

No. 857,725.

PATENTED JUNE 25, 1907.

H. DONOHUE.
ELEVATOR GUIDE SHOE.
APPLICATION FILED MAR. 19, 1907.

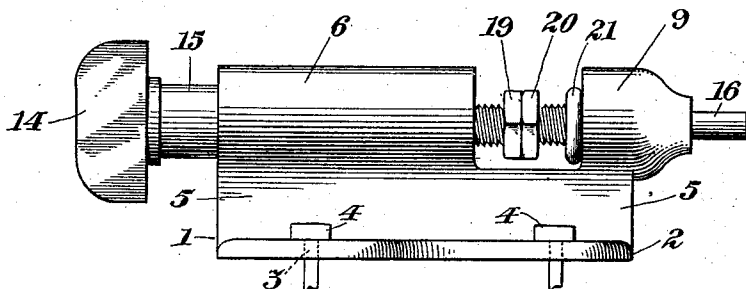


Fig. 1.

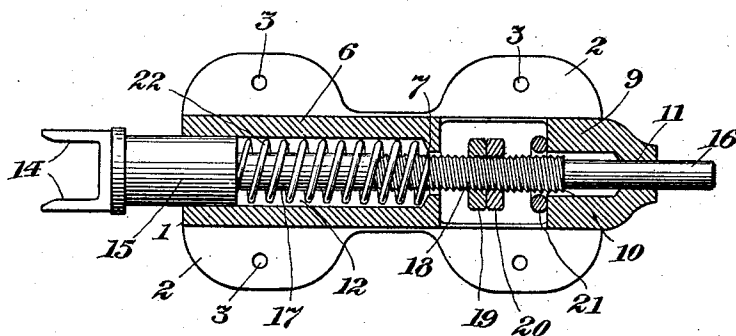


Fig. 2.

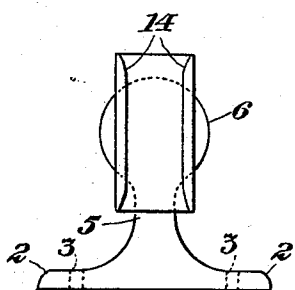


Fig. 3.

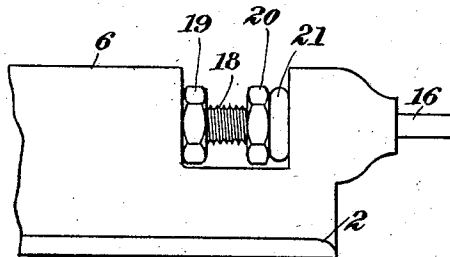


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ELEVATOR GUIDE-SHOE.

No. 857,725.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HUGH DONOHUE, a citizen of the United States, and a resident of the borough of Manhattan, city and State of New York, have invented certain new and useful Improvements in Elevator Guide-Shoes, of which the following is a specification.

My invention relates to an improved construction of guide-shoe, for use in connection with elevators, said shoes being attached in any suitable manner to the car and coacting with the rails in the elevator-well to hold and guide the car between the rails.

One of the forms which my invention may take is shown in the accompanying drawings, wherein

Figure 1 is a side elevation of a guide-shoe within my invention; Fig. 2 is a horizontal section partly in elevation through a line on a level with the axis of the plunger in Fig. 1; Fig. 3 is an end elevation; Fig. 4 is a side elevation of the shoe shown in Fig. 1 with the nuts used in a modified position. In this figure the front half of the shoe is broken away.

Describing now the form of my invention shown in the drawings, 1 is a casting consisting of a base portion 2 having suitable bolt-holes 3 to secure the casting by bolts 4 to the elevator car; for example, to one of the cross-beams thereof. Said casting further consists of a web portion 5 acting as a support for a cylindrically bored casing or sleeve 6. The interior of this sleeve is constricted at 7 to form an abutment for a spiral spring hereinafter to be described. Preferably also forming part of this same casting 1 and supported upon web 5 is an internally bored tail-piece 9. This tail-piece is bored at 10 to be of about the same diameter as the constricted part 7 of the bore in the main sleeve 6.

At 11 the bore in the tail-piece is reduced in diameter and is concentric with the bore 12 in the main sleeve.

Extending through both the sleeve 6 and the tail-piece 9 is a plunger having guide-jaws 14 on one end thereof. This plunger is fitted to the sleeve and tail-piece to have free movement both in a longitudinal and in a rotary direction. The bearing parts of the plunger within said sleeve and tail-piece are first, the portion 15 of the plunger, conveniently designated as the main or body portion of said plunger, which is of such size that it fits the cylindrical bore 12 of the sleeve, and

second, a reduced cylindrical part 16 of said plunger which fits the reduced bore 11 in the tail-piece. Between these bearing portions 15 and 16 of the plunger is an intermediate portion 17 which is screw-threaded at 18. Coacting with these screw threads are nuts 19 and 20 one of which acts as a lock-nut for the other. Surrounding the intermediate portion of the plunger and located between said nuts and the tail-piece is a washer 21 of rubber or other suitable material.

Located within the sleeve and surrounding the intermediate portion 17 of the plunger is a spiral spring 22. This spring is confined between a stationary abutment consisting of the constricted portion 7 of the sleeve, and an abutment on the plunger consisting of one end of the body portion 15 of said plunger.

