ELEVATOR

FIELD

Embodiments described herein relate generally to an elevator in which a camera is installed at a car to perform an imaging operation in a range from a doorway of the car to a hall.

BACKGROUND

An elevator is provided with various sensors which detect a passenger or passengers who will get into/off the elevator. For example, it is being contemplated that as a sensor, a camera is installed above a door apparatus to perform an imaging operation in a range covering both the inside of a car and a hall. For example, from video obtained by the imaging operation of the camera, if a person being getting near a door of the elevator is detected during closing of the door, the closing of the door is stopped, and the door is opened. On the other hand, from video of the door, if it is detected during opening of the door that a hand or finger of a passenger is caught in a door pocket, the opening of the door is stopped.

In general, in view of the above case, it is conceivable that a camera is installed at a center portion of a modesty panel of a car in order that both a hall and the inside of the car be imaged in a wide range.

However, in the case where the camera is installed at the center portion of the modesty panel, if a door apparatus of an elevator is a one-way door, it is located in front of the camera when reaching the center of the doorway of the door apparatus, as a result of which a hall side cannot be imaged by the imaging operation of the camera.

Furthermore, in order that an imaging direction in which the camera performs an imaging operation be changed in accordance with the type of an elevator to be applied, it is necessary to change a fixing member for fixing the camera, in accordance with the imaging direction. Accordingly, it is necessary to prepare different kind of fixing members, and as a result the

number of parts is increased. Also, in order for the camera be fixed, it is necessary to select a proper one of the fixing members, and a work for fixing the camera is complicated, thus increasing labor and time required for fixing it.

The embodiments aim at providing an elevator which enables a camera to perform an imaging operation with a simple structure immediately before a door apparatus is completely closed.

SUMMARY

According to an aspect, there is provided an elevator characterized by comprising: a modesty panel provided at an upper portion of a door apparatus of a car, and including a window portion which includes an opening formed in an outer plate facing a hall and a bottom plate; a camera set above the window portion, the camera having an angle of view to perform an imaging operation in a range from an inside of the car to the hall, with the door apparatus being in opened state; and a fixing member fixing the camera such that a center line of the angle of view is inclined toward the hall. The door apparatus is a one-way door; the window portion is located closer to a doorstop for the door apparatus than to a center portion of the modesty panel in a width direction thereof, and is separated from the doorstop in a direction in which the door apparatus is opened; and a line connecting the camera and a corner portion of a vertical frame of a jamb provided in the hall is located outward of a flow line of movement of a passenger in the hall which will get into the elevator, the corner portion being located close to the doorstop.

By virtue of the above structural features, with a simple structure, the camera can be caused to perform an imaging operation immediately before the door apparatus is completely closed.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view illustrating an elevator according to each of embodiments.

FIG. 2 is a front view illustrating a car of the

WHAT IS CLAIMED IS:

1. An elevator characterized by comprising:

a modesty panel provided at an upper portion of a door apparatus of a car, and including a window portion which includes an opening formed in an outer plate facing a hall and a bottom plate;

a camera set above the window portion, the camera having an angle of view to perform an imaging operation in a range from an inside of the car to the hall, with the door apparatus being in opened state; and

a fixing member fixing the camera such that a center line of the angle of view is inclined toward the hall, and

characterized in that:

the door apparatus is a one-way door;

the window portion is located closer to a doorstop for the door apparatus than to a center portion of the modesty panel in a width direction thereof, and is separated from the doorstop in a direction in which the door apparatus is opened; and

a line connecting the camera and a corner portion of a vertical frame of a jamb provided in the hall is located outward of a flow line of movement of a passenger in the hall which will get into the elevator, the corner portion being located close to the doorstop.

2. The elevator of Claim 1, characterized in that the fixing member is set such that as seen in plan view, a center line of the angle of view is perpendicular to a direction in which the door apparatus is opened or closed.

3. The elevator of Claim 2, characterized in that the window portion is located such that the angle of view is set to cover space between a car door and a door pocket for the car door when the door apparatus is closed.

4. The elevator of Claim 1, characterized by

further comprising a cover which is attached to an upper surface of the bottom plate of the modesty panel, and covers the window portion and at least a light receiving portion of the camera, and

characterized in that the cover is formed continuous with the fixing member.

5. The elevator of Claim 1, characterized in that in the window portion, a transparent member is fitted.