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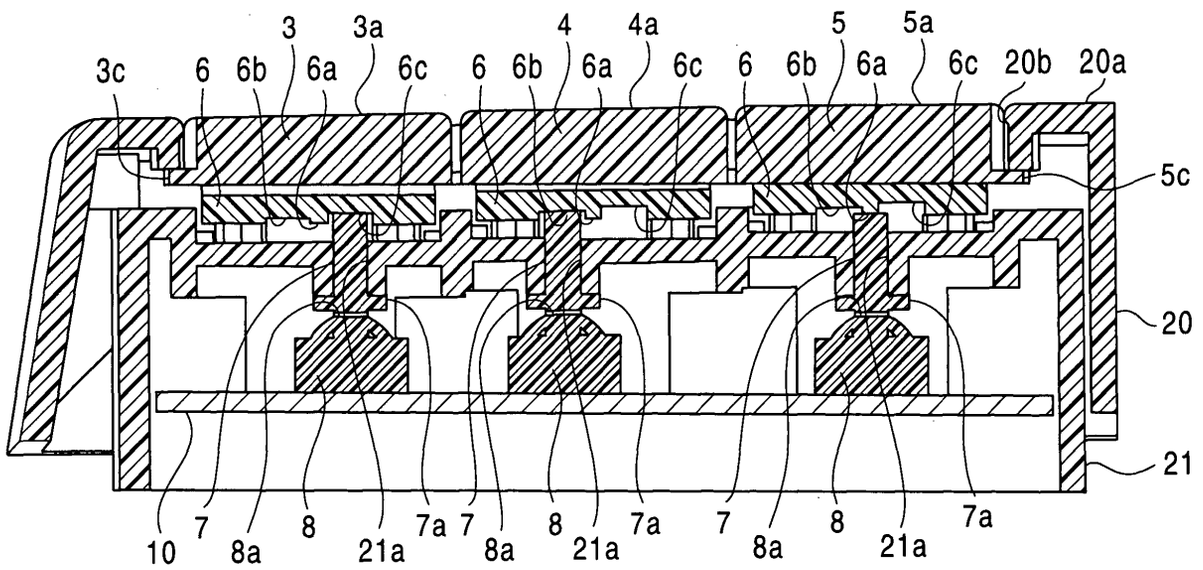
(54) Switching device

(57) A switching device includes a plurality of operation members each swingably provided; cam members each provided integrally with a respective one of the operation members, relative to the swinging pivot of the respective one of the operation members; follower members each driven by a respective one of the cam members; and switches each operated by a respective one of the follower members. In this switching device, the plurality of switches is all arranged on the same plane, and the swinging pivot of each of the plurality of operation members is disposed at a position deviated from that of the swinging pivot of each of the other operation members in the direction perpendicular to the above-described plane. Each of the cam member has a plurality of cam surfaces that can be selectively abutted against a respective one of the follower member in the direction perpendicular to the above-described plane.

FIG. 2



EP 1 363 302 A2

Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a switching device, and more particularly to a switching device that includes a plurality of operation members each swingably provided; cam members each provided integrally with a respective one of the operation members; follower members each driven by a respective one of the cam members; and switches each operated by a respective one of the follower members.

2. Description of the Related Art

[0002] Conventional switching devices includes a switching device that is provided, for example, on an instrument panel of a car for operating an on-board air conditioner or the like. This switching device comprises a plurality of operation members each swingably provided; cam members each provided integrally with a respective one of the operation members; follower members each driven by a respective one of the cam members; and switches each operated by a respective one of the follower members.

[0003] Each of the operation members has an operation surface to be depressed by an operator, and it is arranged to swing by the depression of the operation surface thereof. The operation surfaces of the plurality of operation members are all arranged on an operation panel side by side.

[0004] In each of the operation members, on the rear surface thereof (the front surface thereof is used as an operation surface), a cam member and follower member are interposed between the operation member and the corresponding switch. The cam member is provided integrally with the operation member, and the follower member is arranged to linearly move by being depressed by a cam surface of the cam member.

[0005] Each of the switches is constituted of a push switch having an operation portion to be depressed. The operation portion of each of the switches is disposed on the track of a respective one of the follower members, and is in a state of being abutted against the follower member all the time.

[0006] In the switching device with these features, in each of the operation members, when the operation surface of the operation member is depressed, the corresponding cam member swings together with the operation member, and the corresponding follower member is depressed by a cam surface of the cam member to linearly move, thereby depressing the switch into an on-state.

[0007] Meanwhile, in this type of switch device, all switches are provided on the same substrate. Namely, all switches are arranged on the same plane. In the case where the instrument panel incorporating this switch device tilts with respect to the above-mentioned plane, the operation panel may be tilted with respect to the above-described plane in keeping with the tilted surface of the instrument panel, and the operation surface of each of the operation members may be tilted in keeping with the tilt of the instrument panel.

[0008] In this manner, when the operation surface of each of the operation members is tilted in keeping with the tilt of the instrument panel, the operation surface of each of the operation members is disposed at a position deviated from that of the operation surface of each of the other operation members in the direction perpendicular to the above-described plane. As a consequence, the swinging pivot of each of the operation members is disposed at a position deviated from that of the swinging pivot of each of the other operation members by the amount equal to the deviation amount of the position of the operation surface of the operation member.

