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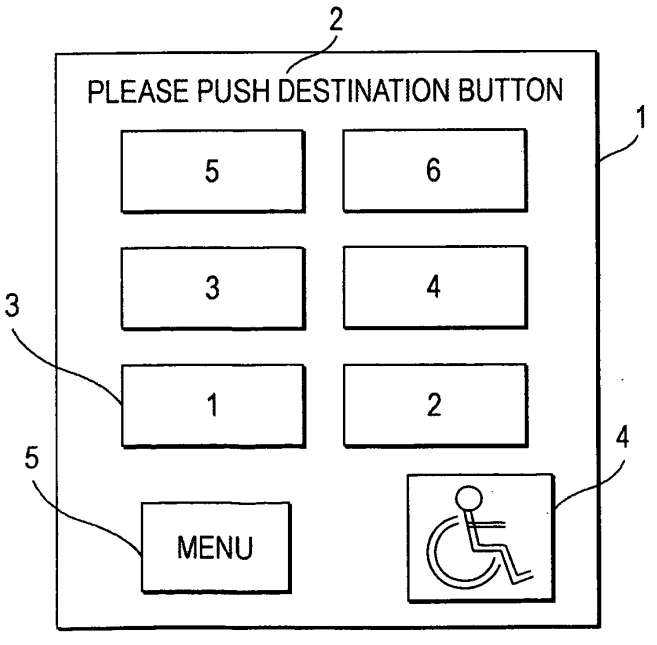
(54) **SYSTEM FOR DRIVING AND OPERATING ELEVATOR**

(57) To obtain an elevator running operating system that realizes uniform management of the running operation of an elevator by a touch panel inside a cage or on a platform.

Destination buttons 3 on which floor names are displayed, a wheelchair button 4, and a menu button 5 are disposed on a basic screen that is used during ordinary running of an elevator and is of a touch panel 1 disposed inside a cage of the elevator or on a platform. Destination call registration is performed when a passenger touches one of the destination buttons 3. The elevator switches to wheelchair-dedicated running when a, passenger touches the wheelchair button 4. The touch panel is switched to a screen where various kinds of special running commands can be performed when a passenger touches the menu button 5.

FIG. 2



EP 1 864 933 A1

Description

Technical Field

[0001] The present invention relates to an elevator running operating system that performs a running operation by a touch panel disposed inside a cage or on a platform.

Background Art

[0002] Usually, a hardware contact point such as a push button or a key switch is used as an input device for elevator call registration and running operation commands. Further, there are also elevators that extremely rarely use a touch panel as an input device, but these have only been for receiving call registrations of destination floors. (Patent Document 1, etc.)
In Patent Document 1, there is described an invention where platform call information is conveyed to an input control device by operating an input screen of a touch screen configured such that a destination floor registration screen and an up and down direction button screen are switched between.
In Patent Document 2, there is described an invention where a touch panel that is disposed on a cage operating panel and displays floor buttons during normal times is operated to register calls of destination floors and display a message indicating that the elevator is running during an emergency when a fire or an earthquake is detected.
[0003]

Patent Document 1: JP-A-2001-302128 (pp. 3-4; FIG. 1)
Patent Document 2: JP-A-2004-26431 (p. 3; FIG. 1)

Disclosure of the Invention

Problem that the Invention is to Solve

[0004] The intended purpose of a hardware contact point such as a push button or a key switch is set, and when the hardware contact point is to be used for various purposes, many hardware contact points have been necessary.
The invention of Patent Document 1 has been for nothing more than performing call registration on a touch screen. Further, in the invention of Patent Document 2 also, although a touch panel that can perform call registration and displays a message during an emergency is described, the touch panel has only had the functions of call registration and message display.
Consequently, Patent Documents 1 and 2 have not been inventions where not just the operating function of registering calls of destination floors but other operating functions are given to a touch panel to realize uniform management of the running operation of the elevator by the touch panel.
[0005] The present invention has been made in order to solve this problem, and it is an object thereof to obtain an elevator running operating system that realizes uniform management of the running operation of an elevator by a touch panel inside a cage or on a platform.

Means for Solving the Problems

[0006] An elevator running operating system pertaining to this invention comprises a touch panel that is disposed inside a cage of an elevator or on a platform and is used for the running operation of the elevator, wherein during ordinary running of the elevator, the touch panel displays a destination button and a switch button for switching the running operation of the elevator, performs destination call registration as a result of the destination button being operated, and the running operation of the elevator is switched as a result of the switch button being operated.

Effects of the Invention

[0007] As described above, this invention includes a touch panel that is disposed inside a cage of an elevator or on a platform and is used for the running operation of the elevator, wherein during ordinary running of the elevator, the touch panel displays a destination button and a switch button for switching the running operation of the elevator, performs destination call registration as a result of the destination button being operated, and the running operation of the elevator is switched as a result of the switch button being operated. Thus, the running operation can be uniformly performed by the touch panel, and the addition or deletion of optional operations becomes easily implementable without having to change hardware devices.

