



(11) **EP 4 155 126 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
29.03.2023 Bulletin 2023/13

(21) Application number: **22193250.2**

(22) Date of filing: **31.08.2022**

(51) International Patent Classification (IPC):
B60Q 1/00 (2006.01) **H01R 13/631** (2006.01)
H01R 13/506 (2006.01) **H01R 13/73** (2006.01)
H01R 43/26 (2006.01)

(52) Cooperative Patent Classification (CPC):
H01R 13/506; B60Q 1/00; H01R 13/6315;
H01R 13/73; H01R 43/26; H01R 2201/26

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(30) Priority: **02.09.2021 KR 20210116709**
18.08.2022 KR 20220103400

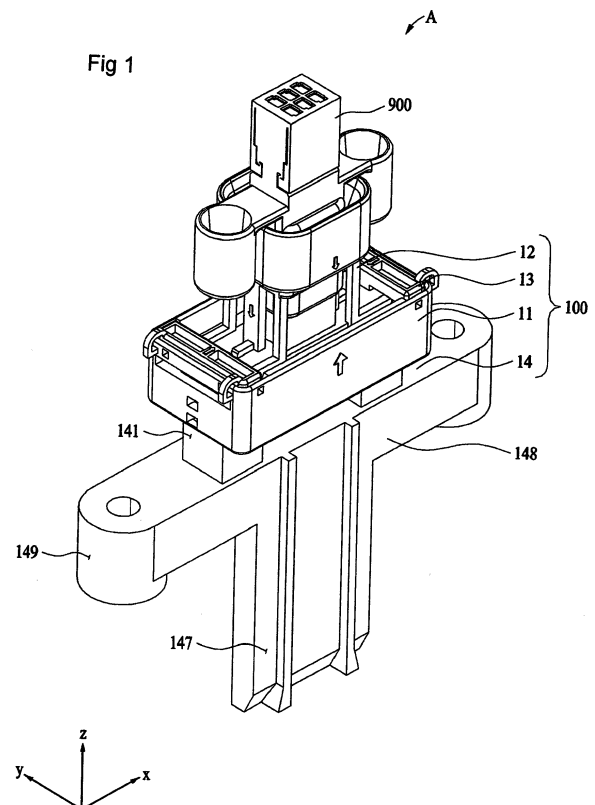
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(54) **POSITIONABLE CONNECTOR AND CONNECTOR ASSEMBLY INCLUDING THE SAME**

(57) A positionable connector (100) includes a housing (11), a plug (12) disposed in the housing (11), a cover (13) connected to the housing (11) and configured to at least partly cover the plug (12) so that the plug (12) does not detach from the housing (11), and a fastening part (112, 122) which releasably connects the plug (12) and the housing (11), and which fixes the plug (12) and the housing (11) to each other, and when an external force is applied to the plug (12), a coupling force of the fastening part (112, 122) is lost, and the plug (12) is able to be slid along a housing plane (xy).



Description

[0001] This application claims the benefit of Korean Patent Application No. 10-2021-0116709 filed on September 2, 2021, and Korean Patent Application No. 10-2022-0103400 filed on August 18, 2022 at the Korean Intellectual Property Office, the entire disclosure of which is incorporated herein by reference for all purposes.

BACKGROUND

[0002] One or more example embodiments relate to a positionable connector and a connector assembly including the same.

[0003] A connector is a type of electric component that allows or blocks an electrical connection. Connectors are used in various electromechanical devices such as automobiles or home appliances to enable an electrical and/or physical connection between a plurality of electronic components.

[0004] The above description is information the inventor(s) acquired during the course of conceiving the present disclosure, or already possessed at the time, and is not necessarily art publicly known before the present application was filed.

SUMMARY

[0005] Example embodiments provide a positionable connector and a connector assembly including the same.

[0006] According to an aspect, there is provided a positionable connector including a housing, a plug disposed in the housing, a cover connected to the housing and configured to restrain or at least partially cover the plug so that the plug does not detach from the housing, and a fastening part to which the plug and the housing are releasably connected, fixing the plug and the housing to each other, and when an external force is applied to the plug, a coupling force or mutual coupling force of the fastening part is lost, and the plug is able to be slid along a housing plane.

[0007] According to an example embodiment, the positionable connector may further include a bracket connected to the housing and configured to movably support the housing in a third direction intersecting the housing plane.

[0008] According to an example embodiment, the bracket may include a bracket body inserted into the housing, and a bracket protrusion protruding from the bracket body, and the housing may include a plurality of bracket accommodating parts spaced apart in or provided in parallel in the third direction and capable of accommodating the bracket protrusion.

[0009] According to an example embodiment, at least a portion of the fastening part may be configured to be broken by interference with the housing when the plug is slid along the housing plane by an external force.

[0010] According to an example embodiment, the plug

may include a slider which is slidable between the housing and the cover and has a plate shape.

[0011] According to an example embodiment, the fastening part may include a plug protrusion protruding from one surface of the slider and to be inserted into the housing.

[0012] According to an example embodiment, the fastening part may include a main accommodating part in the housing to accommodate the plug protrusion.

[0013] According to an example embodiment, the housing may further include a sub-accommodating part provided at a position spaced apart from the main accommodating part along the housing plane.

[0014] According to an example embodiment, the sub-accommodating part may be a groove recessed from one surface of the housing, and a depth of the groove may be smaller than a length in which the plug protrusion protrudes from the slider.

[0015] According to an example embodiment, the main accommodating part may further include a rounded surface convexly formed adjacent, confronting or toward a connection portion between the plug protrusion and the slider in a state in which the plug protrusion is accommodated in the main accommodating part.

[0016] According to an example embodiment, the plug protrusion may include a plug protrusion body connected to the slider, and a plug protrusion head protruding from the plug protrusion body and being thinner than the plug protrusion body.

[0017] According to an example embodiment, a maximum length at which the plug protrusion body protrudes from the slider may be smaller than a tolerance formed in a connection portion between the cover and the housing.

[0018] According to an example embodiment, the plug may further include a plug head protruding from the slider.

[0019] According to an example embodiment, the plug head may be spaced apart from the housing and the cover.

[0020] According to an example embodiment, the plug may further include a plug rib protruding inward from an inner side surface of the plug head.

[0021] According to another aspect, there is provided a connector assembly including a positionable connector including a housing, a plug provided to be slidable along the housing, and a cover rotatably connected to the housing and configured to cover at least a portion of the plug, and an insertion connector inserted into the plug, wherein the plug includes a slider slidable between the housing and the cover, and a plug protrusion protruding from the slider and provided to be inserted into the housing.

[0022] According to an example embodiment, while the insertion connector is inserted into the plug, the plug may be slidable with respect to the housing in a first direction and in a second direction intersecting the first direction.

[0023] According to an example embodiment, the positionable connector may further include a bracket con-

nected to the housing and movable along the housing in a third direction intersecting each of the first direction and the second direction.

[0024] Additional aspects of example embodiments will be set forth in part in the description which follows and, in part, will be apparent from the description, or may be learned by practice of the disclosure.

[0025] According to example embodiments, the positionable connector may assist alignment by including a housing, a plug slidable on an xy plane along the housing, and a bracket provided to be movable on the housing in a z-axial direction.

[0026] According to example embodiments, the connector assembly may include a positionable connector and an insertion connector. While the insertion connector is inserted into the positionable connector, the plug of the positionable connector may be aligned with the insertion connector by sliding on the xy plane.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] These and/or other aspects, features, and advantages of the invention will become apparent and more readily appreciated from the following description of example embodiments, taken in conjunction with the accompanying drawings of which:

FIG. 1 is a perspective view illustrating a connector assembly according to an example embodiment;
 FIG. 2 is an exploded perspective view illustrating a connector assembly according to an example embodiment;
 FIG. 3 is a plan view illustrating a positionable connector according to an example embodiment;
 FIG. 4 is a perspective view illustrating a plug according to an example embodiment;
 FIG. 5 is a perspective view illustrating a housing and a cover according to an example embodiment;
 FIGS. 6A and 6B are cross-sectional views illustrating a positionable connector according to an example embodiment;
 FIG. 7 is a perspective view illustrating a positionable connector according to an example embodiment;
 FIG. 8 is a cross-sectional view illustrating a positionable connector according to an example embodiment;
 FIG. 9 is a perspective view illustrating a bracket according to an example embodiment; and
 FIG. 10 is a perspective view illustrating a housing according to an example embodiment.