[0009] The sizes of the cam member and follower member interposed between each of the operation members and a respective one of the switches are each set based on of the positional relationship between the swing pivot of each of the operation members and the respective one of the switches.

[0010] Hitherto, (1) cam members have been used as common components among the plurality of operation members, in which, as described above, the swinging pivot of each of the operation member is disposed at a position deviated from that of the swinging pivot of each of the other operation members, or alternatively, (2) follower members have been used as common components among the plurality of operation members, in which, as described above, the swinging pivot of each of the operation members is disposed at a position deviated from that of the swinging pivot of each of the other operation members.

(1) When the cam members are used as common components, each of the cam members is disposed at a position deviated from each of the other cam members in the direction perpendicular to the plane having switches arranged thereon, by the amount equal to the deviation amount of the position of the swinging pivot of each of the operation members. Consequently, the spacing between each of the cam members and the respective one of the switches is different from the spacing between each of the others of the cam members and a respective one of the other switches. Therefore, the follower members are set to sizes different from one another for every spacing between each of the cam members and the respective one of the switches.

(2) When the follower members are used as common components, the spacing between each of the follower members and the swinging pivot of a respective one of the operation members is different from the spacing between each of the others of the

follower members and the swing pivot of a respective one of the other operation members. Therefore, the cam members are set to sizes different from one another for every spacing between each of the follower members and the respective one of the operation members.

[0011] Therefore, in the switching device in which the swinging pivot of each of the operation members is disposed at a position deviated from that of the swinging pivot of each of the other operation members in the direction perpendicular to the plane having switches arranged thereon, either a plurality of kinds of cam members mutually different in size, or a plurality of kinds of follower members mutually different in size, is required. This unfavorably makes the number of kinds of components more than that of the switch device in which the swinging pivot of each of the operation members is disposed at the same position as that of the other operation members in the direction perpendicular to the above-described plane, thereby complicating the construction of the switching device.

SUMMARY OF THE INVENTION

[0012] Accordingly, it is an object of the present invention to provide a switching device in which both of the cam members and follower members can be used as common components among a plurality of operation members in which the swinging pivot of each of the operation members is disposed at a position deviated from that of the swinging pivot of each of the other operation members in the direction perpendicular to the plane having switches arranged thereon.

[0013] To achieve the above-described object, the present invention provides a switching device that includes a plurality of operation members each swingably provided; cam members each provided integrally with a respective one of the operation members, relative to the swinging pivot of the respective one of the operation members; follower members each driven by the respective one of the cam members; and switches each operated by a respective one of the follower members. In this switching device, the plurality of switches is all arranged on the same plane, and the swinging pivot of each of the plurality of operation members is disposed at a position deviated from that of the swinging pivot of each of the other operation members in the direction perpendicular to the above-described plane. Here, each of the cam members has a plurality of cam surfaces that can be selectively abutted against the respective one of the follower members in the direction perpendicular to the above-described plane.

[0014] In the switching device with these features, because the swinging pivot of each of the plurality of operation members is disposed at a position deviated from that of the swinging pivot of each of the other operation members in the direction perpendicular to the plane having switches arranged thereon, each of the cam members is disposed at a position deviated from that of each of the other cam members. However, by selecting any one of a plurality of cam surfaces of each of the cam members according to the position of the cam member, it is possible to dispose a respective one of the follower members on that cam surface. That is, both of the cam members and follower members can be used as common components among a plurality of operation members in which the swinging pivot of each of the operation members is disposed at a position deviated from that of the swinging pivot of each of the other operation members in the direction perpendicular to the plane having switches arranged thereon.

[0015] In the switching device according to the present invention, each of the follower members may be provided so as to be linearly movable, and each of the switches may be constituted of a push switch disposed on the track of a respective one of the follower members.

[0016] In the switching device according to the present invention, each of the operation members and a respect one of the cam members may be integrally molded.

[0017] In the switching device according to the present invention, each of the operation members and a respect one of the cam members may be integrally molded by two-color molding.

[0018] In the switching device according to the present invention, the plurality of operation members may be all formed into the same shape.

[0019] The switching device according to the present invention may further include a translucent portion provided in the operation surface of each of the operation members for allowing light to pass through; an illuminating element provided on the rear surface of each of the operation members for serving as a light source; and a light guiding member fixed to each of the cam members for guiding light that the illuminating element emits to the translucent portion.

[0020] The above and other objects, features, and advantages of the present invention will become clear from the following detailed description of the preferred embodiments of the invention in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021]

Fig. 1 is a plan view of an embodiment of a switching device according to the present invention;
Fig. 2 is a sectional view of the switch device shown in Fig. 1 taken along the line II-II in Fig. 1;
Fig. 3 is a sectional view of the switch device shown in Fig. 1 taken along the line III-III in Fig. 1;
Fig. 4 is a sectional view of the switch device shown in Fig. 1 taken along the line IV-IV in Fig. 1; and

Fig. 5 is a sectional view of another embodiment according to the present invention, which is represented in the form corresponding to the II-II sectional view of the embodiment shown in Fig. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0022] Hereinafter, one embodiment of a switching device according to the present invention will be described with reference to the accompanying drawings.

