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(54) **COAXIAL CONNECTOR COUPLING UNIT**

VERBINDUNGSVORRICHTUNG FUER KOAXIALSTECKVERBINDER

ELEMENT D'ACCOUPLEMENT DE CONNECTEURS COAXIAUX

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Description

This invention relates to a coaxial connector coupling unit which has means for effecting electrical connection between the outer bodies of two mateable coaxial connector units.

Figure 1 is a schematic illustration showing a conventional connector configuration of a type known to us in which a pair of coaxial connectors each having an inner terminal 1, 2 and an outer body portion 3, 4 coaxial with the inner terminal. The inside diameter of one of the outer body portions 3 of one of the connector units is slightly less than the outside diameter of the other body portion 4 and the latter body portion has slits 5 in the axial direction to provide resilient integral contact tines 6 which ride over the body portion of the other mateable connector unit to electrically interconnect the two body portions as the inner terminals are brought into electrical contact. The inner terminals 1 & 2 may be formed by plug and socket elements. Such connector units may be designed to permit the inner terminal 1, 2 to be connected to the central conductor of a coaxial cable and the cylindrical outer body portion 3, 4 to be connected to the outer screen of the electrical cable or the connector units may be adapted for mounting on a printed circuit board or chassis unit such that both inner terminal and outer body can be coupled to a circuit on the board or in the chassis and permit connection with a cooperating connector unit.

The construction described in relation to Figure 1 requires the use of high tensile strength material and involves complex machining of the bodies.

European Patent Specification Number 0450988A1 describes a coaxial connector coupling unit, comprising a housing having an aperture to permit insertion of a mateable coaxial terminating unit having an inner terminal and an outer body, the housing having at least one electrically conductive resilient element, in the form of an elongate finger (languette 10, 310) which is located, in the housing and so arranged as to make resilient electrical contact with the outer body of the terminating unit upon insertion into the housing.

The present invention seeks to provide an improved coaxial connector coupling unit.

According to the invention there is provided a coaxial connector coupling unit, comprising a housing having an aperture to permit insertion of a mateable coaxial terminating unit having an inner terminal and an outer body, characterised in that the housing has at least one electrically conductive resilient element having opposite edge formations which are located or locatable, in the aperture in oppositely disposed recesses provided in the walls of the housing and so arranged as to make resilient electrical contact with the outer body of the terminating unit upon insertion into the housing.

By providing a housing having one or more resilient electrical contact capable of electrically connecting the outer body of a coaxial termination unit the construction

of such a terminating unit can be simplified.

The or each electrically conductive resilient element may be an elongate finger which is shaped such that when located in the housing it is disposed along the aperture. The elongate finger/s may be provided, at or near one end, with the edge formations in the form of two oppositely disposed outwardly extending lugs which are locatable in a pair of recesses which are disposed at the periphery of the housing.

The housing may be provided with a blind retention groove at the end of the aperture which permits shielding of the end of the finger. The groove may extend along the housing at opposite sides of the periphery of the aperture and the opposite bottoms of the groove may be longitudinally inwardly tapered towards the blind end, and the finger/s may be provided on opposite edges with one or more barbs which cut into the sides of the grooves due to forcible insertion of the finger and serve to retain the finger therein. The or each elongate finger may be shaped such that, when located in the housing, one end is inclined inwardly towards the axis of the aperture and is displaceable outwardly by contact with the outer body of a terminating unit when inserted in the aperture from one end.

The aperture in the housing may be a through aperture to permit insertion from opposite ends of a pair of mateable coaxial terminating units each having an inner terminal and an outer body, the resilient elements being arranged to make resilient electrical contact with the outer body of each of the terminating units upon their insertion into the housing thereby to effect electrical connection between the outer bodies when the inner terminals are brought into contact.

Advantageously the elongate finger may be provided with a resilient tongue, towards the end opposite to said one end, which tongue is inclined at an acute angle to the finger in a direction towards said one end such that when the finger is located in the housing, the tongue presents an inclined resilient contact which is displaceable outwardly by contact with the outer body of another terminating unit when inserted in the aperture from the end opposite from said one end. The resilient element/s may be stamped from sheet metal.

Preferably, two resilient elements are employed which are oppositely disposed along the through aperture.