Best Mode for Implementing the Invention

First Embodiment

[0008] A first embodiment is one configured to receive various running operation commands of an elevator using a touch panel disposed inside a cage of the elevator or on a platform.
FIG. 1 is a block diagram showing a system diagram of an elevator running operating system according to the first embodiment of this invention, in which a touch panel is used as an input device not only for call registration but also for other running operation commands.
In FIG. 1, a group management panel 20 is connected to elevator control panels 15 and manages and controls plural elevators as a group. Cage touch panels 18 are disposed inside cages and are connected to the elevator control panels 15 through cage stations 16 that include a local CPU. Platform touch panels 19 are disposed on each floor platform and are connected to the elevator control panels 15 through platform stations 17 that include a local CPU.

It will be noted that the cage touch panels 18 and the platform touch panels 19 may also be directly connected to the elevator control panels 15 by dedicated cables without the intervention of the cage stations 16 or the platform stations 17. Input/output information of the cage touch panels 18 and the platform touch panels 19 is managed by the elevator control panels 15 and the group management panel 14.

[0009] FIG. 2 is a diagram showing an example of a basic screen of a touch panel of the elevator running operating system according to the first embodiment of this invention, and the touch panel is in the state shown in FIG. 2 during ordinary running of the elevator.

In FIG. 2, a touch panel 1 of the cage touch panels 18 and the platform touch panels 19 receives the input of running operation commands as the result of a passenger touching displayed buttons. Buttons and messages 2 to 5 are displayed on the touch panel 1, a message 2 explains the method of use, and destination buttons 3 display numbers corresponding to the destinations of a first floor to a sixth floor. A wheelchair button 4 (switch button) displays a wheelchair symbol, so that, for example, when a passenger touches the wheelchair button 4 and touches one of the destination buttons 3, the elevator moves to an elevator operation corresponding to a handicapped person where the door opening/closing time is extended, and the floor of the destination button 3 is call-registered. A menu button 5 (switch button) is a button for moving to FIG. 3, which is a screen that displays special running command buttons for selecting various kinds of special running operations of the elevator.

[0010] FIG. 3 is a diagram showing an example of a menu screen of the touch panel of the elevator running operating system according to the first embodiment of this invention, and is a screen that is displayed as a result of a passenger touching the menu button 5 of FIG. 2.

In FIG. 3, special running command buttons 6 for selecting various kinds of special running operations of the elevator include a dedicated running button 6a, a callback button 6b, a halt button 6c, a maintenance button 6d, and an operator-driven running button 6e. When a passenger touches these buttons, the running operation commands are received and the elevator moves to the running operations. Further, when a passenger touches the maintenance button 6d or the operator-driven running button 6e, the touch panel moves to a screen where buttons and messages necessary in order to implement these commands are displayed, so that the passenger can command maintenance or operator-driven running on the screens.

[0011] The dedicated running button 6a is a button that is used to carry cargo and the like and performs running where just button operation inside the cage is made effective. The callback button 6b is a button that is operated from a touch panel disposed on a platform so that the cage of the elevator is called back to that platform when it becomes free. The halt button 6c is a button that calls back the elevator cage to the platform, dims the lights, and halts the elevator cage, for example. The maintenance button 6d is a button that halts the cage for the purpose of maintenance or causes the cage to perform running for maintenance. The operator-driven running button 6e is a button that gives running authority to an operator and performs running.

A schedule button 7 is a button that displays schedule functions and is a button for switching to FIG. 4, which is a screen when one wants to schedule and perform a halt command, for example. A return button 8 is a button for returning to the basic screen of FIG. 2.

[0012] FIG. 4 is a diagram showing an example of a schedule screen of the touch panel of the elevator running operating system according to the first embodiment of this invention, and is a screen that is displayed as a result of a passenger touching the schedule button 7 of FIG. 3.

In FIG. 4, a time period 9 represents a time period to schedule the halt operation, and in this case indicates that the elevator will perform the halt operation for one hour from 18 : 00 to 19: 00. Time setting buttons 10 displaying up and down directions are buttons for setting the time, and it is possible to advance or turn back the time by touching up and down triangular buttons. A setting button 11 is a button for performing setting for causing the halt running operation to be performed in the actually designated scheduled time period, and a cancel button 12 is a button that cancels settings made by the setting button 11.

[0013] FIG. 5 is a diagram showing an example of a screen of the touch panel when the elevator running operating system according to the first embodiment of this invention is coupled to a security system.

In FIG. 5, destination buttons 13 display only destination floors that are allowed to a passenger who has been authenticated by authenticating means such as a security card. A message 14 represents an explanation with respect to the fact that the destination floors are limited.

[0014] Next, the operation will be described.

