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(54) **SMART DEVICE AND FLASH SWITCH APPARATUS THEREOF**

INTELLIGENTE VORRICHTUNG UND BLITZSCHALTVORRICHTUNG DAFÜR

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(56) References cited:  
**EP-A1- 2 413 340 EP-A2- 0 769 713**  
**CN-A- 102 436 956 CN-A- 105 336 520**  
**CN-U- 202 094 029 CN-U- 204 905 133**  
**CN-Y- 2 445 422**

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**EP 3 958 286 B1**

**Description**

[0001] This application claims priority to Chinese Patent Application No. 201910319575.2, titled "SMART DEVICE AND FLASH SWITCH APPARATUS THEREOF", filed on April 19, 2019 with the China National Intellectual Property Administration, and Chinese Patent Application No. 201920548882.3 titled "SMART DEVICE AND FLASH SWITCH APPARATUS THEREOF", filed on April 19, 2019 with the China National Intellectual Property Administration and Chinese Patent.

**FIELD**

[0002] The present disclosure relates to the technical field of mechanical switch, and in particular, to a flash switch apparatus, and further relates to a smart device including the flash switch apparatus.

**BACKGROUND**

[0003] With development of mechanical industry in China, more mechanical devices are widely used.

[0004] In the technical field of mechanical switch, various switch apparatuses having different functions are developed, such as a common push switch, knob switch and the like. A switch apparatus is usually used in combination with a circuit configuration. The circuit configuration generates different control signals according to two switching states (there may also be a third switching state) of the switch apparatus to control an on/off state of a circuit, an operating state of the circuit, and the like.

[0005] Taking the most widely used push switch as an example, a push switch apparatus is often provided on an electronic smart device, such as a smart lamp switch and smart home appliance, for a user to control an operating state of the electronic smart device. In a conventional technology, if the user wants to control an operating state, such as power-on or power-off state, of the electronic smart device, the user needs to contact the push switch to make a change in structure of the push switch. In order to make it convenient for the user to operate the electronic smart device at any time, a control signal may be transmitted to the smart device by using a remote control device. Therefore, the electronic smart device must be in a powered-on state for a long time to be able to receive a remote control signal at any time. In addition, due to structural defects of the push switch in the conventional technology, the user has to first contact the push switch in order to power on the electronic smart device, and after powering on the smart device, the user has to avoid contacting the push switch again so as to maintain the power-on state for a long-term. However, it is inevitable in a daily life that the user accidentally contacts or misoperates the push switch, which may easily lead to unexpected power failure of the electronic smart device. Besides, the smart device does not need to keep powered on for a long time in consideration of energy saving or situations where the smart device is not in use for a long time, and the like. Therefore, a flash switch apparatus is required for a smooth switching between the power-on state and the power-off state, and the flash switch apparatus can operate in a normal switching mode when a flash function is turned off.

[0006] Therefore, how to conveniently and stably maintain the electronic smart device in a power-on state for a long time, avoid accidental power failure caused by misoperation, and realize a switch between a flash mode of a switch apparatus and a normal mode of the switch apparatus is a technical problem faced by those skilled in the art.

[0007] EP2413340A1 discloses a highly reliable switch for maintaining a power supply ON state until data processing in a device is completed even if an operating element is manually ON operated to operate the device to be used and then the operating element is manually OFF operated with the stopping of the operation, and automatically turning OFF the power supply after the data processing is completed, and an electronic device.

**SUMMARY**

[0008] An objective of the present disclosure is to provide a flash switch apparatus which can conveniently and stably maintain an electronic smart device in a power-on state for a long time, avoid accidental power failure caused by misoperation, and realize a switch between a flash mode and a normal mode. Another objective of the present disclosure is to provide a smart device.

[0009] To solve the technical problems, a flash switch apparatus according to appended claim 1 is provided.

[0010] The flash switch apparatus includes: a mounting base case having a mounting cavity; a front panel buckled on a surface of the mounting base case and capable of reciprocating along a pre-configured direction to switch between a power-on state and a power-off state; an elastic reset mechanism provided in the mounting cavity and configured to allow the front panel to reset to a power-on state position during movement; and a state switching mechanism having multiple operating positions, where the elastic reset mechanism maintains elastic support to the front panel when the state switching mechanism is in a first operating position state, and the elastic reset mechanism disconnects the elastic support to the front panel when the state switching mechanism is in a second operating position state. The front panel reciprocates

to the power-on state position solely when the elastic reset mechanism is in the first operation position state. A lower end of the elastic reset mechanism is connected to a surface of the mounting base case. The state switching mechanism includes a first state mounting portion connected to the front panel and a second state mounting portion connected to the mounting base case. An upper end of the elastic reset mechanism is connected in the first state mounting portion when the state switching mechanism is in the first operating position state, and the upper end of the elastic reset mechanism is connected in the second state mounting portion when the state switching mechanism is in the second operating position state

**[0011]** In an example, a switch pressing plate is mounted in the mounting cavity, and a swing lever configured to be deflected reciprocally along both sides of the switch pressing plate is provided on the switch pressing plate. A lower surface of the front panel is connected to a surface of the swing lever.

**[0012]** In an example, the first state mounting portion is provided at an end of the swing lever, the second state mounting portion is provided on an end of the switch pressing plate, and the lower end of the elastic reset mechanism is connected to an inner wall of the mounting base case, where the elastic reset mechanism, the first state mounting portion and the second state mounting portion are arranged on a same side in the flash switch apparatus.

**[0013]** In an example, a slot is provided on an inner wall of each of the first state mounting portion and the second state mounting portion. The elastic reset mechanism includes a spring and a cap. A lower end of the spring is connected to a lower surface of the tube cavity. The cap is arranged on an upper end of the spring and selectively forms a snap fit with the slot.

**[0014]** In an example, the cap is connected to the upper end of the spring in a rotatable manner. The slot is a ring groove with a notch in a circumferential direction. A hanging ear is provided on the cap in the circumferential direction for rotating in cooperation with the ring groove to form a connection.

**[0015]** In an example, a tooling groove is opened on a surface of the cap to facilitate screwing by a tool.

**[0016]** In an example, a bottom of the cap is connected to a tubular column to be inserted to a center of the spring. A hoop is provided on an outer wall surface of the tubular column along the circumferential direction, and the upper end of the spring is sleeved on the hoop.

