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(54) **SIGNAL FEEDBACK APPARATUS**
SIGNALRÜCKKOPPLUNGSVORRICHTUNG
APPAREIL DE RÉTROACTION DE SIGNAL

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Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention is related to a signal feedback apparatus, in particular, to signal feedback apparatus used in a surge protection device (SPD).

Description of Related Art

[0002] Electronic components of surge protection devices, terminal blocks and relay etc. are commonly used in electric circuits in households, office places and factory sites, and they are mainly used for preventing damages of electrical equipment caused by transient overvoltage. When peak current or voltage is generated on the electric loop or telecommunication circuit due to external interferences, a surge protection device is able to guide and shunt the current within an extremely short period of time in order to prevent surge from damaging other equipment in the loop.

[0003] In a common surge protection device, it typically comprises an element of Metal Oxide Varistor (MOV) (i.e., a voltage dependent resistor). After a long period of use, the voltage dependent resistor tends to age and generates heat. To prevent accidents such as fire caused by increase of temperature, the surge protection device typically includes a trip mechanism. The trip mechanism is in series connection with the voltage dependent resistor such that when the temperature increases, the voltage dependent resistor is disengaged from the circuit.

[0004] For a currently existing SPD telesignaling device, it typically includes a microswitch installed therein for each level. In addition, these microswitches are connected to the telesignaling terminal block via corresponding circuits such that the mechanism moves through actions on each microswitch. Each level performs action independently, and the device is of complicated structure while requiring greater number of components; consequently, its manufacturing process is complicated in practice.

[0005] In view of the above drawbacks of the currently existing technologies, the inventor seeks to provide a reasonable design capable of effectively improving the aforementioned drawbacks after years of researches along with utilization of academic theories and principles.

[0006] US 2002 0 139 650 A1 relates to a service switching device of the cap type, and has an auxiliary switch which contains a microswitch and is fitted on a rear narrow face. The service switching device has a groove or strip running parallel to the narrow face on each of the broad faces adjacent to the rear narrow face wall. Wall sections are integrally formed on the rear wall of the auxiliary switch housing, project parallel to the broad faces in the direction of the narrow face, and are matched to the grooves or strips, such that the auxiliary switch

housing can be mounted on the service switching device by pushing in from the front towards the mounting plane, with the microswitch at right angles to the mounting plane on the narrow face, and with the projections or strips which are integrally formed on the wall sections sliding in the grooves or strips.

SUMMARY OF THE INVENTION

[0007] The present invention provides a signal feedback apparatus capable of utilizing the opening and closing of a microswitch to achieve the telesignaling monitoring on the states of the functional modules.

[0008] To achieve the aforementioned objectives, the present invention provides a signal feedback apparatus according to claim 1.

[0009] According to the invention, the telesignaling linkage member comprises a linkage shaft, the linkage shaft includes a driving oblique surface, and the sliding plate includes a driven oblique surface such that when the functional rotating member presses onto the protruding column, the driven oblique surface of the sliding plate is blocked by the driving oblique surface of the linkage shaft. When the functional rotating member rotates to allow the protruding column of the linkage member to be released, the driving oblique surface pushes the driven oblique surface such that the sliding plate moves along the sliding slot to press onto the microswitch. The arrangement of the driven oblique surface and driving oblique surface allow the telesignaling linkage member sliding member to slide more stably.

[0010] Preferably, a resultant force of all of the sliding plate springs is smaller than the elastic force of one single linkage shaft spring. Accordingly, it is able to ensure that after the tripping of the SPD at any level, the signal feedback apparatus is able to send out signal in order to ensure that each tripping is effectively fed back to the control end; therefore, the safety and reliability of SPD are increased while the number of component required is reduced.

[0011] Preferably, the signal feedback apparatus includes a top cover, and the top cover is of a U-shape plugging socket. The inner wall of the U-shape plugging socket includes a locking slot, the electrical unit includes an outer casing, and the outer casing includes a latch such that when the electrical unit is inserted onto the base, the latch is locked onto the locking slot at the inner wall of the U-shape socket. Therefore, the connection between the signal feedback apparatus and the electrical unit is convenient and fast, which is also able to prevent the electrical unit from loose connection or disengagement; consequently, the product safety is increased.

[0012] Preferably, the base includes an electrical connector, and the electrical connector includes a metal clamp and a lead wire. The metal clamp and the lead wire are soldered onto each other. The metal clamp is clamped onto the first electrical connection pin and the second electrical connection pin of the tripping mecha-

nism in order to form a conductive circuit.

[0013] Preferably, the base includes a limiting point, and the linkage shaft includes a protrusion such that when the linkage shaft is installed inside the base, the protrusion is locked onto the limiting portion in order to prevent the linkage shaft from being ejected by the spring after the installation thereof.

[0014] The signal feedback apparatus of the present invention uses one microswitch only, and it is able to utilize one sliding plate for linking surge protection modules of multiple levels together. Each level is provided with a telesignaling linkage shaft linked to the sliding plate and the surge protection module such that when the surge protection module of any one level is of malfunctioned tripping, the telesignaling device is able to send out signals. The present invention utilizes the mechanical connection structure of independent linkage for each level such that the mechanical connection is table, the component quantity required is small, the manufacturing process in practice is facilitated and the cost is relatively lower. In addition, the present invention is able to ensure that each tripping can be effectively fed back to the control end in order to increase the safety and reliability of a SPD.

BRIEF DESCRIPTION OF DRAWING

[0015]

FIG. 1 is an exploded view of the signal feedback apparatus of the present invention;

FIG 2 is an exploded view of the base, telesignaling linkage member, sliding plate and switch module of the present invention;

FIG. 3 is a perspective exploded view of the telesignaling linkage member of the present invention;

FIG 4 is a perspective view of the sliding plate of the present invention;

FIG. 5 is another perspective view of the sliding plate of the present invention viewed from another angle;

FIG 6 is an assembly view of the present invention applied to an electrical unit;

FIG 7 is a state of use view (1) of the signal feedback apparatus of the present invention; and

FIG 8 is a state of use view (2) of the signal feedback apparatus of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0016] The following provide a detailed description on the preferred embodiments of a signal feedback apparatus of the present invention along with the accompanied drawings.

