



(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
23.12.2009 Bulletin 2009/52

(51) Int Cl.:
B66B 1/50 (2006.01)

(21) Application number: **07741941.4**

(86) International application number:
PCT/JP2007/058505

(22) Date of filing: **19.04.2007**

(87) International publication number:
WO 2008/136063 (13.11.2008 Gazette 2008/46)

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

(72) Inventors:
• **JOO, Tomonori**
Tokyo 102-0073 (JP)
• **YAMAMOTO, Soki**
Tokyo 102-0073 (JP)

(71) Applicant: **Mitsubishi Electric Corporation**
Chiyoda-ku
Tokyo 100-8310 (JP)

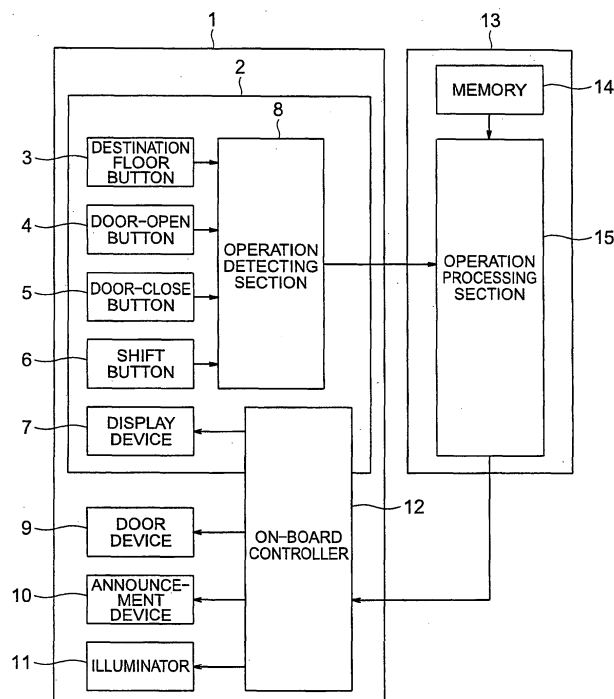
(74) Representative: **HOFFMANN EITLE**
Patent- und Rechtsanwälte
Arabellastrasse 4
81925 München (DE)

(54) **ELEVATOR DEVICE**

(57) Inside a car, a plurality of operation buttons are provided. Among all the operation buttons, a plurality of the operation buttons are set in control means as buttons for switching. The control means is switchable between

a plurality of operation input modes. Control of the control means according to an operation of each button for switching differs for each of the operation input modes. Inside the car, a shift operation section is provided for switching the operation input modes when it is operated.

FIG. 1



Description

Technical Field

[0001] The present invention relates to an elevator apparatus for controlling an operation of an elevator by operating a plurality of operation buttons provided inside a car.

Background Art

[0002] Conventionally, a destination call registration device for an elevator, which includes a numeric keypad having numeric buttons of zero and one to nine provided in a lower part of an intra-car operating panel, has been proposed. In an upper part of the intra-car operating panel, a plurality of floor buttons are provided. A call for a destination floor is registered by operating the numeric buttons of the numeric keypad. Upon registration of the call for the destination floor, a floor button, for which the registration of the call has been performed, of all the floor buttons lights up. Accordingly, it becomes no longer necessary to operate the floor buttons provided in the upper part of the intra-car operating panel for the registration of the call for the destination floor. As a result, even children or elderly people who cannot reach the buttons provided in the upper part can register the call for the destination floor (see Patent Document 1).

[0003] Patent Document 1: JP 2003-221172 A

Disclosure of the Invention

Problems to be solved by the Invention

[0004] In the case of the conventional call registration device for the elevator, however, the same number of floor buttons as that of the destination floors are provided on the intra-car operating panel. Moreover, the numeric keypad is provided with the plurality of numeric buttons. Therefore, a large space is required for providing the floor buttons and the numeric keypad, resulting in an increase in size of the intra-car operating panel. Further, because the structure of the numeric keypad is complex, the fabrication cost increases. In addition, the operation of the numeric buttons is complicated, and hence the operation for registering the call for the destination floor takes much time and efforts.

[0005] The present invention is devised to solve the problems described above, and has an object of obtaining an elevator apparatus which enables the prevention of an increase in size of a car operating panel, the reduction of fabrication cost, and the facilitation of an operation relating to an operation of an elevator.

Means for solving the Problems

[0006] An elevator apparatus according to the present invention comprises: a plurality of operation buttons pro-

vided inside a car; control means switchable between a plurality of operation input modes, for setting a plurality of the operation buttons among all the operation buttons as buttons for switching to differ control based on an operation of each of the buttons for switching for each of the operation input modes; and a shift operation section which is operated inside the car to perform switching between the operation input modes.