In one advantageous construction there is included a retention cap adapted for location on the housing at one end of the through aperture, which cap has a through aperture for a coaxial cable end the cap serving to secure a cable terminating unit in the housing. The retention cap may be secured on the housing by mutually cooperating latching elements.

The invention also includes a coaxial connector including a coupling unit, as previously defined.

In order that the invention and its various other preferred features may be understood more easily, an embodiment thereof will now be described, by way of ex-

ample only, with reference to the drawings, in which:-

Figure 1 is a schematic illustration of an existing connector which is known to us and as previously described,

Figure 2 is a cross sectional view taken axially of a connector coupling unit constructed in accordance with the invention showing a cable terminating unit inserted from one end,

Figure 3 is a cross sectional view taken on an axial plane at right angles to the plane illustrated in Figure 2,

Figure 4 is a view taken from one end of the coupling unit showing the contacts,

Figure 5 is a view taken from the other end of the coupling unit without the contacts,

Figure 6 is a cross sectional view taken on the line A-A in Figure 2,

Figure 7 is a cross sectional view taken on the line B-B in Figure 2,

Figure 8 is a plan view of the resilient element in the form of an elongate finger shown in Figure 3,

Figure 9 is a side view of the resilient element of Figure 8,

Figure 10 is a perspective cut away view showing a coaxial cable terminating unit located in a coupling unit, and

Figure 11 is a perspective view of a terminating unit suitable for mounting on a printed circuit board and for mating with a connector coupling unit.

Referring to Figures 2 & 3 of the drawings a coaxial connector coupling unit comprises a housing 10 having a through aperture 11 which, as can be seen from Figures 6 & 7, has a partially circular cross section with oppositely disposed longitudinally extending rectangular extensions 12, 13, in each of which extensions there is removably located an electrically conductive resilient element 14. The resilient element is stamped from a sheet of metal, for example Beryllium Copper, and is in the form of a finger and its shape is illustrated in detail in Figures 8 & 9. The resilient element has at one end a pair of oppositely disposed projecting lugs 15, near to that end there is a pair of outwardly directed oppositely disposed barbs 16, and provided near to that end, a tongue 17 is formed so that it is inclined at an acute angle to the finger in a direction towards the other end. As can be seen from Figure 9 the finger is bent slightly downwardly from about its middle and is upwardly curved towards the other end. The fingers are each located in one of the rectangular extensions along the through aperture and the lugs 15 & 16 are engaged into oppositely disposed recesses 18, 19 provided at one end of the rectangular extensions. The recesses 18, 19 each adjoin a groove which extends longitudinally of the housing at the periphery of the through aperture oppositely disposed bottoms of which groove are inwardly tapered in a direction away from the recesses. The finger

is retained in the groove in the housing by forced insertion of the barbs biting into the edges of the groove to prevent withdrawal. The other end of the finger is located in a blind groove 20 provided at the other end of the rectangular extensions of the through aperture as can be seen more easily in Figure 10. In this way the finger end is shielded to prevent damage upon insertion of a terminating unit. The tongue 17 presents a resilient contact which engages a cylindrical outer body surface of a simple coaxial terminating unit 21 which in the illustrated embodiment is of the type for terminating the end of a coaxial cable 25. The terminating unit has an inner terminal 22 coupled to the central conductor of the coaxial cable end and the body is coupled to the outer screen of the coaxial cable end. The body is secured to the cable by means of a crimping sleeve 23 and is retained in the coupling unit by a cap 24 which is releasably securable to the housing 10 by any suitable means, not shown e.g. screws or a latching arrangements such as lugs cooperating with latching recesses.

It will be seen from the assembled arrangement of Figure 2 that the connector coupling unit with the terminating unit installed presents at the open end of the through aperture an entry for a terminating unit similar to 21 having a terminal for engaging the terminal 22 and when such a terminating unit is inserted the extremities of the fingers which are inclined inwardly towards the opening will be resiliently deflected outwardly by the body of the terminating unit and will make electrical contact therewith. In this way good electrical contact between the bodies of each of the terminating units can be ensured.

The embodiment described employs two resilient elements which are oppositely disposed but a single element or more than two elements can be provided and in the latter case these may be equiangularly disposed around the through aperture.

