

OPERATION BUTTON DEVICE

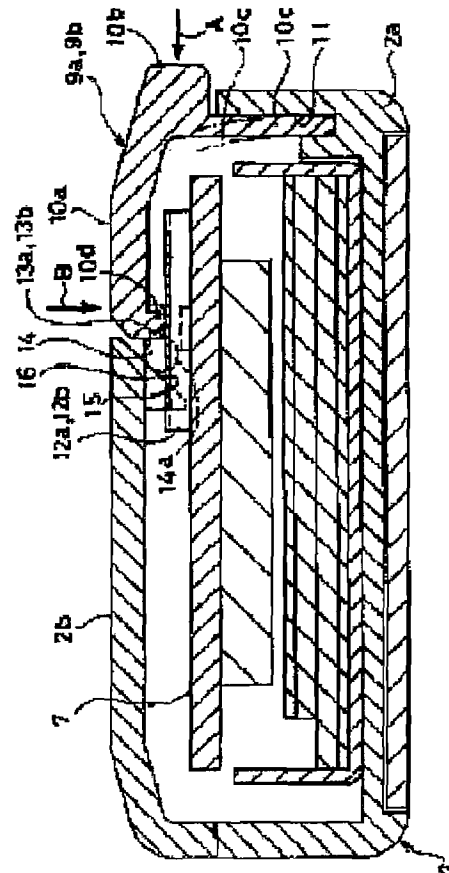
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Abstract of JP2000011812

PROBLEM TO BE SOLVED: To provide an operation button device operable from both directions of the side and front directions of a facing case. **SOLUTION:** This operation button device constituted in such a manner an L-shaped sectional operation button 9a consisting of a flat operation part 10a, a side operation part 10b, and a hinge part 10c is supported by fitting the tip of the hinge part 10c to an upper case 2a as a body, and a momentary switch 12a is pressed by a switch pressing part 10d on the tip of the flat operation part 10a. This device is provided with a guide part 16 having an inclined surface 15, which makes contact with the operation button 9b in the side operating state to press the flat operation part of the operation button 9b toward the tact switch 12a.



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CLAIMS

[Claim(s)]

[Claim 1] The operating button which consists of the switch press section prepared near the tip of the hinge region installed caudad and a flat-surface control unit, [control unit / which were prepared succeeding a flat-surface control unit and this flat-surface control unit / the side-face control unit and side-face control unit] The baton switch by which receipt arrangement was carried out is formed in said body so that it may counter at the tip of the flat-surface control unit of the body which the tip of the hinge region of an operating button fits in, and supports an operating button, and the operating button attached in said body. While constituting so that said hinge region may carry out elastic deformation in the state of the side-face actuation which pressed the flat-surface actuation condition which pressed the flat-surface control unit of an operating button, or the side-face control unit of an operating button Operating button equipment which prepared the guide section in which the inclined plane which is approached and established in the tip side of the flat-surface control unit of an operating button, and depresses the flat-surface control unit of an operating button towards said baton switch in contact with an operating button in the state of side-face actuation was formed.

[Claim 2] Operating button equipment according to claim 1 which prepared the contact section contacted by this guide section at the tip of an operating button while preparing the guide section in the body.

[Claim 3] The contact section is operating button equipment according to claim 2 constituted so that the press beyond the need for an operating button might be restricted by contacting on the substrate with which it has the lobe which projects in the inner direction, and this lobe equips with a baton switch rather than the switch press section.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the operating button equipment used for the remote control for operating electronic equipment, such as a cassette tape player, and electronic equipment, such as a cassette tape player, by remote control.

[0002]

[Description of the Prior Art] The remote control attached to a cassette tape player or a cassette tape player is constituted as shown in drawing 6 - drawing 9 .

[0003] As shown in drawing 6 and drawing 7 , as for the remote control connected to the cassette tape player or the cassette tape player by the cable 1, operating button 3b to which the sheathing case 2 instructs it to be operating button 3a which consists of upper case 2a and bottom case 2b, and directs a rapid traverse to rewind, the volume tongue 4, the display panel 5, the head telephone jack 6, etc. are formed in this sheathing case 2.

[0004] The conventional operating button equipment which changes actuation of operating buttons 3a and 3b into an

electrical signal is constituted as shown in drawing 8 and drawing 9 . The wiring substrate 7 attached in the interior of the sheathing case 2 is equipped with Switches 8a and 8b. If operating button 3a is operated in the direction of arrow-head A from the side face of the sheathing case 2, switch 8a will operate. The same is said of the case of operating button 3b and switch 8b.

[0005]

[Problem(s) to be Solved by the Invention] However, since actuation of operating buttons 3a and 3b is only from [of the sheathing case 2] a side face, operability of the present condition is bad.

