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(54) **CONNECTOR, FABRICATION METHOD THEREFOR AND RELATED DEVICE**

(57) This application provides a connector and a manufacturing method thereof, and a related device, applied to intelligent driving or autonomous driving. The connector includes a housing and a locking structure. The locking structure includes a force transmission arm, a pressing member suspended over the housing, and a first clamping member suspended over the housing. The force transmission arm includes a fixed end, a movable end, and a bending section that is bent and that connects the fixed end and the movable end. The fixed end is fixedly connected to the housing, the movable end is connected to the pressing member, and the bending section is connected to the first clamping member. The first clamping member is configured to move in a direction away from the housing under driving by the bending section when the pressing member is pressed. The technical solutions of this application can implement miniaturization of the connector on the premise of ensuring good working performance of the connector.

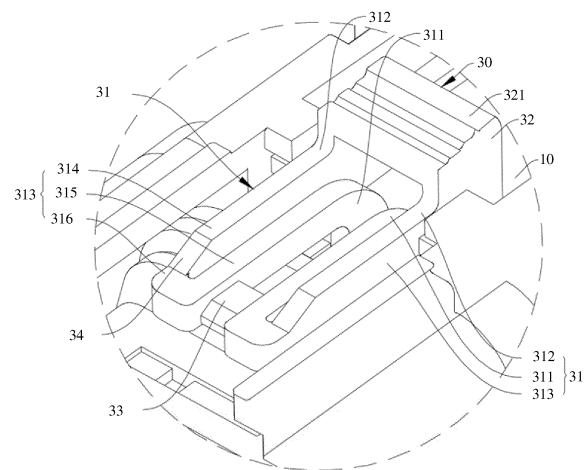


FIG. 7

Description

[0001] This application claims priority to Chinese Patent Application No. 202111016640.8, filed with the China National Intellectual Property Administration on August 31, 2021 and entitled "CONNECTOR AND MANUFACTURING METHOD THEREOF, AND RELATED DEVICE", which is incorporated herein by reference in its entirety.

TECHNICAL FIELD

[0002] This application relates to the technical field of connectors, and in particular, to a connector and a manufacturing method thereof, and a related device.

BACKGROUND

[0003] As connectors are more widely used, there are higher requirements on performance of connectors. For a structure of a whole machine, a connector is an important component for signal and current conduction, and a dimension of the structure of the whole machine depends on a dimension of the connector. Therefore, there is an urgent need for a small connector structure. How to implement miniaturization of a connector on the premise of ensuring good working performance of the connector is a subject that the industry has kept explored.

SUMMARY

[0004] Embodiments of this application provide a connector and a manufacturing method thereof, and a related device, to implement miniaturization of the connector on the premise of ensuring good working performance of the connector. The related device may be a connector assembly, an electronic device, a terminal, and a cable.

[0005] According to a first aspect of this application, a connector is provided. The connector includes:

a housing; and
a locking structure, where the locking structure includes a force transmission arm, a pressing member suspended over the housing, and a first clamping member suspended over the housing, the force transmission arm includes a fixed end, a movable end, and a bending section that is bent and that connects the fixed end and the movable end, the fixed end is fixedly connected to the housing, the movable end is connected to the pressing member, and the bending section is connected to the first clamping member, and the first clamping member is configured to move in a direction away from the housing under driving by the bending section when the pressing member is pressed.

[0006] The pressing member suspended over the housing may be understood as that the pressing member

is in no contact with the housing in a non-pressed state, that is, in a state in which no pressure is taken, and there is a specific distance between the pressing member and the housing. It should be understood that the suspension of the pressing member does not mean that the pressing member is in no contact with the housing at any time. For example, when the pressing member moves toward the housing because specific pressure is taken, the pressing member may come in contact with an outer surface of the housing. The first clamping member suspended over the housing may be understood as that the first clamping member is in no contact with the housing when no force is taken. It should be understood that suspension of the first clamping member does not mean that the first clamping member is in no contact with the housing at any time. For example, when the first clamping member moves toward the housing because downward pressure is taken, the first clamping member may come in contact with the outer surface of the housing.

[0007] It can be understood that the fixed end of the force transmission arm is fixedly connected to the housing. That is, the fixed end of the force transmission arm is a stationary ending part of the force transmission arm, and is a fixed point in the whole force transmission arm. The movable end of the force transmission arm is connected to the pressing member, and the pressing member may move as pressure is applied to the pressing member. Therefore, the movable end of the force transmission arm is a moving point, in the force transmission arm, that moves as the pressing member moves. The bending section of the force transmission arm connects the fixed end of the force transmission arm and the movable end of the force transmission arm, and can be used as a medium to transfer pressure on the pressing member to the fixed end and move as the pressing member moves.

[0008] With this disposition, the pressing member may move with an effect of pressure. The force transmission arm has the movable end used as a moving point, the fixed end used as a fixed point, and the bending section used as a force transmission medium. The first clamping member may move when driven by a force transferred by the bending section. In this way, the force transmission arm, the pressing member, and the first clamping member may jointly form a lever structure. The pressing member may be used as a primary moving point of the lever structure, the fixed end of the force transmission arm may be used as a fulcrum of the lever structure, an extended length of the bending section of the force transmission arm between the movable end of the force transmission arm and the fixed end of the force transmission arm may be used for a force arm of the lever structure, and a bending part of the bending section of the force transmission arm and the first clamping member may be used as secondary moving points of the lever structure. Therefore, when a pressure for pressing down the pressing member is applied to the pressing member, the bending part of the bending section may be driven with a lifting force, so

that the bending part of the bending section moves in a direction away from the housing. In addition, because the bending section is connected to the first clamping member, the first clamping member may be driven by the bending section also with a lifting force, so that the first clamping member moves in the direction away from the housing.

[0009] It should be understood that, as a locker structure of the connector, the first clamping member needs to be disposed as close as possible to an end at which the connector is plugged into a peer connector. Moreover, if the lever structure formed by the pressing member, the force transmission arm, and the first clamping member needs to function as a lever, the pressing member and the first clamping member need to be located at two ends of the lever structure. In this case, a bend of the bending section of the force transmission arm is a reverse bend from the pressing member to the fixed end of the force transmission arm, and the reverse bend may be understood as a bend toward a direction toward which the connector is plugged.

[0010] Therefore, with a reverse bend of the force transmission arm, a length of the force arm can be extended. Compared with forward extension of a force arm in a conventional technology, that is, extension of the force arm in a direction opposite to a direction toward which a peer connector is plugged, a distance between the pressing member and the fixed end of the force transmission arm can be shortened without a need of greater pressure to support an unlocking operation, so that an overall dimension of the connector in a length direction of the connector can be further shortened, thereby miniaturizing the connector while maintaining existing working performance.

[0011] In addition, because the end at which the connector is plugged into the peer connector is an end of the connector for cooperating with the peer connector, the end has little effect on the dimension of the connector in the length direction. Therefore, there is a relatively large operation space for a structure without affecting plug-in and cooperation between the connector and the peer connector. Therefore, there is a large space for reverse extension of the force transmission arm, and a length of the force arm can be further increased without increasing the dimension of the connector, so that operation pressure needed from a person is reduced with a same effect of an unlocking force. In this way, an unlocking operation on the connector is easier with high reliability.

[0012] It should be noted that the components of the locking structure may be an assembled structure formed by welding or the like, or may be an integrated structure formed through an integrated molding process. This is not strictly limited in embodiments of this application.

[0013] In a possible implementation, a linear distance between the fixed end and the movable end is a first length, an extended length of the bending section between the fixed end and the movable end is a second length, and the second length is greater than the first

length.

[0014] It can be understood that the first length can be understood as a distance between a motive force point and the fulcrum, the second length is the length of the force arm, and a greater second length indicates a longer force arm. Without affecting operation pressure, a longer force arm can better shorten the distance between the fixed end and the movable end, that is, shorten the distance between the motive force point and the fulcrum. Therefore, compared with the conventional technology, the length of the force arm is increased, so that the distance between the motive force point and the fulcrum can be effectively shortened, thereby reducing the dimension of the connector in the length direction and miniaturizing the connector with a same function.

[0015] In a possible implementation, the bending section includes a first segment, a second segment, and a third segment that connects the first segment and the second segment, the first segment is connected to the movable end and extends in a direction away from the pressing member, the second segment extends in a direction closer to the pressing member and is connected to the fixed end, and a length of the first segment is the same as a length of the second segment. The length of the first segment is a dimension of the first segment in an extension direction of the first segment, and the length of the second segment is a dimension of the second segment in an extension direction of the second segment. Therefore, the fixed end and the movable end may be arranged and disposed in direction in which the first segment and the second segment are spaced from each other, so that relative positions of the fixed end and the movable end can be arranged in diversified manners with high flexibility.

[0016] Alternatively, a length of the first end is different from a length of the second segment. The length of the first segment is a dimension of the first segment in an extension direction of the first segment, and the length of the second segment is a dimension of the second segment in an extension direction of the second segment. For example, the length of the first segment is greater than the length of the second segment. With this disposition, the fixed end and the movable end can be disposed at different positions. It should be understood that, by using a surface on which the locking structure is disposed as a reference surface, the fixed end and the movable end are disposed at different positions in any direction on a plane parallel to the reference surface. That is, the fixed end and the movable end are disposed at different positions in every direction on the plane parallel to the reference plane. For example, the fixed end is disposed closer to a head end of the housing than the movable end.

[0017] Therefore, there can be a specific distance between the fixed end and the movable end, so that a position at which the fixed end is disposed does not interfere with a motion space in which the pressing member drives the movable end to move. That is, a possibility that the locking structure fails to function due to interference be-

tween the fixed end and the movable end can be reduced to a largest extent, so that the locking structure can function as a lever structure, that is, can drive the first clamping member to be lifted up when the pressing member is pressed down to perform an unlocking operation.

[0018] In a possible implementation, the locking structure further includes a reinforcing rib, and the reinforcing rib is disposed between the first segment and the third segment.

[0019] For example, a height of the second segment is the same as a height of the third segment, and a height of the first segment may be greater than the height of the second segment and the height of the third segment. The height of the first segment is a dimension of the first segment in a direction perpendicular to the housing, the height of the second segment is a dimension of the second segment in the direction perpendicular to the housing, and the height of the third segment is a dimension of the third segment in the direction perpendicular to the housing.

[0020] It can be understood that the first segment and the third segment are bending parts of the force transmission arm, and the bending parts of the force transmission arm are weak links of the force transmission arm and more easily breaks with a force. Therefore, a reinforcing rib is disposed between the first segment and the third segment, so that a possibility of a problem that a joint between the first segment and the third segment is easily damaged due to a height difference between the first segment and the third segment can be reduced to a largest extent because of the reinforcing rib that provides good support. In this way, overall structural strength of the force transmission arm can be improved, and a force on the first segment can be transferred to the third segment relatively evenly with high reliability.

[0021] In a possible implementation, the fixed end is arc-shaped. With this disposition, a force taken by the fixed end is relatively even and uniform, and a possibility that the fixed end breaks with a force due to sharp transition disposed between the bending section and the housing can be effectively reduced to a largest extent, so that the fixed end can provide good support. Alternatively, an outer surface of the fixed end is an inclined surface. The outer surface of the fixed end refers to a surface, of the fixed end, facing the pressing member.

[0022] In a possible implementation, a surface, of the first clamping member, facing the housing is a bottom surface of the first clamping member, an accommodating space is provided on the bottom surface of the first clamping member, and the accommodating space is used to limit a second clamping member of a peer connector.

[0023] For example, the first clamping member is connected to the bending part of the bending section. When the pressing member is pressed down with pressure, that is, moves toward the housing, the bending section can transfer the force taken by the pressing member and be lifted up, that is, move in the direction away from the housing, to drive the first clamping member to be lifted

up, that is, move in the direction away from the housing, to unlock the first clamping member and the second clamping member of the peer connector.

[0024] It should be understood that the accommodating space is an accommodating space that has an only opening provided on the bottom surface of the first clamping member. With this disposition, with a spatial accommodation function of the accommodating space, the second clamping member of the peer connector can be limited within the accommodating space, and movement in an axial direction and rotation in a circumferential direction of the second clamping member of the peer connector can be limited. In this way, the first clamping member can have good clamping performance, and can ensure that no disconnection occurs when the connector is locked to the peer connector, thereby ensuring working performance of the connector with high reliability.

[0025] In a possible implementation, the locking structure further includes a sliding block and a push bar disposed at one end of the sliding block, a sliding rail is disposed on an outer surface of the housing, the sliding block is in a sliding connection to the sliding rail, and the push bar is configured to abut against the first clamping member at a push of the sliding block.

[0026] Therefore, when the first clamping member is locked to the second clamping member of the peer connector, the sliding block is pushed to enable the sliding block to move toward the pressing member, so that the sliding block drives the push bar to move toward the first clamping member, and the push bar abuts against the first clamping member. In this way, movement of the first clamping member is limited, to further ensure that the first clamping member does not detach from the second clamping member of the peer connector. With this disposition, a structure for locking for a second time can be improved on the basis of locking the first clamping member to the second clamping member of the peer connector for a first time. This helps further improve locking performance of the connector, and the connector works with high working reliability.

[0027] In a possible implementation, there are two force transmission arms, that is, a first force transmission arm and a second force transmission arm, the first force transmission arm and the second force transmission arm are symmetrically disposed, and the first clamping member is located in a gap area between the first force transmission arm and the second force transmission arm and is connected to both the first force transmission arm and the second force transmission arm.

[0028] It should be understood that both the first force transmission arm and the second force transmission arm include the foregoing structures of the force transmission arm. Details are not described herein again. A movable end of the first force transmission arm and a movable end of the second force transmission arm may be connected to two sides of the pressing member respectively, so that the first force transmission arm and the second force transmission arm are symmetrically disposed. The

first force transmission arm and the second force transmission arm are further disposed apart, that is, there is the gap area between the first force transmission arm and the second force transmission arm. The gap area can accommodate the first clamping member, and the first clamping member accommodated in the gap area can be connected to both the first force transmission arm and the second force transmission arm.

[0029] Therefore, when the connector needs to detach from the peer connector, the pressing member is pressed, and the pressing member moves in a direction closer to the housing. In addition, a part of pressure taken by the pressing member can be transferred to the first clamping member through the first force transmission arm, and the other part can be transferred to the first clamping member through the second force transmission arm, to drive the first clamping member to move in the direction away from the housing, so that the first clamping member detaches from the second clamping member of the peer connector.

[0030] With this disposition, compared with disposing one force transmission arm, a quantity of force transmission arms increases as two force transmission arms are used for driving. A force on the pressing member can be more conveniently transferred to the first clamping member by using an increased force transmission arm, thereby effectively reducing a force needed from a person for unlocking, and making an operation for unlocking the first clamping member easier. The form of symmetric disposition may further enable a force to be relatively evenly distributed on the first force transmission arm and the second force transmission arm, so that consistency and stability of the locking structure can be better maintained, with a better look of the structure.

[0031] In a possible implementation, the bending section includes a first segment, a second segment, and a third segment that connects the first segment and the second segment, the first segment is connected to the movable end and extends counterclockwise, the second segment extends clockwise and is connected to the fixed end, the third segment is disposed at an included angle with both the first segment and the second segment, and the first segment, the second segment, and the third segment are in cooperation to provide the arc-shaped force transmission arm.

[0032] Specifically, the length of the first segment is greater than the length of the second segment, where the length of the first segment is a dimension of the first segment in the extension direction of the first segment, and the length of the second segment is a dimension of the second segment in the extension direction of the second segment. In this way, by a connection between the segments, the force transmission arm can form a winding and looping extension path, so that the length of the force arm can be extended to a maximum extent, and an operation force needed from a person is reduced with a same effect of a locking force, so that an operation for unlocking the connector is easier.

[0033] For example, the first clamping member may be connected to an outer side of the third segment, and the outer side of the third segment is a side, of the third segment, facing the pressing member. Alternatively, the second clamping member may be connected to an inner side of the third segment, and the inner side of the third segment is a side, of the third segment, away from the pressing member. Alternatively, the second clamping member may be connected to a bottom surface of the third segment, and a position of the second clamping member may be selected based on a requirement. This is not strictly limited in embodiments of this application.

[0034] In a possible implementation, there are two force transmission arms, that is, a first force transmission arm and a second force transmission arm, a first segment of the first force transmission arm is connected to a first segment of the second force transmission arm to form an outer circular structure, and a second segment of the first force transmission arm is connected to a second segment of the second force transmission arm to form an inner circular structure surrounded by the outer circular structure, and a third segment of the first force transmission arm is connected to a third segment of the second force transmission arm to form a connection structure that connects the outer circular structure and the inner circular structure.