The running operating system of the present invention is realized by connecting the touch panel of FIG. 2 to FIG. 5 to a control panel that performs control of the elevator or a group management panel that manages a group of plural elevators.

FIG. 6 is a flowchart showing an operation during usual call registration of the elevator running operating system according to the first embodiment of this invention.

Next, the operation during ordinary running of the elevator will be described in accordance with FIG. 6.

Ordinarily, the touch panel is in the state shown in FIG. 2. In FIG. 2, when a passenger touches one of the destination buttons 3 on which floor names are displayed (step S1), the call is registered in accordance with the floor name of that destination button 3 (step S2). Thus, the elevator is run in accordance with the call registration.

[0015] FIG. 7 is a flowchart showing an operation during dedicated call registration of the elevator running operating system according to the first embodiment of this

invention.

Next, the dedicated call registration will be described by FIG. 7.

In the basic screen of FIG. 2, when a passenger touches one of the destination buttons 3 after touching the wheelchair button 4 (step S11), the dedicated call of a wheelchair user is registered in accordance with the floor name of the destination button 3 (step S12). Thus, the elevator moves to wheelchair-dedicated running.

[0016] FIG. 8 is a flowchart showing an operation during special running command registration of the elevator running operating system according to the first embodiment of this invention.

Next, the special running command registration will be described by FIG. 8.

First, when a passenger touches the menu button 5 of the basic screen of FIG. 2 (step S21), a security check for qualification holder verification is performed by authenticating means using a password or a card (step S22), or the menu screen of FIG. 3 is displayed without this security check being performed (S23).

In the menu screen of FIG. 3, when the passenger touches one of the special running command buttons 6 (dedicated running button 6a, callback button 6b, etc.) to the elevator (step S24), the elevator moves to the inputted special running operation (step S26). In step 24, depending on the running command such as the maintenance button 6d or the operator-driven running button 6e, the touch panel switches to another input screen (step S25) and then the flow moves to step S26.

Further, in the menu screen of FIG. 3, when the passenger touches the schedule button 7 (step S27), the schedule screen of FIG. 4 is displayed (step S28). In the schedule screen of FIG. 4, setting of the schedule of the halt operation or cancellation thereof is performed (step S29).

Further, in the menu screen of FIG. 3, when the passenger touches the return button 8 (step S30), the basic screen of FIG. 2 is displayed (step S31).

[0017] FIG. 9 is a flowchart showing an operation when the elevator running operating system according to the first embodiment of this invention is coupled to a security system.

Next, the operation during security system coupling will be described.

For example, when a passenger holding a security card checks that card with a card reader device (authenticating means), only the destination buttons 13 displaying destination floors allowed to the passenger holding that card are displayed on the touch panel, and buttons of other floors are not displayed. In the case of FIG. 5, the fourth floor and the sixth floor are displayed as the destination buttons 13. The message 14 is an explanation with respect to the fact that the destination floors are limited.

In FIG. 9, first, a security check of the passenger is performed by checking a password or a card (step S41). Next, just the destination buttons 13 displaying the destination floors allowed to that passenger are displayed as shown in FIG. 5 (step S42). Next, the allowed destination buttons 13 are operated, whereby the call is registered (step S43).

Thus, the elevator goes only to the floors allowed to the passenger and can contribute to the assurance of security.

[0018] It will be noted that, as the security block (authenticating means) for displaying the screen shown in FIG. 5, applications such as password input, voice recognition, and fingerprint matching are conceivable in addition to a card.

Further, it is of course conceivable to apply a security block that limits users with respect also to the display of the menu button 5 of FIG. 2 and the display of the schedule button 7 of FIG. 3. Depending on the situation, it is also possible for the buttons and screens that can be used to be changed in accordance with differences such as whether the passenger is a common passenger, a company executive, a building equipment manager, or an elevator maintenance person.

[0019] According to the first embodiment, a running operating system that is excellent in design and excellent also in expandability of functions can be obtained because it is possible to move all of the buttons and switches disposed inside the cage and on the platform to a touch panel.

Further, the addition or deletion of optional operations becomes easily implementable without having to change hardware devices.

Further, the content that can be operated by the touch panel can be restricted depending on the person and improvement of the security level is possible by switching and using screens depending on the user via a security system and password input.

Brief Description of the Drawings

[0020]

[FIG. 1] A block diagram showing a system diagram of an elevator running operating system according to a first embodiment of this invention.

[FIG. 2] A diagram showing an example of a basic screen of a touch panel of the elevator running operating system according to the first embodiment of this invention.

[FIG. 3] A diagram showing an example of a menu screen of the touch panel of the elevator running operating system according to the first embodiment of this invention.

[FIG. 4] A diagram showing an example of a schedule screen of the touch panel of the elevator running operating system according to the first embodiment of this invention.

