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ELEVATOR DOOR HANGER.
APPLICATION FILED FEB. 10, 1915.
Patented Aug. 3, 1915.
1,148,652.

Fig. 2

Fig. 3

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To all whom it may concern:

Be it known that we, HERMAN BELTZ and ROBERT MOIR, citizens of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Elevator-Door Hangers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to door hangers for elevator shafts, and has for its main object to provide extremely simple and highly efficient differential door actuating mechanism therefor.

Generally stated, the invention consists of the novel devices and combinations of details hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings: Figure 1 is a view chiefly in side elevation but with some parts sectioned, showing our invention as applied to a two-section elevator door; Fig. 2 is a horizontal section taken approximately on the line a-b on Fig. 1; Fig. 3 is a fragmentary view partly in side elevation and partly in vertical section of some of the parts shown in Fig. 1; Fig. 4 is a detail showing certain parts sectioned on the line a-b on Fig. 3; and Fig. 5 is a section showing certain parts sectioned on the line a-b on Fig. 3.

The numerals 2 and 3 indicate the movable doors or door sections. In this improved structure, we preferably provide a pair of parallel laterally spaced rails 4 for each door section, and these pairs of rails are parallel to each other and spaced apart laterally and are rigidly secured to and supported from an elongated rectangular housing 5, which, in turn, is rigidly secured to the upper horizontal portion of the door frame.

Arranged to run on each track or pair of rails 4 is a door supporting truck or traveler made up, as shown, of a pair of parallel metal bars 6, and truck wheels 7. The bars 6, between the wheels 7, are rigidly connected and spaced by spacing blocks 8. The wheels 7, preferably, have projecting central flanges that run between the rails of the cooperating track, and thus hold the rollers against lateral displacement from the track. Preferably, the rollers 7 are connected to the truck bars 6, by ball-bearing journals 9.

The trucks or travelers which independently support the several door sections, may be alike or substantially alike in this improved arrangement. The said door sections are adjustably hung from the respective trucks or travelers, by hanger bolts 10 which are passed downward through vertical holes in the respective spacing blocks 8, depending between the rails of the corresponding track, and at their lower ends, are threaded and screwed into the top bars of the respective door sections. Lock nuts 11 on the threaded ends of said hanger bolts press against the top bars of the door sections and thus lock the hanger bolts 10 against rotation and the door sections in the desired vertical adjustment. Just below the lower edges of the cooperating rails 4, each hanger bolt is provided with anti-friction ball bearing devices for engagement with the lower edges of the said rails. As shown, such ball bearing devices comprise a washer-like ball runway 12, bearing balls 13, a ball spacing ring or cage 14 and the supporting nut 15, all of which are applied around the respective hanger bolts. The balls in this arrangement, with the cage 14, are free to rotate, and some one or the other of the said balls are always engaged with the lower edge of one or the other of said rails, so as thereby prevent the door sections from being raised, either by direct vertical movement or by angular lifting movements. By adjustments of the nuts 15, the ball bearing device or stops may be always set in proper relation to the lower edges of the cooperating rails. The said ball bearing device being free to rotate, may move in the one direction or the other, depending on the direction of the travel of the door, and in which the pressure friction is applied. There will always be some slight inaccuracies in the location of the rails 4 so that in practice, the balls of the rotary ball bearing stop devices, will not simultaneously engage the lower edge of both of the pair of cooperating rails, but will always engage with one or the other thereof, whenever the force is applied to the door tending to take the same up at one edge.

What we claim is:

1. A door hanger comprising a track, a
traveler movable on said track, hangers depending from said traveler to a point below said track, a door carried by said hangers below said track, an annular ball runway supported by said hanger below said track, and a series of bearing balls held to run on said runway and engageable with the lower edge of the said track.

2. A door hanger comprising laterally spaced parallel track rails, a truck movable on said track, hanger bolts carried by said truck and depending between said track rails, a door carried by the lower ends of said hanger bolts, a ball runway adjustable mounted on the lower ends of said hanger bolts, and an endless series of balls held for movement on said ball runway and engageable with the lower edges of the overlying rails.

3. A door hanger comprising laterally spaced track rails cooperating to form a track, a truck having wheels located, one ahead of the other, and arranged to run on both of said rails, hangers carried by said truck and depending between said rails, a door carried by the lower portions of said hangers, an anti-friction device carried by said hangers and engageable with the lower edges of said rails, and means for vertically adjusting said anti-friction devices vertically in respect to said rails.

In testimony whereof we affix our signatures in presence of two witnesses.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D.C."