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(54) THERMOMAGNETIC CIRCUIT BREAKER AND DISTRIBUTION DEVICE

MAGNETISCHER WÄRMESCHUTZSCHALTER UND ENERGIEVERTEILUNGSVORRICHTUNG
DISJONCTEUR THERMOMAGNÉTIQUE ET DISPOSITIF DE DISTRIBUTION

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Description

TECHNICAL FIELD

[0001] The present invention relates to the field of circuit protection technologies, and in particular, to a thermal magnetic circuit breaker and a power distribution device.

BACKGROUND

[0002] A thermal magnetic circuit breaker is an electrical device that can be switched manually, and can also perform loss-voltage protection, under-voltage protection, over-load protection and short-circuit protection automatically. The thermal magnetic circuit breaker can perform protection on a power line, an electric motor and so on, and when the power line or the electric motor has a serious fault, such as over-load, or short-circuit, and under-voltage, the thermal magnetic circuit breaker can automatically cut off the circuit. The thermal magnetic circuit breaker has been widely applied in the field of circuit protection technologies, for example, in protection of a circuit of a power distribution device.

[0003] A thermal magnetic circuit breaker in the prior art is as shown in FIG. 1, the thermal magnetic circuit breaker includes an insulating case 11, the insulating case 11 is disposed with a part portion 12, and the part portion 12 includes a contact arc blowout system 121, a free tripping mechanism 122, a handle 123 for operation control, a bimetallic strip 124, and a magnetic tripping mechanism 125. A handle penetration hole 111 for the handle 123 to penetrate is disposed on one side of the insulating case 11. The insulating case 11 is disposed with a first wiring terminal 13 and a second wiring terminal 14. In longitudinal height, the first wiring terminal 13 is disposed above the part portion 12, the second wiring terminal 14 is disposed below the part portion 12, and the thermal magnetic circuit breaker is connected to an external circuit through the first wiring terminal 13 and the second wiring terminal 14. A guide rail slot 15 for being fixed with the external is disposed at a rear part of the thermal magnetic circuit breaker.

[0004] The prior art has at least the following problem:

The thermal magnetic circuit breaker occupies large height space, and cannot be applied in short space.

US 4559510 A discloses a compact equipment protecting electrical circuit breaker having a short-circuit and excess current tripping action as well as a signal change switch for actuating and protecting household appliances, office machines, manufacturing devices and the like.

US 4516098 A discloses an overcurrent protection switch having one or more thermal and/or magnetic trips and a mechanical switch latch which essentially consists of an actuating element and a latching lever which acts in conjunction with the former and which with its first end acts

upon a plunger which is guided in the longitudinal direction of the housing under an initial spring tension and which drives the switching contacts.

US 2011/273249 A1 discloses a circuit breaker with a secondary protection function, comprising a first circuit breaking unit, a second circuit breaking unit, and a housing. The first circuit breaking unit and the second circuit breaking unit are disposed in the housing, the first circuit breaking unit operates to switch on or off loads from electric lines, the second circuit breaking unit operates to disconnect the loads from the electric lines as the first circuit breaking unit fails, and the housing is made of insulating and flame-retardant materials.

SUMMARY

[0005] Embodiments of the present invention provide a thermal magnetic circuit breaker and a power distribution device, which can solve a problem in the prior art that a thermal magnetic circuit breaker occupies large height space and cannot be applied in short space.

[0006] In order to achieve the foregoing objective, the embodiments of the present invention adopt the following technical solutions:

[0007] A thermal magnetic circuit breaker includes an insulating case and a handle; the insulating case is disposed with a part portion and a wiring terminal portion, the part portion includes an arc blowout chamber, a magnetic tripper, a bimetallic strip and a tripping mechanism, the wiring terminal portion includes a first wiring terminal and a second wiring terminal, a movable contact of the arc blowout chamber is connected to the tripping mechanism through an upper end connecting rod of the tripping mechanism, the tripping mechanism is connected to an end of a coil of the magnetic tripper through a flexible connector, the other end of the coil of the magnetic tripper is connected to the bimetallic strip and one end of the first wiring terminal through a flexible connector, and one end of the second wiring terminal is connected to a static contact seat of the arc blowout chamber; the handle passes through a handle penetration hole and is hinged to the tripping mechanism; the handle penetration hole is disposed on one side of the insulating case; and the insulating case is a cuboid, the wiring terminal portion is disposed on the same side or opposite side of the handle, and longitudinal height of the wiring terminal portion is less than or equal to longitudinal height of the part portion.

[0008] A power distribution device includes a power generator, a transformer, a power line and the thermal magnetic circuit breaker.

[0009] In the thermal magnetic circuit breaker and the power distribution device provided in the embodiments of the present invention, because the insulating case is a cuboid, the wiring terminal portion is disposed at the same side or opposite side of the handle, and the longitudinal height of the wiring terminal portion is less than or equal to the longitudinal height of the part portion. However, in the prior art, in longitudinal height, the first wiring

terminal is disposed above the part portion, and the second wiring terminal is disposed below the part portion. Therefore, the longitudinal height of the wiring terminal portion disposed in the embodiments of the present invention is less than or equal to the longitudinal height of the part portion, thereby reducing the height space occupied by the thermal magnetic circuit breaker, and facilitating the thermal magnetic circuit breaker to be applied in short space.

BRIEF DESCRIPTION OF DRAWINGS

[0010] To describe the technical solutions in the embodiments of the present invention or in the prior art more clearly, the following briefly introduces accompanying drawings required for describing the embodiments or the prior art. Apparently, the accompanying drawings in the following description are merely some embodiments of the present invention, and persons of ordinary skill in the art may further obtain other drawings according to these accompanying drawings without creative efforts.

FIG. 1 is a schematic structural diagram of a thermal magnetic circuit breaker in the prior art;

FIG. 2 (a) is a first schematic structural diagram of a thermal magnetic circuit breaker according to an embodiment of the present invention;

FIG. 2 (b) is a second schematic structural diagram of a thermal magnetic circuit breaker according to an embodiment of the present invention;

FIG. 3 is a third schematic structural diagram of a thermal magnetic circuit breaker according to an embodiment of the present invention;

FIG. 4 is a first schematic structural diagram of a thermal magnetic circuit breaker according to another embodiment of the present invention;

FIG. 5 is a second schematic structural diagram of a thermal magnetic circuit breaker according to another embodiment of the present invention;

FIG. 6 is a third schematic structural diagram of a thermal magnetic circuit breaker according to another embodiment of the present invention;

FIG. 7 is a fourth schematic structural diagram of a thermal magnetic circuit breaker according to another embodiment of the present invention; and

FIG. 8 is a fifth schematic structural diagram of a thermal magnetic circuit breaker according to another embodiment of the present invention.

DESCRIPTION OF EMBODIMENTS

[0011] The following clearly and completely describes the technical solutions in the embodiments of the present invention with reference to the accompanying drawings in the embodiments of the present invention. Apparently, the embodiments to be described are merely part rather than all of the embodiments of the present invention. All other embodiments obtained by persons of ordinary skill

in the art based on the embodiments of the present invention without creative efforts shall fall within the protection scope of the present invention.

[0012] To make the advantages of the technical solutions of the present invention more comprehensible, the following describes the present invention in detail with reference to the accompanying drawings and the embodiments.

[0013] As shown in FIG. 3, a thermal magnetic circuit breaker according to an embodiment of the present invention includes an insulating case 21 and a handle 29. The insulating case 21 is disposed with a part portion and a wiring terminal portion, the part portion includes an arc blowout chamber 24, a magnetic tripper 28, a bimetallic strip 27, and a tripping mechanism 25; the wiring terminal portion includes a first wiring terminal 22 and a second wiring terminal 23.

