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(54) **ELECTRICAL CONTACT ASSEMBLY STRUCTURE OF TERMINAL DEVICE**

(57) An electrical contact assembly structure of terminal device includes a conductive support and a metal leaf spring. A connected section is disposed on the conductive support. A curved section is formed at a middle portion of the metal leaf spring. A connection section and an abutment section are respectively disposed at two ends of the metal leaf spring. The connection section can be directly assembled with the connected section. The abutment section serves to elastically abut against a conductive wire, which extends into the conductive support from outer side, whereby the conductive wire is electrically connected with the conductive support. The manufacturing and assembling processes of the electrical contact assembly structure are facilitated. In addition, the metal leaf spring can keep securely connected with the conductive support without the location of an external plastic housing.

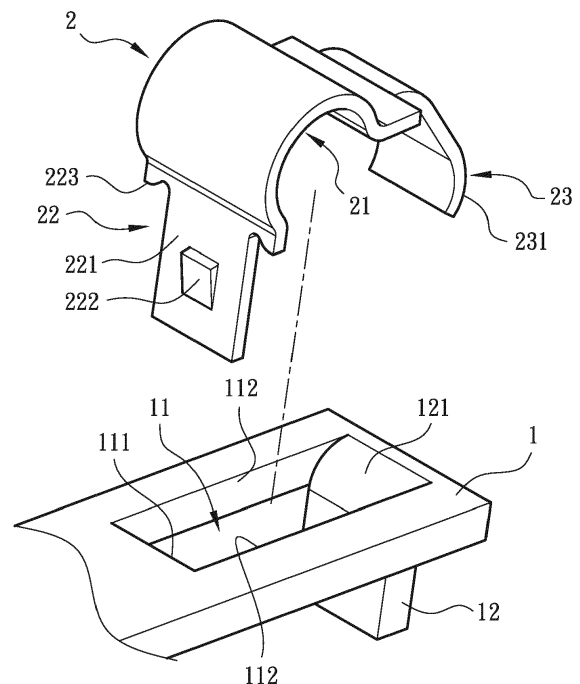


Fig. 1

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates generally to an electrical contact assembly structure of terminal device, and more particularly to an electrical contact assembly structure of terminal device, which is easily and conveniently manufactured and assembled. In addition, the conductive support and the metal leaf spring of the electrical contact assembly structure are securely connected with each other.

2. Description of the Related Art

[0002] A conventional electrical connection terminal includes an insulation case (generally made of plastic material) and a metal component or metal leaf spring enclosed in the insulation case. The metal leaf spring serves to press a conductive wire entering the terminal to electrically connect with the conductive wire. A row of electrical connection terminals can be fastened on a grounding rail (or conductive rail) to set up a co-used grounding device of an electrical appliance or mechanical apparatus for conducting out the residual current or static of the apparatus.

[0003] US 2014/0127932 A1 discloses an electrical connection terminal having a clamping spring and a plastic housing. A contact leg of one end of the clamping spring extends between two projections in the plastic housing and is restricted, whereby the clamping leg of the other end of the clamping spring can abut against and hold a conductive wire, which extends into the terminal, in cooperation with a current bar. Accordingly, via the current bar, the conductive wire is electrically connected with the grounding rail (or conductive rail). However, in such structure, the clamping spring is simply located by the internal structure of the plastic housing, while there is no connection and locating structure between the contact leg and the current bar. Therefore, in practical application, the contact leg of the clamping spring and the current bar often relatively displace and detach from each other due to the deformation of the plastic housing, (especially after a long term of use).

[0004] US 2013/0143433 A1 discloses a connection terminal having two conductive leaf springs disposed in a housing on two sides thereof. The conductive leaf springs are simply located by an internal structure of the housing. Two ends of the conductive leaf springs are in electrical contact with two end sections of a bus bar. In such structure, the conductive leaf springs and the bus bar often detach from each other to open the circuit due to the deformation of the plastic housing.

[0005] In order to improve the above shortcomings of the above conventional terminal devices, an assembly of a leaf spring and a conductive support (or current bar)

has been disclosed. According to such structure, an operator can compress and/or rotate the leaf spring to fasten the leaf spring into the conductive support and make the leaf spring into electrical contact with the conductive support. However, as well known by those who are skilled in this field, the above connection and operation mode is relatively troublesome and inconvenient.

[0006] To speak representatively, in the above references of conventional electrical connection terminals, at least one conductive leaf spring is positioned beside an end section of the current bar (or bus bar). The conductive leaf spring is located by the internal structure of the plastic housing, whereby an end section of the conductive leaf spring abuts against and electrically contacts the current bar (or bus bar). The other end of the conductive leaf spring can elastically electrically contact and abut against a conductive wire, which extends into the terminal. Alternatively, an operator can compress and/or rotate the leaf spring to fasten the leaf spring into the conductive support. In practical application, the end section of the conductive leaf spring and the current bar (or bus bar) often detach from each other to open the circuit due to the deformation of the plastic housing. This leads to security problem and troubles in assembling and operation.

[0007] It is therefore tried by the applicant to provide an electrical contact assembly structure of terminal device to improve the practical shortcomings existing in the conductive leaf spring assembling structure of the conventional electrical connection terminals.

SUMMARY OF THE INVENTION

[0008] It is therefore a primary object of the present invention to provide an electrical contact assembly structure of terminal device including a conductive support and a metal leaf spring. A connected section is disposed on the conductive support. A connection section is disposed at one end of the metal leaf spring, which can be directly assembled with the connected section, whereby the metal leaf spring can be connected with the conductive support. An abutment section is disposed at the other end of the metal leaf spring. The abutment section serves to elastically abut against a conductive wire, which extends into the conductive support from outer side, whereby the conductive wire is electrically connected with the conductive support. The manufacturing and assembling processes of the electrical contact assembly structure are facilitated. In addition, by means of the above assembling system, the metal leaf spring can keep securely connected with the conductive support without the location of an external plastic housing. This effectively improves the shortcoming of the conventional electrical connection terminals that the metal leaf spring and the conductive support often loosen and detach from each other due to the deformation of the plastic housing enclosing the metal leaf spring and the conductive support.

[0009] It is a further object of the present invention to provide the above electrical contact assembly structure

of terminal device, in which the connected section is at least one hollow socket. The connection section has a plug plate outward protruding from an end section of the metal leaf spring. At least one shoulder sections and at least one stop sections are formed on at least one sides of the plug plate at intervals. When assembled, the plug plate is plugged through the socket with the shoulder sections and stop sections respectively stopped by upper and lower sides of the edges of the socket. Therefore, the metal leaf spring is securely assembled with the conductive support without easy loosening or detachment.

[0010] It is still a further object of the present invention to provide the above electrical contact assembly structure of terminal device, in which an outer end section of the plug plate is formed with a central split having an opening. When the plug plate is compressed from two sides, the plug plate is elastically inward contracted so that the plug plate can be easily plugged through the socket. In addition, as necessary, a locating plate (or elastic tongue section) can be disposed in the central split (or beside the central split). The locating plate (or elastic tongue section) is formed with a subsidiary stop section. The subsidiary stop section and the stop section are cooperatively stopped by upper and lower sides of the edges of the socket in different positions. Therefore, the metal leaf spring is more securely assembled with the conductive support.

[0011] The present invention can be best understood through the following description and accompanying drawings, wherein:

BRIEF DESCRIPTION OF THE DRAWINGS

[0012]

Fig. 1 is a perspective exploded view of a first embodiment of the present invention;
 Fig. 2 is a perspective assembled view of the first embodiment of the present invention;
 Fig. 3 is a front sectional assembled view of the first embodiment of the present invention;
 Fig. 4 is a perspective exploded view of a second embodiment of the present invention;
 Fig. 5 is a perspective assembled view of the second embodiment of the present invention;
 Fig. 6 is a side sectional assembled view of the second embodiment of the present invention, showing the assembling sections of the metal leaf spring and the conductive support;
 Fig. 7 is a perspective exploded view of a third embodiment of the present invention;
 Fig. 8 is a perspective assembled view of the third embodiment of the present invention;
 Fig. 9 is a side sectional assembled view of the third embodiment of the present invention, showing the assembling sections of the metal leaf spring and the conductive support;
 Fig. 10 is a perspective exploded view of a fourth

embodiment of the present invention;

Fig. 11 is a perspective assembled view of the fourth embodiment of the present invention;

Fig. 12 is a front sectional assembled view of the fourth embodiment of the present invention;

Fig. 13 is a perspective exploded view of a fifth embodiment of the present invention;

Fig. 14 is a perspective assembled view of the fifth embodiment of the present invention;

Fig. 15 is a front sectional assembled view of the fifth embodiment of the present invention;

Fig. 16 is a side sectional assembled view of the fifth embodiment of the present invention, showing the assembling sections of the metal leaf spring and the conductive support;

Fig. 17 is a perspective exploded view of a sixth embodiment of the present invention;

Fig. 18 is a perspective assembled view of the sixth embodiment of the present invention;

Fig. 19 is a front sectional assembled view of the sixth embodiment of the present invention; and

Fig. 20 is a side sectional assembled view of the sixth embodiment of the present invention, showing the assembling sections of the metal leaf spring and the conductive support.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] Please refer to Figs. 1 to 3. According to a first embodiment, the electrical contact assembly structure of terminal device of the present invention includes a conductive support 1 and a metal leaf spring 2. The conductive support 1 is disposed in an insulation case (not shown) in communication with an external grounding rail or conductor (not shown). At least one connected section 11 is disposed on the conductive support 1. In practice, two connected sections 11 can be respectively disposed at two ends (left and right ends) of the conductive support 1 as necessary.

[0014] A curved section 21 is formed at a middle portion of the metal leaf spring 2. A connection section 22 and an abutment section 23 are respectively disposed at two ends of the metal leaf spring 2. The connection section 22 can be directly assembled with the connected section 11, whereby the metal leaf spring 2 can be connected with the conductive support 1 without easy loosening or detachment. A subsidiary arcuate guide face 231 is disposed at an end section of the abutment section 23. The subsidiary arcuate guide face 231 serves to elastically abut against and electrically contact a conductive wire (not shown), which extends into the structure from outer side.

