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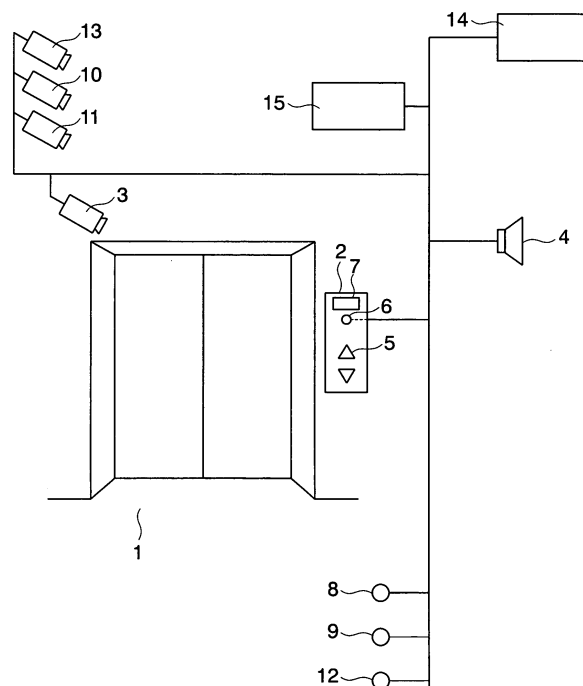
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(54) **ANNUNCIATION DEVICE FOR ELEVATOR**

(57) In a reporting system for an elevator, a car emergency call button and a car interphone unit are provided in a car. Further, a hall emergency call button and a hall interphone unit are provided in a hall. A control unit allows communication between the car interphone unit and an

outside communication unit in response to an operation of the car emergency call button, and allows communication between the hall interphone unit and the outside communication unit in response to an operation of the hall emergency call button.

FIG. 1



Description

Technical Field

[0001] The present invention relates to a reporting system for an elevator for performing an emergency report to an outside communication unit provided in an elevator control room or the like.

Background Art

[0002] In a conventional interphone system for an elevator, an emergency call button and a first interphone unit are provided in a car. A second interphone unit is provided in a monitoring center. When the emergency call button is operated, the first interphone unit is connected to the second interphone unit via a telephone line (e.g., see Patent Document 1).

[0003] Patent Document 1: JP Hei 6-164749 A

Disclosure of the Invention

Problem to be solved by the Invention

[0004] In the conventional interphone system for the elevator constructed as described above, although an abnormality state in the car can be reported to the monitoring center, it is beyond expectation to report, to the monitoring center, an abnormal state around a hall such as crime, malfunction, or the like. Therefore, in order to report an abnormal state in the hall to the monitoring center, a security system needs to be structured and installed in addition to a monitoring system for the elevator.

[0005] The present invention has been made to solve the problem discussed above, and it is therefore an object of the invention to obtain a reporting system for an elevator which makes it possible to report an abnormal state in a hall to an outside communication unit with the aid of a monitoring system for the elevator.

Means for solving the Problem

[0006] According to the present invention, a reporting system for an elevator includes: a car emergency call button provided in a car; a car interphone unit provided in the car; a hall emergency call button provided in a hall; a hall interphone unit provided in the hall; and a control unit for allowing communication between the car interphone unit and an outside communication unit in response to an operation of the car emergency call button and allowing communication between the hall interphone unit and the outside communication unit in response to an operation of the hall emergency call button.

Brief Description of the Drawings

[0007]

[Fig. 1] Fig. 1 is a schematic diagram showing a reporting system for an elevator according to Embodiment 1 of the present invention.

[Fig. 2] Fig. 2 is a front view showing a car operating panel of Fig. 1.

[Fig. 3] Fig. 3 is a circuit diagram showing a control circuit of the reporting system of Fig. 1.

Best Mode for carrying out the Invention

[0008] A preferred embodiment of the present invention will be described hereinafter with reference to the drawings.

Embodiment 1

[0009] Fig. 1 is a schematic diagram showing a reporting system for an elevator according to Embodiment 1 of the present invention. Referring to Fig. 1, a hall operation panel 2, a hall security camera 3, and a hall alarm speaker (an alarm unit) 4 are installed in a hall 1. The hall operation panel 2 is provided with a hall button unit 5 for calling a car (not shown), a hall emergency call button 6, and a hall interphone unit 7 for establishing communication with the outside.

[0010] Hall operation panels 8 and 9, hall security cameras 10 and 11, hall alarm speakers (not shown), and the like are installed in halls of other floors as well. Furthermore, a car operating panel 12, a car security camera 13, and a car alarm speaker (not shown) are provided in the car.

