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(54) **Electric connector**

Elektrischer Verbinder

Connecteur électrique

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Description

BACKGROUND OF INVENTION

Field of the Invention

[0001] The present invention relates to an electric connector for connecting, for example, an automobile audio system, and particularly relates to an electric connector satisfying ISO Standards for connecting various signal lines in a lump.

Related art

[0002] Conventionally, such an electric connector is configured as shown in Fig. 10 by way of example.

[0003] In Fig. 10, an electric connector 1 is mounted on a board 2 of an automobile audio system, for example, by solder dipping, and used for connecting various signal lines, that is, lines for a power supply, audio signals, ACC, BUP and speakers, to the vehicle body side.

[0004] A speaker connector 3 connected to speakers on the vehicle body side, and a signal line connector 4 connected to a power supply, etc. also on the vehicle body side are connected to the electric connector 1 mounted on the board 2 in a manner as described above, so that the on-vehicle speaker is connected to the automobile audio system formed on the board 2 while electric power is supplied to the automobile audio system, and audio signals are supplied to not-shown apparatus.

[0005] However, such an electric connector 1 is practically mounted on the board 2 as shown in Fig. 11.

[0006] That is, in Fig. 11, in the electric connector 1, signal terminals 5 are projected from a side surface of a substantially rectangular body 6 and mounted on a sub-board 7.

[0007] In addition, the bottom surface of the body 6 is disposed in opposition to the surface of the board 2 functioning as a main board, while wiring patterns formed on the sub-board 7 are electrically connected, by means of electric wires 8, to corresponding wiring patterns formed on the board 2.

[0008] It was therefore required to solder opposite ends of the electric wires 8 to the connection portions on the sub-board 7 and the board 2 respectively, so that there was a problem that the assembling working became troublesome and complicated and the assembling time was prolonged.

[0009] US 5,085,590 discloses a shielded stackable connector assembly for mounting on a printed circuit board. The stacked electrical connector assembly includes a bracket having first and second bracket members, and a shield member. Two electrical connectors are mounted on the bracket. An intermediate circuit board is provided for interconnecting solder pads to corresponding other solder pads. Further, a plurality of right angle pins are provided each projecting from both the

upper and lower surfaces of a housing.

[0010] US 4,686,607 discloses a daughter board/backplane assembly where daughter board connector elements include contacts that are forked at ends in boxes of plastic housing and bent horizontally to the other ends.

[0011] Taking the above mentioned problems into consideration, it is the object of the present invention to provide an electric connector in which a sub-board and a main board can be connected easily and in a short time with a simple configuration.

[0012] This object is solved by the invention as claimed in the independent claim 1.

[0013] Preferred embodiments of the invention are defined in the dependent claims.

[0014] According to an aspect of the present invention, provided is an electric connector comprising a body having a plurality of horizontally extending signal terminals, the signal terminals being projected, as connection terminals, from a side surface of the body, the body being mounted with the side surface opposed to a sub-board and with a bottom surface thereof opposed to a main board, characterized in that in order to connect wiring patterns formed on the sub-board to corresponding wiring patterns formed on the main board, the body is provided with a plurality of L-shaped-connection pins projected from the side and bottom surfaces of the body.

[0015] Preferably, in the electric connector according to the present invention, the above-mentioned connection pins are projected from the vicinity of the lower end of the side surface of the body.

[0016] According to the above-mentioned configuration, the connection pins for connecting the sub-board to the main board are provided in the body so as to project from the side surface and the bottom surface of the body from which also the signal terminals are projected. Accordingly, when the body is mounted on the sub-board, the signal terminals are connected to the connection portions formed on the sub-board respectively, while the connection pins projected from the side surface of the body are connected respectively to the wiring patterns formed on the sub-board.

[0017] Then, when the body is mounted on the main board, the connection pins projected from the bottom surface of the body are connected respectively to the corresponding wiring patterns formed on the main board.

[0018] In such a manner, it is not necessary to connect the connection portion of the sub-board to the connection portion of the main board through electric wires as in the background art. The connection pins provided in the body can be connected to predetermined wiring patterns, for example, by solder dipping or the like, when the body is mounted on the sub-board and the main board.

[0019] Accordingly, the working of wiring between the sub-board and the main board becomes unnecessary, so that it is possible to perform assembling easily. The

assembling cost can be therefore reduced, and the productivity is improved.

[0020] When the above-mentioned connection pins are projected from the vicinity of the lower end of the side surface of the body, the length of each connection pin can be minimized. Accordingly, the cost of parts for the connection pins can be reduced, and the space occupied by the connection pins in the body is minimized, so that the electric connector per se can be made small in size.

BRIEF DESCRIPTION OF DRAWINGS

[0021]

Fig. 1 is a front view illustrating an embodiment of an electric connector according to the present invention;

Fig. 2 is a bottom view illustrating the electric connector of Fig. 1;

Fig. 3 is a side view illustrating the electric connector of Fig. 1;

Fig. 4 is a sectional view taken on line Y-Y in the electric connector of Fig. 1;

Fig. 5 is a sectional view taken on line X-X in the electric connector of Fig. 1;

Fig. 6 is a schematic enlarged view showing a state of connection between first and second connectors in the electric connector of Fig. 1;

Fig. 7 are views showing a conversion connector to be connected to the second connector in the electric connector of Fig. 1, in which: (A) is a front view; (B), a plan view; (C), a side view; and (D), a back view; Fig. 8 is a sectional view taken on line Z-Z of the conversion connector of Fig. 7;

Fig. 9 is a schematic sectional view showing a state in which the electric connector of Fig. 1 is mounted on a main board;

Fig. 10 is a schematic view showing a use state of an example of electric connectors in the background art; and

Fig. 11 is an enlarged sectional view showing a state in which the electric connector of Fig. 10 is mounted on a board;

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0022] The present invention will be described in detail based on an embodiment shown in the drawings.