[0015] In a preferred embodiment, the connected section 11 is a hollow socket. Two longitudinal edges of the connected section 11 (the socket) extend in an extending direction of the two end sections of the metal leaf spring 2 and are defined as end edges 111. Two lateral (trans-

verse) edges of the connected section 11 (the socket) between the two end edges 111 are defined as lateral edges 112. One of the two end edges 111 of the connected section 11 (the socket) is adjacent to the subsidiary arcuate guide face 231 of the abutment section 23 and formed with an arcuate guide face. The arcuate guide face 121 is connected with a vertically extending folded flap section 12. The connection section 22 has a plug plate 221 passing through and connected with the connected section 11 (the socket). At least one shoulder sections 223 are transversely formed on at least one sides of a junction between the curved section 21 and the plug plate 221 of the metal leaf spring 2.

[0016] In this embodiment, the plug plate 221 outward extends from an end section of the curved section 21 of the metal leaf spring 2 (or extends to a lower side of the drawing). In addition, a stop section 222 protrudes from a middle portion of at least one surface of the plug plate 221.

[0017] When assembled, the plug plate 221 is directly plugged through the connected section 11 (the socket) with the shoulder sections 223 stopped by upper sides of the lateral edges 112 of the connected section 11 (the socket). Also, the stop section 222 is cooperatively stopped by a lower side of the end edge 111 of the connected section 11 (the socket), whereby the metal leaf spring 2 is securely assembled on the conductive support 1. In addition, the subsidiary arcuate guide face 231 and the arcuate guide face 121 serve as two arcuate guide faces opposite to each other. When a conductive wire (not shown) is extended inward from the outer side, the conductive wire is clamped between the subsidiary arcuate guide face 231 and the arcuate guide face 121 in electrical contact therewith.

[0018] Please now refer to Figs. 4 to 6. According to a second embodiment, the electrical contact assembly structure of terminal device of the present invention includes a conductive support 1 and a metal leaf spring 2. The conductive support 1 has a structure identical to that of the first embodiment. A curved section 21 is formed at a middle portion of the metal leaf spring 2 as in the first embodiment. Also, an abutment section 23 is disposed at one end of the metal leaf spring 2 as in the first embodiment. The second embodiment is different from the first embodiment in that a connection section 22 is disposed at one end of the metal leaf spring 2 distal from the abutment section 23. The connection section 22 can be directly assembled with the connected section 11. The connection section 22 has a plug plate 221, which can be plugged through and connected with the connected section 11 (the socket). The connection section 22 further has at least one shoulder sections 223 transversely formed on at least one sides of a junction between the curved section 21 and the plug plate 221 of the metal leaf spring 2.

[0019] In this embodiment, the plug plate 221 outward extends from an end section of the curved section 21 of the metal leaf spring 2 (or extends to a lower side of the

drawing). In addition, at least one stop sections 222 are formed on at least one lateral edges of the plug plate 221.

[0020] When assembled, the plug plate 221 is directly plugged through the connected section 11 (the socket) with the shoulder sections 223 stopped by upper sides of the lateral edges 112 of the connected section 11 (the socket). Also, the stop sections 222 are stopped by lower sides of the lateral edges 112 of the connected section 11 (the socket), whereby the metal leaf spring 2 is securely assembled on the conductive support 1.

[0021] In practice, a guide slope 225 is formed on one side of the plug plate 221. The guide slope 225 is tapered from the stop section 222 to an outer end section of the plug plate 221 (or the lower side of the drawing). The guide slope 225 has the form of an inclined straight edge and serves to guide the end section of the plug plate 221 to extend into the connected section 11 (the socket). In addition, the plug plate 221 is formed with a central split 224 having an opening. The central split 224 longitudinally extends in a direction away from the middle portion (or the curved section 21) of the metal leaf spring 2 (toward the lower side of the drawing). Two lateral sides of the central split 224 are straight edges, whereby when the plug plate 221 is compressed from two sides, the plug plate 221 is elastically inward contracted (toward the central split 224). Accordingly, the plug plate 221 can be more easily plugged through the connected section 11 (the socket) and assembled therein.

[0022] It should be noted that the structural form of the connection section 22 and the structural form of the connected section 11 can be switched, that is, the connection section 22 is formed with a socket structure, while the connected section 11 is correspondingly formed with a plug plate structure.

[0023] Please now refer to Figs. 7 to 9. According to a third embodiment, the electrical contact assembly structure of terminal device of the present invention includes a conductive support 1 and a metal leaf spring 2. The conductive support 1 has a structure identical to that of the first embodiment. A curved section 21 is formed at a middle portion of the metal leaf spring 2 as in the first embodiment. Also, an abutment section 23 is disposed at one end of the metal leaf spring 2 as in the first embodiment. A connection section 22 is disposed at one end of the metal leaf spring 2 distal from the abutment section 23. The connection section 22 can be directly assembled with the connected section 11. The connection section 22 has a plug plate 221, which can be plugged through and connected with the connected section 11 (the socket). The connection section 22 further has at least one shoulder sections 223 transversely formed on at least one sides of a junction between the curved section 21 and the plug plate 221 of the metal leaf spring 2.

[0024] In this embodiment, the plug plate 221 outward extends from an end section of the curved section 21 of the metal leaf spring 2 (or extends to a lower side of the drawing). In addition, at least one stop sections 222 are formed on at least one lateral edges of the plug plate

221. The third embodiment is different from the first embodiment in that a guide slope 225 is formed on one side of the plug plate 221. The guide slope 225 is tapered from the stop section 222 to an outer end section of the plug plate 221 (or the lower side of the drawing). The guide slope 225 has the form of a curved edge and serves to guide the end section of the plug plate 221 to extend into the connected section 11 (the socket). In addition, the plug plate 221 is formed with a central split 224 having an opening. The central split 224 longitudinally extends in a direction away from the middle portion (or the curved section 21) of the metal leaf spring 2 (toward the lower side of the drawing). Two lateral sides of the central split 224 are curved edges, whereby when the plug plate 221 is compressed from two sides, the plug plate 221 is elastically inward contracted (toward the central split 224). Accordingly, the plug plate 221 can be more easily plugged through the connected section 11 (the socket) and assembled therein.

[0025] Please now refer to Figs. 10 to 12. According to a fourth embodiment, the electrical contact assembly structure of terminal device of the present invention includes a conductive support 1 and a metal leaf spring 2. The conductive support 1 is formed with at least one connected section 11, which can be a hollow socket. Two longitudinal edges of the connected section 11 (the socket) are defined as end edges 111. Two lateral transverse edges of the connected section 11 (the socket) between the two end edges 111 are defined as lateral edges 112. One of the two end edges 111 of the connected section 11 (the socket) is formed with an arcuate guide face 121. The arcuate guide face 121 is connected with a vertically extending folded flap section 12. A transverse partitioning section 13 is transversely bridged between middle portions of the two lateral edges 112 of the connected section 11 (the socket). The transverse partitioning section 13 partitions the connected section 11 (the socket) to form a receiving perforation 120 on one side of the connected section 11 (the socket) in adjacency to the arcuate guide face 121.

[0026] A curved section 21 is formed at a middle portion of the metal leaf spring 2 as in the first embodiment. Also, an abutment section 23 is disposed at one end of the metal leaf spring 2 as in the first embodiment. A connection section 22 is disposed at one end of the metal leaf spring 2 distal from the abutment section 23. The connection section 22 can be directly assembled with the connected section 11. The connection section 22 has a plug plate 221, which can be plugged through and connected with the connected section 11 (the socket). The connection section 22 further has at least one shoulder sections 223 transversely formed on at least one sides of a junction between the curved section 21 and the plug plate 221 of the metal leaf spring 2.

[0027] In this embodiment, the plug plate 221 has a stop section 222, a guide slope 225 and a central split 224 as in the second embodiment. The fourth embodiment is different from the second embodiment in that the

plug plate 221 has an elastic tongue section 226. The elastic tongue section 226 forkedly extends from one end of the plug plate 221 in adjacency to the middle portion (or the curved section 21) of the metal leaf spring 2 along the central split 224 (toward the lower side of the drawing). A middle portion of the elastic tongue section 226 is bent to form a subsidiary stop section 227. In addition, a guide slope 228 extends from the subsidiary stop section 227 in a direction away from the curved section 21 of the metal leaf spring 2.

[0028] When assembled, the guide slope 225 guides the plug plate 221 to pass through the connected section 11 (the socket), while the guide slope 228 guides the elastic tongue section 226 to pass through the connected section 11 (the socket). After the plug plate 221 and the elastic tongue section 226 at the same time pass through the connected section 11 (the socket), the shoulder sections 223 are stopped by upper sides of the corresponding lateral edges 112 of the connected section 11 (the socket). Also, the stop sections 222 are stopped by lower sides of the corresponding lateral edges 112 of the connected section 11 (the socket). In addition, the subsidiary stop section 227 is stopped by a lower side of the corresponding end edge 111 of the connected section 11 (the socket). Accordingly, the metal leaf spring 2 is securely assembled on the conductive support 1. Also, the subsidiary arcuate guide face 231 of the abutment section 23 extends to one side of the receiving perforation 120 in adjacency to the arcuate guide face 121. When a conductive wire (not shown) is extended into the receiving perforation 120 from the outer side, the subsidiary arcuate guide face 231 and the arcuate guide face 121 together guide and clamp the conductive wire as a guiding and clamping system.

[0029] Please now refer to Figs. 13 to 16. According to a fifth embodiment, the electrical contact assembly structure of terminal device of the present invention includes a conductive support 1 and a metal leaf spring 2. The conductive support 1 has a structure identical to that of the fourth embodiment. A curved section 21 is formed at a middle portion of the metal leaf spring 2 as in the first embodiment. Also, an abutment section 23 is disposed at one end of the metal leaf spring 2 as in the first embodiment. A connection section 22 is disposed at one end of the metal leaf spring 2 distal from the abutment section 23. The connection section 22 can be directly assembled with the connected section 11. The connection section 22 has a plug plate 221, which can be plugged through and connected with the connected section 11 (the socket). The connection section 22 further has at least one shoulder sections 223 transversely formed on at least one sides of a junction between the curved section 21 and the plug plate 221 of the metal leaf spring 2.