DETAILED DESCRIPTION

[0028] Hereinafter, example embodiments will be described in detail with reference to the accompanying drawings. The following describes one of several aspects of example embodiments and forms a part of a detailed description of the example embodiments.

[0029] In the description of example embodiments, any detailed description of well-known related structures or functions will be omitted when it is deemed that such description will make the present disclosure ambiguous.

[0030] In addition, terms or words used in the present specification and claims should not be construed as conveying general meanings or dictionary definitions, and based on a principle that the inventor may properly define the concept of terms in order to best describe their invention, the terms or words should be construed as conveying meanings and concepts consistent with the technical idea of a connector assembly according to an example embodiment.

[0031] The example embodiments described herein and structures illustrated in the accompanying drawings relate to a most desirable example of a connector assembly, but do not represent all technical features of the connector assembly. Thus, it is understood that various modifications and equivalents that replace the example embodiments and structures may also be available.

[0032] FIG. 1 is a perspective view illustrating a connector assembly according to an example embodiment, FIG. 2 is an exploded perspective view illustrating a connector assembly according to an example embodiment, and FIG. 3 is a plan view illustrating a positionable connector according to an example embodiment.

[0033] Referring to FIGS. 1 to 3, a connector assembly A may include a positionable connector 100 and an insertion connector 900. The positionable connector 100 and the insertion connector 900 may be coupled to each other. The insertion connector 900 may be coupled to the positionable connector 100 by being moved in a z-axial direction. The positionable connector 100 and the insertion connector 900 may relatively move in the z-axial direction. The positionable connector 100 may be provided in a state of being connected to a first fixture (not shown). The insertion connector 900 may be provided in a state of being connected to a second fixture (not shown). For example, the first fixture may correspond to a headlight, and the second fixture may be an automobile body. For example, the second fixture may be relatively heavier than the first fixture. The positionable connector 100 and the insertion connector 900 may be coupled to each other in a state of being aligned with each other in the z-axial direction.

[0034] The positionable connector 100 and the insertion connector 900 may be coupled to each other in an automated process. The insertion connector 900 may be provided in a state of being fixed to a relatively large and heavy second fixture. The positionable connector 100 may be provided in a state of being fixed to a relatively small and light first fixture, and the first fixture may approach the positionable connector 100. For example, the positionable connector 100 and the first fixture may be moved via a robot arm.

[0035] In a state in which the positionable connector 100 and the insertion connector 900 are not aligned, while the positionable connector 100 and the insertion connector

tor 900 are coupled to each other in the z-axial direction, the positionable connector 100 may interfere with the insertion connector 900 to allow positioning on an xy plane. The positionable connector 100 may be provided with a buffer structure in the z-axial direction to prevent damage in case the positionable connector 100 moves by a distance greater than a distance to be moved toward the insertion connector 900. The positionable connector 100 may include a housing 11, a plug 12, a cover 13, and a bracket 14.

[0036] The housing 11 may include a housing plate 111 for guiding a movement of the plug 12 and a housing case 119 surrounding the housing plate 111 and forming an exterior of the housing 11.

[0037] The plug 12 may include a slider 121 provided to be slidable along the housing plate 111 and a plug head 123 protruding from the slider 121. The plug 12 may support a plurality of first terminals (not shown). The plurality of first terminals (not shown) may be provided in a state of being connected to a central portion of the plug 12.

[0038] The plug 12 may slide along the housing 11 in a first direction. Here, the first direction may be referred to as an x-axial direction. For example, when the positionable connector 100 approaches the insertion connector 900 with a bias in a +x direction, the insertion connector 900 may interfere with the plug 12, and the plug 12 may be pressed by the insertion connector 900 to slide in the +x direction. For example, the positionable connector 100 may approach the insertion connector 900 while being biased in a -x direction. In this example, the insertion connector 900 and the plug 12 may interfere with each other, the plug 12 may be moved in the +x direction, and the plug 12 may be aligned with the insertion connector 900 on the xy plane.

[0039] The plug 12 may slide along the housing 11 in a second direction intersecting the first direction. Here, the second direction may be referred to as a y-axial direction. For example, the positionable connector 100 may be proximate to the insertion connector 900 while being biased in a +y direction. In this example, the insertion connector 900 and the plug 12 may interfere with each other, the plug 12 may be moved in a -y direction, and the plug 12 may be aligned with the insertion connector 900 on the xy plane.

[0040] The cover 13 may cover the plug 12 in a state in which the plug 12 is disposed on the housing 11. The cover 13 may support the plug 12 so as to prevent it from being separated from the housing 11 in the z-axial direction (the coupling direction of the connector assembly). The cover 13 may guide the plug 12 to move on the xy plane. For example, a distance between the cover 13 and the housing plate 111 may be approximately equal to a thickness of the slider 121.

[0041] The cover 13 may be provided as a pair on opposite sides with respect to the plug head 123. The plug head 123 may be provided in a state of being spaced apart from a pair of covers 13 in the x-axial direction. For

example, the plug head 123 may be spaced apart by a first distance d1 from the cover 13 provided on the left side with reference to FIG. 3, and spaced apart by a second distance d2 from the cover 13 provided on the right side with reference to FIG. 3. The plug head 123 may be spaced apart from an outer wall of the housing 11 in the y-axial direction. For example, the plug head 123 may be spaced apart by a third distance d3 from the outer wall of the housing 11 provided on the upper side with reference to FIG. 3, and spaced apart by a fourth distance d4 from the outer wall of the housing 11 provided on the lower side with reference to FIG. 3.

[0042] The positionable connector 100 may include a fastening part (not shown) for detachably connecting the plug 12 and the housing 11 on the xy plane. The fastening part may temporarily couple the plug 12 to the housing 11. Here, the fastening part temporarily coupling the plug 12 to the housing 11 may mean that the plug 12 is not constrained to the housing 11 and is movable with respect to the housing 11 under a predetermined condition.

[0043] For example, when no external force is applied, the plug 12 may be provided in a state of being coupled to the housing 11. The plug 12 may not be slidable with respect to the housing 11 and may remain in a state of being coupled to the housing 11 via the fastening part.

[0044] For example, when an external force is applied, a fixing force of the temporarily fixed fastening part is released, so that the plug 12 may be provided to be slidable on the xy plane with respect to the housing 11. At least a portion of the fastening part may be broken by an external force. For example, when an external force is applied, at least a portion of the fastening part may be separated, and the plug 12 and the housing 11 in a fixed state may be released. For example, while the plug 12 is interfered with by the insertion connector 900 and slides in the first direction and/or the second direction, at least a portion of the fastening part may interfere with the housing 11 and break.

[0045] The bracket 14 may be movably connected to the housing 11. The bracket 14 may move in the z-axial direction with respect to the housing 11. The bracket 14 may be provided in a state of being fixed to the fixture. The housing 11 may slide along the bracket 14 in a third direction intersecting each of the first direction and the second direction. Here, the third direction may be referred to as a z-axial direction. For example, when the insertion connector 900 moves in the z-axial direction more than a designed length, the insertion connector 900 may press the plug 12 in a -z direction, and the plug 12 and the housing 11 may be moved in the -z direction with respect to the bracket 14. In this way, the positionable connector 100 and the insertion connector 900 may move in the z-axial direction while being coupled, and the size of a tolerance that exists before coupling in the z-axial direction is completed may be reduced. Through the coupling scheme of the positionable connector 100 and the insertion connector 900 described above, it may be visually confirmed whether the coupling of the first fixture

and the second fixture has been completed normally.

[0046] The bracket 14 may include a bracket body 141 provided to be inserted into the housing 11, a bracket base 148 connected to the bracket body 141, a fastening member 149 provided at both ends of the bracket base 148 and fixed to a fixture (not shown), and a bracket plate 147 extending from the bracket base 148. The housing 11 may include a plurality of bracket accommodating parts 117 provided in parallel in or spaced along the third direction and capable of accommodating a bracket protrusion 142.

[0047] FIG. 4 is a perspective view illustrating a plug according to an example embodiment, FIG. 5 is a perspective view illustrating a housing and a cover according to an example embodiment, and FIGS. 6A and 6B are cross-sectional views illustrating a positionable connector according to an example embodiment.

