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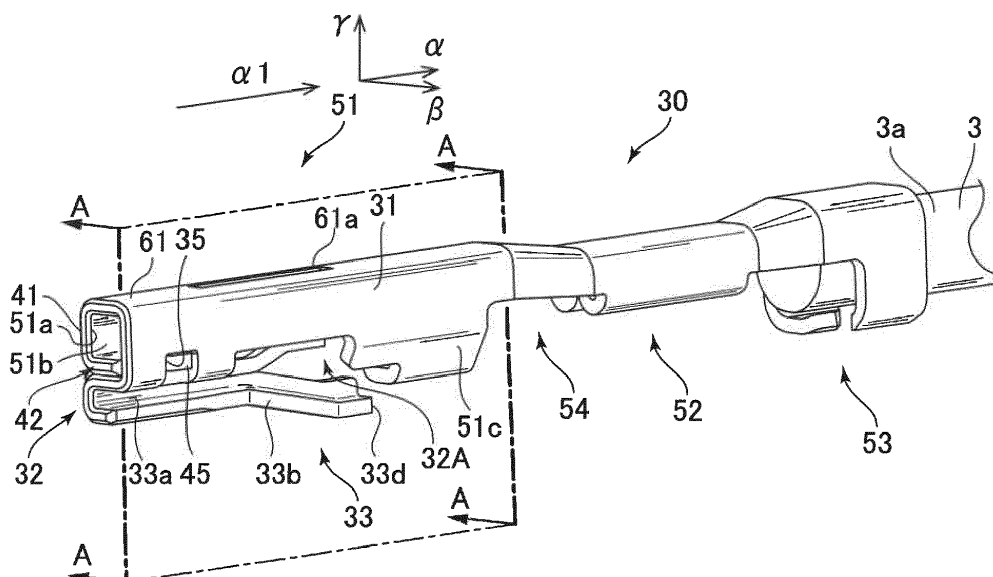
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(54) **TERMINAL WITH CONTACT PIECE, CONNECTOR, AND CONNECTOR DEVICE**

(57) A terminal has a terminal insertion space allowing insertion of a counterpart terminal from front to back. The insertion space is substantially tubularly formed by folding and overlapping side edge ends of first and second side walls. A contact piece supported like a cantilever is provided along an inserting direction of the counterpart terminal at the side edge end of the first side wall located closer to the insertion space. A reinforcing part supported

like a cantilever and reinforcing the contact piece in the height direction is provided along the inserting direction of the counterpart terminal at the side edge end of the second side wall located farther from the insertion space. A contact point part provided to the contact piece and coming into contact with the counterpart terminal is located more on the back side in the inserting direction than a support part of the contact piece.

FIG.1**EP 3 435 491 A1**

Description

[Technical Field]

[0001] The present invention relates to a terminal with a terminal insertion space, the space being formed substantially into a tubular shape by folding and overlapping side edge ends of side walls, or more specifically, to a terminal with a contact piece, the piece being located in the terminal insertion space and brought into contact with a counterpart terminal.

[Background Art]

[0002] Patent Document 1 discloses an example of a terminal of this type. This terminal is provided with a terminal insertion space of a rectangular tubular shape, the terminal insertion space being provided on its front end side with a terminal insertion slot into which a counterpart male terminal is inserted. The terminal insertion space is further provided with a pair of elastic contact pieces, which are allowed to project toward a front end from a surface on one end defining the terminal insertion space, bent toward a tube wall opposed thereto, and overlapped with each other.

[0003] Of the pair of elastic contact pieces overlapped with each other, a first elastic contact piece disposed on a near side to the opposed tube wall is provided with a contact point part that comes into contact with the counterpart male terminal when the male terminal is inserted into the terminal insertion space. Meanwhile, a second elastic contact piece disposed on a far side from the opposed tube wall can function as a reinforcing part to impart a spring force to the first elastic contact piece by being overlapped with the first elastic contact piece.

[Citation List]

[Patent Document]

[0004] [Patent Document 1] Japanese Patent Application Publication No. 2011-154944

[Summary of Invention]

[Technical Problem]

[0005] According to the configuration of Patent Document 1, the spring force of the first elastic contact piece can be reinforced by using the second elastic contact piece. In this case, however, the contact point part provided to the first elastic contact piece and configured to come into contact with the counterpart terminal is located on a front side in a direction of insertion of the male terminal than a support part that supports the first elastic contact piece. Accordingly, at an initial stage of insertion of the counterpart terminal, the counterpart terminal and the contact point part collide with each other while re-

ceiving a relatively large force and the insertion of the counterpart terminal is prone to be blocked by this collision. In particular, this problem is more serious in the case of providing the second elastic contact piece for reinforcing the first elastic contact piece since the spring force of the contact point part is thus intensified.

[0006] The invention of the present application has been made in order to solve the aforementioned problem of the related art. An object of the invention is to provide a terminal that enables smooth insertion of a counterpart terminal even when a spring force at a contact point part to come into contact with the counterpart terminal is intensified by a reinforcing part, a cable-side connector using the terminal, and a cable connector device using the cable-side connector.

[Solution to Problem]

[0007] To solve the problem, a terminal according to an aspect of the present invention is a terminal with a terminal insertion space for allowing insertion of a counterpart terminal from a front side to a back side. Here, the terminal insertion space is formed substantially into a tubular shape by folding and overlapping side edge ends of first and second side walls, the first and second side wall being located away from each other in a width direction and having heights in a height direction, respectively. A contact piece supported in a cantilever manner in a state of being elastically deformable in the height direction is provided along a direction of insertion of the counterpart terminal at the side edge end of the folded and overlapped first side wall located closer to the terminal insertion space. A reinforcing part supported in a cantilever manner and configured to reinforce the contact piece in the height direction is provided along the direction of insertion of the counterpart terminal at the side edge end of the folded and overlapped second side wall located farther from the terminal insertion space. A contact point part provided to the contact piece and configured to come into contact with the counterpart terminal is located more on the back side in the direction of insertion than a support part of the contact piece.

[0008] According to the terminal of this aspect, the counterpart terminal can be brought into contact with the contact piece only after the counterpart terminal is inserted into the terminal insertion space to some extent. Thus, it is possible to insert the opponent terminal smoothly. Particularly, in this configuration, a spring force of the contact piece is intensified by the reinforcing part and a force required for inserting the counterpart terminal is larger than usual. Hence, it is possible to obtain a greater effect.

[0009] In the terminal of the above-described aspect, the contact point part of the contact piece is preferably located closer to an inner wall of the terminal insertion space in the height direction than the support part of the contact piece is, in which the inner wall faces the contact piece in the height direction.

[0010] According to this configuration, the counterpart terminal comes into contact with the contact point part of the contact piece while gradually receiving the force. Thus, it is possible to insert the counterpart terminal smoothly.

[0011] In the terminal of the above-described aspect, a free end of the contact piece preferably faces the reinforcing part in the height direction.