The resilient element 14 could be stamped with two spaced oppositely extending tongues, like tongue 17, for cooperation each with one of the terminating units, instead of the finger being bent downwardly from its middle. Alternatively instead of providing a tongue such as 17 the resilient finger element 14 could be bent such that it extends axially inwardly towards opposite extremities and is located in spaced blind grooves similar to groove 20 so that it is retained in the housing and is resiliently deflected upon entry of a terminating unit to make electrical contact with the outer body. The resilient element may be formed such that the force exerted by a tongue 17, or the axially inwardly bent portion near the extremity of the resilient element, on the outer body surface of a first coaxial terminating unit, inserted from one end, is greater than that which is exerted on a second terminating unit, inserted from the other end, and retains the first terminating unit therein during insertion and coupling of the second terminating unit. Such an arrangement obviates the need for a cap 24.

Figure 10 shows a coupling unit formed in a housing

which may form part of a larger electrical connector having additional coupling units and/or L.F. contacts to provide an integrated composite connector for coupling to a mateable connector. The invention includes a connector having a coupling unit provided therein with, and without, a coaxial terminating unit mounted therein.

Referring now to Figure 11 there is illustrated a coaxial terminating unit which is mateable with a coupling unit such as that shown in Figures 2 & 3 or 10 and which is designed to mount on a printed circuit board and in a housing. The terminating unit has an inner coaxial terminal (not shown) which has an extension 27 which extends through cap 24 and is inclined downwardly for contact with or securement to the track on the surface of a printed circuit board. A base plate 28 is formed integrally with a conductive outer body 29 of the terminating unit. The base plate has a downward extension 30 which at its extremity is in planar alignment with the extremity of extension 27 to permit contact with or securement to a different track on the surface of the same printed circuit board.

A terminating unit such as is illustrated in Figure 11 may be provided in a coupling unit such as is shown in Figures 2, 3 or 10 and the assembly may be mounted on a printed circuit board. In such an arrangement the coupling unit may be itself secured to the board or may be freely removable.

The coupling unit may be employed to couple two boards which are each provided with a terminating unit, such as is illustrated in Figure 11, by insertion of the termination units from opposite ends of the through aperture 11 such that their outer bodies are electrically interconnected via the resilient elements 14.

The invention also includes a coaxial connector formed by the combination of a coupling unit and a terminating unit which may be of a type either suitable for mounting on a printed circuit board or for terminating a coaxial cable.

The constructions described are simple to produce because the housing can be of moulded construction and the resilient fingers 14 are easily and inexpensively produced and are replaceable in the housing but can of course be fixedly mounted.

Claims

1. A coaxial connector coupling unit, comprising a housing (10) having an aperture (11) to permit insertion of a mateable coaxial terminating unit (21) having an inner terminal (22) and an outer body, characterised in that the housing has at least one electrically conductive resilient element (14) having opposite edge formations which are located or locatable, in the aperture in oppositely disposed recesses (18, 19) provided in the walls of the housing and so arranged as to make resilient electrical contact with the outer body of the terminating unit (21)

upon insertion into the housing.

2. A coupling unit as claimed in claim 1, wherein the or each electrically conductive resilient element (14) is an elongate finger (17) which is shaped such that when located in the housing (10) it is disposed along the aperture (11).
3. A coupling unit as claimed in claim 3, wherein the elongate finger/s is/are provided, at or near one end, with the edge formations in the form of two oppositely disposed outwardly extending lugs (15) which are locatable in the recesses (18, 19) which are disposed at the periphery of the housing.
4. A coupling unit as claimed in claim 2 or 3, wherein the housing is provided with a blind retention groove (20) at the end of the aperture which permits shielding of the end of the finger/s.
5. A coupling unit as claimed in claim 4, wherein the groove (20) is extended along the housing at opposite sides of the periphery of the aperture and the opposite bottoms of the groove are longitudinally inwardly tapered towards the blind end, the finger/s is/are provided on opposite edges with one or more barbs (16) which cut into the side of the groove (20) due to forcible insertion of the finger and serve to retain the finger therein.
6. A coupling unit as claimed in any one of claims 2 to 5, wherein the or each elongate finger is shaped such that, when located in the housing, one end is inclined inwardly towards the axis of the aperture and is displaceable outwardly by contact with the outer body of a terminating unit (21) when inserted in the aperture from one end.
7. A coupling unit as claimed in any one of the preceding claims, wherein the aperture (11) in the housing (10) is a through aperture to permit insertion from opposite ends of a pair of mateable coaxial terminating units (21) each having an inner terminal (22) and an outer body, the resilient element/s (14) being arranged to make resilient electrical contact with the outer body of each of the terminating units upon their insertion into the housing thereby to effect electrical connection between the outer bodies when the inner terminals are brought into contact.
8. A coupling unit as claimed in claim 7, wherein the or each resilient element (14) in the form of an elongate finger is provided with a resilient tongue (17), towards the end opposite to said one end, which tongue is inclined at an acute angle to the finger in a direction towards said one end such that when the finger is located in the housing, the tongue presents an inclined resilient contact which is displaceable