[FIG. 5] A diagram showing an example of a screen of the touch panel when the elevator running operating system according to the first embodiment of this invention is coupled to a security system.

[FIG. 6] A flowchart showing an operation during common call registration of the elevator running operating system according to the first embodiment of this invention.

[FIG. 7] A flowchart showing an operation during dedicated call registration of the elevator running operating system according to the first embodiment of this invention.

[FIG. 8] A flowchart showing an operation during special running command registration of the elevator running operating system according to the first embodiment of this invention.

[FIG. 9] A flowchart showing an operation when the elevator running operating system according to the first embodiment of this invention is coupled to a security system.

Description of the Reference Numerals

[0021]

1	Touch Panel
2	Message
3	Destination Buttons
4	Wheelchair Button
5	Menu Button
6	Special Running Command Buttons
7	Schedule Button
8	Return Button
9	Time Period
10	Time Setting Button
11	Setting Button
12	Cancel Button
13	Destination Buttons
14	Message
15	Elevator Control Panels
16	Cage Stations
17	Platform Stations
18	Cage Touch Panels
19	Platform Touch Panels
20	Group Management Panel

Claims

1. An elevator running operating system comprising a touch panel that is disposed inside a cage of an elevator or on a platform and is used for the running operation of the elevator, wherein during ordinary running of the elevator, the touch panel displays a destination button and a switch button for switching the running operation of the elevator, performs destination call registration as a result of the destination button being operated, and the running operation of the elevator is switched as a result of the switch button being operated.

2. The elevator running operating system of claim 1, wherein a wheelchair button for performing wheelchair-dedicated running is included in the switch button.

3. The elevator running operating system of claim 1, wherein the touch panel displays various kinds of special running command buttons for selecting special running operations of the elevator as a result of the switch button being operated.

4. The elevator running operating system of any of claims 1 to 3, further comprising authenticating means that authenticates a passenger, wherein the touch panel displays buttons limited to functions allowed to a passenger who has been authenticated by the authenticating means.

FIG. 1

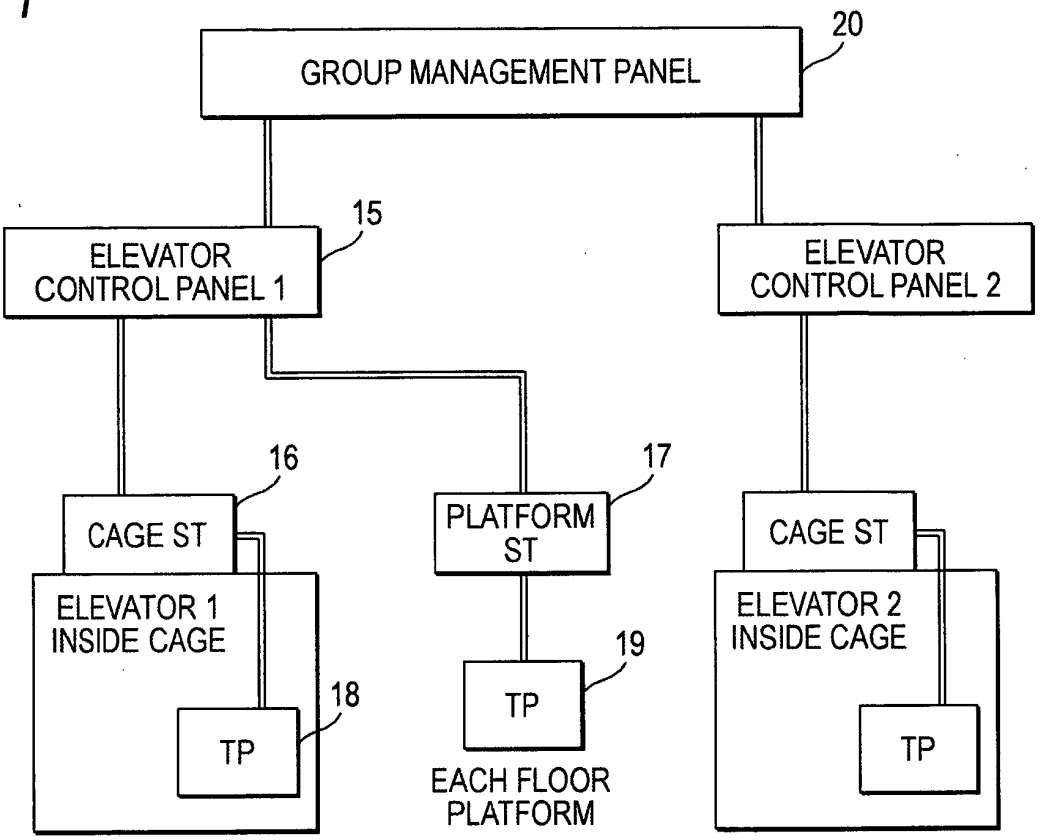

GROUP MANAGEMENT PANEL
20
ELEVATOR CONTROL PANEL 1
15
ELEVATOR CONTROL PANEL 2
16
17
CAGE ST
PLATFORM ST
CAGE ST
ELEVATOR 1 INSIDE CAGE
19
18
TP
TP
TP
EACH FLOOR PLATFORM
ELEVATOR 2 INSIDE CAGE