[0048] Referring to FIGS. 4 to 6B, the housing 11 may include a housing plate 111 and a housing case 119. A pair of covers 13 may be rotatably connected to the housing case 119. The pair of covers 13 may be assembled to the housing case 119. The cover 13 may include a cover arm 131 connected to the housing case 119, a cover body 132 connected to the cover arm 131, and a cover protrusion 133 protruding from the cover body 132 and inserted into the housing case 119. The cover 13 may include a cover rib 13a protruding from the cover body 132 in a direction different from that of the cover protrusion 133 and inserted into the housing case 119. The housing case 119 may include an accommodating part 119a for accommodating the cover protrusion 133. In a state in which the cover protrusion 133 is accommodated in the accommodating part 119a, a small gap may be provided between the cover protrusion 133 and the accommodating part 119a.

[0049] The fastening part may include a plug protrusion 122 protruding from one surface of the slider 121 and inserted into the housing 11, and in particular into a main accommodating part 112 formed in the housing 11. A plurality of plug protrusions 122 may be provided to be spaced apart from each other on one surface of the slider 121. For example, two plug protrusions 122 may be provided, and the two plug protrusions 122 may be provided opposite to each other with respect to the center of the slider 121. The plug head 123 may protrude from the center of the slider 121 in the third direction.

[0050] The housing 11 may include a housing plate 111 supporting the slider 121, and a housing case 119 surrounding the housing plate 111 and supporting the cover 13. The housing 11 may include a sub-accommodating part 113 formed on the housing plate 111 and capable of accommodating a remaining portion after a portion of the plug protrusion 122 is broken.

[0051] The fastening part may temporarily fix the housing 11 and the plug 12. In a state in which no external force is applied, the plug protrusion 122 may be provided in a state of being accommodated in the main accommodating part 112. While the plug 12 is moved along the

housing 11 on the xy plane by an external force, the plug protrusion 122 may be broken by being pressed by the main accommodating part 112. When the plug protrusion 122 is broken, at least a portion of the plug protrusion 122 may be separated from the slider 121.

[0052] In a state in which no external force is applied, the main accommodating part 112 may accommodate the plug protrusion 122, and help maintain the plug 12 in a fixed state with the housing 11. For example, the main accommodating part 112 may have a hole shape formed through the housing plate 111. However, a shape of the main accommodating part 112 is not limited thereto.

[0053] A plurality of sub-accommodating parts 113 may be provided. At least a portion of the plurality of sub-accommodating parts 113 may be provided at a position spaced apart from the main accommodating part 112 in the first direction. Other portions of the plurality of sub-accommodating parts 113 may be provided at a position spaced apart from the main accommodating part 112 in the second direction.

[0054] The plug protrusion 122 may include a plug protrusion body 1221 protruding from the slider 121 and a plug protrusion head 1222 protruding from the plug protrusion body 1221. The plug protrusion head 1222 may be formed thinner or have a smaller diameter than the plug protrusion body 1221.

[0055] The slider 121 may be provided in a state of being sandwiched between the housing plate 111 and the cover 13. When an external force is applied to the plug protrusion 122, the plug protrusion head 1222 may be separated from the plug protrusion body 1221. The slider 121 may be slidable between the housing plate 111 and the cover 13 while the plug protrusion head 1222 is connected. A tolerance may be provided at a portion where the housing 11 and the cover 13 are connected to each other. A spaced portion may be provided at a portion where the cover 13 and the housing 11 are coupled. The cover 13 may move up and down while the slider 121 slides.

[0056] For example, a protrusion length of the plug protrusion body 1221 may be smaller than a maximum size of the tolerance. For example, when the plug protrusion head 1222 is broken and separated from the plug protrusion body 1221, the plug protrusion 122 may be separated from the main accommodating part 112. The plug protrusion body 1221 may be movable along a top surface of the housing 11. Here, the top surface of the housing 11 may be a surface supporting the slider 121 in the housing 11 in a state in which the plug protrusion 122 is accommodated in the main accommodating part 112.

[0057] Although an example embodiment in which the sub-accommodating part 113 is provided in the housing has been described above, the slider 121 may be movable along the top surface of the housing 11 even without the sub-accommodating part 113. For example, a portion remaining after at least a portion of the slider 121 is broken may be slidable along the top surface of the housing 11. Even if the slider 121 is provided in a state of being

slidable along the top surface of the housing 11, when the positionable connector 100 and the insertion connector 900 are completely coupled, a relative position of the slider 121 with respect to the housing 11 may be fixed due to the fixed state of the positionable connector 100 and the insertion connector 900. In other words, the movement of the slider 121 may be constrained.

[0058] When the slider 121 moves in the x-axial direction, the plug protrusion body 1221 may be separated from the main accommodating part 112 to be accommodated in the sub-accommodating part 113. A plurality of sub-accommodating parts 113 may be provided. The sub-accommodating part 113 may be provided at a position spaced apart from the main accommodating part 112 in the x-axial direction. The plug head 123 may be provided to be spaced apart from the cover 13. The slider 121 may be movable until the plug head 123 comes into contact with the cover 13.

[0059] When the slider 121 moves in the y-axial direction, the plug protrusion body 1221 may be separated from the main accommodating part 112 to be accommodated in the sub-accommodating part 113. A plurality of sub-accommodating parts 113 may be provided. The sub-accommodating part 113 may be provided at a position spaced apart from the main accommodating part 112 in the y-axial direction. The slider 121 may be provided to be spaced apart from an outer wall of the housing case 119. The slider 121 may be movable until coming into contact with the outer wall of the housing case 119.

[0060] Although it is shown in the drawings that 24 sub-accommodating parts 113 encircle one main accommodating part 112, the number of sub-accommodating parts 113 is not limited thereto.

[0061] The housing may include a rounded surface 114 convexly formed toward a connection portion between the plug protrusion 122 and the slider 121 in a state in which the plug protrusion 122 is accommodated in the main accommodating part 112. With respect to the rounded surface 114, the plug protrusion body 1221 may move along the rounded surface 114 in the +z direction.

[0062] FIG. 7 is a perspective view illustrating a positionable connector according to an example embodiment.

[0063] Referring to FIG. 7, a positionable connector 200 may include a housing, a plug, and a cover. The plug may be provided to be slidable in an x-axial and/or y-axial direction with respect to a housing 21. The plug may include a slider 221, a plug head 223 and plug ribs 224.

[0064] The plug head 223 may have an inclined surface 223a on an inner wall portion. The inclined surface may, for example, be inclined in a direction toward the center of the plug head 223 as it extends down the plug. The inclined surface of the plug head 223 may interfere with the insertion connector (refer to FIG. 1). The insertion connector may apply a pressing force to the inclined surface, and the pressing force may act to move the plug on an xy plane. For example, in a state in which the insertion connector is offset with respect to the plug on the

xy plane, while the insertion connector and the plug are assembled, the insertion connector may press the inclined surface, a fixture may be released, and the plug may move on the xy plane. The plug ribs 224 may protrude inward from an inner side surface of the plug head 223. The plug ribs 224 may press an insertion connector (not shown) inserted into the plug head 223. The plug ribs 224 may apply an elastic force to the insertion connector, thereby assisting in smoother force transmission between the insertion connector and the plug. For example, the plug ribs 224 may be temporarily elastically deformed by being pressed by the insertion connector. A restoring force of the plug ribs 224 may increase a magnitude of a force acting between the insertion connector and the plug. The plug ribs 224 may have a rounded corner portion 224a at an edge portion.

[0065] FIG. 8 is a cross-sectional view illustrating a positionable connector according to an example embodiment.

[0066] Referring to FIG. 8, a housing 31 may include a housing plate 311 and a plurality of sub-accommodating parts 313 recessed from one surface of the housing plate 311.

[0067] A length L1 of a plug protrusion 322 may be greater than a depth L2 of the sub-accommodating part 313. While a plug 32 is seated in the housing 31, when the plug protrusion 322 is accommodated in any one sub-accommodating part 313 among the plurality of sub-accommodating parts 313, a tip of the plug protrusion 322 may be seated on a bottom surface of the sub-accommodating part 313, and a bottom surface of a slider 321 may not be in surface contact with a top surface of the housing plate 311. In this case, an operator may determine that the plug 32 is not normally seated on the housing 31. When the plug 32 is not normally seated on the housing 31, a cover may not be fastened to the housing 31. For example, in a state in which the plug protrusion 322 is inserted into the sub-accommodating part 313, the cover may be interfered with by the slider 321 such that a sufficient rotation angle may not be secured.