[0017] As shown in FIG 1~5, the present invention provides a signal feedback apparatus, which can be a socket base, comprising a base 10, a telesignaling linkage member 20, a sliding plate 30 and a switch module 40.

[0018] The base 10 is generally of an elongated shape and includes a plurality of hooks 11 formed at a middle

region thereof. Each hook 11 is arranged spaced apart from each other, and a sliding slot 12 is formed at a lower edge among each hook 11. One side of the hook 11 is formed of an end surface 13. The middle region of the base 10 includes an installation hole 14 formed thereon. In this embodiment, the quantity of the installation hole 14 is two. One side of each one of the installation holes 14 includes a groove formed thereon, and a top edge of the groove is formed of a limiting point 15. The base 10 at the rear end of the sliding slot 12 is formed of a blocking wall 16. The two side regions of the base 10 include a plurality of receiving slots 17 formed thereon respectively.

[0019] The telesignaling linkage member 20 is received inside the installation hole 14. In this embodiment, the quantity of the telesignaling linkage member 20 is two, and each telesignaling linkage member 20 comprises a linkage shaft 21 and a linkage shaft spring 22. The linkage shaft 21 includes a cylindrical member 211 and a protruding column 212 extended upward from the top end of the cylindrical member 211. One side of the cylindrical member 211 is formed of a driving oblique surface 213 and another side thereof is formed of a protrusion 214. In addition the internal of the cylindrical member 211 is formed of an inner hole 215. The linkage shaft spring 22 is received inside the inner hole 215 and the installation hole 14. The protrusion 214 is received inside the aforementioned groove. The limiting point 15 is used for blocking the protrusion 214 in order to ensure that the linkage shaft 21 is not ejected by the linkage shaft spring 22 after the installation thereof.

[0020] The sliding plate 30 is generally a rectangular plate. The middle region of the sliding plate 30 and the front side thereof include a rectangular hole 31 and a notch 31A formed thereon respectively. The rectangular hole 31 and the notch 31A include a side wall formed of a driven oblique surface 311 respectively. The bottom surface of the sliding plate 30 includes a microswitch triggering piece 32 protruded therefrom. Two sides of the rear of the sliding plate 30 include a securement column 33 formed thereon respectively and provided for a sliding plate spring 34 to be mounted thereon; wherein a resultant force of the two sliding plate springs 34 is smaller than the elastic force of one single linkage shaft spring 22. The two left and right sides of the sliding plate 30 include a positioning retainer 35 formed thereon respectively. The sliding plate 30 is moveably received inside the sliding slot 12 and uses the positioning retainer 35 to abut against the end surface 13. One end of the sliding plate spring 34 abuts against the blocking wall 16 in order to allow the blocking wall 16 to provide a continuous push force to the sliding plate 14. Furthermore, one side the rectangular hole 31 is formed of an anti-misfit hole 36.

[0021] The switch module 40 is installed at a corner of the base 10. The switch module 40 comprises a microswitch 41, a circuit board 42, a terminal block 43 and a telesignaling connection terminal 44. The microswitch 41 includes a microswitch button 411. The microswitch 41

and the terminal block 43 are soldered onto the circuit board 42, and the microswitch 41 is arranged corresponding to the aforementioned microswitch triggering piece 32 such that the microswitch 41 can be operably opened or closed based on the movement of the sliding block 30.

[0022] The signal feedback apparatus of the present invention further comprises a plurality of electrical connectors 50. Each electrical connector 50 is installed inside each receiving slot 17 of the base 10. Each electrical connector 50 comprises a lead wire 51 and a metal clamp 52 electrically connected to the lead wire 51.

[0023] The signal feedback apparatus of the present invention further comprises a top cover 60 for covering onto the base 10 correspondingly. The top cover 60 includes a U-shape socket opening, and a locking slot 61 is formed at corresponding location of the two side plates respectively. In addition, the bottom plate is formed of an insertion slot 62 corresponding to the aforementioned metal clamp 52; furthermore, a through hole 63 is formed at a location corresponding to the aforementioned anti-misfit insertion hole 36; moreover, an perforation 64 is formed at a location corresponding to the aforementioned protruding column 212 in order to allow the protruding column 212 to penetrate therethrough.

[0024] As shown in FIG 6, the signal feedback apparatus of the present invention can be provided for uses of an electronic unit 8, such as a SPD, a terminal block or a relay etc. In this embodiment, a two-level SPD is used for illustration, and it comprises an outer casing 81, and a latch 82 formed at side walls of the outer casing 81 respectively. The internal of the outer casing 81 can be installed with a voltage dependent resistor (not shown in the figures), and the bottom end of the outer casing 81 includes a first electrical connection pin 83 and a second electrical connection pin 84 extended therefrom. Furthermore, the central region of the electrical unit 8 includes a functional rotating member 85. During the use, the electrical unit 8 is placed into the opening slot of the top cover 60, and each latch 82 is locked onto the corresponding locking slot 61 respectively. In addition, the first electrical connection pin 83 and the second electrical connection pin 84 are inserted into the insertion slot 62 in order to be clamped by the metal clamp 52 of each electrical connector 50 and to form a conductive circuit. Moreover, the functional rotating member 85 performs the downward press action corresponding to the protruding column 212 of the linkage shaft 21.

[0025] FIG 7 shows a normal working state of the voltage dependent resistor. At this time, when the functional rotating member 85 presses downward on to the protruding column 212 of the linkage shaft 21 (as shown in FIG. 6), the linkage shaft spring 22 is under the maximum compression state. Under the pushing force of the sliding plate spring 34 exerted onto the sliding plate 30, the driven oblique surface 311 of the sliding plate 30 is blocked at the right end of the sliding slot 12 by the driven oblique surface 213 of the linkage shaft 21. During the same time,

the microswitch triggering piece 32 on the sliding plate 30 has no effect on the microswitch button 411, and the microswitch button 411 is under a naturally extended state elastically, indicating the voltage dependent resistor is under a normal working state.