FIG. 2

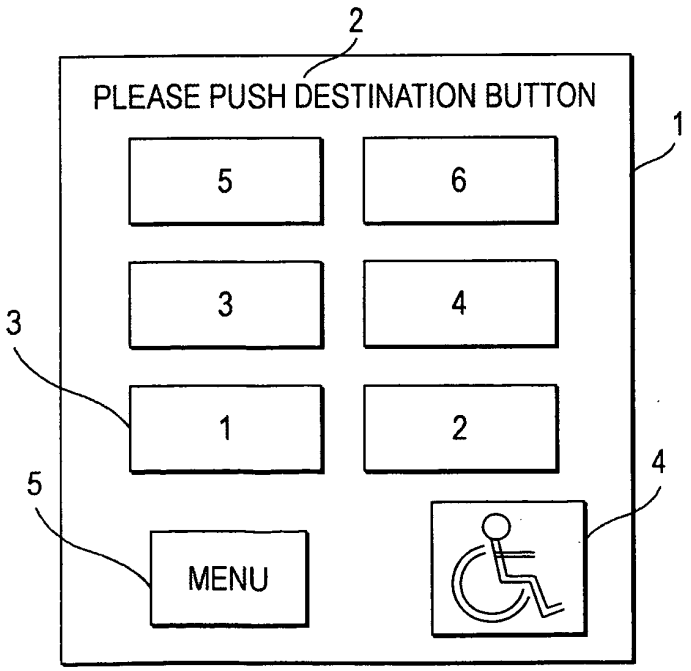

2
PLEASE PUSH DESTINATION BUTTON
1
5
6
3
4
3
1
2
5
4
MENU

FIG. 3

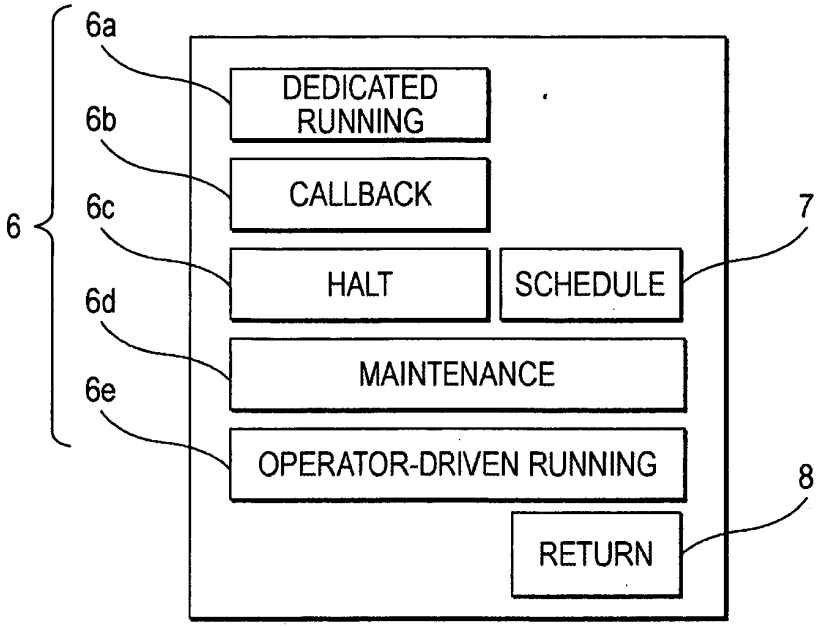

6a
DEDICATED RUNNING
6b
CALLBACK
6
6c
HALT
SCHEDULE
