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(54) **ELEVATOR OPERATION SYSTEM**

(57) Provided is an elevator operation device which allows users to perform smooth and efficient button input operations and ensures the convenience of users and a good operation efficiency of an elevator by reducing the occurrence of wrong inputs and unnecessary call registrations. For this purpose, an elevator operation device provided with numerical keyboard buttons by depressing which a user of an elevator performs a registration operation of a call to his or her destination floor includes: button lighting means provided for each of the numerical keyboard buttons, a service floor recording function which records service floor information, which is information about a floor which is being served by the elevator and at which the elevator is capable of stopping, and a numerical keyboard button lighting control function which causes the button lighting means of the numerical keyboard buttons to light up or blink which needs to be depressed in performing a call registration operation for a floor which is to be served and at which the elevator is capable of stopping as a destination floor, according to the service floor information and the condition of the operation of the numerical keyboard buttons by the user.

Fig. 1

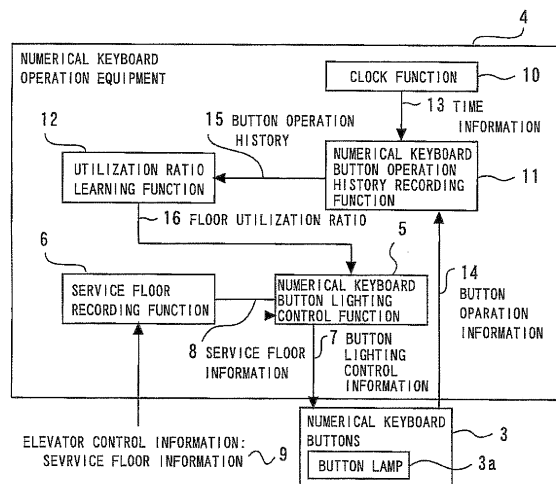
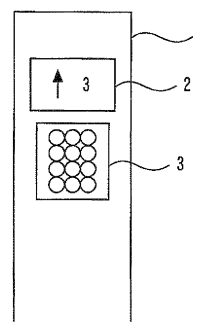


Fig. 2



Description

Technical Field

[0001] The present invention relates to an elevator operation device.

Background Art

[0002] In general, operation devices which an elevator user operates to perform a call registration, are often provided with call registration buttons for each service floor. On the other hand, in recent years, an increasing number of so-called multi-floor stop type elevators, which are installed in high-rise buildings and the like, have tended to adopt a numerical keyboard operation device in order to avoid an increase in the number of call registration buttons.

Thus, as conventional elevator operation devices in which the numerical keyboard method is adopted, elevator operation devices are known which are provided with numerical keys for arbitrarily designating a destination floor and car call buttons for specific floors set beforehand, and in which destination floors to be assigned to the above-described car call buttons for specific floors are configured to be automatically assigned, by learning, to floors having a high call registration frequency (refer to, for example, Patent Document 1).

Also, as conventional elevator operation devices in which the numerical keyboard method is adopted and car calls are registered in a hall, and which are such that an elevator user can swiftly make sure of the registration or non-registration of the floor to which the elevator user wants to go and of the car to be boarded by the elevator user, elevator operation devices are known which are provided with numerical keys for inputting destination floors and an indicator which is provided in the vicinity of the numerical keys and indicates the destination floor registered by use of the numerical keys and the car No. assigned to this destination floor (refer to, for example, Patent Document 2).

[0003]

Patent Document 1: Japanese Patent Laid-Open No. 08-119543

Patent Document 2: Japanese Patent Laid-Open No. 2001-287876

Disclosure of the Invention

Problems to be Solved by the Invention

[0004] However, in conventional elevator operation devices which adopt the numerical keyboard method, compared to general call registration buttons provided for each service floor, it is possible to input all floors that are realizable by combinations of figure buttons of 0 to 9 and basement floor buttons, requiring somewhat compli-

cated operations. Also, it is possible to perform inputting for designating a floor at which the elevator does not stop because this floor is not to be served regardless of whether a call registration is actually performed or not. In addition, the user may sometimes be not accustomed to the operation.