[0006] In view of the above-mentioned conventional trouble, this invention can be operated from the direction of a side face of the sheathing case 2, and any direction of two directions of the direction of a transverse plane (the direction of arrow-head B of drawing 8), and can carry out [thin shape]-izing, and aims at offering the operating button equipment which can improve the carrying nature of portable goods.

[0007]

[Means for Solving the Problem] The cross-section configuration which consists of a flat-surface control unit, a side-face control unit, and a hinge region the operating button equipment of this invention the operating button of a L character mold While constituting so that fitting of the tip of a hinge region may be carried out to a body, it may support and the baton switch by which receipt arrangement was carried out may be pressed at the tip of a flat-surface control unit on a body It is characterized by preparing the guide section in which the inclined plane which depresses the flat-surface control unit of an operating button towards said baton switch in contact with an operating button in the state of side-face actuation was formed.

[0008] According to this configuration, a baton switch can be operated from the two directions of a flat-surface actuation

condition and a side-face actuation condition.

[0009]

[Embodiment of the Invention] Operating button equipment according to claim 1 The body which the tip of the hinge region of the operating button which consists of the switch press section prepared near the tip of the hinge region installed caudad and a flat-surface control unit, and an operating button fits in, and supports an operating button, [control unit / which were prepared succeeding a flat-surface control unit and this flat-surface control unit / the side-face control unit and side-face control unit] The baton switch by which receipt arrangement was carried out is formed in said body so that it may counter at the tip of the flat-surface control unit of the operating button attached in said body. While constituting so that said hinge region may carry out elastic deformation in the state of the side-face actuation which pressed the flat-surface actuation condition which pressed the flat-surface control unit of an operating button, or the side-face control unit of an operating button It is characterized by preparing the guide section in which the inclined plane which is approached and established in the tip side of the flat-surface control unit of an operating button, and depresses the flat-surface control unit of an operating button towards said baton switch in contact with an operating button in the state of side-face actuation was formed.

[0010] According to this configuration, while a hinge region carries out elastic deformation in the state of flat-surface actuation, the switch press section of an operating button presses a baton switch and a hinge region carries out elastic deformation in the state of side-face actuation, in contact with the inclined plane of the guide section, a flat-surface control unit is depressed for an operating button towards said baton switch, and the switch press section presses a baton switch.

[0011] In claim 1, operating button equipment according to claim 2 is characterized by preparing the contact section contacted by this guide section at the tip of an operating button while

it prepares the guide section in a body.

[0012] According to this configuration, an operating button contacts only in the guide section and the contact section, and contact resistance becomes small. Operating button equipment according to claim 3 is characterized by for the contact section having the lobe which projects in the inner direction rather than the switch press section in claim 2, and this lobe constituting so that the press beyond the need for an operating button may be restricted by contacting on the substrate equipped with a baton switch.

[0013] Hereafter, it explains based on drawing 1 which shows the gestalt of operation of this invention - drawing 5 . In addition, the same sign is attached and explained to what makes the same operation as drawing 6 which shows the conventional example - drawing 9 .

[0014] Drawing 3 and drawing 4 show the appearance of the operating button equipment of this invention, and operating buttons 9a and 9b are formed in the corner C of the sheathing case 2. As shown in drawing 1 and drawing 5 , both the operating buttons 9a and 9b have hinge region 10c caudad installed from side-face control unit 10b and side-face control unit 10b in which a cross-section configuration is L character-like, and was prepared succeeding flat-surface control unit 10a and this flat-surface control unit 10a. 10d of switch press sections is formed near the tip of flat-surface control unit 10a.

[0015] As shown in drawing 1 , the crevice 11 into which the tip of hinge region 10c of operating buttons 9a and 9b fits is formed in upper case 2a which forms some sheathing cases 2 as a body, hinge region 10c is inserted in this crevice 11, and operating buttons 9a and 9b are supported.

[0016] The baton switches 12a and 12b are mounted in the wiring substrate 7 by which receipt arrangement was carried out inside the sheathing case 2 so that it may counter at 10d of switch press sections at the tip of flat-surface control unit 10a of operating buttons 9a and 9b.

[0017] As shown in drawing 1 and drawing 5 , baton switch 12a

is made in the center the both sides at the tip of flat-surface control unit 10a of operating button 9a, and Projections 13a and 13b are formed in both sides. Furthermore, the contact section 14 projected inside the sheathing case 2, respectively is formed in these projections 13a and 13b at the tip of flat-surface control unit 10a of operating button 9a. The contact section 14 is formed in Projections 13a and 13b and each also like operating button 9b.

[0018] The guide section 16 which has an inclined plane 15 as shown in drawing 1 corresponding to the contact section 14 of operating buttons 9a and 9b is formed in bottom case 2b which forms some sheathing cases 2.