[0026] FIG 8 shows a tripped state of the voltage dependent resistor. The functional rotating member 85 rotates counterclockwise such that the protruding column 212 of the linkage shaft 21 is released, and the functional rotating shaft 85 generates a release effect on the linkage shaft 21. The protruding column 212 of the linkage shaft 21 is provided with an upward movement space, and the linkage shaft 21 bounces upward under the push effect of the linkage shaft spring 22, indicating that the voltage dependent resistor is under a tripped state, i.e. a malfunction state. Under the effect of the elastic force, the driving oblique surface 213 drives the sliding plate 30 to move leftward along the sliding slot 12 via the driven oblique surface 311. When the linkage shaft 21 is completely extended elastically, the sliding plate 30 is of a stroke with the maximum movement and the sliding plate spring 34 is compressed such that the microswitch triggering piece 32 presses downward on the microswitch button 411. Since the resultant force of the two sliding plate spring 34 is smaller than the elastic force of one single linkage shaft spring 22, the use of only one microswitch 41 and one sliding plate 30 is sufficient to allow the signal feedback apparatus of the present invention to send out a failure warning signal to the control system after the SPD of any level is tripped in order to ensure that every trip is effectively fed back to the control end. Therefore, it is able to alert the maintenance personnel to readily replace the failed SPD such that the safety and reliability of SPD is increased while the apparatus is of small quantity of components, reduced size, facilitated for manufacturing in practice and relatively lower cost.

[0027] In view of the above, the signal feedback apparatus of the present invention is able to achieve the expected purpose of use and to overcome the drawbacks of prior arts. The present invention is of novelty and inventive step to comply with the patentability of invention patents.

45 Claims

1. A signal feedback apparatus, comprising:

- a base (10);
- a telesignaling linkage member (20) moveably installed on the base (10);
- a sliding plate (30) installed corresponding to the telesignaling linkage member (20) and configured to generate a movement along with the telesignaling linkage member (20); and
- a switch module (40) comprising a microswitch (41); the microswitch (41) arranged corresponding to the sliding plate (30) and configured to

- operably open or close the microswitch (41) based on the movement of the sliding plate (30), **characterized in that** the sliding plate (30) includes a rectangular hole (31) and a notch (31A) formed thereon, the telesignaling linkage member (20) comprises two linkage shafts (21), and the linkage shafts (21) penetrate through the rectangular hole (31) and the notch (31A) respectively,
- wherein the rectangular hole (31) and the notch (31A) include a driven oblique surface (311) formed a side wall thereof respectively, the linkage shafts (21) include a driving oblique surface (213) formed thereon respectively, and each one of the driving oblique surfaces (213) engages with each one of the corresponding driven oblique surfaces (311).
2. The signal feedback apparatus according to Claim 1, wherein the base (10) includes a plurality of hooks (11) formed thereon; a sliding slot (12) is formed at a lower edge of each one of the plurality of hooks (11); the sliding plate (30) is configured to moveably receive inside the sliding slot (12).
 3. The signal feedback apparatus according to Claim 2, wherein one side of the hook (11) is formed of an end surface (13), one side of the sliding plate (30) is formed of a positioning retainer (35); the positioning retainer (35) abuts against the end surface (13).
 4. The signal feedback apparatus according to any of the Claims 1 to 3, wherein the base (10) includes a limiting point (15), and the linkage shaft (21) includes a protrusion (214) such that when the linkage shaft (21) is placed inside the base (10), the protrusion (214) locks onto the limiting point (15).
 5. The signal feedback apparatus according to any of the Claims 1 to 4, wherein the base (10) includes an installation hole (14), and the linkage shaft (21) includes a cylindrical member (211) and a protruding column (212) extended from the cylindrical member (211); the cylindrical member (211) is received inside the installation hole (14).
 6. The signal feedback apparatus according to Claim 5, wherein the telesignaling member (20) further comprises a linkage shaft spring (22), the cylindrical member (211) is formed of an inner hole (215) at an internal thereof; the linkage shaft spring (22) is received inside the inner hole (215) and the installation hole (14).
 7. The signal feedback apparatus according to Claim 6, wherein the sliding plate (30) includes two securement columns (33) formed thereon respectively, and each one of the securement columns is provided for a sliding plate spring (34) to be mounted thereon; a resultant force of the sliding plate springs (34) is smaller than an elastic force of one single unit of the linkage shaft spring (22).
 8. The signal feedback apparatus according to Claim 7, wherein the base (10) is formed of a blocking wall (16), and one end of each one of the sliding plate spring (34) abuts against the blocking wall (16).
 9. The signal feedback apparatus according to Claim 1, wherein the sliding plate (30) includes an anti-misfit hole (36) formed thereon, and the anti-misfit hole (36) is disposed at one side of the rectangular hole (31).
 10. The signal feedback apparatus according to any of the Claim 1 to 9, wherein the microswitch (41) includes a microswitch button (411) and the sliding plate (30) includes a microswitch triggering piece (32) such that the microswitch triggering piece (32) is used to press or release the microswitch button (411).
 11. The signal feedback apparatus according to any of the Claims 1 to 10, further comprising an electrical connector (50); the electrical connector (50) includes a lead wire (51) and a metal clamp (52); the base (10) includes a receiving slot (17) formed thereon; the electrical connector (50) is inserted into the corresponding receiving slot (17) for attachment therewith, and the metal clamp (52) is soldered onto the lead wire (51).
 12. The signal feedback apparatus according to any of the Claims 1 to 11, further comprising a top cover (60); the top cover (60) includes a U-shape socket opening, and the inner side wall of the U-shape socket opening includes a locking slot (61).

Patentansprüche

1. Signalkückkopplungsvorrichtung, umfassend:

eine Basis (10);
ein Telesignalisierungs-Verbindungselement (20), das beweglich auf der Basis (10) installiert ist;
eine Gleitplatte (30), die entsprechend dem Telesignalisierungs-Verbindungselement (20) installiert und konfiguriert ist, um eine Bewegung zusammen mit dem Telesignalisierungs-Verbindungselement (20) zu erzeugen; und
ein Schaltmodul (40) mit einem Mikroschalter (41); wobei der Mikroschalter (41) entsprechend der Gleitplatte (30) angeordnet und konfiguriert ist, um den Mikroschalter (41) basierend auf der