[0023] Fig. 1 is a plan view of the one embodiment of the switching device according to the present invention. Figs. 2 to 4 are sectional views of the switch device shown in Fig. 1 taken, respectively, along the lines II-II, III-III, IV-IV in Fig. 1.

[0024] The switching device according to this embodiment is one that is provided, for example, on the instrument panel of a car for operating an on-board air conditioner or the like.

[0025] As shown in Figs. 1 and 2, the switching device according to the present embodiment has first to third operation members 3 to 5 made of PC (polycarbonate) resin swingably provided within a case 21 made of ABS (Acrylonitrile Butadiene Styrene) resin.

[0026] As shown in Fig. 3, the first operation member 3 has a shaft portion 3b constituting a swinging pivot. The shaft portion 3b is rotatably supported by the case 21, so that the first operation member 3b is allowed to swing in the directions of the arrow indicated by B, and swings with the operation surface 3a thereof pressed downward. While not shown in figures, the second and third operation members 4 and 5 are also allowed to swing by similar structures, and swing with the operation surfaces 4a and 5a thereof pressed downward, respectively.

[0027] Referring back to Figs. 1 and 2, the first operation member 3, the second operation member 4, and the third operation member 5 are different in the shape from one another. However, the positional relationship between the operation surface 3a and the shaft portion 3b in the first operation member 3, that between the operation surface 4a and the shaft portion 4b in the second operation member 4, and that between the operation surface 5a and the shaft portion 5b in the third operation member 5 are set to become the same. This allows an operator to have a similar operation feeling, no matter which of the first to third operation members 3 to 5 the operator operates.

[0028] As illustrated in Figs. 1 and 2, the switching device according to this embodiment has a cover 20 made of ABC (Acrylonitrile Butadiene Styrene Copolymer) resin for covering the case 21. An opening portion 20b is provided on the top surface 20a of the cover 20. An operation panel is formed by arranging the above-described first to third operation members 3 to 5 so that the operation surface 3a, 4a and 5a thereof are respectively exposed through the opening portion 20b of the cover 20.

[0029] The first operation member 3 has a regulating portion 3c that projects sideward from the lower end thereof, and that is engaged with the edge of the opening portion 20b to prevent the first operation member 3 from slipping out of the opening portion 20b. Likewise, the second operation member 4 has a regulating portion 4c to prevent the second operation member 4 from slipping out of the opening portion 20b. Furthermore, likewise, the third operation member 5 has a regulating portion 5c to prevent the third operation member 5 from slipping out of the opening portion 20b.

[0030] As illustrated in Fig. 2, in this embodiment, the top surface 20a of the cover 20 is tilted so as to increase in the height with respect to the substrate 10 from the left to the right. Specifically, the operation surface 3a of the first operation member 3, the operation surface 4a of the second operation member 4, and the operation surface 5a of the third operation member 5 are each tilted along the tilt of the top surface 20a of the cover 20. More specifically, each of the operation surfaces 3a to 5a is disposed at a position deviated from that of each of the other two operation surfaces in the direction perpendicular to the substrate 10. For example, the operation surfaces 3a, 4a, and 5a are arranged so as to increase in the height relative to the substrate 10 in this order by substantially equal dimensions.

[0031] The shaft portion 3b as the swinging pivot of the first operation member 3, the shaft portion (not shown) as the swinging pivot of the second operation member 4, and the shaft portion (not shown) as the swinging pivot of the third operation member 5, respectively, are also disposed at positions mutually deviated in the direction perpendicular to the substrate 10, by amounts equal to the deviation amounts of the operation surfaces 3a, 4a, and 5a. Namely, the swinging pivot of the first operation member 3, that of the second operation member 4, and that of the third operation member 5 are arranged so as to increase in the height relative to the substrate 10 in this order by substantially equal dimensions.

[0032] In this embodiment, a plurality of switches, for example, three push switches 8 are provided on the substrate 10 provided within the case 21. Each of these switches 8 is indirectly operated by a respective one of the first to third operation members 3 to 5. In each of the switches 8, the top portion 8a thereof constitutes an operation portion such that, when it is depressed by being pressed toward a lower position in Fig. 2, the switch 8 is turned on, and that, when it becomes returned to the original position thereof by being released from a pressing force, the switch 8 is turned off.

[0033] As shown in Fig. 2, in this embodiment, a cam member 6 made of POM (Polyacetal) resin and a follower member 7 made of PBT (Polybutylene Terephthalate) resin are interposed in each of the spaces between the first operation member 3 and the corresponding switch 8, between the second operation member 4 and the cor-

responding switch 8, and between the third operation member 5 and the corresponding switch 8.