[0068] On the other hand, while the plug 32 is seated in the housing 31, when the plug protrusion 322 is accommodated in a main accommodating part 312, the plug protrusion 322 may be completely accommodated in the main accommodating part 312, and the bottom surface of the slider 321 may be in surface contact with the top surface of the housing plate 311. In this case, the operator may determine that the plug 32 is normally seated in the housing 31.

[0069] FIG. 9 is a perspective view illustrating a bracket according to an example embodiment, and FIG. 10 is a perspective view illustrating a housing according to an example embodiment.

[0070] Referring to FIGS. 9 and 10, the bracket 14 may include a bracket base 148, a bracket body 141 connected to the bracket base 148 and provided to be inserted into the housing 11, a bracket protrusion 142 protruding from the bracket body 141, and a fastening member 149

provided at both ends of the bracket base 148 and fixed to a fixture (not shown). The fastening member 149 may be provided as a pair. A pair of fastening members 149 may be provided at both ends of the bracket base 148. In a state in which the fastening member 149 is fixed to the fixture (not shown), the bracket 14 may be provided in a relatively fixed state with respect to the fixture as a whole. The bracket 14 may be provided to be movable along the housing 11.

[0071] The housing 11 may include the housing case 119, the housing guide 118 formed inside the housing case 119, and the bracket accommodating part 117 formed on one side of the housing case 119 and communicating with the housing guide 118. The housing case 119 may form an exterior of the housing 11. The housing guide 118 may accommodate the bracket body 141. The housing guide 118 may guide a movement of the bracket 14. The housing guide 118 may be provided as a pair on opposite sides with respect to the center of the housing 11. The bracket accommodating part 117 may communicate with the housing guide 118. The bracket accommodating part 117 may accommodate at least a portion of the bracket 14 (such as the bracket protrusion 142) moving along the housing guide 118. Although the bracket accommodating part 117 is shown as a hole formed through the housing case 119, it is not limited thereto. For example, the bracket accommodating part 117 may be recessed in an inner wall of the housing case 119 and may be a groove provided in a state of facing the bracket accommodating part 117.

[0072] A plurality of bracket accommodating parts 117 may be provided. The plurality of bracket accommodating parts 117 may be provided to be spaced apart from each other in a z-axial direction. For example, in an initial state, the bracket protrusion 142 may be accommodated in the bracket accommodating part 117 provided close to the bracket base 148 among the plurality of bracket accommodating parts 117. As the connector assembly is being assembled, the housing 11 may be moved by being pressed in a direction toward the bracket base 148, and in this case, the bracket protrusion 142 may be separated from a previously accommodated bracket accommodating part 117 and, may be moved to the bracket accommodating part 117 that is relatively further apart from the bracket base 148 and accommodated there. The distance between the bracket base 148 and the housing 11 may become smaller.

[0073] The example embodiments disclosed in the present specification and the drawings are presented merely as specific examples to promote understanding of the present disclosure, and are not intended to limit the scope of the present disclosure. It will be apparent to those skilled in the art that various modifications based on the technical spirit of the present disclosure, as well as the disclosed example embodiments, can be made. Therefore, the scope of the disclosure is defined not by the detailed description, but by the claims and their equivalents, and all variations within the scope of the claims

and their equivalents are to be construed as being included in the disclosure.

5 Claims

1. A positionable connector (100), comprising:

a housing (11);
a plug (12) disposed in the housing (11);
a cover (13) connected to the housing (11) and configured to restrain the plug (12) so that the plug (12) does not detach from the housing (11); and
a fastening part (112, 122) which releasably connects the plug (12) and the housing (11), and which fixes the plug (12) and the housing (11) to each other, and in response to an external force being applied to the plug (12), a coupling force of the fastening part (112, 122) is lost, and the plug (12) is able to be slid along a housing plane (xy).

2. The positionable connector (100) of claim 1, further comprising:
a bracket (14) connected to the housing (11) and configured to movably support the housing (11) in a third direction (z) intersecting the housing plane (xy).

3. The positionable connector (100) of claim 2, wherein the bracket (14) comprises a bracket body (141) inserted into the housing (11), and a bracket protrusion (142) protruding from the bracket body (141), and the housing (11) comprises a plurality of bracket accommodating parts (117) spaced apart in the third direction and capable of accommodating the bracket protrusion (142).

4. The positionable connector (100) of claim 1, wherein at least a portion of the fastening part (112, 122) is configured to be broken by interference with the housing when the plug is slid along the housing plane by an external force.

5. The positionable connector (100) of any preceding claim, wherein the plug (12) comprises a slider (121) which is slidable between the housing (11) and the cover (13) and has a plate shape.

6. The positionable connector (100) of claim 5, wherein the fastening part (112, 122) includes a plug protrusion (122) protruding from one surface of the slider (121) and configured to be inserted into the housing (11).

7. The positionable connector (100) of claim 6, wherein the fastening part (112, 122) includes a main accommodating part (112) in the housing (11) configured

to accommodate the plug protrusion (122).

8. The positionable connector (100) of claim 7, wherein the housing (11) further comprises a sub-accommodating part (113) provided at a position spaced apart from the main accommodating part (112) along the housing plane (xy). 5
9. The positionable connector (100) of claim 8, wherein the sub-accommodating part (313) is a groove recessed from one surface of the housing (11), and a depth (L2) of the groove is smaller than a length (LI) that the plug protrusion (322) protrudes from the slider (321). 10
10. The positionable connector (100) of claim 7 or any claim depending thereon, wherein the main accommodating part (112) further comprises a rounded surface (114) convexly formed confronting a connection portion between the plug protrusion (122) and the slider (121) in a state in which the plug protrusion (122) is accommodated in the main accommodating part (112). 20
11. The positionable connector (100) of claim 6 or any claim depending thereon, wherein the plug protrusion (122) comprises: 25
 - a plug protrusion body (1221) connected to the slider (121); and 30
 - a plug protrusion head (1222) protruding from the plug protrusion body (1221) and being thinner than the plug protrusion body (1221).
12. The positionable connector (100) of claim 11, wherein a maximum length the plug protrusion body (1221) protrudes from the slider (121) is smaller than a tolerance formed in a connection portion between the cover (13) and the housing (11). 35
13. The positionable connector (100) of claim 5 or any claim depending thereon, wherein the plug (12) further comprises a plug head (123) protruding from the slider (121). 40
14. The positionable connector (100) of claim 13, wherein the plug head (123) is spaced apart from the housing (11) and the cover (13). 45
15. The positionable connector (200) of claim 13 or 14, wherein the plug further comprises a plug rib (224) protruding inward from an inner side surface of the plug head (223). 50
16. A connector assembly (A), comprising: 55
 - a positionable connector (100) comprising a housing (11), a plug (12) provided to be slidable

along the housing (11), and a cover (13) rotatably connected to the housing (11) and configured to cover at least a portion of the plug (12); and

an insertion connector (900) inserted into the plug (12), wherein the plug (12) comprises a slider (121) slidable between the housing (11) and the cover (13), and a plug protrusion (122) protruding from the slider (121) and provided to be inserted into the housing (11).

17. The connector assembly (A) of claim 16, wherein as the insertion connector (900) is inserted into the plug (12), the plug (12) is slidable with respect to the housing (11) in a first direction (x) and in a second direction (y) intersecting the first direction (x).
18. The connector assembly (A) of claim 17, wherein the positionable connector (100) further comprises a bracket (14) connected to the housing (11) and movable along the housing (11) in a third direction (z) intersecting each of the first direction (x) and the second direction (y).