**[0017]** A smart device is further provided in the present disclosure. The smart device includes a body and a flash switch apparatus arranged on the body. The flash switch apparatus is the flash switch apparatus as described above.

**[0018]** The flash switch apparatus according to the present disclosure includes a mounting base case, a front panel, an elastic reset mechanism, and a state switching mechanism. The mounting base case is provided with a mounting cavity. The front panel is buckled on a surface of the mounting base case to be pressed by a user, and is capable of reciprocating along a pre-configured direction to switch the flash switch apparatus between a power-on state and a power-off state by moving to a pre-configured position. The elastic reset mechanism is provided in the mounting cavity, being capable of elastic stretching and retracting, and is configured to provide elastic support to the front panel by an elastic force, allowing the front panel to automatically reset to a power-on state position during movement. The state switching mechanism has multiple operating position states, and is configured to control an elastic connection state of the elastic reset mechanism to the front panel. When the state switching mechanism is in a first operating position state, the elastic reset mechanism maintains the elastic support to the front panel, enable the front panel, when being pressed to move along the pre-configured direction, to automatically reset to a power-on state position under the elastic force of the elastic reset mechanism. In this case, even if the user operates mistakenly, the switch reconnects immediately after flashing off, and the smart device quickly resumes the power-on state, that is, the flash switch apparatus is in a flash mode. When the state switching mechanism is in a second operating position state, the elastic reset mechanism disconnects the elastic support to the front panel, so that the front panel loses the elastic support from the elastic reset mechanism when being pressed to move along the pre-configured direction, and thus cannot automatically reset. In this case, the user may normally switch the on/off state of the flash switch apparatus, that is, the flash switch apparatus is in a normal mode. In summary, the flash switch apparatus in the present disclosure can be controlled in the "flash mode" state or the "normal mode" state by switching the state switching mechanism between the first operating position state and the second operating position state. In the flash mode state, the electronic smart device may be remained in a power-on state for a long term conveniently and stably, avoiding accidental power failure caused by misoperation.

## BRIEF DESCRIPTION OF THE DRAWINGS

**[0019]** In order for a clearer illustration of embodiments of the present disclosure or technical solutions in the conventional technology, hereinafter is a brief introduction of drawings to be used in description of the embodiments or the conventional technology. Apparently, the drawings described below are merely embodiments of the present disclosure, and those skilled in the art can obtain other drawings based on the provided drawings without any creative effort.

Figure 1 is an exploded view showing an overall structure according to an embodiment of the present disclosure.

Figure 2 is a schematic structural diagram showing that a switching state is in a flash mode according to an embodiment of the present disclosure.

Figure 3 is a schematic structural diagram showing that a switching state is in a normal mode according to an embodiment of the present disclosure.

Figure 4 is a schematic diagram showing a specific structure of an elastic reset mechanism shown in Figure 1.

Figure 5 is a schematic structural diagram of a surface of a cap shown in Figure 4.

Numeral signs in Figure 1 to Figure 5 are listed as follows:

|      |                              |      |                               |
|------|------------------------------|------|-------------------------------|
| 1-   | mounting base case           | 101- | tube cavity                   |
| 2-   | front panel                  | 3-   | elastic reset mechanism       |
| 301- | spring                       | 302- | cap                           |
| 303- | hanging ear                  | 304- | tooling groove                |
| 305- | tubular column               | 4-   | state switching mechanism     |
| 401- | first state mounting portion | 402- | second state mounting portion |
| 421- | positioning hole             | 5-   | switch pressing plate         |
| 6-   | swing lever                  |      |                               |

## DETAILED DESCRIPTION

**[0020]** The technical solutions in the embodiments of the present disclosure are clearly and completely described in the following with reference to the accompanying drawings in the embodiments of the present disclosure. Apparently, the embodiments described herein are merely a part rather than all of the embodiments of the present disclosure. Any other embodiments obtained by those skilled in the art based on the embodiments in the present disclosure without any creative effort shall fall within the protection scope of the present disclosure.

**[0021]** Reference is made to Figure 1, which is a schematic diagram showing an overall structure according to an embodiment of the present disclosure.

**[0022]** In an embodiment of the present disclosure, a flash switch apparatus mainly includes an installation base case 1, a front panel 2, an elastic reset mechanism 3, and a state switching mechanism 4.

**[0023]** The mounting base case 1 is provided with a mounting cavity. The front panel 2 is buckled on a surface of the mounting base case 1 to be pressed by a user. The front panel 2 may reciprocate along a pre-configured direction, to switch the flash switch apparatus between a power-on state and a power-off state by moving to a pre-configured position. The elastic reset mechanism 3 is arranged in the mounting cavity of the mounting base case 1 and may be elastically stretched and retracted to provide elastic support to the front panel 2 by an elastic force, so that the front panel 2 is able to automatically reset to a position of power-on state during movement.

**[0024]** The state switching mechanism 4 has multiple operating position states, and is configured to control an elastic connection state of the elastic reset mechanism 3 to the front panel 2. When the state switching mechanism 4 is in a first operating position state, the elastic reset mechanism 3 maintains the elastic support to the front panel 2, enable the front panel 2, when being pressed to move along the pre-configured direction, to automatically reset to the power-on state position under the elastic force of the elastic reset mechanism 3. In this case, even if the user operates mistakenly, the switch reconnects immediately after flashing off, and the smart device quickly resumes the power-on state, that is, the flash switch apparatus is in a flash mode. When the state switching mechanism 4 is in a second operating position state, the elastic reset mechanism 3 disconnects the elastic support to the front panel 2, so that the front panel 2 loses the elastic support from the elastic reset mechanism 3 when being pressed to move along the pre-configured direction, and thus cannot automatically reset. In this case, the user may normally switch the flash switch apparatus between the power-on state and the power-off state, that is, the flash switch apparatus is in a normal mode.

**[0025]** Reference is made to Figure 2 and Figure 3, where Figure 2 is a schematic structural diagram showing that a switching state is in a flash mode according to an embodiment of the present disclosure, and Figure 3 is a schematic structural diagram showing that a switching state is in a normal mode according to an embodiment of the present disclosure.