7
6d
MAINTENANCE
6e
OPERATOR-DRIVEN RUNNING
8
RETURN

FIG. 4

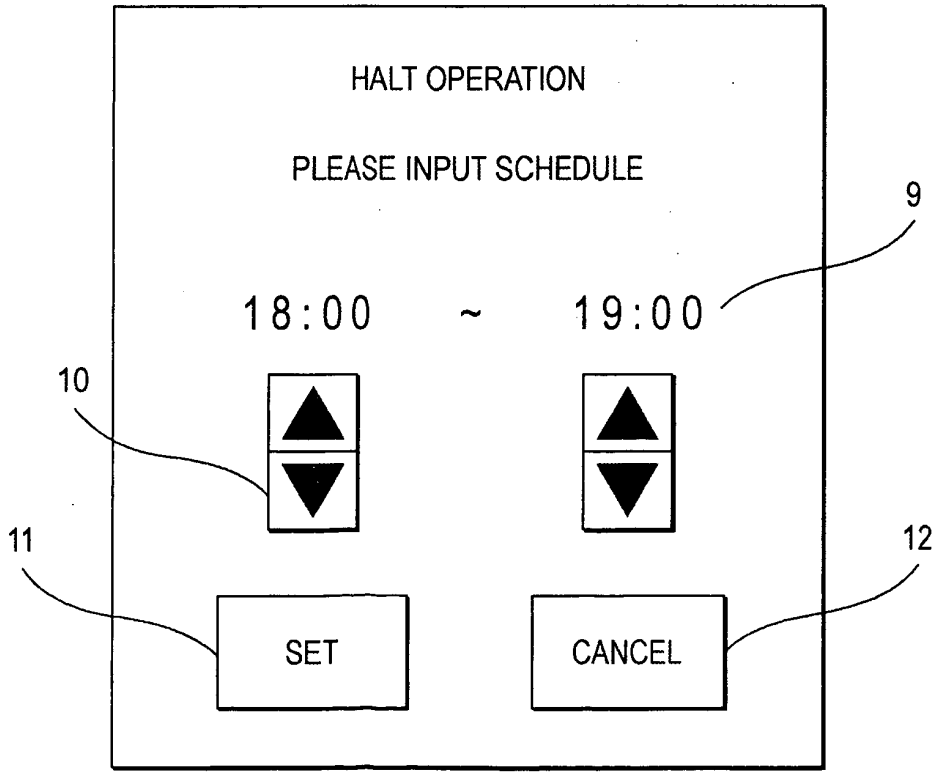

HALT OPERATION
PLEASE INPUT SCHEDULE
9
18:00 ~ 19:00
10
11
12
SET
CANCEL

FIG. 5

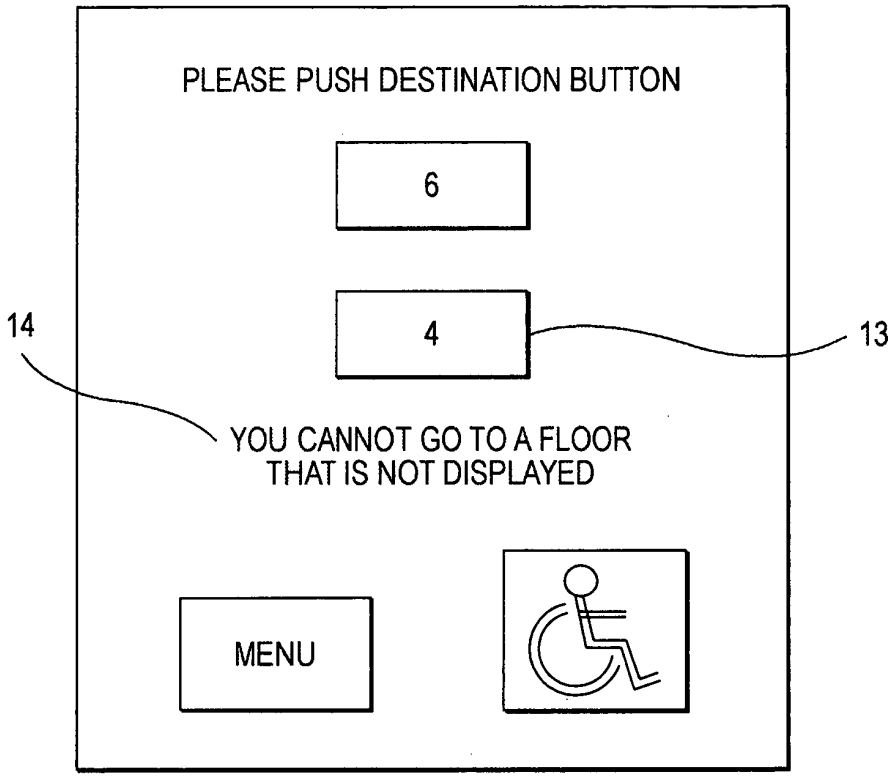