- Bewegung der Gleitplatte (30) funktionsfähig zu öffnen oder zu schließen,
dadurch gekennzeichnet, dass die Gleitplatte (30) ein rechteckiges Loch (31) und eine daran ausgebildete Kerbe (31A) aufweist, wobei das Telesignalisierungs-Verbindungselement (20) zwei Verbindungswellen (21) umfasst und die Verbindungswellen (21) durch das rechteckige Loch (31) bzw. die Kerbe (31A) hindurchdringen, wobei das rechteckige Loch (31) und die Kerbe (31A) eine angetriebene schräge Fläche (311) aufweisen, die jeweils eine Seitenwand davon bildet, wobei die Verbindungswellen (21) jeweils eine daran ausgebildete antreibende schräge Fläche (213) aufweist, und jede der antreibenden schrägen Flächen (213) in jede der entsprechenden angetriebenen schrägen Flächen (311) eingreift.
2. Signalkückkopplungsvorrichtung nach Anspruch 1, wobei die Basis (10) eine Vielzahl von darauf ausgebildeten Haken (11) aufweist; wobei ein Gleitschlitz (12) an einer Unterkante jedes der Vielzahl von Haken (11) ausgebildet ist; wobei die Gleitplatte (30) konfiguriert ist, um innerhalb des Gleitschlitzes (12) beweglich aufgenommen zu werden.
 3. Signalkückkopplungsvorrichtung nach Anspruch 2, wobei eine Seite des Hakens (11) aus einer Endfläche (13), und eine Seite der Gleitplatte (30) aus einer Positionierhalterung (35) gebildet ist; wobei die Positionierhalterung (35) an der Endfläche (13) anliegt.
 4. Signalkückkopplungsvorrichtung nach einem der Ansprüche 1 bis 3, wobei die Basis (10) einen Begrenzungspunkt (15) aufweist und die Verbindungswelle (21) einen Vorsprung (214) aufweist, so dass, wenn die Verbindungswelle (21) innerhalb der Basis (10) angeordnet ist, der Vorsprung (214) an dem Begrenzungspunkt (15) einrastet.
 5. Signalkückkopplungsvorrichtung nach einem der Ansprüche 1 bis 4, wobei die Basis (10) ein Montageloch (14) aufweist und die Verbindungswelle (21) ein zylindrisches Element (211) und eine vorstehende Säule (212) aufweist, die sich von dem zylindrischen Element (211) erstreckt; wobei das zylindrische Element (211) innerhalb des Montagelochs (14) aufgenommen wird.
 6. Signalkückkopplungsvorrichtung nach Anspruch 5, wobei das Telesignalisierungs-Verbindungselement (20) ferner eine Verbindungswellenfeder (22) umfasst, wobei das zylindrische Element (211) an seinem Inneren aus einem Innenloch (215) gebildet ist; wobei die Verbindungswellenfeder (22) innerhalb des Innenlochs (215) und des Montagelochs (14) aufgenommen ist.
 7. Signalkückkopplungsvorrichtung nach Anspruch 6, wobei die Gleitplatte (30) jeweils zwei darauf ausgebildete Befestigungssäulen (33) aufweist und jede der Befestigungssäulen für eine darauf zu montierende Gleitplattenfeder (34) vorgesehen ist; wobei eine resultierende Kraft der Gleitplattenfedern (34) kleiner ist als eine Elastizität einer einzelnen Einheit der Verbindungswellenfeder (22).
 8. Signalkückkopplungsvorrichtung nach Anspruch 7, wobei die Basis (10) aus einer Sperrwand (16) gebildet ist und jeweils ein Ende der Gleitplattenfeder (34) an der Sperrwand (16) anliegt.
 9. Signalkückkopplungsvorrichtung nach Anspruch 1, wobei die Gleitplatte (30) ein darauf ausgebildetes Misspassungs-Loch (36) aufweist und das Misspassungs-Loch (36) an einer Seite des Rechtecklochs (31) angeordnet ist.
 10. Signalkückkopplungsvorrichtung nach einem der Ansprüche 1 bis 9, wobei der Mikroschalter (41) einen Mikroschaltertaster (411) und die Gleitplatte (30) ein Mikroschalter-Auslöserteil (32) aufweist, so dass das Mikroschalter-Auslöserteil (32) zum Drücken oder Loslassen des Mikroschaltertasters (411) verwendet wird.
 11. Signalkückkopplungsvorrichtung nach einem der Ansprüche 1 bis 10, ferner umfassend einen elektrischen Verbinder (50); wobei der elektrische Verbinder (50) einen Zuleitungsdraht (51) und eine Metallklemme (52) aufweist; wobei die Basis (10) einen darauf ausgebildeten Aufnahmeschlitz (17) aufweist; wobei der elektrische Verbinder (50) in den entsprechenden Aufnahmeschlitz (17) zur Befestigung daran eingesetzt wird, und die Metallklemme (52) auf den Zuleitungsdraht (51) gelötet wird.
 12. Signalkückkopplungsvorrichtung nach einem der Ansprüche 1 bis 11, ferner umfassend eine obere Abdeckung (60); wobei die obere Abdeckung (60) eine U-förmige Buchsenöffnung aufweist, und die innere Seitenwand der U-förmigen Buchsenöffnung einen Verriegelungsschlitz (61) aufweist.
- Revendications**
1. Un appareil de rétroaction de signal comprenant:
 - une base (10);
 - un élément de liaison de télésignalisation (20) installé de manière mobile sur la base (10);
 - une plaque coulissante (30) installée en correspondance avec l'élément de liaison de télé-