[0014] The arc blowout chamber 24 includes a static contact seat 241, a static contact 242 and a movable contact 243. One end of the static contact seat 241 is welded to one end of the first wiring terminal 22, the other end of the static contact seat 241 is disposed with the static contact 242, the static contact 242 is crimping connected to the movable contact 243 when there is current flowing through the circuit breaker, and the movable contact 243 is connected to the tripping mechanism 25 through an upper end connecting rod of the tripping mechanism 25.

[0015] A lower end connecting rod of the tripping mechanism 25 is disposed at a gap between the bimetallic strip 27 and the magnetic tripper 28. The thermal magnetic circuit breaker is further disposed with the handle 29, the tripping mechanism 25 is hinged to the handle 29 so that when a fault occurs, the tripping mechanism 25 can drive the handle 29 to trip, and the other end of the handle 29 besides the end hinged to the tripping mechanism 25 penetrates the handle penetration hole 211.

[0016] A movable iron core 281 is disposed inside a coil of the magnetic tripper 28, and a push rod 282 is disposed inside the movable iron core 281; there is a flexible connector 26 welded to one end of the coil of the magnetic tripper 28, and one end of the flexible connector 26, one end of the bimetallic strip 27 and one end of the second wiring terminal 23 are welded into one piece.

[0017] The handle 29 passes through the handle penetration hole 211 and is hinged to the tripping mechanism 25; the handle penetration hole 211 is disposed on one side of the insulating case 21.

[0018] As shown in FIG. 2 (a), FIG. 2 (b), and FIG. 3, the insulating case 21 is a cuboid, the wiring terminal portion is disposed at the same side or opposite side of the handle 29, and longitudinal height of the wiring terminal portion is less than or equal to longitudinal height of the part portion.

[0019] In the thermal magnetic circuit breaker provided in the embodiment of the present invention, because the insulating case is a cuboid, the wiring terminal portion is disposed at the same side or opposite side of the handle,

and the longitudinal height of the wiring terminal portion is less than or equal to the longitudinal height of the part portion. However, in the prior art, in longitudinal height, the first wiring terminal is disposed above the part portion, and the second wiring terminal is disposed below the part portion. Therefore, the longitudinal height of the wiring terminal portion disposed in the embodiment of the present invention is less than or equal to the longitudinal height of the part portion, thereby reducing the height space occupied by the thermal magnetic circuit breaker, and facilitating the thermal magnetic circuit breaker to be applied in short space.

[0020] In order to make persons skilled in the art better understand the technical solutions of the present invention, the thermal magnetic circuit breaker in FIG. 2 (b) is described in further detail in the following.

[0021] As shown in FIG. 3, a thermal magnetic circuit breaker according to another embodiment of the present invention includes an insulating case 21 and a handle 29. The insulating case 21 is disposed with a part portion and a wiring terminal portion, the part portion includes an arc blowout chamber 24, a magnetic tripper 28, a bi-metallic strip 27, and a tripping mechanism 25; the wiring terminal portion includes a first wiring terminal 22 and a second wiring terminal 23. One end of the first wiring terminal 22 is welded to a static contact seat 21 of the arc blowout chamber 24; one end of the second wiring terminal 23 is welded to one end of the bimetallic strip 27, and is connected to the magnetic tripper 28 through a flexible connector; the handle 29 passes through a handle penetration hole 211 and is hinged to the tripping mechanism 25, and the handle penetration hole 211 is disposed on one side of the insulating case 21. The insulating case 21 is a cuboid, the wiring terminal portion is disposed at the same side of the handle 29, and longitudinal height of the wiring terminal portion is less than or equal to longitudinal height of the part portion.

[0022] The thermal magnetic circuit breaker provided in the embodiment of the present invention occupies small height space, and can be applied in a subrack power supply having height of 1 U (1 U = 44.45 mm) or 2 U (2 U = 88.9 mm).

[0023] Specifically, the first wiring terminal 22 and the second wiring terminal 23 may be, but are not limited to, copper wiring terminals or aluminum wiring terminals.

[0024] Further, as shown in FIG. 3, at least one side of other sides of the insulating case 21, except the side disposed with the wiring terminal portion, is disposed with a fixing screw hole 212.

[0025] Or, as shown in FIG. 4, at least one side of other sides of the insulating case 21, except the side disposed with the wiring terminal portion, is disposed with a guide rail slot 214. The thermal magnetic circuit breaker is fixed to an external environment through a fixing screw hole and a screw, or fixing may also be performed through the disposed guide rail slot, to which the present invention is not limited.

[0026] As shown in FIG. 3, that a fixing screw hole 212

is disposed on a side opposite to the side disposed with the wiring terminal portion is taken for description here.

[0027] Further, the first wiring terminal 22 and the second wiring terminal 23 may be, but are not limited to, cage terminals, stud-type wiring terminals, push-in bolt terminals, push-in Q.C terminals, or bus-type terminals.

[0028] For example, in a schematic structural diagram of the thermal magnetic circuit breaker shown in FIG. 3, the first wiring terminal 22 and the second wiring terminal 23 are cage terminals.

[0029] For example, in a schematic structural diagram of a thermal magnetic circuit breaker shown in FIG. 5, the first wiring terminal 22 and the second wiring terminal 23 are stud-type wiring terminals.

[0030] For example, in a schematic structural diagram of a thermal magnetic circuit breaker shown in FIG. 6, the first wiring terminal 22 and the second wiring terminal 23 are push-in bolt terminals.

[0031] For example, in a schematic structural diagram of a thermal magnetic circuit breaker shown in FIG. 7, the first wiring terminal 22 and the second wiring terminal 23 are push-in Q.C terminals.

[0032] For example, in a schematic structural diagram of a thermal magnetic circuit breaker shown in FIG. 8, the first wiring terminal 22 and the second wiring terminal 23 are bus-type terminals.

[0033] Further, a material of the arc blowout chamber 24 may be a permanent magnet material. In this way, the thermal magnetic circuit breaker adopts the arc blowout chamber made of the permanent magnet material to enable an arc formed during a break of a circuit to blow out rapidly, and may be applied in a direct current circuit, so that the thermal magnetic circuit breaker is used as a direct current thermal magnetic circuit breaker.

[0034] Further, as shown in FIG. 3, the side disposed with the handle penetration hole 211 is disposed with a state monitoring lead penetration hole 213, and the thermal magnetic circuit breaker further includes a first state monitoring lead 31 and a second state monitoring lead 32, one end of the first state monitoring lead 31 passes through the state monitoring lead penetration hole 213, the other end of the first state monitoring lead 31 is welded to the first wiring terminal 22, one end of the second state monitoring lead 32 passes through the state monitoring lead penetration hole 213, and the other end of the second state monitoring lead 31 is welded to the second wiring terminal 23. By connecting to an external device through the first state monitoring lead and the second state monitoring lead that pass through the hole, ON and OFF of an internal circuit of the thermal magnetic circuit breaker may be monitored in real time, for example, the external device may be, but is not limited to, an indicator light.

[0035] Further, as shown in FIG. 3, the side disposed with the handle penetration hole 211 is disposed with a monitoring apparatus 33, and the monitoring apparatus 33 is connected to the first state monitoring lead 31 and the second state monitoring lead 32. The monitoring ap-

paratus may be, but is not limited to, an indicator light. By disposing the monitoring apparatus on the thermal magnetic circuit breaker, ON and OFF of an internal circuit of the thermal magnetic circuit breaker may be monitored in real time.

