In high vibration environments, such as those faced by electrical connectors utilized in the automotive industry, it is necessary to incorporate a secondary locking feature into the housing to positively assure that the terminal is retained therein.

One such connector, described in U.S. Patent 4,973,268, includes an integrally-moulded, forwardly extending, resilient, cantilevered secondary locking arm that in its unbiased position extends into the terminal receiving passageway of the connector housing. As the terminal is inserted into the terminal receiving passage, the terminal interferes with the cantilevered arm and deflects the arm out of the way until the terminal is fully seated. Once fully seated, the cantilevered arm returns to its original position extending into the cavity and now behind a shoulder of the terminal, thereby preventing the terminal from being withdrawn. In order to assure the integrity of this retention, it is known to insert a locking tab behind the cantilevered arm so that it is not possible for the cantilevered arm to deflect out of the way where the arm would become disengaged from the terminal shoulder, thereby preventing the terminal from being removed.

A secondary locking structure of the type described above preforms its function admirably; however, in more and more applications it is necessary to also seal the electrical interconnection that is made between the mating terminals within the connector housings from contamination, such as that which would be splashed into an engine compartment of a vehicle. For complete and effective sealing it is necessary to seal both the mating housings and the secondary locking member that carries the tab. This is normally accomplished by incorporating separate and distinct seal elements that are fitted in their required places. Both the referenced document and US patent 5,328,382 (also of the type described) disclose connectors where a separate seal is disposed on a portion of the connector housing and held in place as a result of cooperation with the locking member, abutment or overlying captivation, such that sealing is formed therebetween.

US patent 3,594,696 discloses a connector having a rigid hollow housing closed at one end by an aperture wall through which terminals extend. A resilient material is moulded into the housing firmly embedding and retaining the terminals therein. The resilient material forms

a sealing lip to engage with the mating connector.

The separate seals create numerous problems during assembly. The connector may be assembled without the seals in place, which may not be detected until final assembly or the seals may be misplaced and not be available for assembly into the final connector product, thereby adding associated delay and inefficiencies in the assembly procedures. Therefore, it is an object of this invention to provide a electrical connector housing assembly, that when the secondary locking assembly is assembled therewith, the seals will be properly placed.

This object is accomplished by a connector according to claim 1. One embodiment provides an electrical connector assembly comprising a first connector half for interconnection with a complementary second connector half where at least one of the connector halves comprise a connector housing having at least one terminal receiving channel for retaining an electrical terminal therein, a shroud forwardly extending therefrom, and a locking device receivable within the shroud and in communication with the terminal receiving channel for retaining the terminals therein, characterized in that the locking device includes a seal, whereby a sealed interconnection is formed between the first and the second complementary connectors.

It is an advantage of this invention that the seal is incorporated into the locking device so that if the locking device is properly assembled, the secondary locking function will be achieved and the seals will be in their proper place.

It is another advantage of this invention that the seal may be integrally moulded to the locking device, thereby minimizing the number of separate pieces.

It is yet another advantage of this invention that by including a gate across the secondary locking member, inner and outer seals may be integrally formed about the locking device.

It is still another advantage of this invention that the secondary locking member may be formed to assure that the terminals are also fully and properly inserted into the connector housing.

It is a further object to provide a locking device with integral latches establishing a first position where the electrical terminals may be inserted into the housing while positively retaining the locking device and a second position obtainable once the terminals are fully seated in their proper locations where the secondary latching member is prevented from being inadvertently displaced to the second position.

The problem of assuring a preassembled position is met in a connector according to the present invention by providing a housing and a locking device with a locking latch therebetween to retain the housing and member together, wherein the locking latch comprises a catch having a forward surface engageable by a first abutment surface of a latch to prevent full insertion of the locking device and a second surface engageable by a second abutment surface facing opposite the direction

of insertion of the locking device to prevent dislodgement.

It is an advantage of the latching mechanism that it is simple in design, easy to operate and may be integrally incorporated into the relative components of the connector assembly.

It is yet another advantage of the latching mechanism between the locking device and the housing that when the locking device carries an integral seal the connector may be shipped in a latched and assembled package ready for use without the possibility of losing components.