FIG. 6

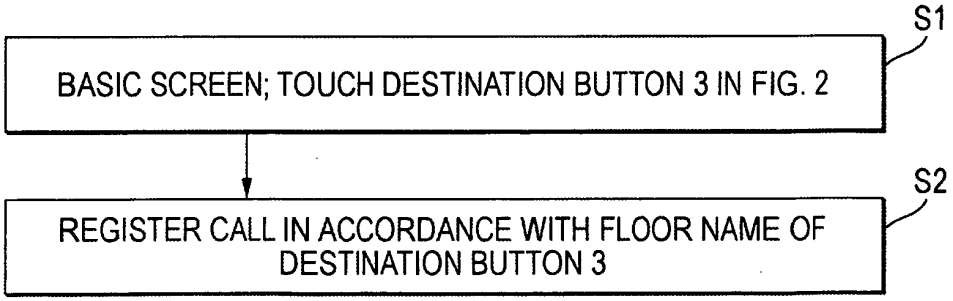


FIG. 7

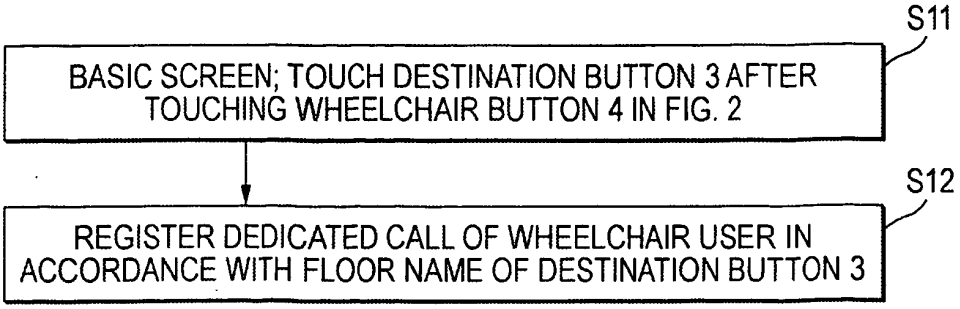


FIG. 8

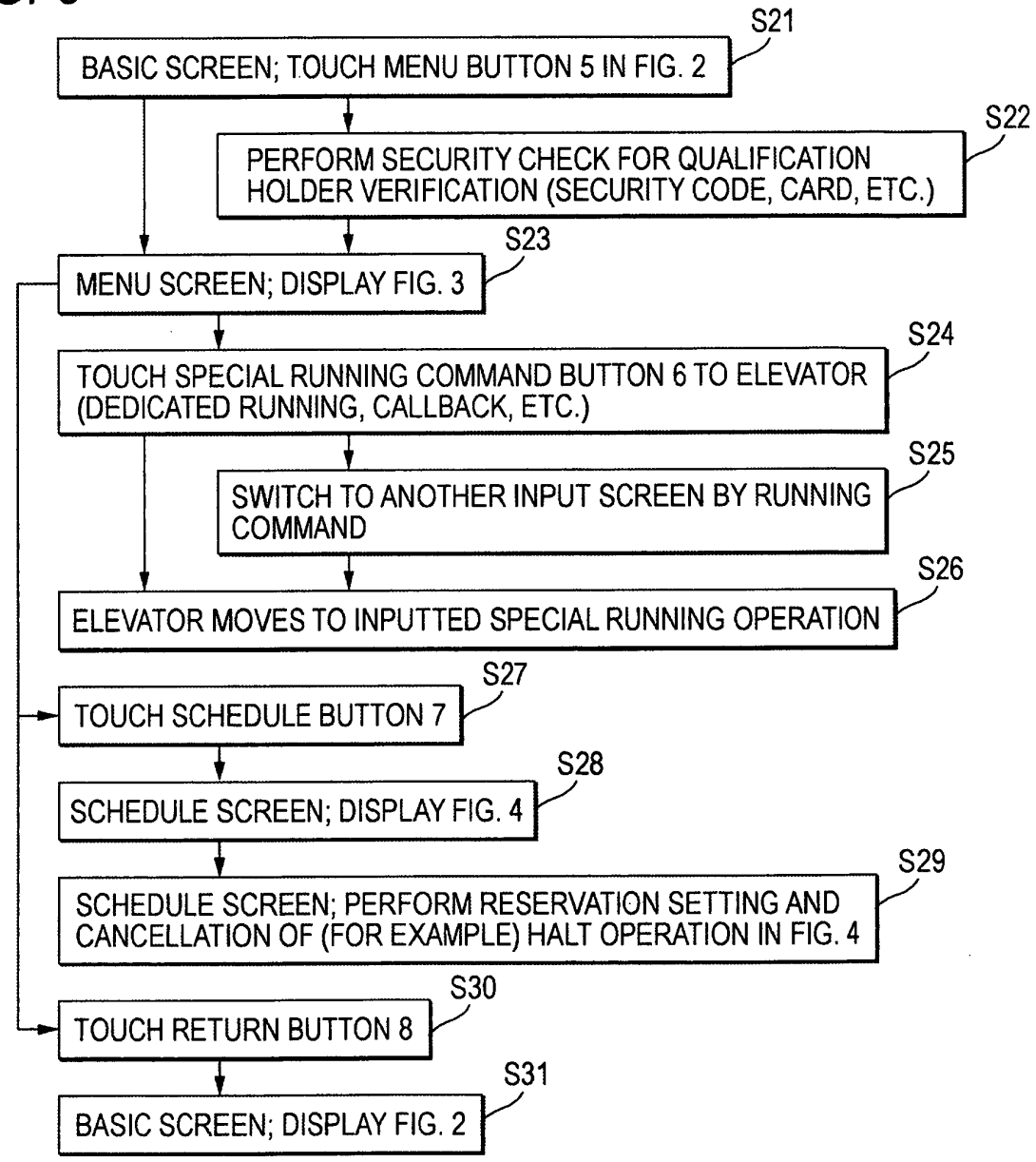
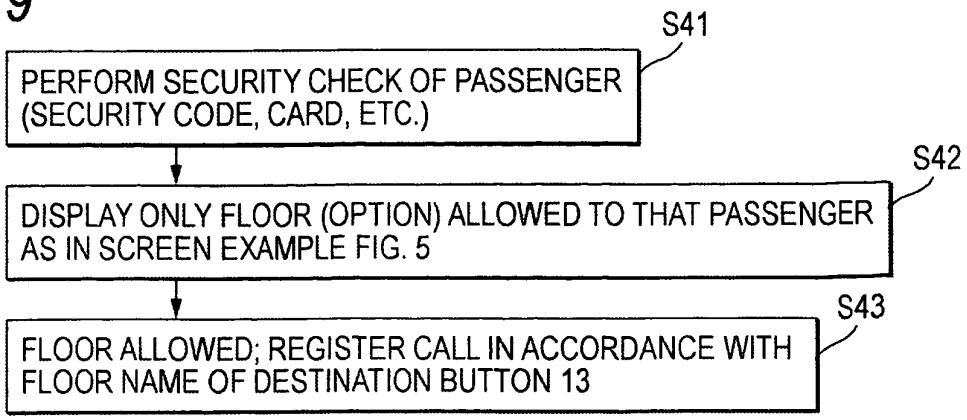