[0012] According to this configuration, the free end with the smallest intensity in the contact piece can be reinforced with the reinforcing part. Thus, it is possible to secure a contact pressure with the counterpart terminal more reliably and to enhance durability of the contact piece more reliably.

[0013] In the terminal of the above-described aspect, a side edge of the reinforcing part may be folded back toward a surface of the reinforcing part on an opposite side of the contact piece, and a lance piece supported in a cantilever manner may be formed at the folded side edge of the reinforcing part.

[0014] It is possible to increase the intensity of the reinforcing part by folding back the side edge end of the reinforcing part. Moreover, by supporting the side edge end of the reinforcing part in a cantilever manner, the side edge part of the reinforcing part can be used as the lance piece.

[0015] In the terminal of the above-described aspect, the lance piece preferably has a substantially L-shaped cross-section along both the width direction and the height direction.

[0016] The intensity of the lance can be enhanced by forming its cross-sectional shape into the substantially L-shape.

[0017] In the terminal of the above-described aspect, the contact piece may include an embossed part located in the vicinity of the support part of the contact piece and formed by embossing a surface of the contact piece in the height direction.

[0018] By providing the embossed part, it is possible to adjust a force to support the contact piece in response to a direction and degree of embossment, and thus to control a spring property of the contact piece.

[0019] In the terminal of the above-described aspect, a convex part to project to the terminal insertion space side in the height direction may be provided on the inner wall of the terminal insertion space, the inner wall facing the contact point part of the contact piece in the height direction.

[0020] By providing the convex part, it is possible to adjust a distance of insertion in the height direction of the counterpart terminal by using the convex part and the contact piece, and to reliably achieve positioning of the counterpart terminal at a predetermined position in the terminal insertion space.

[0021] In the terminal of the above-described aspect, the reinforcing part is preferably supported by a support part in a cantilever manner, and a free end side of the reinforcing part is preferably located more on the back

side in the direction of insertion than the support part of the reinforcing part.

[0022] By forming the reinforcing part into a reinforcing piece like the contact piece, and locating its free end side more on the back side in the direction of insertion than the support part, it is possible to move the reinforcing piece in a synchronized state with a motion of the contact piece, and to insert the counterpart terminal smoothly while intensifying the spring force of the contact piece.

[0023] In addition, the present invention provides a connector including a housing that holds the above-described terminal, and a connector device including the connector and a counterpart connector to be fitted into the connector.

[Effect of Invention]

[0024] According to the present invention, there are provided a terminal that enables smooth insertion of a counterpart terminal even when a spring force at a contact point part to come into contact with the counterpart terminal is intensified by a reinforcing part, a cable-side connector using the terminal, and a cable connector device using the cable-side connector.

[Brief Description of Drawings]

[0025]

Fig. 1 is a perspective view of a terminal according to a preferred embodiment of the present invention.

Fig. 2 is a cross-sectional perspective view of a main body taken along the A-A line in Fig. 1.

Fig. 3 is a front view of the main body.

Figs. 4A and 4B are side views of the main body.

Fig. 5 is a cross-sectional view taken along the B-B line in Fig. 3.

Fig. 6 is a cross-sectional view taken along the C-C line in Fig. 4B.

Figs. 7A and 7B are cross-sectional views for explaining an operation of the terminal according to the present invention stepwise.

Fig. 8 is another cross-sectional view for explaining the operation of the terminal according to the present invention stepwise.

Fig. 9 is another cross-sectional view for explaining the operation of the terminal according to the present invention stepwise.

Fig. 10 is a perspective view of a connector according to a preferred embodiment of the present invention.

Fig. 11 is a cross-sectional view of the connector only, which is taken along the center line thereof.

[Description of Embodiments]

[0026] A preferred embodiment of the present invention will be described below with reference to the accompanying drawings. Although the description will be given

only of a certain preferred embodiment for the convenience of explanation, the following description is of course not intended to limit the present invention to the certain embodiment.

[0027] Fig. 1 shows a perspective view of a terminal according to a preferred embodiment of the present invention. Here, a cable terminal 30 will be described as an example. However, it is not intended to limit the scope of the present invention to cable terminals.

[0028] The cable terminal 30 is formed by subjecting a single thin metal plate to blanking and bending work, for example. The cable terminal 30 includes a main body 51, a core wire swaging portion 52, and a jacket swaging portion 53, which are provided in this order.

[0029] An end of a cable 3 can be fixed to the cable terminal 30 by swaging a core wire (not shown) of the cable 3 with a core wire swaging portion 52 and swaging a jacket 3a of the cable 3 with the jacket swaging portion 53.

[0030] A configuration of the main body 51 is illustrated further in detail in Figs. 2 to 6. Fig. 2 is a cross-sectional perspective view of the main body 51 taken along the A-A line in Fig. 1. Fig. 3 is a front view thereof. Fig. 4 is a side view thereof. Fig. 5 is a cross-sectional view taken along the B-B line in Fig. 3. Fig. 6 is a cross-sectional view taken along the C-C line in Fig. 4B.

[0031] A terminal insertion space 51b that allows insertion of a counterpart terminal is formed in the main body 51. The counterpart terminal can be inserted into the terminal insertion space 51b from front to back through a terminal insertion slot 51a along a direction indicated with an arrow " α " in Fig. 2. The terminal insertion space 51b is formed substantially into a tubular shape by folding and overlapping side edge ends of side walls 31 and 41, which are located away from each other in a width direction (a direction indicated with an arrow " β " in Fig. 2) and have heights in a height direction (a direction indicated with an arrow " γ " in Fig. 2), respectively. The side wall 31 and the side wall 41 are joined to each other at a top wall 61 through substantially perpendicularly curved parts. The side wall 31 is provided with a lock hole 35 that penetrates the side wall 31 in the width direction " β " and the side wall 41 is provided with a lock projection 45 corresponding thereto, respectively. By locking the lock projection 45 with the lock hole 35, a side edge end 32 of the side wall 31 is fixed to a side edge part 42 of the side wall 41, and the substantially tubular shape is thus retained. The lock projection 45 is located at a portion of a support part 42a in the direction of the arrow " α " in Fig. 2, and supports a contact piece 42A.

[0032] The contact piece 42A is formed along a direction " α " of insertion of the counterpart terminal and continuous with the side edge part 42 of the folded and overlapped side wall 41, which is located closer to the terminal insertion space 51b than the side edge end 32 of the side wall 31. The contact piece 42A is supported by the support part 42a in a cantilever manner, and is made elastically deformable in the height direction " γ ". A contact

point part 42b capable of coming into contact with the counterpart terminal inserted into the terminal insertion space 51b is formed on a free end 42e side of the contact piece 42A.

[0033] The contact point part 42b is formed into such a shape that slightly projects in the height direction " γ " by being bent into a mound shape. Thus, it is possible to establish the contact with the counterpart terminal more reliably.