[0034] Each of the cam members 6 is disposed relative to the swinging pivot of a respective one of the first to third operation members 3 to 5, and fixed to the respective one of the first to third operation members 3 to 5. Each of the cam members 6 has a plurality of cam surfaces, for example, first cam surface 6a, second cam surface 6b, and third cam surface 6c. Each of the first to third cam surfaces 6a to 6c is formed into a convex curved surface. The first, second, and third cam surfaces 6a, 6b, and 6c are arranged so as to increase in the height relative to the substrate 10 in this order by substantially the above-described equal dimensions.

[0035] Each of the follower members 7 is constituted of a solid-cylindrical member, and it is inserted into a hollow-cylindrical guide portion 21a provided in each of the spaces between the first operation member 3 and the corresponding switch 8, between the second operation member 4 and the corresponding switch 8, and between the third operation member 5 and the corresponding switch 8, whereby each of the follower members 7 is linearly movable upward and downward.

[0036] Each of the follower members 7 is selectively arranged to be abutted against any one of the first to third cam surfaces 6a to 6c of a respective one of the above-described cam members 6.

[0037] The swinging pivot of the first operation member 3 is located nearer to the substrate 10 than that of the each of the second and third operation members 4 and 5, and consequently, the cam member 6 fixed to the first operation member 3 is also located nearer to the substrate 10 than the two other cam members 6. In this case, therefore, the follower member 7 is disposed on the third cam surface 6c, which is located the farthest away from the substrate 10 of the first to third cam surfaces 6a to 6c.

[0038] The swinging pivot of the second operation member 4 is located farther away from the substrate 10 than that of the first operation member 3, and located nearer to the substrate 10 than that of the third operation member 5. Consequently, the cam member 6 fixed to the second operation member 4 is also located farther away from the substrate 10 than the cam member 6 fixed to the first operation member 3, and located nearer to the substrate 10 than the cam member 6 fixed to the third operation member 5. In this case, therefore, the follower member 7 is disposed on the second cam surface 6b, which is located the second farthest away from the substrate 10 of the first to third cam surfaces 6a to 6c.

[0039] Also, the swinging pivot of the third operation member 5 is located farther away from the substrate 10 than that of the each of the first and second operation members 3 and 4, and consequently, the cam member 6 fixed to the third operation member 5 is also located farther away from the substrate 10 than the two other cam members 6. In this case, therefore, the follower member 7 is disposed on the first cam surface 6a, which is located the nearest to the substrate 10 of the first to third cam surfaces 6a to 6c.

[0040] The top portion 8a of each of the switches 8 is abutted against the lower end of each of the follower members 7 disposed in the above-described manner. Namely, each of the switches 8 is disposed on the track of a respect one of the follower members, which linearly moves.

[0041] On the peripheral side surface of the lower end portion of each of the follower members 7, there is provided a restricting portion 7a that is engaged against the lower end of the guide portion 21, and that restricts upward movement of the follower member 7 in a state in which the switch 8 has been returned to the original position.

[0042] Referring back to Fig. 1, in this embodiment, an illuminating mean 30 is provided for each of the first to third operation members 3 to 5. As shown in Fig. 4, the illuminating mean 30 for the first operation means 3 includes an illuminating element provided on the substrate 10, and constituting a light source, for example, an LCD (Light Emitting Diode) 32, a through hole 3d provided in the operation surface 3a, and a light guiding member 31 for guiding light of a LED 32 into the through hole 3d fixed to the corresponding cam member 6. The light guiding member 31 is formed by inserting the main body 31b thereof into an engagement portion 6d provided for the corresponding cam member 6. Also, the light guiding member 31 has a projection 31a formed on the upper end surface of the main body 31b thereof. A translucent portion, which allows light to pass from the rear side of the operating surface 3a up to the front surface side (i.e., operation surface) thereof, is formed by inserting the projection 31a into the through hole 3d of the operation surface 3a. Likewise, illustrating means 30 is provided for each of the second and third operation members 4 and 5.

[0043] The operation of the switching device with these features, according to the present embodiment will now be described.

[0044] In this embodiment, when the operation surface 3a of the first operation member 3 is pressed downward, the first operation member 3 and the corresponding cam member 6 swing about the shaft portion 3b, and the corresponding follower member 7 is depressed by the third cam surface 6c of the corresponding cam member 6 to thereby linearly move downward. Consequently, the top portion 8a of the corresponding switch 8 is depressed by the corresponding follower member 7, thereby turning the switch 8 on.

[0045] Likewise, when the operation surface 4a of the second operation member 4 is depressed, the second operation member 4 and the corresponding cam member 6 swing about the shaft portion (not shown), and the corresponding follower member 7 is depressed by the second cam surface 6b of the corresponding cam member 6 to thereby linearly move downward. Consequently,

the top portion 8a of the corresponding switch 8 is depressed by the corresponding follower member 7, thereby turning the switch 8 on.

[0046] Furthermore, likewise, when the operation surface 5a of the third operation member 5 is depressed, the third operation member 5 and the corresponding cam member 6 swing about the shaft portion (not shown), and the corresponding follower member 7 is depressed by the first cam surface 6a of the corresponding cam member 6 to thereby linearly move downward. Consequently, the top portion 8a of the corresponding switch 8 is depressed by the corresponding follower member 7, thereby turning the switch 8 on.