[0019] Thus, since it constituted, in the state of the flat-surface actuation which pressed flat-surface control unit 10a of operating buttons 9a and 9b in the direction of arrow-head B to the baton switch 12a and 12b side, it is detected that carried out elastic deformation as hinge region 10c of operating buttons 9a and 9b showed drawing 1 by the imaginary line, and 10d of switch press sections pressed the baton switches 12a and 12b, and they were operated.

[0020] In addition, the width of face W1 inside Projections 13a and 13b is slightly set up greatly rather than the width of face W2 of the baton switches 12a and 12b. 10d of switch press sections presses the baton switches 12a and 12b, without carrying out the horizontal deflection of the flat-surface control unit 10a which moves by the elastic deformation of hinge region 10c, while the inside of Projections 13a and 13b is guided in contact with the side face of each baton switch 12a and 12b.

[0021] In the state of the side-face actuation which turned side-face control unit 10b of operating buttons 9a and 9b to the flat-surface control unit 10a side, and was operated in the direction of arrow-head A While the operating buttons 9a and 9b by which said hinge region 10c carried out elastic deformation, and was operated like the case of a flat-surface actuation condition from the condition shown in drawing 1 tilt Since the contact section 14 of operating buttons 9a and 9b is

in contact with the inclined plane 15 of the guide section 16 of bottom case 2b at this time, As shown in drawing 2 in contact with an inclined plane 15, it is pushed downward and moves in the tip of flat-surface control unit 10a of operating buttons 9a and 9b, and also in a side-face actuation condition, 10d of switch press sections presses the baton switches 12a and 12b certainly.

[0022] Furthermore, since the part of operating buttons 9a and 9b and the inclined plane 15 of the guide section 16 of bottom case 2b which has contacted touches only in the contact section 14 formed in Projections 13a and 13b instead of full [of operating buttons 9a and 9b], frictional resistance is also reduced and the baton switches 12a and 12b operate certainly only by few operating physical forces.

[0023] Thus, operating buttons 9a and 9b can press the baton switches 12a and 12b certainly also in any of a flat-surface actuation condition and a side-face actuation condition, and operability can realize good small remote control.

[0024] Furthermore, since lobe 14a is formed so that the wiring substrate 7 may be contacted, where the baton switches 12a and 12b are operated, the contact section 14 of the gestalt of this operation can restrict the press beyond the need for operating buttons 9a and 9b, and is considered as the operating physical force beyond the need not acting on the baton switches 12a and 12b.

[0025]

[Effect of the Invention] According to this invention, as mentioned above The body which the tip of the hinge region of the operating button which consists of the switch press section prepared near the tip of the hinge region installed caudad and a flat-surface control unit, and an operating button fits in, and supports an operating button, [control unit / which were prepared succeeding a flat-surface control unit and this flat-surface control unit / the side-face control unit and side-face control unit] The baton switch by which receipt arrangement was carried out is formed in said body so that it

may counter at the tip of the flat-surface control unit of the operating button attached in said body. While constituting so that said hinge region may carry out elastic deformation in the state of the side-face actuation which pressed the flat-surface actuation condition which pressed the flat-surface control unit of an operating button, or the side-face control unit of an operating button Since the guide section in which the inclined plane which is approached and established in the tip side of the flat-surface control unit of an operating button, and depresses the flat-surface control unit of an operating button towards said baton switch in contact with an operating button in the state of side-face actuation was formed was prepared, In the state of flat-surface actuation, a hinge region carries out elastic deformation, and the switch press section of an operating button presses a baton switch. Since a flat-surface control unit is depressed for an operating button towards said baton switch in contact with the inclined plane of the guide section and the switch press section presses a baton switch while a hinge region carries out elastic deformation in the state of side-face actuation It can be operated from a 2-way and operability can be improved, and-izing can be carried out [thin shape] and the carrying nature of portable goods can be improved.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The sectional view of the gestalt of operation of the operating button equipment of this invention

[Drawing 2] The sectional view of the side-face actuation condition of the gestalt of this operation

[Drawing 3] The appearance perspective view which looked at the operating button equipment of the gestalt of this operation from the transverse-plane side

[Drawing 4] The appearance perspective view which looked at the

operating button equipment of the gestalt of this operation from the rear-face side

[Drawing 5] The top view of the important section of the gestalt of this operation

[Drawing 6] The appearance perspective view which looked at conventional operating button equipment from the transverse-plane side

[Drawing 7] The appearance perspective view which looked at the operating button equipment of the example of ***** from the rear-face side

[Drawing 8] The sectional view of the operating button equipment of the example of *****

[Drawing 9] The top view of the important section of the example of *****

[Description of Notations]

2 Sheathing Case

2a Upper case

2b Bottom case

7 Wiring Substrate

9a, 9b Operating button

10a Flat-surface control unit

10b Side-face control unit

10c Hinge region

10d Switch press section

11 Crevice

12a, 12b Baton switch

13a, 13b Projection

14 Contact Section

15 Inclined Plane

16 Guide Section