[0034] Meanwhile, the contact point part 42b is located more on the back side in the direction " α " of insertion than the support part 42a of the contact piece 42A. When the counterpart terminal is inserted into the terminal insertion space 51b, application of a force to the counterpart terminal through a collision between the counterpart terminal and the contact piece 42A may possibly block smooth insertion of the counterpart terminal. Nonetheless, it is possible to bring the counterpart terminal into contact with the contact piece 42A while positioning the counterpart terminal to some extent relative to the terminal insertion space 51b and imparting a momentum to some extent to the insertion as a consequence of locating the contact point part 42b more on the back side than the support part 42a. Thus, the counterpart terminal can be smoothly inserted into the terminal insertion space 51b.

[0035] An embossed part 42d may be provided in the vicinity of the support part 42a by embossing a surface of the contact piece 42A in the height direction " γ ". By providing the embossed part 42d, it is possible to adjust a force to support the contact piece 42A with the support part 42a in response to the direction and the degree of embossment of the embossed part 42d, and thus to control a spring property of the contact piece 42A. For example, the force of the support part 42a to support the contact piece 42A may be set to a large level by providing the support part 42a with the embossed part 42d that is embossed into the terminal insertion space 51b as shown in Fig. 2. In the meantime, the control of the spring property is facilitated by forming the shape of the embossed part 42d into a substantially rectangular shape in plan view.

[0036] The contact piece 42A faces in the height direction " γ " an inner wall 61c of the top wall 61 that forms the terminal insertion space 51b. The contact point part 42b of the contact piece 42A is located closer to the inner wall 61c in the height direction " γ " than the support part 42a is. Accordingly to this configuration, the counterpart terminal comes into contact with the contact point part 42b of the contact piece 42A while gradually receiving the force. Thus, it is possible to insert the counterpart terminal smoothly.

[0037] Meanwhile, convex parts 61b that project to the terminal insertion space 51b side in the height direction " γ " may be provided on the inner wall 61c of the terminal insertion space 51b facing the contact point part 42b of the contact piece 42A in the height direction " γ ". By providing the convex parts 61b, it is possible to adjust a

distance of insertion in the height direction " γ " of the counterpart terminal by using the convex parts 61b and the contact piece 42A, and to reliably achieve positioning of the counterpart terminal at a predetermined position in the terminal insertion space 51b. The convex parts 61b are provided at two positions in the width direction " β ", and are provided at positions from the front of the contact point part 42b to the back beyond the contact point part 42b in the direction " α " of insertion.

[0038] The folded and overlapped side edge end 32 of the side wall 31, which is located farther from the terminal insertion space 51b than the side edge part 42 of the side wall 41, extends along the direction " α " of insertion and is bent into the terminal insertion space 51b. A portion 32A of the bent side edge end 32 is located on a bottom side of the contact piece 42A, and functions as a reinforcing part that reinforces the contact piece 42A in the height direction " γ ". Unlike the contact piece 42A, this reinforcing piece 32A is formed on the side edge end of the side wall 31 instead of the side wall 41. By forming the reinforcing piece 32A and the contact piece 42A, respectively, on the side edge ends of the side walls 31 and 41 that are provided away from each other as described above, it is possible to completely segregate the functions of the reinforcing piece 32A and the contact piece 42A from each other in such a way that these pieces do not virtually affect each other. Meanwhile, by providing the reinforcing part 32A, the spring force of the contact piece 42A is intensified and durability of the contact piece 42A is enhanced. When the spring force of the contact piece 42A is intensified by the reinforcing part 32A as described above, the force that the counterpart terminal receives from the contact piece 42A at the time of insertion of the counterpart terminal into the terminal insertion space 51b becomes larger than that before providing the reinforcing piece 32A. However, since the contact point part 42b of the contact piece 42A is located more on the back side of the terminal insertion space 51b in the direction " α " of insertion than the support part 42a of the contact piece 42A as described above, the counterpart terminal can be inserted smoothly even in this situation.

[0039] The reinforcing part 32A may be formed into a piece like the contact piece 42A. The reinforcing piece 32A is supported by a support part 32a in a cantilever manner, and is made elastically deformable in the height direction " γ ". As with the contact piece 42A, a free end 32e side of the reinforcing piece 32A is located more on the back side in the direction " α " of insertion than the support part 32a. By supporting the reinforcing piece 32A in a similar manner to the case of the contact piece 42A as described above, it is possible to move the reinforcing piece 32A in a synchronized state with a motion of the contact piece 42A, and to insert the counterpart terminal smoothly while intensifying the spring force of the contact piece 42A.

[0040] The free end 32e side of the reinforcing piece 32A preferably has such a length that reaches the free end 42e of the contact piece 42A in the direction " α " of

insertion. In this case, the free end 42e of the contact piece 42A faces the reinforcing piece 32A in the height direction " γ ". As a consequence, the free end 42e with the smallest intensity in the contact piece 42A can be reinforced by the reinforcing piece 32A from a bottom surface 42f side on an opposite side of the contact point part 42b. Thus, it is possible to secure a contact pressure with the counterpart terminal more reliably and to enhance the durability of the contact piece more reliably.

[0041] A side edge 33 of the reinforcing piece 32A may be folded back toward a surface of the reinforcing part 32A on the opposite side of the contact piece 42A. It is possible to increase the intensity of the reinforcing piece 32A by providing the folded part as described above.

[0042] The folded side edge 33 can also be used as a lance piece. When the side edge 33 is used as the lance piece, the folded side edge 33 is supported by a support part 33a in a cantilever manner on the front side in the direction " α " of insertion, and is made elastically deformable in the height direction " γ " as with the contact piece 42A, the reinforcing piece 32A, and the like. Such a lance piece 33b may be formed into a shape with a cross-section " β - γ " along both the width direction " β " and the height direction " γ ", or a substantially L-shape, for example. The intensity of the lance can be increased by forming the lance into the aforementioned shape.

[0043] An operation of the terminal 30 of the present invention will be described with reference to Fig. 7A to Fig. 9. These drawings are cross-sectional views corresponding to Fig. 5, which are views for explaining an operation of the terminal 30 when a counterpart terminal 7 is inserted into the terminal 30. Note that a tip end of the counterpart terminal 7 is formed into a tapered shape such that the counterpart terminal 7 is smoothly inserted into the terminal insertion space 51b.

[0044] As shown in Fig. 7A, before the counterpart terminal 7 is inserted into the terminal insertion space 51b, the contact piece 42A is in a state of contact with the reinforcing piece 32A at a curved part 42c. Here, a portion on the free end 42e side from the curved part 42c is slightly separated from the reinforcing piece 32A in the height direction " γ " so as to define a clearance in between.