**[0026]** As mentioned above, the flash switch apparatus provided in the embodiment may be controlled in the "flash mode" state or the "normal mode" state by switching the state switching mechanism 4 between the first operating position state and the second operating position state. In the flash mode state, the electronic smart device may be remained in a

power-on state for a long term conveniently and stably, avoiding accidental power failure caused by misoperation.

**[0027]** In another embodiment, the state switching mechanism 4 mainly includes a first state mounting portion 401 and a second state mounting portion 402, which are arranged at different positions in the flash switch apparatus. The first state mounting portion 401 is connected to the front panel 2, and the second state mounting portion 402 is connected to the mounting base case 1. Correspondingly, a lower end of the elastic reset mechanism 3 may be connected to a lower surface on the mounting base case 1. It should be noted here that the lower end and an upper end of the elastic reset mechanism 3 are only relative concepts, indicating two ends of the elastic reset mechanism 3 along a length dimension. For example, the end that extends vertically towards the bottom in Figure 1 may be defined as the lower end, or otherwise, the end that extends vertically towards the top in Figure 1 may also be defined as the lower end. The upper end of the elastic reset mechanism 3 is connected in the first state mounting portion 401 when the state switching mechanism 4 is controlled and operated by the user to be in the first operating position state. The upper end of the elastic reset mechanism 3 is connected in the second state mounting portion 402 when the state switching mechanism 4 is controlled and operated by the user to be in the second operating position state. Under such arrangement, when the state switching mechanism 4 is in the first operating position state, the lower end of the elastic reset mechanism 3 is connected to the lower surface of the mounting base case 1, the upper end is connected to the front panel 2 via the first state mounting portion 401, and the front panel 2 performs reciprocating motion under a support by the elastic force from the elastic reset mechanism 3, and can reset to the power-on state position by itself. When the state switching mechanism 4 is in the second operating position state, the lower end of the elastic reset mechanism 3 is connected to the lower surface of the mounting base case 1, the upper end is connected to the rest area of the mounting base case 1 via the second state mounting portion 402, that is, the upper end is disconnected from the front panel 2. In this case, the front panel 2 loses the elastic support from the elastic reset mechanism 3 during the reciprocating motion, and cannot reset to the power-on state position by itself. Therefore, the user may normally turn on or turn off the switch.

**[0028]** In this embodiment, in order to facilitate the user to operate the front panel 2 and ensure a smooth reciprocating motion of the front panel 2, a switch pressing plate 5 is additionally provided in the mounting cavity of the mounting base housing 1, and the switch pressing plate 5 is provided with a swing lever 6 that is able to perform reciprocating deflection along both sides of the switch pressing plate 5. A lower surface of the front panel 2 is connected to a surface of the swing lever 6. Specifically, the switch pressing plate 5 may be mounted in the mounting cavity and closely adhere to the mounting cavity. The swing lever 6 may be connected to the switch pressing plate 5 via a revolute joint such as a shaft or a pin, and may perform a reciprocating deflection motion at a certain angle (for example, ranging in 0° to 30°) on the surface of the switch pressing plate 5 along the left side or right side as shown in Figure 2 or Figure 3. The front panel 2 may be connected to a surface of the swing lever 6 via several connecting feet or hooks provided on the lower surface of the front panel 2, so that the front panel 2 may be deflected synchronously following the deflection motion of the swing lever 6.

**[0029]** Apparently, the reciprocating movement of the front panel 2 is not limited to the above-mentioned form of deflection along the left side and right side of the swing lever 6, and other forms such as the front panel 2 being able to perform a vertical lifting and drop movement on the switch pressing plate 5 are also possible. For the convenience of discussion, the following description is made based on the movement form of the front panel 2 deflecting left and right following the swing lever 6.

**[0030]** Further, on the basis that the front panel 2 deflects following the swing lever 6, in the embodiment, in order to facilitate switching of a connection for the elastic reset mechanism 3 between a connection to the first state mounting portion 401 and a connection to the second state mounting portion 402, the first state mounting portion 401 may be arranged at an end of the swing lever 6, the second state mounting part 402 may be arranged at an end of the switch pressing plate 5, and the lower end of the elastic reset mechanism 3 may be connected to an inner wall of the mounting base case 1, where the first state mounting portion 401, the second state mounting portion 402, and the elastic reset mechanism 3 are all located on a same side in the flash switching device, for example, on the left side as illustrated in Figure 2 and Figure 3.

**[0031]** Furthermore, in the embodiment, considering that the elastic reset mechanism 3 needs to perform elastic stretching and retracting and deformation in an axial direction during the switching between the connection to the first state mounting portion 401 and the connection to the second state mounting portion 402, a tube cavity 101 dedicated for mounting the elastic reset mechanism 3 is opened on an inner wall of the mounting base case 1, in order to avoid occurrence of lateral vibrating or bending during the switching. A diameter of the tube cavity 101 is slightly greater than a diameter of the elastic reset mechanism 3. In this way, the elastic reset mechanism 3 may be stably accommodated in the tube cavity 101 and can stretch and retract freely.

**[0032]** Besides, in the embodiment, the first state mounting portion 401, the second state mounting portion 402, and the tube cavity 101 may be vertically aligned to each other. In this way, the switching of the elastic reset mechanism 3 between the connection to the first state mounting portion 401 and the connection to the second state mounting portion 402 may be realized conveniently by simply change a height position of axial deformation of the elastic reset mechanism 3, which eliminates need for movement or deformation in other directions (such as a lateral direction). Correspondingly, in order to prevent that the existence of the second state mounting portion 402 affects the normal stretching and retracting movement

of the elastic reset mechanism 3, a positioning hole 421 may be opened on the second state mounting portion 402, and a diameter of the positioning hole 421 may be the same as the diameter of the tube cavity 101, allowing the elastic reset mechanism 3 to pass smoothly.

[0033] Reference is made to Figure 4, which is a schematic diagram showing a specific structure of the elastic reset mechanism shown in Figure 1.