[0047] In the illuminating means 30 provided for the first operation member 3, light emitted by the LED 32 is guided to the projection 31a via the light guide member body 31b. This light is given off from the projection 31 toward the operation surface 3a side of the first operation member, thereby shining the place of the through hole 3d. This allows the operation surface 3a of the first operation member 3 to be visually identified even when the interior of a car is dark at nighttime or the like. Likewise, in the illuminating means 30 provided for the second operation member 4, and that provided for the third operation member 5, the places of the through holes 4d and 5d are shined, respectively. This allows the operation surfaces 4a of the second operation member 4 and the operation surfaces 5a of the third operation member 5 to be visually identified even when the interior of a car is dark at nighttime or the like.

[0048] The switching device according to the present embodiment offers the following advantages.

[0049] In the present embodiment, by selecting any one of the first to third cam surfaces 6a to 6c of each of the cam members 6 according to the position of the cam member 6, a respective one of the follower members 7 can be disposed on that cam surface. That is, both of the cam members and follower members can be used as common components among the first to third operation members 3 to 5 in which the swinging pivot of each of the first to third operation members 3 to 5 is disposed at a position deviated from that of the swinging pivot of each of the other two operation members in the direction perpendicular to the plane having switches 8 arranged thereon.

[0050] In the present embodiment, the combination of each of the first to third operation members 3 to 5 and a respective one of the respective cam members 6, that of each of the cam members 6 and a respective one of the follower members 7, that of each of the follower members 7 and the case 21, and that of each of the first to third operation members 3 to 5 and the cover 20, are each a combination constituted of mutually different kinds of resin. This reduces the sliding resistance therebetween, thereby preventing the occurrence of unusual noises caused by sliding.

[0051] In the present embodiment, since the first to third operation members 3 to 5 are each made of PC resin, they exert shock-absorbing effect. They are, therefore, resistant to a fracture, and even if they causes a fracture, the fracture surface would be less prone to being sharp. This provides a high degree of safety to the switch device.

[0052] In the present embodiment, each of the cam members 6 is disposed relative to the swinging pivot of a respective one of the operation members, the swinging pivot being disposed at a position deviated from that of the swinging pivot of each of the other operation members by an amount equal to the deviation amount of each of the operation surfaces 3a to 5a. Therefore, the positional relationship between each of the cam members 6 and the operation surface of a respective one of the operation members, is substantially the same as the positional relationship between each of the other cam members 6 and the operation surface of a respective one of the other operation members. Hence, by fixing a light guide member 31 to each of the cam members 6, the light guide members 31 can be used as common components among the operation surfaces 3a to 5a. This reduces the number of kinds of the constituent components of the illuminating means 30, and simplifies the construction of the illuminating means 30.

[0053] In the above-described embodiment, an example in which each of the cam members 6 is separately formed with respect to a respective one of the first to third operation members 3 to 5, has been described. However, the present invention is not limited to such an construction. For example, as shown in Fig. 5, as operation members, first to third operation members 71 to 73 in which each of the cam members 6 is integrally molded with a respective one of the first to third operation members 3 to 5, may be employed. In Fig. 5, equivalent parts to those in Fig. 2 are denoted by the same reference numerals.

[0054] In another embodiment of the present invention, with above-described features, the number of components and the kinds of constituent components can be made less than those in the above-described embodiment. The use of the switching device according to this other embodiment, therefore, would reduce the production costs associated with molds and the number of assembly man-hours.

[0055] In the above-described other embodiment, when the first to third operation members 71 to 73 shown in Fig. 5 are each to be molded, two-color molding may be applied by using mutually different kinds of resins. Thereby, the portion of each of the first to third operation members 71 to 73 corresponding to a respective one of the first to third operation members 3 to 5, can be made a portion which exerts shock-absorbing effect, which is resistant to a fracture, and in which, even if it causes a fracture, the fracture surface would be less prone to being sharp. On the other hand, the portion of each of the first to third operation members 71 to 73 corresponding to a respective one of the cam members 6 can be made of a resin of a kind different from that of the follower

members. When the portion of each of the first to third operation members 71 to 73 corresponding to a respective one of the first to third operation members 3 to 5 is to be molded using PC resin, and the portion of each of the first to third operation members 71 to 73 corresponding to a respective one of the cam members 6 is to be molded using POM resin, as in the case of the above-described embodiment, a material to connect the PC resin and POM resin is required.

[0056] The switch device with such constructions, as in the case of the above-described embodiment, provides a high degree of safety, and can prevent the occurrence of unusual noises caused by sliding between the portion corresponding to each of the cam members and a respective one of the follower members, as well as can make the number of components and the kinds of constituent components less than those of conventional arts, thereby reducing the production costs associated with molds and the number of assembly manhours.