[0023] Figs. 1 to 9 show the configuration of an embodiment of an electric connector according to the present invention.

[0024] In Figs. 1 to 3, an electric connector 10 is a connector satisfying ISO Standards and for connecting an automobile audio system. The electric connector 10 is constituted by a body 12 having a bottom surface to be put on a sub-board 11 (see Fig. 2), a first connector

13 constituted by two 8-pin connectors 13a and 13b arranged in the body 12, a second connector 14 constituted by one 5-pin connector, and a conversion connector 20 (see Figs. 7 and 8) to be attached to the second connector 14.

[0025] The body 12 is formed, for example, of molded resin or the like, and designed so that its bottom surface is in contact with the upper surface of the sub-board 11 when the body 12 is mounted on the sub-board 11.

[0026] The first connector 13 has a pair of 8-pin connectors 13a and 13b. The connector 13a constitutes a connector for speakers, while the connector 13b constitutes a connector for A parts.

[0027] Each of the connectors 13a and 13b has contact pins 13c penetrating the bottom of the body 12 vertically, as shown in Fig. 4.

[0028] The second connector 14 is constituted by one 5-pin connector, having conversion contact pins 14a arranged at equal intervals and penetrating the bottom of the body 12 vertically, as shown in Fig. 5.

[0029] Here, as shown in Fig. 6, the second connector 14 is designed so that the fourth contact pin from the top in Fig. 6 is connected to the seventh pin 13d of the A-part connector 13b of the first connector 13, while the second contact pin is connected to the fourth pin 13e of the A-part connector 13b of the first connector 13, and to the third pin 13f which is an unused connection terminal as an unused pattern. This connection may be performed through a lead portion provided in the electric connector 10, or performed through an electrically conductive pattern formed on the sub-board 11.

[0030] Further, in the second connector 14, the first contact pin and the fifth contact pin are connected, for example, to the ACC connection terminals of a circuit formed on the sub-board 11.

[0031] The above-mentioned contact pins 13c and 14a are formed of an electric conductor. One ends of those contact pins 13c and 14a are projected from the side surface of the body 12 so that they can be inserted into through holes provided in the sub-board 11 when the body 12 is mounted on the sub-board 11 and they can be electrically connected to the back-side edge portions of the through holes by soldering. The other ends of the contact pins 13c and 14a are projected horizontally inside the body 12, so that the other ends of those pins come into contact with contact portions of a connection connector 16 and a conversion connector 20 correspondingly (see Fig. 5) when the connectors 16 and 20 are connected.

[0032] As shown in Figs. 1 and 2, the above-mentioned L-shaped connection pins 15 (fifteen pins 15 in the case illustrated in the drawings) are arranged side by side in the transverse direction. As shown in Fig. 4, one ends of the connection pins 15 are projected from the side surface (the right side surface in Fig. 4) from which also the contact pins 13c of the body 12 are projected, while the other ends of the connection pins 15 are projected from the bottom surface (the lower surface

in Fig. 4) of the body 12. At that time, the projecting positions of the opposite ends of the connection pins 15 are disposed close to the corner to thereby reduce the length of the connection pins 15 as much as possible.

[0033] Figs. 7 and 8 show the conversion connector 20 for short-circuiting connection pins selectively when the conversion connector 20 is attached to the above-mentioned second connector 14.

[0034] The conversion connector 20 is constituted by a body 21 which can be inserted into a hollow portion of the second connector 14 opened horizontally, four insertion portions 22 in the inside of the body 21 which are opened horizontally so that one ends of the conversion connection pins 14a of the second connector 14 can be fitted into those insertion portions 22, and contact portions 23 attached in the insertion portions 22 respectively.

[0035] Here, the above-mentioned body 21 has two projecting strip portions 21a extending horizontally along the opposite side edge portions of the flat side surfaces of the body 21.

[0036] In addition, the contact portions 23 of the conversion connector 20 are designed so that the contact portions 23 to be attached to the first and second ones of the four insertion portions 22 are formed integrally with each other while the connection portions 23 to be attached to the third and fourth insertion portions are formed integrally with each other, as shown in Fig. 8.

[0037] Consequently, the conversion connector 20 is attached to the second connector 14 while being inserted selectively into the hollow portion of the second connector 14 so that the first contact portion 23 of the conversion connector 20 engages with the first contact pin 14a of the second connector 14, or the first contact portion 23 engages with the second contact pin 14a of the second connector 14.

[0038] At that time, when the conversion connector 20 is attached to the second connector 14, the above-mentioned projecting strip portions 21a are fitted selectively into a pair of recess portions 14b or 14c provided on one side of the hollow portion of the second connector 14 so that the direction of attachment of the conversion connector 20 is determined, and the position of the conversion connector 20 in the longitudinal direction (in the direction of arrangement of contact pins 14a) is restricted.