[0034] In another embodiment, the elastic reset mechanism 3 mainly includes a spring 301 and a cap 302. The spring 301, such as a helical spring, is a main structure that may produce elastic deformation along an axial direction. The cap 302 is arranged on the top of the spring 301 and is mainly used to form an assembly connection selectively with the first state mounting portion 401 or the second state mounting portion 402. In another embodiment, in order to facilitate forming the assembly connection between the cap 302 and the first state mounting portion 401 or the second state mounting portion 402, a slot is opened on an inner wall of each of the first state mounting portion 401 and the second state mounting portion 402, and the cap 302 may be configured to form a detachable snap fit with the slot.

[0035] Reference is made to Figure 5, which is a schematic structural diagram of a surface of the cap shown in Figure 4.

[0036] In the embodiment, in order to ensure the snap fit between the cap 302 and the slot to be stable, reliable and easy to detach and assemble, the cap 302 is connected to the upper end of the spring 301 in a rotatable manner, and the slot is specifically designed as a ring groove with a notch in the circumferential direction, and a hanging ear 303 is further provided on a circumferential outer wall of the cap 302. The snap fit between the cap 302 and the slot may be formed through a screwing of the hanging ear 303 in the ring groove. Because of the notch in the ring groove, the cap 302 may be separated from the slot only when the cap 302 is manually rotated until the hanging ear 303 thereon being exactly within the notch.

[0037] In the embodiment, a tooling groove 304 is further provided on the surface of the cap 302, in order to facilitate screwing the cap 302 by a user. The tooling groove 304 may be fit with commonly used tools in the art, such as a screwdriver, so as to facilitate the user to screw the surface of the cap 302 using the tool. In this way, the user may easily complete a switching of the cap 302 between the connection to the first state mounting part 401 and the connection to the second state mounting portion 402.

[0038] In addition, when the user operates the elastic reset mechanism 3 to move the cap 302 from the first state mounting portion 401 to the second state mounting portion 402 (or from the second state mounting portion 402 to the first state mounting portion 401), the spring 301 may vibrate, deviate, bend, etc. during the movement due to influence of an external force from the user (or a tool held by the user) and influence of the softness and easy deformation of the spring material. In view of this, in this embodiment, a tubular column 305 having a preset length is additionally provided to the bottom of the cap 302, and a hoop (not shown in the drawings) is provided on an outer wall surface of the tubular column 305 along a circumferential direction. Specifically, the upper end of the spring 301 may be sleeved over the hoop to maintain a stable connection with the hoop and ensure a rotation freedom of the cap 302 relative to the tubular column 305. A diameter of the tubular column 305 is slightly less than an inner diameter of the spring 301, so that the tubular column 305 may be inserted in a central through hole of the spring 301, that is, the tubular column 305 can provide a stable support for the spring 301 in the circumferential direction. In this way, when the cap 302 is switched from being connected to the first state mounting portion 401 to being connected to the second state mounting portion 402, the spring 301 performs elastic stretching and retracting movement in the positioning hole 421 of the second state mounting portion 402 under a circumferential support from the tubular column 305, so that the tubular column 305 inside the spring 301 and the positioning hole 421 outside the spring 301 together form a circumferential limitation to the spring 301, which is equivalent to providing an axial movement guide for the spring 301 to prevent the spring 301 from vibrating, deviating, bending, or the like during the elastic stretching and retracting movement.

[0039] A smart device is further provided in an embodiment. The smart device mainly includes a body and a flash switch apparatus arranged on the body. The flash switch apparatus is substantially the same as the related content described above, and is not repeated herein. In addition, the smart device in the embodiment mainly refers to an electronic smart device such as a smart switch or smart home appliance.

[0040] Those skilled in the art can implement or practice the present disclosure based on the above description of the disclosed embodiments. Various modifications to these embodiments are obvious to those skilled in the art. The general principles defined in the present disclosure may be implemented in other embodiments without departing from the scope of the present disclosure as defined by the appended claims. Therefore, the present disclosure should not be limited to the embodiments disclosed herein, but conforms to the widest scope consistent with the principle and novel features disclosed in the specification which fall within the scope of the appended claims.

## Claims

1. A flash switch apparatus, **characterized by**, comprising:

a mounting base case (1) having a mounting cavity;  
 a front panel (2) buckled on a surface of the mounting base case (1) and capable of reciprocating along a pre-configured direction to switch between a power-on state and a power-off state;  
 an elastic reset mechanism (3) provided in the mounting cavity and configured to allow the front panel (2) to reset to a power-on state position during movement; and  
 a state switching mechanism (4) having a plurality of operating positions;  
 wherein the elastic reset mechanism (3) maintains an elastic support to the front panel (2) when the state switching mechanism (4) is in a first operating position state, and the elastic reset mechanism (3) disconnects the elastic support to the front panel (2) when the state switching mechanism (4) is in a second operating position state;  
 wherein the front panel (2) reciprocates to the power-on state position solely when the elastic reset mechanism (3) is in the first operating position state;  
 wherein a lower end of the elastic reset mechanism (3) is connected to the surface of the mounting base case (1); and  
 wherein the state switching mechanism (4) comprises a first state mounting portion (401) connected to the front panel (2) and a second state mounting portion (402) connected to the mounting base case (1), wherein an upper end of the elastic reset mechanism (3) is connected in the first state mounting portion (401) when the state switching mechanism (4) is in the first operating position state, and the upper end of the elastic reset mechanism (3) is connected in the second state mounting portion (402) when the state switching mechanism (4) is in the second operating position state.

2. The flash switch apparatus according to claim 1, wherein a switch pressing plate (5) is mounted in the mounting cavity, and a swing lever (6) configured to be deflected reciprocally along both sides of the switch pressing plate (5) is provided on the switch pressing plate (5), wherein a lower surface of the front panel (2) is connected to a surface of the swing lever (6).

3. The flash switch apparatus according to claim 2, wherein the first state mounting portion (401) is provided at an end of the swing lever (6), the second state mounting portion (402) is provided on an end of the switch pressing plate (5), and the lower end of the elastic reset mechanism (3) is connected to an inner wall of the mounting base case (1), wherein the elastic reset mechanism (3), the first state mounting portion (401) and the second state mounting portion (402) are arranged on a same side in the flash switch apparatus.