For this reason, there are a problem that the user cannot perform an operation for going to his or her destination floor at will, a problem that the convenience deteriorates due to an increase in the labor of the user, such as re-inputs due to wrong inputs, and a problem that the operation efficiency of the elevator may worsen because of the occurrence of an unnecessary call registration.

[0005] In the conventional elevator operation device described in Patent Document 1, in a case where a destination floor has been assigned to a car call button for specific floor, the user can perform a call registration for his or her destination floor by depressing the relevant car call button for specific floor. However, it is quite probable that a destination floor is not assigned to the car call button for specific floor, because there is a limit to the number of car call buttons for specific floor.

When a destination floor is not assigned to a car call button for specific floor like this, the user has to perform operation by use of the numerical keys, and this poses problems similar to those in the above-described conventional elevator operation device which adopts the numerical keyboard method.

Furthermore, aside from this, there is also a problem that the space for installing car call buttons for specific floor besides the numerical keys is necessary.

[0006] The present invention has been made to solve the problems described above, and the invention provides an elevator operation device which allows users to perform smooth and efficient button input operations, and ensures the convenience of users and a good operation efficiency of an elevator by reducing the occurrence of wrong inputs and unnecessary call registrations.

Means for Solving the Problems

[0007] The present invention relates to an elevator operation device is configured to be provided with numerical keyboard buttons by depressing which a user of an elevator performs a registration operation of a call to his or her destination floor, including button lighting means provided for each of the numerical keyboard buttons, a service floor recording function which records service floor information, which is information about a floor which is being served by the elevator and at which the elevator is capable of stopping, and a numerical keyboard button lighting control function which causes the button lighting means of the numerical keyboard buttons to light up or blink which needs to be depressed in performing a call registration operation for a floor which is to be served and at which the elevator is capable of stopping as a destination floor, according to the service floor information recorded in the service floor recording function and

the condition of the operation of the numerical keyboard buttons by the user.

Advantages of the Invention

[0008] The present invention relates to an elevator operation device, and produces the advantages that users are allowed to perform smooth and efficient button input operations and it is possible to improve the convenience of users and the operation efficiency of an elevator by reducing the occurrence of wrong inputs and unnecessary call registrations, because an elevator operation device is configured to be provided with numerical keyboard buttons by depressing which a user of an elevator performs a registration operation of a call to his or her destination floor, including button lighting means provided for each of the numerical keyboard buttons, a service floor recording function which records service floor information, which is information about a floor which is being served by the elevator and at which the elevator is capable of stopping, and a numerical keyboard button lighting control function which causes the button lighting means of the numerical keyboard buttons to light up or blink which needs to be depressed in performing a call registration operation for a floor which is to be served and at which the elevator is capable of stopping as a destination floor, according to the service floor information recorded in the service floor recording function and the condition of the operation of the numerical keyboard buttons by the user.

Brief Description of the Drawings

[0009]

Figure 1 is a block diagram showing the general configuration of the elevator operation device related to Embodiment 1 and 2 of the present invention.

Figure 2 is a front view of the elevator operation device related to Embodiment 1 and 2 of the present invention.

Figure 3 is a diagram showing an example of a button operation history recorded in a numerical keyboard button operation history recording function related to Embodiment 2 of the present invention.

Description of Symbols

[0010]

- 1 operating panel
- 2 indication section
- 3 numerical keyboard buttons
- 3a button lamp
- 4 numerical keyboard operation equipment
- 5 numerical keyboard button lighting control function
- 6 service floor recording function
- 7 button lighting control information

- 8 service floor information
- 9 elevator control information
- 10 clock function
- 11 numerical keyboard button operation history recording function
- 12 utilization ratio learning function
- 13 time information
- 14 button operation information
- 15 button operation history
- 16 floor utilization ratio

Best Mode for Carrying Out the Invention

Embodiment 1

[0011] Figures 1 and 2 relate to Embodiments 1 and 2 of the present invention, Figure 1 being a block diagram showing the general configuration of the elevator operation device and Figure 2 being a front view of the elevator operation device.