[0011] The hall operation panels 2, 8, and 9, the hall security cameras 3, 10, and 11, the car operating panel 12, and the car security camera 13 are connected to an outside communication unit 14. The outside communication unit 14 is installed in, for example, an elevator control room. The outside communication unit 14 can communicate with the hall operation panels 2, 8, and 9 and the car operating panel 12. In addition, the outside communication unit 14 is provided with a monitor (not shown) for displaying images transmitted from the hall security cameras 3, 10, and 11 and the car security camera 13.

[0012] A control unit 15 controls communication of the outside communication unit 14 with the hall operation panels 2, 8, and 9 and the car operating panel 12. In other words, the hall operation panels 2, 8, and 9, the hall security cameras 3, 10, and 11, the hall alarm speaker 4, the car security camera 13, and the outside communication unit 14 are connected on the same circuit, and the control unit 15 performs input/output control thereof.

[0013] Fig. 2 is a front view showing the car operating panel 12 of Fig. 1. The car operating panel 12 is provided with a plurality of floor buttons 16, a door opening button 17, a door closing button 18, a car emergency call button 19, and a car interphone unit 20.

[0014] Fig. 3 is a circuit diagram showing a control cir-

cuit of the reporting system of Fig. 1. Referring to Fig. 3, as is the case with the hall operation panel 2, the hall operation panel 8 on one of the other floors is provided with a hall emergency call button 21 and a hall interphone unit 22. Although the hall operation panel 9 is also provided with a hall emergency call button and a hall interphone unit, description thereof is omitted in Fig. 3.

[0015] The outside communication unit 14 is provided with a call bell 23, an emergency cancellation button 24, an outside interphone unit (handset) 25, and a handset connection circuit portion 26. The interphone units 7, 22, 20, and 25 are each provided with a microphone and a speaker. The handset connection circuit portion 26 is provided with contact points 26a to 26c. The contact points 26a to 26c are normally open contact points that are closed when the outside interphone unit 25 is picked up. When the contact points 26a to 26c are closed, communication can be established between the hall interphone units 7 and 22 or the car interphone unit 20 with the outside interphone unit 25.

[0016] Normally open contact points ("a" contact points) are used as contact points of the emergency call buttons 6, 21, and 19 and the emergency cancellation button 24. Each of relays 27, 28, and 29 is energized when a corresponding one of the emergency call buttons 6, 21, and 19 is closed. Contact points 27a, 28a, and 29a are normally open contact points that are each closed when a corresponding one of the relays 27, 28, and 29 is energized. A contact point 30 is a normally open contact point that is closed when any one of the relays 27, 28, and 29 is energized.

[0017] A relay 31 is energized when the contact point of the emergency cancellation button 24 is closed. Contact points 31a, 31b, and 31c are normally closed contact points ("b" contact points) that are opened when the emergency cancellation button 24 is pressed. A relay 32 is energized when the contact points 26a to 26c of the handset connection circuit portion 26 are closed. A contact point 32a is a normally closed contact point that is opened when the relay 32 is energized.

[0018] Next, a connection relationship among respective elements of Fig. 3 will be described. The hall emergency call button 6, the contact point 31a, and the relay 27 are connected in series to one another between DC power supply terminals P and N. The contact point 27a is connected in parallel to the hall emergency call button 6. The hall security camera 3 is connected in parallel to the relay 27.

[0019] The hall emergency call button 21, the contact point 31b, and the relay 28 on the aforementioned one of the other floors are connected in series to one another between the DC power supply terminals P and N. The contact point 28a is connected in parallel to the hall emergency call button 21 on the aforementioned one of the other floors. The hall security camera 10 on the aforementioned one of the other floors is connected in parallel to the relay 28.

[0020] The car emergency call button 19, the contact

point 31c, and the relay 29 are connected in series to one another between the DC power supply terminals P and N. The contact point 29a is connected in parallel to the car emergency call button 19. The car security camera 13 is connected in parallel to the relay 29.

[0021] The contact point 30, the contact point 32a, and the call bell 23 are connected in series to one another between the DC power supply terminals P and N. The hall alarm speaker 4 is connected in parallel to the call bell 23. The hall alarm speakers and the car alarm speakers on the other floors are sounded in association with the hall alarm speaker 4.

[0022] The emergency cancellation button 24 and the relay 31 are connected in series to one another between the DC power supply terminals P and N. The contact point 26c of the handset connection circuit portion 26 and the relay 32 are connected in series to one another between the DC power supply terminals P and N. The relays 27, 28, 29, 31, and 32 are connected in parallel to one another between the DC power supply terminals P and N.