Effects of the Invention

[0007] In the elevator apparatus according to the present invention, the operation input mode of the control means is switched by the operation of the shift operation section. At the same time, the plurality of operation buttons among all the operation buttons are set as the buttons for switching to differ the control of the control means, which is performed based on the operation of each of the buttons for switching, for each of the operation input modes. Therefore, by switching the operation input mode, a plurality of different types of control can be performed by the operation of the same buttons for switching. Therefore, the number of operation buttons can be reduced to prevent the size of the car operating panel from being increased. Moreover, the operation input mode can be switched by the shift operation section, and hence it is no longer necessary to provide a numeric keypad having a complex structure. As a result, the fabrication cost can be reduced. Further, the plurality of operation buttons are set as the buttons for switching, and hence the plurality of types of control performed by the operations of the buttons for switching can be switched at a time. Therefore, the number of times of operating the shift operation section can be reduced, thereby facilitating the operations relating to the operation of the elevator.

Brief Description of the Drawings

[0008]

[FIG. 1] A schematic configuration diagram illustrating an elevator apparatus according to a first embodiment of the present invention.

[FIG. 2] A front view illustrating a car operating panel illustrated in FIG. 1.

[FIG. 3] A front view illustrating the car operating panel after destination floor display on each display devices illustrated in FIG. 2 is switched.

[FIG. 4] A table for showing control of an operation controller illustrated in FIG. 1 when the operation controller is operated in an extended operation input mode.

[FIG. 5] A flowchart for showing an operation of processing of the operation controller illustrated in FIG. 1.

[FIG. 6] A front view illustrating a car operating panel of an elevator apparatus according to a second em-

bodiment of the present invention.

[FIG. 7] A front view illustrating the car operating panel illustrated in FIG. 6 when the operation controller is operated in a destination floor operation input mode after switching.

Best Mode for carrying out the Invention

[0009] Hereinafter, preferred embodiments of the present invention will be described referring to the drawings.

First Embodiment

[0010] FIG. 1 is a block diagram illustrating an elevator apparatus according to a first embodiment of the present invention. In the drawing, an elevator apparatus including a car 1 which can stop at a plurality of floors is provided in a building. A car operating panel 2 is provided inside the car 1.

[0011] The car operating panel 2 includes: a plurality of destination floor buttons 3, each being operable inside the car 1; a door-open button 4; a door-close button 5; a shift button 6; and display devices 7, each performing display for specifying a destination floor (destination floor display) corresponding to each of the destination floor buttons 3. Each of the destination floor buttons 3 is an operation button for selecting the destination floor of the car 1. In addition, the door-open button 4 is an operation button for opening an entrance (not shown) of the car 1, whereas the door-close button 5 is an operation button for closing the entrance of the car 1. The shift button 6 serves as a shift operation section for switching control by the operation performed on the car operating panel 2.

[0012] The display device 7 includes a plurality of regularly-arranged LEDs. By selectively turning ON each of the LEDs, the destination floor is displayed. Therefore, the display device 7 changes the LEDs selected to be turned ON, thereby enabling the switching of the destination floor display.

[0013] In the car operating panel 2, an operation detecting section 8 for receiving operation signals from each of the destination floor buttons 3, the door-open button 4, the door-close button 5, and the shift button 6 is provided. The operation detecting section 8 generates information according to the operation of each of the destination floor buttons 3, the door-open button 4, the door-close button 5, and the shift button 6.

[0014] The car 1 also includes: a door device 9 for opening and closing the entrance of the car 1; an announcement device 10 for giving an audio notification of information relating to an operation of an elevator (for example, information of a floor at which the car 1 stops, or the like) to the inside of the car 1; an illuminator 11 for illuminating the inside of the car 1; and an on-board controller 12 for individually controlling the operation of each of the display device 7, the door device 9, the announcement device 10, and the illuminator 11.

[0015] In a hoistway in which the car 1 is raised and lowered, an operation controller 13 for controlling the operation of the elevator based on the information from the operation detecting section 8 is provided. The operation controller 13 generates a control command according to the information from the operation detecting section 8. The on-board controller 12 controls the operation of each of the display device 7, the door device 9, the announcement device 10 and the illuminator 11 based on the control command from the operation controller 13.

[0016] The control of the operation controller 13 can be switched between a plurality of operation input modes. The switching between the operation input modes is performed by selecting any of a plurality of destination floor operation input modes and a plurality of extended operation input modes. The operation input mode is selected by an operation of the shift button 6.

[0017] When the operation controller 13 is operated in each of the destination floor operation input modes, only the destination floor operation input buttons 3 are set as buttons for switching, in the operation controller 13. When the operation controller 13 is operated in each of the extended operation input modes, the destination floor buttons 3, the door-open button 4, and the door-close button 5 are set as the buttons for switching, in the operation controller 13.

[0018] The control of the operation controller 13 based on the operation of each of the buttons for switching differs for each operation input mode. Therefore, when the operation input mode of the operation controller 13 is switched between the destination floor operation input modes, the control based on the operation of each of the destination floor buttons 3 is switched for each of the destination floor operation input modes. In addition, when the operation input mode is switched between the extended operation input modes, the control based on the operation of each of the destination floor buttons 3, the door-open button 4 and the door-close button 5 is switched for each of the extended operation input modes.

