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(54) **COMPOSITE BUTTON FOR INTELLIGENT TOILET**

(57) The invention disclosed a composite button for intelligent toilet, wherein said composite button comprising a fixing block 6, at least one contact switches 5 are disposed on the upper surface of the fixing block, a minor button 3 which can move up and down to trigger contact switch 5 is positioned on the top of each said contact switch; there are at least two contact switches 8 disposed below the fixing block 6; a multi-directional pushing rod 65 is disposed on the bottom of said fixing block 6, said multi-directional pushing rod 65 is disposed between said at least two contact switches 8 below the fixing block 6. Said composite button 1 can be moved up/down/left/right, and trigger contact switches in four directions respectively, thus realize four operation functions, and can realize the other function by the minor buttons 3.

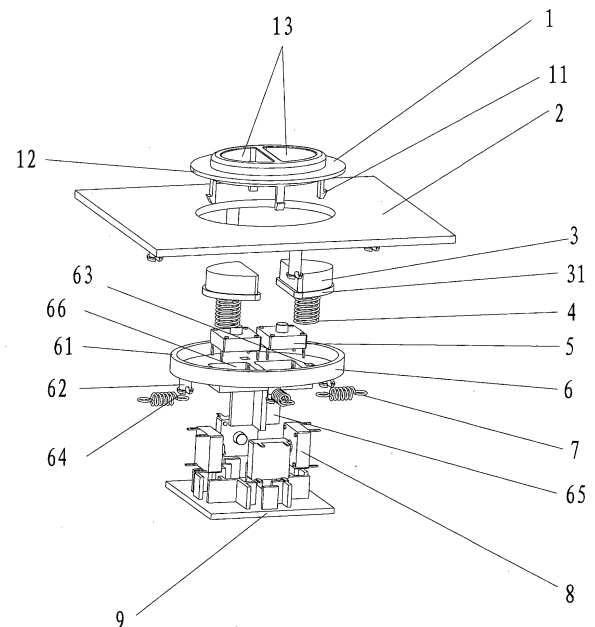


FIG. 1

Description

Field of the invention

[0001] The invention relates to the intelligent toilet, in particular to a composite button for the intelligent toilet.

Background of the invention

[0002] With the development of science and technology, a variety of intelligent appliances had been appeared in the market, such as intelligent toilet. At present, the functions of the intelligent toilet on the market such as seat temperature, spray water volume, water temperature, position of the spray pole, air temperature, washing, hip washing and etc. are controlled through buttons or knobs, the users need to identify the specific position of the function button for the operations. And each function corresponds to each button, the number of buttons is too much to be conveniently choosed. The knob can achieve more than one function by one knob, but it lacks a clear sense of levels in using the process, it is difficult to judge the function phase of the knob.

Summary of the invention

[0003] The primary object of the invention is to provide a composite button for the intelligent toilet.

[0004] The object of the invention is achieved by:

A composite button for intelligent toilet, said composite button disposed on the toilet, wherein said composite button is cooperated to functional buttons of the toilet by sliding along the surface where the composite button disposed on.

[0005] A composite button for intelligent toilet, wherein comprising a fixing block, at least two contact switches with different directions are disposed below the fixing block, the surfaces of said at least two contact switches are vertical; a multi-directional pushing rod is disposed on the bottom of said fixing block, said multi-directional pushing rod is disposed between said at least two contact switches below the fixing block, and said multi-directional pushing rod can be moved between said at least two contact switches and the trigger the contact switch.

A composite button for intelligent toilet, wherein comprising a fixing block, at least one contact switch is fixed on the surface of the fixing block, a minor button which can move up and down to trigger contact switch is positioned on the top of each contact switch;

In a preferred embodiment of the invention, said minor button is arranged on a master button, and the master button is fixed on the fixing block through snap joint.

In a preferred embodiment of the invention, a reset spring is arranged between the minor button and the contact switch on the upper surface of the fixing block. In a preferred embodiment of the invention, the invention also

comprises a plate, wherein the central part of the plate is provided with a central hole, and a fixing block reset mechanism or a master button reset switch is arranged between the plate and the fixing block.