- gnalisation (20) et configurée pour générer un mouvement conjointement avec l'élément de liaison de télésignalisation (20); et un module de commutation (40) comprenant un microcommutateur (41); le microcommutateur (41) étant agencé pour correspondre à la plaque coulissante (30) et étant configuré pour ouvrir ou fermer de manière fonctionnelle le microcommutateur (41) en fonction du mouvement de la plaque coulissante (30),
- caractérisé en ce que** la plaque coulissante (30) comporte un trou rectangulaire (31) et une encoche (31A) formée sur celui-ci, l'élément de télésignalisation (20) comprenant deux arbres de liaison (21), et les arbres de liaison (21) pénétrant à travers le trou rectangulaire (31) et l'encoche (31A) respectivement, dans lequel le trou rectangulaire (31) et l'encoche (31A) comprennent une surface oblique entraînée (311) formée dans une paroi latérale de celle-ci, les arbres de liaison (21) comprenant une surface oblique d'entraînement (213) formées dessus, respectivement, et chacune des surfaces obliques d'entraînement (213) est en prise avec chacune des surfaces obliques entraînées correspondantes.
2. L'appareil de rétroaction de signal selon la revendication 1, dans lequel la base (10) comprend une pluralité de crochets (11) formés sur celle-ci; une fente coulissante (12) étant formée au niveau d'un bord inférieur de chaque crochet au sein de la pluralité de crochets (11); la plaque coulissante (30) est configurée pour recevoir de manière mobile à l'intérieur de la fente coulissante (12).
 3. L'appareil de rétroaction de signal selon la revendication 2, dans lequel un côté du crochet (11) est formé d'une surface d'extrémité (13), un côté de la plaque coulissante (30) est formé d'un dispositif de retenue de positionnement (35); le dispositif de retenue de positionnement (35) butant contre la surface d'extrémité (13).
 4. L'appareil de rétroaction de signal selon l'une quelconque des revendications 1 à 3, dans lequel la base (10) comprend un point limite (15), l'élément de liaison de télésignalisation (20) comprend une saillie (214) telle que lorsque l'arbre de liaison (21) est placée à l'intérieur de la base (10), la saillie (214) se verrouille sur le point limite (15).
 5. L'appareil de rétroaction de signal selon l'une quelconque des revendications 1 à 4, dans lequel la base (10) comprend un trou d'installation (14), et l'arbre de liaison (21) comprend un élément cylindrique (211) et une colonne en saillie (212) s'étendant à partir de l'élément cylindrique (211); l'élément cylindrique (211) étant reçu à l'intérieur du trou d'installation (14).
 6. L'appareil de rétroaction de signal selon la revendication 5, dans lequel l'élément de télésignalisation (20) comprend en outre un ressort d'arbre de liaison (22), l'élément cylindrique (211) étant formé d'un trou intérieur (215) au niveau de son intérieur; le ressort d'arbre de liaison (22) est logé à l'intérieur du trou intérieur (215) et du trou d'installation (14).
 7. L'appareil de rétroaction de signal selon la revendication 6, dans lequel la plaque coulissante (30) comprend deux colonnes de fixation (33) formées sur celle-ci, et chacune des colonnes de fixation est prévue pour le montage d'un ressort de plaque coulissante (34); une force résultante des ressorts de la plaque coulissante (34) étant inférieure à la force élastique d'une seule unité du ressort de l'arbre de liaison (22).
 8. L'appareil de rétroaction de signal selon la revendication 7, dans lequel la base (10) est formée d'une paroi de blocage (16), et une extrémité de chacun des ressorts de la plaque coulissante (34) bute contre la paroi de blocage (16).
 9. L'appareil de rétroaction de signal selon la revendication 1, dans lequel la plaque coulissante (30) comprend un trou anti-inadapté (36) formé sur celle-ci, et le trou anti-inadapté (36) est disposé sur un côté du trou rectangulaire (31).
 10. L'appareil de rétroaction de signal selon l'une quelconque des revendications 1 à 9, dans lequel le microcommutateur (41) comprend un bouton de microcommutateur (411) et la plaque coulissante (30) comprend une pièce de déclenchement du microcommutateur (32) telle que la pièce de déclenchement du microcommutateur (32) est utilisé pour appuyer ou relâcher le bouton du microcommutateur (411).
 11. L'appareil de rétroaction de signal selon l'une quelconque des revendications 1 à 10, comprenant en outre un connecteur électrique (50); le connecteur électrique (50) comprenant un fil conducteur (51) et une pince métallique (52); la base (10) comprend une fente de réception (17) y formée; le connecteur électrique (50) étant inséré dans la fente de réception correspondante (17) en vue de la fixation avec celle-ci, et la pince métallique (52) étant soudée sur le fil conducteur (51).
 12. L'appareil de rétroaction de signal selon l'une quelconque des revendications 1 à 11, comprenant en outre un couvercle supérieur (60); le couvercle supérieur (60) comprenant une ouverture à douille en

forme de U et la paroi latérale intérieure de l'ouverture à douille en forme de U comprenant une fente de verrouillage (61).

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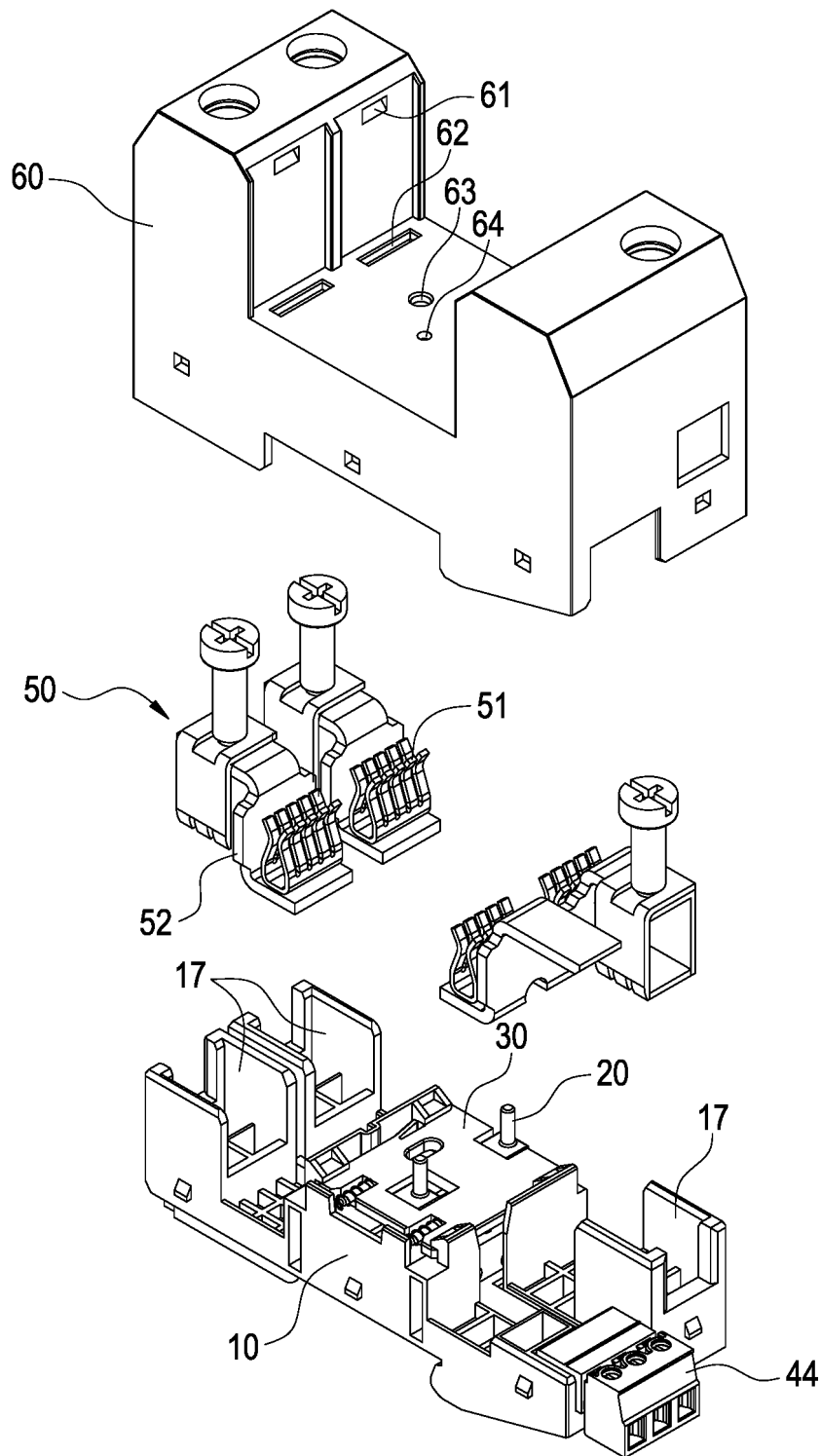