The invention will now be described by way of example with reference to the drawings, where;

Figure 1 is an exploded view of an electrical connector assembly according to the present invention; Figure 2 is a partially assembled view of the receptacle connector half of Figure 1 showing the locking device in its first position; Figure 3 is a further assembled view of the electrical connector receptacle of Figure 2 showing the locking device in its fully latched position; and Figure 4 is a sectional view of the electrical connector receptacle half of Figure 3 including an electrical terminal therein.

With reference first to Figure 1, an electrical connector assembly according to the present invention is shown generally at 2. The electrical connector assembly 2 comprises a first connector half 4, which in this case is shown as a plug type connector and a second connector half 6, which in this case is shown as a receptacle connector half that is complementary to the first connector half 4. The first connector half 4 includes a first connector housing 8 having at least one terminal receiving channel 10 therein for receiving an electrical terminal (not shown). While in this embodiment the connector assembly 2 is shown incorporating terminal receiving cavities 10 aligned in a single row, it is fully envisioned that other arrangements of passageways, such as more or less rows containing more or less terminal receiving cavities, may be utilized.

In order to assure that the terminals that are received within the first connector housing 10 are reliably retained therein, a locking device 12 may be included. The locking device 12 includes locking tabs 14 that extend into the terminal receiving channels 10 when the locking device 12 is fully inserted into slot 16 of the housing 8 to assure the locking arms remain engaged with the terminals. In this embodiment, the locking device serves an anti-backout function by preventing the arms from being displaced; however, other configurations, such as where the locking device is in fact a secondary locking member that comes into direct engagement with the contacts or the locking device is omitted, are also envisioned. The fully inserted position is determined by insertion stop 18 of the secondary locking member 12

abutting the forward shoulder 20 of the first connector housing 8.

Disposed on the outer surface of the first connector housing 8 are a pair of alignment stabilizing rails 22 that assure the first connector housing is properly received within the second connector half 6, as will be described below. Further included on the outer surface of the first connector housing 8 is a rearwardly cantilevered latch arm 24. The latch arm 24 is formed integrally with the housing 8 and is resiliently depressible. Included at the end of the latch arm 24 is a locking track 26 formed to interact with the second connector half 6 to positively retain the first connector half therein. Located between the stabilizing rails 22 and the forward shoulder 20 of the connector housing 8 is a continuous peripheral surface that includes sealing surface 28.

The second connector half 6 includes a second connector housing 30, having a body portion 32 and a shroud portion 34, and a locking member 36, having a tubular body 38 profiled to be received within the shroud 34 of the housing 30. The tubular body 38 defines an interior portion 40 for receiving the first connector half 4 when the complementary connector halves 4, 6 are interconnected. An open notch 42 is formed in one side of the locking member 36 so that the alignment and stabilizing rails 22 and the latch 24 of the first connector half 4 may extend therethrough, as will be described below. At one end, a plurality of locking tabs 44, similar to those tabs 14 on the secondary lock 12 of the first connector half 4, extend for fitting into terminal receiving cavities 45 (Figure 4), as will be described below. Disposed about the outer circumference of the tubular body 38 of the secondary lock 36 is an outer seal 46. Within the interior 40 of the tubular body 38 of the secondary lock 36 is an inner seal 48 for snugly fitting about forward sealing surface 28 of the first connector housing 8. At least one guide 50 is included and extends outward from the tubular body 38 to be received within the shroud 34 of the second connector housing 30 for alignment purposes as the secondary lock 36 is inserted therein. Ramped latch members 52 also extend from the periphery to engage complementary members (not shown) along the inner surface of the shroud 34 for retaining the secondary lock 36 therein in a first position (Figure 2).

The locking member 36 includes latch members 54 made up of a first position arm 56 for establishing a first preassembled position where the locking member 36 is within the shroud 34, such that the terminals may be loaded into the housing 32. A second position retention arm 58 is included adjacent to the first position arm 56 for retaining the secondary lock 36 in its fully locked position, whereby terminals are prevented from being withdrawn therefrom (Figure 4). The workings of these latch arms will be more fully described with respect to Figures 2 and 3.