[0036] In order to make persons skilled in the art better understand the thermal magnetic circuit breaker provided in the embodiments of the present invention, a working process of the thermal magnetic circuit breaker is described briefly in the following.

[0037] The thermal magnetic circuit breaker may be applied in short-circuit protection of a circuit, for example:

[0038] When a load is short-circuited, short-circuit current flows through the magnetic tripper 28 of thermal magnetic circuit breaker, the magnetic tripper 28 generates an electromagnetic force to attract the movable iron core 281 to move downwards, the movable iron core 281 pushes the push rod 282 to move downwards, the push rod impacts the lower end connecting rod of the tripping mechanism 25, so that the tripping mechanism 25 pushes the movable contact 243 to be separated from contact with the static contact 241, thereby enabling the thermal magnetic circuit breaker to trip.

[0039] The thermal magnetic circuit breaker may also be applied in over-current protection of a circuit, for example:

[0040] When current of a load is excessively large, the current flows through the bimetallic strip 27, after a certain period of time, temperature of the bimetallic strip 27 rises, and because the bimetallic strip 27 adopts two kinds of metal having different expansion coefficients, the bimetallic strip 27 bends towards the tripping mechanism, so as to push the tripping mechanism 25, and then push the movable contact 243 to be separated from contact with the static contact 241, thereby enabling the thermal magnetic circuit breaker to trip.

[0041] In the thermal magnetic circuit breaker provided in the another embodiment of the present invention, because the insulating case is a cuboid, the wiring terminal portion is disposed at the same side or opposite side of the handle, and the longitudinal height of the wiring terminal portion is less than or equal to the longitudinal height of the part portion. However, in the prior art, in longitudinal height, the first wiring terminal is disposed above the part portion, and the second wiring terminal is disposed below the part portion. Therefore, the longitudinal height of the wiring terminal portion disposed in the embodiment of the present invention is less than or equal to the longitudinal height of the part portion, thereby reducing the height space occupied by the thermal magnetic circuit breaker, and facilitating the thermal magnetic circuit breaker to be applied in short space.

[0042] An embodiment of the present invention provides a power distribution device, including a power generator, a transformer, a power line and a thermal magnetic circuit breaker. The thermal magnetic circuit breaker includes: an insulating case and a handle. The insulating case is disposed with a part portion and a wiring

terminal portion, the part portion includes an arc blowout chamber, a magnetic tripper, a bimetallic strip, and a tripping mechanism; and the wiring terminal portion includes a first wiring terminal and a second wiring terminal. A movable contact of the arc blowout chamber is connected to the tripping mechanism through an upper end connecting rod of the tripping mechanism, the tripping mechanism is connected to one end of a coil of the magnetic tripper through a flexible connector, the other end of the coil of the magnetic tripper is connected to the bimetallic strip and one end of the first wiring terminal through a flexible connector, and one end of the second wiring terminal is connected to a static contact seat of the arc blowout chamber. The handle passes through a handle penetration hole and is hinged to the tripping mechanism; and the handle penetration hole is disposed on one side of the insulating case.

[0043] The insulating case is a cuboid, the wiring terminal portion is disposed at the same side or opposite side of the handle, and longitudinal height of the wiring terminal portion is less than or equal to longitudinal height of the part portion.

[0044] A specific structure of the thermal magnetic circuit breaker is the same as that of the specific embodiment of the thermal magnetic circuit breaker described in the foregoing, and is not repeatedly described here.

[0045] The thermal magnetic circuit breaker may be, but is not limited to, applied in a power distribution device having a short subrack.

[0046] The foregoing description is merely specific embodiments of the present invention, but is not intended to limit the protection scope of the present invention. Any variation or replacement readily figured out by persons skilled in the art within the technical scope disclosed in the present invention shall fall within the protection scope of the present invention. Therefore, the protection scope of the present invention shall be subject to the protection scope of the claims.

Claims

1. A thermal magnetic circuit breaker, comprising: an insulating case (21) and a handle (29); wherein, the insulating case (21) is disposed with a part portion and a wiring terminal portion, the part portion comprises an arc blowout chamber (24), a magnetic tripper (28), a bimetallic strip (27) and a tripping mechanism (25), the wiring terminal portion comprises a first wiring terminal (22) and a second wiring terminal (23), a movable contact (243) of the arc blowout chamber (24) is connected to the tripping mechanism (25) through an upper end connecting rod of the tripping mechanism (25), the tripping mechanism (25) is connected to one end of a coil of the magnetic tripper (28) through a flexible connector, the other end of the coil of the magnetic tripper (28) is connected to the bimetallic strip (27) and one end of the

- second wiring terminal (23) through a flexible connector (26), and one end of the first wiring terminal (22) is connected to a static contact seat (241) of the arc blowout chamber (24); the handle (29) passes through a handle penetration hole (211) and is hinged to the tripping mechanism (25); and the handle penetration hole (211) is disposed on one side of the insulating case (21); and wherein, the insulating case (21) is a cuboid, the wiring terminal portion is disposed at the same side or opposite side of the handle (29), and longitudinal height of the wiring terminal portion is less than or equal to longitudinal height of the part portion.
2. The thermal magnetic circuit breaker according to claim 1, wherein, at least one side of other sides of the insulating case (21), except the side disposed with the wiring terminal portion, is disposed with a fixing screw hole (212).
 3. The thermal magnetic circuit breaker according to claim 1, wherein, at least one side of other sides of the insulating case (21), except the side disposed with the wiring terminal portion, is disposed with a guide rail slot (214).
 4. The thermal magnetic circuit breaker according to claim 1, wherein, the first wiring terminal (22) and the second wiring terminal (23) are: copper wiring terminals or aluminum wiring terminals.
 5. The thermal magnetic circuit breaker according to claim 1, wherein, the first wiring terminal (22) and the second wiring terminal (23) are: cage terminals, stud-type wiring terminals, push-in bolt terminals, push-in Q.C terminals, or bus-type terminals.
 6. The thermal magnetic circuit breaker according to claim 1, wherein, the side disposed with the handle penetration hole (211) is disposed with a state monitoring lead penetration hole (213); the thermal magnetic circuit breaker further comprises a first state monitoring lead (31) and a second state monitoring lead (32); and one end of the first state monitoring lead (31) passes through the state monitoring lead penetration hole (212), the other end of the first state monitoring lead (31) is connected to the first wiring terminal (22), one end of the second state monitoring lead (32) passes through the state monitoring lead penetration hole (213), and the other end of the second state monitoring lead (32) is connected to the second wiring terminal (23).
 7. The thermal magnetic circuit breaker according to claim 6, wherein, the side disposed with the handle penetration hole (211) is disposed with a monitoring apparatus (33), and the monitoring apparatus (33) is connected to the first state monitoring lead (31) and the second state monitoring lead (32).
 8. A power distribution device, comprising a power generator, a transformer, a power line and a thermal magnetic circuit breaker according to any one of the proceeding claims 1 to 7.
 9. The power distribution device according to claim 8, wherein, the side which is of the thermal magnetic circuit breaker and is disposed with the handle penetration hole (211) is disposed with a state monitoring lead penetration hole (213); the thermal magnetic circuit breaker further comprises a first state monitoring lead (31) and a second state monitoring lead (32); and one end of the first state monitoring lead (31) passes through the state monitoring lead penetration hole (213), the other end of the first state monitoring lead (31) is connected to the first wiring terminal (22), one end of the second state monitoring lead (32) passes through the state monitoring lead penetration hole (213), and the other end of the second state monitoring lead (32) is connected to the second wiring terminal (23).
 10. The power distribution device according to claim 9, wherein, the side which is of the thermal magnetic circuit breaker and is disposed with the handle penetration hole (211) is disposed with a monitoring apparatus (33), and the monitoring apparatus (33) is connected to the first state monitoring lead (31) and the second state monitoring lead (32).