In the figures, reference numeral 1 denotes an operating panel provided within a car of an elevator and in a hall, and is intended for use by users who perform registration operations to make calls to their destination floors. This operating panel 1 is provided with an indication section 2 which indicates information, such as the travel direction, present position and the like of the elevator, and numerical keyboard buttons 3 by depressing which a user performs a registration operation of a call to his or her destination floor.

Reference numeral 4 denotes numerical keyboard operation equipment which controls the whole operation of the operation device including the above-described numerical keyboard buttons 3, and this numerical keyboard operation equipment 4 is provided with the above-described numerical keyboard button lighting control function 5 and the above-described service floor recording function 6.

Each button of the above-described numerical keyboard buttons 3 incorporates a button lamp 3a (button lighting means) made of, for example, LED, and this button lamp 3a performs lighting up or blinking actions on the basis of button lighting control information 7 outputted from the above-described numerical keyboard button lighting control function 5.

The above-described service floor recording function 6 has a function of receiving an input of elevator control information 9, which is outputted from an elevator controller that is not shown, obtaining service floor information 8, which is information about a floor which is being served by the elevator contained in this elevator control information 9 (and at which the elevator is capable of stopping), and recording this information.

[0012] The above-described service floor recording function 6 outputs the above-described service floor information 8 which is recorded to the above-described numerical keyboard button lighting control function 5. Then, on the basis of this service floor information 8, the

above-described numerical keyboard button lighting control function 5 outputs the above-described button lighting control information 7 to the above-described button lamp 3a of the above-described numerical keyboard buttons 3 which needs to be depressed in performing a call registration operation for a floor which is to be served and at which the elevator is capable of stopping as a destination floor, so that the above-described button lamp 3a is caused to light up or blink according to the condition of the operation of the above-described numerical keyboard buttons 3 by a user, whereby the above-described numerical keyboard button lighting control function, 5 performs necessary control about lighting up and blinking actions of the above-described button lamp 3a.

In other words, the above-described button lamp 3a of the above-described numerical keyboard buttons 3, by depressing which a call registration is performed for a floor which is not to be served and at which the elevator is incapable of stopping, is controlled so as not to light up or blink.

[0013] Hereinafter, a description will be given of the operation of the elevator operation equipment in this embodiment concretely, for example, in a case where floors which are to be served by the elevator and at which the elevator is capable of stopping, are floors of the 5th basement, the 4th basement, the 3rd basement, and the 1st floor, the 6th floor, the 7th floor, the 15th floor, the 16th floor, the 17th floor, the 21st floor, the 22nd floor and 23rd floor (above the ground).

First, in a standby condition in which the above-described numerical keyboard buttons 3 have not yet been depressed by the user, the "basement floor" button and each of figure buttons "1," "2," "6," and "7" perform lighting up or blinking actions.

This is indicated by the lighting up or blinking of a button which needs to be depressed from the above-described standby condition as the first depressing in performing a call registration for a floor which is to be served and at which the elevator is capable of stopping as a destination floor. This corresponds to the fact that it is possible to perform a call registration for the 5th basement, the 4th basement and the 3rd basement in the case of the "basement floor" button, and similarly, the button "1" corresponds to the 1st floor, the 15th floor, the 16th floor and the 17th floor, the button "2" corresponding to the 21st floor, the 22nd floor and the 23rd floor, the button "6" corresponding to the 6th floor, and the button "7" corresponding to the 7th floor.

[0014] When the "basement floor" button has been depressed from this standby condition as the first depressing, this time each figure button of "3," "4," and "5" performs lighting up or blinking actions. This corresponds to the fact that it is possible to perform a call registration for the 5th basement, the 4th basement and the 3rd basement by depressing the buttons which are lighting up or blinking subsequently as the second depressing, When the button "1" has been depressed from the above-described standby condition as the first depressing, each

of the figure buttons "5," "6" and "7" performs lighting up or blinking actions. This corresponds to the fact that it is possible to perform a call registration for the 15th floor, the 16th floor and the 27th floor by depressing the buttons which are lighting up or blinking subsequently as the second depressing. Incidentally, a call registration for the 1st floor is performed by depressing a button having the function of notifying the operation device of the completion of the input (for example, a "confirmation" button and a "completion" button).