[0019] The operation controller 13 includes a memory 14 and an operation processing section 15. The memory 14 stores set parameters relating to the control of the operation of the elevator. The operation processing section 15 selects a parameter according to the information from the operation detecting section 8, from the set parameters stored in the memory 14, to generate a control command based on the selected parameter. Specifically, the operation input mode of the operation controller 13 is switched according to the operation of the shift button 6. The operation of the elevator is controlled based on the parameter according to the operation input mode after the switching.

[0020] FIG. 2 is a front view illustrating the car operating panel 2 illustrated in FIG. 1. In addition, FIG. 3 is a front view illustrating the car operating panel 2 after the destination floor display on each of the display devices 7 illustrated in FIG. 2 is switched. In the drawings, the door-open button 4 and the door-close button 5 are lo-

cated below the destination floor buttons 3. The shift button 6 is located below the door-open button 4 and the door close button 5.

[0021] The display device 7 is individually provided to each of the destination floor buttons 3. Therefore, the display device 7 displays a destination floor for each of the destination floor buttons 3. Specifically, the destination floor of the car 1 is specified by the destination floor display performed for each of the destination floor buttons 3.

[0022] In addition, the display devices 7 are controlled by the on-board controller 12 to allow a different floor to be specified as the destination floor for each destination floor operation input mode. Specifically, each of the display devices 7 switches the display of the destination floor for each of the destination floor operation input modes based on the information according to the control command from the operation controller 13.

[0023] In the operation controller 13, a different reference value is individually set for each of the destination floor buttons 3. The destination floors to be displayed are calculated by sequentially adding a common coefficient (integer) α to the reference values individually set for the respective destination floor buttons 3 for each of the destination floor operation input modes. The coefficient α corresponds to the number of the destination floor buttons 3.

[0024] In this example, the car 1 can stop at each floor of a twenty-story building. In addition, the number of the destination floor buttons 3 provided on the car operating panel 2 is ten. Further, the display devices 7 perform the destination floor display for individually specifying the first to tenth floors for the respective destination floor buttons 3 when the operation controller 13 is operated in the destination floor operation input mode before switching (FIG. 2). When the operation controller 13 is operated in the destination floor operation input mode after the switching, the display devices 7 perform the destination floor display for individually specifying the eleventh to twentieth floors for the respective destination floor buttons 3 (FIG. 3). Specifically, the destination floor display of the display devices 7 in the destination floor operation input mode after the switching corresponds to display obtained by adding the coefficient α corresponding to ten floors to the destination floor display in the destination floor operation input mode before the switching.

[0025] The switching between the destination floor operation input modes is performed by operating (pressing) the shift button 6 and then canceling the operation (pressing) of the shift button 6. Specifically, the switching between the destination floor operation input modes is performed by pressing and then releasing the shift button 6. The destination floor operation input mode after the switching is maintained even after the cancellation of the operation of the shift button 6.

[0026] Therefore, each time the shift button 6 is released after being pressed, the destination floor operation input mode is switched to change the destination

floor display on each of the display devices 7.

[0027] FIG. 4 is a table for showing the control of the operation controller 13 illustrated in FIG. 1 when the operation controller 13 is operated in the extended operation input modes. In this example, the extended operation input mode after the switching is maintained only when the operation (pressing) of the shift button 6 is continued. By canceling the operation (pressing) of the shift button 6, the extended operation input mode returns to that before the switching.

[0028] The operation controller 13 outputs the control command for causing a warning buzzer provided to the announcement device 10 to generate an alarm to the on-board controller 12 when a time period in which the operation of the shift button 6 is continued exceeds a predetermined time (specifically, a duration time of the extended operation input mode after the switching exceeds the predetermined time).

[0029] In addition, when the operation of the shift button 6 is continued (specifically, the operation controller 13 is operated in the extended operation input mode after the switching), the operation controller 13 outputs the control command according to the operated operation button to the on-board controller 12 by the operation of any of the door-open button 4, the door-close button 5 and the destination floor buttons 3. In this example, the operation controller 13, which is operated in the extended operation input mode after the switching, outputs the control command for allowing a door-open state to be kept longer upon operation of the door-open button 4, outputs a control command for performing switching between ON/OFF operations of the illuminator 11 upon operation of the door-close button 5, and outputs a control command for making a notification (announcement) by the announcement device 10 upon operation of any of the destination floor buttons 3.

[0030] Further, the operation controller 13 operated in the extended operation input mode after the switching outputs the control command for performing the switching between standby in the door-open state and cancellation of the standby state upon operation of both the door-open button 4 and the door-close button 5.

[0031] Therefore, by operating at least any of the destination floor buttons 3, the door-open button 4 and the door-close button 5 while the shift button 6 is being pressed, an operation different from a normal operation which is otherwise performed upon operation of each of the operation buttons is performed. The control means includes the operation detecting section 8, the on-board controller 12, and the operation controller 13.