The installation and operation of my improved guide-shoe is as follows:—The device assembled, as shown in Fig. 1 is secured to the elevator, preferably to the cross-beams thereof located above and below the car. Four of these shoes will ordinarily be secured to each car, one on each side at the top and one on each side at the bottom, all with their guides projecting outward to engage the rails between which the car runs. Assuming that the jaws have been placed to straddle the rail, each shoe will be bolted to the beam of the elevator in such position on said beam that the spiral spring 22 will be under tension to keep the plunger pressed against the rail with its guides 14 inclosing the sides of the rail. The nut 20 will then be adjusted in one direction or the other depending upon circumstances, so that it will permit the plunger to be pressed into the sleeve to the extent demanded by the maximum deviation of the rail in that direction. To ascertain this point of adjustment, the car will of course be suitably raised and lowered in the elevator-well. While the nut, when so adjusted, will permit the plunger to be pressed inward to the maximum extent required by the deviation of the rail, said nut will not permit the plunger to be pressed in any farther than this, nor the guides to leave the rail, because said nut will prevent this by abutting against the end of the tail-piece 9, or in event that the washer 21 is interposed, then said nut will abut against said washer and the washer against the tail-piece. Having determined upon the position of adjustment of the nut 20, the other nut 19 is

screwed down against it and effectually locks it in fixed position. In an emergency should the spiral spring 22 break or become worn out, the guides can never leave the rail because the adjustable stop, consisting of the nut 20, cooperating with the abutment or tail-piece 9, prevents the plunger from being forced so far inward. Thus the guides can under no circumstances leave the rail. In such emergency, it will sometimes be desirable to prevent the guides from having any endwise movement whatsoever, if so, the nut 19 will be screwed toward the sleeve until the other nut is forced hard against the tail-piece. See Fig. 4.

The installation and maintenance of my shoe is most simple. In the first place, the shoe can be bolted at once to the car in almost any position between wide limits. These bolts never have to be disturbed thereafter, because all the adjustment is had by the easy manipulation of the nuts 19 and 20. Moreover, the device is absolutely safe in the event that the spring operating the plunger should break, or become useless. Again the nuts 19 and 20 can be manipulated as explained above to replace the spring altogether and hold the guides in any suitable more or less rigid position relative to the rail.

In some of the claims, the expression "rail-end" of the plunger is used. This refers to that end of the plunger which is directed toward or coacts with the elevator-rail.

Having thus described my invention, what I claim is:

1. In an elevator guide-shoe, the combination of a sleeve; a plunger working in the sleeve and provided with a guide at one end; an adjustable stop on the other end of said plunger; an abutment located to be engaged by said stop when the guide end of the plunger is sufficiently telescoped into the sleeve; and a spring adapted to hold the guide end of said plunger extended yieldingly out of the sleeve.

2. In an elevator guide-shoe, the combination of a sleeve; a plunger working in the sleeve and provided with a guide at one end; an adjustable stop on the other end of said plunger; an abutment adapted to be engaged by said stop; a spring adapted to hold the guide end of said plunger extended yieldingly out of the sleeve; and a shock deadening material interposed between said stop and said abutment.

3. In an elevator guide-shoe, the combination of a sleeve; a guide-carrying plunger working in the sleeve; an adjustable stop adapted to control the extent to which the guide-end of the plunger can be telescoped into the sleeve; and a spring adapted to hold the guide-end of the plunger extended yieldingly out of the sleeve and located between

said sleeve and plunger to be independent of any adjustment of the adjustable stop.

4. In an elevator guide-shoe, the combination of a sleeve; a plunger working in said sleeve and provided with a guide at one end; a tail-piece having an opening therein to receive the other end of said plunger; an adjustable stop on the intermediate portion of said plunger adapted to abut against said tail-piece; and a spring adapted to hold the guide-end of the plunger extended yieldingly out of the sleeve.

5. In an elevator guide-shoe the combination of a sleeve; a plunger working in said sleeve and provided with a guide at one end; a tail-piece having an opening therein to receive the other end of said plunger; an adjustable stop on the intermediate portion of said plunger adapted to abut against said tail-piece; a spring adapted to hold the guide-end of the plunger extended yieldingly out of the sleeve, and a washer of shock-deadening material surrounding the plunger and located between the adjustable stop and the tail-piece.

6. In an elevator guide-shoe, the combination of a sleeve; a second sleeve; a plunger extending through both of said sleeves and provided with a guide on its end which projects out of the first sleeve; a spiral spring surrounding the plunger within the first sleeve and located between an abutment on said sleeve and an abutment on the plunger; and a nut engaging screw-threads on the plunger intermediate the parts thereof which work in the sleeves.

7. In an elevator guide-shoe, the combination of a sleeve; a plunger working in the sleeve; an adjustable stop adapted to control the extent to which the "rail-end" of the plunger can be telescoped toward the sleeve; and a spring adapted to hold the "rail-end" of the plunger extended yieldingly out of the sleeve and located between a part of the sleeve and the plunger to be independent of any adjustment of the adjustable stop.

8. In an elevator-guide shoe, the combination of a sleeve; a second sleeve; a plunger extending through both of said sleeves; a spring operating on the plunger and adapted to hold its "rail-end" extended yieldingly out of the first named sleeve; and a pair of nuts engaging screw-threads on the plunger intermediate the parts thereof which work in the sleeves.

In witness whereof, I have signed my name to the foregoing specification in the presence of two subscribing witnesses.

HUGH DONOHUE.

Witnesses:

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Jos. F. O'BRIEN.