[0045] Fig. 7B illustrates a partially enlarged view of a portion in the vicinity of a point of collision between the contact piece 42A and the reinforcing piece 32A. As shown in Fig. 7B, the clearance is defined between the bottom surface 42f of the contact piece 42A and an upper surface 32b of the reinforcing piece 32A. Accordingly, when the contact piece 42A is displaced toward the reinforcing piece 32A, an elastic force (a reaction force) that originates solely from the contact piece 42A is applied to the counterpart terminal 7 until the contact piece 42A comes into contact (collides) with the reinforcing piece 32A (at an initial contact stage). Then, after the contact piece 42A comes into contact (collides) with the reinforcing piece 32A, an elastic force (a reaction force) originating from the reinforcing piece 32A is added to the elastic force (the reaction force) originating from the con-

tact piece 42A. As a consequence, the elastic force (the reaction force) originating from the two pieces is applied to the counterpart terminal 7. It is therefore possible to insert the counterpart terminal 7 into the terminal 30 with a smaller insertion force at the initial contact stage, and to reliably retain the state of contact between the contact piece 42A and the counterpart terminal 7 after the insertion by using the elastic force (the reaction force) originating from the two pieces. Hence, a failure such as instantaneous interruption between the counterpart terminal 7 and the terminal 30 does not occur even under a condition where vibration is applied thereto, for example.

[0046] Meanwhile, a dimension of a clearance m defined on the free end 42e side is set slightly smaller than a dimension of a clearance n defined on the contact point part 42b side. In this way, the free end 42e side reliably comes into contact with the reinforcing piece 32A earlier when the contact piece 42A is displaced toward the reinforcing piece 32A. In other words, it is possible to control a position of contact between the contact piece 42A and the reinforcing piece 32A substantially at the same position in the direction " α ", and thus to control the elastic force (the reaction force) of the reinforcing piece 32A. Moreover, the contact piece 42A can be brought into contact with the reinforcing piece 32A before developing an excessive displacement by setting the dimensions of these clearances m and n smaller than plate thicknesses of the contact piece 42A and the reinforcing piece 32A. The dimensions and locations of the clearances m and n can be controlled by adjusting bending angles and positions.

[0047] When the counterpart terminal 7 is inserted into the terminal insertion space 51b as shown in Fig. 8, the position of the counterpart terminal 7 is adjusted little by little toward the contact piece 42A by the convex parts 61b provided on the inner wall 61c of the terminal insertion space 51b, and the counterpart terminal 7 is thus inserted into the clearance between the contact piece 42A, or more specifically, the contact point part 42b provided in the vicinity of the free end 42e of the contact piece 42A, and the convex parts 61b.

[0048] As the counterpart terminal 7 is further inserted into the terminal insertion space 51b and the counterpart terminal 7 comes into contact with the contact piece 42A, the free end 42e side of the contact piece 42A is displaced toward the reinforcing piece 32A by using the curved part 42c being the point of contact with the reinforcing piece 32A as a fulcrum as shown in Fig. 9. As a consequence, the bottom surface 42f on the free end 42e side of the contact piece 42A collides with the upper surface 32b of the reinforcing piece 32A, and the free end 42e side is supported by the reinforcing piece 32A. The reinforcing piece 32A is elastically deformably provided as with the contact piece 42A. Accordingly, after the contact piece 42A collides with the reinforcing piece 32A, the reinforcing piece 32A is displaced synchronously with the contact piece 42A, thereby enabling the smooth insertion of the counterpart terminal 7 while imparting the spring force

(the reaction force) to the contact piece 42A.

[0049] Fig. 10 illustrates a perspective view of a connector 20 according to a preferred embodiment of the present invention which uses the preferred cable terminal 30 of the present invention shown in Figs. 1 to 9, and a perspective view of a connector device 1 according to a preferred embodiment of the present invention which uses the connector 20. Furthermore, Fig. 11 illustrates a cross-sectional view of the connector 20, which is taken along the center line thereof.

[0050] Here, a cable connector will be described as an example of the connector 20. However, the present invention is not limited only to the cable connector 20. Likewise, although a cable connector device will be described as an example of the connector device 1, the present invention is not limited only to the cable connector device 1.

[0051] The cable connector 20 mainly includes a housing 21, and multiple cable terminals 30 arranged inside the housing 21.

[0052] When the cable terminals 30 are fitted to the housing 21, each cable terminal 30 is inserted along the direction " α " of insertion into a terminal holding hole 22c of the housing 21 and from back to front in a direction indicated with an arrow " α_2 " in Fig. 10. Each cable terminal 30 is provided with the elastically deformable lance piece 33b by use of the side edge 33 of the reinforcing part 32A. When each cable terminal 30 is inserted into the terminal holding hole 22c, the lance piece 33b surmounts a stepped part 24 provided on an inner wall at a bottom part of the terminal holding hole 22c by use of its elasticity, and then comes into contact with a front surface 24a of the stepped part 24 and gets stuck in there. Thereafter, retainers 4 are fitted to the housing 21 in such a way as to be inserted into cutouts 54 provided in side surfaces of the cable terminals 30, so that the cable terminals 30 can be fixed to predetermined positions in the housing 21. When the cable terminals 30 are fixed to the predetermined positions in the housing 21, the terminal insertion slots 51a thereof are aligned with terminal insertion slots 22b of the housing 21, thus forming communication ports into which the counterpart terminals are inserted.

[0053] The cable connector device 1 is formed from a set of the cable connector 20 and a board connector 10. However, as it is apparent from the above description, the present invention is not limited to the set of the cable connector 20 and the board connector 10, but is also applicable to various connectors. For instance, the present invention may be applied to a set of board connectors or a set of cable connectors.

[0054] The board connector 10 mainly includes a housing 11, and the terminals 7 arranged inside the housing 11. The housing 11 is fixed to a board 2 by use of mounting metal fittings 12 buried in the housing 11.

[0055] A fitting port 11a into which the cable connector 20 is fitted is provided in a front surface of the housing 11. When the cable connector 20 is fitted into the board

connector 10 through the fitting port 11a, the counterpart terminals 7 in the board connector 10 are inserted into the terminal insertion spaces 51b of the cable terminals 30 through the communication ports formed from the terminal insertion slots 51a of the cable connector 20 and the terminal insertion slots 22b of the housing 21, and the counterpart terminals 7 are electrically connected to the cable terminals 30. Meanwhile, a lock projection 22a provided on the housing 21 of the cable connector 20 is fitted into a lock hole 11b provided in the housing 11 of the board connector 10 at this time. Thus, the cable connector 20 is locked with the board connector 10.

[0056] It is to be understood that the above description relates to a certain preferred embodiment and merely represents a typical product and a method of manufacturing the same. It can be recognized that various changes and modifications are obvious to a person skilled in the art from the teachings described above. Such exemplary embodiments and alternative embodiments can be accomplished without departing from the spirit of the product and the method as defined in the appended claims.