The second connector housing 30 has a shroud portion 34, that advantageously is integrally moulded therewith, that defines a shroud interior 60 where the second-

ary lock 36 is received. On one side of the shroud 34 is a bumped-out latching portion 62 that includes outer channels 64 for receipt of the guide 50 of the secondary lock to assure proper alignment during insertion and further to receive the rails 22 of the mating connector half 6 to assure stable interconnection and a central latching channel 66 for receipt of the cantilevered latch 24 in order to retain the connector halves 4,6 in a fully mated position.

Disposed on opposite sides of the shroud 34 are opposing side catches 68 that interact with the latches 54 of the secondary locking member 36. The side catches 68 include a first position stop surface 70 that interacts with the first position arm 56 to define the first pre-assembled position (Figure 2) and a second position retention surface 72 that interacts with the second position retention arm 58 to retain the secondary lock 36 in the fully locked position (Figure 3). Behind each of the catches 68 is an opening 74 enabling the arms 56,58 to interact with the catches 68.

As best seen in Figure 2, the first preassembled position is observed with the locking device 36 received within the shroud portion 34 of the second connector half 30. In this preassembled position, the locking tabs 52 have cammed-over corresponding tabs (not shown) within the interior 60 of the housing 30, thereby preventing the secondary lock 36 from dislodging. The first retention arm 56 includes an abutment lip 76 that faces the direction of insertion of the secondary locking member 36. This surface 76 comes into abutting contact with the first position stop surface 70 on the catch 68, thereby preventing further insertion of the locking device 36. At this point, the electrical terminals may be inserted into the terminal receiving cavities 45.

When the terminals are fully loaded and properly seated within the connector housing 32, the first position arms 56 must be deflected inward so that the abutment lips 76 are clear of the first position stop surfaces 70 on the side catches. The further insertion of the secondary lock member 36 causes the cam surface 82 on the second position retention arm 58 to deflect inward so that further insertion of the locking member 36 is possible. Once the locking member 36 is fully inserted, the second retention arm 58 will resiliently deflect out so that the retention lip 80 cooperates with the retention surface 72 to prevent dislodgement of the locking device 36 therefrom. Furthermore, as the locking device 36 is further inserted, the first position arm 56 will resiliently deflect outward, as the camming surface 78 moves along the edge of the second position retention surface 72 and about a ledge 84 of the notch 74, thereby preventing over-insertion of the locking device 36.

With reference now to Figure 4, the second connector half 6 is shown in fully-assembled, cross-sectional form. In this illustrative embodiment, a terminal 86, shown as a male tab terminal, is affixed to the end of a wire 88 and set within terminal receiving passageway 45. The terminal receiving passageway 45 is sealed

along the wire 88 by a seal member 90 that fits around the wire in a tight fit and interferes with the sides of the terminal receiving passageway 45. Cantilevered into the passageway 45 from the housing 32 and formed integrally therewith is a locking arm 92 having a forwardly facing shoulder 94 that fits behind the terminal 86 to prevent the terminal 86 from being withdrawn. The terminal 86 is inserted from the rear end 95 prior to fully inserting the locking device 36 to its second position (Figure 3) so that the locking tab 44 is outside the open space 96 behind the locking arm 92. This enables the arm 92 to resiliently deflect out of the way until the terminal 86 has passed into its fully seated position. Once the terminals 86 are fully seated, secondary lock 36 is moved into its second position by deflecting latches 54 so that the locking tab 44 fits into the opening 96 behind the locking arm 92, thereby preventing the locking arm 92 from deflecting away from the terminal 86. This assures that the terminal 86 is retained within the terminal receiving passageway 45 and cannot backout therefrom. A similar mechanism is incorporated into the first connector half 4. As can be seen from Figure 4, unless the terminal 86 is fully seated, the opening 96 will not accept the locking arm 44, thereby providing assurance that the terminal 86 is fully seated if the locking member 36 is inserted.