[0032] Next, the operation will be described. FIG. 5 is a flowchart for showing an operation of processing of the operation controller 13 illustrated in FIG. 1. The operation controller 13 constantly judges based on the information from the operation detection section 8 whether or not the shift button 6 has been operated (S1). If the shift button 6 has not been operated, whether or not the shift button 6 has been operated is repeatedly judged by the opera-

tion controller 13.

[0033] If the shift button 6 has been operated, the operation controller 13 judges whether or not the duration time of the operation of the shift button 6 exceeds the predetermined time (S2). If the operation of the shift button 6 is cancelled before the duration time exceeds the predetermined time, the operation controller 13 sets the number of modes N to 1 to perform switching from a basic destination floor operation input mode to another destination floor operation input mode (S3).

[0034] Thereafter, the operation controller 13 judges whether or not the shift button 6 has been operated again (S4). If the shift button 6 has been operated again, the operation controller 13 judges whether or not the number of modes N is a preset maximum value (integer value) P (S5).

[0035] If the number of modes N is not the maximum value P, the operation controller 13 sets the number of modes N to (N+1) to perform switching to a further destination floor operation input mode (S6). When the number of modes N is the maximum value P, the operation controller 13 sets the number of mode N to 0 to perform switching to the basic destination floor operation input mode (S7). After the switching of the destination floor operation input mode, the operation controller 13 judges whether or not the shift button 6 has been operated again (S4).

[0036] If the shift button 6 has not been operated again, the operation controller 13 multiplies the preset coefficient (integer) α by the number of modes N to calculate an additional value ($\alpha \times N$) (S8). Thereafter, the operation controller 13 outputs the control command, which causes each of the display devices 7 to display a value obtained by adding the additional value ($\alpha \times N$) to each of the reference values set respectively for the destination floor buttons 3 as the destination floor display, to the on-board controller 12 (S9).

[0037] Thereafter, the display devices 7 display the destination floors for the respective destination floor buttons 3 according to the control command from the operation controller 13. Then, when any of the destination floor buttons 3 is operated, a call for a destination floor corresponding to the operated destination floor button 3 is registered. In this example, the destination floor display is performed in green when no call for a destination floor is registered. When the call is registered, the destination floor display turns red. Upon registration of the call for the destination floor, the car 1 is moved to the destination floor, for which the registration of the call is performed, by the control of the operation controller 13.

[0038] On the other hand, if the operation of the shift button 6 is continued even after elapse of the predetermined time, the operation controller 13 is operated in the extended operation input mode. At this time, the operation controller 13 judges whether or not at least any of the destination floor buttons 3, the door-open button 4 and the door-close button 5 has been operated within a preset extended function operation time (S10).

[0039] If none of the destination floor buttons 3, the door-open button 4 and the door-close button 5 has been operated, the operation controller 13 judges that the shift button 6 is pressed and held down (S11) and outputs the control command for causing the warning buzzer to generate an alarm (S12).

[0040] If at least any of the destination floor buttons 3, the door-open button 4 and the door-close button 5 has been operated within the extended function operation time, the operation controller 13 outputs the control command according to the operation of each of the operation buttons 3 to 5 (S13).

[0041] Thereafter, the control according to the control command from the operation controller 13 is performed for each of the door device 9, the announcement device 10 and the illuminator 11. Specifically, when the destination floor button 3 is operated, the announcement device 10 makes a notification regarding the operation of the elevator. When the door-open button 4 is operated, the door-open state is kept longer by the door device 9. When the door-close button 5 is operated, the switching between the ON/OFF operations of the illumination inside the car 1 is performed by the illuminator 11. Moreover, when the door-open button 4 and the door-close button 5 are operated simultaneously, the switching between the standby in the door-open state and the cancellation of the standby state is performed by the door device 9.

[0042] In the elevator apparatus described above, the switching between the operation input modes of the operation controller 13 is performed by the operation of the shift button 6. In addition, a plurality of operation buttons of all the operation buttons 3 to 5 are set as the buttons for switching, and the control of the operation controller 13 based on the operation of each of the buttons for switching differs for each operation input mode. Therefore, by switching the operation input mode, a plurality of different types of control can be performed by the same buttons for switching. Therefore, the number of operation buttons 3 to 5 can be reduced to prevent the size of the car operating panel 2 from being increased. As a result, for example, even for the car 1 which can stop at a large number of floors of a high-rise building, the number of the destination floor buttons 3 can be reduced, and therefore, the destination floor buttons 3 can be located at a low position that children or elderly people can reach. Moreover, the switching between the operation input modes can be performed by the shift button 6, and hence it is no longer necessary to provide a numeric keypad having a complex structure, whereby the structure can be simplified. Therefore, the fabrication cost can be reduced. Further, the plurality of operation buttons are set as the buttons for switching, and hence the plurality of types of control performed by each of the operations of the buttons for switching can be switched at a time. Accordingly, the number of operations of the shift button 6 can be reduced, thereby facilitating the operation relating to the operation of the elevator.