Patentansprüche

1. Thermomagnetischer Schuttschalter, der Folgendes umfasst: ein isolierendes Gehäuse (21) und einen Griff (29); wobei das isolierende Gehäuse (21) mit einem Bauelementabschnitt und einem Verdrahtungsanschlussabschnitt eingerichtet ist, wobei der Bauelementabschnitt eine Lichtbogenblaskammer (24), einen magnetischen Auslöser (28), einen Bimetallstreifen (27) und einen Auslösemechanismus (25) umfasst, der Verdrahtungsanschlussabschnitt einen ersten Verdrahtungsanschluss (22) und einen zweiten Verdrahtungsanschluss (23) umfasst, ein beweglicher Kontakt (243) der Lichtbogenblaskammer (24) mit dem Auslösemechanismus (25) über eine obere Endverbindungsstange des Auslösemechanismus (25) gekoppelt ist, der Auslösemechanismus (25) mit einem Ende einer Spule des magnetischen Auslösers (28) durch ein biegsames Verbindungselement verbunden ist, das andere Ende der Spule des magnetischen Auslösers (28) mit dem Bimetallstreifen (27) und einem Ende des zweiten Verdrahtungsanschlusses (23) über ein biegsames Ver-

- bindungselement (26) verbunden ist und ein Ende des ersten Verdrahtungsanschlusses (22) mit einer statischen Kontaktaufnahme (241) der Lichtbogenblaskammer (24) verbunden ist; der Griff (29) durch ein Griff Eintrittsloch (211) hindurchtritt und mit dem Auslösemechanismus (25) gelenkig verbunden ist; und das Griff Eintrittsloch (211) auf einer Seite des isolierenden Gehäuses (21) angeordnet ist; und wobei das isolierende Gehäuse (21) ein Quader ist, der Verdrahtungsanschlussabschnitt an derselben Seite oder gegenüberliegenden Seite des Griffs (29) angeordnet ist und die Höhe in Längsrichtung des Verdrahtungsanschlussabschnitts kleiner als die oder gleich der Höhe in Längsrichtung des Bauelementabschnitts ist.
2. Thermomagnetischer Schutzschalter nach Anspruch 1, wobei wenigstens an einer Seite von anderen Seiten des isolierenden Gehäuses (21), außer der Seite, an der der Verdrahtungsanschlussabschnitt angeordnet ist, ein Befestigungsschraubenloch (212) angeordnet ist.
 3. Thermomagnetischer Schutzschalter nach Anspruch 1, wobei wenigstens an einer Seite von anderen Seiten des isolierenden Gehäuses (21), außer der Seite, an der der Verdrahtungsanschlussabschnitt angeordnet ist, ein Führungsschienenschlitz (214) angeordnet ist.
 4. Thermomagnetischer Schutzschalter nach Anspruch 1, wobei der erste Verdrahtungsanschluss (22) und der zweite Verdrahtungsanschluss (23) Folgendes sind: Kupfer-Verdrahtungsanschlüsse oder Aluminium-Verdrahtungsanschlüsse.
 5. Thermomagnetischer Schutzschalter nach Anspruch 1, wobei der erste Verdrahtungsanschluss (22) und der zweite Verdrahtungsanschluss (23) Folgendes sind: Käfiganschlüsse, bolzenartige Verdrahtungsanschlüsse, Einsteckbolzenanschlüsse, Einsteck-Q.C-Anschlüsse oder busartige Anschlüsse.
 6. Thermomagnetischer Schutzschalter nach Anspruch 1, wobei an der Seite, an der das Griff Eintrittsloch (211) angeordnet ist, ein Zustandsüberwachungsdrahteintrittsloch (213) angeordnet ist; der thermomagnetische Schutzschalter ferner einen ersten Zustandsüberwachungsdraht (31) und einen zweiten Zustandsüberwachungsdraht (32) umfasst; und ein Ende des ersten Zustandsüberwachungsdrahts (31) durch das Zustandsüberwachungsdrahteintrittsloch (212) hindurchtritt, das andere Ende des ersten Zustandsüberwachungsdrahts (31) mit dem ersten Verdrahtungsan-
 - schluss (22) verbunden ist, ein Ende des zweiten Zustandsüberwachungsdrahts (32) durch das Zustandsüberwachungsdrahteintrittsloch (213) hindurchtritt und das andere Ende des zweiten Zustandsüberwachungsdrahts (32) mit dem zweiten Verdrahtungsanschluss (23) verbunden ist.
 7. Thermomagnetischer Schutzschalter nach Anspruch 6, wobei an der Seite, an der das Griff Eintrittsloch (211) angeordnet ist, eine Überwachungsvorrichtung (33) angeordnet ist, und die Überwachungsvorrichtung (33) mit dem ersten Zustandsüberwachungsdraht (31) und dem zweiten Zustandsüberwachungsdraht (32) verbunden ist.
 8. Stromverteilungseinrichtung, die einen Stromgenerator, einen Transformator, eine Stromleitung und einen thermomagnetischen Schutzschalter nach einem der vorhergehenden Ansprüche 1 bis 7 umfasst.
 9. Stromverteilungseinrichtung nach Anspruch 8, wobei an der Seite, die zu dem thermomagnetischen Schutzschalter gehört und an der das Griff Eintrittsloch (211) angeordnet ist, ein Zustandsüberwachungsdrahteintrittsloch (213) angeordnet ist; der thermomagnetische Schutzschalter ferner einen ersten Zustandsüberwachungsdraht (31) und einen zweiten Zustandsüberwachungsdraht (32) umfasst; und ein Ende des ersten Zustandsüberwachungsdrahts (31) durch das Zustandsüberwachungsdrahteintrittsloch (213) hindurchtritt, das andere Ende des ersten Zustandsüberwachungsdrahts (31) mit dem ersten Verdrahtungsanschluss (22) verbunden ist, ein Ende des zweiten Zustandsüberwachungsdrahts (32) durch das Zustandsüberwachungsdrahteintrittsloch (213) hindurchtritt und das andere Ende des zweiten Zustandsüberwachungsdrahts (32) mit dem zweiten Verdrahtungsanschluss (23) verbunden ist.
 10. Stromverteilungseinrichtung nach Anspruch 9, wobei an der Seite, die zu dem thermomagnetischen Schutzschalter gehört und an der das Griff Eintrittsloch (211) angeordnet ist, eine Überwachungsvorrichtung (33) angeordnet ist und die Überwachungsvorrichtung (33) mit dem ersten Zustandsüberwachungsdraht (31) und dem zweiten Zustandsüberwachungsdraht (32) verbunden ist.

