DESCRIPTION

SAFETY SYSTEM FOR PASSENGER CONVEYOR, PASSENGER CONVEYOR, AND METHOD OF OPERATING PASSENGER CONVEYOR

FIELD

[0001]

The present embodiment relates to a safety system for a passenger conveyor, a passenger conveyor, and a method of operating a passenger conveyor.

BACKGROUND

[0002]

A passenger with a long object having a long length may get on a passenger conveyor. When the passenger stands still on one of steps and places the long object upright on the step, an upper end of the long object may interfere with a ceiling of a building. When the long object is caught between the step and the ceiling, the step may be restrained. When the step in this condition is further subjected to a driving force, the step may be damaged.

SUMMARY

[0002a]

According to a first aspect, there is provided a safety system for a passenger conveyor including: a long-object determination unit that determines whether a passenger who is going to get on the passenger conveyor holds a long object having a length equal to or more than a reference length; a rise-rate acquisition unit that acquires, when the long-object determination unit determines that the passenger holds the long object, a motor-current rise rate of a drive motor that moves steps in circulation; a rise-rate determination unit that determines, when a motor current value of the drive motor has reached a predetermined overload current value, whether the motor-current rise rate, which was acquired by the rise-rate acquisition unit at a time moment when the

motor current value had reached the overload current value, is equal to or more than a reference rise rate; and a brake control unit that actuates, when the rise-rate determination unit determines that the motor-current rise rate is equal to or more than the reference rise rate, a brake to stop the circulation movement of the steps.

[0002b]

According to a second aspect, there is provided a passenger conveyor including the above safety system for a passenger conveyor.

[0002c]

According to a third aspect, there is provided a method of operating a passenger conveyor including: a step of determining whether a passenger who is going to get on a passenger conveyor holds a long object having a length equal to or more than a reference length; a step of acquiring, when the passenger is determined to hold the long object, a motor-current rise rate of a drive motor that moves steps in circulation; a step of determining, when a motor current value of the drive motor has reached a predetermined overload current value, whether the motor-current rise rate, which was acquired at a time point when the motor current value had reached the overload current value, is equal to or more than a reference rise rate; and a step of actuating, when the motor-current rise rate is determined to be equal to or more than the reference rise rate, a brake to stop the circulation movement of the steps.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003]

Fig. 1 is a view showing an overall schematic structure of a passenger conveyor according to the present embodiment.

Fig. 2 is a view showing a safety system for a passenger conveyor according to the present embodiment.

Fig. 3 is a view for describing an entrance length-