[0043] Further, the display devices 7, each for display-

ing the destination floor of the car 1, are provided on the car operating panel 2. The operation controller 13 switches the destination floor display for each of the destination floor operation input modes. Therefore, even when the destination floor selected by each of the destination floor buttons 3 changes, a passenger in the car 1 can be prevented from falsely recognizing the destination floor corresponding to each of the destination floor buttons 3.

[0044] Moreover, the display device 7 is individually provided to each of the destination floor buttons 3, and hence the destination floor display can be performed for each of the destination floor buttons 3. Therefore, the passenger in the car 1 can easily recognize the destination floor corresponding to each of the destination floor buttons 3.

[0045] Further, the door-open button 4 and the door-close button 5 are set as the buttons for switching in the extended operation input mode, and hence a plurality of different types of control can be performed not only by the operation of the destination floor buttons 3 but also by the operation of the door-open button 4 or the door-close button 5.

[0046] Further, in the operation controller 13, the extended operation input mode after the switching is maintained only when the operation of the shift button 6 is continued and the switching to the extended operation input mode before the switching is performed by the cancellation of the operation of the shift button 6. Therefore, the switching between the extended operation input modes can be facilitated. Moreover, the extended operation input mode after the switching automatically returns to the one before the switching by the cancellation of the operation of the shift button 6, and hence false recognition of the extended operation input mode can be prevented even without display.

[0047] Moreover, the destination floor operation input mode after the switching is maintained for the operation controller 13 even after the operation of the shift button 6 is cancelled, and hence the switching between three or more destination floor operation input modes can be performed. Therefore, three or more types of control can be performed by the same operation buttons. As a result, the number of operation buttons can be further reduced.

Second Embodiment

[0048] FIG. 6 is a front view illustrating a car operating panel 2 of an elevator apparatus according to a second embodiment of the present invention. FIG. 7 is a front view illustrating the car operating panel 2 illustrated in FIG. 6 when an operation controller 13 is operated in the destination floor operation input mode after the switching. Different reference values are individually displayed as basic display on respective destination floor buttons 3. The basic display of each of the destination floor buttons 3 is fixed display. In this example, numerals from one to ten indicating basic destination floors are displayed as the basic display on the respective destination floor but-

tons 3.

[0049] A display device 21 is located at a position different from that of each of the destination floor buttons 3. In this example, the display device 21 is located below a shift button 6. The display device 21 displays an additional value to be added to the basic display as common destination floor display for each of the destination floor operation input modes. Specifically, the display device 21 displays the number of floors, which is to be added to the numeral representing each of the basic destination floors, as the common destination floor display for each of the destination floor operation input modes.

[0050] For the operation controller 13, each of the reference values displayed as the basic display is set for each of the destination floor buttons 3. Moreover, for the operation controller 13, a different number (integer) of modes N is set for each of the destination floor operation input modes. The operation controller 13 multiplies the number of modes N corresponding to the destination floor operation input modes by the coefficient α to calculate the common additional value ($\alpha \times N$). On the display device 21, the common additional value ($\alpha \times N$) calculated by the operation controller 13 is displayed as the destination floor display.

[0051] In this example, the coefficient α is ten. The number of modes N in the destination floor operation input mode before the switching is zero, whereas the number of modes N in the destination floor operation input mode after the switching is one. Specifically, in the destination floor operation input mode before the switching, +0 is displayed as the destination floor display by the display device 21 (FIG. 6). In the destination floor operation input mode after the switching, +10 is displayed as the destination floor display by the display device 21 (FIG. 7).

[0052] Upon operation of any of the destination floor buttons 3, the operation controller 13 registers a call for a floor specified by adding the number of floors corresponding to the common additional value ($\alpha \times N$) to the basic display of the operated destination floor button 3 as the destination floor. For example, when the destination floor button 3 with the basic display of the second floor is operated while +10 is being displayed as the destination floor display, a call is registered for the twelfth floor as the destination floor. The remaining structure and operation are the same as those of the first embodiment.

[0053] In the elevator apparatus described above, the operation controller 13 calculates the common additional value ($\alpha \times N$) for each of the destination floor operation input modes. The display device 21 located at a position different from that of each of the destination floor buttons 3 displays the common additional value ($\alpha \times N$) as the common destination floor display. Therefore, the destination floor can be specified for each of the destination floor buttons 3, whereas it is sufficient to provide only one display device 21. Therefore, the fabrication cost can be further reduced.

[0054] Although the destination floor operation input

mode after the switching by the operation of the shift button 6 is maintained until the shift button 6 is operated again in each of the embodiments described above, the maintenance of the destination floor operation input mode after the switching may be cancelled after elapse of a predetermined time even without the second operation of the shift button 6. In this case, after the maintenance of the destination floor operation input mode after the switching is cancelled, the destination floor operation input mode is switched to the basic destination floor operation input mode.

[0055] Moreover, although the number of the shift button 6 is one in each of the embodiments described above, the number of the shift button 6 may also be plural. In this manner, by the combination of the operations of the shift buttons 6, the switching can be performed between a larger number of operation input modes to increase the number of types of control performed by the operation of the same operation buttons. For example, by operating the door-open button 4 while two shift buttons are being simultaneously operated, the switching between the extension of a non-interference time corresponding to a time from the start of an operation of opening a door at the entrance of the car to the completion of the door-close operation and the cancellation of the extension may be performed.