When the button "2" has been depressed from the above-described standby condition as the first depressing, each of the figure buttons "1," "2" and "3" performs lighting up or blinking actions. This corresponds to the fact that it is possible to perform a call registration for the 21st floor, the 22nd floor and the 23rd floor by depressing the buttons which are lighting up or blinking subsequently as the second depressing.

When the button "6" or "7" has been depressed from the above-described standby condition as the first depressing, neither the "basement floor" button nor any of the figure buttons performs lighting up or blinking actions. When a call registration for the 6th floor or the 7th floor is desired, it is enough that a button having the function of notifying the operation device of the completion of the input is depressed.

[0015] Incidentally, because the above-described elevator control information 9 is outputted from the above-described elevator controller each time the service condition of the elevator changes, for example, due to the installation of a new floor, and the above-described service floor recording function 6 which has received this elevator control information 9 updates the above-described service floor information 8 which is recorded, the above-described service floor information 8 recorded in the above-described service floor recording function 6 is maintained in a condition in which the service floor information 8 is constantly updated to the newest information.

[0016] In the elevator operation device configured as described above, in performing a call registration for a floor which is to be served and at which the elevator is capable of stopping as a destination floors, a button which needs to be depressed next is caused to light up or blink depending on whether the button is in a standby condition or in a condition in which the first depressing has been performed, whereby it becomes easy for the user of the elevator to make a visual judgment on the button which is to be depressed next. Therefore, smooth and efficient button input operations by the user become possible and it is possible to improve the convenience of the user and the operation efficiency of the elevator by reducing the occurrence of wrong inputs and unnecessary call registrations.

Embodiment 2

[0017] Figure 3 relates to Embodiment 2 of the present invention, and is a diagram showing an example of a

button operation history recorded in a numerical keyboard button operation history recording junction.

Embodiment 2 described here is such that in the configuration of Embodiment 1 described above, it is ensured that a button lamp of the numerical keyboard buttons having a high possibility of being depressed by the user during the operation of the numerical keyboard buttons is caused to light up or blink on the basis of the floor utilization ratio in each time zone calculated on the basis of a numerical keyboard button operation history record. That is, the above-described numerical keyboard operation equipment 4 is provided with a clock function 10, a numerical keyboard button operation history recording function 11 and a utilization ratio learning function 12, and other components are the same as in Embodiment 1.

[0018] The above-described clock function 10 measures time, and from here it is possible to obtain time information 13, which is information about the present time. The above-described numerical keyboard button operation history recording function 11 receives an input of button operation information 14 outputted from the above-described numerical keyboard buttons 3, which is information about the operation of the above-described numerical keyboard buttons 3 performed by the user, and records this button operation information 14.

Also, the above-described numerical keyboard button operation history recording function 11 generates a button operation history 15 from this button operation information 14 and from the present time obtained from the above-described time information 13, which is outputted from the above-described clock function 10, and records this generated button operation history 15. An example of the above-described button operation history 15 recorded in the above-described numerical keyboard button operation history recording function 11 is shown in Figure 3.

[0019] The above-described utilization ratio learning function 12 has a function of periodically calculating a floor utilization ratio 16, which is a utilization ratio of each floor in each time zone, on the basis of the above-described button operation history 15 outputted from the above-described numerical keyboard button operation history recording function 11, and recording this calculated floor utilization ratio 16.

For example, according to the example of the above-described button operation history 15 shown in Figure 3, the utilization ratios of the 5th basement, the 4th basement and the 1st floor are high in the morning time zone until 9 o'clock, the utilization ratio of the 16th floor is high in the forenoon time zone from 9 o'clock to 11 o'clock, the utilization ratios of the 3rd basement, the 17th floor and the 23rd floor are high in the noon time zone from 11 o'clock to 13 o'clock, the utilization ratios of the 3rd basement, the 1st floor, the 6th floor, the 7th floor and the 16th floor are high in the afternoon to late afternoon time zone from 13 o'clock to 19 o'clock, and the utilization ratios of the 6th floor, the 7th floor, the 15th floor, the 21st floor and the 22nd floor are high in the night time zone

at 19 o'clock and later.