[0006] In a preferred embodiment of the invention, said fixing block reset mechanism comprises: spring fixed columns symmetric distribution in different directions around the central hole in the bottom of plate, and corresponding spring fixed columns arranged on different direction on the edge or bottom of the fixing block, restoring springs are arranged between the spring fixed columns on the plate and the spring fixed columns on the fixing block.

[0006] The invention provides a composite button for intelligent toilet, which can be moved up/down/left/right, and trigger contact switches in four directions respectively, thus realize four operation functions; in addition the composite button can also be arranged on one or more buttons, which enrich the multifunctional composite button control. For example, it can be set that: push the button each time, the spray rod will be forward a level, this make the using more vivid, more three-dimensional, and can give users a better experience.

[0007] A master button is limited and can only move in a horizontal direction. The movement of the master button can drive the push rod on the fixing block connected with the master button to move in four directions, up/down/left/right, thus trigger the contact switches in four directions respectively, and the contact switches realize four different functions through the control circuit board. The fixing block connected with the master button is connected with the plate through four springs to realize the automatic reset of the master button. In addition, the master button can also be provided with one or more minor buttons, to increase control function of the composite button.

Brief description of the drawings

[0008]

Figure 1 is the exploded view of the embodiment; Figure 2 is the sectional view of the embodiment; Figure 3. is the exploded view of the embodiment in another aspect;

1 master button 11 hook 12 edge 13 minor button installation hole
2 plate 21 spring fixed column
3 minor button
4 compression spring
5 minor button contact switch
6 fixing block 61 edge, 62 spring fixed column, 63 hook fixing hole, 64 head of column, 65 cross pushing rod
7 tension spring
8 four-direction contact switch
9 switch fixing plate

Detailed description of the preferred embodiments

[0009] Preferred embodiment of the present invention will be described in detail with reference to the drawings and examples

As shown in Figure 1 to figure 3, the composite button of the present invention comprises a master button 1, two minor buttons 3, a fixing block 6, four-direction contact switch 8, etc.

Wherein, the master button 1 is circular ring shape, and four hooks 11 are disposed in the bottom, which are separated from each other by a distance of 90 degrees. In the middle of the master button 1, there are two minor button mounting holes 13,

The fixing block 6 is in the shape of a circular disc, and the center of the bottom is extended with a cross pushing rod 65. Said cross pushing rod 65 has a cross section. Around the fixing block 6 is edge 61 with a circular ring shape. The central part of the fixing block 6 is provided with two fixing holes 66 for contact switches, and hook fixing holes 63 are disposed at the side of the fixing hole 66 of the contact switches, The hooks 11 of the master button 1 are clamped in the fixing holes 63.

Each contact switch fixing hole 66 is provided with a minor button contact switch 5 (said contact switch is also called touch switch, which comprises Resistive touch switch and capacitive touch switch). The two minor button mounting holes 13 of the master button 1 are respectively provided with a minor button 3, each minor button 3 is respectively connected with a pressing rod 32, and the pressing rod 32 is located above the minor button contact switch 5, and when the minor button

3 is pressed, the pressing rod 32 can touch and trigger the button contact switch 5. A minor button reset spring 5 is arranged between the minor button 3 and the minor button point contact switch 4. In the embodiment of the invention, the edge 31 of the minor button 3 has a bigger size than the minor button mounting hole 13 of the master button 1, thus the which minor button 3 is pressed against on the master button 1 through a compression spring 4 in compression state.

[0010] A switch fixing plate 9 is disposed under fixing block 6, a four-direction contacting switch 8 is disposed on the upper surface of the switch fixing plate 9, said four-direction contacting switch 8 is consisted by four contact switches arranged as a square, and the touch faces are vertical respectively, toward the middle of the square. The cross rod 65 of the fixing block 6 is inserted into the center of the four contact switches.

[0011] Four spring fixing columns 62 are disposed on the bottom of the edge of the fixing block 6 and close to the edge 61. The master button 1 is sleeved inside a plate 2, the central of the plate 2 is provided with a central hole 22, the diameter of central hole 22 is less than the diameter of the edge 12 of the master button 1, so that the edge 12 can be slide along the edge of central sliding hole 22, and then the master button 1 can move around and keep stable in the central hole 22. The bottom of the

plate 2 is provided with four spring fixing columns 21, and a spring 7 is connected between each fixed column 21 of the plate and the spring fixing column 62, the two ends of the spring 7 are respectively fixed on the plate fixing column 21 and the spring fixing column 62.