[0057] Also, in the above-described embodiment, an example has been described in which the swinging pivot of the first operation member 3, the swinging pivot of the second operation member 4, and the swinging pivot of the third operation member 5 are arranged so as to increase in the height in this order relative to the substrate 10 by substantially equal dimensions, and in which the cam surface 6a to 6c of each of the cam members 6 is provided corresponding to the deviation amount of a respective one of the first to third operation members 3 to 5. However, the present invention is not limited to such a construction. For example, in the direction perpendicular to the plane having switches 8 arranged thereon, the swinging pivot of each of the first to third operation members 3 to 5 may be disposed anywhere. In this case, a plurality of cam surfaces each corresponding to the deviation amount of a respective one of the swinging pivots may be disposed on one of the cam members 6.

[0058] Furthermore, in the above-described embodiment, an example has been described in which the first to third operation members 3 to 5 are different in the shape from one another. However, the present invention is not restricted to such a construction. The first to third operation members 3 to 5 may instead be formed into the same shape. Thereby, the number of kinds of constituent components can be less, and the structure can be still simpler, than in the case of the above-described embodiment.

[0059] As is evident from the foregoing, in the present invention, since both of the cam members and follower members can be used as common components among a plurality of operation members in which the swinging pivot of each of the operation members is disposed at a position deviated from that of the swinging pivot of each of the other operation members in the direction perpendicular to the plane having switches arranged thereon, it is possible to reduce the number of kinds of constituent components, and thereby to simplify the construction.

[0060] While the present invention has been described with reference to what are at present considered to be the preferred embodiments, it is to be understood that various changes and modifications may be made thereto without departing from the present invention in its broader aspects and therefore, it is intended that the appended claims cover all such changes and modifications that fall within the true spirit and scope of the invention.

Claims

1. A switching device, comprising:

a plurality of operation members each swingably provided;
cam members each provided integrally with a respective one of said operation members, relative to the swinging pivot of the respective one of said operation members;
follower members each driven by a respective one of said cam members; and
switches each operated by a respective one of said follower members,

wherein said plurality of switches is all arranged on the same plane;

wherein the swinging pivot of each of said plurality of operation members is disposed at a position deviated from that of the swinging pivot of each of the other operation members in the direction perpendicular to said plane, and

wherein each of said cam members has a plurality of cam surfaces that can be selectively abutted against the respective one of said follower members in the direction perpendicular to said plane.

2. The switching device according to Claim 1, wherein each of said follower members is provided so as to be linearly movable, and wherein each of said switches is constituted of a push switch disposed on the track of a respective one of said follower members.

3. The switching device according to Claim 1 or 2, wherein each of said operation members and the respect one of the cam members are integrally molded.

4. The switching device according to Claim 3, wherein each of said operation members and the respect one of the cam members are integrally molded by two-color molding.

5. The switching device according to any of Claims 1 to 4, wherein said plurality of operation members is

all formed into the same shape.

6. The switching device according to any of Claims 1 to 5, further comprising:

a translucent portion provided in the operation surface of each of said operation members for allowing light to pass through;
an illuminating element provided on the rear surface of each of said operation members for serving as a light source; and
a light guiding member fixed to each of said cam members for guiding light that said illuminating element emits to said translucent portion.