[0039] The electric connector according to the embodiment of the present invention is configured as mentioned above. When the electric connector 10 is attached to the sub-board 11, the side surface of the body 12 is mounted on the front surface of the sub-board 11 as shown in Fig. 2 so that one ends of the respective contact pins 13c and 14a and the connection pins 15 are inserted into through holes (not shown) provided in the sub-board 11 respectively. Then, the one ends of the respective contact pins 13c and 14a and the connection pins 15 are soldered to the opposite-side edge portions of the through holes of the sub-board 11, for example, by solder dipping or the like, so that the pins can be elec-

trically connected to a circuit formed on the back surface of the sub-board 11.

[0040] The electric connector 10 according to this embodiment of the present invention is thus configured. When the electric connector 10 is mounted on the sub-board 11, the bottom of the body 12 is put on the upper surface of the sub-board 11 so that the lower ends of the contact pins 13c and 14a are inserted into through holes (not shown) provided in the sub-board 11 respectively. Then, the lower ends of the contact pins 13c are soldered at the lower ends of the through holes of the sub-board 11 respectively, for example, by solder dipping or the like, so that the contact pins 13c are electrically connected to a circuit formed on the lower surface of the sub-board 11.

[0041] Consequently, the connection terminals of the connectors 13a and 13b of the first connector 13 except the third, fourth and seventh pins of the connector 13b, are connected to the connection terminals of the circuit formed on the sub-board 11 respectively, while the third pin 13f, the fourth pin 13e and the seventh pin 13d of the connector 13b are connected to the second and fourth contact pins 14a of the second connector 14 through a lead portion provided in the electric connector 10 or an electrically conductive pattern formed on the sub-board 11.

[0042] Further, the first and fifth contact pins 14a of the second connector 14 are connected to the ACC connection terminal of the circuit formed on the sub-board 11.

[0043] The connection pins 15 are connected respectively to wiring patterns formed on the sub-board 11.

[0044] Thus, the mounting operation onto the sub-board 11 is completed.

[0045] Next, when the electric connector 10 mounted on the sub-board 11 in such a manner is incorporated into various apparatus, the electric connector 10 is mounted on a main board 18 sideways near an aperture portion of a chassis 17 of the apparatus as shown in Fig. 9. At that time, the electric connector 10 is mounted on the top of the main board 18 while the side surface of the body 12 of the electric connector 10 from which the other ends of the L-shaped connection pins 15 are projected is made to face the main board 18, so that the respective connection pins 15 are inserted into through holes (not shown) provided in the main board 18. Then, the other ends of the respective connection pins 15 are soldered to the lower edge portions of the through holes of the main board 18, for example, by solder dipping or the like, respectively, so that the connection pins 15 can be electrically connected to a circuit formed on the back surface of the main board 18.

[0046] Consequently, the respective connection pins 15 connect the wiring patterns formed on the sub-board 11 to the corresponding wiring patterns formed on the main board. Thus, the connection between the sub-board 11 and the main board 18 is completed.

[0047] Then, the conversion connector 20 is selec-

tively attached to the second connector 14 as described above, in accordance with the wire distribution of a vehicle-side connection plug (not shown) connected to the first connector 13 of the electric connector 10, which wire distribution determined in accordance with automobile makers. Consequently, ACC is selectively connected to the fourth pin 13e or the seventh pin 13d of the A-part connector 13b of the first connector 13 in accordance with the position where the conversion connector is attached.

[0048] In such a manner, the vehicle-side connection plugs are inserted into the respective connectors 13a and 13b of the first connector 13. Thus, designated electrical connection of the electric connector 10 mounted on the sub-board 11 is effected.

[0049] Here, the wiring patterns formed on the sub-board 11 are connected to the corresponding wiring patterns formed on the main board 18 through the L-shaped connection pins 15 provided in the body 12 when the electric connector 10 is mounted on the main board 18 on which the electric connector 10 is to be mounted. Accordingly, it is possible to make the connection between the sub-board 11 and the main board 18 easily without soldering the connection portions of the sub-board 11 and the main board 18 unlike in the background art. Therefore, the assembling working becomes easy, and the assembling time is reduced. Accordingly, the assembling cost can be reduced, and the productivity is improved.

[0050] Although the above-mentioned embodiment was described about a connector in accordance with the ISO Standards for connecting an automobile audio system, the present invention is not limited, but it is a matter of course that the invention is applicable to any electric connector which required change-over in wirings in various apparatus.

[0051] As described above, according to the present invention, the connection pins for connecting the sub-board to the main board are provided in the body so as to project from the side surface and the bottom surface of the body from which also the signal terminals are projected. Accordingly, when the body is mounted on the sub-board, the signal terminals are connected to the connection portions formed on the sub-board respectively, while the connection pins projected from the side surface of the body are connected respectively to the wiring patterns formed on the sub-board.

[0052] Then, when the body is mounted on the main board, the connection pins projected from the bottom surface of the body are connected respectively to the corresponding wiring patterns formed on the main board.

[0053] In such a manner, it is not necessary to connect the connection portion of the sub-board to the connection portion of the main board through electric wires as in the background art. The connection pins provided in the body can be connected to predetermined wiring patterns, for example, by solder dipping or the like, when

the body is mounted on the sub-board and the main board.

[0054] Accordingly, the working of wiring between the sub-board and the main board becomes unnecessary, so that it is possible to perform assembling easily. The assembling cost can be therefore reduced, and the productivity is improved.

[0055] When the above-mentioned connection pins are projected from the vicinity of the lower end of the side surface of the body, the length of each connection pin can be minimized. Accordingly, the cost of parts for the connection pins can be reduced, and the space occupied by the connection pins in the body is minimized, so that the electric connector per se can be made small in size.