Along the secondary lock 36, below the window 42 are the inner and outer seals 46,48 which may be integrally formed therewith by a two step moulding process where the basic secondary lock 36 is formed of a first material in a first step and the seals 46,48 are subsequently formed thereupon in a second step with a second material. It may also be possible to form the seals 46,48 as a single element by including at least one gate 98 through which the molten seal material may pass through during the moulding process in order to form the other seal. As is known, various shoulders and tabs may be incorporated into the locking device 36 on the surfaces that correspond to the seals 46,48 to provide better retention thereof.

As can be seen in Figure 4, when the locking device 36 is fully received within the shroud 34 of the second connector housing 30, the outer seal 46 forms a sealed fit therebetween. The inner seal 48 is located about the interior 40 of the locking device 36, such that as the first connector housing 8 is inserted therein, the forward sealing surface 28 is retained therein in a sealed manner. This construction provides a sealed connector assembly 2, which assures that when mating end surfaces 83,84 of the second connector housing and the locking device are properly positioned relative each other that the seals and the terminals are properly positioned.

Advantageously then, the electrical connector assembly 2 according to the present invention provides seals that are integral with the locking device and are thereby prevented from being lost or damaged prior to assembly. Another advantage is that seal positioning is assured when the locking device is fully seated in the housing in order to prevent contact backout. Finally, a

latching mechanism is provided that enables preassembly of the connector housing in a first position where the locking device is prevented from further insertion or removal so that the terminals may be properly placed. The fully locked position may only be achieved by positively moving latch arms out of engagement so that the locking device may be fully seated, thereby preventing inadvertent further assembly.

Claims

1. An electrical connector (6) for mating with a complementary connector half (4) to form a connector assembly (2), comprising a connector housing (30) having at least one terminal receiving channel (45) for receiving an electrical terminal (86) therein where the housing is configured along the channel (45) to cooperate with the terminal (86) to retain the terminal (86); a secondary locking device (36) mountable to the connector housing (30) to assure that the terminal (86) is positively retained in the housing (30), and a seal (48) for forming a seal with the mating connector half (4); the electrical connector characterized in that the seal (48) is seated in a side wall of the secondary locking device, which wall is opposite to a side wall of the mating connector when the connectors are mated.
2. The electrical connector (6) of claim 1, further characterized in that the secondary locking device is adapted to receive the mating connector half therein.
3. The electrical connector (6) of claim 1 or claim 2 further characterized in that the secondary locking device includes a second seal for forming a seal with the connector housing such that a seal is formed with both the connector housing and the mating connector half.
4. The electrical connector (6) of any one of claims 1-3 wherein the seal for sealing with the mating connector half is integrally formed with the secondary locking device (36).
5. The electrical connector (6) of claims 3 or 4 wherein both seals are combined as a single piece.
6. The electrical connector (6) of any one of the preceding claims, wherein in order to retain the terminal in the connector housing a resilient latching arm (92) is included that extends into the terminal received channel (45) from a wall thereof and includes a shoulder (94) for abutting the terminal (86) when inserted therein and the secondary locking device (36) includes a tab (44) that fits between the latch arm (92) and the wall such that the latch arm (92)

is prevented from deflecting toward the wall out of abutment with the terminal (86), thereby assuring the terminal (86) is retained therein.

7. The electrical connector (6) of any one of the preceding claims, further characterized in that the housing (30) includes a shroud (34) and the secondary locking device (36) is telescopically received therein.
8. The electrical connector (6) of any one of the preceding claims further characterized in that the connector housing includes a catch having oppositely facing surfaces (70,72) and the locking device (36) includes oppositely directed abutment lips (76,80) where one of the abutment lips (76) is included on a resilient latch arm (56) and cooperates with one of the oppositely facing surfaces (70) to establish a first position between the connector housing and the secondary locking device and to prevent displacement to a second position therebetween until the resilient arm is deflected sufficiently to disengage the corresponding facing surface and abutment surface where at the second position the other facing surface and the other abutment surface cooperate to maintain the second position.
9. The electrical connector (6) of claim 3 further characterized in that the two seals (46,48) are moulded upon the secondary locking device (36) and joined together through a gate (98) in the locking device (36).