outwardly by contact with the outer body of another terminating unit when inserted in the aperture from the end opposite from said one end.

9. A coupling unit as claimed in claim 7 or 8, wherein the or each resilient element (14) is formed such that the force exerted on the outer body surface of a first coaxial terminating unit (21), inserted from one end, is greater than that which is exerted on a second terminating unit inserted from the other end.

10. A coupling unit as claimed in any one of the preceding claims, wherein the resilient element/s (14) is/are stamped from resilient sheet metal.

11. A coupling unit as claimed in any one of the preceding claims wherein two resilient elements (14) are employed which are oppositely disposed along the aperture 11.

12. A coupling unit as claimed in any one of the preceding claims including a retention cap (24) adapted for location on the housing (10) at one end of the through aperture (11), and which cap serves to secure a cable terminating unit (21) in the housing.

13. A coupling unit as claimed in claim 12, wherein the cap (24) has a through aperture for a coaxial cable end (25).

14. A coupling unit as claimed in claim 12, wherein the cap (24) has a through aperture and the terminating unit has an inner terminal (22) with an extension (27) which extends through the aperture for connection to an electrical circuit line.

15. A coupling unit as claimed in claim 14, wherein the extension (27) of the inner terminal (22) extends downwardly of the cap (24) to permit contact with or connection to a track of a printed circuit board.

16. A coupling unit as claimed in any one of claims 12 to 15, wherein the retention cap (24) is secured on the housing by mutually cooperating latching elements.

17. A coaxial connector comprising in combination, a coaxial connector coupling unit as claimed in any one of the preceding claims and a coaxial terminating unit mounted therein.

18. A connector as claimed in claim 17, wherein the terminating unit is adapted (23) for terminating a coaxial cable (25).

19. A connector as claimed in claim 17, wherein the terminating unit has terminals (27,30) which extend from the central coaxial contact (22) and from the

outer body (29).

20. A connector as claimed in claim 19, wherein the terminals (27,20) extend to extremities which are coplanar for contact with, or securement to, a different track on the surface of a printed circuit board.

21. A connector as claimed in any one of claims 17 to 20 provided in a common housing (10) together with one or more LF contacts to provide an integrated composite connector for coupling to a mateable connector.

15 Patentansprüche

1. Eine Verbindungsvorrichtung für Koaxialsteckverbinder, die ein Gehäuse (10) mit einer Öffnung (11) umfaßt, die das Einführen einer zusammenpassenden koaxialen Anschlußvorrichtung (21) mit einem inneren Anschluß (22) und einem äußeren Körper zuläßt, dadurch gekennzeichnet, daß das Gehäuse mindestens ein elektrisch leitendes elastisches Element (14) hat, das gegenüberliegende Kantenausbildungen hat, die sich in der Öffnung in gegenüberliegenden Vertiefungen (18, 19) der Gehäusewand befinden oder dorthin gebracht werden können, und so angeordnet ist, um mit dem äußeren Körper der Anschlußvorrichtung (21) beim Einführen in das Gehäuse einen elastischen elektrischen Kontakt herzustellen.

2. Eine Verbindungsvorrichtung nach Anspruch 1, wobei das oder jedes elektrisch leitende elastische Element (14) ein verlängerter Finger (17) ist, der so geformt ist, daß er, wenn er sich im Gehäuse (10) befindet, entlang der Öffnung (11) liegt.