[0035] It should be understood that both the first force transmission arm and the second force transmission arm include the foregoing structures of the force transmission arm. Details are not described herein again. A movable end of the first force transmission arm and a movable end of the second force transmission arm may be connected to two sides of the pressing member respectively, so that the first force transmission arm and the second force transmission arm are symmetrically disposed.

[0036] Therefore, when the connector needs to detach from the peer connector, the pressing member is pressed, and the pressing member moves in a direction closer to the housing. In addition, a part of pressure taken by the pressing member can be transferred to the first clamping member through the first force transmission arm, and the other part can be transferred to the first clamping member through the second force transmission arm, to drive the first clamping member to move in the direction away from the housing, so that the first clamping member detaches from the second clamping member of the peer connector.

[0037] With this disposition, compared with disposing one force transmission arm, a quantity of force transmission arms increases as two force transmission arms are used for driving. A force on the pressing member can be more conveniently transferred to the first clamping member by using an increased force transmission arm, thereby effectively reducing a force needed from a person for unlocking, and making an operation for unlocking the first clamping member easier. The circles formed with the form of symmetric disposition may further enable a force to be relatively evenly distributed on the first force trans-

mission arm and the second force transmission arm, so that consistency and stability of the locking structure can be better maintained, with a better look of the structure.

[0038] In a possible implementation, the first clamping member is disposed at the bottom of the connection structure, or the first clamping member is disposed at either of two ends of the connection structure in a length direction.

[0039] In this way, a position at which the first clamping member is arranged may be correspondingly selected based on different application scenarios, so that flexibility of arranging the position of the first clamping member is high.

[0040] In a possible implementation, a surface of the pressing member for taking pressure is a plane or a curved surface.

[0041] It can be understood that the surface of the pressing member for taking pressure is a contact surface, of the pressing member, coming in direct contact with a hand of a worker and takes pressure applied by the worker. Therefore, the contact surface of the pressing member needs to be better for taking the pressure applied by the worker.

[0042] For example, a plurality of concave parts are disposed on the contact surface of the pressing member, and any two adjacent concave parts in the plurality of concave parts are disposed apart. Therefore, the contact surface of the pressing member can be wavy in a form of waves, that is, the contact surface of the pressing member can be a curved surface. With this disposition, roughness of the surface of the pressing member for taking pressure can be increased, so that when pressure is applied to the pressing member, a hand of a worker does not easily slide off from the pressing member, thereby ensuring that an operation for unlocking the first clamping member is smoothly completed.

[0043] Alternatively, the contact surface of the pressing member is a plane. That is, the surface of pressing member for taking pressure is a plane. In this way, there is a relatively large area for contact with a hand of a worker, to ensure that the hand can be in fuller contact with the pressing member when the worker applies pressure, thereby helping ensure that an operation for unlocking the first clamping member is smoothly completed.

[0044] In a possible implementation, the pressing member includes a first part and a second part that is for taking pressure, the first part is connected to the movable end of the force transmission arm, the second part is bent relative to and connected to the first part, and the second part is elastic.

[0045] That the second part is bent relative to and connected to the first part may be understood as that the first part is disposed at an included angle with the second part, and the included angle may range from 0° to 180° (including the endpoint values 0° and 180°).

[0046] It can be understood that the first part of the pressing member is a part, of the pressing member, connected to the movable end of the force transmission arm,

and the second part of the pressing member is a part that can take pressure in the pressing member. By disposing the pressing member with the first part and the second part, the pressing member can be divided into different function areas based on different functions of the parts. The second part is disposed to be elastic, so that the second part can rebound after being pressed, with good recovery. For example, the first part may be a rigid structure, or may be an elastic structure. The two parts of the pressing member may be independent structures and connected to each other by welding or in another manner, or may be of design through an integrated molding process. Clearly, it should be noted that the first part of the pressing member may also take pressure. This is not strictly limited.

[0047] For example, a surface of the second part for taking pressure is a plane. Alternatively, a surface of the second part for taking pressure is an arc-shaped surface, and a form of the arc-shaped surface fits a form of a finger. This can alleviate pain of a worker when pressing the pressing member, and has good use experience and ergonomic experience.

[0048] In a possible implementation, the surface of the second part for taking pressure is an arc-shaped surface, and the form of the arc-shaped surface fits a form of a finger. This can alleviate pain of a worker when pressing the pressing member, and has good use experience and ergonomic experience.

[0049] According to a second aspect, this application further provides a connector assembly. The connector assembly includes a peer connector and the connector described above, and the peer connector is in a plug-in connection to the connector to implement an electrical connection between the peer connector and the connector.

[0050] It can be understood that, when the connector is plugged into the peer connector and there is mutual conduction, all functions of the connector assembly can be implemented, that is, an electrical signal can be conducted between the connector and the peer connector. One of the connector and the peer connector may be a male connector, and the other may be a female connector. The male connector may be understood as a plug, and may be connected to a radar module. The female connector may be understood as a socket, and may be connected to a cable. The cable may be connected to a mainboard, to transmit a radar signal to the mainboard.

[0051] According to a third aspect, this application provides an electronic device. The electronic device includes the connector described above.

[0052] The electronic device may be, but is not limited to, a power supply device, for example, a UPS (Uninterruptible Power Supply, uninterruptible power supply), or a telecommunications room-type device, for example, a metropolitan area router or a centralized router; may be an IT computer room-type device, for example, a data center server or a data center switch; or may be a vehicle-mounted device, for example, an MDC (Mobile Data

Center, mobile data center), a cable, or a sensor.

[0053] The electronic device may be further applied to an FTTx system. The FTTx system may be, but is not limited to, FFTH (fiber to the home, fiber to the home), FFTC (fiber to the curb, fiber to the curb), FTTP (fiber to the premises, fiber to the premises), FTTN (fiber to the node or neighborhood, fiber to the node or neighborhood), FTTO (fiber to the office, fiber to the office), and FTTSA (fiber to the service area, fiber to the service area).

[0054] According to a fourth aspect, this application further provides a terminal. The terminal includes the electronic device described above.

[0055] According to a fifth aspect, this application further provides a cable. The connector described above is included at one end of the cable.

[0056] According to a sixth aspect, this application provides a connector manufacturing method. The method includes:

manufacturing a housing; and
manufacturing a locking structure on an outer surface of the housing, where the locking structure includes a force transmission arm, a pressing member suspended over the housing, and a first clamping member suspended over the housing, the force transmission arm includes a fixed end, a movable end, and a bending section that is bent and that connects the fixed end and the movable end, the fixed end is fixedly connected to the housing, the movable end is connected to the pressing member, and the bending section is connected to the first clamping member, and the first clamping member is configured to move in a direction away from the housing under driving by the bending section when the pressing member is pressed.

[0057] In a possible implementation, a linear distance between the fixed end and the movable end is a first length, an extended length of the bending section between the fixed end and the movable end is a second length, and the second length is greater than the first length.

[0058] In a possible implementation, the locking structure is integrally molded.

BRIEF DESCRIPTION OF DRAWINGS

[0059]

FIG. 1 is a schematic diagram of a lever structure;
FIG. 2 is a schematic diagram of a structure of an electronic device according to an embodiment of this application;
FIG. 3 is a diagram of a structure of an electronic device according to an embodiment of this application;
FIG. 4 is a schematic diagram of a structure of a

connector assembly according to an embodiment of this application;

FIG. 5 is a schematic diagram of a structure of a connector according to an embodiment of this application, where a part of a structure of a peripheral plate is not shown in the figure;

FIG. 6 is a schematic diagram of a structure of a peer connector according to an embodiment of this application;

FIG. 7 is an enlarged schematic diagram of an area F of the connector shown in FIG. 5;

FIG. 8 is an enlarged schematic diagram of an area E of the connector shown in FIG. 4;

FIG. 9 is a schematic diagram of a partial structure of a connector at a specific angle according to an embodiment of this application;

FIG. 10 is a schematic diagram of a partial sectional view of a connector assembly according to an embodiment of this application;

FIG. 11 is a schematic diagram of a first clamping member of a connector according to an embodiment of this application;

FIG. 12 is a schematic diagram of another partial sectional view of a connector assembly according to an embodiment of this application;

FIG. 13 is a schematic diagram of a structure of a connector according to Embodiment 1 of this application, where a part of a structure of a peripheral plate is not shown in the figure;

FIG. 14 is a schematic diagram of a structure of a connector at a specific angle according to Embodiment 1 of this application, where a part of a structure of a peripheral plate is not shown in the figure;

FIG. 15 is a schematic diagram of still another partial sectional view of a connector assembly according to an embodiment of this application;

FIG. 16 is a schematic diagram of yet another partial sectional view of a connector assembly according to an embodiment of this application;

FIG. 17 is a schematic diagram of a fifth partial sectional view of a connector assembly according to an embodiment of this application;

FIG. 18 is a schematic diagram of a structure of a connector according to Embodiment 2 of this application;

FIG. 19 is another schematic diagram of a structure of a connector according to Embodiment 2 of this application;

FIG. 20 is still another schematic diagram of a structure of a connector according to Embodiment 2 of this application;

FIG. 21 is yet another schematic diagram of a structure of a connector according to Embodiment 2 of this application; and

FIG. 22 is a schematic flowchart of a connector manufacturing method according to an embodiment of this application.

DESCRIPTION OF EMBODIMENTS

[0060] For ease of understanding, terms in embodiments of this application are first explained.

[0061] The term "and/or" describes only an association relationship for describing associated objects and represents that three relationships may exist. For example, A and/or B may represent the following three cases: Only A exists, both A and B exist, and only B exists.

[0062] "A plurality of" means "two or more".

[0063] A connection should be understood in a broad sense. For example, if A is connected to B, A may be directly connected to B, or A may be indirectly connected to B by using an intermediate medium.

[0064] Being sleeve-shaped means being sleeved on an outer surface of a long narrow object for protection, strengthening fixation, or connection. A sleeve-shaped element includes a cylindrical (or tubular) housing, where an interior of the housing is a hollow space. Openings are provided on two end surfaces of the cylindrical (or tubular) housing, and the long narrow object may enter or pass through the sleeve-shaped element through the two openings. The sleeve-shaped element includes the two end surfaces and an outer surface (that may also be referred to as an outer circumferential surface) that connects the two end surfaces.

[0065] Embodiments of this application are clearly described below with reference to the accompanying drawings.

[0066] As connectors are more widely used, there are higher requirements on performance of connectors. For a structure of a whole machine, a connector is an important component for signal and current conduction, and a dimension of the structure of the whole machine depends on a dimension of the connector. Therefore, there is an urgent need for a small connector structure.

[0067] It can be understood that, as shown in FIG. 1, a point a is a fulcrum, a point b is a point of force application at an end, and a point c is a moving point. When pressure is applied downward on the point of force application at the end, the point c is driven to move upward, thereby implementing unlocking. To implement unlocking with a small force, it needs to be ensured that there is a specific distance between the point a and the point b. However, if the distance between the point a and the point b is shortened to reduce an overall dimension of a connector in a length direction, a pressure needed for pressing the point b is excessively high, and consequently, pressing for unlocking cannot be normally implemented.

[0068] Based on this, with reference to FIG. 2, FIG. 3, FIG. 4, FIG. 5, and FIG. 6, embodiments of this application provide a connector 100, a connector assembly 300 in which the connector 100 is used, an electronic device 400 in which the connector 100 is used, a cable in which the connector 100 is used, a terminal in which the electronic device 400 is used, and an electric vehicle 1000 in which the connector assembly 300 is used, to minia-

timize the connector 100 while ensuring good working performance of the connector 100.

[0069] The electronic device 400 may be, but is not limited to, a power supply device, for example, a UPS (Uninterruptible Power Supply, uninterruptible power supply), or a telecommunications room-type device, for example, a metropolitan area router or a centralized router; may be an IT computer room-type device, for example, a data center server or a data center switch; may be a vehicle-mounted device, for example, an MDC (Mobile Data Center, mobile data center); or may be a cable or a sensor.

[0070] For example, the connector 100 may be included at one end of the cable. The connector 100 is configured to be plugged into a peer connector 200, to conduct an electrical signal. The other end of the cable may be connected to a mainboard, to transmit the electrical signal to the mainboard.

[0071] The electronic device 400 may be further applied to an FFTx system. The FFTx system may be, but is not limited to, FFTH (fiber to the home, fiber to the home), FFTC (fiber to the curb, fiber to the curb), FTTP (fiber to the premises, fiber to the premises), FTTN (fiber to the node or neighborhood, fiber to the node or neighborhood), FTTO (fiber to the office, fiber to the office), and FT TSA (fiber to the service area, fiber to the service area).

[0072] It should be noted that the electronic device 400 may include the connector 100, or may include the connector assembly 300. When the electronic device 400 includes the connector 100, the electronic device 400 may be connected to another device by connecting to a peer connector disposed on the another device. When the electronic device includes the connector assembly 300, the connector assembly 300 may connect apparatuses/modules in the electronic device 400, to implement an electrical connection between the apparatuses/modules.

[0073] For example, refer to FIG. 2. The electronic device 400 may include a housing 410 and the connector assembly 300 disposed inside the housing 410. As an important component for signal and current conduction, the connector assembly 300 may connect modules in the electronic device 400, to transfer an optical signal/electrical signal between the modules. Alternatively, the connector assembly 300 may connect a mainboard and apparatuses of the electronic device 400, to transfer of an electrical signal between the mainboard and the apparatuses.

[0074] It should be noted that an objective of FIG. 2 is merely to illustratively describe a connection relationship between the housing 410 and the connector assembly 300, and is not to specifically limit connection positions, specific structures, and a quantity of devices. The structure shown in embodiments of this application does not constitute a specific limitation on the electronic device 400. In some other embodiments of this application, the electronic device 400 may include more or fewer com-

ponents than those shown in the figure, combine some components, split some components, or have different component arrangements. The components shown in the figure may be implemented by hardware, software, or a combination of software and hardware.

[0075] The terminal may be, but is not limited to, the devices listed above for the foregoing electronic device. Clearly, the terminal may alternatively be a vehicle, to be applied to intelligent driving or autonomous driving.

[0076] The electric vehicle 1000 may be, but is not limited to, a pure electric vehicle (Pure Electric Vehicle/Battery Electric Vehicle, PEV/BEV), a hybrid vehicle (Hybrid Electric Vehicle, HEV), a range extended electric vehicle (Range Extended Electric Vehicle, REEV), a plug-in hybrid electric vehicle (Plug-in Hybrid Electric Vehicle, PHEV), or a new energy vehicle (New Energy Vehicle).

[0077] For example, refer to FIG. 3. The electric vehicle 1000 may include a mainboard, a radar module, and the connector assembly 300. The connector assembly 300 connects the mainboard and the radar module, to transmit a radar signal to the mainboard for analyzing the signal received by a radar.

[0078] It should be noted that the structure shown in embodiments of this application does not constitute a specific limitation on the electric vehicle 1000. In some other embodiments of this application, the electric vehicle 1000 may include more or fewer components than those shown in the figure, combine some components, split some components, or have different component arrangements. The components shown in the figure may be implemented by hardware, software, or a combination of software and hardware.

[0079] Refer to FIG. 4, FIG. 5, and FIG. 6. The connector assembly 300 includes the connector 100 and the peer connector 200. When the connector 100 is plugged into the peer connector 200 and there is mutual conduction, all functions of the connector assembly 300 can be implemented, that is, an electrical signal can be conducted between the connector 100 and the peer connector 200.

[0080] It can be understood that one of the connector 100 and the peer connector 200 may be a male connector, and the other may be a female connector. The male connector may be understood as a plug, and may be connected to a radar module. The female connector may be understood as a socket, and may be connected to a cable. The cable may be connected to a mainboard, to transmit a radar signal to the mainboard.

[0081] With reference to FIG. 4, FIG. 5, and FIG. 6 to FIG. 21, an example in which the connector 100 is a female connector and the peer connector 200 is a male connector is used below for description. However, it should be understood that this constitutes no limitation.

[0082] Refer to FIG. 4 and FIG. 6. The peer connector 200 includes a housing 210 and a second clamping member 220. The second clamping member 220 is disposed on an outer surface of the housing 210. The second clamping member 220 may be configured to be clamped

to a first clamping member of the connector 100 to lock the peer connector 200 and the connector 100, or the second clamping member 220 may be configured to detach from a first clamping member of the connector 100 to unlock the peer connector 200 and the connector 100. In other words, the second clamping member 220 can be used as a locker structure in the peer connector 200, to lock and unlock the peer connector 200 and the connector 100 and ensure that the peer connector 200 and the connector 100 are not disconnected after plugged into each other. For example, the second clamping member 220 may be a protrusion structure disposed on the outer surface of the housing 210.