Patentansprüche

1. Elektrischer Verbinder (6) zum Zusammenstecken mit einer komplementären Verbinderhälfte (4) zur Bildung einer Verbindieranordnung (2), umfassend ein Verbindergehäuse (30) mit mindestens einem einen Anschluß aufnehmenden Kanal (45) zum Aufnehmen eines elektrischen Anschlusses (86) darin, wobei das Gehäuse entlang des Kanals (45) konfiguriert ist, mit dem Anschluß (86) zusammenzuwirken und den Anschluß (86) zu arretieren, eine Sekundärverriegelungseinrichtung (36), die an dem Verbindergehäuse (30) befestigt werden kann, um sicherzustellen, daß der Anschluß (86) formschlüssig im Gehäuse (30) arretiert ist, und eine Dichtung (48) zum Bilden einer Dichtung mit der Gegenverbinderhälfte (4); wobei der elektrische Verbinder dadurch gekennzeichnet ist, daß die Dichtung (48) in einer Seitenwand der Sekundärverriegelungseinrichtung sitzt, wobei sich die Wand gegenüber einer Seitenwand des Gegenverbinders befindet, wenn die Verbinder zusammengesteckt sind.

2. Elektrischer Verbinder (6) nach Anspruch 1, weiterhin dadurch gekennzeichnet, daß die Sekundärverriegelungseinrichtung ausgelegt ist, um darin die Gegenverbinderhälfte aufzunehmen.

3. Elektrischer Verbinder (6) nach Anspruch 1 oder 2, weiterhin dadurch gekennzeichnet, daß die Sekundärverriegelungseinrichtung eine zweite Dichtung zum Bilden einer Dichtung mit dem Verbindergehäuse enthält, so daß sowohl mit dem Verbindergehäuse als auch der Gegenverbinderhälfte eine Dichtung gebildet wird.

4. Elektrischer Verbinder (6) nach einem der Ansprüche 1 - 3, bei dem die Dichtung zum Abdichten mit der Gegenverbinderhälfte integral mit der Sekundärverriegelungseinrichtung (36) ausgebildet ist.

5. Elektrischer Verbinder (6) nach Anspruch 3 oder 4, bei dem beide Dichtungen zu einem einzigen Stück kombiniert sind.

6. Elektrischer Verbinder (6) nach einem der vorhergehenden Ansprüche, bei dem zum Arretieren des Anschlusses in dem Verbindergehäuse ein elastischer Rastarm (92) enthalten ist, der sich in den den Anschluß aufnehmenden Kanal (45) erstreckt, und zwar von einer Wand davon, und eine Schulter (94) enthält zum Anstoßen des Anschlusses (86) bei Einsetzen darin und die Sekundärverriegelungseinrichtung (36) eine Zunge (44) enthält, die zwischen den Rastarm (92) und die Wand paßt, so daß verhindert wird, daß der Rastarm (92) aus der Anstoßstellung an den Anschluß (86) heraus in Richtung der Wand ausgelenkt wird, wodurch sichergestellt wird, daß der Anschluß (86) darin arretiert ist.

7. Elektrischer Verbinder (6) nach einem der vorhergehenden Ansprüche, weiterhin dadurch gekennzeichnet, daß das Gehäuse (30) einen Schutzkragen (34) enthält und die Sekundärverriegelungseinrichtung (36) darin zusammenschiebbar aufgenommen ist.

8. Elektrischer Verbinder (6) nach einem der vorhergehenden Ansprüche, weiterhin dadurch gekennzeichnet, daß das Verbindergehäuse einen Sperrhaken mit in entgegengesetzte Richtungen weisenden Flächen (70, 72) aufweist und die Verriegelungseinrichtung (36) in entgegengesetzte Richtungen zeigende Widerlagerlippen (76, 80) enthält, wobei eine der Widerlagerlippen (76) an einem elastischen Rastarm (56) enthalten ist und mit einer der in entgegengesetzte Richtungen weisenden Flächen (70) zusammenwirkt, um eine erste Position zwischen dem Verbindergehäuse und der Sekundärverriegelungseinrichtung festzulegen und

um ein Verschieben in eine zweite Position dazwischen so lange zu verhindern, bis der elastische Arm ausreichend ausgebogen ist, um die entsprechende zugewandte Fläche und die Widerlagerfläche außer Eingriff zu bringen, wobei bei der zweiten Position die andere zugewandte Fläche und die andere Widerlagerfläche zusammenwirken, um die zweite Position aufrechtzuerhalten.