[0012] The use of the invention is as follows:

1) press the button 3, the pressuring rod 32 of the minor button 3 trigger the minor button contact switch 5, to achieve the function of the circuit connected to the minor button contact switch 5. At the time the compression spring 4 is further compressed, when the minor button 3 is release, by the action of the compression spring 4, the minor buttons automatically be returned. Because there are two minor buttons, it can achieve two functions, such as water, water temperature regulation.

2) push the master button 1 forward, backward, left and right direction respectively, because the master button 1 and fixing block 6 are fixed by hook 11, thus the fixing block 6 are respectively driven forward, backward, left and right direction respectively, then the cross rod 65 will trigger one contact switch of the four direction contact switch 8, accordingly, realize the function of triggered circuit connected with the corresponding contact switch. With four contact switches, it can realize four functions, such as the seat temperature, the position of the spray rod, the air temperature and the buttock washing regulation. These functions can be written in the corresponding direction respectively on the 2 plate.

when the master button 1 move around in anyone direction, the two spring 7 in moving direction will be one in stretched state, another in a compressed state, and the other two springs 7 not in moving direction are in stretched state. When be released, the master button 1 is automatically reset by the elastic force of the springs.

[0013] In other embodiments, the minor button 3 can be three or four or any other number, and the number of four direction contact switch can also be designed for other numbers, such as three or five, and the cross pushing rod can be altered by triangles or be pentagonal.

In another embodiment, the spring 7 can also be arranged between the plate 2 and the master button 1, because the master button 1 and the fixing block 6 are snapped together.

The invention may be summarized as follows: The invention disclosed a composite button for intelligent toilet, wherein said composite button comprising a fixing block, at least one contact switches are disposed on the upper surface of the fixing block, a minor button which can move up and down to trigger contact switch is positioned on the top of each said contact switch; there are at least two contact switches disposed below the fixing block; a multi-directional pushing rod is disposed on the bottom of said fixing block, said multi-directional pushing rod is disposed between said at least two contact switches below the

fixing block. Said composite button can be moved up/down/left/right, and trigger contact switches in four directions respectively, thus realize four operation functions, and can realize the other function by the minor buttons.

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plate and the spring fixing blocks on the fixing block.

Claims

1. A composite button for intelligent toilet, said composite button disposed on the toilet, wherein said composite button is cooperated to functional buttons of the toilet by sliding along the surface where the composite button disposed on. 10
2. The composite button for intelligent toilet according to claim 1, wherein comprising a fixing block, at least two contact switches with different directions are disposed below the fixing block; a multi-directional pushing rod is disposed on the bottom of said fixing block, said multi-directional pushing rod is disposed between said at least two contact switches below the fixing block, and said multi-directional pushing rod can move between said at least two contact switches and the trigger the contact switch. 15 20 25
3. The composite button for intelligent toilet according to claim 2, wherein at least one contact switches are fixed on the surface of the fixing block, a minor button which can move up and down to trigger contact switch is positioned on the top of each contact switch; 30
4. The composite button for intelligent toilet according to claim 3, wherein said minor button is arranged on a master button, and the master button is fixed on the fixing block through snap joint. 35
5. The composite button for intelligent toilet according to claim 3 and/or 4, wherein a reset spring is arranged between the minor button and the contact switch on the upper surface of the fixing block. 40
6. The composite button for intelligent toilet according to any one or more of claims 2 to 5, in particular according to claim 4 and/or 5, wherein the central part of the plate is provided with a central hole, and a fixing block reset mechanism or a master button reset switch is arranged between the plate and the fixing block. 45 50
7. The composite button for intelligent toilet according to claim 6, wherein said fixing block reset mechanism comprising: spring fixed columns symmetric distributed in different directions around the central hole in the bottom of plate, and corresponding spring fixed columns arranged different direction on the edge or bottom of the fixing block, restoring springs are arranged between the spring fixed columns on the 55