Fig 1

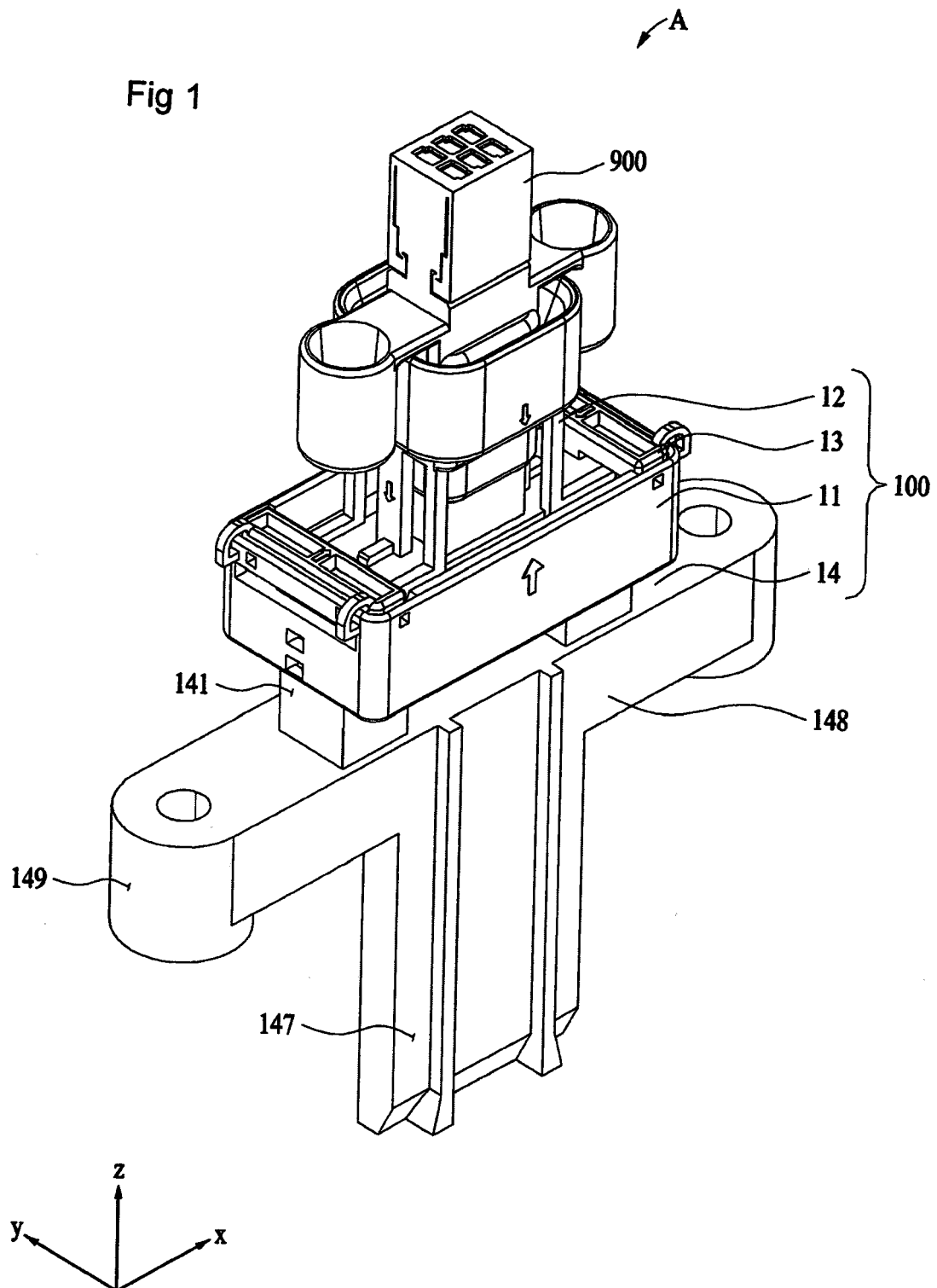


Fig 2

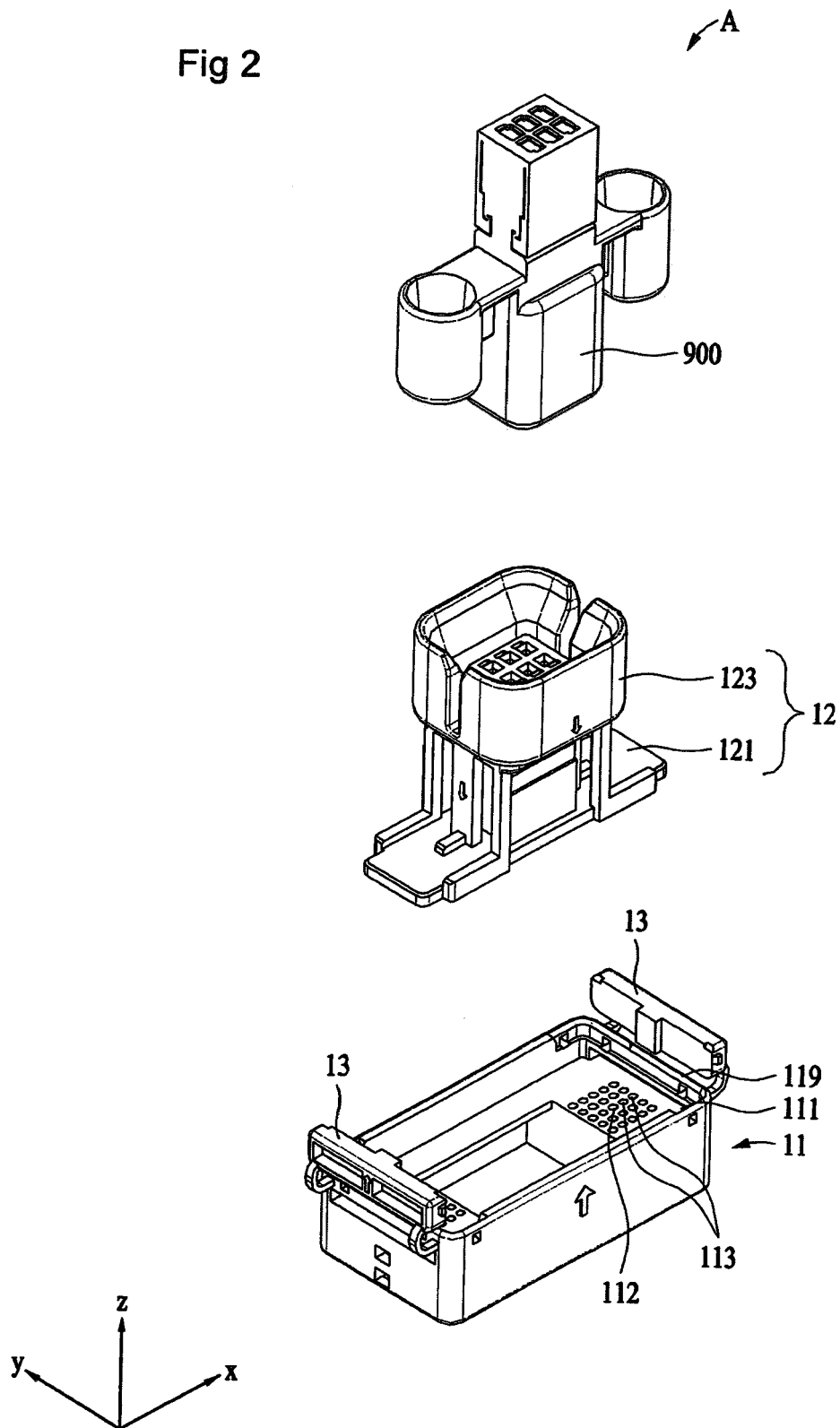


Fig 3

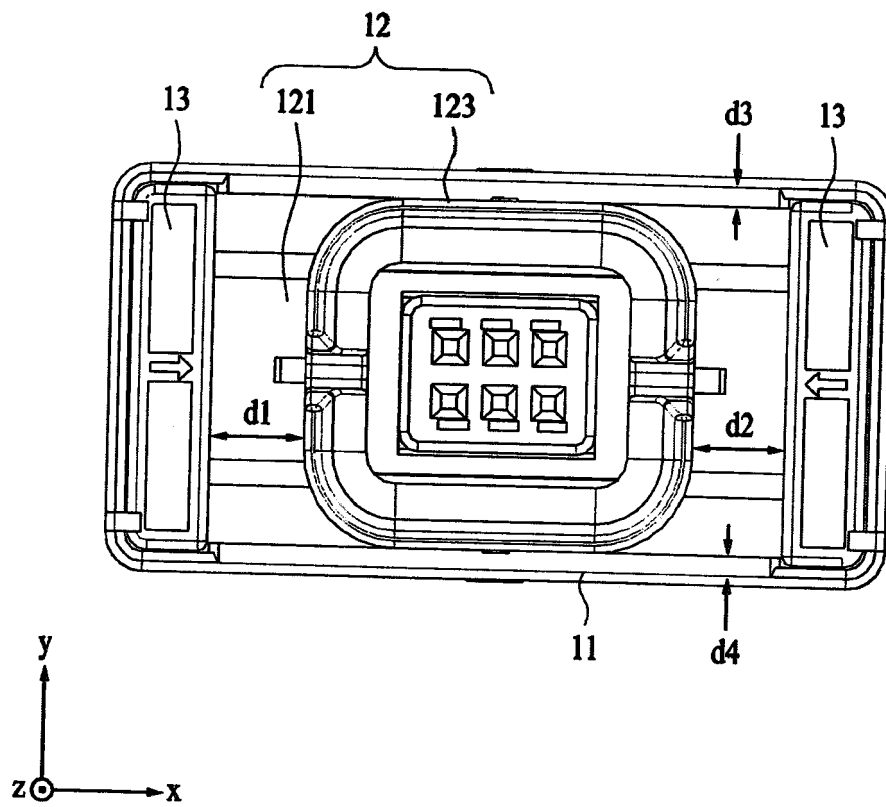


Fig 4