9. Elektrischer Verbinder (6) nach Anspruch 3, weiterhin dadurch gekennzeichnet, daß die beiden Dichtungen (46, 48) an die Sekundärverriegelungseinrichtung (36) angeformt sind und über ein Tor (98) in der Verriegelungseinrichtung (36) miteinander verbunden sind.

Revendications

1. Connecteur électrique (6) destiné à s'accoupler avec une moitié (4) de connecteur complémentaire pour former un ensemble connecteur (2), comprenant un boîtier (30) de connecteur présentant au moins un canal (45) de réception de borne pour y recevoir une borne électrique (86), le boîtier étant configuré le long du canal (45) pour coopérer avec la borne (86) afin de retenir la borne (86), un dispositif de verrouillage secondaire (36) susceptible d'être monté sur le boîtier (30) du connecteur pour faire en sorte que la borne (86) soit retenue par engagement positif dans le boîtier (30), et un joint d'étanchéité (48) pour former un joint étanche avec la moitié (4) du connecteur d'accouplement; le connecteur électrique étant caractérisé en ce que le joint d'étanchéité (48) est calé dans une paroi latérale du dispositif de verrouillage secondaire, laquelle paroi est opposée à une paroi latérale du connecteur d'accouplement lorsque les connecteurs sont accouplés.

2. Connecteur électrique (6) selon la revendication 1, caractérisé en outre en ce que le dispositif de verrouillage secondaire est conçu pour y recevoir la moitié du connecteur d'accouplement.

3. Connecteur électrique (6) selon la revendication 1 ou la revendication 2, caractérisé en outre en ce que le dispositif de verrouillage secondaire comporte un deuxième joint d'étanchéité pour former un joint étanche avec le boîtier du connecteur, de façon à former un joint étanche avec le boîtier du connecteur et la moitié du connecteur d'accouplement.

4. Connecteur électrique (6) selon l'une quelconque des revendications 1-3, dans lequel le joint d'étanchéité destiné à créer un joint étanche avec la moitié du connecteur d'accouplement est formé d'une pièce avec le dispositif de verrouillage secondaire

(36).

5. Connecteur électrique (6) selon les revendications 3 ou 4, dans lequel les deux joints d'étanchéité sont combinés en une seule pièce. 5
6. Connecteur électrique (6) selon l'une quelconque des revendications précédentes, dans lequel on prévoit un bras d'encliquetage élastique (92) pour retenir la borne dans le boîtier du connecteur, qui s'étend dans le canal (45) de réception de borne depuis une paroi de celui-ci, et comporte un épaulement (94) pour buter contre la borne (86) lorsque celle-ci y est insérée, et le dispositif de verrouillage secondaire (36) comporte une languette (44) qui s'ajuste entre le bras d'encliquetage (92) et la paroi de façon à ce que le bras d'encliquetage (92) ne puisse pas fléchir vers la paroi et cesser de buter contre la borne (86), en garantissant ainsi que la borne (86) y soit retenue. 10 15 20
7. Connecteur électrique (6) selon l'une quelconque des revendications précédentes, caractérisé en outre en ce que le boîtier (30) comporte un capot (34) et le dispositif de verrouillage secondaire (36) y est reçu de façon télescopique. 25
8. Connecteur électrique (6) selon l'une quelconque des revendications précédentes, caractérisé en outre en ce que le boîtier du connecteur comporte un doigt d'accrochage présentant des surfaces opposées (70, 72) et le dispositif de verrouillage (36) comporte des lèvres de butée (76, 80) de sens opposés, l'une des lèvres de butée (76) étant prévue sur un bras d'encliquetage élastique (56) et coopérant avec l'une des surfaces opposées (70) afin d'établir une première position entre le boîtier du connecteur et le dispositif de verrouillage secondaire et pour empêcher le déplacement vers une deuxième position entre ces derniers avant que le bras élastique n'ait suffisamment fléchi pour désengager la surface opposée et la surface de butée correspondantes, l'autre surface opposée et l'autre surface de butée coopérant, dans la deuxième position, pour maintenir la deuxième position. 30 35 40 45
9. Connecteur électrique (6) selon la revendication 3, caractérisé en outre en ce que les deux joints d'étanchéité (46, 48) sont moulés sur le dispositif de verrouillage secondaire (36) et réunis par l'intermédiaire d'un accès (98) dans le dispositif de verrouillage (36). 50