[0030] In this embodiment, the plug plate 221 has a stop section 222, a guide slope 225 and a central split 224 as in the second embodiment. The fifth embodiment is different from the second embodiment in that a notch 229 is further formed at one end of the central split 224

of the plug plate 221 in adjacency to the middle portion (or the curved section 21) of the metal leaf spring 2. A locating plate 22a can be inserted and held in the notch 229. The locating plate 22a has at least one plug sections 221a. A subsidiary stop section 222a is formed on at least one side of the plug section 221a. In addition, at least one subsidiary shoulder section 223a is formed on at least one side of the plug section 221a corresponding to the subsidiary stop section 222a. The plug section 221a is formed with a subsidiary central split 224a having an opening. The subsidiary central split 224a extends in a direction away from the middle portion (or the curved section 21) of the metal leaf spring 2 (toward the lower side of the drawing). A subsidiary guide slope 225a is formed on one side of the plug section 221a. The subsidiary guide slope 225a is tapered from the subsidiary stop section 222a to an outer end section of the plug section 221a (or the lower side of the drawing). When the locating plate 22a is inserted in the notch 229 and securely positioned in the central split 224, the plug section 221 extends in parallel to the plug plate 221.

[0031] When assembled, the locating plate 22a and the plug plate 221 are both plugged through the connected section 11 (the socket). At this time, the shoulder sections 223 are stopped by the upper sides of the lateral edges 112 of the connected section 11 (the socket). Also, the stop sections 222 are stopped by the lower sides of the lateral edges 112 of the connected section 11 (the socket). In addition, the subsidiary shoulder sections 223a of the locating plate 22a are stopped by the upper sides of the end edges 111 of the connected section 11 (the socket) and the subsidiary stop sections 222a are stopped by the lower sides of the end edges 111 of the connected section 11 (the socket), whereby the metal leaf spring 2 is more securely assembled on the conductive support 1.

[0032] Please now refer to Figs. 17 to 20. According to a sixth embodiment, the electrical contact assembly structure of terminal device of the present invention includes a conductive support 1 and a metal leaf spring 2. The conductive support 1 has a structure identical to that of the fourth embodiment. A curved section 21 is formed at a middle portion of the metal leaf spring 2 as in the first embodiment. Also, an abutment section 23 is disposed at one end of the metal leaf spring 2 as in the first embodiment. A connection section 22 is disposed at one end of the metal leaf spring 2 distal from the abutment section 23. The connection section 22 can be directly assembled with the connected section 11. The connection section 22 has a plug plate 221, which can extend into the connected section 11 (the socket). The connection section 22 further has at least one shoulder sections 223 transversely formed on at least one sides of a junction between the curved section 21 and the plug plate 221 of the metal leaf spring 2.

[0033] In this embodiment, the plug plate 221 is formed with a central split 224 having an opening. The central split 224 outward extends by a shorter length from an

end section of the curved section 21 of the metal leaf spring 2 in a direction away from the middle portion (or the curved section 21) of the metal leaf spring 2 (toward the lower side of the drawing). A notch 229 is further formed at one end of the central split 224 in adjacency to the middle portion (or the curved section 21) of the metal leaf spring 2. A locating plate 22a can be inserted in the notch 229.

[0034] The locating plate 22a has at least one plug sections 221a. At least one subsidiary shoulder section 223a and at least one subsidiary stop section 222a are formed on at least one side of the plug section 221a corresponding to each other. A subsidiary guide slope 225a is formed on one side of the plug section 221a. The subsidiary guide slope 225a is tapered from the subsidiary stop section 222a to an outer end section of the plug section 221a (or the lower side of the drawing). The plug section 221a is formed with a subsidiary central split 224a having an opening. The subsidiary central split 224a extends in a direction away from the middle portion (or the curved section 21) of the metal leaf spring 2 (toward the lower side of the drawing). A hook section 22b is formed on at least one side of a junction between the notch 229 and the central split 224. The hook section 22b can hook an end section of the subsidiary central split 224a in adjacency to the middle portion (or the curved section 21) of the metal leaf spring 2, whereby the locating plate 22a can be connected and located in the central split 224 of the metal leaf spring 2.

[0035] When assembled, the plug plate 221 is plugged into the connected section 11 (the socket). At this time, the shoulder sections 223 are stopped by the upper sides of the lateral edges 112 of the connected section 11 (the socket). Also, the locating plate 22a is plugged through the connected section 11 (the socket). The subsidiary shoulder sections 223a of the locating plate 22a are stopped by the upper sides of the end edges 111 of the connected section 11 (the socket) and the subsidiary stop sections 222a are stopped by the lower sides of the end edges 111 of the connected section 11 (the socket), whereby the metal leaf spring 2 is securely assembled on the conductive support 1.

[0036] According to the above embodiments, in the assembling process, the cooperative structural forms of the connection section 22 and the connected section 11 enable an operator to directly plug the metal leaf spring into the conductive support and electrically connect the metal leaf spring with the conductive support without compressing and/or rotating the metal leaf spring as the prior art. Therefore, the manufacturing process is simplified and the assembling efficiency is enhanced.

[0037] In conclusion, the electrical contact assembly structure of terminal device of the present invention can truly achieve the effects of convenient installation and secure connection. The electrical contact assembly structure of terminal device of the present invention is inventive and advanced.

[0038] The above embodiments are only used to illus-

trate the present invention, not intended to limit the scope thereof. Many modifications of the above embodiments can be made without departing from the spirit of the present invention.

Claims

1. An electrical contact assembly structure of terminal device, **characterized in that** it includes:

a conductive support (1) having at least one connected section (11); and
a metal leaf spring (2), a connection section (22) being disposed at one end of the metal leaf spring (2) for assembling with the connected section (11) to connect the metal leaf spring (2) with the conductive support (1), an abutment section (23) being disposed at the other end of the metal leaf spring, the abutment section (23) being elastically movable for elastically abutting against and electrically contacting a conductive wire.

2. The electrical contact assembly structure of terminal device as claimed in claim 1, wherein the connected section (11) is a hollow socket, the connection section (22) has at least one stop section (222), the connection section (22) being plugged through the socket with the stop section (222) cooperatively stopped by a lower side of an edge of the socket, whereby the metal leaf spring (2) is assembled with the conductive support (1) without easy detachment.
3. The electrical contact assembly structure of terminal device as claimed in claim 2, wherein at least one shoulder section (223) is disposed on one side of the connection section (22) in adjacency to a middle portion of the metal leaf spring (2), the shoulder section (223) being stopped by an upper side of an edge of the socket in cooperation with the stop section (222), whereby the metal leaf spring (2) is more securely assembled with the conductive support (1).
4. The electrical contact assembly structure of terminal device as claimed in claim 2 or 3, wherein the connection section (22) has a plug plate (221) and the stop section (222) is disposed on at least one face of the plug plate (221).
5. The electrical contact assembly structure of terminal device as claimed in claim 2 or 3, wherein the connection section (22) has a plug plate (221) and the stop section (222) is disposed on at least one lateral side of the plug plate (221).
6. The electrical contact assembly structure of terminal device as claimed in claim 5, wherein the plug plate

(221) is formed with a central split (224) having an opening, the central split (224) longitudinally extending in a direction away from the middle portion of the metal leaf spring (2).

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7. The electrical contact assembly structure of terminal device as claimed in claim 6, wherein two lateral edges of the central split (224) are straight edges or arcuate edges.

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8. The electrical contact assembly structure of terminal device as claimed in claim 5 or 6 or 7, wherein a guide slope (225) is formed on one side of the plug plate (221), the guide slope (225) being tapered from the stop section (222) to an end of the plug plate (221), which end is distal from the middle portion of the metal leaf spring (2).

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9. The electrical contact assembly structure of terminal device as claimed in claim 8, wherein the guide slope (225) has the form of an inclined straight edge or an arcuate edge.

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10. The electrical contact assembly structure of terminal device as claimed in claim 6 or 8, wherein the plug plate (221) has an elastic tongue section (226), the elastic tongue section (226) forkedly extending from one end of the central split (224) in adjacency to the middle portion of the metal leaf spring (2), a middle portion of the elastic tongue section (226) being bent to form a subsidiary stop section (227), a guide slope (228) extending from one end of the subsidiary stop section (227), which end is distal from the middle portion of the metal leaf spring (2).

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11. The electrical contact assembly structure of terminal device as claimed in claim 6 or 8, wherein a notch (229) is further formed at one end of the central split (224) in adjacency to the middle portion of the metal leaf spring (2), a locating plate (22a) being inserted in the notch (229), the locating plate (22a) having at least one plug sections (221a) extending in a direction in parallel to the plug plate (221), a subsidiary stop section (222a) being formed on at least one side of the plug section (221a), at least one subsidiary shoulder section (223a) being formed on at least one side of the plug section (221a) corresponding to the subsidiary stop section (222a), whereby when the plug section (221a) is plugged through the socket along with the plug plate (221), the subsidiary shoulder section (223a) and the subsidiary stop section (222a) are cooperatively stopped by upper and lower sides of the edges of the socket.