[0056] Thus, according to the present invention, it is possible to provide an extremely superior electric connector in which a sub-board and a main board can be connected easily and in a short time with a simple configuration.

Claims

1. An electric connector comprising:

a body (12) having a bottom surface, said body being mounted to a sub-board (11) and, with said bottom surface, to a main board (18); and

a plurality of horizontally extending signal terminals (13c, 14a) serving as connection terminals; and

a plurality of L-shaped connection pins (15) to connect wiring patterns formed on said sub-board (11) to corresponding wiring patterns formed on said main board (18);

characterised in that

said plurality of L-shaped connection pins (15) is provided in said body (12) such that the pins are projected from the bottom surface and a side surface of said body (12), said side surface being a surface of the body with which the body is mounted to said sub-board (11), said signal terminals (13c, 14a) being projected from said side surface.

2. The electric connector according to claim 1, characterised in that said L-shaped connection pins (15) are projected from the vicinity of a lower end of a side surface of said body and from the vicinity of a side edge of the bottom surface of said body.

3. The electric connector according to claims 1 or 2, characterised in that said plurality of signal terminals includes contact pins (13c) of a pair of connectors (13a, 13b).

4. The electric connector according to claim 3, **characterised in that** one (13a) of said pair of connectors constitutes a connectors for speakers.
5. The electric connector according to claims 3 or 4, **characterised in that** one (13b) of said pair of connectors constitutes an A-part connector.
6. The electric connector according to claims 1 to 5, **characterised in that** the ends of said signal terminals (13c, 14a) being projected from said side surface can be inserted into through holes of said sub-board (11) and can be electrically connected to back-side edge portions of said through holes.
7. The electric connector according to claims 1 to 6, **characterised by** a conversion connector (20) for selectively short-circuiting L-shaped connection pins (15) when said conversion connector (20) is attached to a second connector (14).
8. The electric connector according to claim 7, **characterised in that** said second connector (14) has conversion contact pins (14a) penetrating the bottom of the body (12) vertically.
9. The electric connector according to one of claims 1 to 8, **characterised in that** the electric connector is arranged for connecting an automobile audio system.
10. The electric connector according to one of claims 1 to 9, **characterised in that** the electric connector satisfies ISO standards.

Patentansprüche

1. Elektrischer Verbinder, der umfasst:

einen Körper (12) mit einer unteren Fläche, wobei der Körper an einer Teil-Leiterplatte (11) und mit der unteren Fläche an einer Haupt-Leiterplatte (18) montiert wird; und

eine Vielzahl sich horizontal erstreckender Signalanschlüsse (13c, 14a), die als Verbindungsanschlüsse dienen; und

eine Vielzahl L-förmiger Verbindungsstifte (15), die Verdrahtungsmuster, die auf der Teil-Leiterplatte (11) ausgebildet sind, mit entsprechenden Verdrahtungsmustern verbinden, die auf der Haupt-Leiterplatte (18) ausgebildet sind;

dadurch gekennzeichnet, dass:

die Vielzahl L-förmiger Verbindungsstifte (15)

in dem Körper (12) so vorhanden sind, dass die Stifte von der unteren Fläche und einer seitlichen Fläche des Körpers (12) vorstehen, wobei die seitliche Fläche eine Fläche des Körpers ist, mit der der Körper an der Teil-Leiterplatte (11) montiert wird, wobei die Signalanschlüsse (13c, 14a) von der seitlichen Fläche vorstehen.

2. Elektrischer Verbinder nach Anspruch 1, **dadurch gekennzeichnet, dass** die L-förmigen Verbindungsstifte (15) aus der Nähe eines unteren Endes einer seitlichen Fläche des Körpers und aus der Nähe einer seitlichen Kante der unteren Fläche des Körpers vorstehen.
3. Elektrischer Verbinder nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Vielzahl von Signalanschlüssen Kontaktstifte (13c) eines Paares Verbinder (13a, 13b) enthält.
4. Elektrischer Verbinder nach Anspruch 3, **dadurch gekennzeichnet, dass** einer (13a) des Paares Verbinder einen Verbinder für Lautsprecher bildet.
5. Elektrischer Verbinder nach Anspruch 3 oder 4, **dadurch gekennzeichnet, dass** einer (13b) des Paares Verbinder einen A-Teil-Verbinder bildet.
6. Elektrischer Verbinder nach den Ansprüchen 1 bis 5, **dadurch gekennzeichnet, dass** die Enden der Signalanschlüsse (13c, 14a), die von der seitlichen Fläche vorstehen, in Durchgangslöcher der Teil-Leiterplatte (11) eingeführt werden und elektrisch mit hinteren Randabschnitten der Durchgangslöcher verbunden werden können.
7. Elektrischer Verbinder nach den Ansprüchen 1 bis 6, **gekennzeichnet durch** einen Umwandlungsverbinder (20), der L-förmige Verbindungsstifte (15) selektiv kurzschließt, wenn der Umwandlungsverbinder (20) an einem zweiten Verbinder (14) angebracht wird.
8. Elektrischer Verbinder nach Anspruch 7, **dadurch gekennzeichnet, dass** der zweite Verbinder (14) Umwandlungs-Kontaktstifte (14a) aufweist, die die Unterseite des Körpers (12) vertikal durchdringen.
9. Elektrischer Verbinder nach einem der Ansprüche 1 bis 8, **dadurch gekennzeichnet, dass** der elektrische Verbinder zum Anschließen eines Kraftfahrzeug-Audiosystems eingerichtet ist.
10. Elektrischer Verbinder nach einem der Ansprüche 1 bis 9, **dadurch gekennzeichnet, dass** der elektrische Verbinder ISO-Standards erfüllt.