[0083] The second clamping member 220 includes a first surface 221 and a second surface 222 that are disposed along an axial direction of the peer connector 200. The axial direction of the peer connector 200 can be understood as a direction of a principal axis of the peer connector 200, and is equivalent to a direction toward which the peer connector 200 is plugged. The first surface 221 is a surface, of the second clamping member 220, coming in contact with the first clamping member in advance when the second clamping member 220 is plugged into the connector 100. The second surface 222 is a surface, of the second clamping member 220, finally abutting against the first clamping member when the second clamping member 220 is locked to the connector 100.

[0084] In a possible implementation, a cross sectional shape of the second clamping member 220 is a trapezoid. Specifically, the first surface 221 is an inclined surface, that is, an extension direction of the first surface 221 is disposed at an included angle with the axial direction of the peer connector 200. The included angle may range from 0° to 90° (including the endpoint values 0° and 90°). The first surface 221 is disposed as an inclined surface, so that when the second clamping member 220 comes in contact with the first clamping member of the connector 100, the first clamping member can be driven to be opened with a relatively small force, and the first clamping member is clamped to the second clamping member 220. The second surface 222 is a plane, that is, an extension direction of the second surface 222 is perpendicular to the axial direction of the peer connector 200. With this disposition, the second clamping member 220 can stably abut against the first clamping member of the connector 100, thereby helping improve overall locking performance of the peer connector 200.

[0085] Refer to FIG. 4, FIG. 5, and FIG. 7. The connector 100 includes a housing 10, a peripheral plate 20, and a locking structure 30. The connector 100 may be a power connector, a high-speed connector, a high-and-low-speed hybrid connector, may be an aviation connector, or may be an optical fiber connector, or the like. A specific implementation form of the connector is not strictly limited in embodiments of this application.

[0086] The housing 10 may be understood as an outer shell structure of the connector 100. By disposing the housing 10, an accommodating space can be provided

for a component of the connector 100 for an internal connection, to protect the component of the connector 100 for the internal connection from erosion and scratching in an external environment, thereby having a good protective effect. The housing 10 includes a head end 11, a tail end 12, and an outer surface 13 that connects the head end 11 and the tail end 12. The head end 11 may be understood as an end, in the connector 100, plugged into the peer connector 200. The tail end 12 may be understood as an end, in the connector 100, connected to a connection object (for example, a cable). The outer surface of the housing 10 is a surface exposed to an external environment in a circumferential direction of the housing 10, or may be understood as an outer circumferential surface of the housing 10.

[0087] The peripheral plate 20 is connected to the head end 11 of the housing 10, and surrounds the head end 11 of the housing 10. In other words, the peripheral plate 20 is disposed around a periphery of the head end 11 of the housing 10. It can be understood that, the head end 11 of the housing 10 is an end plugged into the connector 100, and is an important part of the housing 10. The peripheral plate 20 is disposed and the peripheral plate 20 surrounds the head end 11 of the housing 10, to help protect the head end 11 of the housing 10 from interference from an external environment factor and provide good protection for the housing 10. In addition, there is a gap between the peripheral plate 20 and the housing 10. The gap can accommodate a component disposed on the outer surface of the housing 10, to provide specific protection for the component disposed on the outer surface 13 of the housing 10 with shelter provided by the peripheral plate 20, and reliability is high.

[0088] The locking structure 30 is connected to the outer surface 13 of the housing 10, and at least a part of the locking structure 30 is in the gap between the housing 10 and the peripheral plate 20, so that with shelter provided by the peripheral plate 20, there is a lowest possibility of damage caused by an external environment factor to the locking structure 30, thereby providing good protection for the locking structure 30.

[0089] Refer to FIG. 5, FIG. 7, and FIG. 8, the locking structure 30 includes a force transmission arm 31, a pressing member 32 suspended over the housing 10, and a first clamping member 33 suspended over the housing 10. For example, the pressing member 32 and the first clamping member 33 may be elastic.

[0090] The pressing member 32 suspended over the housing 10 may be understood as that the pressing member 32 is in no contact with the housing 10 in a non-pressed state, that is, in a state in which no pressure is taken, and there is a specific distance between the pressing member 32 and the housing 10. It should be understood that the suspension of the pressing member 32 does not mean that the pressing member 32 is in no contact with the housing 10 at any time. For example, when the pressing member 32 moves toward the housing 10 because specific pressure is taken, the pressing mem-

ber 32 may come in contact with an outer surface 13 of the housing 10. The first clamping member 33 suspended over the housing 10 may be understood as that the first clamping member 33 is in no contact with the housing 10 when no force is taken. It should be understood that suspension of the first clamping member 33 does not mean that the first clamping member 33 is in no contact with the housing 10 at any time. For example, when the first clamping member 33 moves toward the housing 10 because downward pressure is taken, the first clamping member 33 may come in contact with the outer surface 13 of the housing 10.

[0091] It should be noted that the components of the locking structure 30 may be an assembled structure formed by welding or the like, or may be an integrated structure formed through an integrated molding process. This is not strictly limited in embodiments of this application.

[0092] Specifically, the force transmission arm 31 includes a fixed end 311, a movable end 312, and a bending section 313 that is bent and that connects the fixed end 311 and the movable end 312. The fixed end 311 is fixedly connected to the housing 10, the movable end 312 is connected to the pressing member 32, and the bending section 313 is connected to the first clamping member 33. The first clamping member 33 is configured to move in a direction away from the housing 10 under driving by the bending section 313 when the pressing member 32 is pressed, to be unlocked from the second clamping member 220 of the peer connector 200.

[0093] It can be understood that the fixed end 311 of the force transmission arm 31 is fixedly connected to the housing 10. In other words, the fixed end 311 of the force transmission arm 31 is a stationary ending part of the force transmission arm 31, and is a fixed point in the whole force transmission arm 31. The movable end 312 of the force transmission arm 31 is connected to the pressing member 32, and the pressing member 32 may move as pressure is applied to the pressing member 32. Therefore, the movable end 312 of the force transmission arm 31 is a moving point, in the force transmission arm 31, that moves as the pressing member 32 moves. The bending section 313 of the force transmission arm 31 connects the fixed end 311 of the force transmission arm 31 and the movable end 312 of the force transmission arm 31, and can be used as a medium to transfer pressure on the pressing member 32 to the fixed end 311 and move as the pressing member 32 moves.

[0094] With this disposition, the pressing member 32 may move with an effect of pressure. The force transmission arm 31 has the movable end 312 used as a moving point, the fixed end 311 used as a fixed point, and the bending section 313 used as a force transmission medium. The first clamping member 33 may move when driven by a force transferred by the bending section 313. In this way, the force transmission arm 31, the pressing member 32, and the first clamping member 33 may jointly form a lever structure. The pressing member 32 may be

used as a primary moving point of the lever structure, the fixed end 311 of the force transmission arm 31 may be used as a fulcrum of the lever structure, an extended length of the bending section 313 of the force transmission arm 31 between the movable end 312 of the force transmission arm 31 and the fixed end 311 of the force transmission arm 31 may be used for a force arm of the lever structure, and a bending part of the bending section 313 of the force transmission arm 31 and the first clamping member 33 may be used as secondary moving points of the lever structure. Therefore, when a pressure for pressing down the pressing member 32 is applied to the pressing member 32, the bending part of the bending section 313 may be driven with a lifting force, so that the bending part of the bending section 313 moves in a direction away from the housing 10. In addition, because the bending section 313 is connected to the first clamping member 33, the first clamping member 33 may be driven by the bending section 313 also with a lifting force, so that the first clamping member 33 detaches from the second clamping member 220 and is unlocked from the second clamping member 220.

[0095] It should be understood that, as a locker structure of the connector 100, the first clamping member 33 needs to be disposed as close as possible to an end at which the connector 100 is plugged into the peer connector 200. Moreover, if the lever structure formed by the pressing member 32, the force transmission arm 31, and the first clamping member 33 needs to function as a lever, the pressing member 32 and the first clamping member 33 need to be located at two ends of the lever structure. In this case, a bend of the bending section 313 of the force transmission arm 31 is a reverse bend from the pressing member 32 to the fixed end 311 of the force transmission arm 31, and the reverse bend may be understood as a bend toward a direction toward which the connector 100 is plugged.

[0096] Therefore, with a reverse bend of the force transmission arm 31, the force arm can be longer. Compared with forward extension of a force arm in a conventional technology, that is, extension of the force arm in a direction opposite to a direction toward which the peer connector 200 is plugged, a distance between the pressing member 32 and the fixed end 311 of the force transmission arm 31 can be shortened without a need of greater pressure to support an unlocking operation, so that an overall dimension of the connector 100 in a length direction of the connector 100 can be further shortened, thereby miniaturizing the connector 100 while maintaining existing working performance.

[0097] In addition, because the end at which the connector 100 is plugged into the peer connector 200 is an end of the connector 100 for cooperating with the peer connector 200, the end has little effect on the dimension of the connector 100 in the length direction. Therefore, there is a relatively large operation space for a structure without affecting plug-in and cooperation between the connector 100 and the peer connector 200. Therefore,

there is a large space for reverse extension of the force transmission arm 31, and a length of the force arm can be further increased without increasing the dimension of the connector 100, so that operation pressure needed from a person is reduced with a same effect of an unlocking force. In this way, an unlocking operation on the connector 100 is easier with high reliability.

[0098] Refer to FIG. 9. A linear distance between the fixed end 311 and the movable end 312 is defined as a first length, an extended length of the bending section 313 between the fixed end 311 and the movable end 312 is a second length, and the second length is greater than the first length. It can be understood that the first length can be understood as a distance between a motive force point and the fulcrum, the second length is the length of the force arm, and a greater second length indicates a longer force arm. Without affecting operation pressure, a longer force arm can better shorten the distance between the fixed end 311 and the movable end 312, that is, shorten the distance between the motive force point and the fulcrum. Therefore, compared with the conventional technology, the length of the force arm is increased, so that the distance between the motive force point and the fulcrum can be effectively shortened, thereby reducing the dimension of the connector 100 in the length direction and miniaturizing the connector 100 with a same function.

[0099] A quantity of times of bending of the bending section 313 that is bent and that connects the movable end 312 and the fixed end 311 is not limited, that is, the bending section 313 may be bent once or a plurality of times, and may be bent based on an actual condition. An extension path formed by bending the bending section 313 may include one or more combinations of an arc shape, a wavy shape, a right angled-shape, a snakelike shape, a rectangular-ambulatory shape, a spiral shape, and the like. It should be understood that an extension path formed by bending the bending section 313 is not limited to the foregoing several cases, and may alternatively be a shape of a combination of a linear shape and an arc shape, a combination of a linear shape and a wavy shape, or the like. All extension paths formed by bending and extension shall fall within the protection scope of embodiments of this application and are not strictly limited.

[0100] Refer to FIG. 5, FIG. 7, and FIG. 8. The first clamping member 33 is connected to the bending section 313, and may move as the bending section 313 moves. For example, the first clamping member 33 is connected to the bending part of the bending section 313. When the pressing member 32 is pressed down with pressure, that is, moves toward the housing 10, the bending section 313 can transfer the force taken by the pressing member 32 and be lifted up, that is, move in the direction away from the housing 10, to drive the first clamping member 33 to be lifted up, that is, move in the direction away from the housing 10, to unlock the first clamping member 33 and the second clamping member 220 of the peer con-

nector 200.

[0101] In a possible implementation, as shown in FIG. 10, a surface, of the first clamping member 33, facing the housing 10 is a bottom surface 331 of the first clamping member 33, an accommodating space is provided on the bottom surface 331 of the first clamping member 33, and the accommodating space is used to limit a second clamping member 220 of the peer connector 200.

[0102] It should be understood that the accommodating space is an accommodating space that has an only opening provided on the bottom surface 331 of the first clamping member 33. With this disposition, with a spatial accommodation function of the accommodating space, the second clamping member 220 of the peer connector 200 can be limited within the accommodating space, and movement in an axial direction and rotation in a circumferential direction of the second clamping member 220 of the peer connector 200 can be limited. In this way, the first clamping member 33 can have good clamping performance, and can ensure that no disconnection occurs when the connector 100 is locked to the peer connector 200, thereby ensuring working performance of the connector 100 with high reliability.

[0103] In another possible implementation, as shown in FIG. 11, the first clamping member 33 is provided with a holding slot 332 that penetrates the first clamping member 33 along a height direction of the first clamping member 33. The holding slot 332 is configured to limit the second clamping member 220 of the peer connector 200. The height direction of the first clamping member 33 is a direction perpendicular to the bottom surface of the first clamping member 33.

[0104] In still another possible implementation, as shown in FIG. 12, the first clamping member 33 has a solid structure, and the first clamping member 33 includes an abutting surface 333, and comes in contact with the second surface 222 of the second clamping member 220 by using the abutting surface 333, so that the first clamping member 33 is stably clamped to the second clamping member 220 of the peer connector 200.

[0105] A possibility of implementing the locking structure 30 is described below by using two specific embodiments.

Embodiment 1:

[0106] Refer to FIG. 7 and FIG. 8. In this embodiment, a surface of the pressing member 32 for taking pressure is a contact surface 321, of the pressing member 32, coming in direct contact with a hand of a worker and takes pressure applied by the worker. Therefore, the contact surface 321 of the pressing member 32 needs to be better for taking the pressure applied by the worker.

[0107] In a possible implementation, as shown in FIG. 7, a plurality of concave parts are disposed on the contact surface 321 of the pressing member 32, and any two adjacent concave parts in the plurality of concave parts are disposed apart. Therefore, the contact surface 321

of the pressing member 32 can be wavy in a form of waves, that is, the contact surface 321 of the pressing member 32 can be a curved surface. With this disposition, roughness of the surface of the pressing member 32 for taking pressure can be increased, so that when pressure is applied to the pressing member 32, a hand of a worker does not easily slide off from the pressing member 32, thereby ensuring that an operation for unlocking the first clamping member 33 is smoothly completed.

[0108] In another possible implementation, the contact surface 321 of the pressing member 32 is a plane. That is, the surface of pressing member 32 for taking pressure is a plane. In this way, there is a relatively large area 321 for contact with a hand of a worker, to ensure that the hand can be in fuller contact with the pressing member 32 when the worker applies pressure, thereby helping ensure that an operation for unlocking the first clamping member 33 is smoothly completed.

[0109] Still refer to FIG. 7 and FIG. 8. The force transmission arm 31 connects the pressing member 32 and the housing 10. Specifically, the movable end 312 of the force transmission arm 31 is connected to the pressing member 32, and the movable end 312 of the force transmission arm 31 is suspended over the housing 10. Therefore, the movable end 312 of the force transmission arm 31 can move as the pressing member 32 moves, so that when the pressing member 32 is pressed down with pressure, the movable end 312 of the force transmission arm 31 is driven and also tends to move downward, where moving downward refers to moving in a direction closer to the housing 10.

[0110] The fixed end 311 of the force transmission arm 31 is fixedly connected to the housing 10, so that the locking structure 30 can have a fixed point that is stationary. For example, in the length direction of the connector 100, there may be a gap between the fixed end 311 of the force transmission arm 31 and the pressing member 32. The length direction of the connector 100 is a direction from the head end 11 to the tail end 12 that are of the housing 10. Therefore, when the pressing member 32 is pressed down with pressure, there can be an independent operation space between the fixed end 311 of the force transmission arm 31 and the pressing member 32, so that a problem that the pressing member 32 cannot be pressed down due to interference between the force transmission arm 31 and the pressing member 32 does not occur, and a problem that the first clamping member 33 cannot be unlocked does not occur, with high working reliability of the connector 100.

[0111] In a possible implementation, as shown in FIG. 7, the fixed end 311 is arc-shaped. With this disposition, a force taken by the fixed end 311 is relatively even and uniform, and a possibility that the fixed end 311 breaks with a force due to sharp transition disposed between the bending section 313 and the housing 10 can be effectively reduced to a largest extent, so that the fixed end 311 can provide good support.

[0112] In another possible implementation, an outer

surface 13 of the fixed end 311 is an inclined surface. The outer surface 13 of the fixed end 311 refers to a surface, of the fixed end 311, facing the pressing member 32.