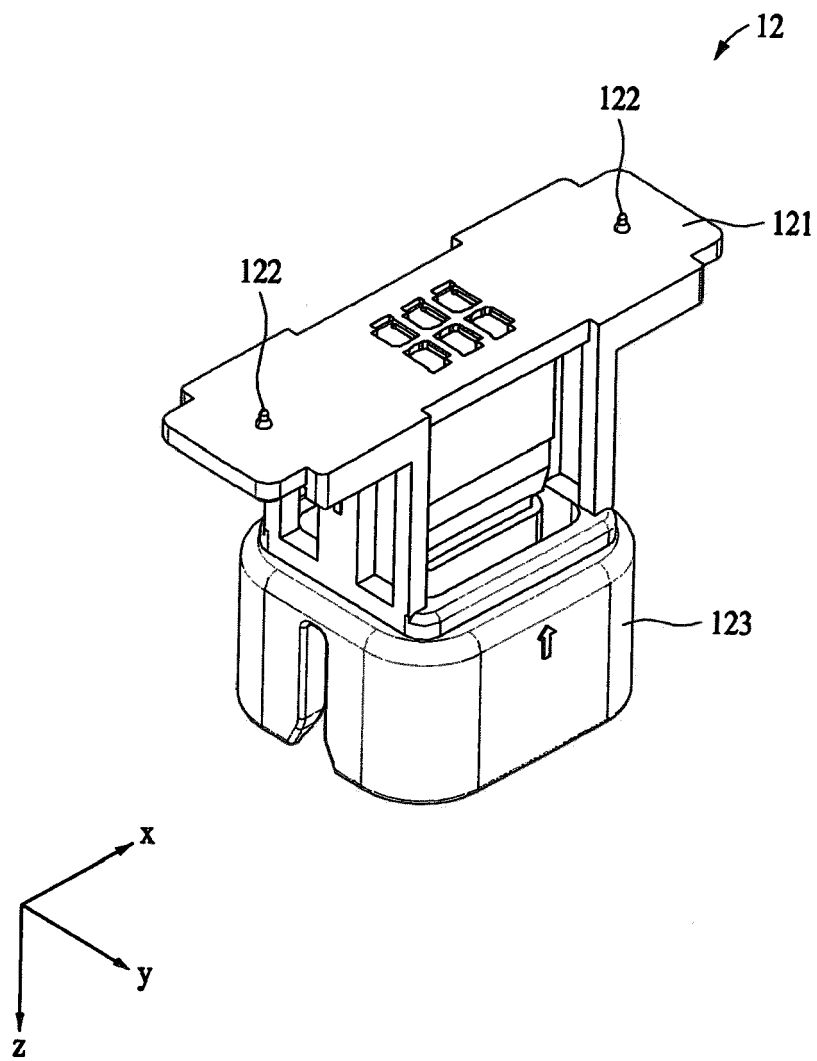


Fig 5

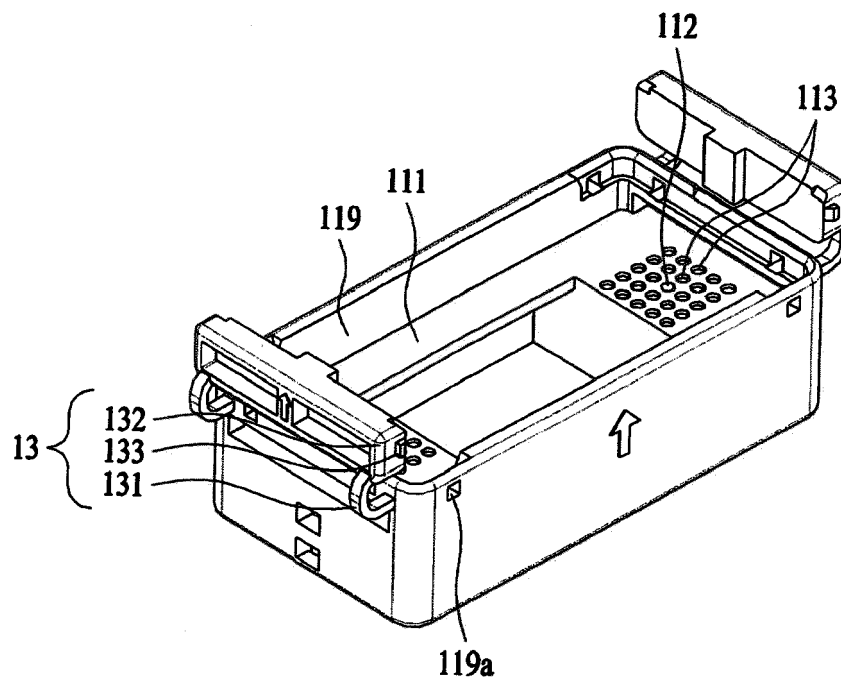


Fig 6A

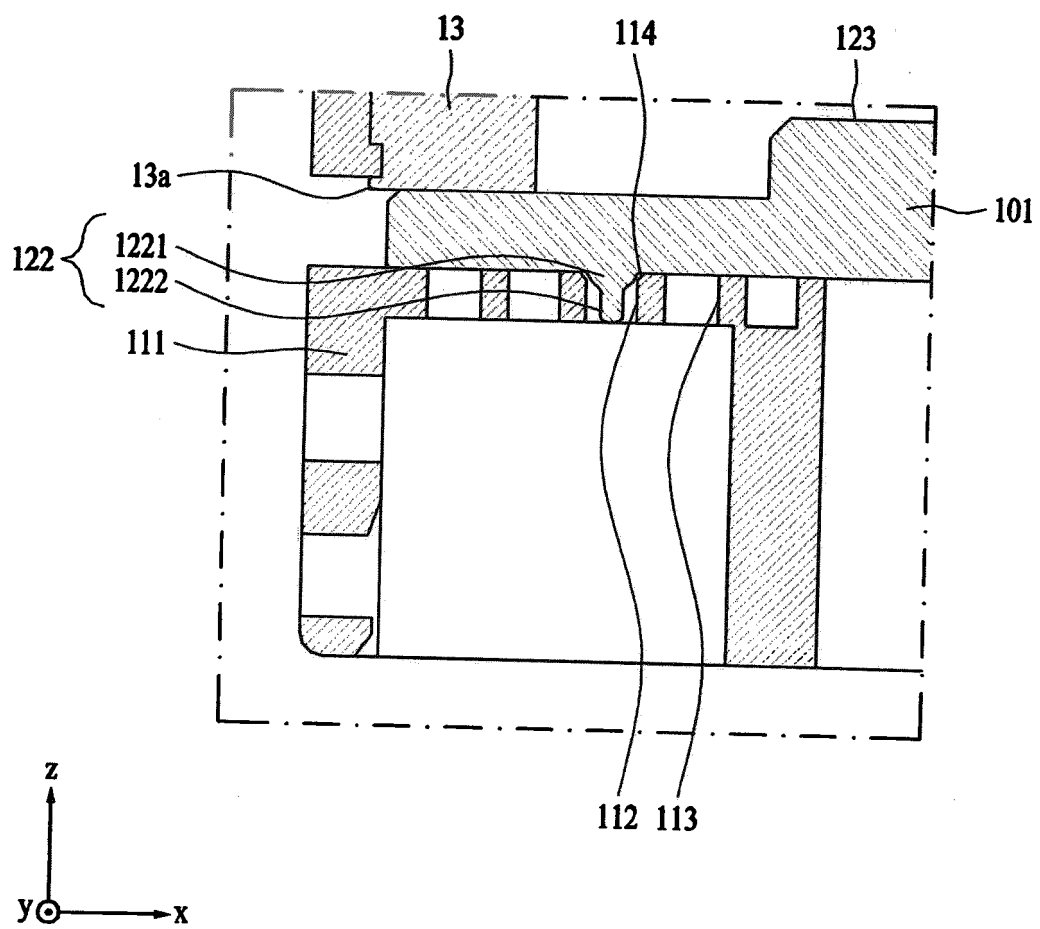


Fig 6B