Revendications

1. Convoyeur comprenant une glissière fixe en boucle fermée (1) pour une chaîne transporteuse sans fin (51) munie de tocs d'entraînement (3) dont l'espacement (a) le long de la glissière de guidage (1) est réglable, qui est composé de la glissière de guidage (1) fixe qui guide des galets de guidage (65) montés sur des axes (B) pour les tocs d'entraînement (3) et d'une glissière curviligne (11) dont la position peut être modifiée, qui guide des axes intermédiaires (A) munis de galets de guidage (61) et qui compte plusieurs segments de glissière pouvant pivoter ou être déplacés (21, 23, 29, 31) et une roue d'entraînement (17) pour entraîner la chaîne transporteuse (51), **caractérisé en ce que** la glissière incurvée (11) comprend un premier segment de glissière fixe (15) entourant l'unique roue d'entraînement (17), **en ce que** les extrémités des segments de glissière pouvant pivoter ou être déplacés (21, 23, 29, 31) sont reliées entre elles au moyen d'articulations (25, 27, 33) et au segment de glissière fixe (15) au moyen d'articulations (19, 35), et **en ce que** la totalité des segments de glissière (15, 21, 23, 29, 31) forme la glissière curviligne (11) fermée dont la position peut être modifiée.
2. Convoyeur selon la revendication 1, **caractérisé en ce que** le deuxième segment de glissière (21) auquel se raccordent les troisième (23) et quatrième (29) segments de glissière est relié de manière articulée au premier segment de glissière (15), et **en ce que** la glissière de guidage (11) est fermée par le cinquième segment de glissière (31) dont l'une des extrémités est reliée au premier segment de glissière (15).
3. Convoyeur selon la revendication 1 ou 2, **caractérisé en ce que** le troisième segment de glissière (23) qui est situé entre le deuxième (21) et le troisième (29) segment de glissière peut être déplacé essentiellement perpendiculairement à une droite reliant les deux extrémités du troisième segment de glissière (23).
4. Convoyeur selon la revendication 3, **caractérisé en ce que** le deuxième segment de glissière (21) situé entre le premier segment de glissière (15) fixe et le troisième segment de glissière (23) pouvant être déplacé essentiellement parallèlement est fixé de manière articulée au premier segment de glissière (15), de façon à pouvoir pivoter autour de l'articulation fixe (19).
5. Convoyeur selon l'une des revendications 1 à 4, **caractérisé en ce que** l'articulation (33) entre le quatrième (29) et le cinquième segment de glissière (31) est soumise à l'action d'un élément de traction élastique (59) situé dans le plan délimité par les segments de glissière (15, 21, 23, 29, 31), qui la tire vers le milieu de la glissière de guidage (11).
6. Convoyeur selon l'une des revendications 1 à 5, **caractérisé en ce que** le troisième segment de glissière (23) peut être déplacé à l'aide d'un entraînement (71, 73) motorisé ou pouvant être actionné à la main.
7. Convoyeur selon la revendication 6, **caractérisé en ce que**, lors du déplacement du troisième segment de glissière (23), le deuxième (21) et le quatrième segment de glissière (29) pivotent respectivement dans le sens des aiguilles d'une montre et dans le sens inverse des aiguilles d'une montre autour d'articulations (19, 33) situées aux extrémités du premier segment de glissière (15).
8. Convoyeur selon l'une des revendications 1 à 7, **caractérisé en ce que** une zone coulissante (37) est ménagée dans au moins l'un des segments de glissière (21, 29, 31), afin de compenser des variations en longueur de la glissière curviligne (11).
9. Convoyeur selon l'une des revendications 1 à 8, **caractérisé en ce que** la glissière curviligne (11) est placée entre deux rainures (8, 10) formant la glissière de guidage (1).
10. Convoyeur selon la revendication 9, **caractérisé en ce que** la glissière curviligne (11) présente une section transversale en forme de double T, dans laquelle les galets de guidage (61) roulent en prenant appui et sont en prise avec les maillons (53, 55) de la chaîne transporteuse (51) qui sont reliés aux tocs d'entraînement (3).