Revendications

1. Disjoncteur thermomagnétique, comprenant : un boîtier isolant (21) et une poignée (29) ; dans lequel le boîtier isolant (21) est agencé avec une partie de pièces et une partie de bornes de câblage, la partie

- de pièces comprend une chambre de soufflage d'arc (24), un déclencheur magnétique (28), une bilame (27) et un mécanisme de déclenchement (25), la partie de bornes de câblage comprend une première borne de câblage (22) et une deuxième borne de câblage (23), un contact mobile (243) de la chambre de soufflage d'arc (24) est relié au mécanisme de déclenchement (25) par une tige de connexion d'extrémité supérieure du mécanisme de déclenchement (25), le mécanisme de déclenchement (25) est relié à une extrémité d'une bobine du déclencheur magnétique (28) par un connecteur souple, l'autre extrémité de la bobine du déclencheur magnétique (28) est reliée à la bilame (27) et une extrémité de la deuxième borne de câblage (23) par un connecteur souple (26), et une extrémité de la première borne de câblage (22) est reliée à un siège de contact statique (241) de la chambre de soufflage d'arc (24) ; la poignée (29) traverse un trou de pénétration de poignée (211) et est accrochée au mécanisme de déclenchement (25) ; et le trou de pénétration de poignée (211) est disposé sur un côté du boîtier isolant (21) ; et dans lequel le boîtier isolant (21) est un cu-boïde, la partie de bornes de câblage est disposée sur le même côté ou sur un côté opposé de la poignée (29), et la hauteur longitudinale de la partie de bornes de câblage est inférieure ou égale à la hauteur longitudinale de la partie de pièces.
2. Disjoncteur thermomagnétique selon la revendication 1, dans lequel au moins un côté parmi les autres côtés du boîtier isolant (21) à l'exception du côté agencé avec la partie de bornes de câblage est agencé avec un trou pour vis de fixation (212).
 3. Disjoncteur thermomagnétique selon la revendication 1, dans lequel au moins un côté parmi les autres côtés du boîtier isolant (21) à l'exception du côté agencé avec la partie de bornes de câblage est agencé avec une fente pour rail de guidage (214).
 4. Disjoncteur thermomagnétique selon la revendication 1, dans lequel la première borne de câblage (22) et la deuxième borne de câblage (23) sont : des bornes de câblage en cuivre ou des bornes de câblage en aluminium.
 5. Disjoncteur thermomagnétique selon la revendication 1, dans lequel la première borne de câblage (22) et la deuxième borne de câblage (23) sont : des bornes à cage, des bornes de câblage de type tige, des bornes à vis de serrage, des bornes enfichables QC, ou des bornes de type bus.
 6. Disjoncteur thermomagnétique selon la revendication 1, dans lequel le côté agencé avec le trou de pénétration de poignée (211) est agencé avec un trou de pénétration de fils de surveillance d'état (213) ; le disjoncteur thermomagnétique comprend également un premier fil de surveillance d'état (31) et un deuxième fil de surveillance d'état (32) ; et une extrémité du premier fil de surveillance d'état (31) traverse le trou de pénétration de fils de surveillance d'état (212), l'autre extrémité du premier fil de surveillance d'état (31) est reliée à la première borne de câblage (22), une extrémité du deuxième fil de surveillance d'état (32) traverse le trou de pénétration de fils de surveillance d'état (213), et l'autre extrémité du deuxième fil de surveillance d'état (32) est reliée à la deuxième borne de câblage (23).
 7. Disjoncteur thermomagnétique selon la revendication 6, dans lequel le côté agencé avec le trou de pénétration de poignée (211) est agencé avec un appareil de surveillance (33), et l'appareil de surveillance (33) est relié au premier fil de surveillance d'état (31) et au deuxième fil de surveillance d'état (32).
 8. Dispositif de distribution d'électricité, comprenant un générateur d'électricité, un transformateur, une ligne électrique et un disjoncteur thermomagnétique selon l'une quelconque des revendications 1 à 7 précédentes.
 9. Dispositif de distribution d'électricité selon la revendication 8, dans lequel le côté qui est celui du disjoncteur thermomagnétique et est agencé avec le trou de pénétration de poignée (211) est agencé avec un trou de pénétration de fils de surveillance d'état (213) ; le disjoncteur thermomagnétique comprend également un premier fil de surveillance d'état (31) et un deuxième fil de surveillance d'état (32) ; et une extrémité du premier fil de surveillance d'état (31) traverse le trou de pénétration de fils de surveillance d'état (213), l'autre extrémité du premier fil de surveillance d'état (31) est reliée à la première borne de câblage (22), une extrémité du deuxième fil de surveillance d'état (32) traverse le trou de pénétration de fils de surveillance d'état (213), et l'autre extrémité du deuxième fil de surveillance d'état (32) est reliée à la deuxième borne de câblage (23).
 10. Dispositif de distribution d'électricité selon la revendication 9, dans lequel le côté qui est celui du disjoncteur thermomagnétique et est agencé avec le trou de pénétration de poignée (211) est agencé avec un appareil de surveillance (33), et l'appareil de surveillance (33) est relié au premier fil de surveillance d'état (31) et au deuxième fil de surveillance d'état (32).