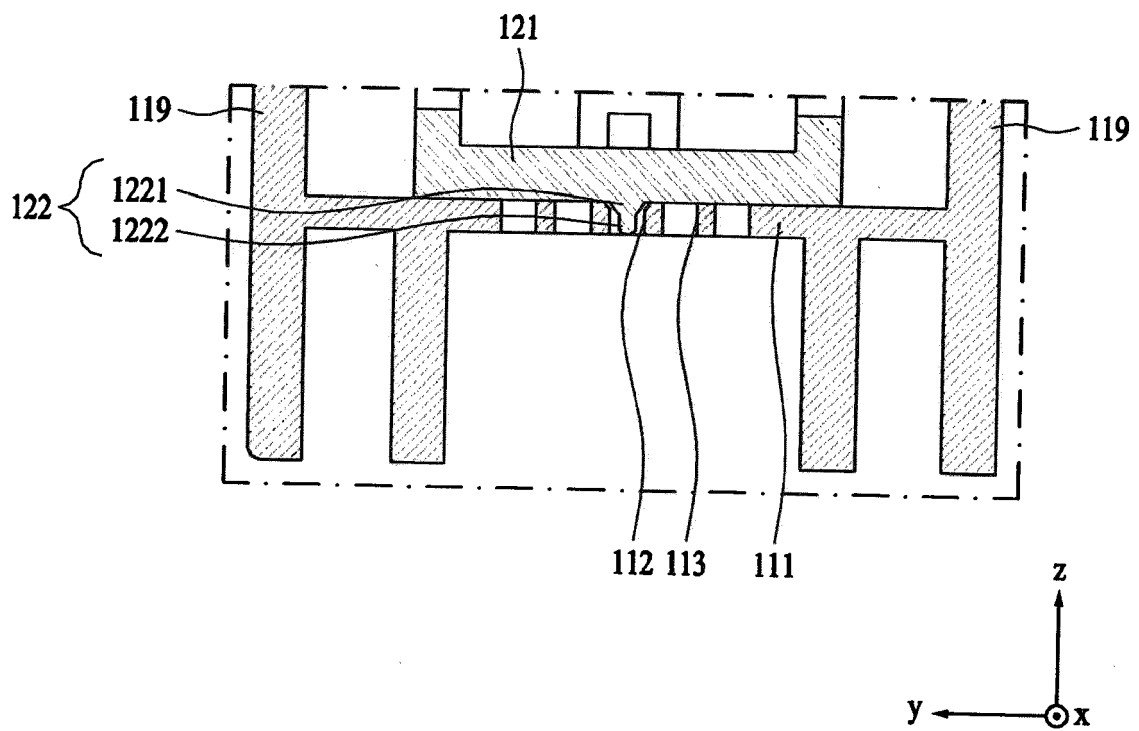


Fig 7

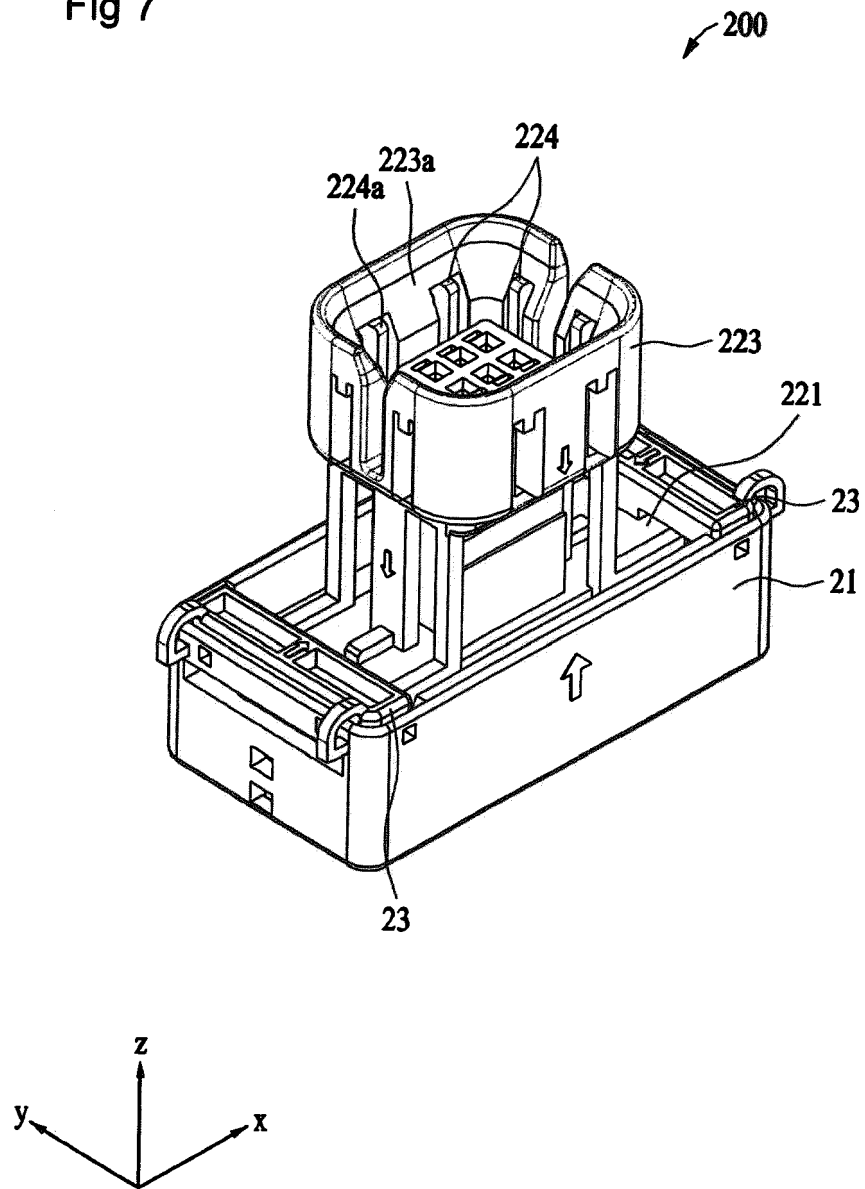


Fig 8

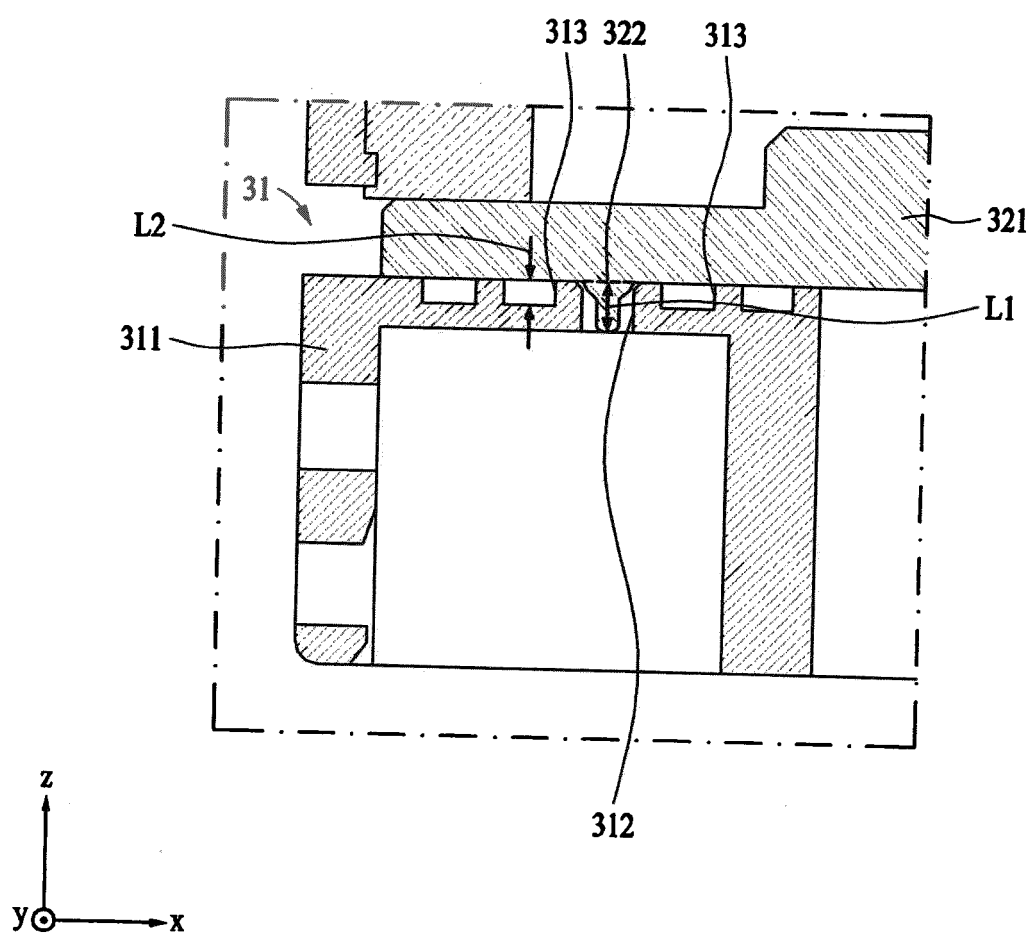


Fig 9

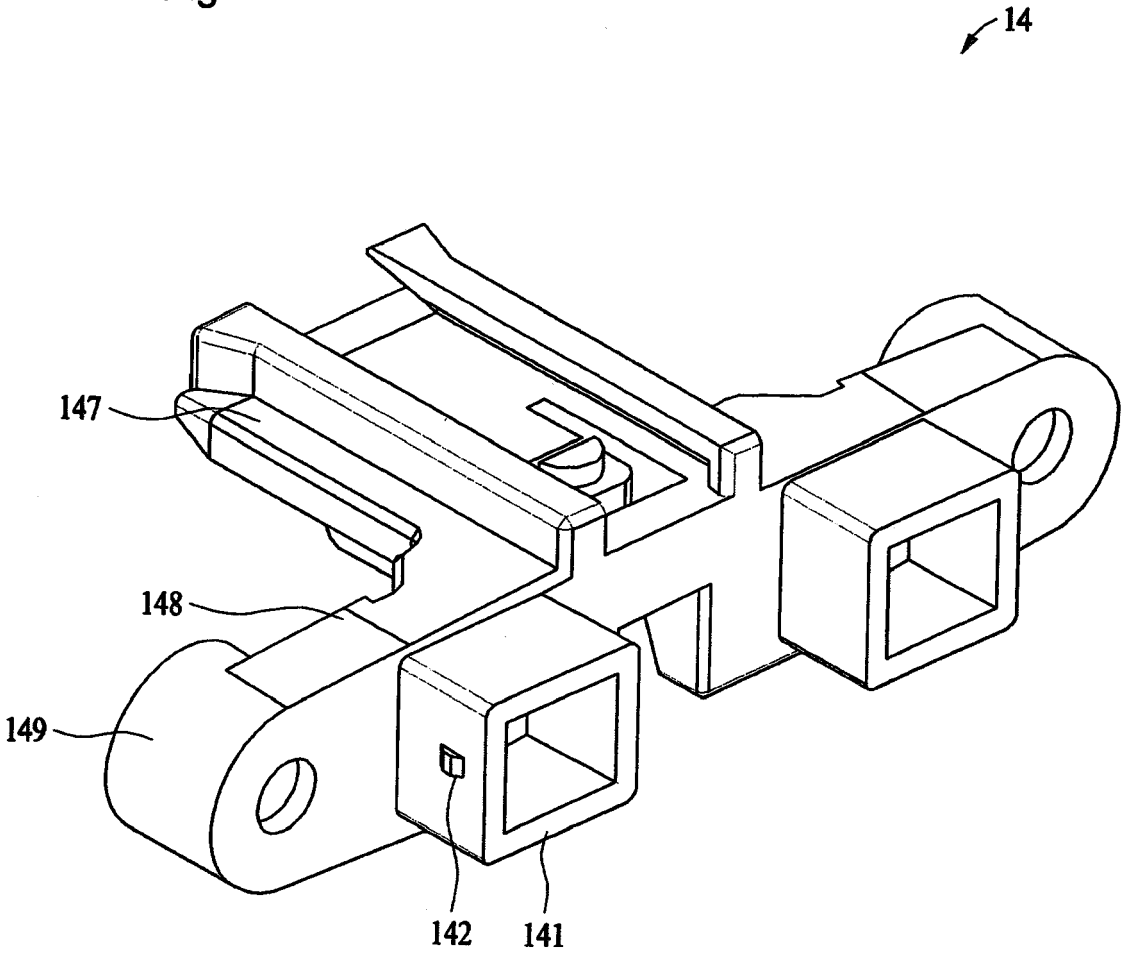