Claims

1. A terminal (30) with a terminal insertion space (51b) for allowing insertion of a counterpart terminal (7) from a front side to a back side, wherein the terminal insertion space (51b) is formed substantially into a tubular shape by folding and overlapping side edge ends of first and second side walls (31,41), the first and second side wall (31,41) being located away from each other in a width direction and having heights in a height direction, respectively, a contact piece (42A) supported in a cantilever manner in a state of being elastically deformable in the height direction is provided along a direction of insertion of the counterpart terminal (7) at the side edge end (42) of the folded and overlapped first side wall (41) located closer to the terminal insertion space (51b), a reinforcing part (32A) supported in a cantilever manner and configured to reinforce the contact piece (42A) in the height direction is provided along the direction of insertion of the counterpart terminal (7) at the side edge end (32) of the folded and overlapped second side wall (31) located farther from the terminal insertion space (51b), and a contact point part (42b) provided to the contact piece (42A) and configured to come into contact with the counterpart terminal (7) is located more on the back side in the direction of insertion than a support part (42a) of the contact piece (42A) .
2. The terminal (30) according to claim 1, wherein the contact point part (42b) of the contact piece (42A) is located closer to an inner wall (61c) of the terminal

insertion space (51b) in the height direction than the support part (42a) of the contact piece (42A), the inner wall (61c) facing the contact piece (42A) in the height direction.

3. The terminal (30) according to claim 1 or 2, wherein a free end (42e) of the contact piece (42A) faces the reinforcing part (32A) in the height direction.
4. The terminal (30) according to any one of claims 1 to 3, wherein a side edge (33) of the reinforcing part (32A) is folded back toward a surface of the reinforcing part (32A) on an opposite side of the contact piece (42A), and a lance piece (33b) supported in a cantilever manner is formed at the folded side edge (33) of the reinforcing part (32A) .
5. The terminal (30) according to claim 4, wherein the lance piece (33b) has a substantially L-shaped cross-section along both the width direction and the height direction.
6. The terminal (30) according to any one of claims 1 to 5, wherein the contact piece (42A) includes an embossed part (42d), which is located in the vicinity of the support part (42a) of the contact piece (42A) and formed by embossing a surface of the contact piece (42A) in the height direction.
7. The terminal (30) according to any one of claims 1 to 6, wherein a convex part (61b) to project to the terminal insertion space (51b) side in the height direction is provided on an inner wall (61c) of the terminal insertion space (51b), the inner wall (61c) facing the contact point part (42b) of the contact piece (42A) in the height direction.
8. The terminal (30) according to any one of claims 1 to 7, wherein the reinforcing part (32A) is supported by a support part (32a) in a cantilever manner, and a free end (32e) side of the reinforcing part (32A) is located more on the back side in the direction of insertion than the support part (32a) of the reinforcing part (32A).
9. A connector (20) comprising: a housing (21) configured to hold the terminal (30) according to any one of claims 1 to 7.
10. A connector device (1) comprising: the connector (20) according to claim 9; and a counterpart connector (10) to be fitted into the connector (20).