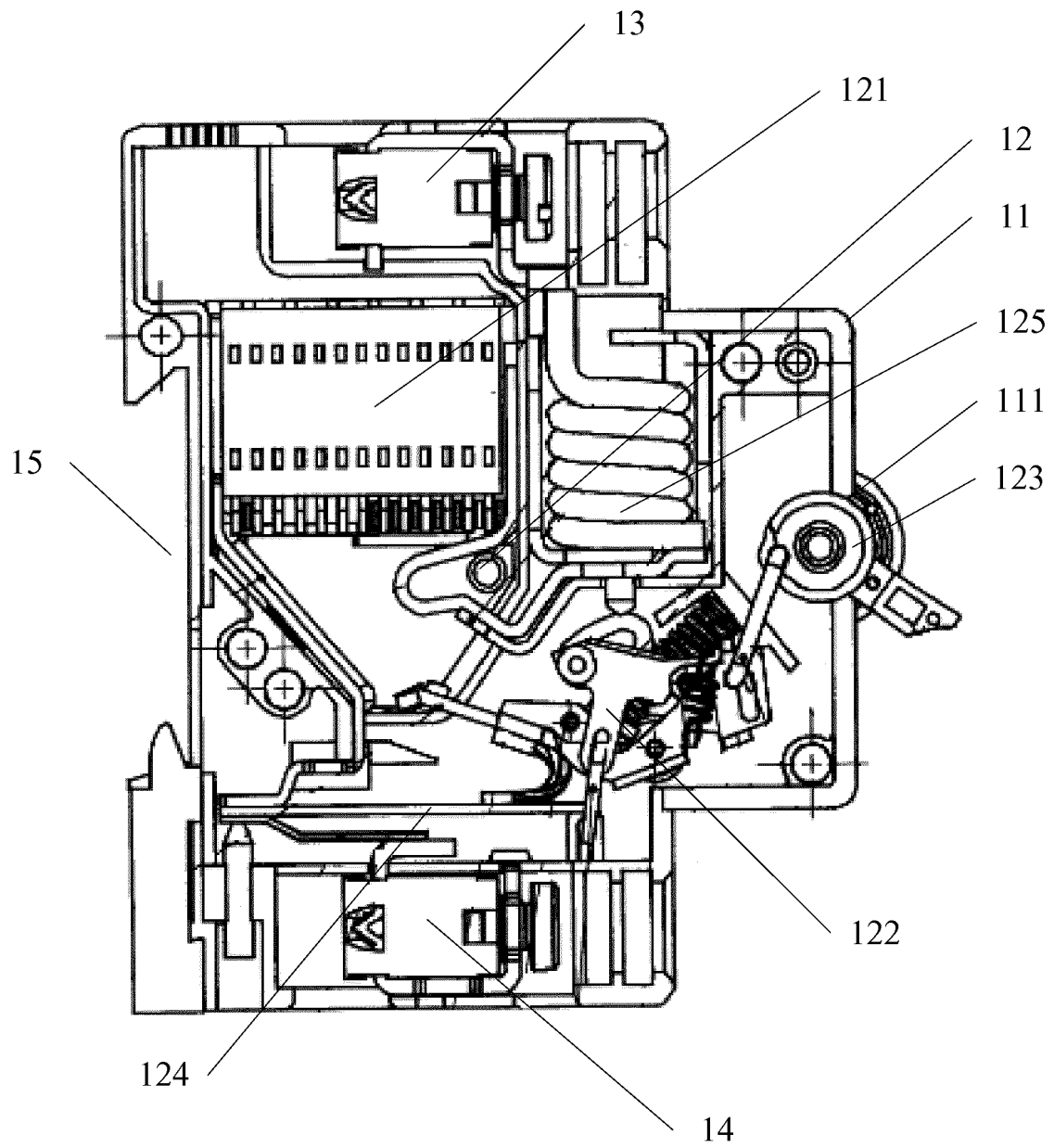


FIG. 1

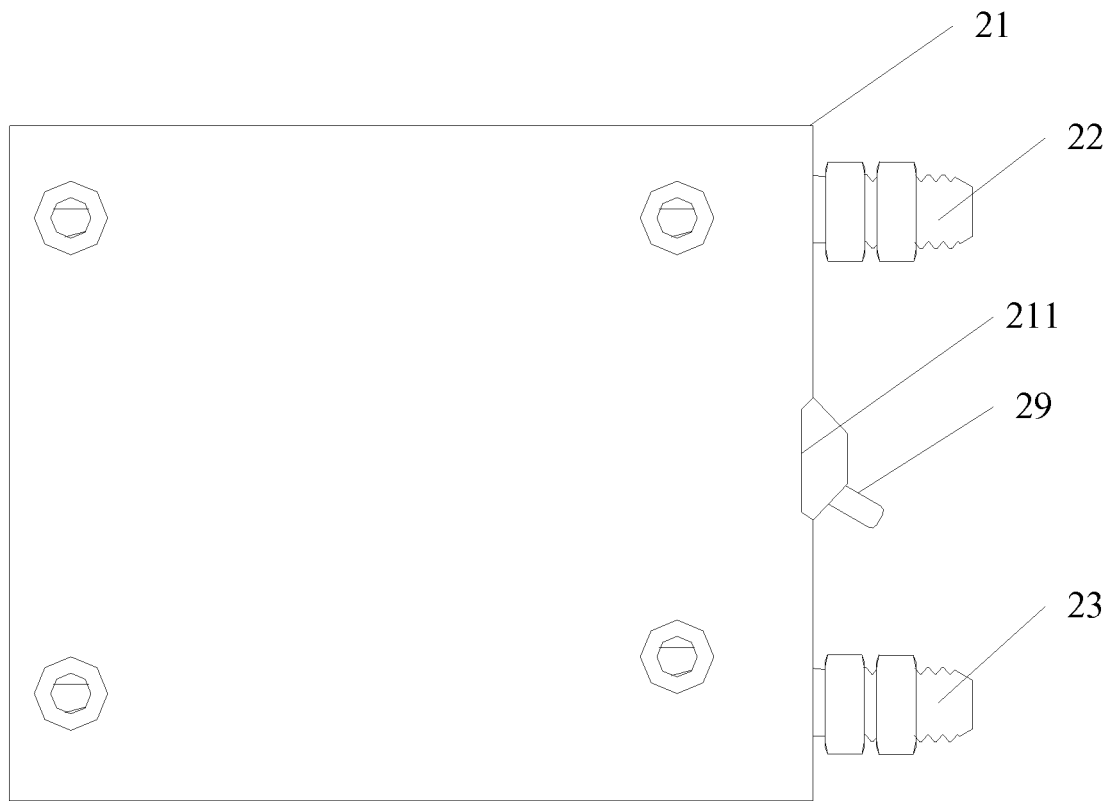


FIG. 2 (a)

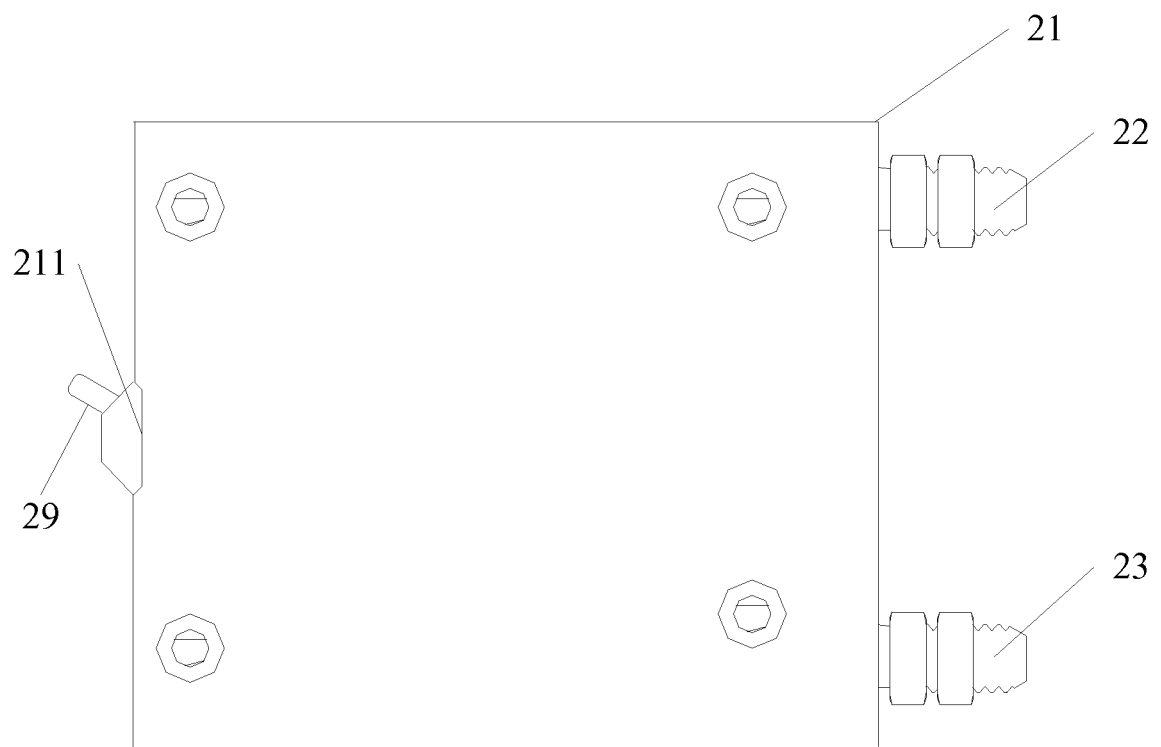


FIG. 2 (b)