The above-described floor utilization ratio 16 is calculated so as to appropriately reflect such a utilization condition of each floor in each time zone.

[0020] Hereinafter, a description will be given of the operation of the elevator operation equipment in this embodiment concretely, for example, in a case where the button operation history of the elevator is as shown in Figure 3.

First, in the morning time zone until 9 o'clock, the utilization ratios of the 5th basement, the 4th basement and the 1st floor are high. As a result of this, in a standby condition in which the above-described numerical keyboard buttons 3 have not yet been depressed by any of the users in this time zone, the "basement floor" button and the button "1" perform lighting up or blinking actions. This is indicated by the lighting up or blinking of a button having a high possibility of the first depressing from the above-described standby condition in performing a call registration for a floor having a high possibility of being regarded as a destination floor in the time zone in question in terms of the past operation history and floor utilization ratio; this corresponds to the fact that it is possible to perform a call registration for the 5th basement and the 4th basement in the case of the "basement floor" button, and to the fact that it is possible to perform a call registration for the 1st floor with the button "1."

When the "basement floor" button has been depressed from this standby condition as the first depressing, this time each of the figure buttons "4" and "5" performs lighting up or blinking actions. This corresponds to the fact that by depressing the buttons which are lighting up or blinking subsequently as the second depressing, it is possible to perform a call registration for the 5th basement and the 4th basement,

When the button "1" has been depressed from the above-described standby condition as the first depressing, neither the "basement floor" button nor any of the figure buttons performs lighting up or blinking actions. When a call registration for the 1st floor is desired, it is enough that a button having the function of notifying the operation device of the completion of the input is depressed.

[0021] In the forenoon time zone from 9 o'clock to 11 o'clock, the utilization ratio of the 16th floor is high. As a result of this, in the above-described standby condition in the time zone in question, the button "1" performs lighting up or blinking actions.

When the button "1" has been depressed from this standby condition as the first depressing, the button "6" performs lighting up or blinking actions. This corresponds to the fact that by depressing a button which is lighting up or blinking subsequently as the second depressing, it is possible to perform a call registration for the 16th floor, which is a floor having a high possibility of being regarded as a destination floor in the time zone in question in terms of the past operation history and floor utilization ratio.

[0022] In the noon time zone from 11 o'clock to 13 o'clock, the utilization ratios of the 3rd basement, the 17th

floor and the 23rd floor are high. As a result of this, in the above-described standby condition in the time zone in question, the "basement floor" button and each of the figure buttons [1] and [2] perform lighting up or blinking actions.

This is indicated by the lighting up or blinking of a button having a high possibility of the first depressing from the above-described standby condition in performing a call registration for a floor having a high possibility of being regarded as a destination floor in the time zone in question in terms of the past operation history and floor utilization ratio; this corresponds to the fact that it is possible to perform a call registration for the 3rd basement in the case of the "basement floor" button, and to the fact that it is possible to perform a call registration for the 17th floor with the button "1" and for the 23rd floor with the button "2."

When the "basement floor" button has been depressed from this standby condition as the first depressing, the button "3" performs lighting up or blinking actions. This corresponds to the fact that by depressing the button which is lighting up or blinking subsequently as the second depressing, it is possible to perform a call registration for the 3rd basement.

Also, when the button "1" has been depressed from the above-described standby condition as the first depressing, the button "7" performs lighting up or blinking actions. This corresponds to the fact that by depressing the button which is lighting up or blinking subsequently as the second depressing, it is possible to perform a call registration for the 17th floor.

When the button "2" has been depressed from the above-described standby condition as the first depressing, the button "3" performs lighting up or blinking actions. This corresponds to the fact that by depressing the button which is lighting up or blinking subsequently as the second depressing, it is possible to perform a call registration for the 23rd floor.

[0023] In the afternoon to late afternoon time zone from 13 o'clock to 19 o'clock, the utilization ratios of the 3rd basement, the 1st floor, the 6th floor, the 7th floor and the 16th floor are high. As a result of this, in the above-described standby condition in the time zone in question, the "basement floor" button and each of the figure buttons [1], [6], and [7] perform lighting up or blinking actions.