4. The flash switch apparatus according to claim 3, wherein

a tube cavity (101) for mounting the elastic reset mechanism (3) is opened on an inner wall of the mounting base case (1),  
 the first state mounting portion (401), the second state mounting portion (402), and the tube cavity (101) are vertically aligned, and  
 a positioning hole (421) is opened on the second state mounting portion (402) to allow the elastic reset mechanism (3) to stretch and retract through the positioning hole (421).

5. The flash switch apparatus according to claim 4, wherein

a slot is provided on an inner wall of each of the first state mounting portion (401) and the second state mounting portion (402), and  
 the elastic reset mechanism (3) comprises a spring (301) and a cap (302), wherein  
 a lower end of the spring (301) is connected to a lower surface of the tube cavity (101), and  
 the cap (302) is arranged on an upper end of the spring (301) and forms a snap fit selectively with the slot on the inner wall of the first state mounting portion (401) or the slot on the inner wall of the second state mounting portion (402).

6. The flash switch apparatus according to claim 5, wherein

the cap (302) is connected to the upper end of the spring (301) in a rotatable manner,  
 the slot provided on an inner wall of each of the first state mounting portion (401) and the second state mounting portion (402) is a ring groove with a notch in a circumferential direction, and  
 a hanging ear (303) is provided on the cap (302) in the circumferential direction to be screwed in cooperation with the ring groove to form a connection.

7. The flash switch apparatus according to claim 6, wherein a tooling groove (304) is opened on a surface of the cap (302) to facilitate screwing by a tool.

8. The flash switch apparatus according to claim 7, wherein

a bottom of the cap (302) is connected to a tubular column (305) to be inserted to a center of the spring (301), a hoop is provided on an outer wall surface of the tubular column (305) along the circumferential direction, and the upper end of the spring (301) is sleeved over the hoop.

9. A smart device, **characterized by**, comprising a body and a flash switch apparatus arranged on the body, wherein the flash switch apparatus is the flash switch apparatus according to any one of claims 1 to 8.

## Patentansprüche

1. Blitzschaltereinrichtung, **dadurch gekennzeichnet, dass** sie Folgendes aufweist:

ein Montagebasisgehäuse (1) mit einem Montagehohlraum;  
eine Frontplatte (2), die auf eine Fläche des Montagebasisgehäuses (1) geschnallt und dazu funktionsfähig ist, sich entlang einer vorkonfigurierten Richtung hin- und herzubewegen, um zwischen einem Einschaltzustand und einem Ausschaltzustand umzuschalten;  
einen elastischen Rückstellmechanismus (3), der im Montagehohlraum angeordnet und dazu ausgebildet ist, zuzulassen, dass die Frontplatte (2) während einer Bewegung in eine Einschaltzustandsposition zurückgestellt wird; und  
einen Zustandsumschaltmechanismus (4) mit mehreren Betriebspositionen;  
wobei der elastische Rückstellmechanismus (3) eine elastische Stütze an der Frontplatte (2) hält, wenn sich der Zustandsumschaltmechanismus (4) in einem ersten Betriebspositionszustand befindet, und der elastische Rückstellmechanismus (3) die elastische Stütze an der Frontplatte (2) trennt, wenn sich der Zustandsumschaltmechanismus (4) in einem zweiten Betriebspositionszustand befindet;  
wobei sich die Frontplatte (2) nur dann in die Einschaltzustandsposition hin- und herbewegt, wenn sich der elastische Rückstellmechanismus (3) im ersten Betriebspositionszustand befindet;  
wobei ein unteres Ende des elastischen Rückstellmechanismus (3) mit der Fläche des Montagebasisgehäuses (1) verbunden ist; und  
wobei der Zustandsumschaltmechanismus (4) einen Montageabschnitt (401) des ersten Zustands, der mit der Frontplatte (2) verbunden ist, und einen Montageabschnitt (402) des zweiten Zustands, der mit dem Montagebasisgehäuse (1) verbunden ist, aufweist, wobei ein oberes Ende des elastischen Rückstellmechanismus (3) im Montageabschnitt (401) des ersten Zustands verbunden ist, wenn sich der Zustandsumschaltmechanismus (4) im ersten Betriebspositionszustand befindet, und das obere Ende des elastischen Rückstellmechanismus (3) im Montageabschnitt (402) des zweiten Zustands verbunden ist, wenn sich der Zustandsumschaltmechanismus (4) im zweiten Betriebspositionszustand befindet.

2. Blitzschaltereinrichtung nach Anspruch 1, wobei eine Schalterpressplatte (5) im Montagehohlraum montiert ist und ein Schwenkhebel (6), der dazu ausgelegt ist, entlang beider Seiten der Schalterpressplatte (5) hin und her ausgelenkt zu werden, an der Schalterpressplatte (5) vorgesehen ist, wobei eine untere Fläche der Frontplatte (2) mit einer Fläche des Schwenkhebels (6) verbunden ist.

3. Blitzschaltereinrichtung nach Anspruch 2, wobei der Montageabschnitt (401) des ersten Zustands an einem Ende des Schwenkhebels (6) angeordnet ist, der Montageabschnitt (402) des zweiten Zustands an einem Ende der Schalterpressplatte (5) angeordnet ist und das untere Ende des elastischen Rückstellmechanismus (3) mit einer Innenwand des Montagebasisgehäuses (1) verbunden ist, wobei der elastische Rückstellmechanismus (3), der Montageabschnitt (401) des ersten Zustands und der Montageabschnitt (402) des zweiten Zustands auf einer gleichen Seite in der Blitzschaltereinrichtung angeordnet sind.

4. Blitzschaltereinrichtung nach Anspruch 3, wobei

ein Rohrhohlraum (101) zum Montieren des elastischen Rückstellmechanismus (3) an einer Innenwand des Montagebasisgehäuses (1) geöffnet ist, der Montageabschnitt (401) des ersten Zustands, der Montageabschnitt (402) des zweiten Zustands und der

Rohrhohlraum (101) vertikal ausgerichtet sind und ein Positionierungsloch (421) auf dem Montageabschnitt (402) des zweiten Zustands geöffnet ist, um zuzulassen, dass sich der elastische Rückstellmechanismus (3) durch das Positionierungsloch (421) ausdehnt und zurückzieht.