FIG. 1

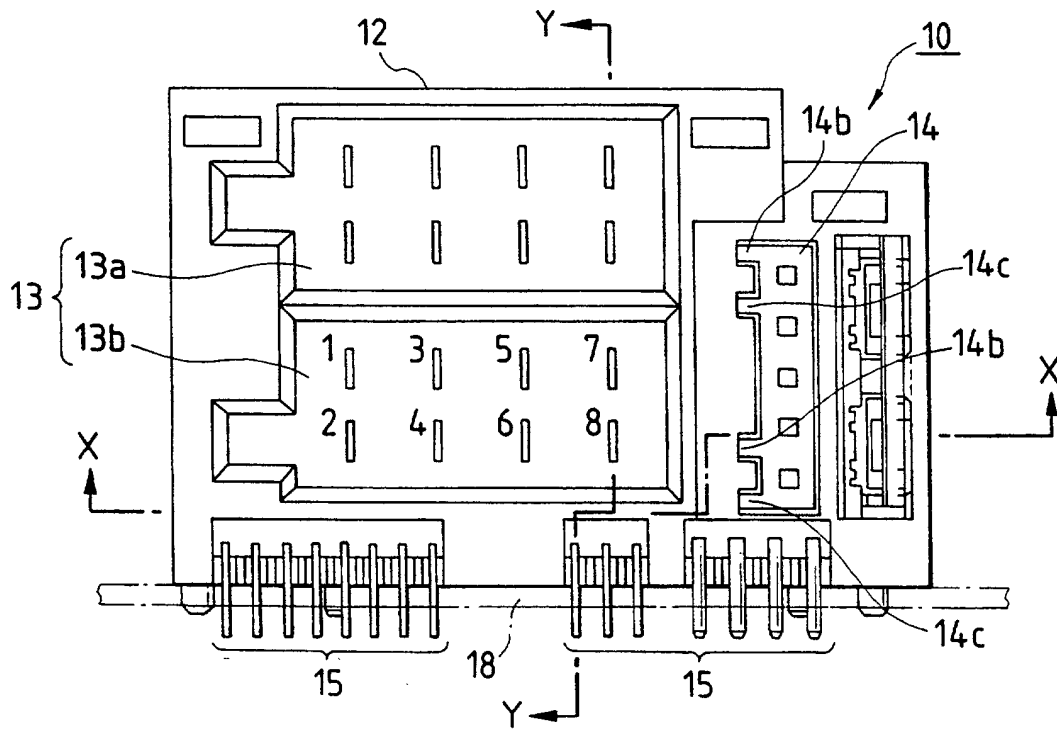


FIG. 2

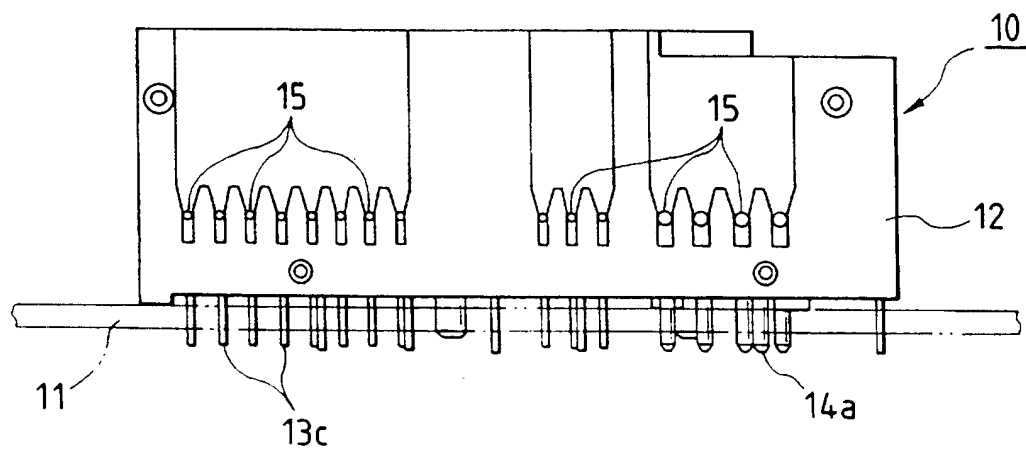


FIG. 3

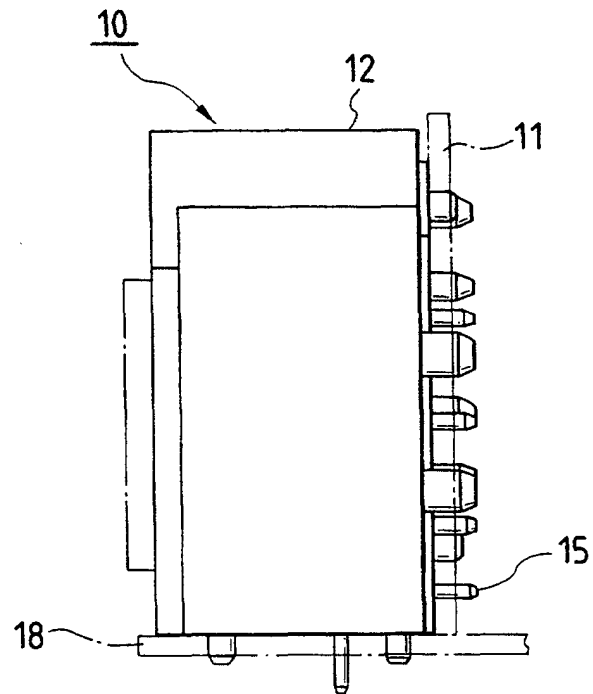