This is indicated by the lighting up or blinking of a button having a high possibility of being depressed from the above-described standby condition as the first depressing in performing a call registration for a floor having a high possibility of being regarded as a destination floor in the time zone in question in terms of the past operation history and floor utilization ratio; this corresponds to the fact that it is possible to perform a call registration for the 3rd basement in the case of the "basement floor" button, and to the fact that it is possible to perform a call registration for the 1st floor and the 16th floor, with the button "1," for the 6th floor with the button "6," and for the 7th floor with the button "7."

When the "basement, floor" button has been depressed from this standby condition as the first depressing, the button "3" performs lighting up or blinking actions. This corresponds to the fact that by depressing the button which is lighting up or blinking subsequently as the second depressing, it is possible to perform a call registration for the 3rd basement.

Also when the button "1" has been depressed from the above-described standby condition as the first depressing, the button "6" performs lighting up or blinking actions. This corresponds to the fact that by depressing the button which is lighting up or blinking subsequently as the second depressing, it is possible to perform a call registration for the 16th floor. When a call registration for the 1st floor is desired, it is enough that the button having the function of notifying the operation device of the completion of the input is depressed without the depressing of other buttons.

When the button "6" or "7" has been depressed from the above-described standby condition as the first depressing, neither the "basement floor" button nor any of the figure buttons performs lighting up or blinking actions. When a call registration for the 6th floor or the 7th floor is desired, it is enough that the button having the function of notifying the operation device of the completion of the input is depressed subsequently.

[0024] Last, in the night time zone at 19 o'clock and later, the utilization ratios of the 6th floor, the 7th floor, the 15th floor, the 21st floor and the 22nd floor are high. As a result of this, in the above-described standby condition in the time zone in question, each of the figure buttons "1", "2," "6," and "7" performs lighting up or blinking actions.

This is indicated by the lighting up or blinking of a button having a high possibility of being depressed from the above-described standby condition as the first depressing in performing a call registration for a floor having a high possibility of being regarded as a destination floor in the time zone in question in terms of the past operation history and floor utilization ratio; this corresponds to the fact that it is possible to perform a call registration for the 15th floor with the button "1," for the 21st floor and the 22nd floor with the button "2," for the 6th floor with the button "6," and for the 7th floor with the button "7."

When the button "1" has been depressed from this standby condition, the button "5" performs lighting up or blinking actions. This corresponds to the fact that by depressing the button which is lighting up or blinking subsequently, it is possible to perform a call registration for the 15th floor.

Also when the button "2" has been depressed from the above-described standby condition, each of the figure buttons "1" and "2" performs lighting up or blinking actions. This corresponds to the fact that by depressing the buttons which are lighting up or blinking subsequently, it is possible to perform a call registration for the 21st floor and the 22nd floor.

When the button "6" or "7" has been depressed from the

above-described standby condition, neither the "base-ment floor" button nor any of the figure buttons performs lighting up or blinking actions. When a call registration for the 6th floor or the 7th floor is desired, it is enough that a button having the function of notifying the operation device of the completion of the input is depressed subsequently.

[0025] Incidentally, because the above-described floor utilization ratio 16 is periodically calculated, also the above-described floor utilization ratio 16 is updated as a result of the updating of the above-described button operation history 15 by the operation of the above-described numerical keyboard buttons 3 by the user,

[0026] In the elevator operation device configured as described above, in performing a call registration for a floor having a high possibility of being regarded as a destination floor in the time zone in question in terms of the past operation history and floor utilization ratio, a button having a high possibility of being depressed next is caused to light up or blink depending on whether the button is in a standby condition or in a condition in which the first depressing has been performed, whereby it becomes easy for the user of the elevator to make a visual judgment on a button having a high possibility of being depressed next. Therefore, as with Embodiment 1, smooth and efficient button input operations by the user become possible and it is possible to improve the convenience of the user and the operation efficiency of the elevator by reducing the occurrence of wrong inputs and unnecessary call registrations.

Also, by periodically updating the floor utilization ratio, it is possible to adapt to changes in the floor utilization condition.