[0056] Although all the destination floor buttons 3 are set as the buttons for switching in each of the embodiments described above, only some of the destination floor buttons 3 may be set as the buttons for switching.

Claims

1. An elevator apparatus comprising:

a plurality of operation buttons provided inside a car;
control means switchable between a plurality of operation input modes, for setting a plurality of the operation buttons among all the operation buttons as buttons for switching to differ control based on an operation of each of the buttons for switching for each of the operation input modes; and
a shift operation section which is operated inside the car to perform switching between the operation input modes.

2. An elevator apparatus according to Claim 1, wherein:

each of the buttons for switching is a destination floor button for selecting a destination floor of the car;
the elevator apparatus further includes a display device provided inside the car to perform destination floor display for specifying the destination floor corresponding to each of the destination

floor buttons; and

the control means causes the display device to perform the destination floor display and switches the destination floor display for each of the operation input modes to allow a different floor to be specified as the destination floor for each of the operation input modes.

3. An elevator apparatus according to Claim 2, wherein the display device is individually provided to each of the destination floor buttons to perform the destination floor display for each of the destination floor buttons.

4. An elevator apparatus according to Claim 2, wherein:

a different reference value is set for each of the destination floor buttons in the control means; the control means calculates a common additional value to be added to each of the reference values, for each of the operation input modes; and
the display device is provided at a position different from a position of each of the destination floor buttons to display the common additional value as the destination floor display being common.

5. An elevator apparatus according to Claim 1, wherein the buttons for switching are a door-open button and a door-close button for opening and closing an entrance of the car.

6. An elevator apparatus according to Claim 1, wherein, in the control means, the operation input mode after switching is maintained only when the operation of the shift operation section is continued, whereas the operation input mode after switching is switched to the operation input mode before switching by canceling the operation of the shift operation section.

7. An elevator apparatus according to Claim 1, wherein the operation input mode after switching is maintained in the control means even when the operation of the shift operation section is cancelled.

8. An elevator apparatus according to Claim 7, wherein the maintenance of the operation input mode after switching is cancelled after elapse of a predetermined time.