FIG. 4

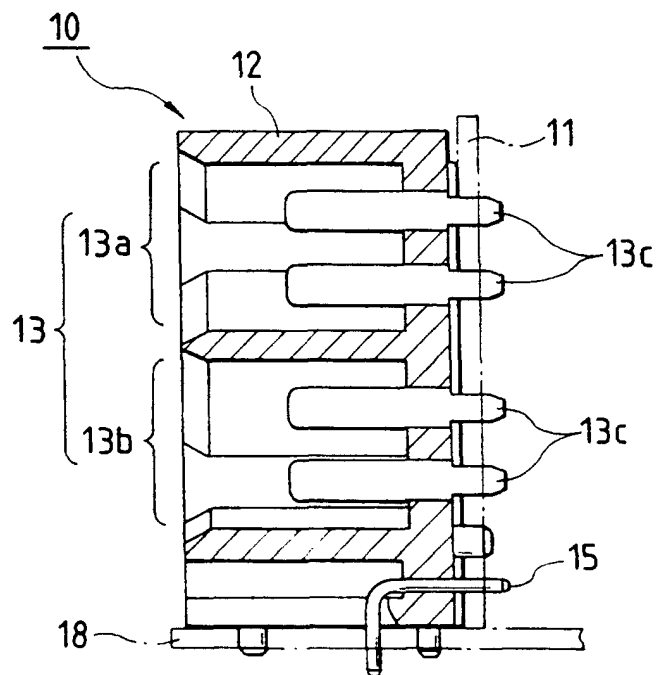


FIG. 5

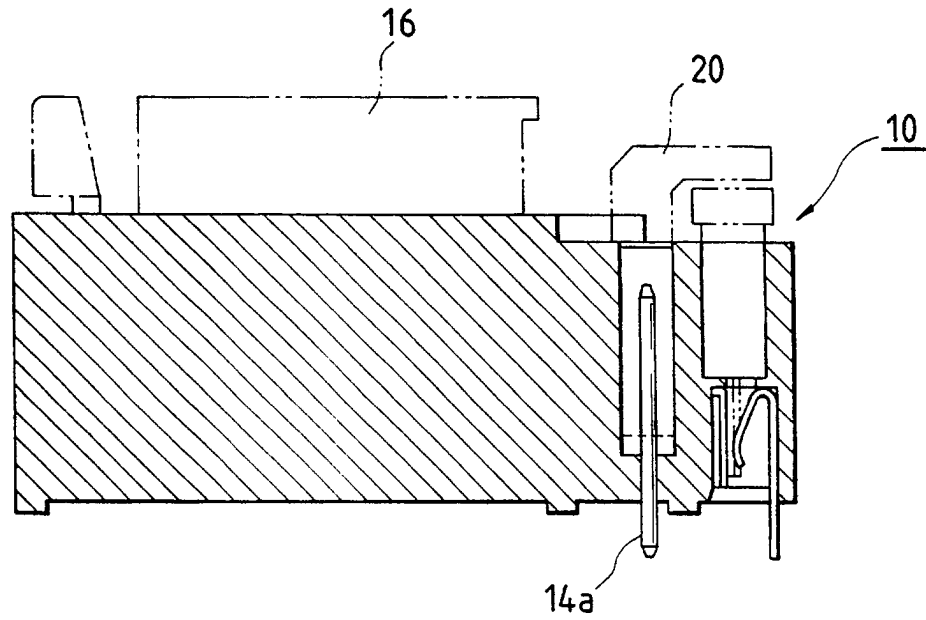
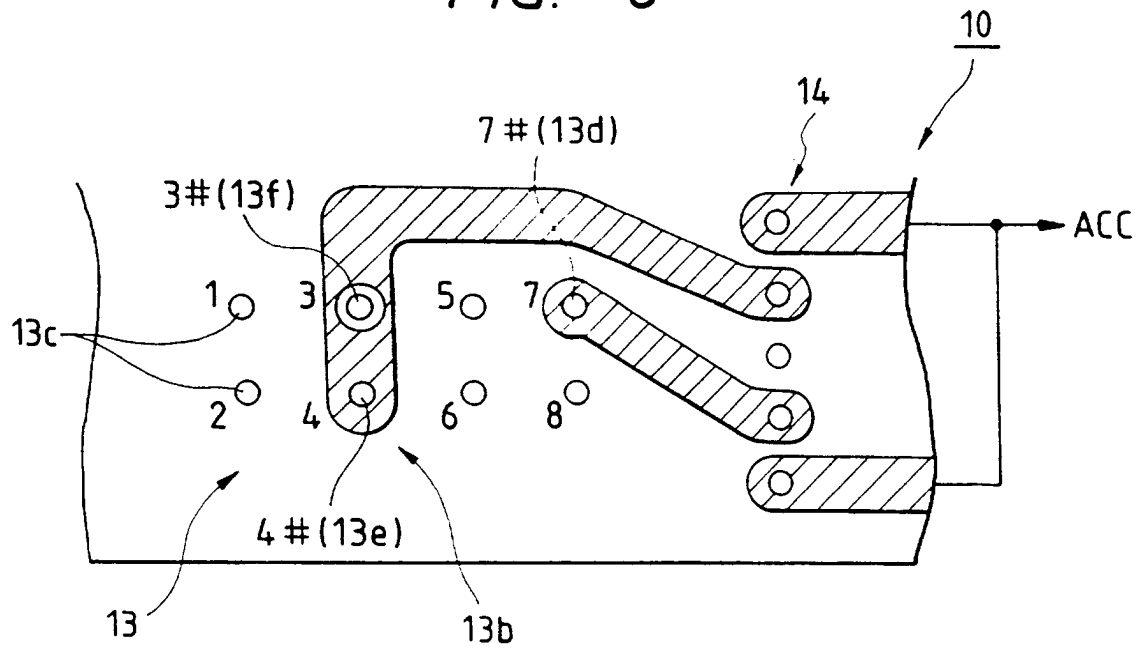