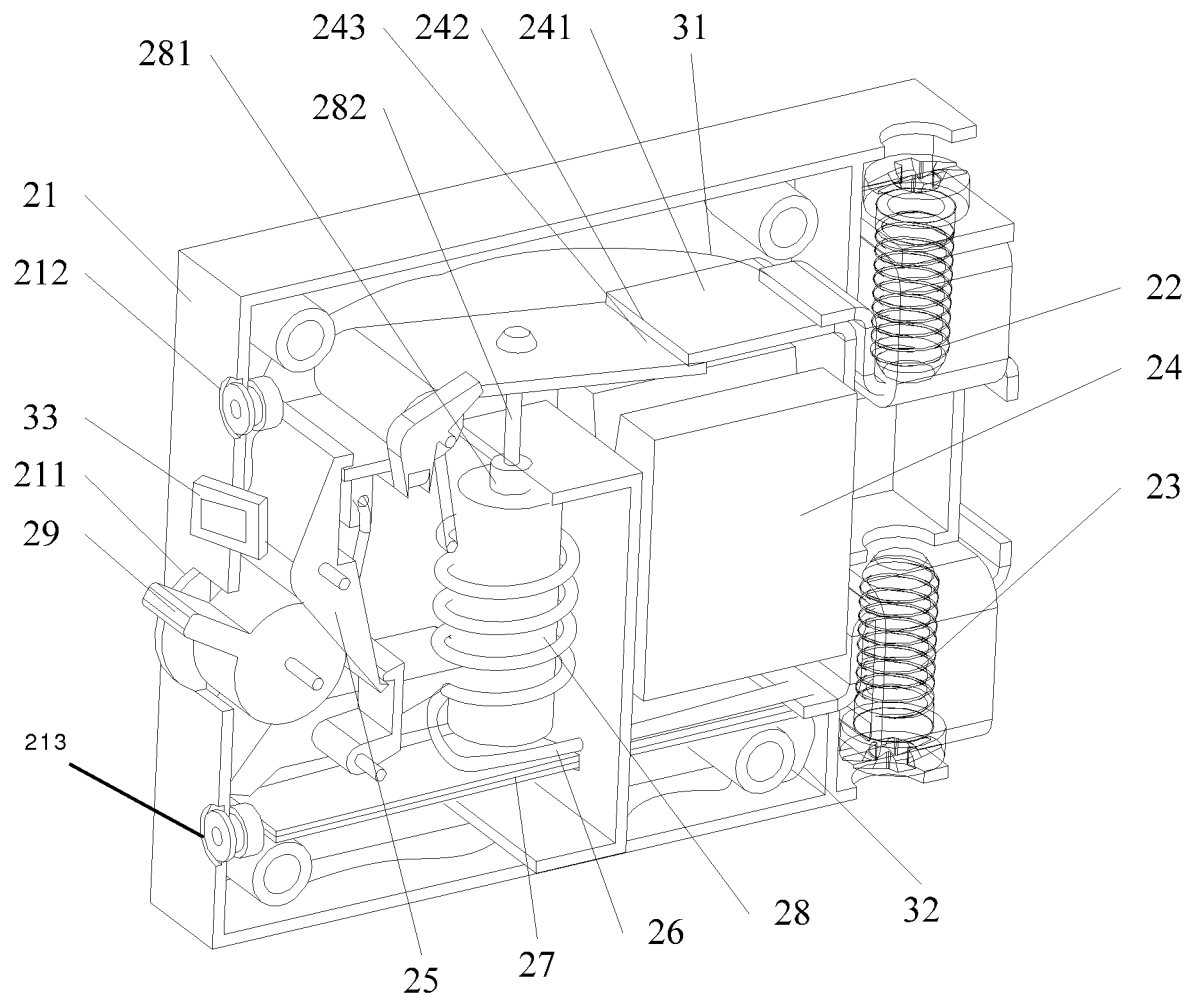


FIG. 3

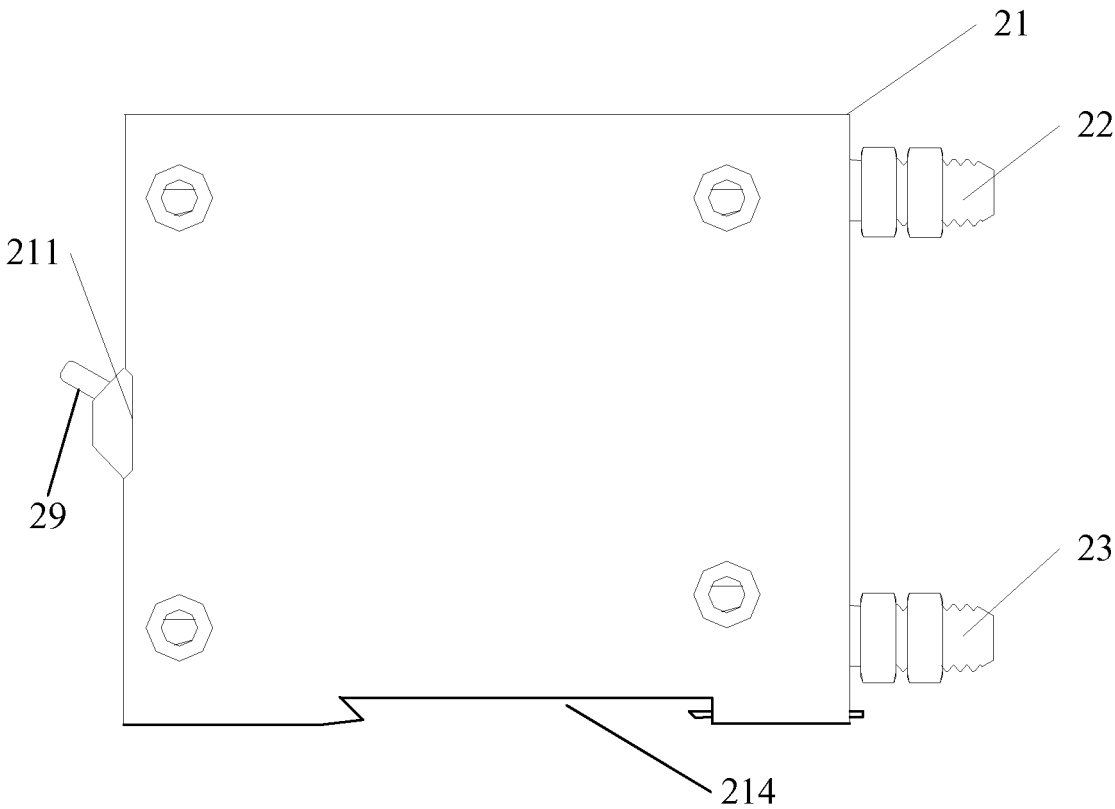


FIG. 4

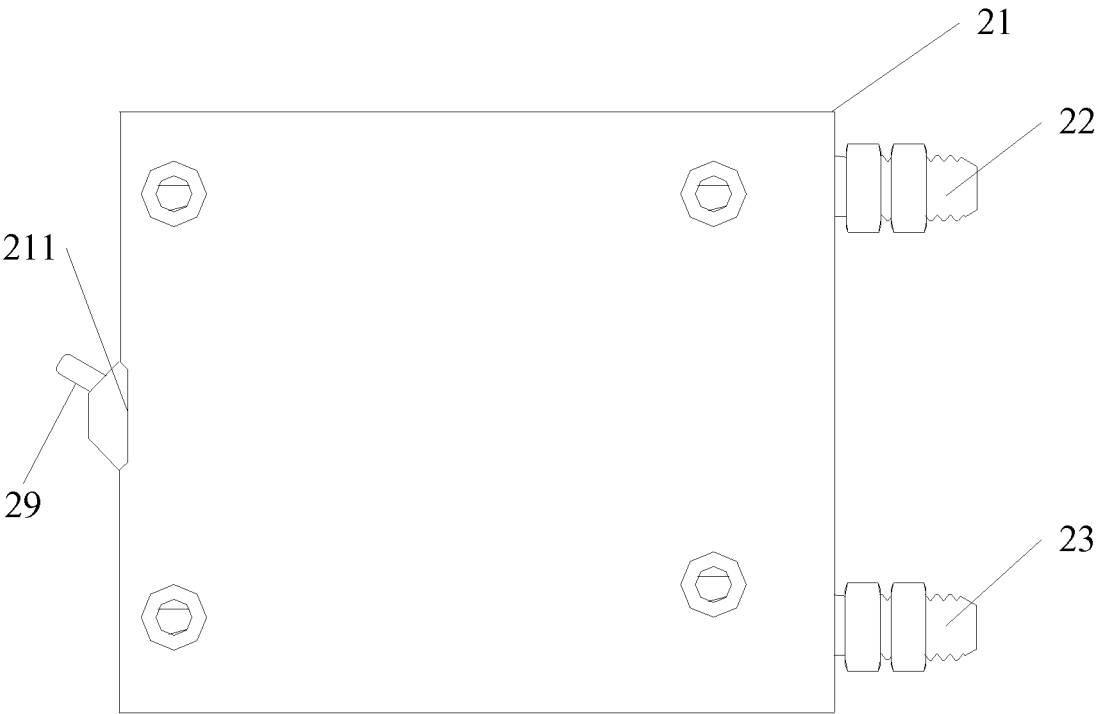


FIG. 5

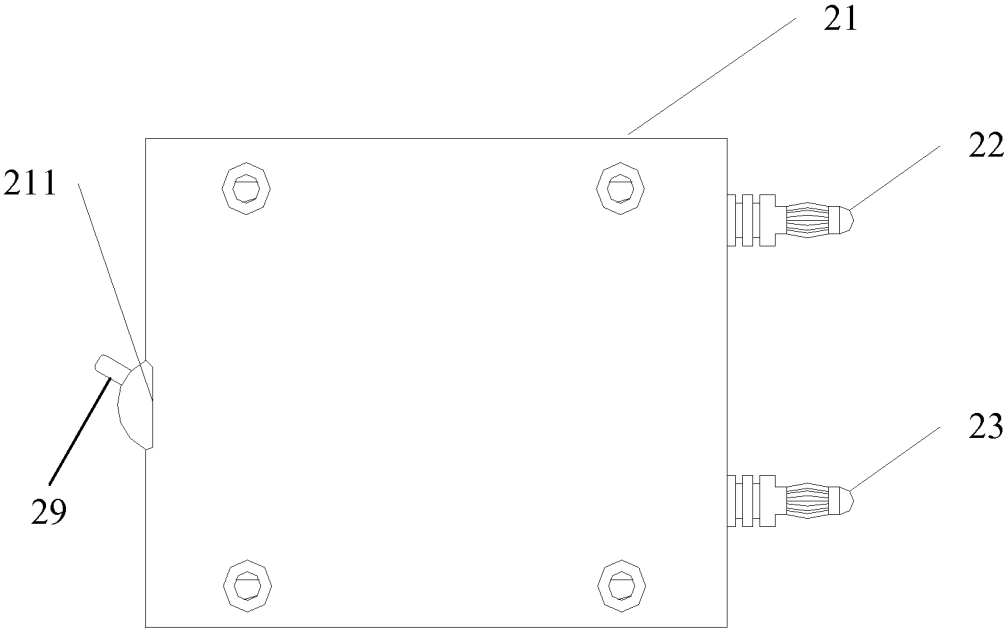