[0027] Incidentally, when Embodiment described above and Embodiment 2 described here are used in combination, it is possible to adopt a method which involves, for example, causing a button to light up which needs to be depressed in performing a call registration for a floor which is to be served and at which the elevator is capable of stopping as a destination floor, and causing a button to blink which needs to be depressed in performing a call registration for a floor having a high possibility of being regarded as a destination floor in the time zone in question in terms of the past operation history and floor utilization ratio.

Industrial Applicability

[0028] The present invention can be applied to an elevator operation device provided with ten key buttons by depressing which a user of an elevator performs a registration operation of a call to his or her destination floor.

Claims

1. An elevator operation device provided with numerical keyboard buttons which a user of an elevator

depresses to perform a registration operation of a call to his or her destination floor, comprising:

button lighting means provided for each of the numerical keyboard buttons;
a service floor recording function which records service floor information, which is information about a floor that is being served by the elevator and at which the elevator is capable of stopping; and
a numerical keyboard button lighting control function which causes the button lighting means of the numerical keyboard buttons to light up or blink the numerical keyboard button which needs to be depressed in performing a call registration operation for a floor which is to be served and at which the elevator is capable of stopping as a destination floor, according to the service floor information recorded in the service floor recording function and the condition of the operation of the numerical keyboard buttons by the user.

2. The elevator operation device according to claim 1, comprising:

a numerical keyboard button operation history recording function which generates a button operation history from button operation information, which is information about an operation performed on the numerical keyboard buttons by a user outputted from the numerical keyboard buttons and time information, outputted from a clock function, and which records this generated button operation history; and
a utilization ratio learning function which calculates a floor utilization ratio, which is a utilization ratio of each floor in each time zone, on the basis of the button operation history recorded in the numerical keyboard button operation history recording function, and records this calculated floor utilization ratio,
wherein the numerical keyboard button lighting control function causes the button lighting means of the numerical keyboard buttons to light up or blink the numeric keyboard button which has a high possibility of being depressed by the user during the operation of the numerical keyboard buttons, according to the floor utilization ratio recorded in the utilization ratio learning function and the condition of operation of the numerical keyboard buttons by the user.

3. The elevator operation device according to claim 2, wherein the utilization ratio learning function periodically calculates and records the floor utilization ratio.
4. The elevator operation device according to any one

of claims 1 to 3, wherein the numerical keyboard
button lighting control function makes a decision
about the button lighting means which is caused to
light up or blink depending on whether the numerical
keyboard buttons are in a standby condition in which 5
the numerical keyboard buttons have not yet been
depressed by the user or in a condition in which the
numerical keyboard buttons have been depressed
once by the user.