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12. The electrical contact assembly structure of terminal device as claimed in claim 11, wherein the plug section (221a) of the locating plate (22a) is formed with a subsidiary central split (224a) having an opening,

the subsidiary central split (224a) longitudinally extending in a direction away from the middle portion of the metal leaf spring (2), a subsidiary guide slope (225a) being formed on one side of the plug section (221a), the subsidiary guide slope (225a) being tapered from the subsidiary stop section (222a) to an end of the plug section (221a), which end is distal from the middle portion of the metal leaf spring (2). 5

13. The electrical contact assembly structure of terminal device as claimed in claim 6 or 8, wherein a notch (229) is further formed at one end of the central split (224) in adjacency to the middle portion of the metal leaf spring (2), a locating plate (22a) being inserted in the notch (229), the locating plate (22a) having at least one plug sections (221a), a subsidiary stop section (222a) being formed on at least one side of the plug section (221a), the plug section (221a) being formed with a subsidiary central split (224a) having an opening, the subsidiary central split (224a) longitudinally extending from an end section of the plug section (221a) in a direction away from the middle portion of the metal leaf spring (2), a hook section (22b) being formed on at least one side of a junction between the notch (229) and the central split (224), whereby the hook section (22b) can hook an end section of the subsidiary central split (224a) in adjacency to the metal leaf spring (2), whereby the locating plate (22a) can be connected and located in the central split (224) of the metal leaf spring (2). 10
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14. The electrical contact assembly structure of terminal device as claimed in claim 13, wherein at least one subsidiary shoulder section (223a) is formed on one side of the plug section (221a) corresponding to the subsidiary stop section (222a), a subsidiary guide slope (225a) being formed on one side of the plug section (221a), the subsidiary guide slope (225a) being tapered from the subsidiary stop section (222a) to an end of the plug section (221a), which end is distal from the middle portion of the metal leaf spring (2). 35
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15. The electrical contact assembly structure of terminal device as claimed in any of claims 2 to 12, wherein an arcuate guide face (121) is formed on an edge of an end section of the socket, which edge is adjacent to the abutment section (23) of the metal leaf spring (2), the arcuate guide face (121) being connected with a folded flap section (12), a transverse partitioning section (13) is disposed in the socket, the transverse partitioning section (13) partitioning the socket to form a receiving perforation (120) at one end of the socket in adjacency to the arcuate guide face (121). 45
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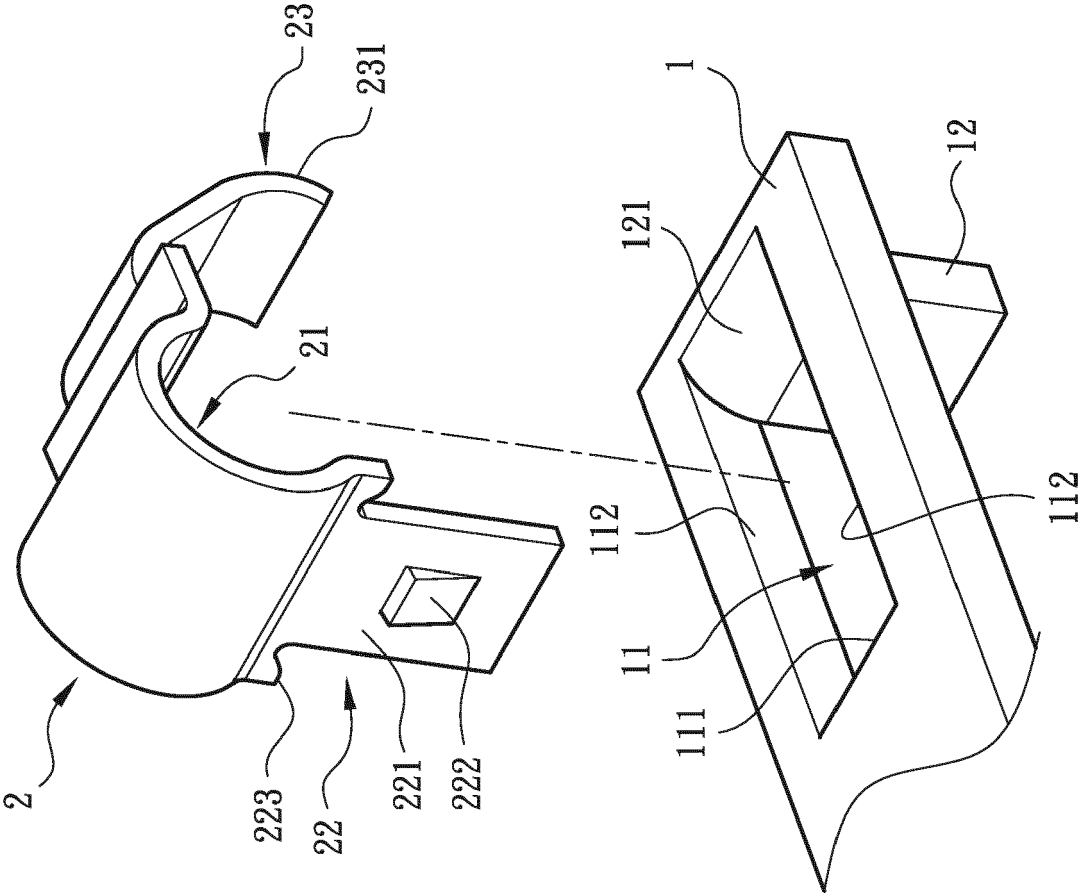
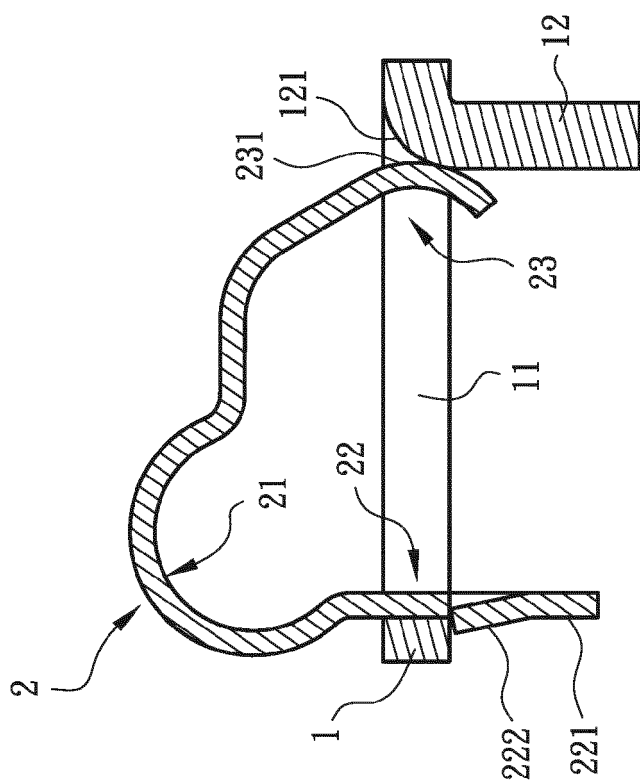
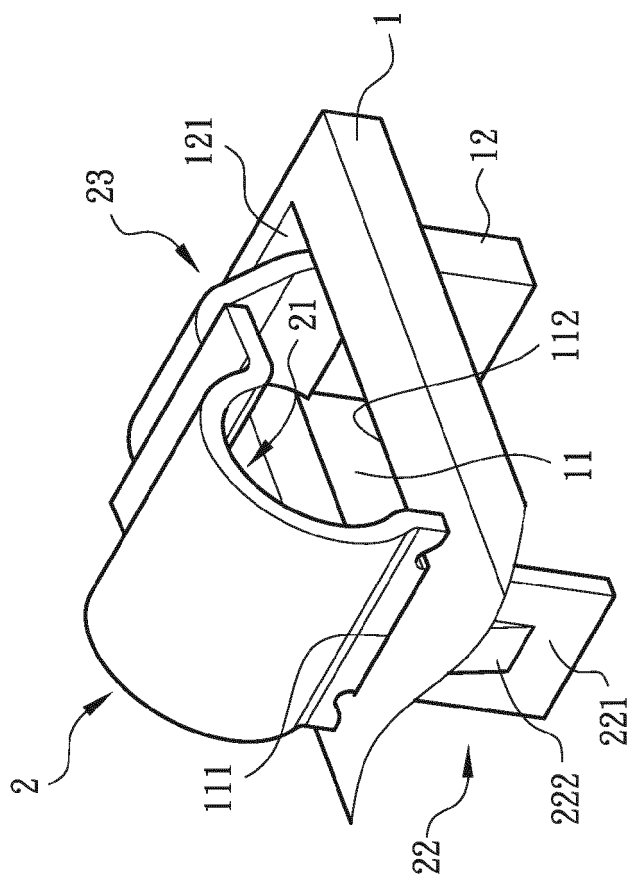


Fig. 1



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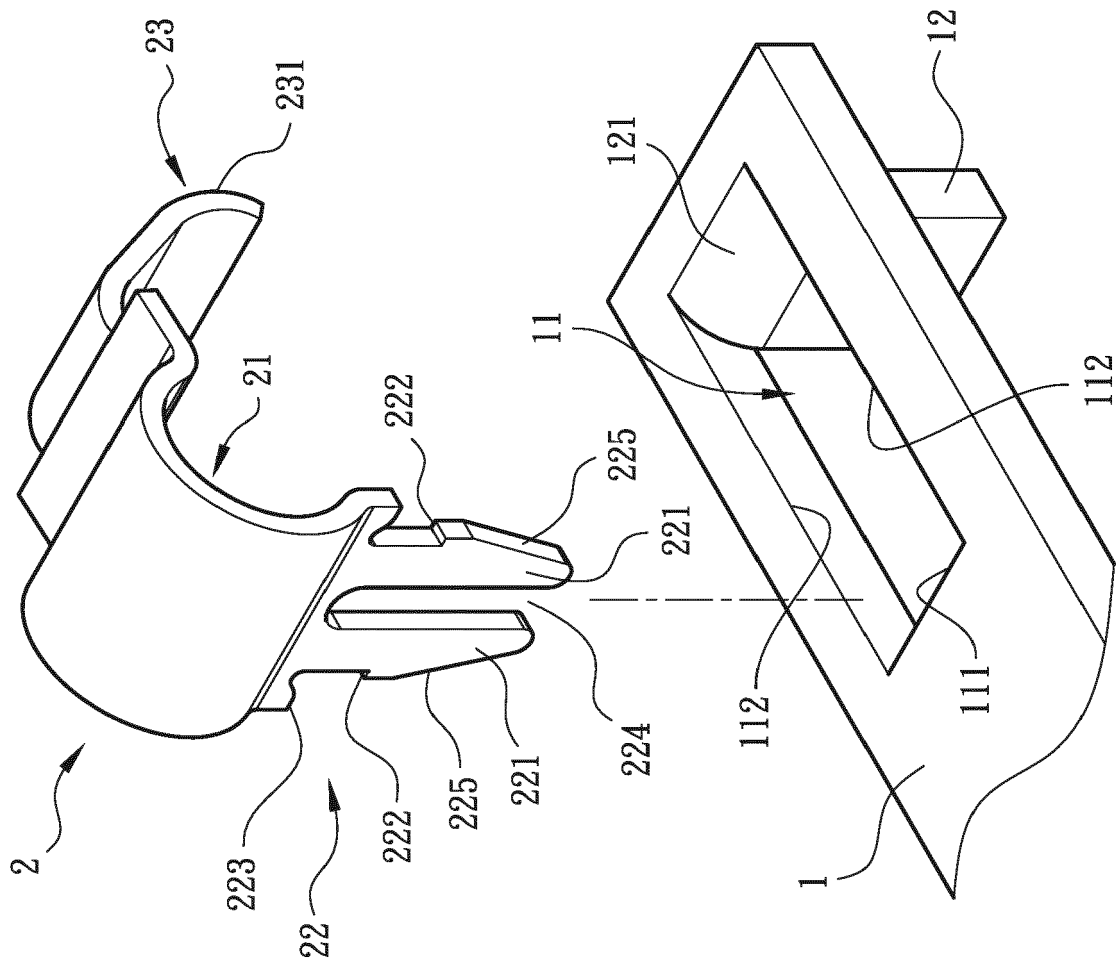