S21
BASIC SCREEN; TOUCH MENU BUTTON 5 IN FIG. 2
S22
PERFORM SECURITY CHECK FOR QUALIFICATION HOLDER VERIFICATION (SECURITY CODE, CARD, ETC.)
S23
MENU SCREEN; DISPLAY FIG. 3
S24
TOUCH SPECIAL RUNNING COMMAND BUTTON 6 TO ELEVATOR (DEDICATED RUNNING, CALLBACK, ETC.)
S25
SWITCH TO ANOTHER INPUT SCREEN BY RUNNING COMMAND
S26
ELEVATOR MOVES TO INPUTTED SPECIAL RUNNING OPERATION
S27
TOUCH SCHEDULE BUTTON 7
S28
SCHEDULE SCREEN; DISPLAY FIG. 4
S29
SCHEDULE SCREEN; PERFORM RESERVATION SETTING AND CANCELLATION OF (FOR EXAMPLE) HALT OPERATION IN FIG. 4
S30
TOUCH RETURN BUTTON 8
S31
BASIC SCREEN; DISPLAY FIG. 2

FIG. 9


S41
PERFORM SECURITY CHECK OF PASSENGER (SECURITY CODE, CARD, ETC.)
S42
DISPLAY ONLY FLOOR (OPTION) ALLOWED TO THAT PASSENGER AS IN SCREEN EXAMPLE FIG. 5
S43
FLOOR ALLOWED; REGISTER CALL IN ACCORDANCE WITH FLOOR NAME OF DESTINATION BUTTON 13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2006/302452

A. CLASSIFICATION OF SUBJECT MATTER
B66B3/02(2006.01), ***B66B1/46***(2006.01)

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(2006.01)-***B66B3/02***(2006.01)

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 1996-2006
Kokai Jitsuyo Shinan Koho 1971-2006 Toroku Jitsuyo Shinan Koho 1994-2006

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.
Y	JP 6-144726 A (Mitsubishi Electric Corp.), 24 May, 1994 (24.05.94), Par. Nos. [0002] to [0003], [0008] to [0018]; Figs. 1 to 8 (Family: none)	1-4
Y	JP 4-226286 A (Inventio AG.), 14 August, 1992 (14.08.92), Column 4, line 14 to column 5, line 7; Fig. 4 & CA 2034570 A1 & EP 0445419 A1 & US 5192836 A	1-4
Y	JP 7-215601 A (Toshiba FA System Engineering Kabushiki Kaisha), 15 August, 1995 (15.08.95), Par. Nos. [0029] to [0033]; Figs. 1, 4 to 5 (Family: none)	3-4

☒ 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	Date of mailing of the international search report
19 May, 2006 (19.05.06)	30 May, 2006 (30.05.06)
Name and mailing address of the ISA/ Japanese Patent Office Facsimile No.	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP2006/302452

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2004-161433 A (Toshiba Elevator and Building Systems Corp.), 10 June, 2004 (10.06.04), Par. Nos. [0013] to [0029]; Figs. 1 to 3 (Family: none)	4

Form PCT/ISA/210 (continuation of second sheet) (April 2005)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2001302128 A **[0003]**
- JP 2004026431 A **[0003]**