FIG.1

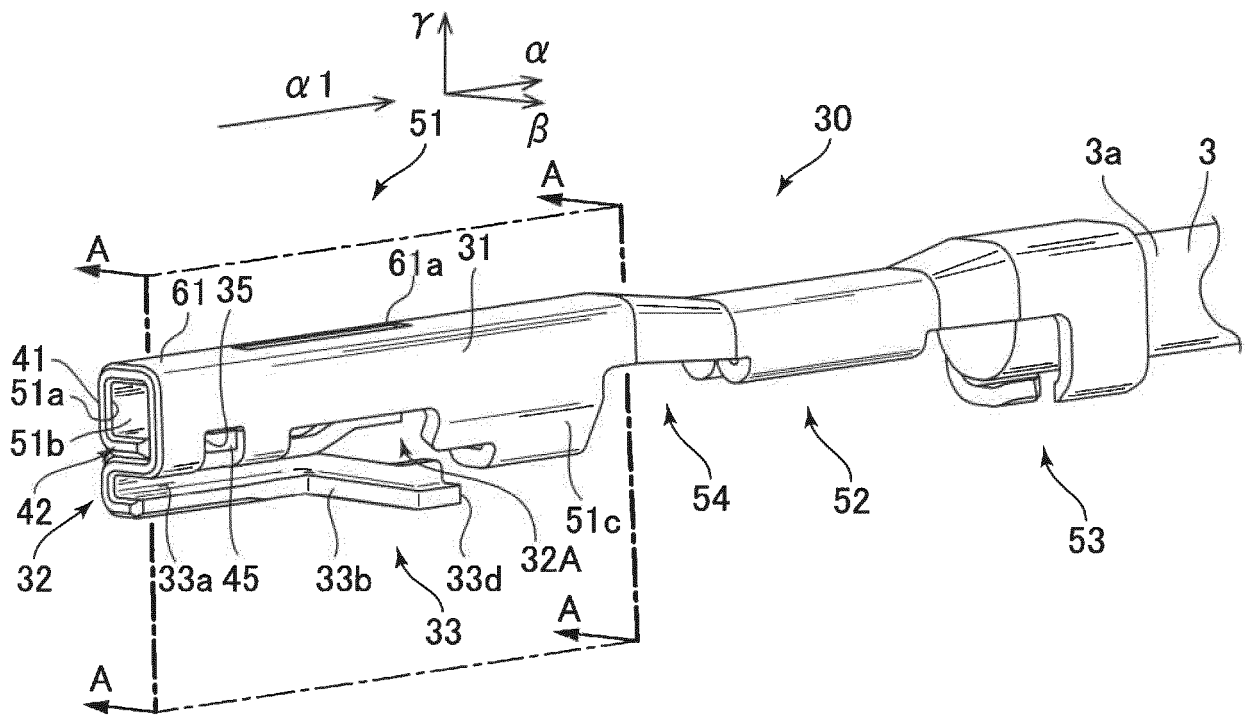


FIG.2

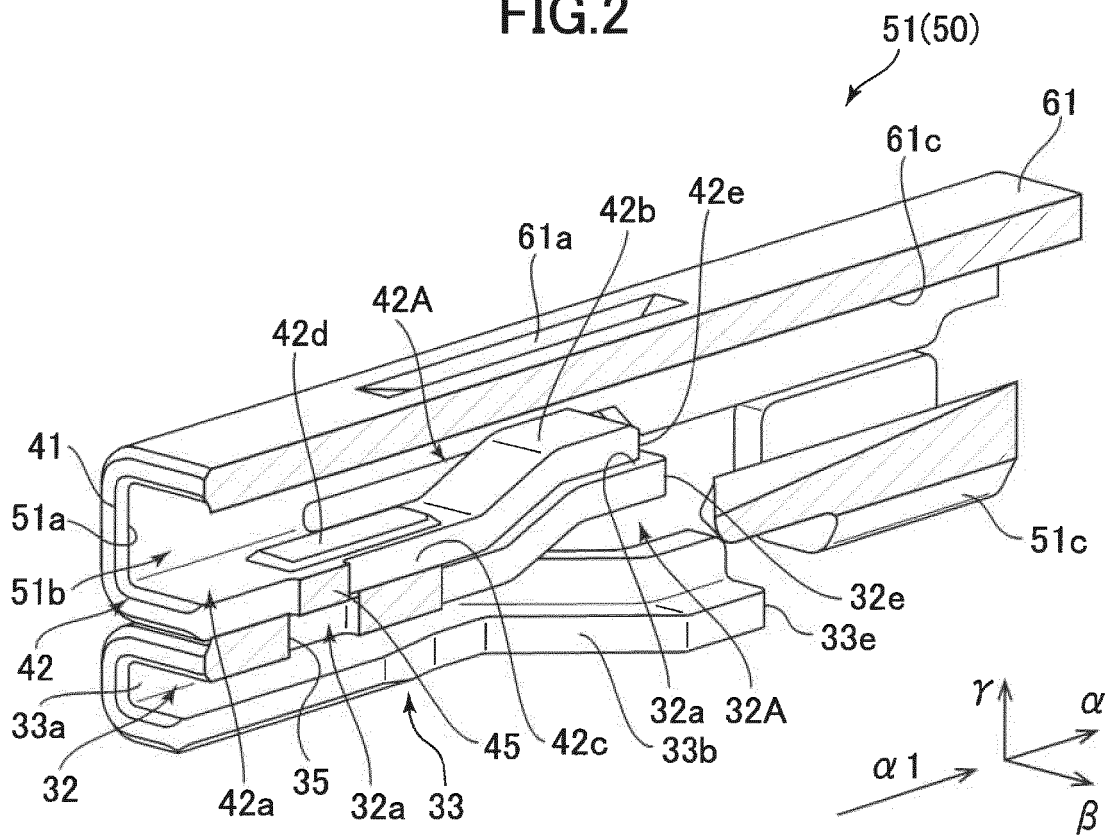


FIG.3

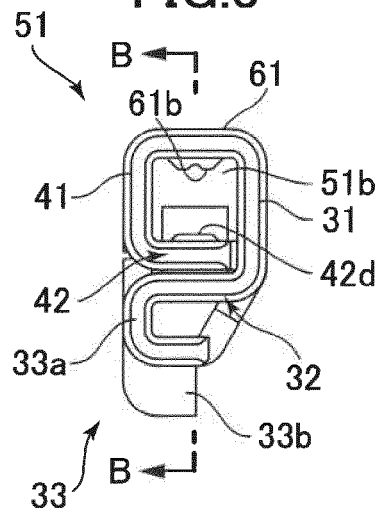
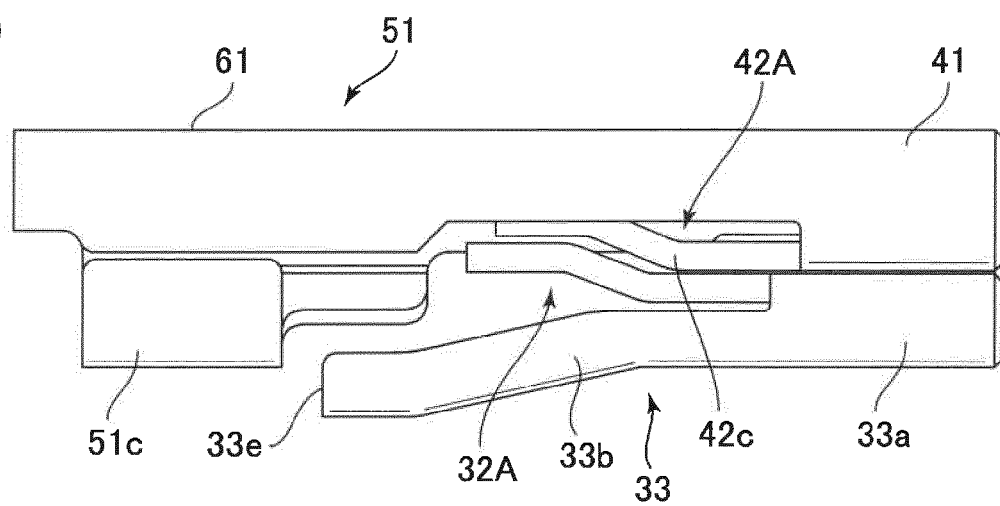


FIG.4

(a)



(b)