Fig. 4

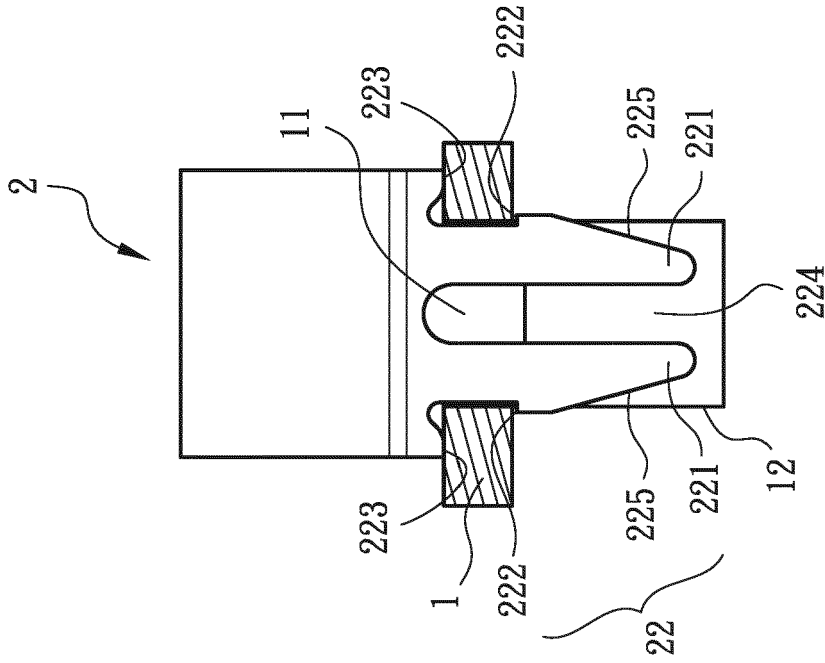


Fig. 6

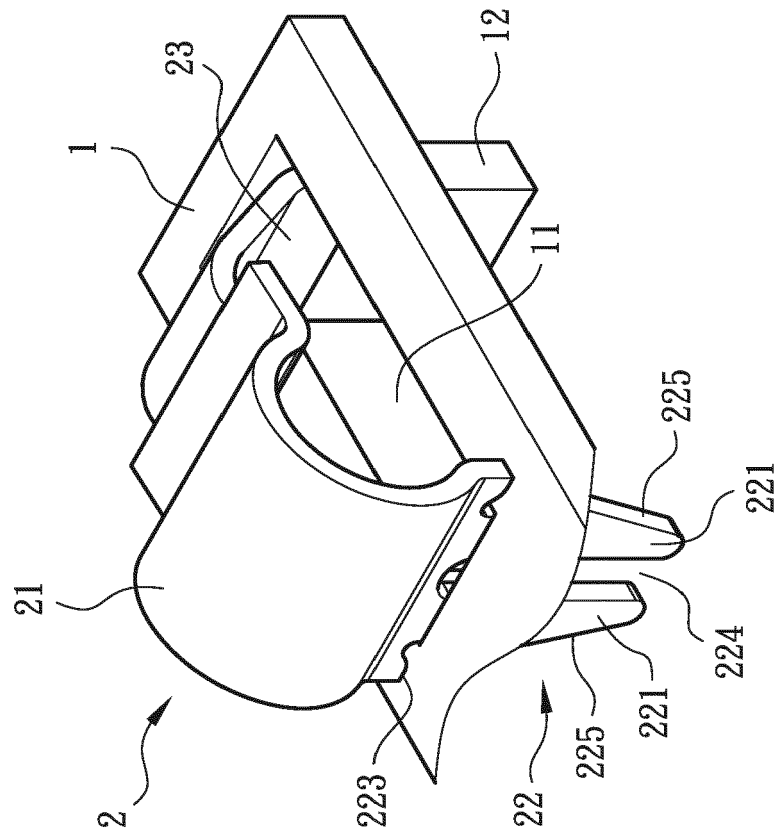


Fig. 5

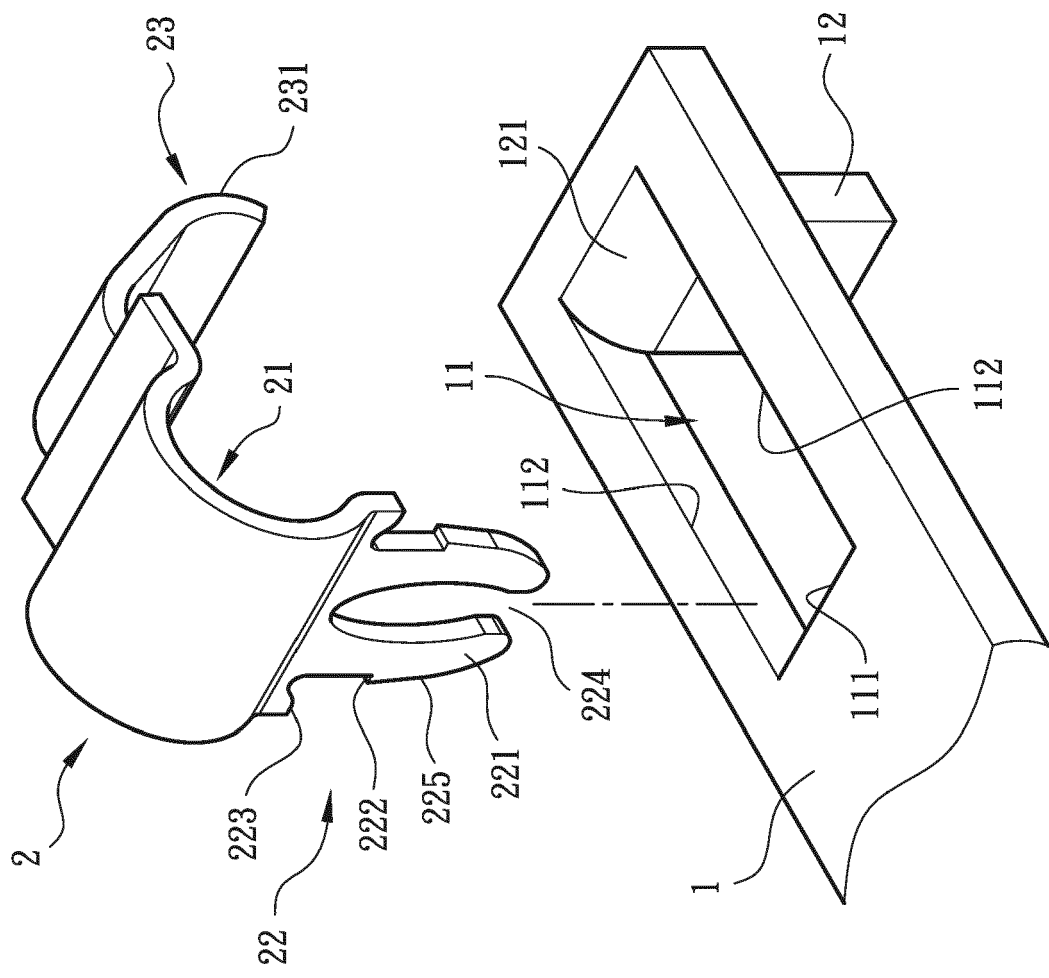


Fig. 7

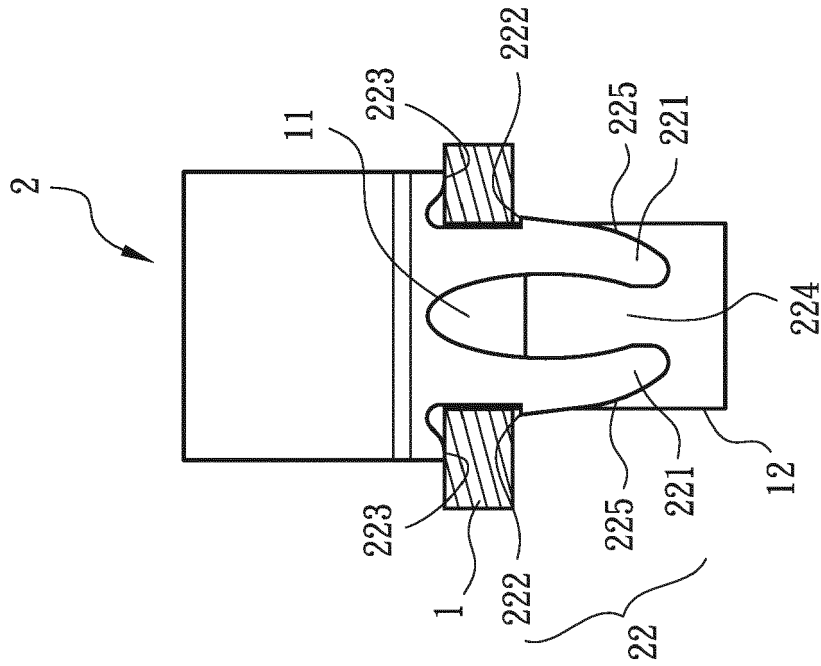


Fig. 9

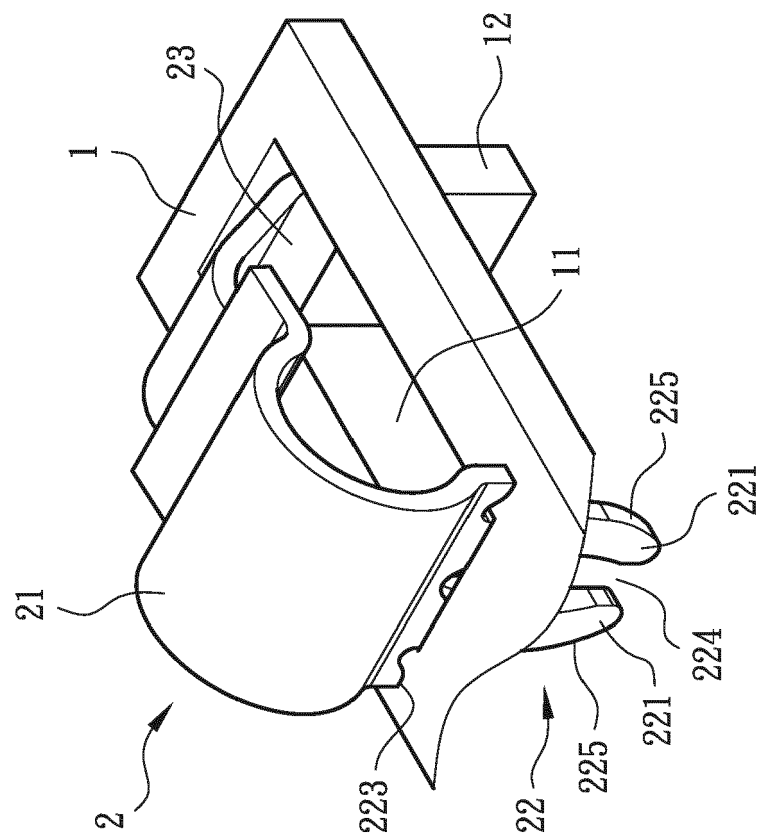


Fig. 8