FIG. 1

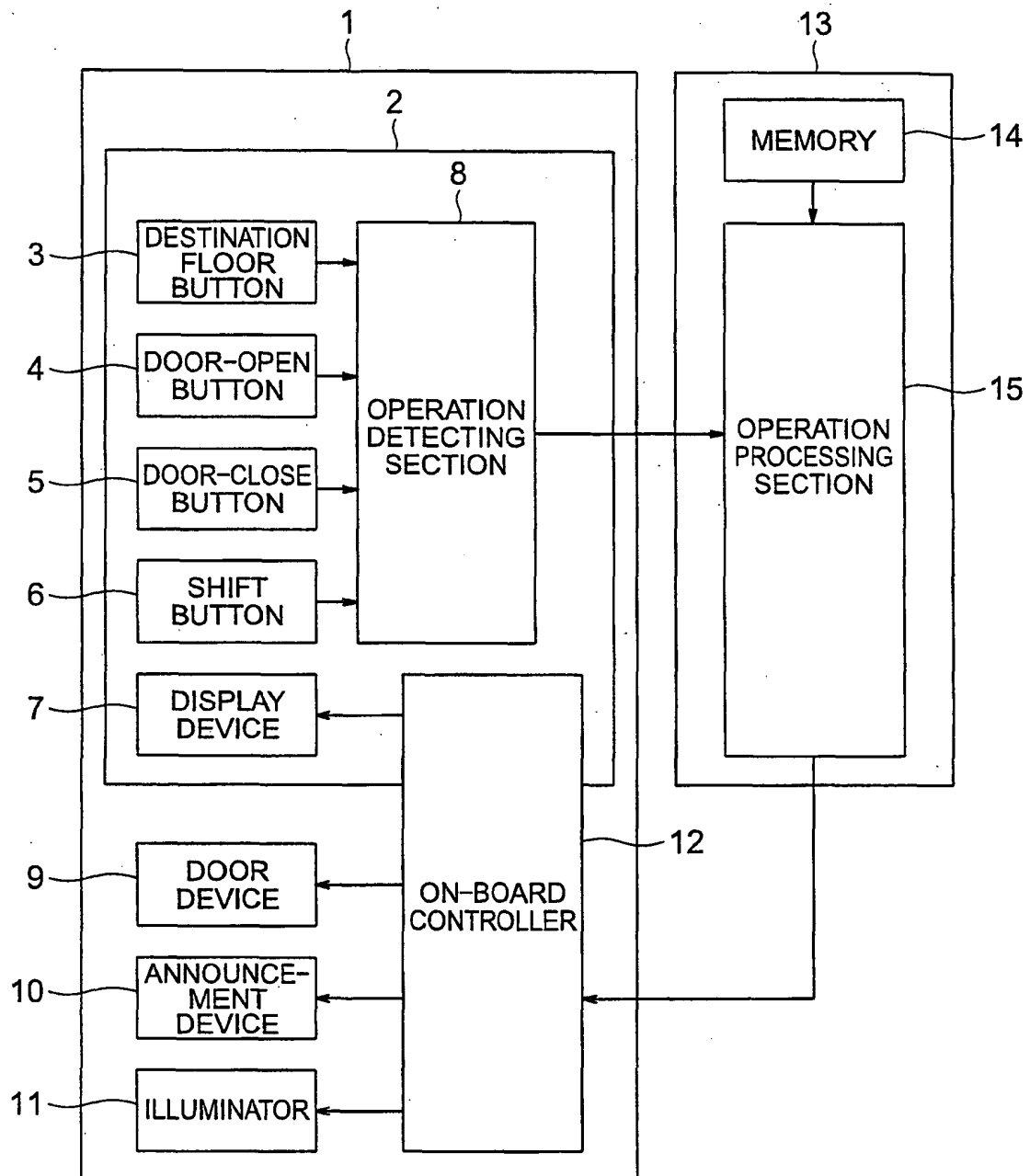


FIG. 2

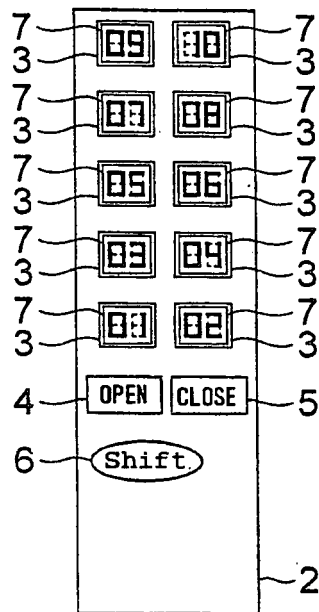


FIG. 3

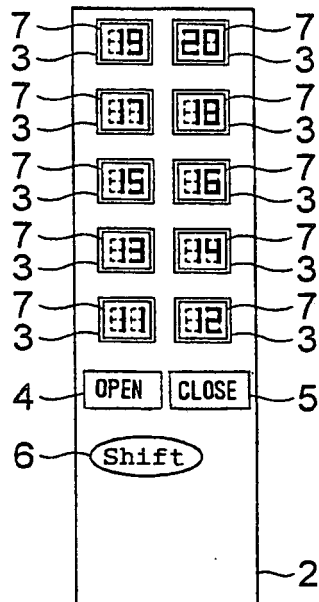


FIG. 4

PRESSING AND HOLDING OF SHIFT BUTTON	OPERATION OF WARNING BUZZER
SHIFT BUTTON + DOOR-OPEN BUTTON	EXTENDED DOOR-OPEN
SHIFT BUTTON + DOOR-CLOSE BUTTON	ILLUMINATION ON/OFF SWITCHING
SHIFT BUTTON + DESTINATION FLOOR BUTTON	ANNOUNCEMENT (XX-TH FLOOR, XX DEPARTMENT, AND THE LIKE)
SHIFT BUTTON + DOOR-OPEN BUTTON + DOOR-CLOSE BUTTON	SWITCHING BETWEEN STANDBY WITH DOOR OPEN AND CANCELLATION