[0113] Still refer to FIG. 7 and FIG. 8. The bending section 313 of the force transmission arm 31 is bent and connects the movable end 312 of the force transmission arm 31 and the fixed end 311 of the force transmission arm 31. The bending section 313 includes a first segment 314, a second segment 315, and a third segment 316 that connects the first segment 314 and the second segment 315. The first segment 314 is connected to the movable end 312 and extends in a direction away from the pressing member 32. The second segment 315 extends in a direction closer to the pressing member 32 and is connected to the fixed end 311. The third segment 316 is disposed at an included angle with both the first segment 314 and the second segment 315. The included angle may range from 0° to 180° (including the endpoint values 0° and 180°). For example, an extension shape of the bending section 313 may be generally "U".

[0114] In a possible implementation, a length of the first segment 314 is the same as a length of the second segment 315. The length of the first segment 314 is a dimension of the first segment 314 in an extension direction of the first segment 314, and the length of the second segment 315 is a dimension of the second segment 315 in an extension direction of the second segment 315. Therefore, the fixed end 311 and the movable end 312 may be arranged and disposed in a direction in which the first segment 314 and the second segment 315 are spaced from each other, so that relative positions of the fixed end 311 and the movable end 312 can be arranged in diversified manners with high flexibility.

[0115] In another possible implementation, the length of the first segment 314 is different from the length of the second segment 315, where the length of the first segment 314 is a dimension of the first segment 314 in the extension direction of the first segment 314, and the length of the second segment 315 is a dimension of the second segment 315 in the extension direction of the second segment 315. For example, the length of the first segment 314 is greater than the length of the second segment 315. With this disposition, the fixed end 311 and the movable end 312 can be disposed at different positions. It should be understood that, by using a surface on which the locking structure 30 is disposed as a reference surface, the fixed end 311 and the movable end 312 are disposed at different positions in any direction on a plane parallel to the reference surface. That is, the fixed end 311 and the movable end 312 are disposed at different positions in every direction on the plane parallel to the reference plane. For example, the fixed end 311 is disposed closer to the head end 11 of the housing 10 than the movable end 312.

[0116] Therefore, there can be a specific distance between the fixed end 311 and the movable end 312, so that a position at which the fixed end 311 is disposed

does not interfere with a motion space in which the pressing member 32 drives the movable end 312 to move. That is, a possibility that the locking structure 30 fails to function due to interference between the fixed end 311 and the movable end 312 can be reduced to a largest extent, so that the locking structure 30 can function as a lever structure, that is, can drive the first clamping member 33 to be lifted up when the pressing member 32 is pressed down to perform an unlocking operation.

[0117] Refer to FIG. 7. For example, a height of the second segment 315 is the same as a height of the third segment 316, and a height of the first segment 314 may be greater than the height of the second segment 315 and the height of the third segment 316. The height of the first segment 314 is a dimension of the first segment 314 in a direction perpendicular to the housing 10, the height of the second segment 315 is a dimension of the second segment 315 in a direction perpendicular to the housing 10, and the height of the third segment 316 is a dimension of the third segment 316 in a direction perpendicular to the housing 10. The locking structure 30 may further include a reinforcing rib 34, and the reinforcing rib 34 is disposed between the first segment 314 and the third segment 316.

[0118] It can be understood that the first segment 314 and the third segment 316 are bending parts of the force transmission arm 31, and the bending parts of the force transmission arm 31 are weak links of the force transmission arm 31 and more easily breaks with a force. Therefore, the reinforcing rib 34 is disposed between the first segment 314 and the third segment 316, so that a possibility of a problem that a joint between the first segment 314 and the third segment 316 is easily damaged due to a height difference between the first segment 314 and the third segment 316 can be reduced to a largest extent because of the reinforcing rib 34 that provides good support. In this way, overall structural strength of the force transmission arm 31 can be improved, and a force on the first segment 314 can be transferred to the third segment 316 relatively evenly with high reliability.

[0119] In embodiments, there may be one or more force transmission arms 31. Possibilities of implementing a quantity of force transmission arms 31 through different implementations are described below.

[0120] In a possible implementation, there may be one force transmission arm 31. The movable end 312 of the force transmission arm 31 may be connected to any position of the pressing member 32. For example, the movable end 312 of the force transmission arm 31 may be connected to a middle position of the pressing member 32, so that the force transmission arm 31 is generally located in the middle position of the pressing member 32. The first clamping member 33 may be connected to the bending section 313 of the force transmission arm 31. For example, the first clamping member 33 may be connected to an outer side of the first segment 314, and the second clamping member 220 may be connected to an outer side of the second segment 315, or the second

clamping member 220 may be connected to an outer side of the third segment 316. A position on the second clamping member 220 may be selected based on a requirement. This is not strictly limited in embodiments.

[0121] In another possible implementation, as shown in FIG. 7, FIG. 8, and FIG. 9, there may be two force transmission arms 31, that is, a first force transmission arm and a second force transmission arm. The first force transmission arm and the second force transmission arm are symmetrically disposed. The first clamping member 33 is located in a gap area between the first force transmission arm and the second force transmission arm and is connected to both the first force transmission arm and the second force transmission arm.

[0122] It should be understood that both the first force transmission arm and the second force transmission arm include the foregoing structures of the force transmission arm 31. Details are not described herein again. A movable end 312 of the first force transmission arm and a movable end 312 of the second force transmission arm may be connected to two sides of the pressing member 32 respectively, so that the first force transmission arm and the second force transmission arm are symmetrically disposed. The first force transmission arm and the second force transmission arm are further disposed apart, that is, there is the gap area between the first force transmission arm and the second force transmission arm. The gap area can accommodate the first clamping member 33, and the first clamping member 33 accommodated in the gap area can be connected to both the first force transmission arm and the second force transmission arm.

[0123] Therefore, when the connector 100 needs to detach from the peer connector 200, the pressing member 32 is pressed, and the pressing member 32 moves in a direction closer to the housing 10. In addition, a part of pressure taken by the pressing member 32 can be transferred to the first clamping member 33 through the first force transmission arm, and the other part can be transferred to the first clamping member 33 through the second force transmission arm, to drive the first clamping member 33 to move in the direction away from the housing 10, so that the first clamping member 33 detaches from the second clamping member 220 of the peer connector 200.

[0124] With this disposition, compared with disposing one force transmission arm 31, a quantity of force transmission arms 31 increases as two force transmission arms 31 are used for driving. A force on the pressing member 32 can be more conveniently transferred to the first clamping member 33 by using an increased force transmission arm 31, thereby effectively reducing a force needed from a person for unlocking, and making an operation for unlocking the first clamping member 33 easier. The form of symmetric disposition may further enable a force to be relatively evenly distributed on the first force transmission arm and the second force transmission arm, so that consistency and stability of the locking structure 30 can be better maintained, with a better look of the

structure.

[0125] Refer to FIG. 13 and FIG. 14. In this embodiment, a sliding rail 40 is disposed on the outer surface 13 of the housing 10. The sliding rail 40 and the locking structure 30 are disposed face to face, and the locking structure 30 is disposed closer to the head end 11 of the housing 10 than the sliding rail 40. The locking structure 30 may further include a sliding block 35 and a push bar 36 disposed at one end of the sliding block 35. The sliding block 35 is in a sliding connection to the sliding rail 40, that is, the sliding block 35 can slide on the sliding rail 40 and move relative to the housing 10. At least a part of the push bar 36 is accommodated in the gap area between the first force transmission arm and the second force transmission arm, and can abut against the first clamping member 33 at a push of the sliding block 35.

[0126] It should be noted that a shape of the sliding block 35 may be a shape, for example, of a frustum of a prism, a frustum of a cone, or a rectangular cuboid. The shape of the sliding block 35 is not limited in this embodiment. To make it easier for a hand of a worker to push the sliding block 35, a surface of the sliding block 35 for taking a motivation force may be further disposed as a curved surface or a plane based on a requirement.

[0127] For example, the push bar 36 may be elastic to some extent. As shown in FIG. 15, after the first clamping member 33 is locked to the second clamping member 220, the first clamping member 33 and the second clamping member 220 may be pressed by the push bar 36 above, so that movement of the first clamping member 33 and the second clamping member 220 is limited. Alternatively, as shown in FIG. 16, after the first clamping member 33 is locked to the second clamping member 220, a side, of the second clamping member 220, facing away from the first clamping member 33 may be pressed by the push bar 36, so that movement of the first clamping member 33 and the second clamping member 220 is limited. Alternatively, as shown in FIG. 17, after the first clamping member 33 is locked to the second clamping member 220, the push bar 36 may abut against a side of the first clamping member 33, so that movement of the first clamping member 33 and the second clamping member 220 is limited.

[0128] It can be understood that the push bar 36 is not only located in the gap area between the first force transmission arm and the second force transmission arm, but the push bar 36 is also located below the pressing member. Therefore, when the first clamping member 33 is locked to the second clamping member 220 of the peer connector 200, the sliding block 35 is pushed to enable the sliding block 35 to move toward the pressing member 32, so that the sliding block 35 drives the push bar 36 to move toward the first clamping member 33, and the push bar 36 abuts against the first clamping member 33 and/or the second clamping member 220. In this way, movement of the first clamping member 33 and the second clamping member 220 is limited, to further ensure that the first clamping member 33 does not detach from the

second clamping member 220 of the peer connector 200. With this disposition, a structure for locking for a second time is added on the basis of locking the first clamping member 33 to the second clamping member 220 of the peer connector 200 for a first time. This helps further improve locking performance of the connector 100, and the connector 100 works with high working reliability.

[0129] It should be noted that, to avoid that the pressing member 32 cannot be pressed down, because of the push bar 36, to a degree to which the first clamping member 33 can detach from the second clamping member 220 of the peer connector 200, when the first clamping member 33 needs to detach from the second clamping member 220 of the peer connector 200, the sliding block 35 needs to be pushed first, so that the sliding block 35 moves in a direction away from the pressing member 32, the sliding block 35 further drives the push bar 36 to move in a direction away from the first clamping member 33, and the push bar 36 detaches from the first clamping member 33. Then, the pressing member 32 is pressed, so that the first clamping member 33 detaches from the second clamping member 220 of the peer connector 200.

Embodiment 2:

[0130] It can be understood that any structural improvement of the locking structure 30 in the following descriptions may be applied to Embodiment 1 if there is no conflict. In this embodiment, content that is the same as descriptions in Embodiment 1 is not described again, and content that is not described in Embodiment 1 is provided in detail below.

[0131] Refer to FIG. 18 and FIG. 19. A surface of the pressing member 32 for taking pressure is a contact surface 321, of the pressing member 32, coming in direct contact with a hand of a worker and takes pressure applied by the worker. Therefore, the contact surface 321 of the pressing member 32 needs to be better for taking the pressure applied by the worker.

[0132] In a possible implementation, the pressing member 32 may have a shape of a frustum of a cone, or a shape of a frustum of a prism as shown in FIG. 18. When the pressing member 32 has a shape of a frustum of a cone, a top surface of the frustum of the cone is the contact surface 321 of the pressing member 32. When the pressing member 32 has a shape of a frustum of a prism, a top surface of the frustum of the prism is the contact surface 321 of the pressing member 32. By designing a platform for pressing, there can be a larger area 321 for contact of a hand of a worker with the pressing member 32, so that pressure can be applied to the pressing member 32 more conveniently, there is little pain during pressing with great comfort.

[0133] In another possible implementation, as shown in FIG. 19, the pressing member 32 includes a first part 322 and a second part 323 that is for taking pressure, the first part 322 is connected to the movable end 312 of the force transmission arm 31, the second part 323 is

bent relative to and connected to the first part 322, and the second part 323 is elastic. That the second part 323 is bent relative to and connected to the first part 322 may be understood as that the first part 322 is disposed at an included angle with the second part 323, and the included angle may range from 0° to 180° (including the endpoint values 0° and 180°).

[0134] It can be understood that the first part 322 of the pressing member 32 is a part, of the pressing member 32, connected to the movable end 312 of the force transmission arm 31, and the second part 323 of the pressing member 32 is a part that can take pressure in the pressing member 32. By disposing the pressing member 32 with the first part 322 and the second part 323, the pressing member 32 can be divided into different function areas based on different functions of the parts. The second part 323 is disposed to be elastic, so that the second part 323 can rebound after being pressed, with good recovery. For example, the first part 322 may be a rigid structure, or may be an elastic structure. The two parts of the pressing member 32 may be independent structures and connected to each other by welding or in another manner, or may be of design through an integrated molding process. Clearly, it should be noted that the first part 322 of the pressing member 32 may also take pressure. This is not strictly limited.

[0135] For example, a surface of the second part 323 for taking pressure is a plane. Alternatively, a surface of the second part 323 for taking pressure is an arc-shaped surface, and a form of the arc-shaped surface fits a form of a finger. This can alleviate pain of a worker when pressing the pressing member 32, and has good use experience and ergonomic experience.

[0136] Still refer to FIG. 18, FIG. 19, FIG. 20, and FIG. 21. The bending section 313 of the force transmission arm 31 is bent and connects the movable end 312 of the force transmission arm 31 and the fixed end 311 of the force transmission arm 31. The bending section 313 includes a first segment 314, a second segment 315, and a third segment 316 that connects the first segment 314 and the second segment 315, the first segment 314 is connected to the movable end 312 and extends counter clockwise, the second segment 315 extends clockwise and is connected to the fixed end 311, and a length of the first segment 314 is different from a length of the second segment 315. The third segment 316 is disposed at an included angle with both the first segment 314 and the second segment 315. The length of the first segment 314 is a dimension of the first segment 314 in an extension direction of the first segment 314, and the length of the second segment 315 is a dimension of the second segment 315 in an extension direction of the second segment 315. The included angle may range from 0° to 180° (including the endpoint values 0° and 180°). For example, an extension shape of the bending section 313 may be generally "U".

[0137] In embodiments, there may be one or more force transmission arms 31. Possibilities of implementing

a quantity of force transmission arms 31 through different implementations are described below.

[0138] In a possible implementation, as shown in FIG. 18, there is one force transmission arm 31. The movable end 312 of the force transmission arm 31 may be connected to the pressing member 32. A position at which the movable end 312 of the force transmission arm 31 is connected to the pressing member 32 is not limited in this embodiment. The first segment 314, the second segment 315, and the third segment 316 of the force transmission arm 31 are in cooperation to provide the arc-shaped force transmission arm 31.

[0139] Specifically, the length of the first segment 314 is greater than the length of the second segment 315, where the length of the first segment 314 is a dimension of the first segment 314 in the extension direction of the first segment 314, and the length of the second segment 315 is a dimension of the second segment 315 in the extension direction of the second segment 315. In this way, by a connection between the segments, the force transmission arm 31 can form a winding and looping extension path, so that the length of the force arm can be extended to a maximum extent, and an operation force needed from a person is reduced with a same effect of a locking force, so that an operation for unlocking the connector 100 is easier.

[0140] For example, the first clamping member 33 may be connected to an outer side of the third segment 316, and the outer side of the third segment 316 is a side, of the third segment 316, facing the pressing member 32. Alternatively, the second clamping member 220 may be connected to an inner side of the third segment 316, and the inner side of the third segment 316 is a side, of the third segment 316, away from the pressing member 32. Alternatively, the second clamping member 220 may be connected to a bottom surface of the third segment 316, and a position of the second clamping member 220 may be selected based on a requirement. This is not strictly limited in this embodiment of this application.

[0141] In another possible implementation, as shown in FIG. 20, there are two force transmission arms 31, that is, a first force transmission arm I1 and a second force transmission arm I2, and the first force transmission arm I1 and the second force transmission arm I2 are symmetrically disposed. A first segment 314 of the first force transmission arm I1 is connected to a first segment 314 of the second force transmission arm I2 to form an outer circular structure A, and a second segment 315 of the first force transmission arm I1 is connected to a second segment 315 of the second force transmission arm I2 to form an inner circular structure B surrounded by the outer circular structure A, and a third segment 316 of the first force transmission arm I1 is connected to a third segment 316 of the second force transmission arm I2 to form a connection structure C that connects the outer circular structure A and the inner circular structure B.

[0142] For example, the first clamping member 33 is disposed at the bottom of the connection structure C, or

the first clamping member 33 is disposed at either of two ends of the connection structure C in a length direction. In this way, a position at which the first clamping member 33 is arranged may be correspondingly selected based on different application scenarios, so that flexibility of arranging the position of the first clamping member 33 is high.

[0143] It should be understood that both the first force transmission arm I1 and the second force transmission arm I2 include the foregoing structures of the force transmission arm 31. Details are not described herein again. A movable end 312 of the first force transmission arm I1 and a movable end 312 of the second force transmission arm I2 may be connected to two sides of the pressing member 32 respectively, so that the first force transmission arm I1 and the second force transmission arm I2 are symmetrically disposed.