3. Eine Verbindungsvorrichtung nach Anspruch 3, wobei der/die verlängerte Finger bei oder nahe an einem Ende Kantenausbildungen in Form von zwei gegenüberliegenden, nach außen verlaufenden Nasen (15) haben, die in den Vertiefungen (18, 19), die an der Peripherie des Gehäuses liegen, gebracht werden können.

4. Eine Verbindungsvorrichtung nach Anspruch 2 oder 3, wobei das Gehäuse eine blinde Haltenut (20) am Ende der Öffnung hat, die das Abschirmen des Fingers ermöglicht.

5. Eine Verbindungsvorrichtung nach Anspruch 4, wobei die Nut (20) sich entlang dem Gehäuse an den gegenüberliegenden Seiten der Peripherie der Öffnung erstreckt und die Unterteile der Nut längsseitig nach innen zum blinden Ende hin zulaufen, wobei der/die Finger an den gegenüberliegenden Kanten einen oder mehrere Widerhaken (16) hat/haben,

der/die beim Zwangseinführen des Fingers in die Seite der Nut (20) schneidet/schneiden und dazu dient/dienen, den Finger festzuhalten.

6. Eine Verbindungsvorrichtung nach einem der Ansprüche 2 bis 5, wobei der bzw. jeder verlängerte Finger so geformt ist, daß, wenn er sich im Gehäuse befindet, ein Ende nach innen zu der Achse der Öffnung hin geneigt ist und durch Kontakt mit dem äußeren Körper einer Anschlußvorrichtung (21) nach außen weggedrückt werden kann, wenn diese von einem Ende aus in die Öffnung eingeführt wird.

7. Eine Verbindungsvorrichtung nach einem der vorangegangenen Ansprüche, wobei die Öffnung (11) im Gehäuse (10) eine Durchgangsöffnung ist, die das Einführen zweier coaxialer Anschlußvorrichtungen (21) von den gegenüberliegenden Enden ermöglicht, wobei die coaxialen Anschlußvorrichtungen jeweils einen inneren Anschluß (22) und einen äußeren Körper haben, wobei das/die elastische/n Element/e (14) so angeordnet ist/sind, daß es/sie mit dem äußeren Körper jeder Anschlußvorrichtung bei seinem/ihrer Einführen in das Gehäuse einen elastischen elektrischen Kontakt herstellt/herstellen, um somit eine elektrische Verbindung zwischen den äußeren Körpern zu bewirken, wenn die inneren Anschlüsse miteinander in Kontakt gebracht werden.

8. Eine Verbindungsvorrichtung nach Anspruch 7, wobei das oder jedes elastische Element (14) in Form eines verlängerten Fingers zum Ende hin, das dem genannten einen Ende gegenüberliegt, eine elastische Zunge (17) hat, wobei die Zunge zum Finger in einem spitzen Winkel in Richtung des genannten einen Endes geneigt ist, so daß, daß wenn der Finger sich im Gehäuse befindet, die Zunge einen geneigten elastischen Kontakt darstellt, der durch Kontakt mit dem äußeren Körper einer anderen Anschlußvorrichtung bei deren Einführen in die Öffnung von dem Ende, das dem genannten einen Ende gegenüberliegt, nach außen weggedrückt, werden kann.

9. Eine Verbindungsvorrichtung nach Anspruch 7 oder 8, wobei das oder jedes elastische Element (14) so ausgebildet ist, daß die Kraft, die auf die Fläche des äußeren Körpers der ersten coaxialen Anschlußvorrichtung (21), die von dem einen Ende eingeführt wird, ausgeübt wird, größer als diejenige Kraft ist, die auf eine zweite Anschlußvorrichtung, die vom anderen Ende eingeführt wird, ausgeübt wird.

10. Eine Verbindungsvorrichtung nach einem der vorangegangenen Ansprüche, wobei das/die elastische/n Element/e (14) aus einem elastischen Blech

gestanzt ist/sind.

11. Eine Verbindungsvorrichtung nach einem der vorangegangenen Ansprüche, wobei zwei elastische Elemente (14) zum Einsatz kommen, die gegenüber entlang der Öffnung (11) angeordnet sind.