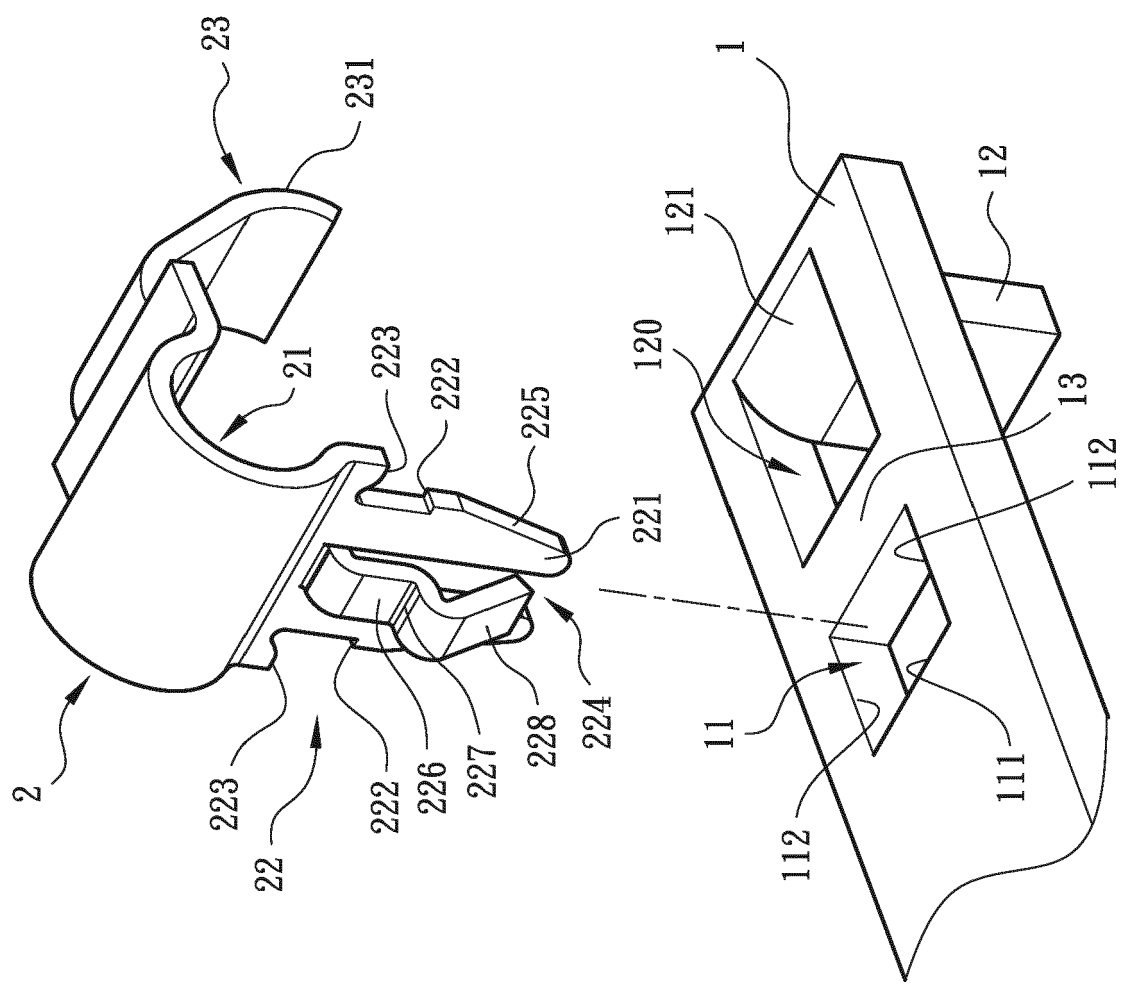


Fig. 10

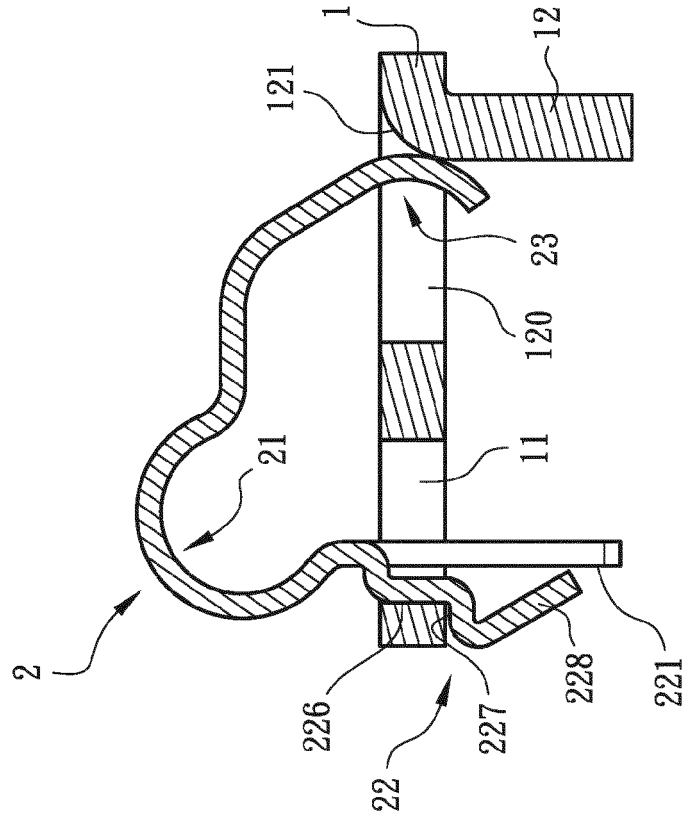


Fig. 12

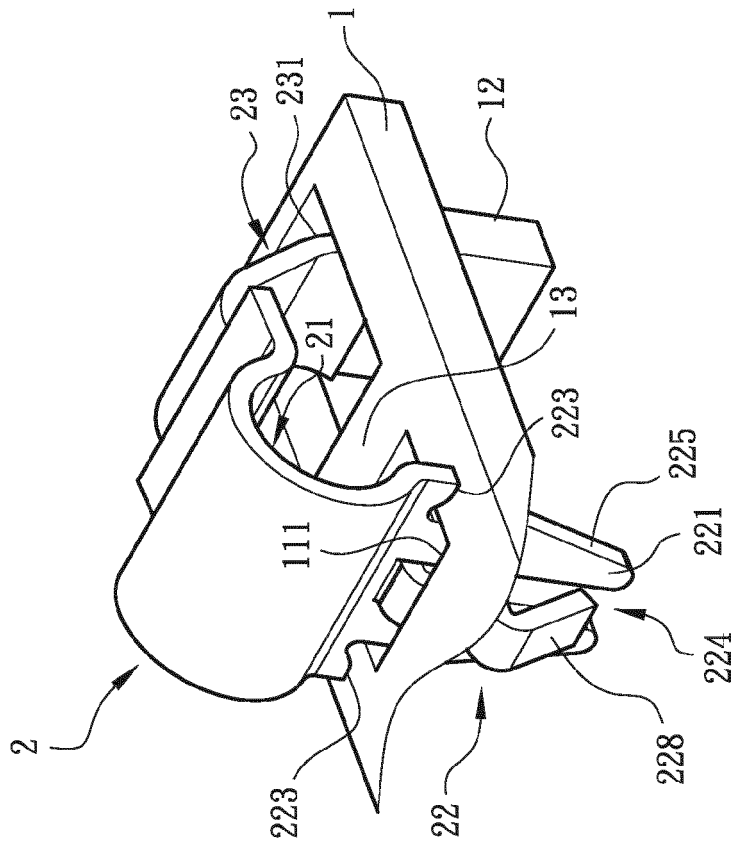


Fig. 11

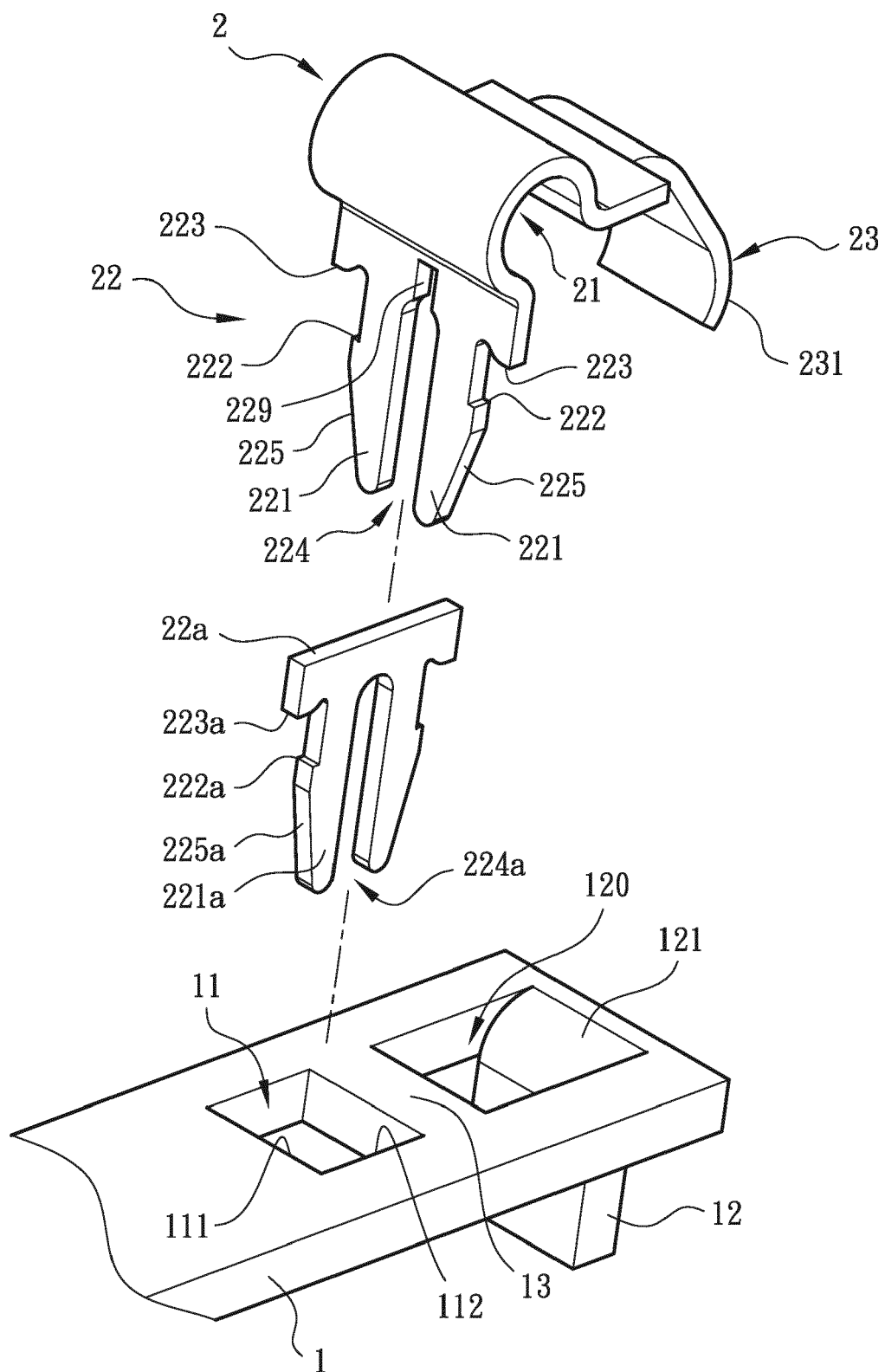


Fig. 13

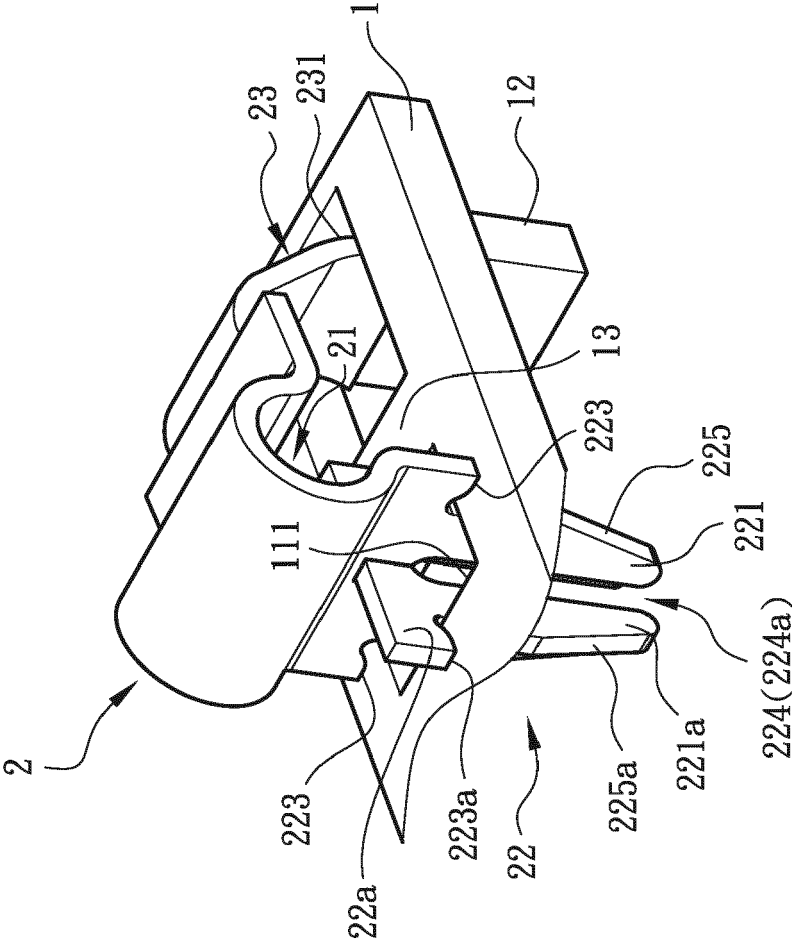


Fig. 14

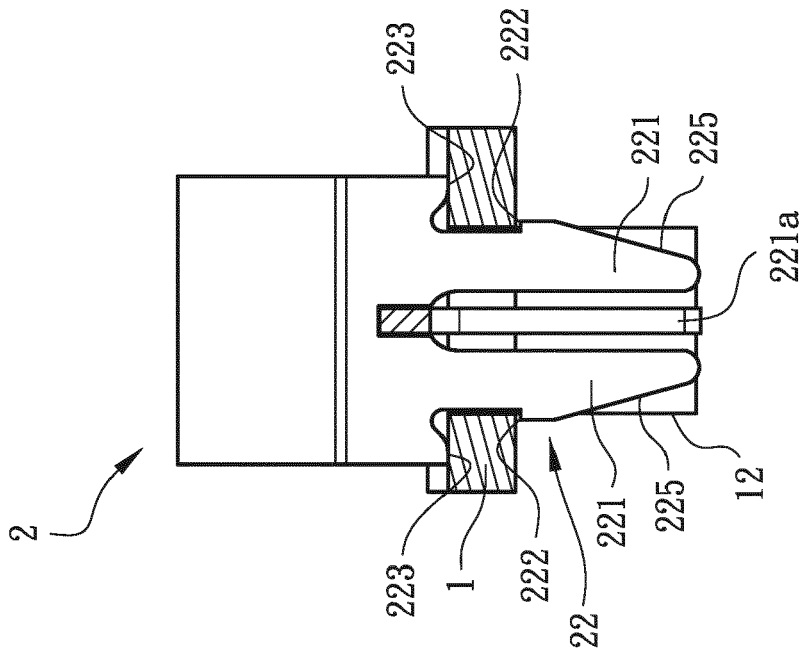


