

DESCRIPTION

Title of Invention

ELEVATOR GUIDE DEVICE

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Technical Field

[0001]

The present invention relates to an elevator guide device for guiding along a guide rail.

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Background Art

[0002]

Generally, in elevator devices, in order to guide a cage to move up and down along a guide rail fixed on a hoistway wall, a structure which uses guide rollers provided in the cage and counterweight and rotatably pressure-contacted with the guide rail and a structure which uses guide shoes in the cage and counterweight are known.

[0003]

20 In these devices, since components deteriorate in proportion to running time, replacement is needed.

[0004]

In the former structure, the guide roller itself or a roller component is replaced and in the latter structure,

the guide shoe itself or, if the guide shoe holder and the shoe are removable, a shoe component is replaced.

[0005]

Among the structures in which the guide shoe holder and the shoe are removable are, for example, a structure in which a cover-shaped shoe retainer is fastened to the guide shoe holder with bolts to fix the shoe by the cover-shaped retainer (see PTL 1 and PTL 2) and a structure in which the shoe is fixed by a claw-shaped shoe retainer (see PTL 3).

10 [0006]

In the above shoe fixing structures, the retainer must be fastened with a bolt or a similar fastener and thus a tool is needed.

[0007]

15 Furthermore, a tool is needed for replacement work but during replacement work, a fastener such as a bolt may happen to fall and there is concern about the possibility of a decline in replacement work efficiency.

20 Citation List

Patent Literature

[0008]

PTL 1: Japanese Patent Application Laid-Open No. 2001-261259

PTL 2: Japanese Patent Application Laid-Open No. 2010-
149946

PTL 3: Japanese Patent Application Laid-Open No. 2007-
326691

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Summary of Invention

Technical Problem

[0009]

An object of the present invention is to provide an
10 elevator guide device in which, in a method for fixing a
guide shoe holder and a shoe, the shoe can be fixed and
replaced without using a tool.

Solution to Problem

15 [0010]

In the present invention, in order to achieve the
above object, an elevator guide device which is provided in
a cage or a counterweight, as an elevating body, and slides
while engaged with a guide rail mounted upright on a
20 hoistway to guide and move up and down the elevating body
along the guide rail is characterized by including a guide
shoe sliding on the guide rail, a guide shoe holder housing
the guide shoe and is attached to the elevating body, and a
retainer which is provided between the guide shoe holder
25 and the guide shoe to hold the guide shoe to prevent the

guide shoe from getting out of a housing position in the guide shoe holder and can release the guide shoe by being pushed in one direction.

5 Advantageous Effects of Invention

[0011]

According to the guide device in the present invention, the shoe can be fixed or replaced without using a tool, which prevents a decline in fixing and replacement work
10 efficiency due to the use of a tool and a decline in replacement work efficiency due to a fall of a fastener such as a bolt during replacement work and permits desirable fixing and replacement work.

15 Brief Description of Drawings

[0012]

Figure 1 is an exploded perspective view of a guide device according to the present invention.

Figure 2 is a perspective view showing the guide
20 device according to the present invention.

Figure 3 is a perspective view of a shoe retainer of the guide device according to the present invention.

Figure 4 is a perspective view of a holder of the guide device according to the present invention.

Figure 5 is a schematic view of the guide device according to the present invention which is applied to an elevator.

5 Description of Embodiments

[0013]

Next, an embodiment of the present invention will be described referring to drawings.

[0014]

10 Figure 5 shows the schematic structure of a guide device 8 according to the present invention which is applied to an elevator, in which a guide rail 6 is fixed on a building wall constituting a hoistway, through a bracket 7.

[0015]

15 A cage 4 or counterweight (not shown) is provided with the guide device 8 and as the guide device 8 slides while it is engaged with the guide rail 6 mounted upright on the hoistway, it is guided by the guide rail 6 to move up and down in the hoistway.

20 [0016]

As shown in Figures 1 and 2, the guide device 8 includes a guide shoe 2, a guide shoe holder 3 for holding the guide shoe 2, and guide shoe retainers 1 for fixing the guide shoe 2 on the guide shoe holder 3.

25 [0017]

Also, as shown in Figure 5, the guide shoe holder 3 is designed to be fixed on the cage 4 with bolts 5.

[0018]

The guide shoe holder 3 has fixing projections 3a to which the guide shoe retainers 1 are hooked.

[0019]

The fixing projections 3a are formed by a plastic forming process in presswork.

[0020]

The guide shoe retainers 1 have fixing holes 1a to be hooked to the fixing projections 3a of the guide shoe holder 3 thereto.