12. Eine Verbindungsvorrichtung nach einem der vorangegangenen Ansprüche, die eine Haltekappe (24) umfaßt, die zur Fixierung am Gehäuse (10) an einem Ende der Durchgangsöffnung (11) angepaßt ist, wobei diese Kappe dazu dient, eine Kabelanschlußvorrichtung (21) im Gehäuse zu sichern.

13. Eine Verbindungsvorrichtung nach Anspruch 12, wobei die Kappe (24) eine Durchgangsöffnung für ein Koaxialkabelende (25) hat.

14. Eine Verbindungsvorrichtung nach Anspruch 12, wobei die Kappe (24) eine Durchgangsöffnung und die Anschlußvorrichtung einen inneren Anschluß (22) mit einer Verlängerung (27) hat, die sich zur Verbindung mit einer elektrischen Schaltleitung durch die Öffnung erstreckt.

15. Eine Verbindungsvorrichtung nach Anspruch 14, wobei die einer Verlängerung (27) des inneren Anschlusses (22) sich von der Kappe (27) nach unten erstreckt, um einen Kontakt oder eine Verbindung mit einer Leiterbahn einer Platine zu ermöglichen.

16. Eine Verbindungsvorrichtung nach einem der Ansprüche 12 bis 15, wobei die Haltekappe (24) durch gemeinsam wirkende Schnappelemente festgehalten wird.

17. Ein Koaxialsteckverbinder in Verbindung mit einer Verbindungsvorrichtung für Koaxialsteckverbinder nach einem der vorangegangenen Ansprüche und einer darin eingebauten coaxialen Anschlußvorrichtung.

18. Ein Steckverbinder nach Anspruch 17, wobei die Anschlußvorrichtung zum Anschluß eines Koaxialkabels (25) angepaßt ist (23).

19. Ein Steckverbinder nach Anspruch 17, wobei die Anschlußvorrichtung Anschlüsse (27, 30) hat, die sich vom mittleren Koaxialkontakt (22) und vom äußeren Körper (29) erstrecken.

20. Ein Steckverbinder nach Anspruch 19, wobei die Anschlüsse (27, 30) sich zu Endpunkten erstrecken, die für den Kontakt oder zum Festhalten mit einer verschiedenen Leiterbahn auf der Oberfläche einer Platine in der selben Ebene liegen.

21. Ein Steckverbinder nach einem der Ansprüche 17

bis 20, der sich zusammen mit einem oder mehreren NF-Kontakten in einem gemeinsamen Gehäuse befindet, um so einen integrierten, zusammengesetzten Steckverbinder zur Verbindung mit einem zusammenpassenden Steckverbinder zu bieten.

5

Revendications

1. Unité d'accouplement de connecteurs coaxiaux, comprenant un boîtier (10) ayant une ouverture (11) pour permettre l'insertion d'une unité formant borne coaxiale correspondante (21) ayant une borne interne (22) et un corps externe, caractérisée en ce que le boîtier comporte au moins un élément (14) souple électriquement conducteur ayant des formations latérales opposées qui sont positionnées ou positionnables, dans l'ouverture, dans des logements (18,19) disposés de façon opposée prévus dans les parois du boîtier et adaptés pour réaliser un contact électrique et souple avec le corps externe de l'unité formant borne (21) lors de son insertion dans le boîtier. 10 15 20
2. Unité de couplage selon la revendication 1, dans laquelle le ou chaque élément (14) souple électriquement conducteur est constitué par un doigt allongé (17) qui est conformé de sorte que lorsqu'il est situé dans le boîtier (10) il est disposé le long de l'ouverture (11). 25 30
3. Unité de couplage selon la revendication 3, dans laquelle le ou les doigt(s) allongé(s) est/sont prévus à une extrémité ou proche de cette dernière, les formations latérales ayant la forme de deux cosses (15) s'étendant vers l'extérieur et disposées de façon opposée, les cosses étant positionnables dans les logements (18,19), qui sont disposés à la périphérie du boîtier. 35 40
4. Unité de couplage selon l'une des revendications 1 et 2, dans laquelle le boîtier est pourvu d'une rainure de rétention aveugle (20) à l'extrémité de l'ouverture, qui permet un blindage de l'extrémité du ou des doigt(s). 45
5. Unité de couplage selon la revendication 4, dans laquelle la rainure (20) s'étend le long du boîtier sur des côtés opposés de la périphérie de l'ouverture et les fonds opposés de la rainure sont intérieurement et longitudinalement coniques en direction de l'extrémité aveugle, le ou les doigt(s) est/sont prévus sur les côtés opposés avec une ou plusieurs découpes qui s'insèrent dans le côté de la rainure (20) en raison de l'insertion à force du doigt et servent à retenir le doigt dans celui-ci. 50 55
6. Unité de couplage selon l'une quelconque des re-