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Fig. 1

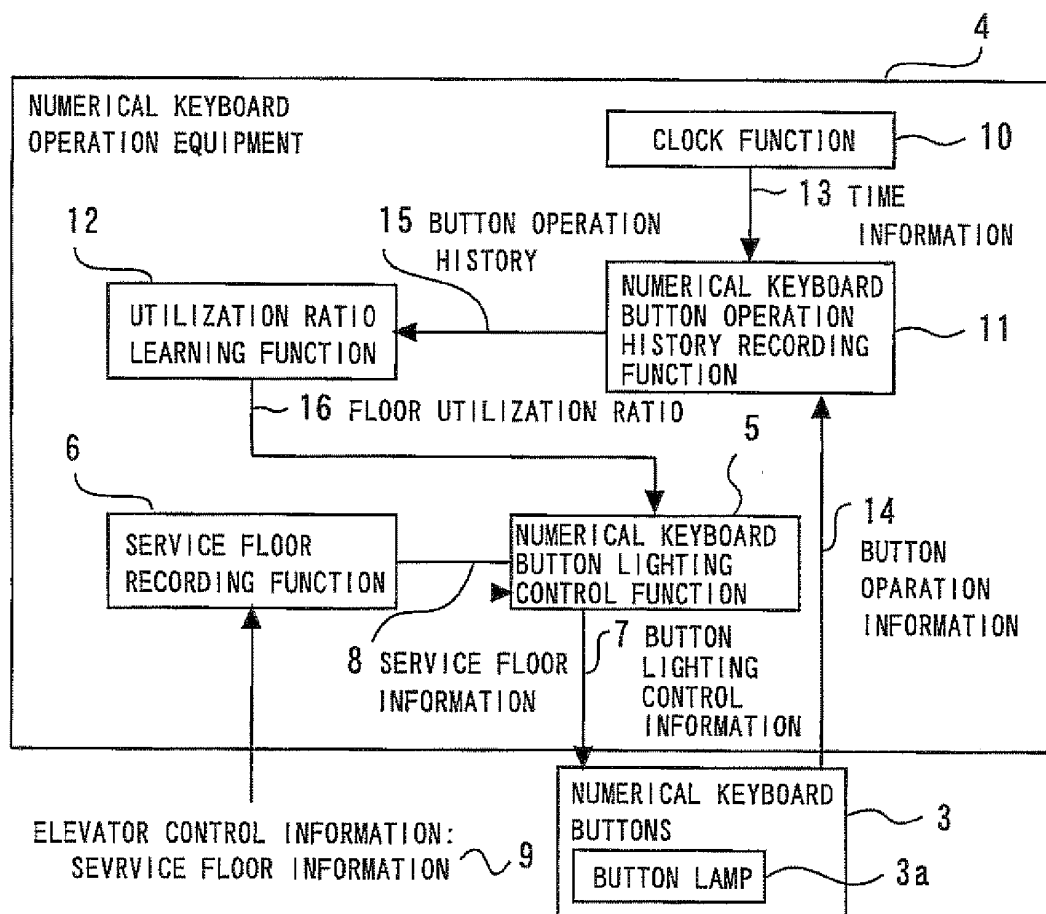


Fig. 2

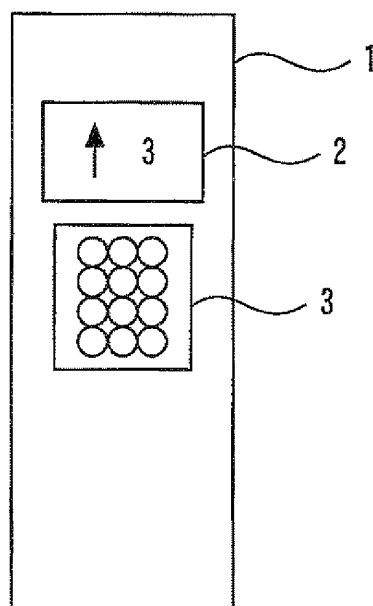


Fig. 3

FLOOR	TIME
5TH BASEMENT	6:11、...、7:02
4TH BASEMENT	7:30、7:36、8:40
3RD BASEMENT	11:19、...、13:21、15:40、...、17:36
•	
•	
•	
1ST FLOOR	6:59、7:10、...、8:23、15:02、...、15:55
•	
•	
•	
6TH FLOOR	16:00、17:12、19:39、...、20:50
7TH FLOOR	16:01、16:12、19:55、...、20:32
•	
•	
•	
15TH FLOOR	20:45、21:07、23:59
16TH FLOOR	10:03、...、11:08、15:16、...、16:30
17TH FLOOR	11:49、...、13:21
•	
•	
•	
21ST FLOOR	20:43、21:21、23:04
22ND FLOOR	20:02、20:30、21:27、23:09
23RD FLOOR	11:50、...、13:02

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2008/061814

A. CLASSIFICATION OF SUBJECT MATTER

B66B1/14 (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)

B66B1/14

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	1996-2009
Kokai Jitsuyo Shinan Koho	1971-2009	Toroku Jitsuyo Shinan Koho	1994-2009

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.
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 110712/1986 (Laid-open No. 018449/1988) (Hitachi Erebeta Sabisu Kabushiki Kaisha), 06 February, 1988 (06.02.88), (Family: none)	1-4
A	JP 08-119543 A (Hitachi, Ltd.), 14 May, 1996 (14.05.96), (Family: none)	1-4
A	JP 2003-330597 A (Canon Inc.), 21 November, 2003 (21.11.03), (Family: none)	1-4

☐ 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
05 March, 2009 (05.03.09)Date of mailing of the international search report
17 March, 2009 (17.03.09)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 8119543 A [0003]
- JP 2001287876 A [0003]