Fig. 16

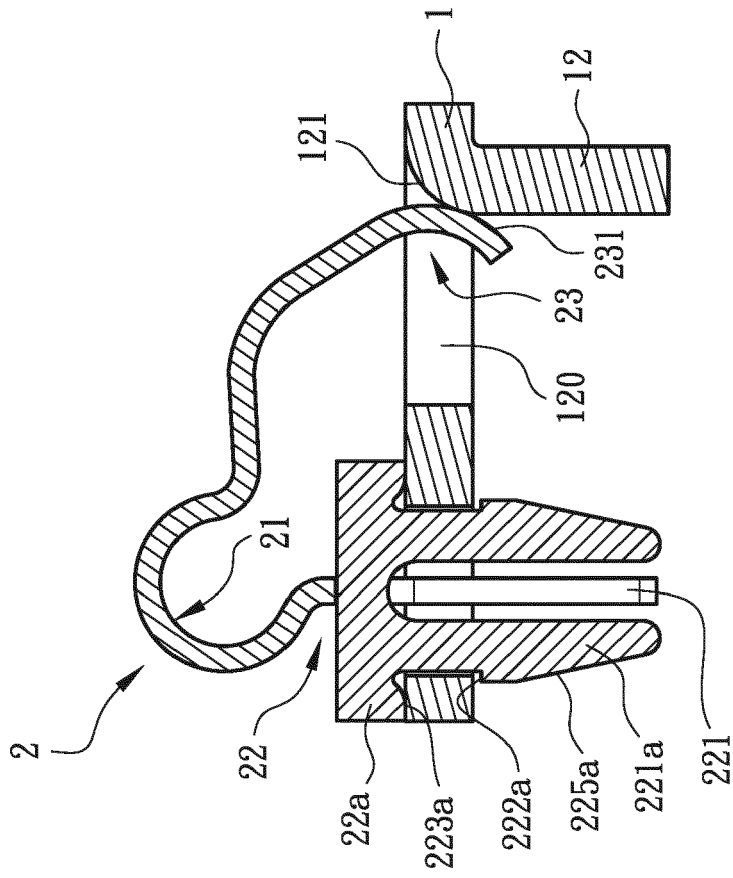


Fig. 15

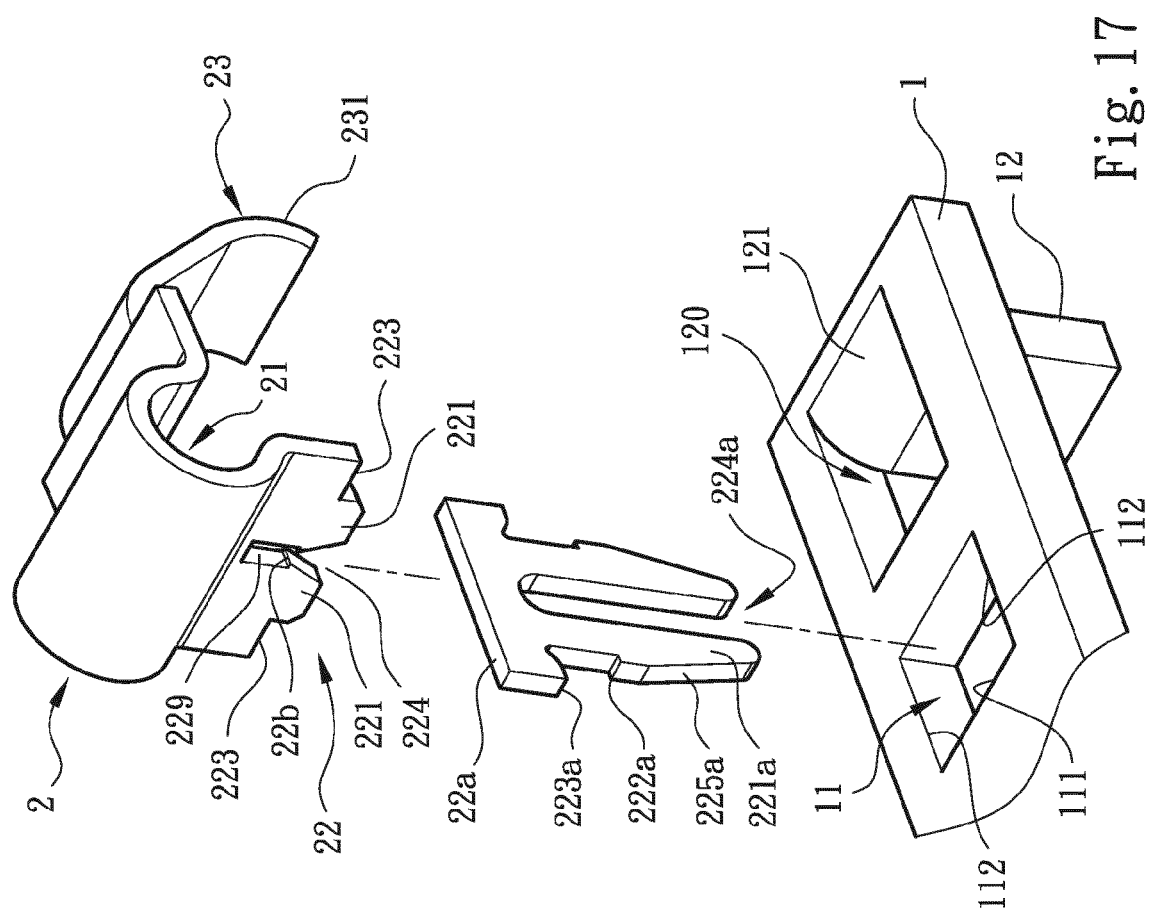


Fig. 17

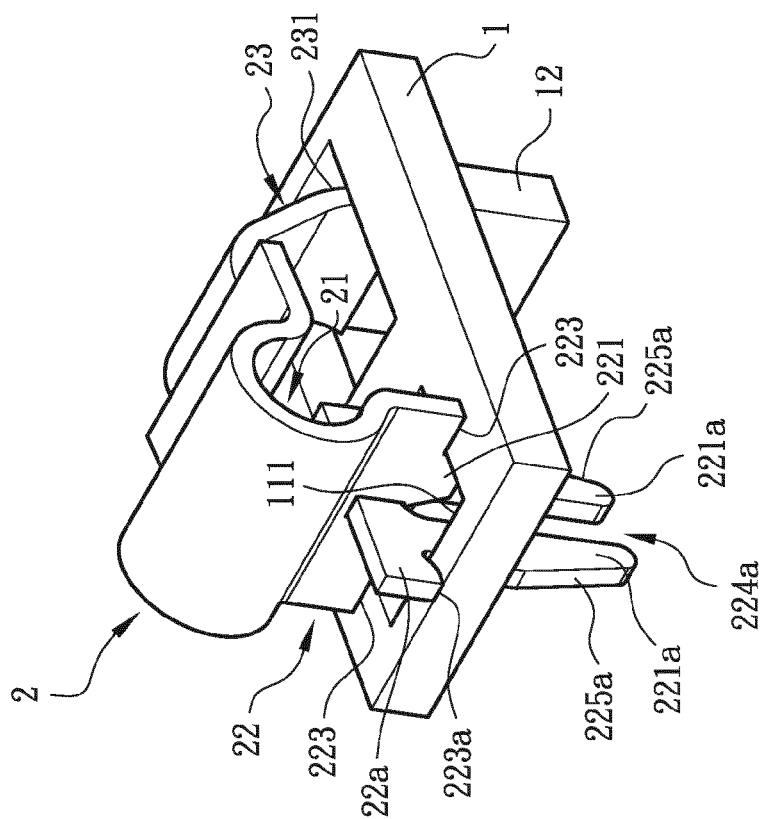


Fig. 18

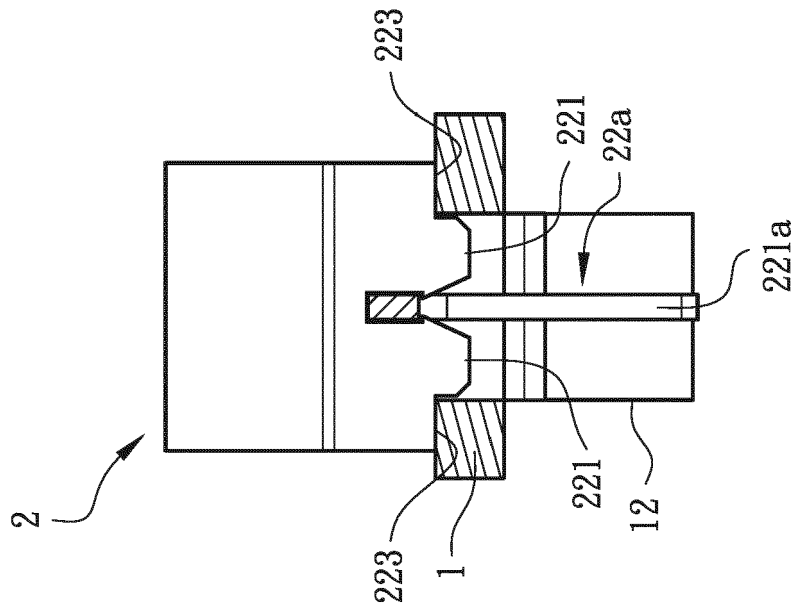


Fig. 19

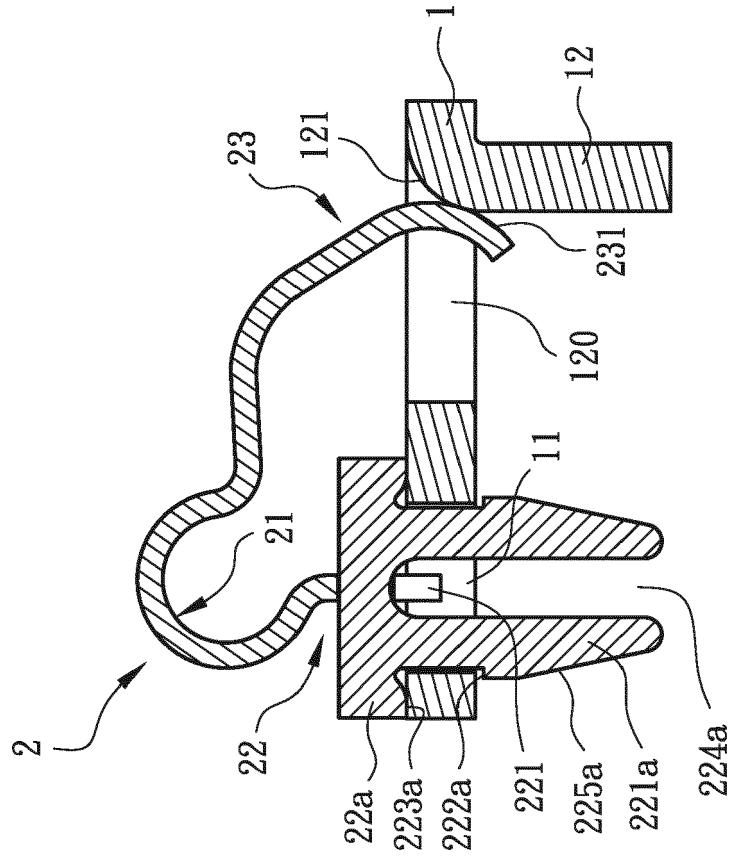


Fig. 20



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Application Number

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Place of search		Date of completion of the search	Examiner
The Hague		22 January 2024	Jiménez, Jesús
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