[0021]

The guide device 8 shown in Figure 2 is assembled as illustrated in Figure 1.

[0022]

First, the guide shoe 2 is placed in the guide shoe holder 3 and the top and bottom of the guide shoe 2 are fixed by the guide shoe retainers 1.

[0023]

Here, the guide shoe retainer 1 is fixed by hooking the fixing holes 1a of the guide shoe retainer 1 to the fixing projections 3a of the guide shoe holder 3.

[0024]

Specifically, the guide shoe retainer 1 is fixed on the guide shoe holder 3 by pinching fixing work tabs 1b with fingers from outside and applying a force to deform them inward elastically so that the fixing work tabs 1b are deformed more inward than the inner dimension of the tips of the fixing projections 3a of the guide shoe holder 3, and by hooking the fixing holes 1a to the fixing projections 3a and releasing the fingers so that the guide shoe retainer 1 restores its original shape which it had before deformation.

10 [0025]

When the guide shoe retainers 1 are fixed properly as mentioned above, the guide shoe 2 is fixed vertically, left and right, and back and forth.

[0026]

15 Specifically, as shown in Figure 3, since the guide shoe retainer 1 is roughly U-shaped in a plan view, the bottom face of the U-shaped portion can contact the guide shoe 2 so that the guide shoe 2 is fixed on the guide shoe holder 3.

20 [0027]

In addition, as shown in Figure 3, since the guide shoe retainer 1 is roughly L-shaped in a side view, the pair of L-shaped pieces can contact the end faces of the guide shoe 2 on the guide rail 6 side so that the guide shoe 2 is fixed on the guide shoe holder 3.

[0028]

Furthermore, since the guide shoe retainer 1 has a leaf spring characteristic which increases the width of the roughly U-shaped opening in a plan view so as to push the
5 fixing holes 1a toward the fixing projections 3a, the guide shoe retainer 1 can be fitted to the fixing projections 3a securely.

[0029]

In the present invention, when the guide device 8 is
10 assembled, no tool is needed to remove the guide shoe retainer 1.

[0030]

When the guide shoe 2 must be replaced, the above procedure is reversed to perform disassembly.

15 [0031]

First, by pinching with fingers the fixing work tabs 1b of one of the upper and lower guide shoe retainers 1 fixed on the guide shoe holder 3 and deforming them inward elastically, the guide shoe retainer 1 is detached from the
20 fixing projections 3a of the guide shoe holder 3.

[0032]

In this condition, the guide shoe 2 is removed from the guide shoe holder 3 and a new guide shoe 2 is placed in the guide shoe holder 3 for replacement and the guide shoe

retainers 1 are reattached so that the guide shoe 2 is fixed on the guide shoe holder 3.

[0033]

In the present invention, as mentioned above, when the guide shoe 2 of the guide device 8 is replaced, no tool is needed to remove the guide shoe retainer 1.

[0034]

Therefore, a worker who carries out replacement work need not prepare a tool.

10 [0035]

In addition, the guide shoe retainer can be attached or detached more easily than existing ones fixed with fasteners such as bolts, so replacement work efficiency is higher.

15 [0036]

Also, the risk that during replacement work, a fastener such as a bolt may accidentally fall or a fastener may be lost is eliminated.

[0037]

20 In this embodiment, the cage 4 as a moving vehicle has been described, but the invention can be applied to a guide device for an elevator counterweight and also it is obvious that the guide device 8 according to the present invention is applicable to any moving vehicle that moves along a guide
25 rail.

[0038]

Also, the fixing projections 3a of the guide shoe holder 3 may be formed by welding or bonding a component having a projection.

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Reference Signs List

- 1...guide shoe retainer,
- 1a...fixing hole,
- 1b...fixing work tab,
- 10 2...guide shoe,
- 3...guide shoe holder,
- 3a...fixing projection,
- 4...cage,
- 5...bolt,
- 15 6...guide rail,
- 7...bracket,
- 8...guide device

{CLAIMS}

1. An elevator guide device which is provided in a cage
or a counterweight, as an elevating body, and slides while
5 engaged with a guide rail mounted upright on a hoistway to
guide and move up and down the elevating body along the
guide rail, comprising:

a guide shoe sliding on the guide rail;

a guide shoe holder housing the guide shoe and
10 attaching to the elevating body; and

a retainer provided between the guide shoe holder and
the guide shoe to hold the guide shoe to prevent the guide
shoe from getting out of a housing position in the guide
shoe holder and can release the guide shoe by being pushed
15 in one direction.