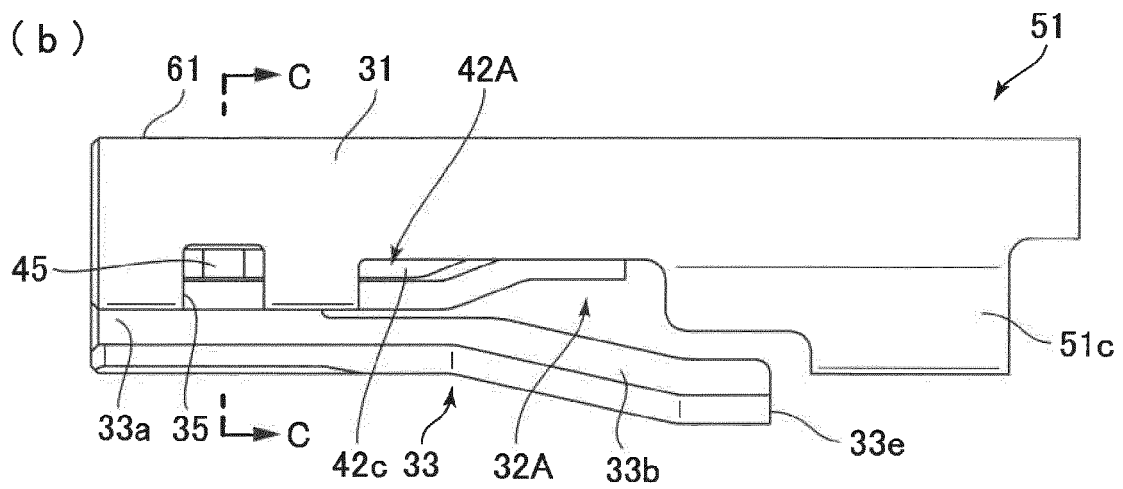


FIG.5

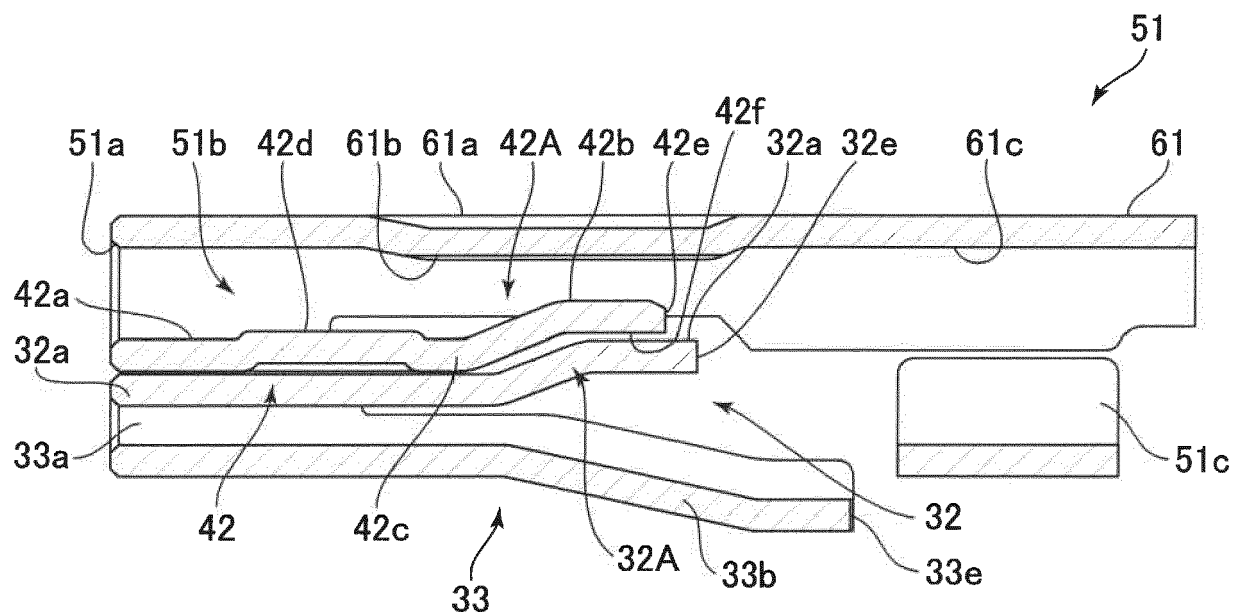


FIG.6

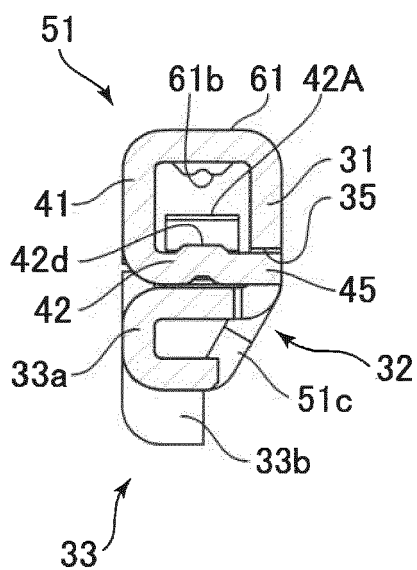


FIG.7

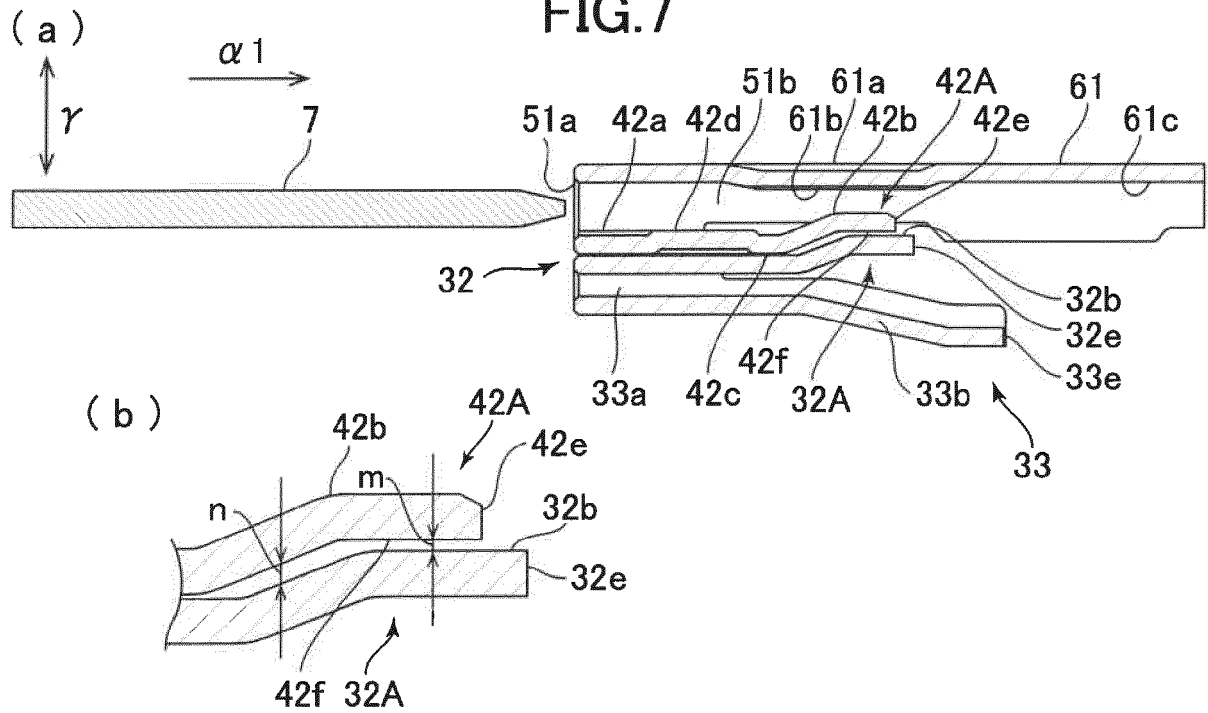


FIG.8

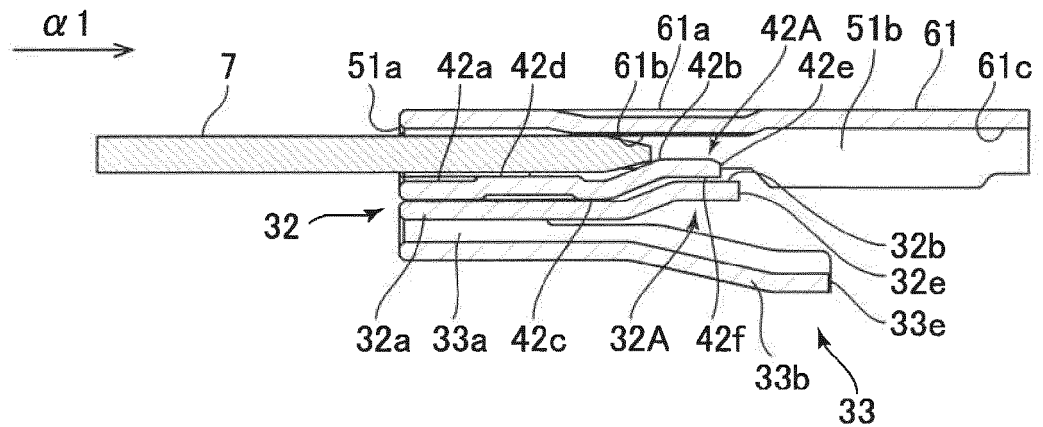