5. Blitzschaltereinrichtung nach Anspruch 4, wobei

ein Schlitz an einer Innenwand sowohl des Montageabschnitts (401) des ersten Zustands als auch des Montageabschnitts (402) des zweiten Zustands angeordnet ist und der elastische Rückstellmechanismus (3) eine Feder (301) und eine Kappe (302) aufweist, wobei ein unteres Ende der Feder (301) mit einer unteren Fläche des Rohrhohlraums (101) verbunden ist und die Kappe (302) an einem oberen Ende der Feder (301) angeordnet ist und selektiv mit dem Schlitz an der Innenwand des Montageabschnitts (401) des ersten Zustands oder dem Schlitz an der Innenwand des Montageabschnitts (402) des zweiten Zustands eine Rastverbindung ausbildet.

6. Blitzschaltereinrichtung nach Anspruch 5, wobei

die Kappe (302) mit dem oberen Ende der Feder (301) drehbar verbunden ist, der Schlitz, der an einer Innenwand sowohl des Montageabschnitts (401) des ersten Zustands als auch des Montageabschnitts (402) des zweiten Zustands angeordnet ist, eine Ringnut mit einer Kerbe in Umfangsrichtung ist und an der Kappe (302) in Umfangsrichtung eine Hängelasche (303) vorgesehen ist, um mit der Ringnut zum Ausbilden einer Verbindung verschraubt zu werden.

7. Blitzschaltereinrichtung nach Anspruch 6, wobei eine Werkzeugnut (304) auf einer Fläche der Kappe (302) geöffnet ist, um ein Verschrauben durch ein Werkzeug zu ermöglichen.

8. Blitzschaltereinrichtung nach Anspruch 7, wobei

der Boden der Kappe (302) mit einer rohrförmigen Säule (305) verbunden ist, die in der Mitte der Feder (301) einzusetzen ist, an einer Aussenwandfläche der rohrförmigen Säule (305) entlang der Umfangsrichtung ein Reifen angeordnet ist und das obere Ende der Feder (301) auf den Reifen aufgesteckt ist.

9. Smart-Vorrichtung, **dadurch gekennzeichnet, dass** sie einen Körper und eine am Körper angeordnete Blitzschaltereinrichtung aufweist, wobei die Blitzschaltereinrichtung die Blitzschaltereinrichtung nach einem der Ansprüche 1 bis 8 ist.

## Revendications

1. Appareil à commutateur à clignotement, **caractérisé en ce qu'il comprend :**

un boîtier de base de montage (1) ayant une cavité de montage ;  
un panneau avant (2) attaché sur une surface du boîtier de base de montage (1) et capable de se déplacer en va-et-vient le long d'une direction préconfigurée pour commuter entre un état de mise sous tension et un état de mise hors tension ;  
un mécanisme de réenclenchement élastique (3) prévu dans la cavité de montage et configuré pour permettre au panneau avant (2) de se réenclencher à une position d'état de mise sous tension durant un mouvement; et  
un mécanisme de commutation d'état (4) ayant une pluralité de positions de fonctionnement ;  
dans lequel le mécanisme de réenclenchement élastique (3) maintient un support élastique pour le panneau avant (2) lorsque le mécanisme de commutation d'état (4) est dans un premier état de position de fonctionnement, et le mécanisme de réenclenchement élastique (3) disjoint le support élastique pour le panneau avant (2) lorsque le mécanisme de commutation d'état (4) est dans un second état de position de fonctionnement ;  
dans lequel le panneau avant (2) se déplace en va-et-vient jusqu'à la position d'état de mise sous tension seulement lorsque le mécanisme de réenclenchement élastique (3) est dans le premier état de position de fonctionnement ;

dans lequel une extrémité inférieure du mécanisme de réenclenchement élastique (3) est raccordée à la surface du boîtier de base de montage (1) ; et

dans lequel le mécanisme de commutation d'état (4) comprend une partie de montage de premier état (401) raccordée au panneau avant (2) et une partie de montage de second état (402) raccordée au boîtier de base de montage (1), dans lequel une extrémité supérieure du mécanisme de réenclenchement élastique (3) est raccordée dans la partie de montage de premier état (401) lorsque le mécanisme de commutation d'état (4) est dans le premier état de position de fonctionnement, et l'extrémité supérieure du mécanisme de réenclenchement élastique (3) est raccordée dans la partie de montage de second état (402) lorsque le mécanisme de commutation d'état (4) est dans le second état de position de fonctionnement.

2. Appareil à commutateur à clignotement selon la revendication 1, dans lequel une plaque de pression de commutateur (5) est montée dans la cavité de montage, et un levier de pivotement (6) configuré pour être fléchi en va-et-vient le long des deux côtés de la plaque de pression de commutateur (5) est prévu sur la plaque de pression de commutateur (5), dans lequel une surface inférieure du panneau avant (2) est raccordée à une surface du levier de pivotement (6).

3. Appareil à commutateur à clignotement selon la revendication 2, dans lequel la partie de montage de premier état (401) est prévue à une extrémité du levier de pivotement (6), la partie de montage de second état (402) est prévue sur une extrémité de la plaque de pression de commutateur (5), et l'extrémité inférieure du mécanisme de réenclenchement élastique (3) est raccordée à une paroi intérieure du boîtier de base de montage (1), dans lequel le mécanisme de réenclenchement élastique (3), la partie de montage de premier état (401), et la partie de montage de second état (402) sont agencés sur un même côté dans l'appareil à commutateur à clignotement.

4. Appareil à commutateur à clignotement selon la revendication 3, dans lequel

une cavité tubulaire (101) pour monter le mécanisme de réenclenchement élastique (3) est ouverte sur une paroi intérieure du boîtier de base de montage (1), la partie de montage de premier état (401), la partie de montage de second état (402), et la cavité tubulaire (101) sont alignés verticalement, et un trou de positionnement (421) est ouvert sur la partie de montage de second état (402) pour permettre au mécanisme de réenclenchement élastique (3) de s'étirer et de se rétracter à travers le trou de positionnement (421).