FIG. 6

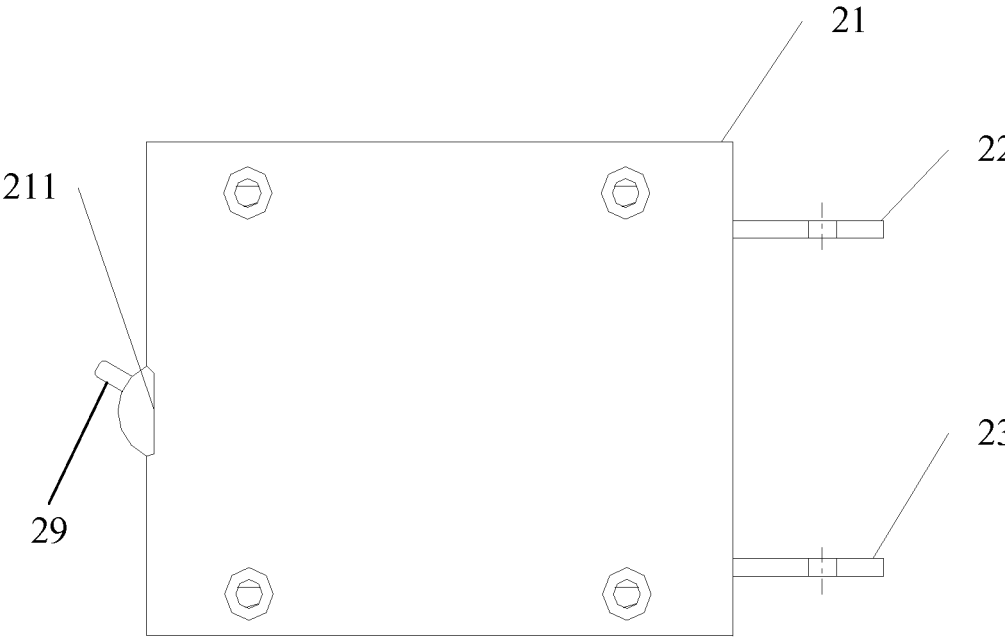


FIG. 7

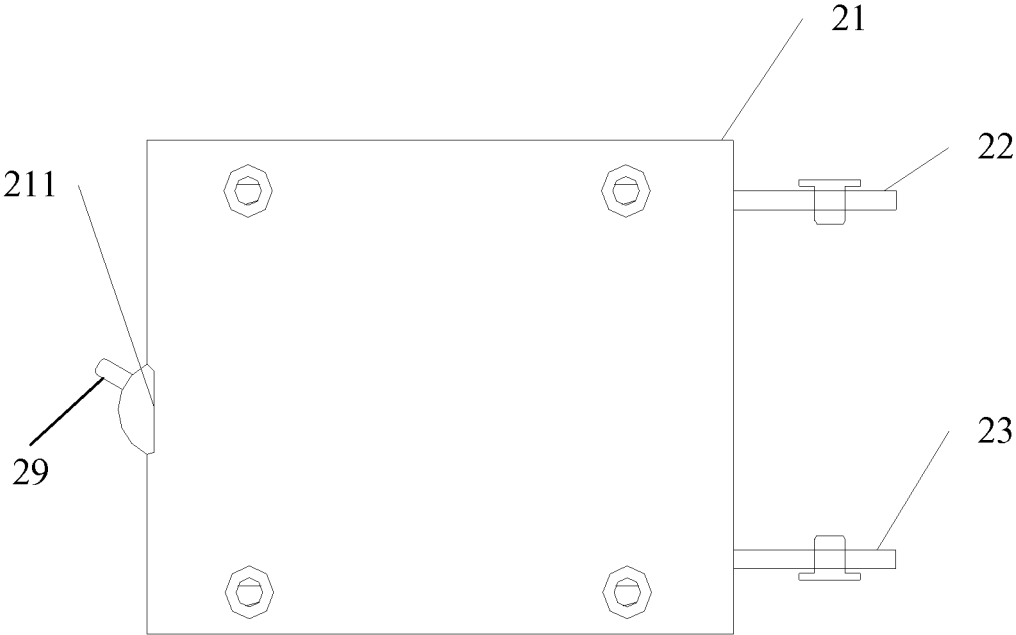


FIG. 8

REFERENCES CITED IN THE DESCRIPTION

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