FIG. 1

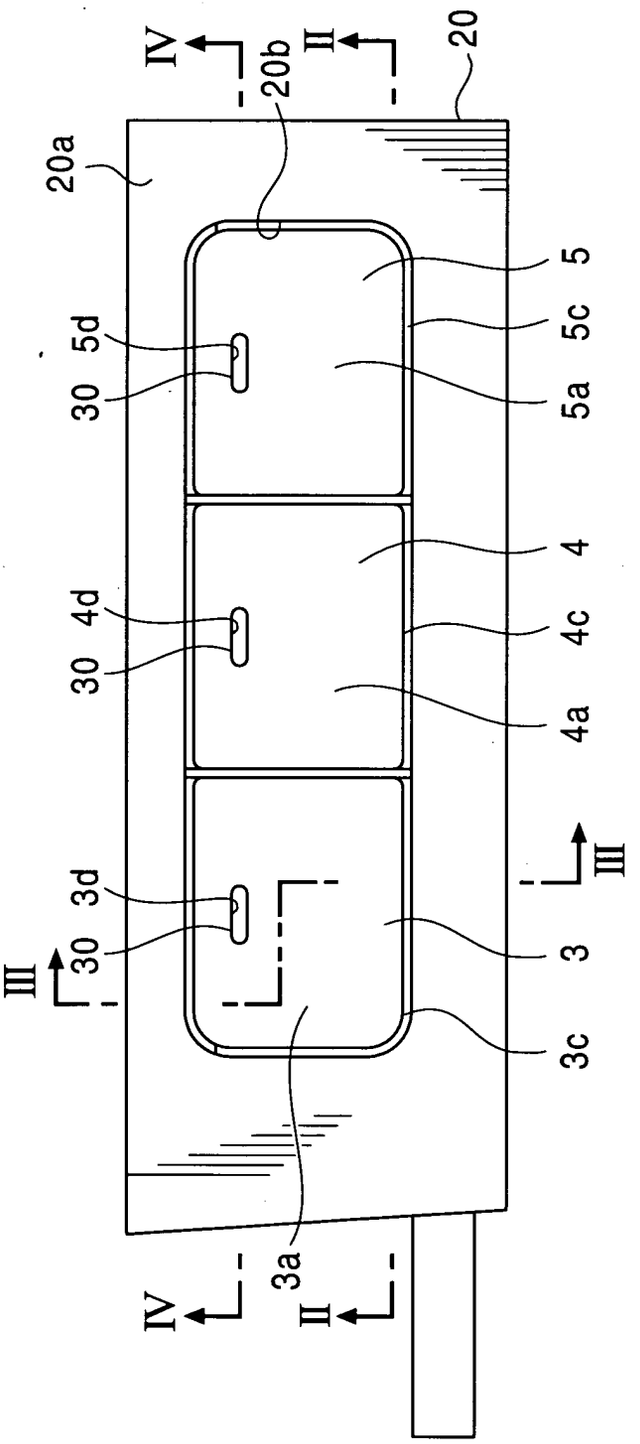


FIG. 2

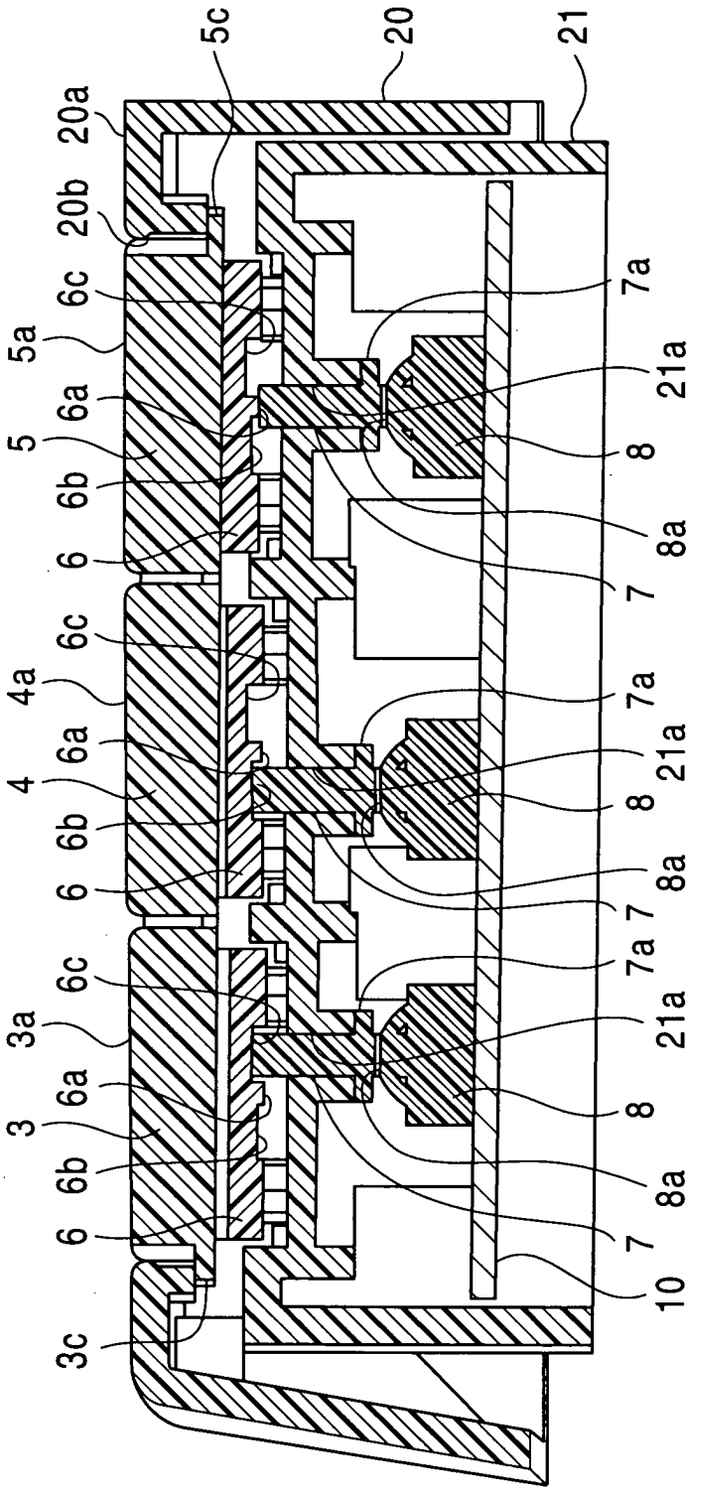