5. Appareil à commutateur à clignotement selon la revendication 4, dans lequel

une fente est prévue sur une paroi intérieure de chacune de la partie de montage de premier état (401) et de la partie de montage de second état (402), et le mécanisme de réenclenchement élastique (3) comprend un ressort (301) et une coiffe (302), dans lequel une extrémité inférieure du ressort (301) est raccordée à une surface inférieure de la cavité tubulaire (101), et la coiffe (302) est agencée sur une extrémité supérieure du ressort (301) et forme un ajustement à encliquetage sélectivement avec la fente sur la paroi intérieure de la partie de montage de premier état (401) ou la fente sur la paroi intérieure de la partie de montage de second état (402).

6. Appareil à commutateur à clignotement selon la revendication 5, dans lequel

la coiffe (302) est raccordée à l'extrémité supérieure du ressort (301) de manière rotative, la fente prévue sur une paroi intérieure de chacune de la partie de montage de premier état (401) et de la partie de montage de second état (402) est une rainure annulaire avec une encoche dans une direction circonférentielle, et une oreille de suspension (303) est prévue sur la coiffe (302) dans la direction circonférentielle pour être vissée en coopération avec la rainure annulaire pour former un raccordement.

7. Appareil à commutateur à clignotement selon la revendication 6, dans lequel une rainure d'outillage (304) est ouverte sur une surface de la coiffe (302) pour faciliter le vissage par un outil.

8. Appareil à commutateur à clignotement selon la revendication 7, dans lequel

un bas de la coiffe (302) est raccordé à une colonne tubulaire (305) destinée à être insérée sur un centre du ressort (301), une boucle est prévue sur une surface de paroi extérieure de la colonne tubulaire (305) le long de la direction

circonférentielle, et

l'extrémité supérieure du ressort (301) est emmanchée par-dessus la boucle.

- 5 9. Dispositif intelligent, **caractérisé en ce qu'il** comprend un corps et un appareil à commutateur à clignotement agencé sur le corps, dans lequel l'appareil à commutateur à clignotement est l'appareil à commutateur à clignotement selon l'une quelconque des revendications 1 à 8.

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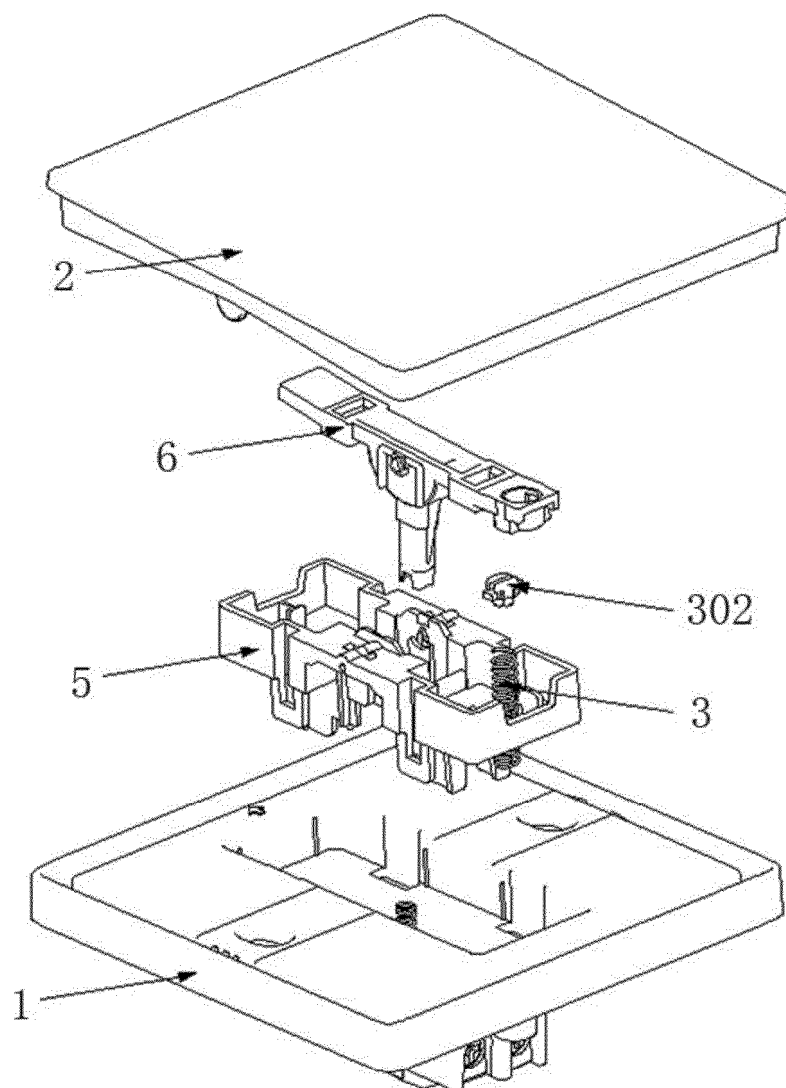