FIG.1

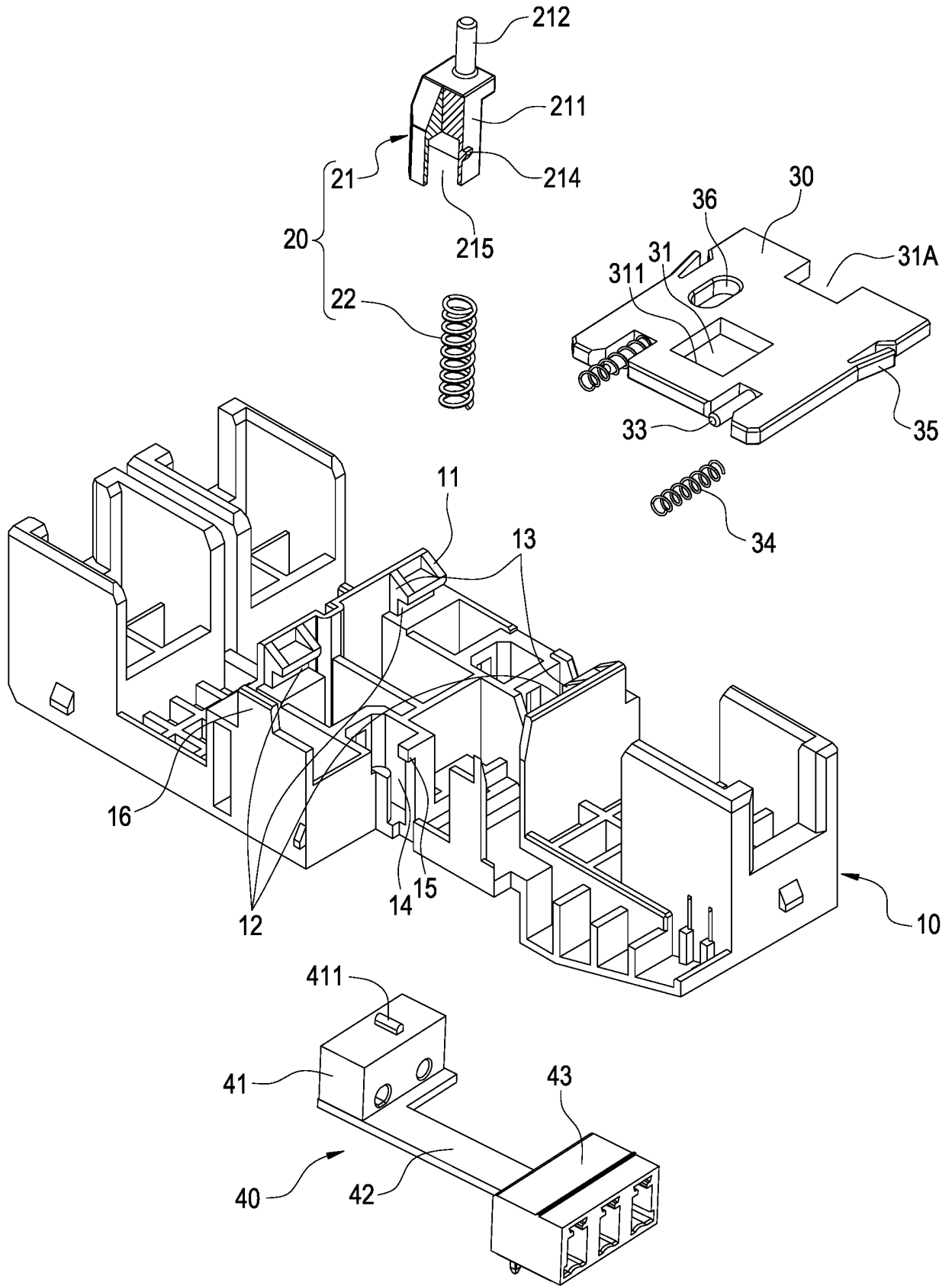


FIG.2

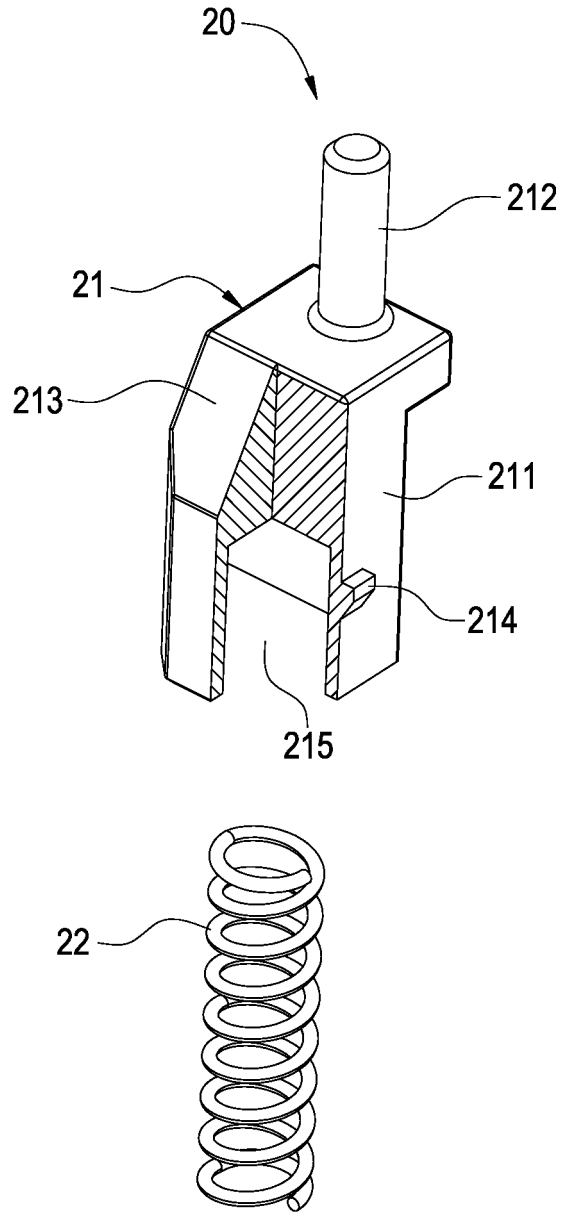


FIG.3

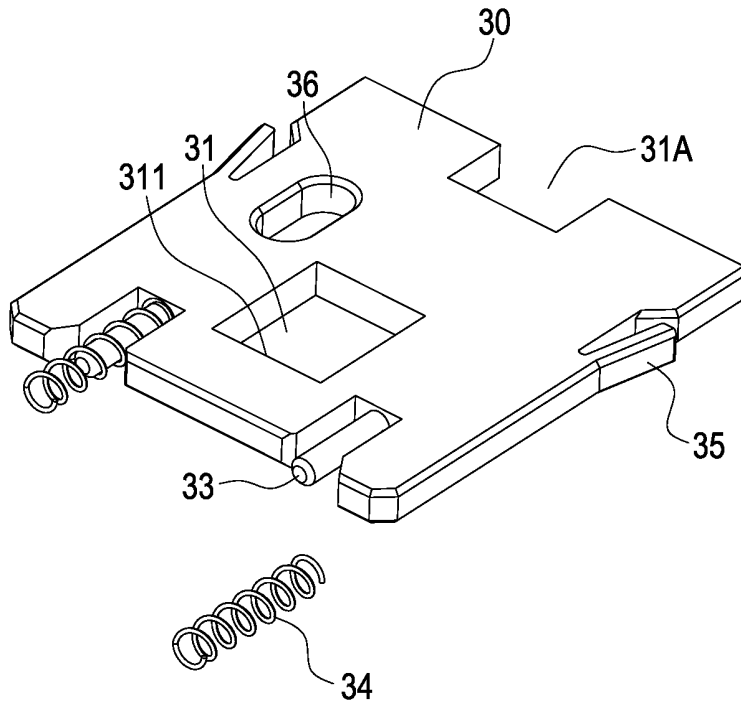