FIG. 3

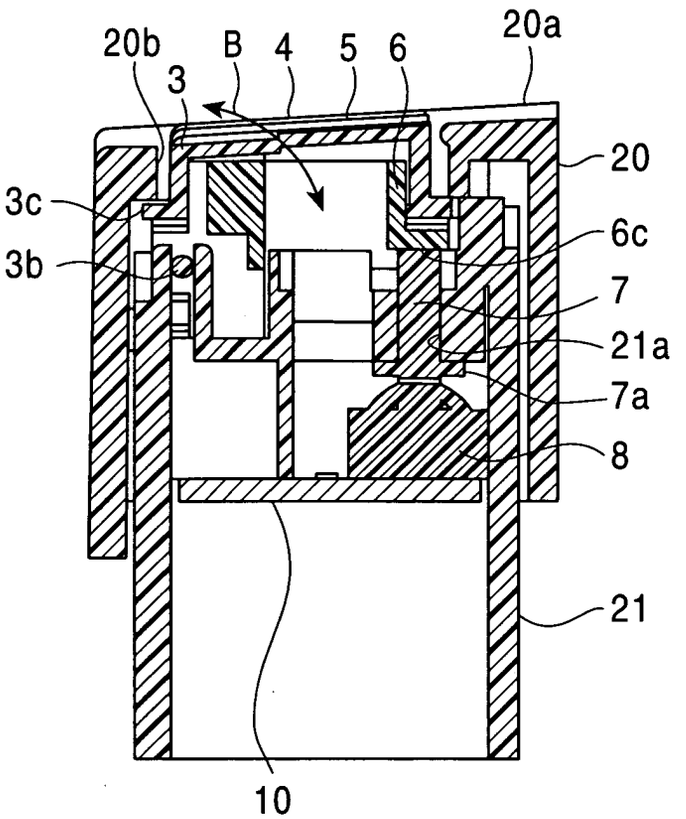


FIG. 4

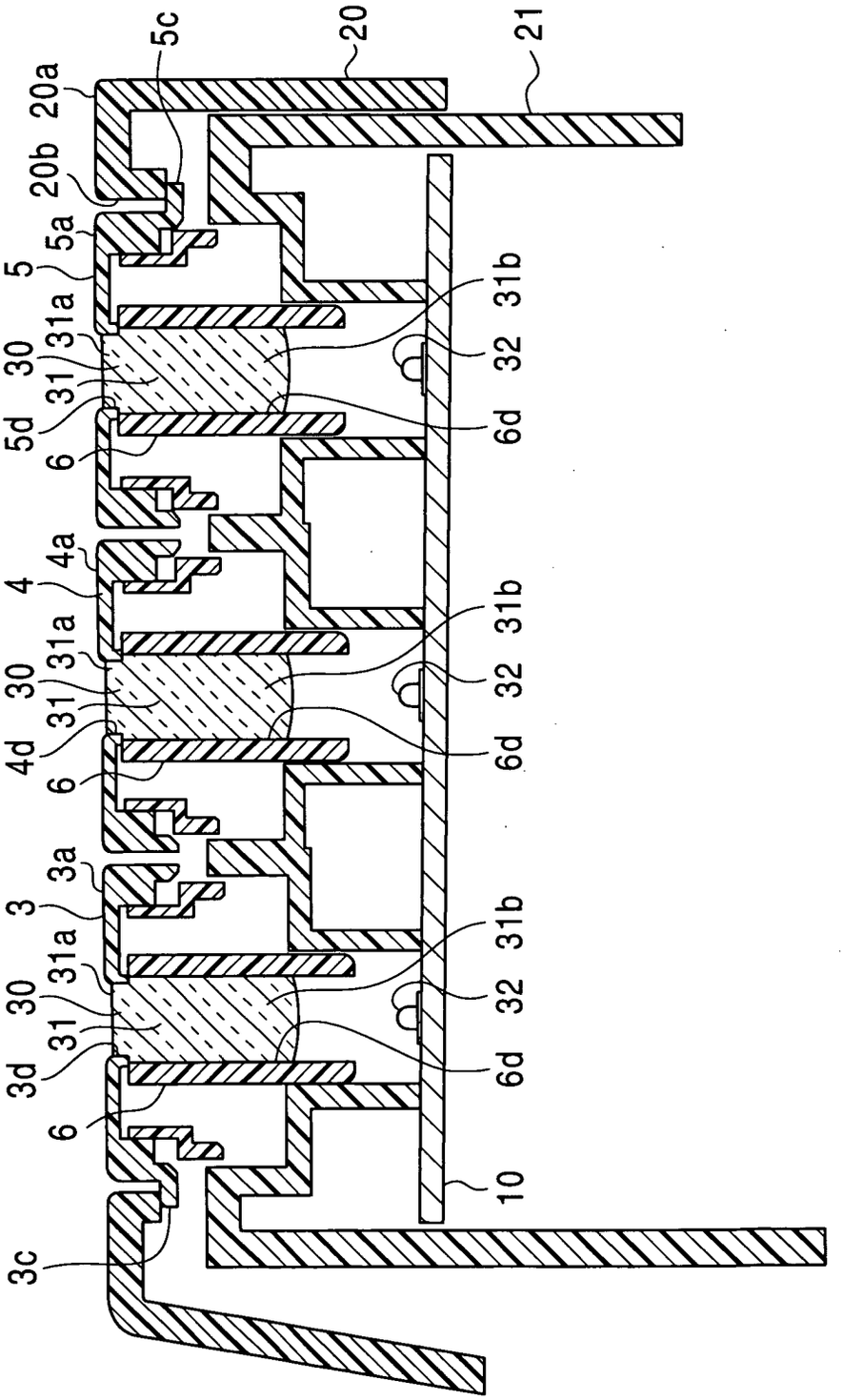


FIG. 5