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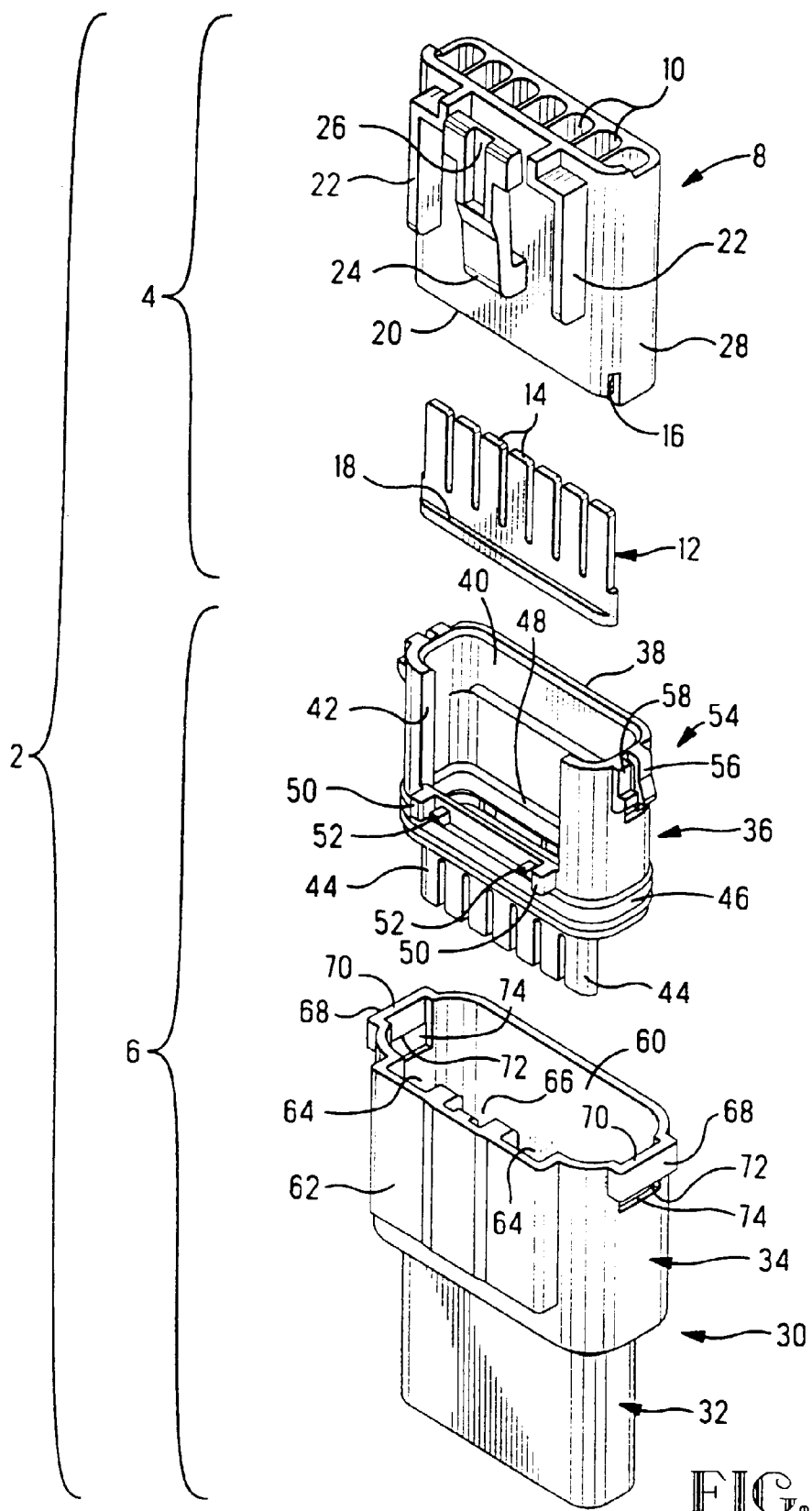