FIG. 4

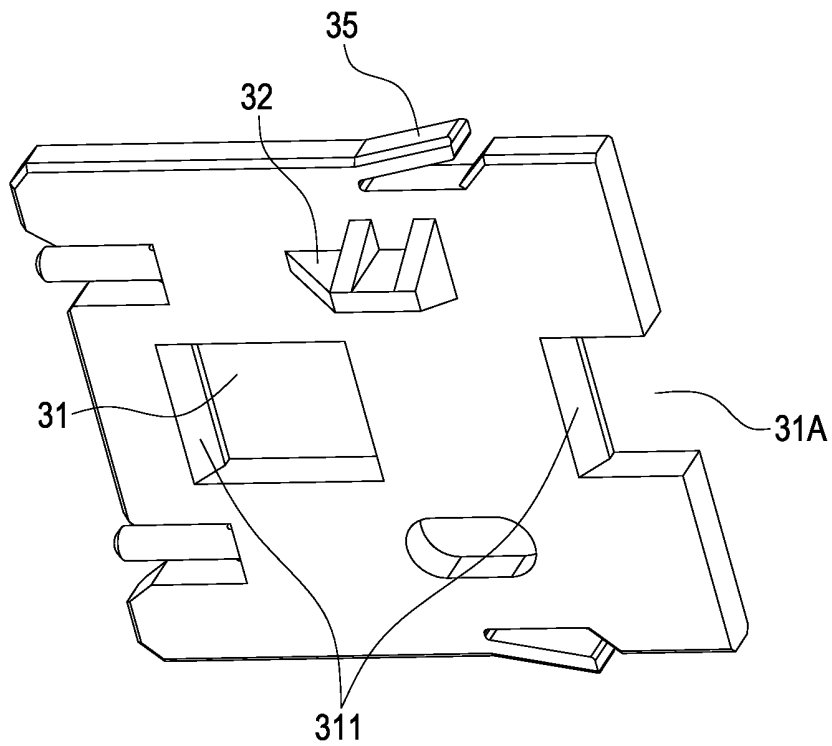


FIG. 5

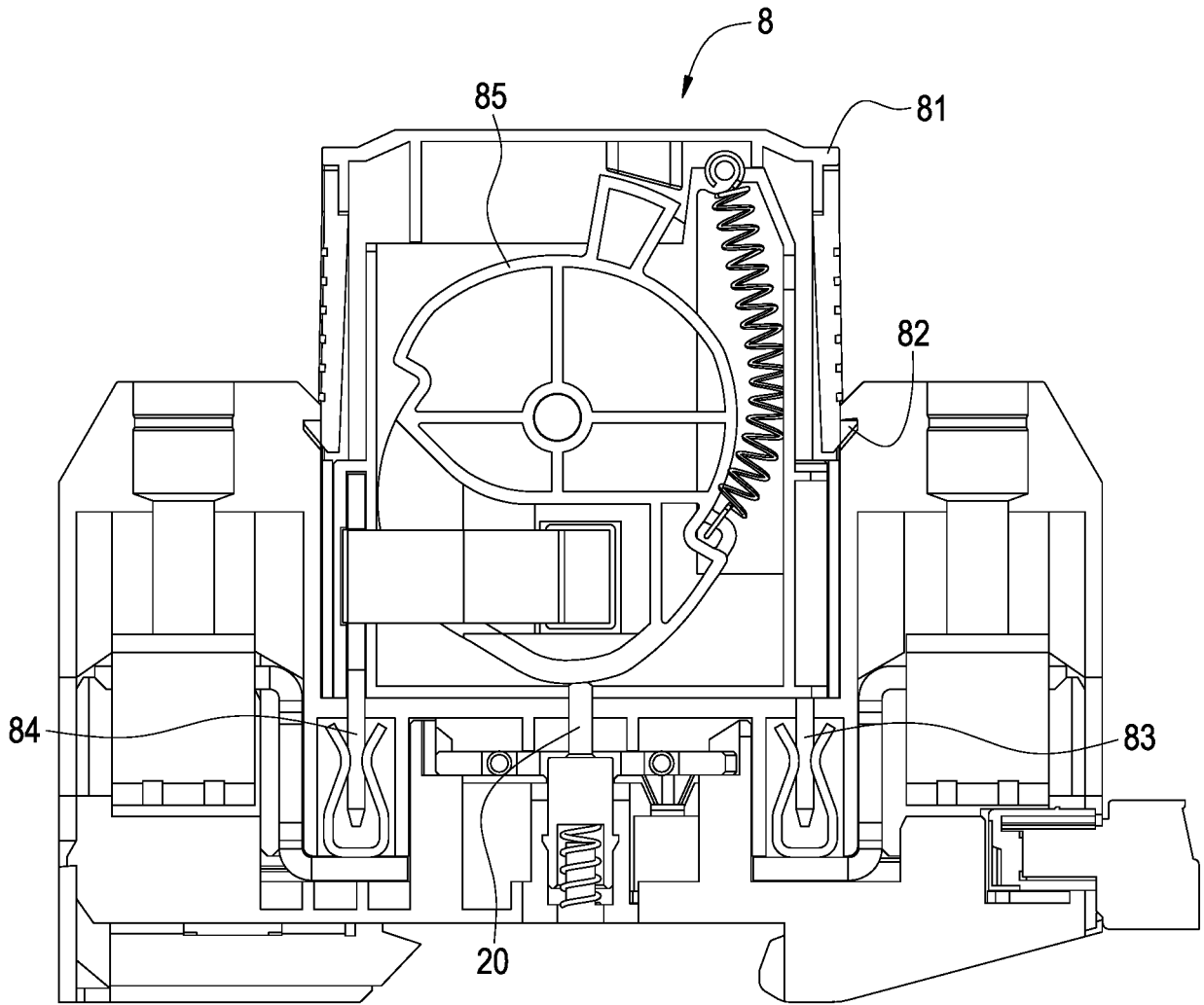


FIG. 6

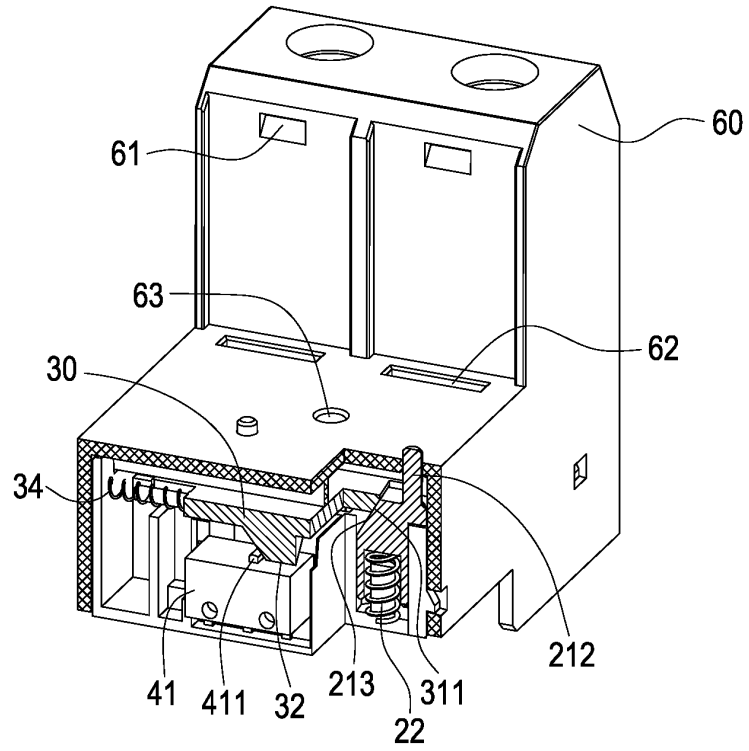