[0144] Therefore, when the connector 100 needs to detach from the peer connector 200, the pressing member 32 is pressed, and the pressing member 32 moves in a direction closer to the housing 10. In addition, a part of pressure taken by the pressing member 32 can be transferred to the first clamping member 33 through the first force transmission arm I1, and the other part can be transferred to the first clamping member 33 through the second force transmission arm I2, to drive the first clamping member 33 to move in the direction away from the housing 10, so that the first clamping member 33 detaches from the second clamping member 220 of the peer connector 200.

[0145] With this disposition, compared with disposing one force transmission arm 31, a quantity of force transmission arms 31 increases as two force transmission arms 31 are used for driving. A force on the pressing member 32 can be more conveniently transferred to the first clamping member 33 by using an increased force transmission arm 31, thereby effectively reducing a force needed from a person for unlocking, and making an operation for unlocking the first clamping member 33 easier. The circles formed with the form of symmetric disposition may further enable a force to be relatively evenly distributed on the first force transmission arm I1 and the second force transmission arm I2, so that consistency and stability of the locking structure 30 can be better maintained, with a better look of the structure.

[0146] In still another possible implementation, content that is the same as descriptions in the foregoing implementation is not described again. A difference lies in that, as shown in FIG. 21, there are four force transmission arms 31, and the four force transmission arms 31 are a first force transmission arm I1, a second force transmission arm I2, a third force transmission arm I3, and a fourth force transmission arm I4. A first segment 314 of the third force transmission arm I3 is connected to a first segment 314 of the fourth force transmission arm I4 to form a middle circular structure D between an outer circular structure A and an inner circular structure B. A second segment 315 of the third force transmission arm I3 is con-

nected to a second segment 315 of the first force transmission arm I1 to jointly form one semicircle of the inner circular structure B. The second segment 315 of the fourth force transmission arm I4 is connected to the second segment 315 of the second force transmission arm I2 to jointly form the other semicircle of the inner circular structure B. The third segment 316 of the first force transmission arm I1, the third segment 316 of the second force transmission arm I2, a third segment 316 of the third force transmission arm I3, and a third segment 316 of the fourth force transmission arm I4 are connected to each other to form a connection structure C that connects the outer circular structure A, the middle circular structure D, and the inner circular structure B.

[0147] Therefore, when the connector 100 needs to detach from the peer connector 200, the pressing member 32 is pressed, and the pressing member 32 moves in a direction closer to the housing 10. In addition, pressure taken by the pressing member 32 may be divided into four parts and transferred to the first clamping member 33 through the first force transmission arm I1, the second force transmission arm I2, the third force transmission arm I3, and the fourth force transmission arm I4, to drive the first clamping member 33 to move in the direction away from the housing 10, so that the first clamping member 33 detaches from the second clamping member 220 of the peer connector 200.

[0148] With this disposition, compared with disposing one force transmission arm 31, a quantity of force transmission arms 31 increases as four force transmission arms 31 are used for driving. A force on the pressing member 32 can be more conveniently transferred to the first clamping member 33 by using an increased force transmission arm 31, thereby effectively reducing a force needed from a person for unlocking, and making an operation for unlocking the first clamping member 33 easier. The circles formed with the form of symmetric disposition may further enable a force to be relatively evenly distributed on the first force transmission arm I1, the second force transmission arm I2, the third force transmission arm I3, and the fourth force transmission arm I4, so that consistency and stability of the locking structure 30 can be better maintained, with a better look of the structure.

[0149] It should be noted that a quantity of force transmission arms 31 is not limited to the foregoing listed cases. More force transmission arms 31 may be disposed, provided that a dimension of the connector 100 satisfies a requirement. This is not strictly limited in this embodiment of this application.

[0150] An embodiment of this application further provides a method for manufacturing a connector 100. For a structure of the connector 100, refer to FIG. 4, FIG. 5, FIG. 6 to FIG. 21, and the foregoing descriptions. Details are not described herein again. Refer to FIG. 22. A method for manufacturing the connector 100 may include at least S100 and S200. Detailed descriptions are provided below.

[0151] S100: Manufacture a housing 10.

[0152] S200: Manufacture a locking structure 30 on an outer surface 13 of the housing 10, where the locking structure 30 includes a force transmission arm 31, a pressing member 32 suspended over the housing 10, and a first clamping member 33 suspended over the housing 10, the force transmission arm 31 includes a fixed end 311, a movable end 312, and a bending section 313 that is bent and that connects the fixed end 311 and the movable end 312, the fixed end 311 is fixedly connected to the housing 10, the movable end 312 is connected to the pressing member 32, and the bending section 313 is connected to the first clamping member 33, and the first clamping member 33 is configured to move in a direction away from the housing 10 under driving by the bending section 313 when the pressing member 32 is pressed.

[0153] Embodiments of this application are described in detail above. The principle and implementations of this application are described herein by using specific examples in this specification. The descriptions about the foregoing embodiments are merely provided to help understand the method and core ideas of this application. In addition, a person of ordinary skill in the art can make variations and modifications to embodiments and application scopes according to the ideas of this application. In conclusion, the content of this specification shall not be construed as a limitation on this application.

Claims

1. A connector, wherein the connector comprises:

a housing; and
a locking structure, wherein the locking structure comprises a force transmission arm, a pressing member suspended over the housing, and a first clamping member suspended over the housing, the force transmission arm comprises a fixed end, a movable end, and a bending section that is bent and that connects the fixed end and the movable end, the fixed end is fixedly connected to the housing, the movable end is connected to the pressing member, and the bending section is connected to the first clamping member, and the first clamping member is configured to move in a direction away from the housing under driving by the bending section when the pressing member is pressed.

2. The connector according to claim 1, wherein a linear distance between the fixed end and the movable end is a first length, an extended length of the bending section between the fixed end and the movable end is a second length, and the second length is greater than the first length.

3. The connector according to claim 1 or 2, wherein the

- bending section comprises a first segment, a second segment, and a third segment that connects the first segment and the second segment, the first segment is connected to the movable end and extends in a direction away from the pressing member, the second segment extends in a direction closer to the pressing member and is connected to the fixed end, and a length of the first segment is the same as a length of the second segment, or the first segment and the second segment have different lengths.
4. The connector according to claim 3, wherein the locking structure further comprises a reinforcing rib, and the reinforcing rib is disposed between the first segment and the third segment.
 5. The connector according to any one of claims 1 to 4, wherein the fixed end is arc-shaped, or an outer surface of the fixed end is an inclined surface.
 6. The connector according to any one of claims 1 to 5, wherein a surface, of the first clamping member, facing the housing is a bottom surface of the first clamping member, an accommodating space is provided on the bottom surface of the first clamping member, and the accommodating space is used to limit a second clamping member of a peer connector.
 7. The connector according to any one of claims 1 to 6, wherein the locking structure further comprises a sliding block and a push bar disposed at one end of the sliding block, a sliding rail is disposed on an outer surface of the housing, the sliding block is in a sliding connection to the sliding rail, and the push bar is configured to abut against the first clamping member at a push of the sliding block.
 8. The connector according to any one of claims 1 to 7, wherein there are two force transmission arms, that is, a first force transmission arm and a second force transmission arm, the first force transmission arm and the second force transmission arm are symmetrically disposed, and the first clamping member is located in a gap area between the first force transmission arm and the second force transmission arm and is connected to both the first force transmission arm and the second force transmission arm.
 9. The connector according to claim 1 or 2, wherein the bending section comprises a first segment, a second segment, and a third segment that connects the first segment and the second segment, the first segment is connected to the movable end and extends counterclockwise, the second segment extends clockwise and is connected to the fixed end, the third segment is disposed at an included angle with both the first segment and the second segment, and the first segment, the second segment, and the third segment are in cooperation to provide the arc-shaped force transmission arm.
 10. The connector according to claim 9, wherein there are two force transmission arms, that is, a first force transmission arm and a second force transmission arm, a first segment of the first force transmission arm is connected to a first segment of the second force transmission arm to form an outer circular structure, and a second segment of the first force transmission arm is connected to a second segment of the second force transmission arm to form an inner circular structure surrounded by the outer circular structure, and a third segment of the first force transmission arm is connected to a third segment of the second force transmission arm to form a connection structure that connects the outer circular structure and the inner circular structure.
 11. The connector according to claim 10, wherein the first clamping member is disposed at the bottom of the connection structure, or the first clamping member is disposed at either of two ends of the connection structure in a length direction.
 12. The connector according to any one of claims 1 to 11, wherein a surface of the pressing member for taking pressure is a plane or a curved surface.
 13. The connector according to any one of claims 1 to 12, wherein the pressing member comprises a first part and a second part that is for taking pressure, the first part is connected to the movable end of the force transmission arm, the second part is bent relative to and connected to the first part, and the second part is elastic.
 14. The connector according to claim 13, wherein a surface of the second part for taking pressure is an arc-shaped surface.
 15. A connector assembly, wherein the connector assembly comprises a peer connector and the connector according to any one of claims 1 to 14, and the peer connector is in a plug-in connection to the connector to implement an electrical connection between the peer connector and the connector.
 16. An electronic device, wherein the electronic device comprises the connector according to any one of claims 1 to 14.
 17. A terminal, comprising the electronic device according to claim 16.
 18. A cable, wherein the connector according to any one of claims 1 to 14 is comprised at one end of the cable.

19. A connector manufacturing method, wherein the method comprises:

manufacturing a housing; and
manufacturing a locking structure on an outer surface of the housing, wherein the locking structure comprises a force transmission arm, a pressing member suspended over the housing, and a first clamping member suspended over the housing, the force transmission arm comprises a fixed end, a movable end, and a bending section that is bent and that connects the fixed end and the movable end, the fixed end is fixedly connected to the housing, the movable end is connected to the pressing member, and the bending section is connected to the first clamping member, and the first clamping member is configured to move in a direction away from the housing under driving by the bending section when the pressing member is pressed.

20. The method according to claim 19, wherein a linear distance between the fixed end and the movable end is a first length, an extended length of the bending section between the fixed end and the movable end is a second length, and the second length is greater than the first length.
21. The method according to claim 19 or 20, wherein the locking structure is integrated to form a whole.

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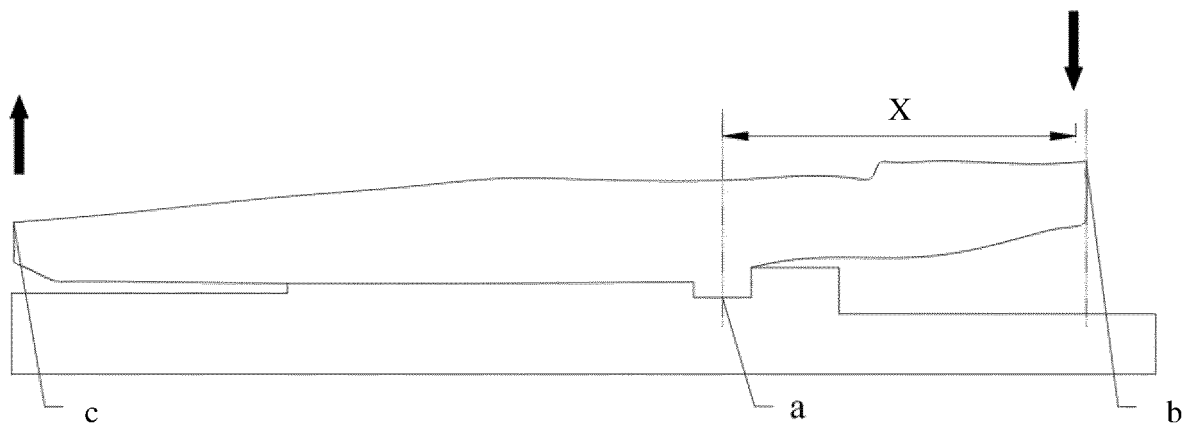