FIG. 6



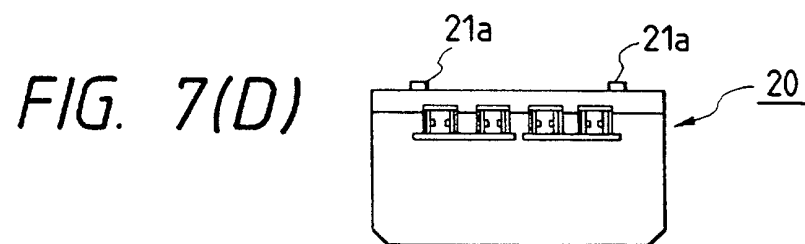
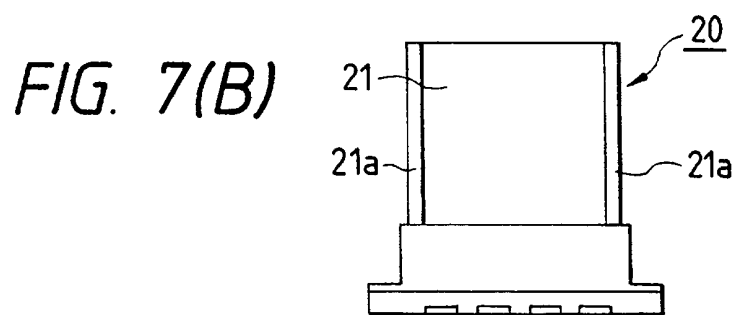
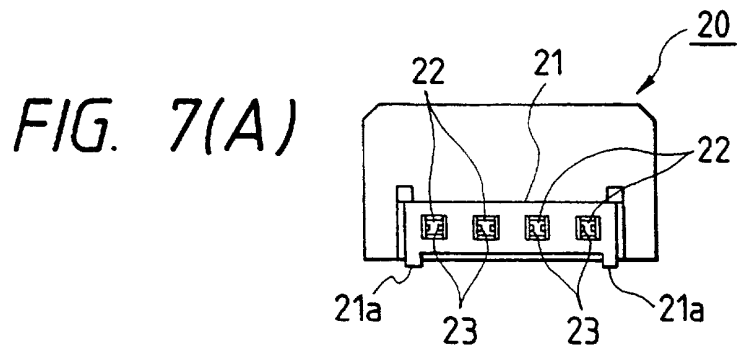


FIG. 7(C)

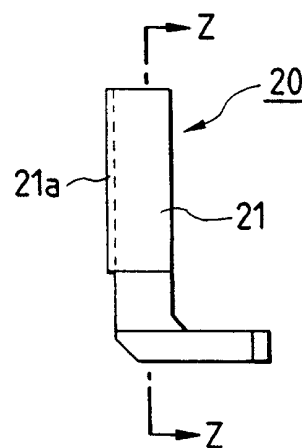


FIG. 8

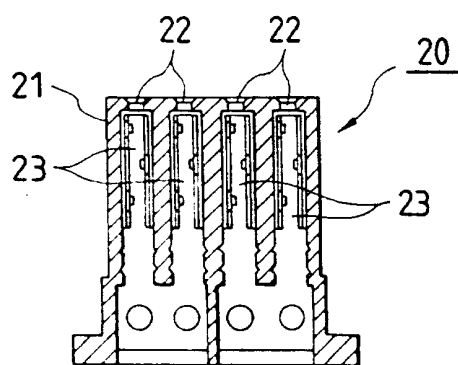


FIG. 9

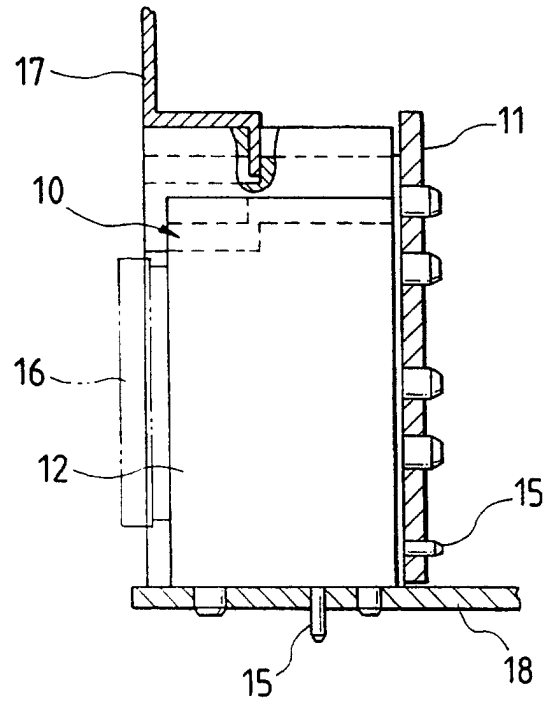


FIG. 10

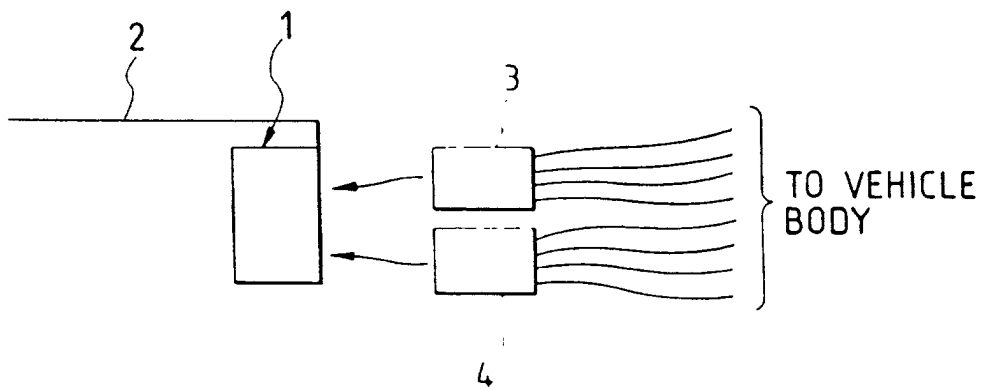


FIG. 11