FIG. 5

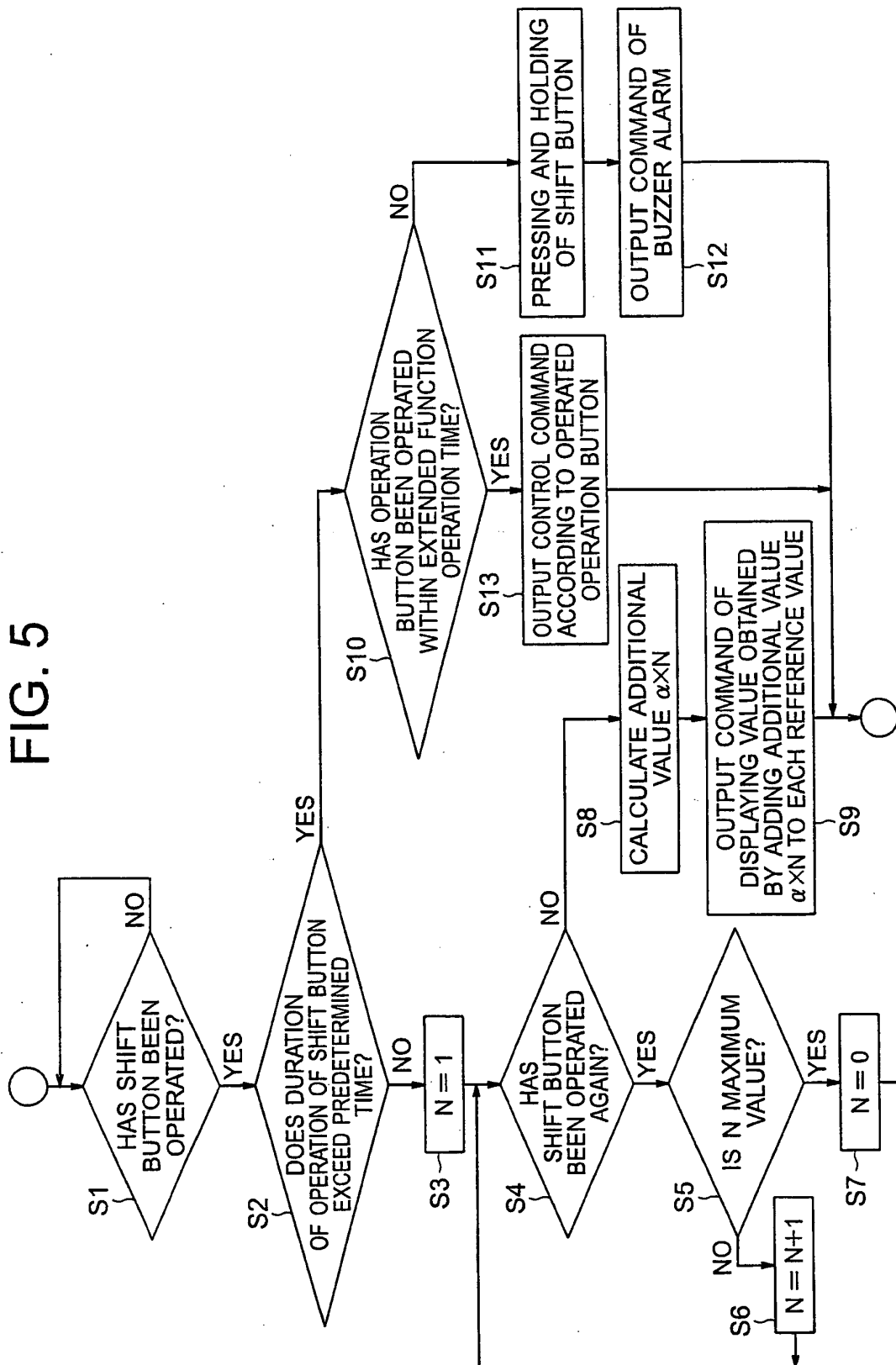


FIG. 6

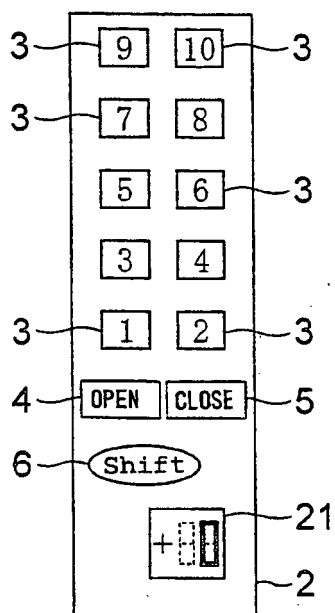
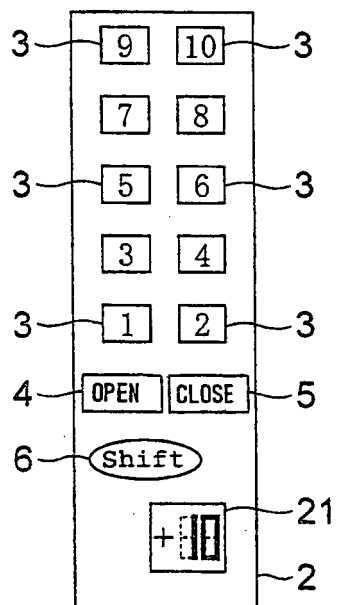


FIG. 7



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2007/058505

A. CLASSIFICATION OF SUBJECT MATTER B66B1/50 (2006.01) i		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) B66B1/00-B66B3/02		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2007 Kokai Jitsuyo Shinan Koho 1971-2007 Toroku Jitsuyo Shinan Koho 1994-2007		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	JP 01-288584 A (Mitsubishi Electric Corp.), 20 November, 1989 (20.11.89), (Family: none)	1-3 4-8
Y	JP 2005-162344 A (Mitsubishi Electric Corp.), 23 June, 2005 (23.06.05), (Family: none)	4
Y	JP 2006-016149 A (Mitsubishi Electric Building Techno-Service Co., Ltd.), 19 January, 2006 (19.01.06), (Family: none)	5
Y	JP 63-185786 A (Toshiba Corp.), 01 August, 1988 (01.08.88), (Family: none)	6
☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 21 December, 2007 (21.12.07)		Date of mailing of the international search report 08 January, 2008 (08.01.08)
Name and mailing address of the ISA/ Japanese Patent Office		Authorized officer
Facsimile No.		Telephone No.

Form PCT/ISA/210 (second sheet) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2007/058505

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2005/077803 A1 (Mitsubishi Electric Corp.), 25 August, 2005 (25.08.05), & US 2006/0225964 A1	7-8

Form PCT/ISA/210 (continuation of second sheet) (April 2007)

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP 2003221172 A [0003]