FIG. 1

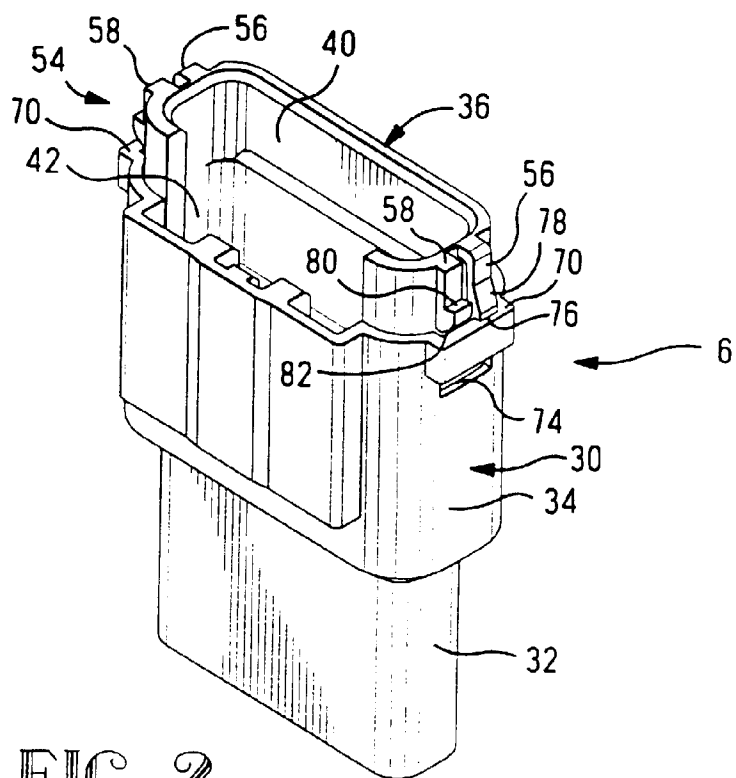


FIG. 2

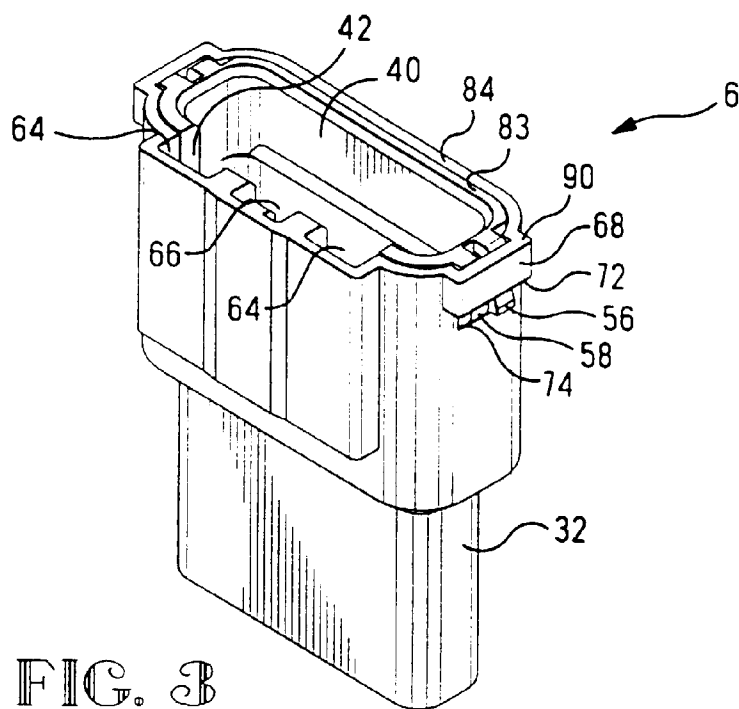


FIG. 3