FIG. 7

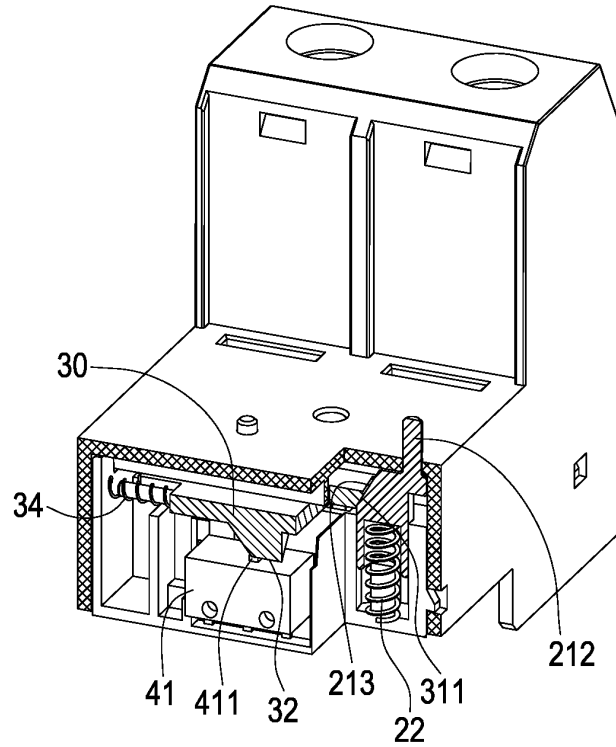


FIG. 8

REFERENCES CITED IN THE DESCRIPTION

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