vendications 2 à 5, dans laquelle le ou chaque doigt allongé est conformé de sorte que lorsqu'il est situé dans le boîtier, une extrémité est inclinée intérieurement en direction de l'axe de l'ouverture et est déplaçable extérieurement par contact avec le corps externe d'une unité formant borne (21) par insertion dans l'ouverture à partir d'une extrémité.

7. Unité de couplage selon l'une quelconque des revendications précédentes, dans laquelle l'ouverture (11) dans le boîtier (10) est un trou traversant pour permettre l'insertion à partir d'extrémités opposées d'une paire d'unités formant borne coaxiale correspondante (21) ayant chacun une borne interne (22) et un corps externe, le ou les élément(s) élastique(s) (14) étant adaptés pour réaliser un contact électrique souple avec le corps externe de chaque unité formant borne lors de leur insertion dans le boîtier de manière à effectuer une connexion électrique entre les corps externes lorsque les bornes internes sont amenées en contact.
8. Unité de couplage selon la revendication 7, dans laquelle le ou chaque élément souple (14) en forme de doigt allongé est pourvu d'une langue souple (17), en direction de l'extrémité opposée de ladite extrémité, laquelle langue est inclinée selon un angle aigu par rapport au doigt dans une direction tournée vers ladite extrémité de sorte que lorsque le doigt est situé dans le boîtier, la langue réalise un contact élastique incliné qui est déplaçable extérieurement par contact avec le corps externe d'une autre unité formant borne, par insertion dans l'ouverture à partir de l'extrémité opposée à ladite extrémité.
9. Unité de couplage selon l'une des revendications 7 et 8, dans laquelle le ou chaque élément souple (14) est conformé de sorte que la force exercée sur la surface de corps externe d'une première unité (21) formant borne coaxiale, insérée à partir d'une extrémité, est supérieure à celle qui est exercée sur une deuxième unité formant borne insérée à partir de l'autre extrémité.
10. Unité de couplage selon l'une quelconque des revendications précédentes, dans laquelle le ou les élément(s) souple(s) (14) est/sont estampés à partir d'une feuille de métal souple.
11. Unité de couplage selon l'une quelconque des revendications précédentes, dans laquelle deux éléments souples (14) sont utilisés, lesquels éléments sont disposés de façon opposée le long de l'ouverture (11).
12. Unité de couplage selon l'une quelconque des revendications précédentes, comprenant un couver-

cle de maintien (24) adapté pour être positionné sur le boîtier (10) à l'une des extrémités du trou traversant (11), lequel capuchon sert à maintenir une unité formant borne pour câble (21) dans le boîtier.