FIG.9

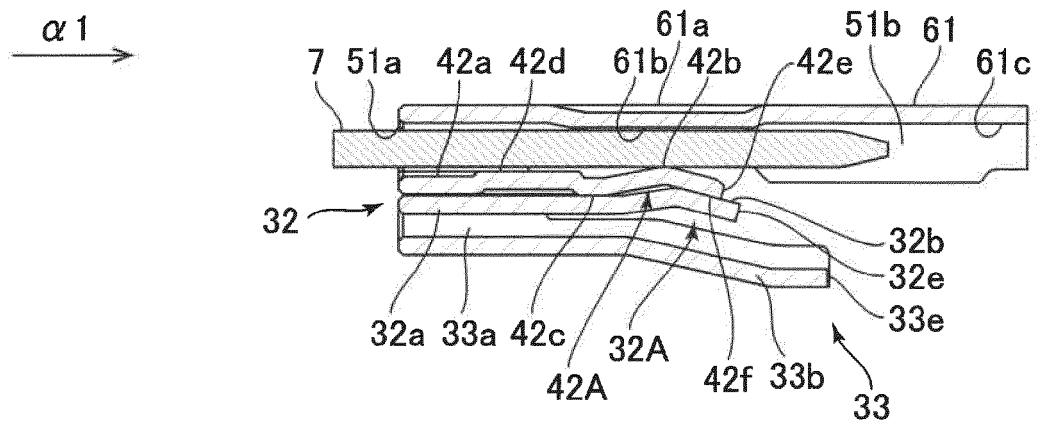


FIG.10

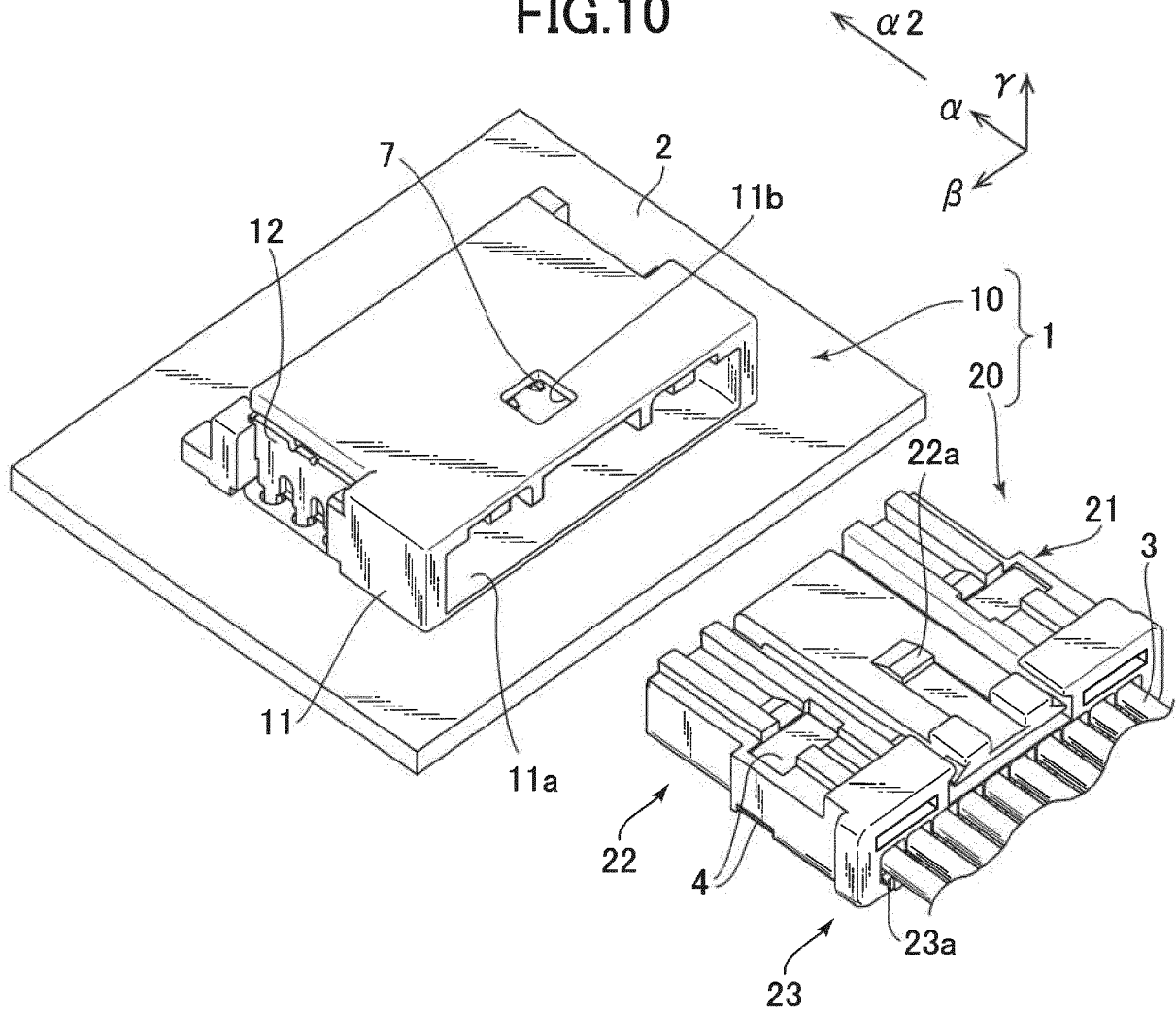
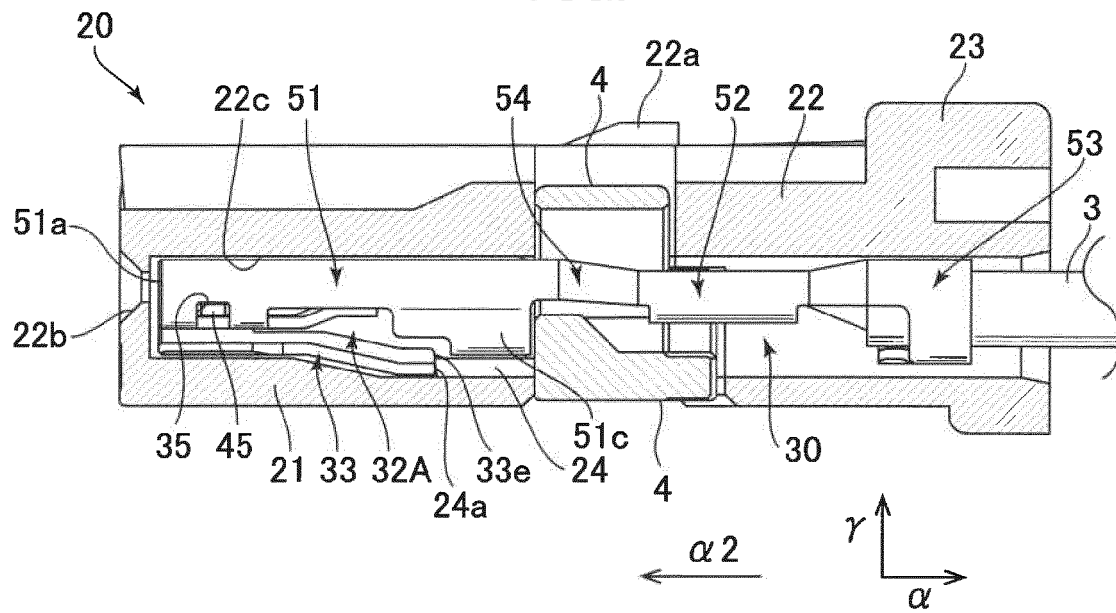


FIG.11





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