FIG. 1

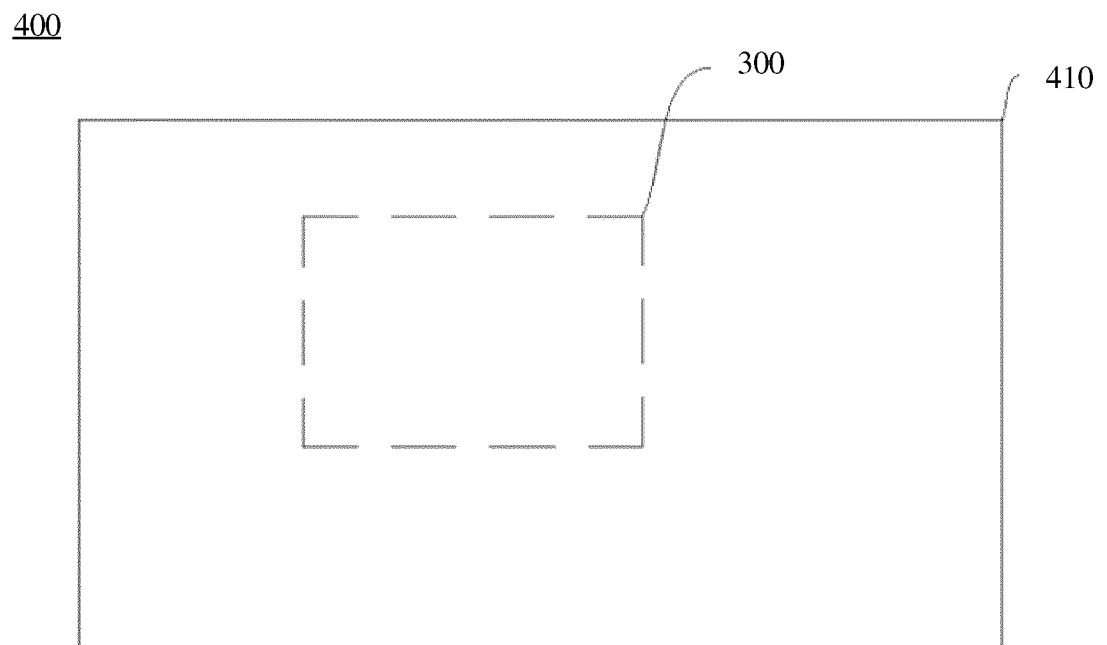


FIG. 2

1000

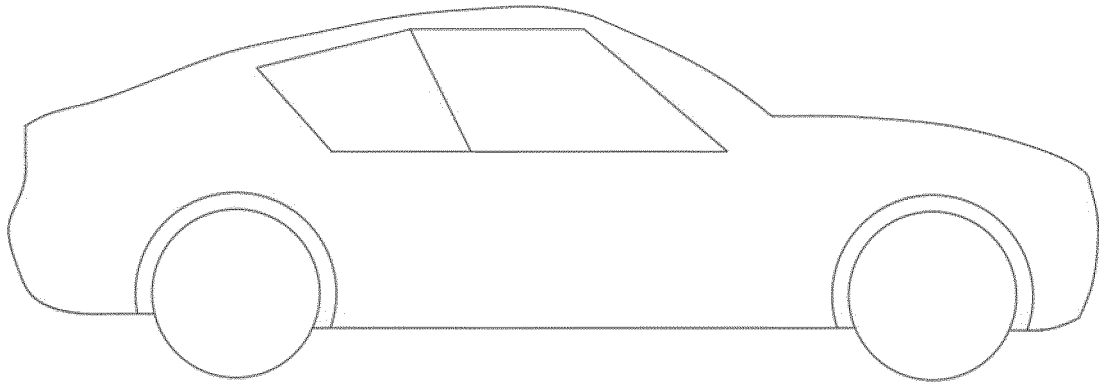


FIG. 3

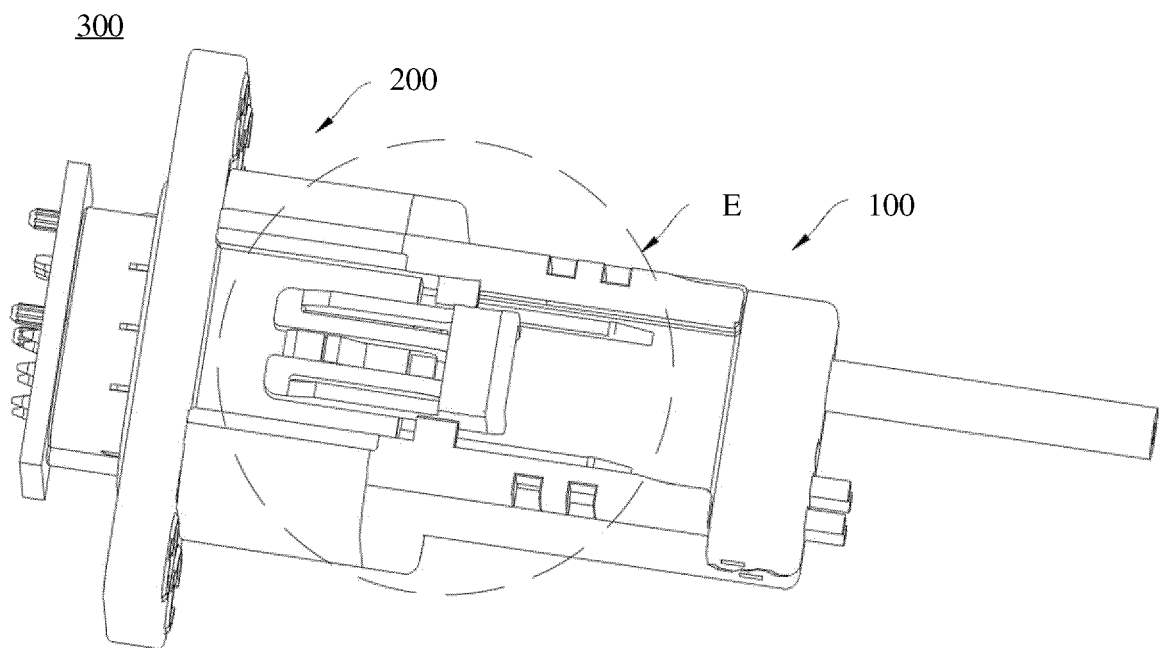


FIG. 4

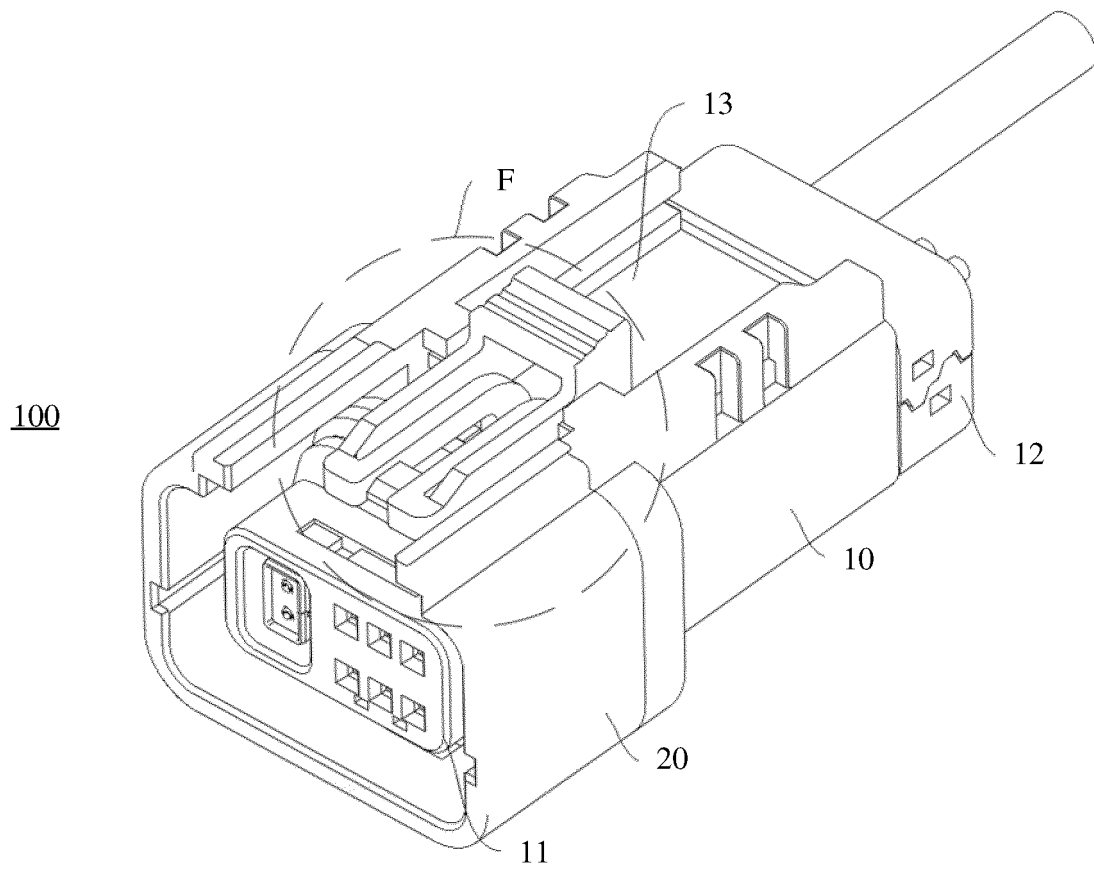


FIG. 5

200

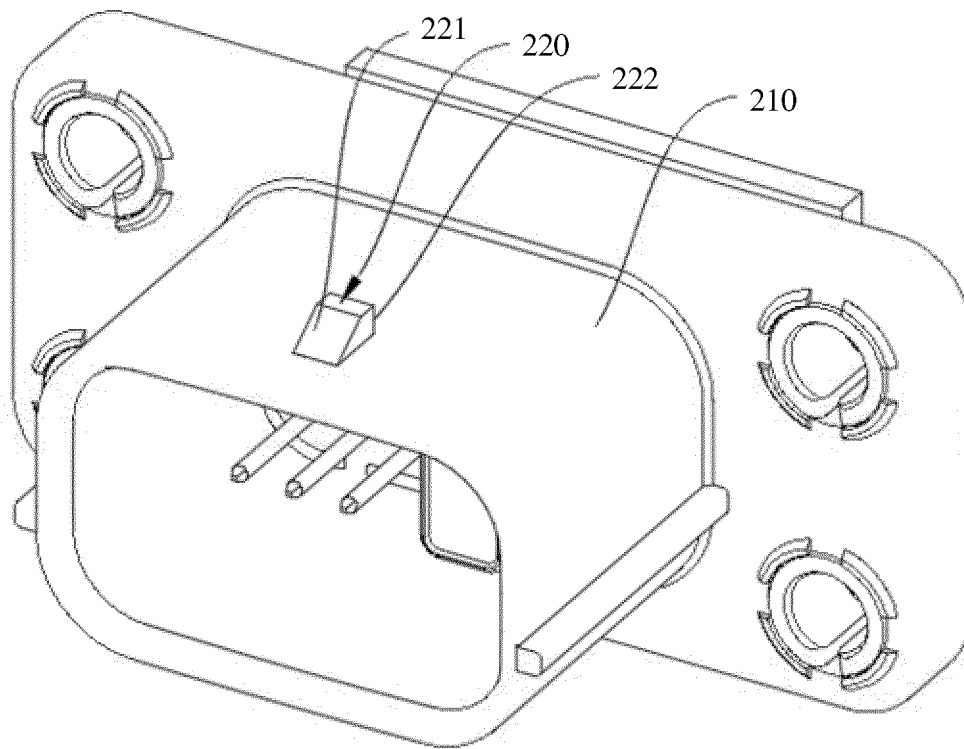


FIG. 6

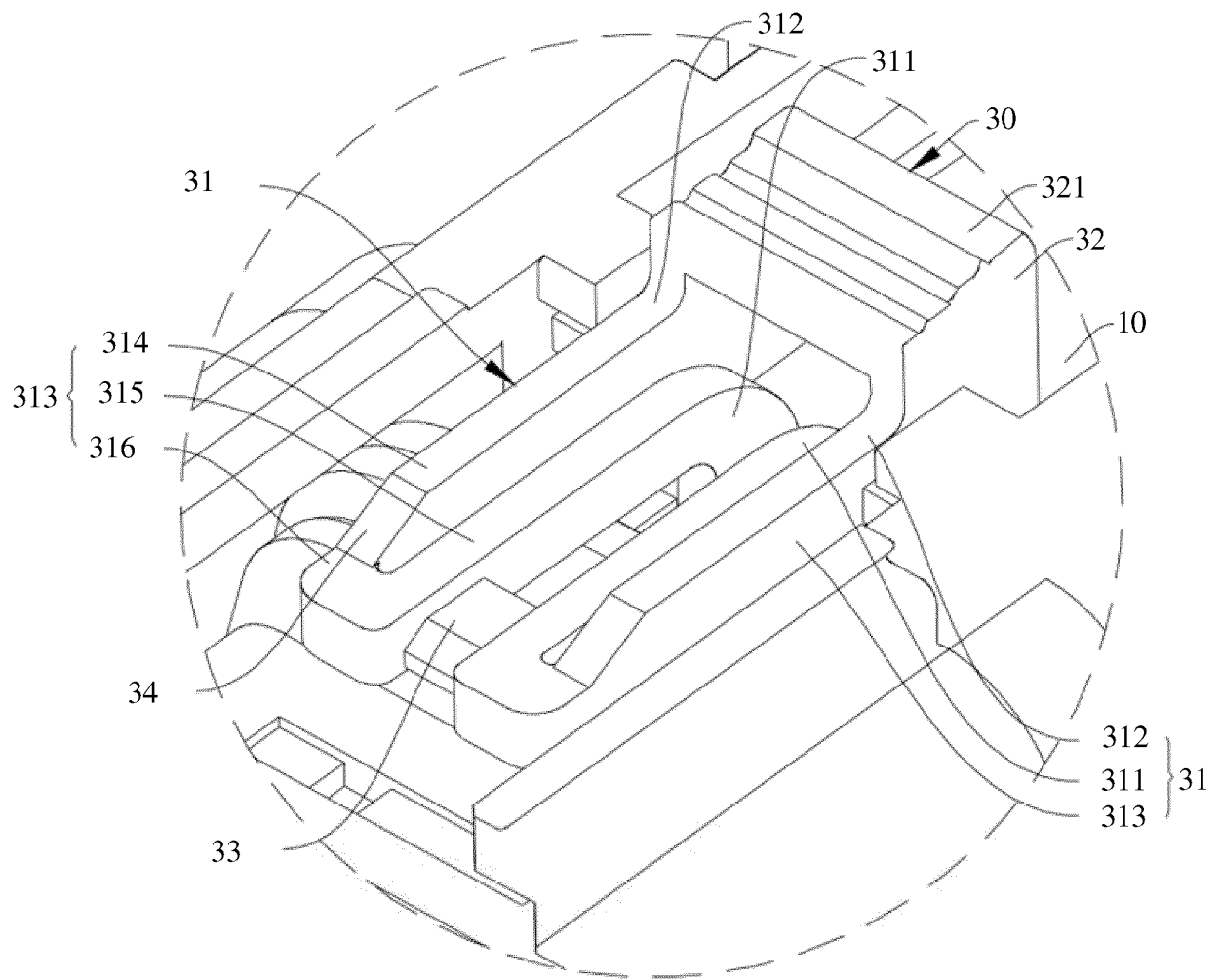


FIG. 7

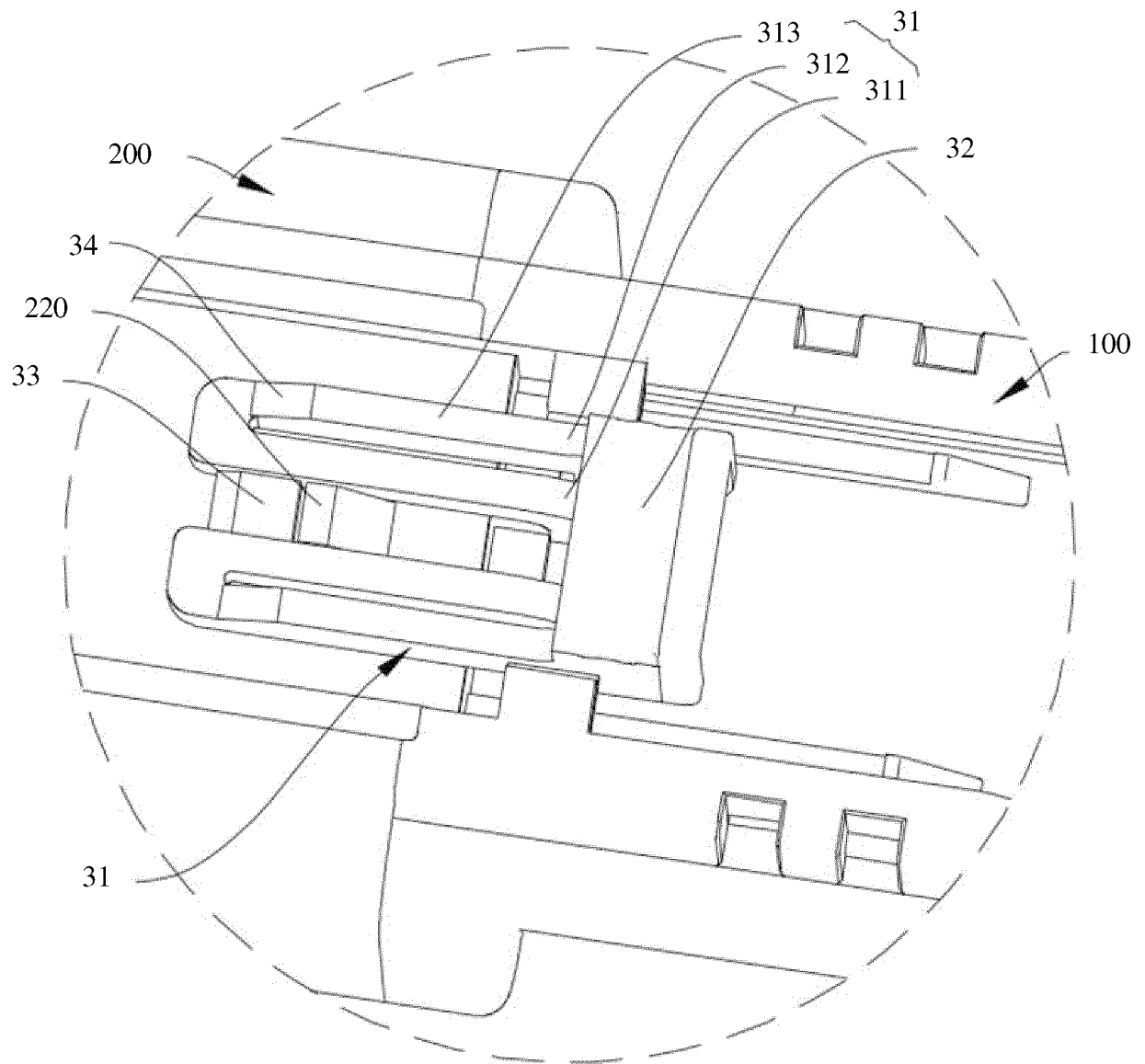


FIG. 8

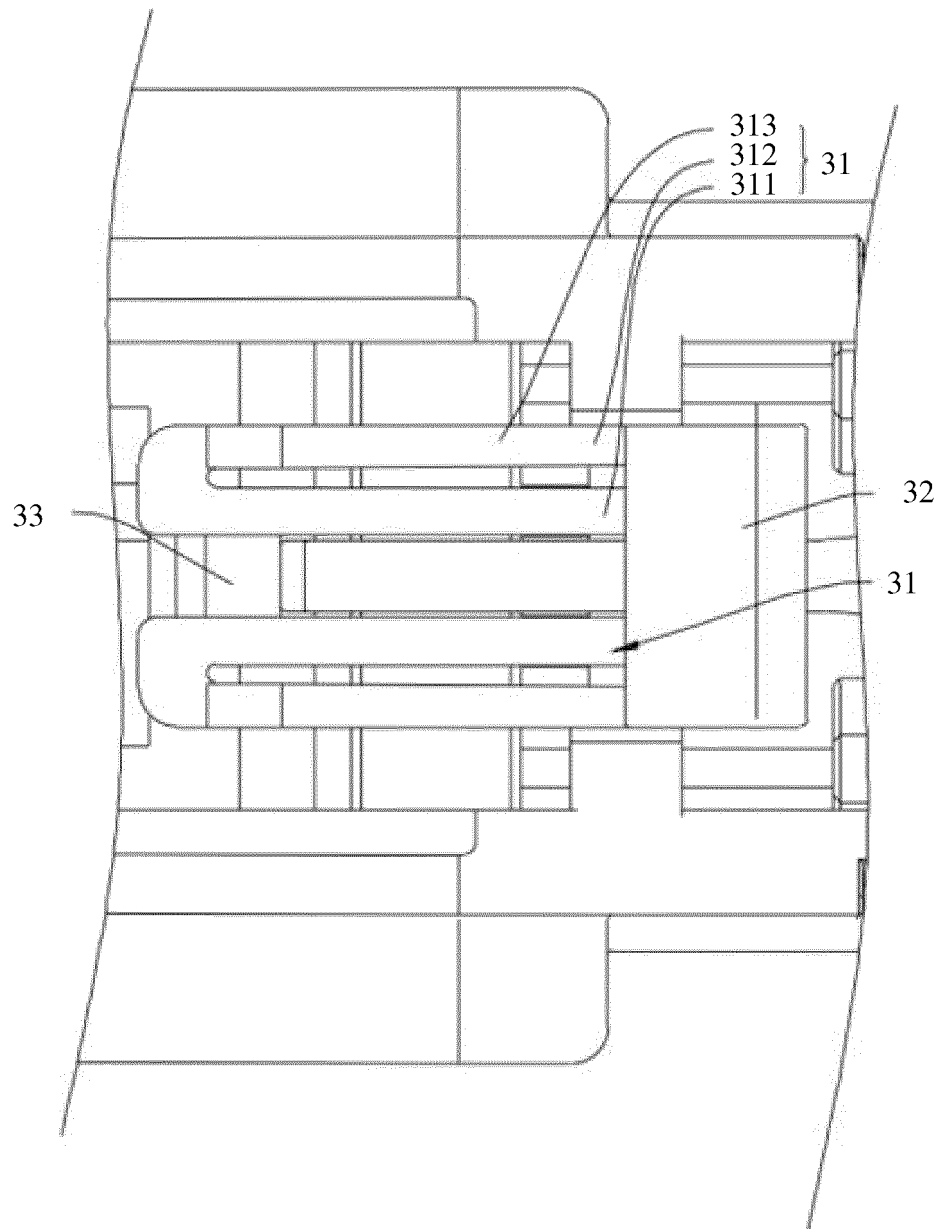


FIG. 9

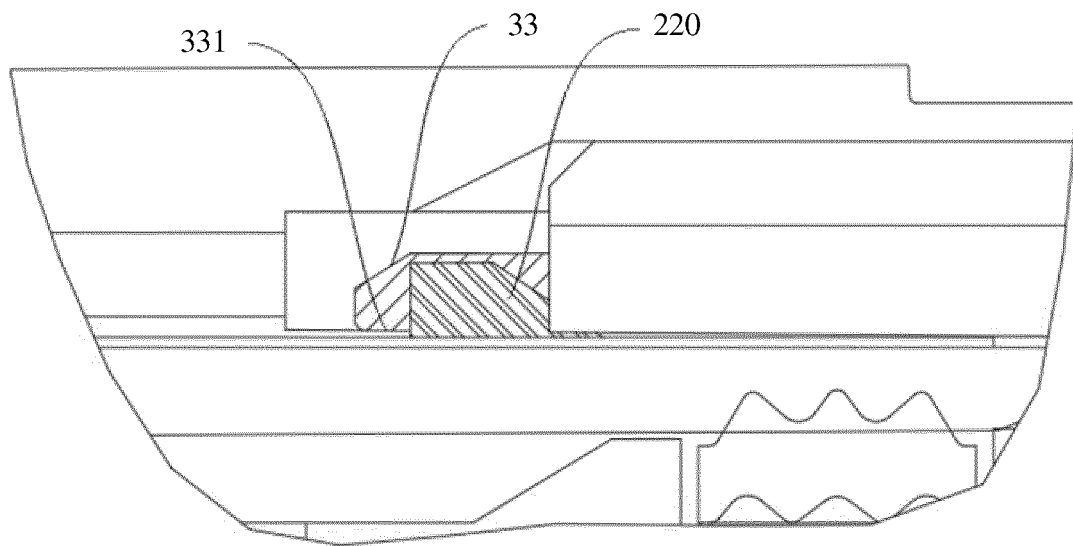


FIG. 10

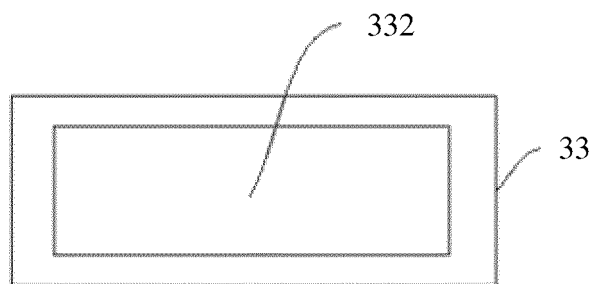


FIG. 11

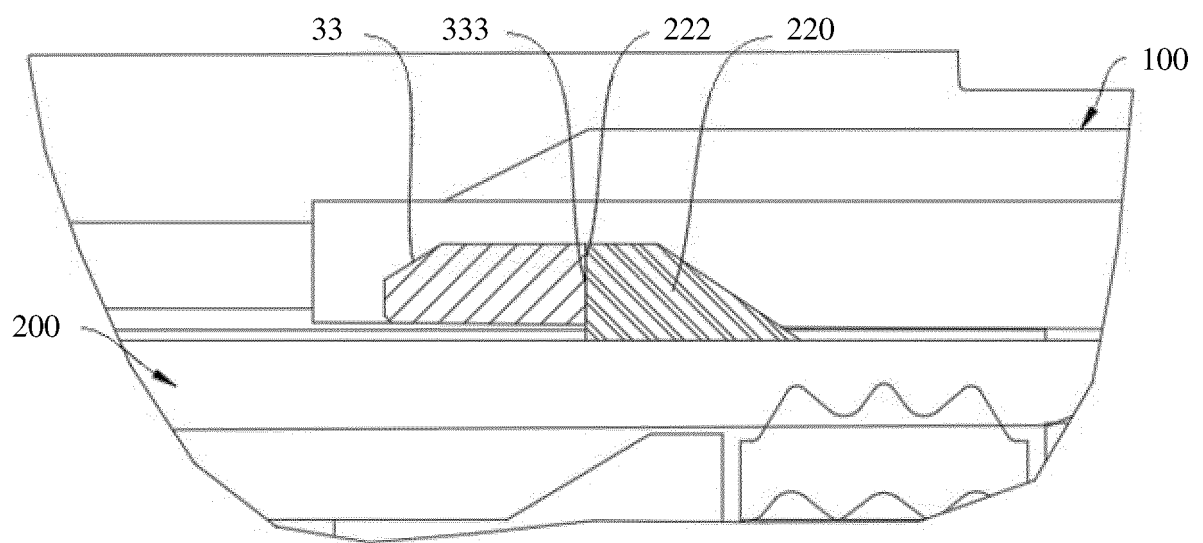


FIG. 12

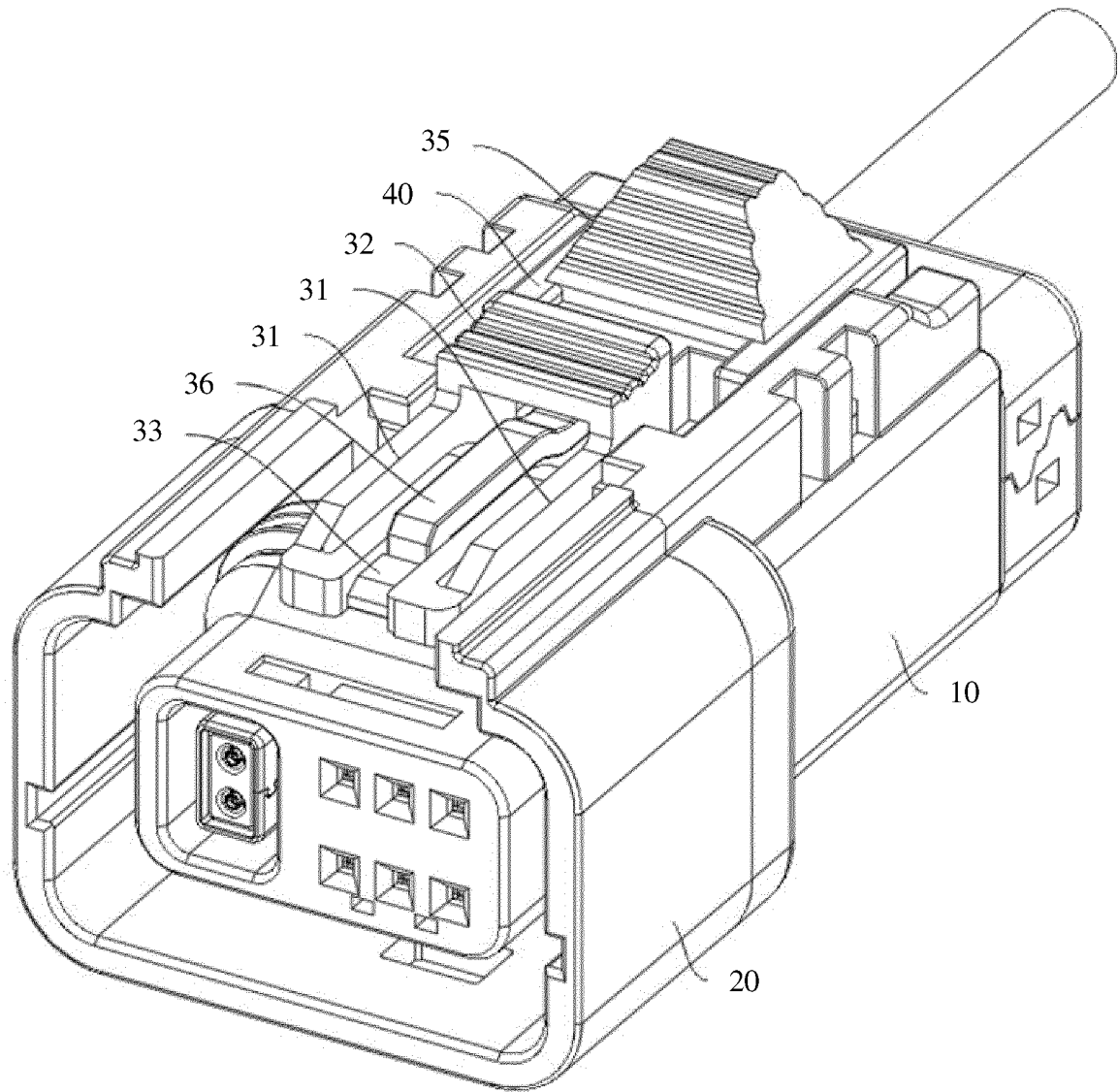


FIG. 13