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13. Unité de couplage selon la revendication 12, dans laquelle le capuchon (24) comporte un trou traversant pour une extrémité de câble coaxial (25).
14. Unité de couplage selon la revendication 12, dans laquelle le capuchon (24) comporte un trou traversant et l'élément formant borne comporte une borne interne (22) avec une extension (27) s'étendant à travers l'ouverture en vue de sa connexion avec une ligne de circuit électrique.
15. Unité de couplage selon la revendication 14, dans laquelle l'extension (27) de la borne interne (22) s'étend vers le bas du capuchon (24) pour permettre un contact ou une connexion avec une piste d'une carte de circuit imprimé.
16. Unité de couplage selon l'une quelconque des revendications 12 à 15, dans laquelle le couvercle de maintien (24) est fixé sur le boîtier par des éléments de verrouillage coopérant mutuellement.
17. Connecteur coaxial comprenant en combinaison, une unité de couplage de connecteur coaxial selon l'une quelconque des revendications précédentes et une unité formant borne coaxiale montée dans celle-ci.
18. Connecteur selon la revendication 17, dans lequel l'unité formant borne est adaptée (23) pour former une borne d'un câble coaxial (25).
19. Connecteur selon la revendication 17, dans lequel l'élément formant borne comporte des bornes (27,30) qui s'étendent à partir du contact coaxial central (22) et à partir du corps externe (29).
20. Connecteur selon la revendication 19, dans lequel les bornes (27,20) s'étendent à partir d'extrémités qui sont coplanaires en vue d'un contact avec, ou une fixation à, une piste différente sur la surface d'une carte de circuit imprimé.
21. Connecteur selon l'une quelconque des revendications 17 à 20, pourvu d'un boîtier commun (10) et d'un ou plusieurs contact à basse fréquence pour fournir un connecteur composite intégré pour le couplage à un connecteur appareillé.

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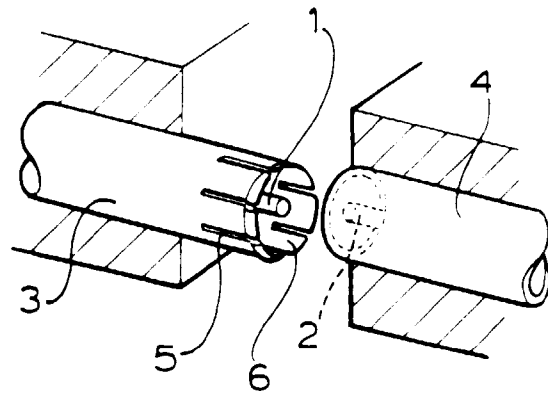


FIG 1

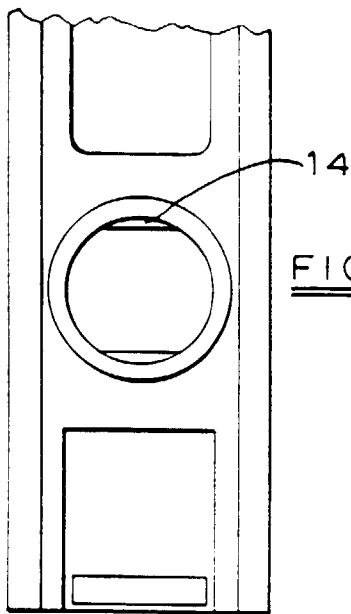


FIG 4

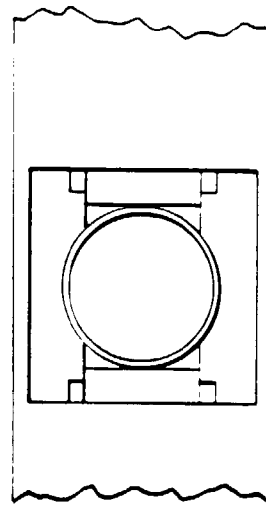


FIG 5

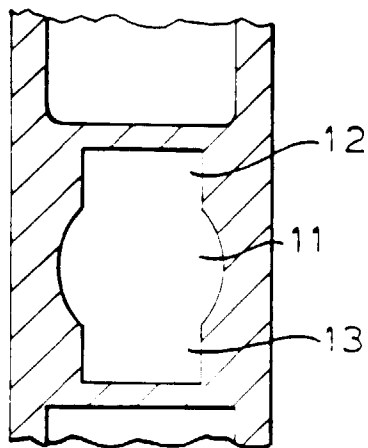


FIG 6

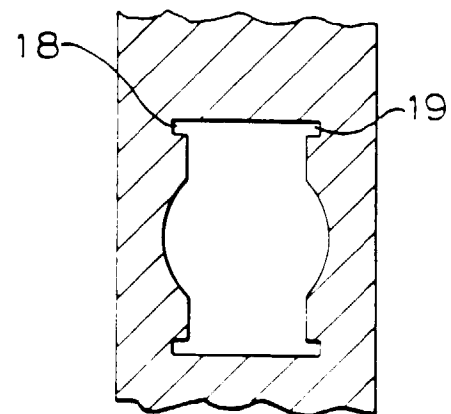


FIG 7