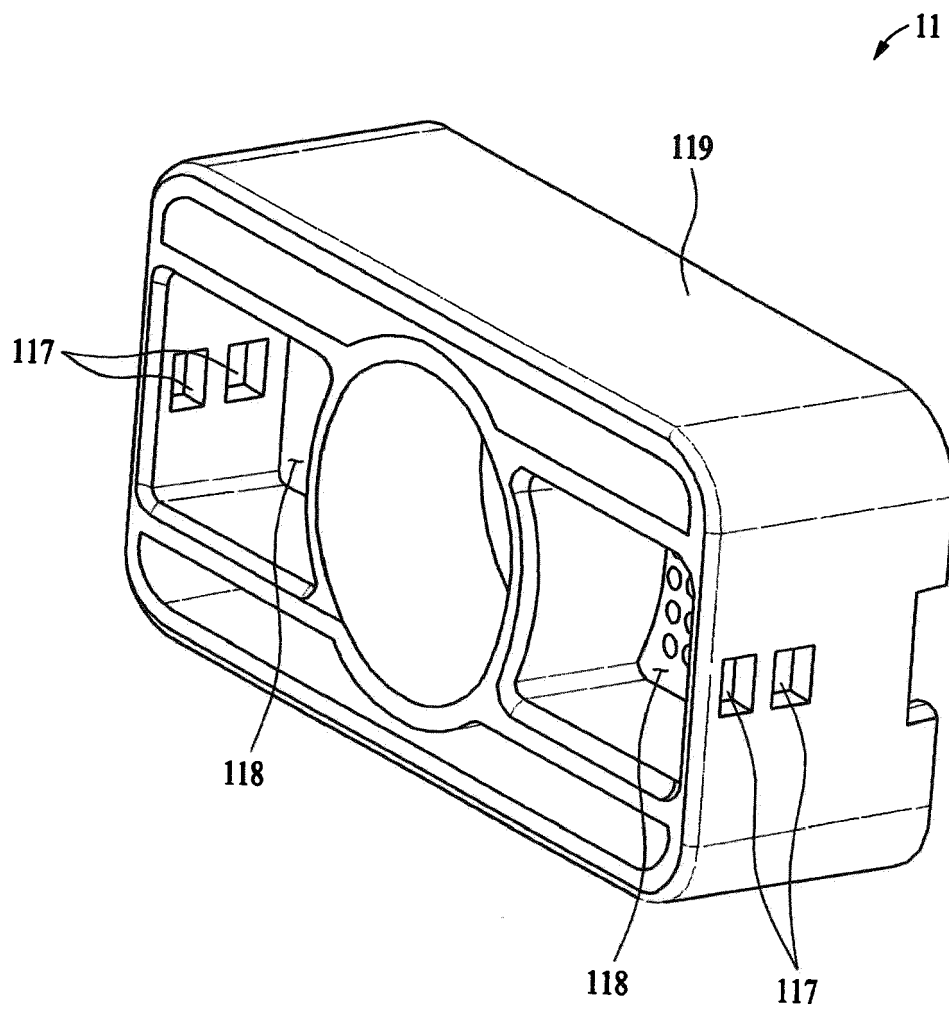


Fig 10



REFERENCES CITED IN THE DESCRIPTION

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