[0023] It should be noted that the control unit 15 includes therein the relays 27, 28, 29, 31, and 32 and the contact points 27a, 28a, 29a, 30, 31a to 31c, and 32a.

[0024] Next, an operation will be described. When a user of an elevator in the hall 1 operates the hall emergency call button 6 and the contact point thereof is closed, the relay 27 is energized to close the contact point 27a, so the hall security camera 3 is activated. Thus, an image photographed by the hall security camera 3 is displayed on the monitor of the outside communication unit 14. The relay 27 is self-held due to a closed state of the contact point 27a even when the contact point of the hall emergency call button 6 is opened.

[0025] When the relay 27 is energized, the contact point 30 is closed so the hall alarm speaker 4 and the call bell 23 are sounded. When a manager in the elevator control room picks up the outside interphone unit 25 in response to the sounding of the call bell 23, communication can be established between the hall interphone unit 7 and the outside interphone unit 25. At the same time, the relay 32 is energized to open the contact point 32a, so the call bell 23 and the hall alarm speaker 4 are stopped from being sounded.

[0026] When the manager closes the contact point of the emergency cancellation button 24, the relay 31 is energized to open the contact point 31a. Thus, the relay 27 is deenergized to open the contact point 27a, so the operation of the hall security camera 3 is stopped. Moreover, when the manager resets the outside interphone unit 25, the contact points 26a to 26c are opened, so a line between the hall interphone unit 7 and the outside interphone unit 25 is disconnected.

[0027] An operation following the operation of the hall emergency call button 21 and the car emergency call button 19 of the aforementioned one of the other floors is substantially the same as in the case of the hall emergency call button 6.

[0028] In the reporting system for the elevator con-

structured as described above, the hall 1 is provided with the hall emergency call button 6 and the hall interphone unit 7, and the control unit 15 constituting a part of the monitoring system of the elevator allows communication between the hall interphone unit 7 and the outside communication unit 14 when the hall emergency call button 6 is operated. Therefore, an abnormal state in the hall 1 can be reported to the outside communication unit 14 with the aid of the monitoring system of the elevator.

[0029] The hall 1 is provided with the hall security camera 3, so an image photographed by the hall security camera 3 is displayed on the monitor of the outside communication unit 14 in response to the operation of the hall emergency call button 6. Therefore, the manager of the elevator can visually confirm at once a reporting passenger in the hall 1 and a situation in the hall 1 and thus cope with an abnormality quickly. The manager can also confirm with ease whether or not the hall emergency call button 6 has been operated out of mischief.

[0030] Furthermore, the hall 1 is provided with the hall alarm speaker 4 for issuing a warning sound in response to the operation of the hall emergency call button 6. Therefore, it is possible to deter crimes and call in the aid of nearby people in the event of an accident.

[0031] It should be noted that the contact points 26a to 26c are made to close when the outside interphone unit 25 is picked up in the foregoing example, however, the hall emergency call button 6 or 21 or the car emergency call button 19 may be operated to automatically connect the hall interphone unit 7 or 22 or the car interphone unit 20 to the outside interphone unit 25. Although the control circuit employing the relays is illustrated in the foregoing example, program control may be performed using a computer.

In addition, although the hall operation panel 2 is provided with the hall emergency call button 6 and the hall interphone unit 7 in the foregoing example, they may be provided at a position different from that of the hall button unit 5.

Claim 1, further comprising a hall security camera for photographing the hall, wherein the control unit causes a monitor provided on the outside communication unit to display an image photographed by the hall security camera in response to the operation of the hall emergency call button.

3. The reporting system for an elevator according to Claim 1, further comprising an alarm unit for issuing a warning sound in response to the operation of the hall emergency call button.

Claims

1. A reporting system for an elevator, comprising:

a car emergency call button provided in a car;
 a car interphone unit provided in the car;
 a hall emergency call button provided in a hall;
 a hall interphone unit provided in the hall; and
 a control unit for allowing communication between the car interphone unit and an outside communication unit in response to an operation of the car emergency call button, and allowing communication between the hall interphone unit and the outside communication unit in response to an operation of the hall emergency call button.