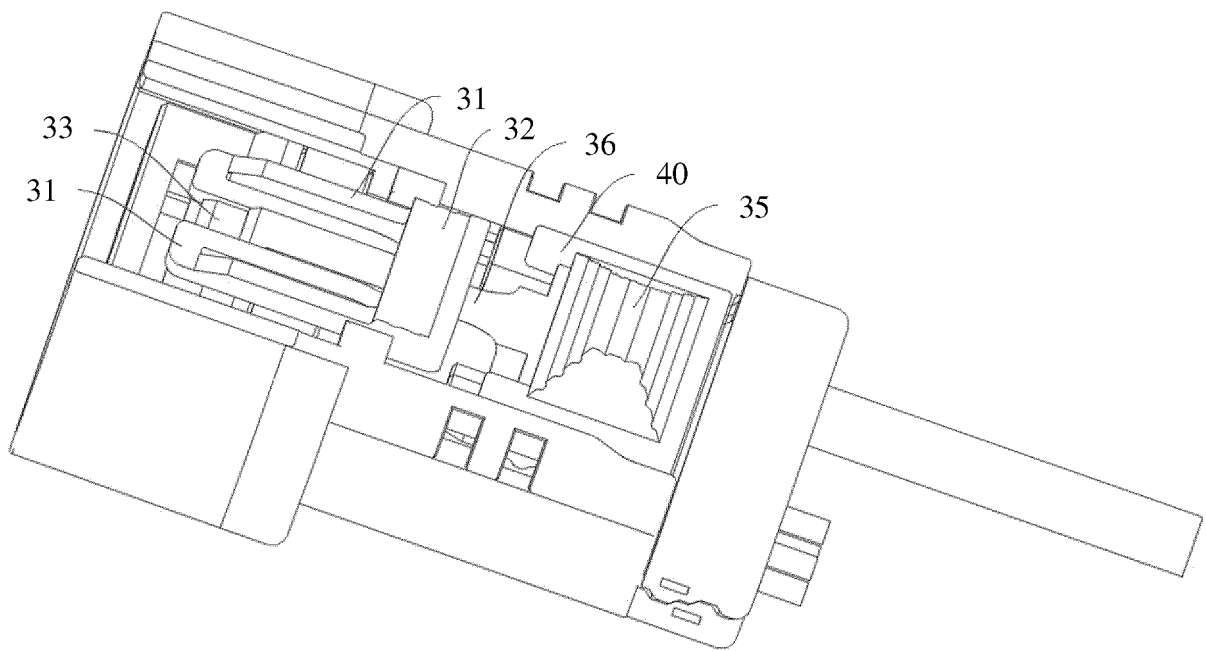


FIG. 14

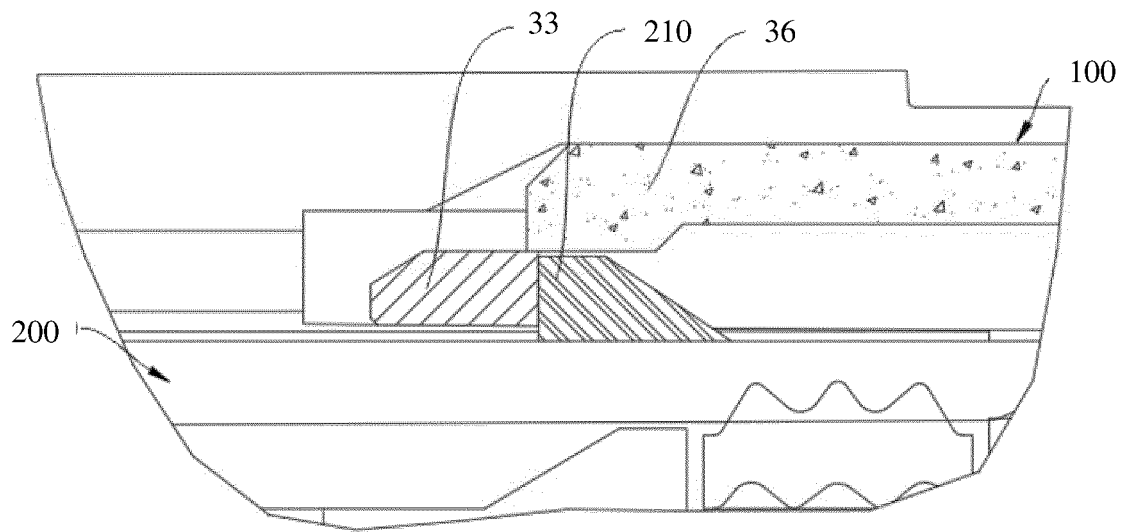


FIG. 15

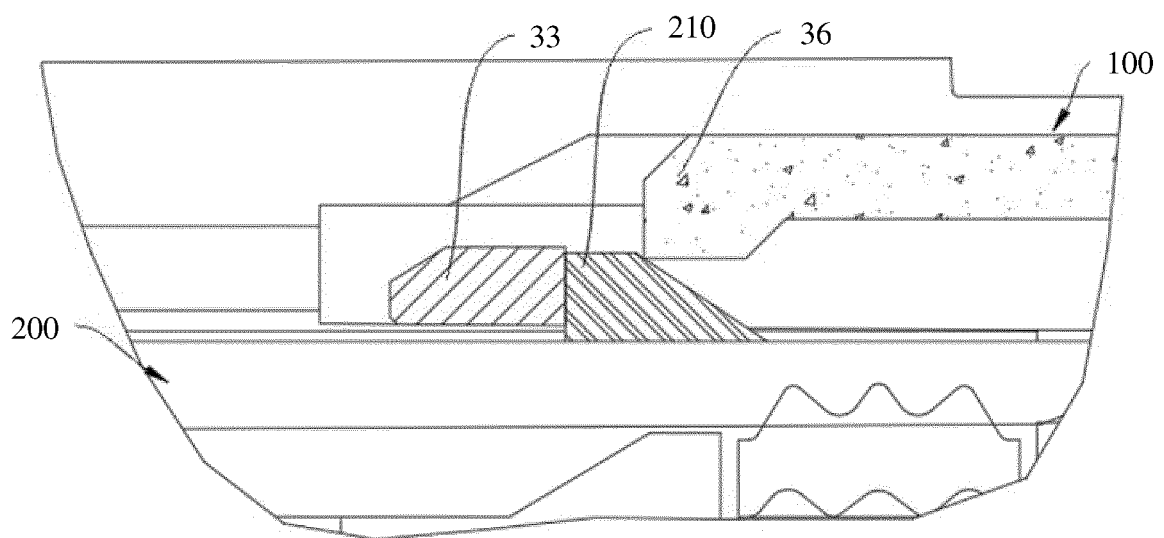


FIG. 16

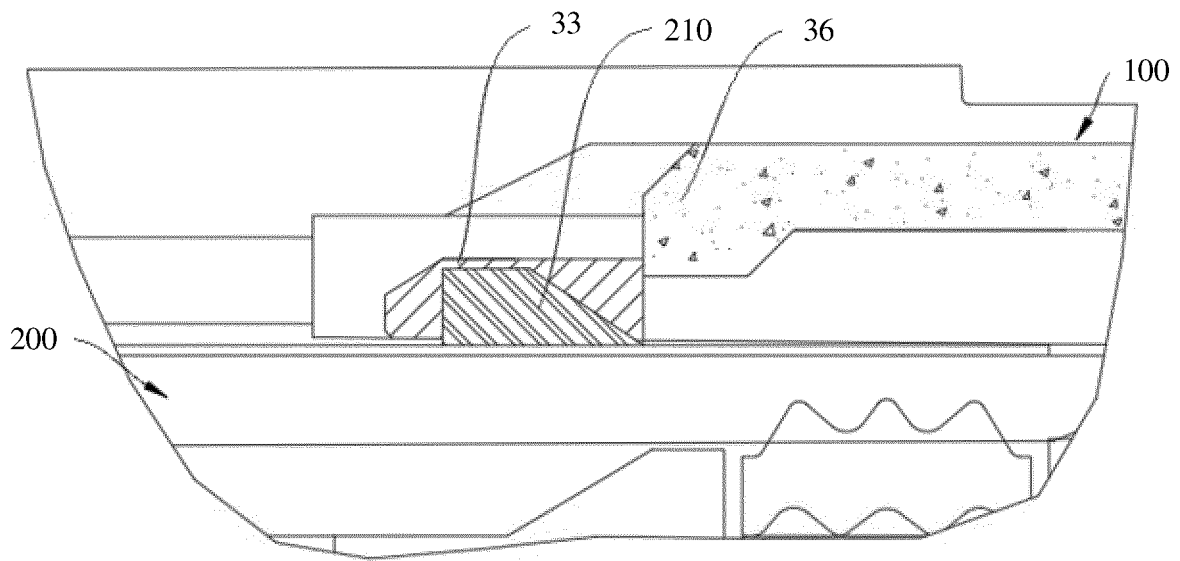


FIG. 17

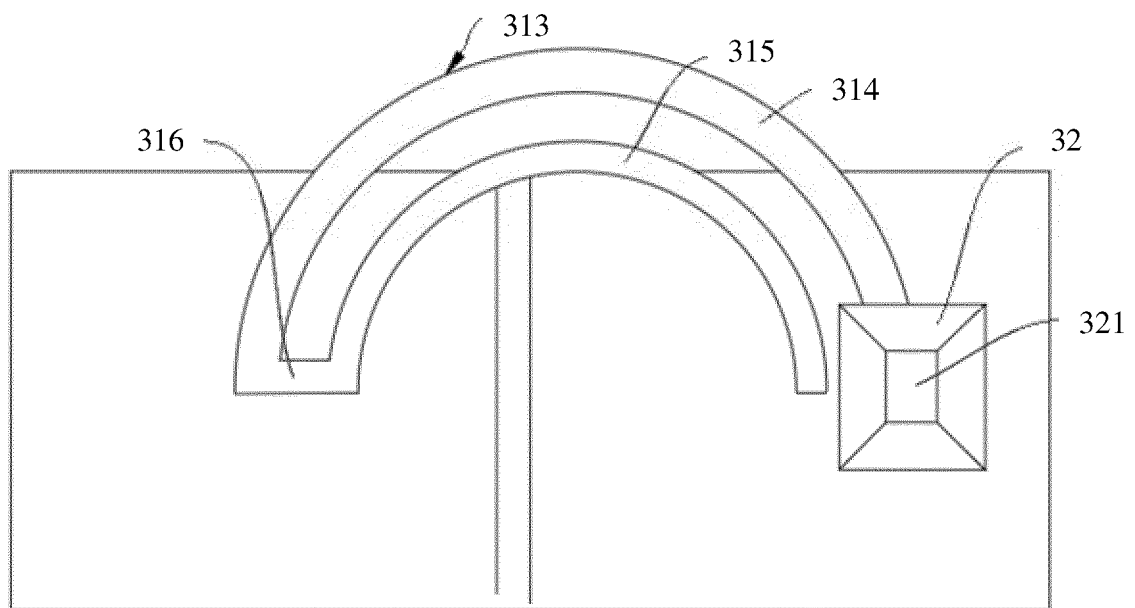


FIG. 18

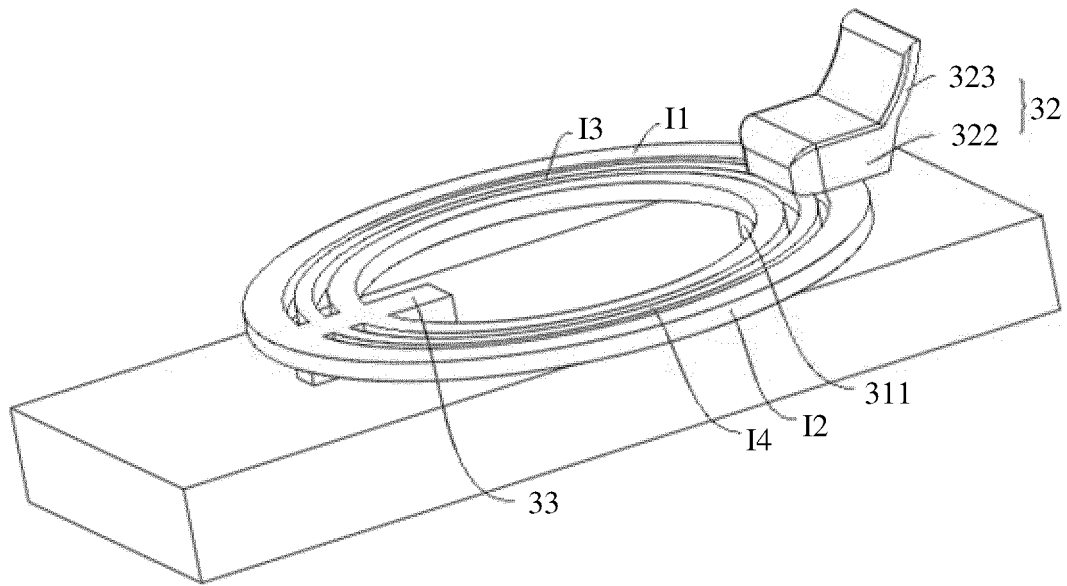


FIG. 19

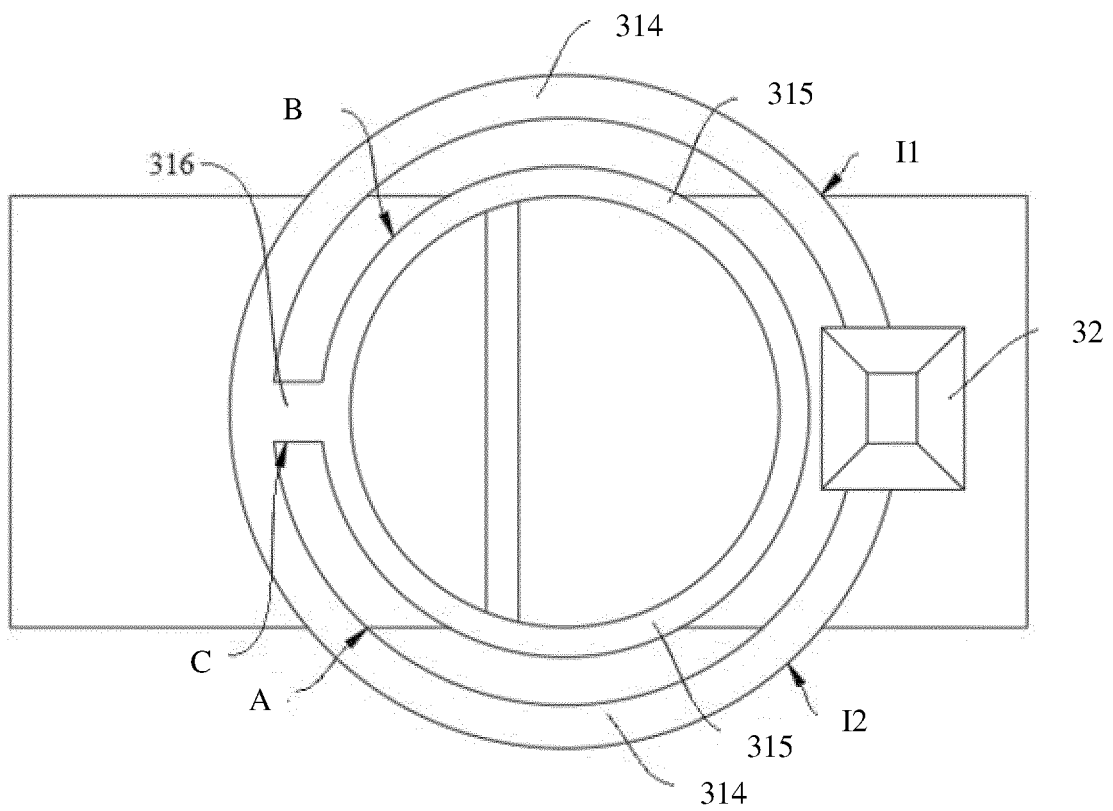


FIG. 20

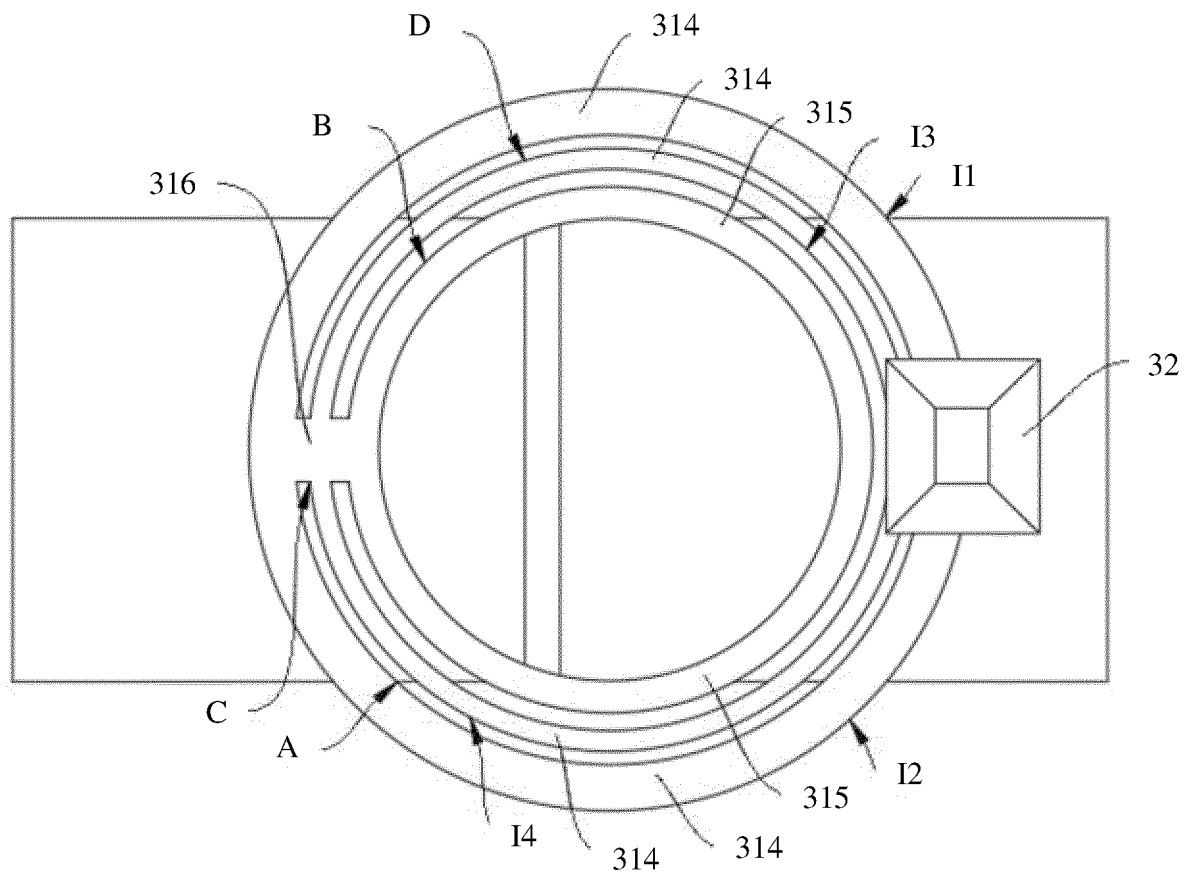


FIG. 21

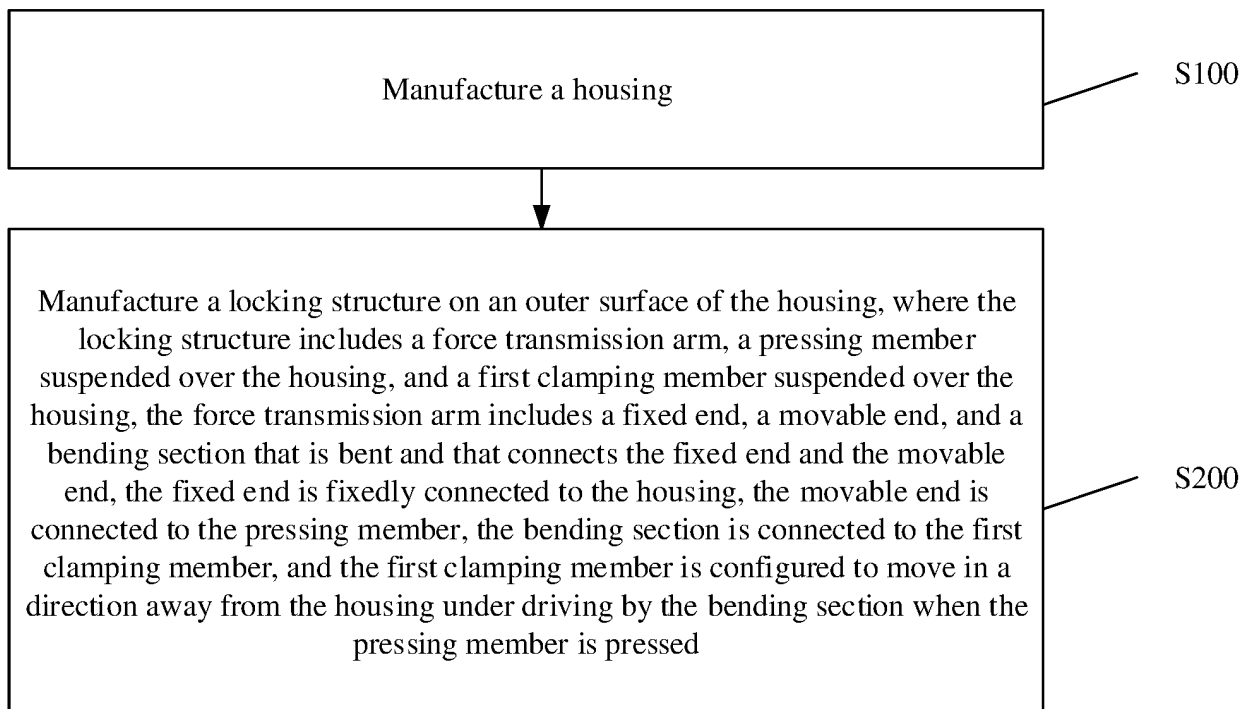


FIG. 22

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/113730

A. CLASSIFICATION OF SUBJECT MATTER H01R 13/627(2006.01)i; H01R 13/639(2006.01)i According to International Patent Classification (IPC) or to both national classification and IPC																								
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) H01R Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched																								
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPODOC, WPI, CNPAT, CNKI, IEEE, GOOGLE: 连接器, 锁定, 锁紧, 锁持, 锁扣, 按压, 操作, 手, 杠杆, 力臂, 轨, connector, latch, lock+, lever, arm, mating, engag+, disengag+, user, hand, finger, operating, press+, guide, rail																								
C. DOCUMENTS CONSIDERED TO BE RELEVANT																								
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2022/113730

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