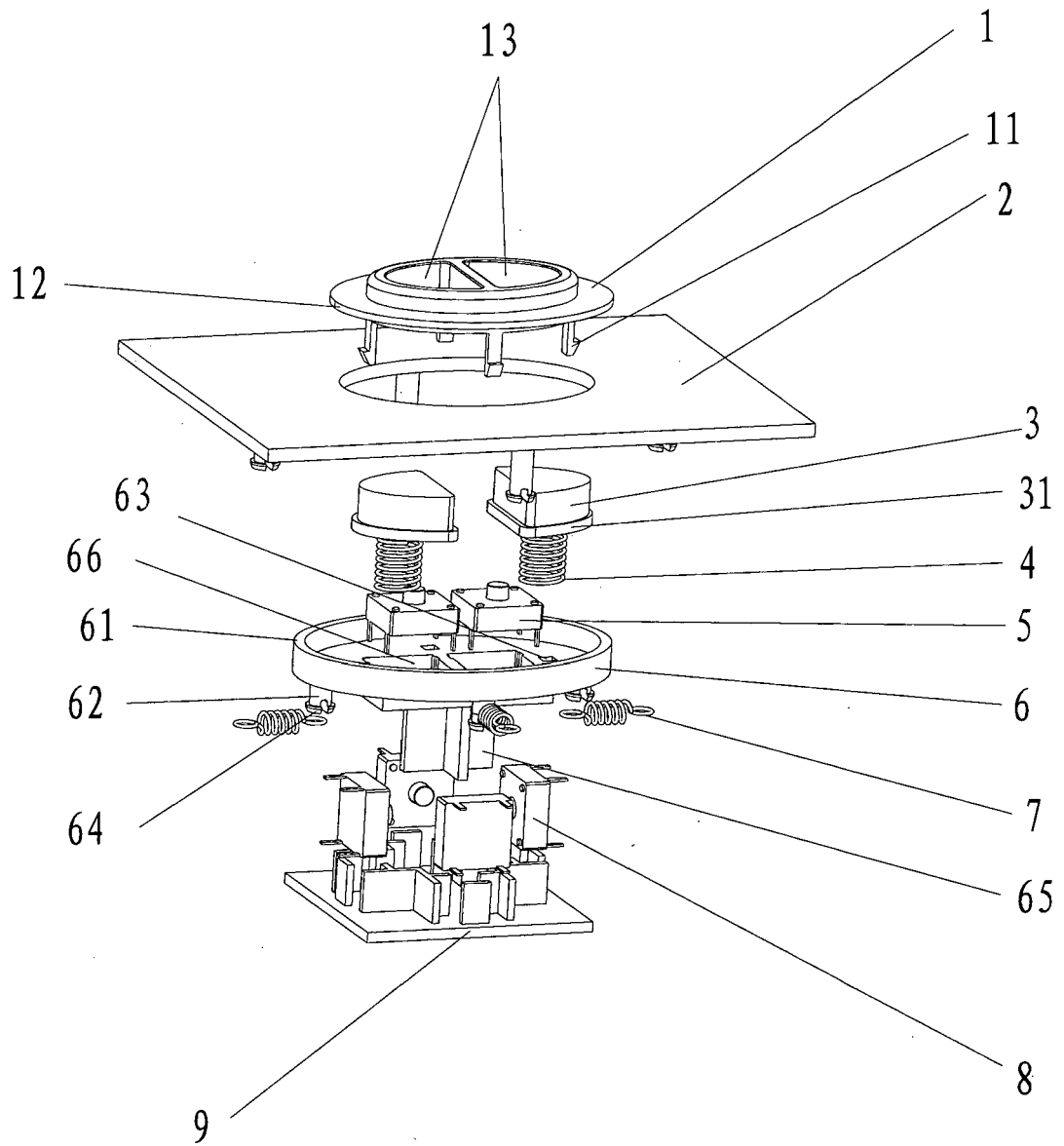


FIG. 1

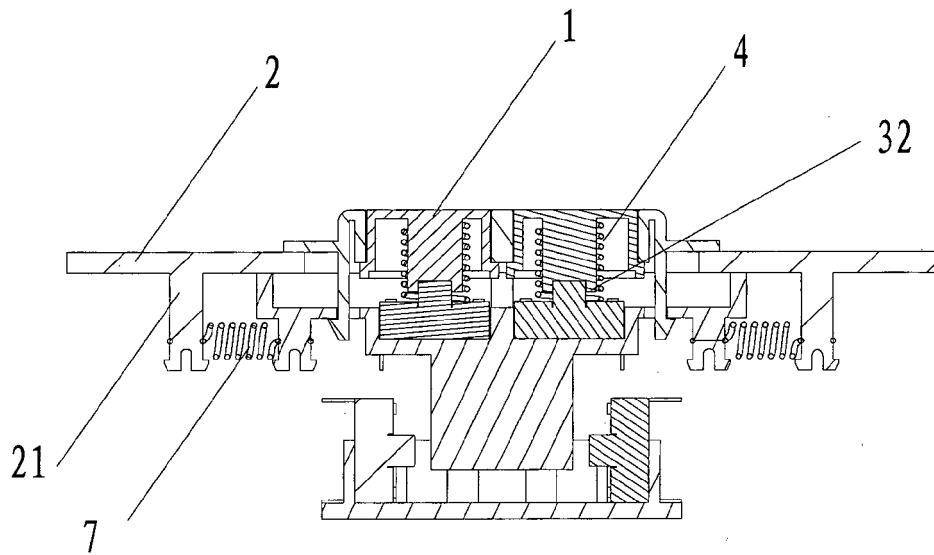


FIG. 2

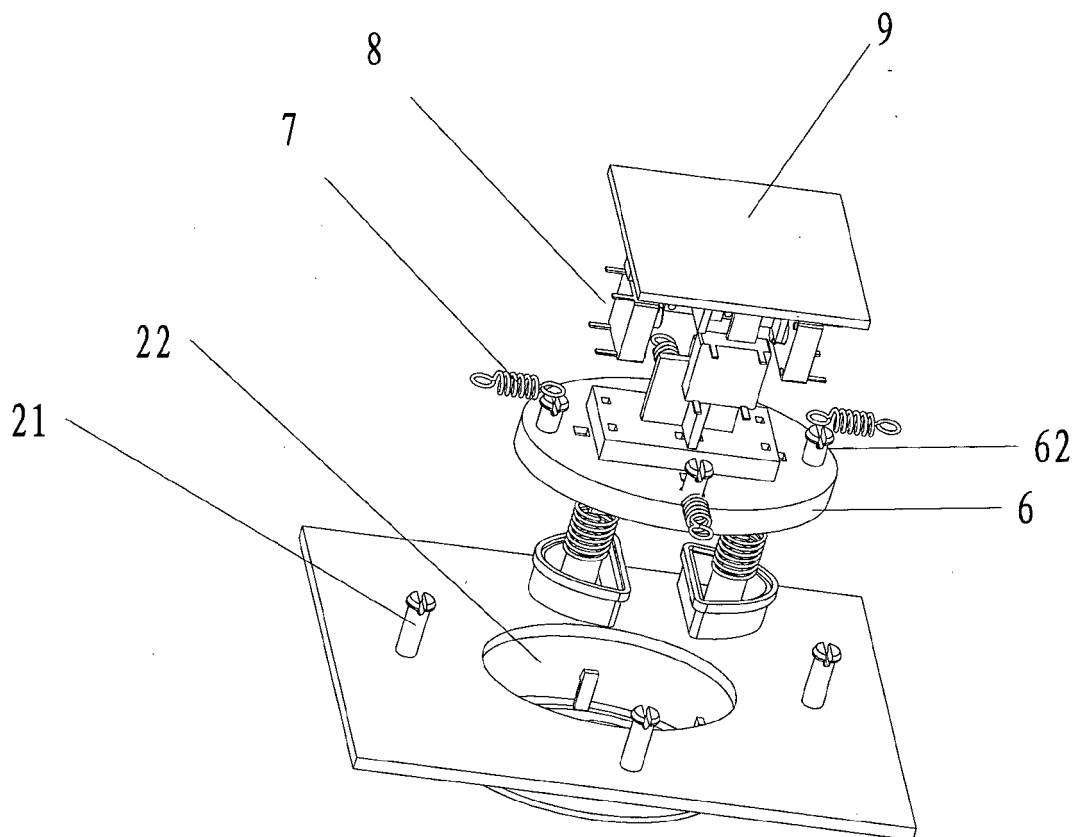


FIG. 3



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Application Number
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Place of search Munich		Date of completion of the search 25 September 2017	Examiner Arenz, Rainer
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