2. The reporting system for an elevator according to

FIG. 1

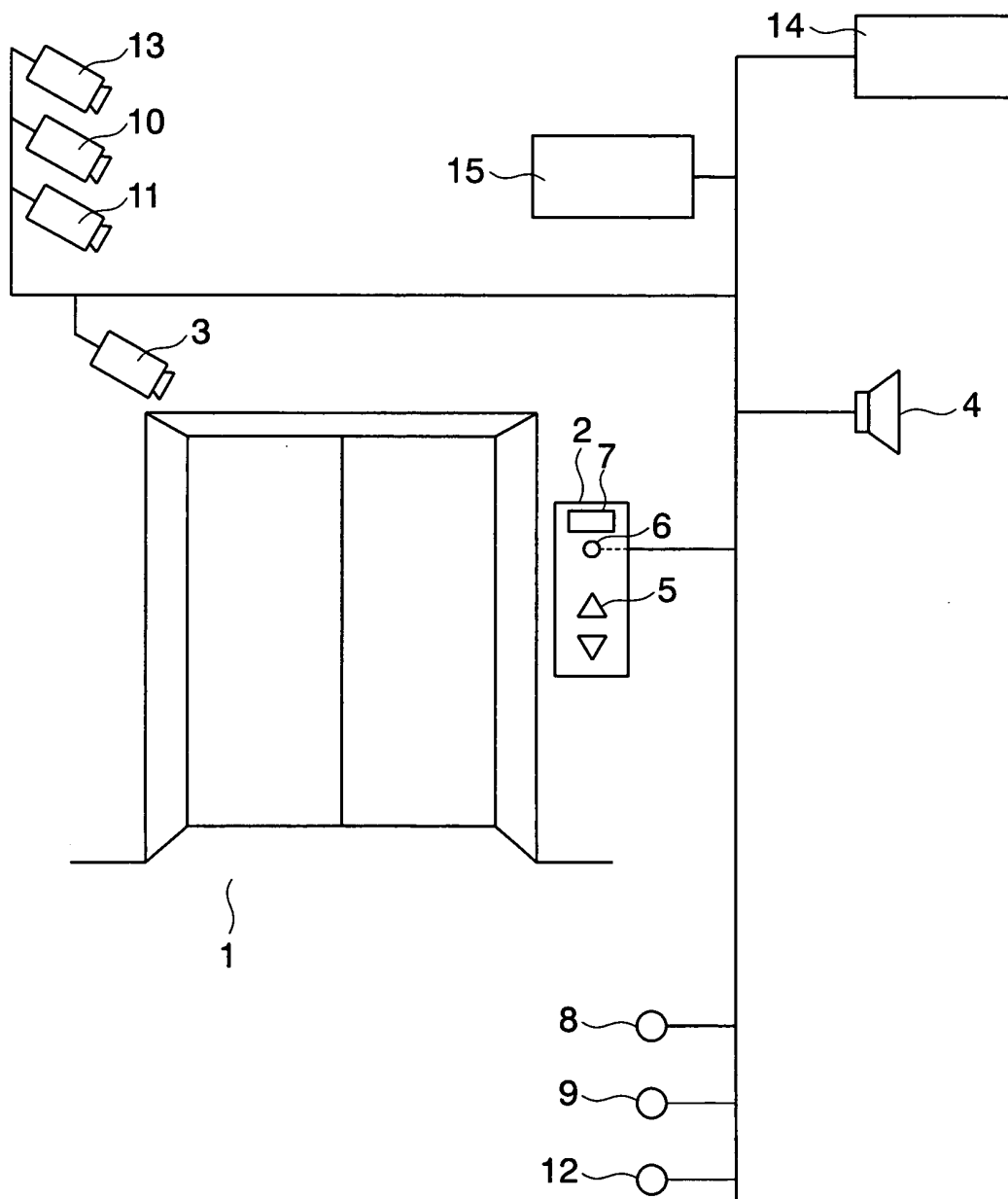


FIG. 2

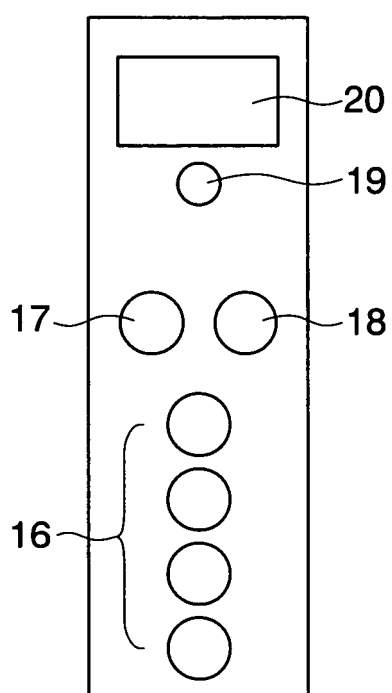
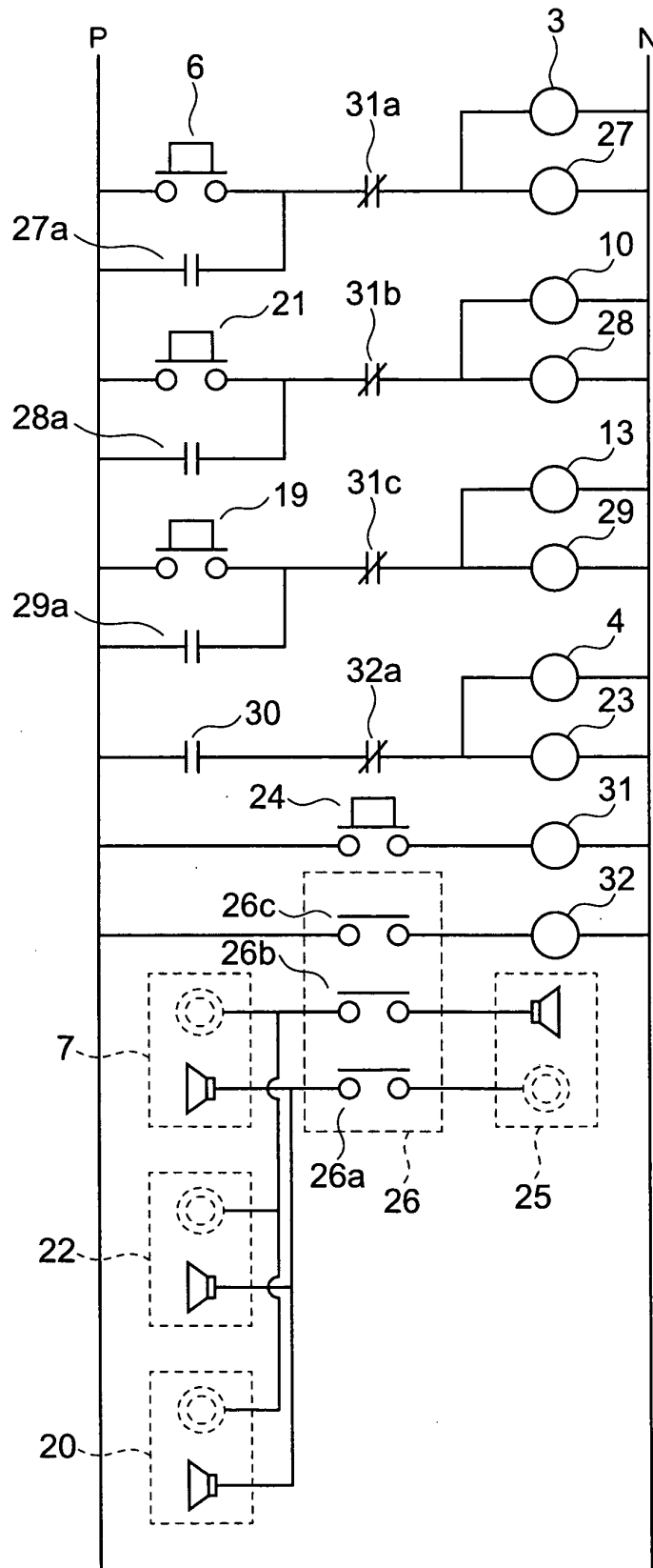


FIG. 3



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2005/008343

A. CLASSIFICATION OF SUBJECT MATTER

B66B3/00 (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)

B66B3/00 (2006.01) - **B66B5/28** (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.
A	JP 6-164749 A (Kabushiki Kaisha Hitachi Biru Shisutemu Sabisu), 10 June, 1994 (10.06.94), Abstract; Fig. 1 (Family: none)	1-3
A	Microfilm of the specification and drawings annexed to the request of Japanese Utility Model Application No. 136044/1989 (Laid-open No. 74573/1991) (Hitachi Elevator Service Kabushiki Kaisha), 26 July, 1991 (26.07.91), Description, page 4, line 10 to page 8, line 11; Fig. 1 (Family: none)	1-3

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

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Date of the actual completion of the international search
01 February, 2006 (01.02.06)Date of mailing of the international search report
14 February, 2006 (14.02.06)Name and mailing address of the ISA/
Japanese Patent Office

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Facsimile No.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2005/008343

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 3-172294 A (Mitsubishi Electric Corp.), 25 July, 1991 (25.07.91), page 2, lower left column, line 12 to lower right column, line 19 (Family: none)	1-3
A	JP 62-244878 A (Mitsubishi Electric Corp.), 26 October, 1987 (26.10.87), Page 2, lower right column, line 2 to page 3, upper left column, line 9; Fig. 1 (Family: none)	2
A	JP 5-70049 A (Toshiba Corp.), 23 March, 1993 (23.03.93), Abstract; Fig. 1 (Family: none)	3

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 6164749 A [0003]