**Figure 1**

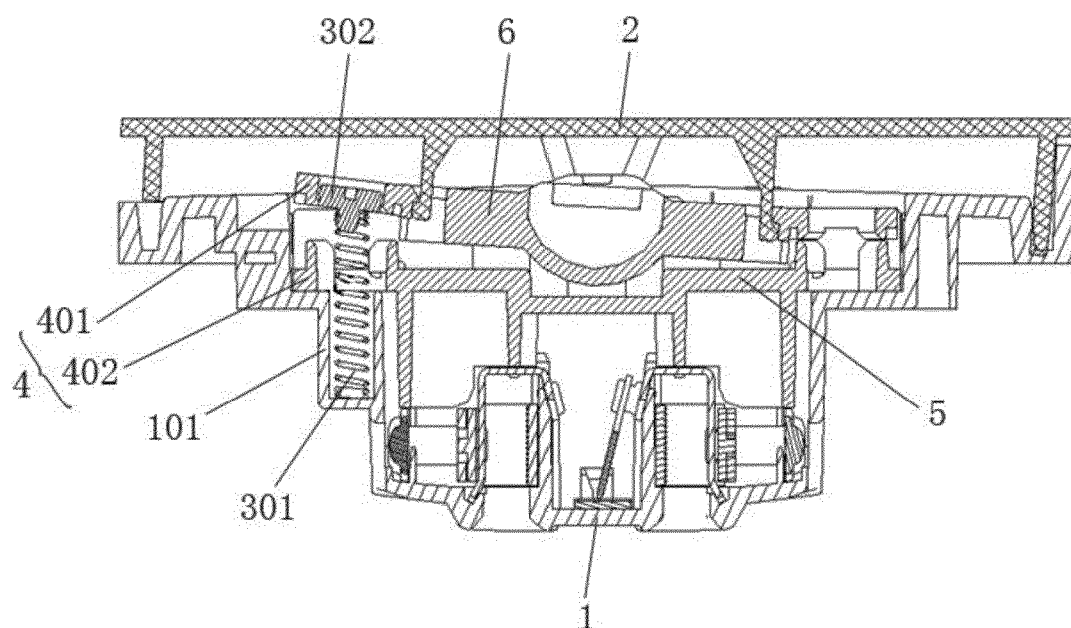


**Figure 2**

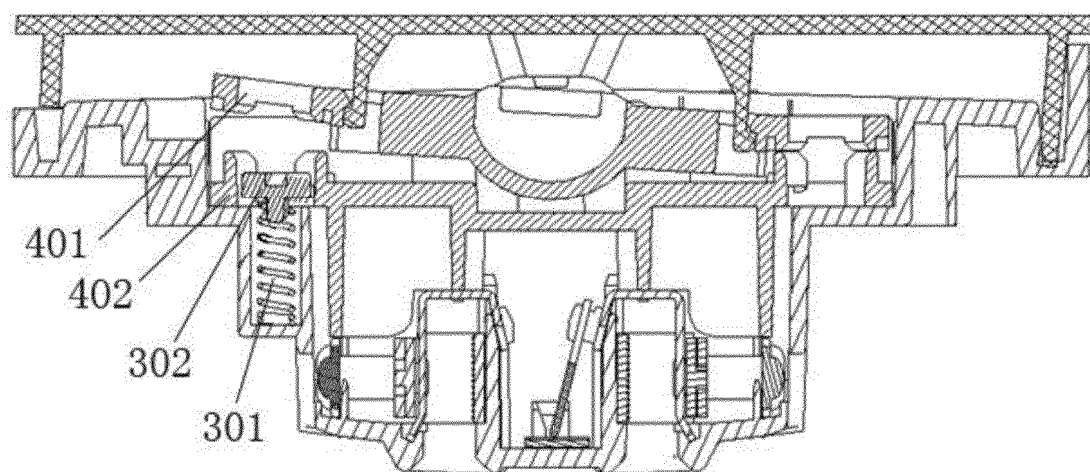


**Figure 3**

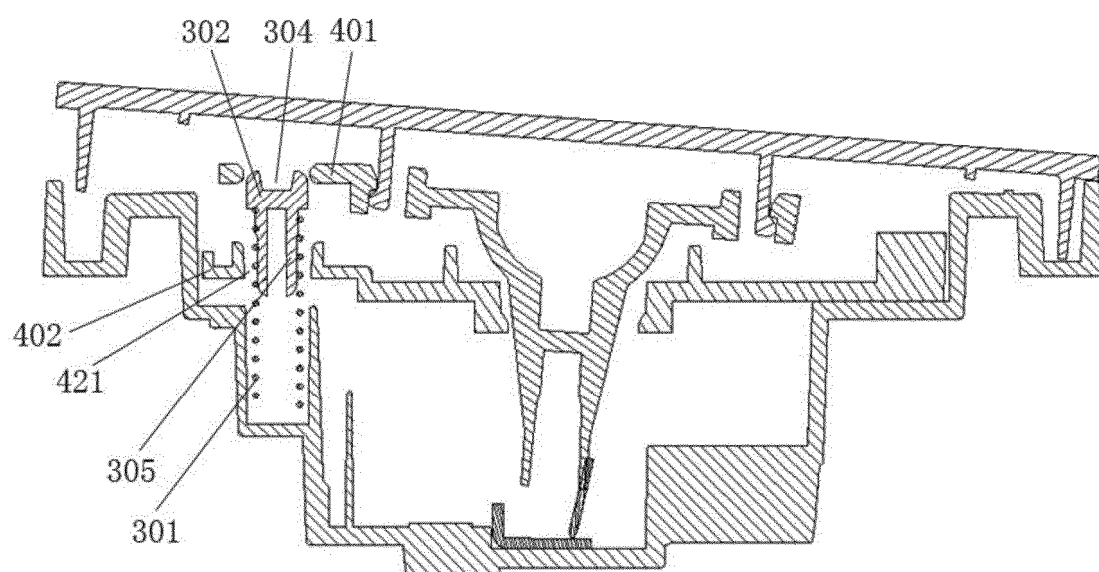


**Figure 4**

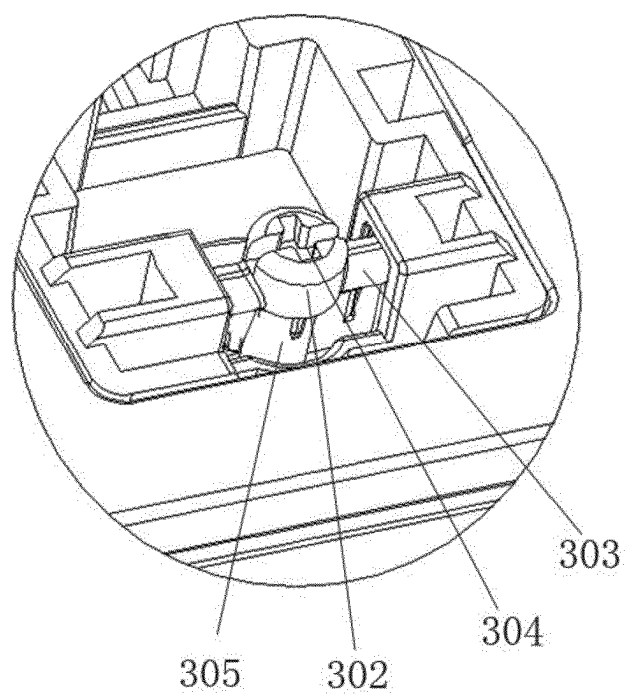


**Figure 5**

**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- CN 201910319575 [0001]
- CN 201920548882 [0001]
- EP 2413340 A1 [0007]