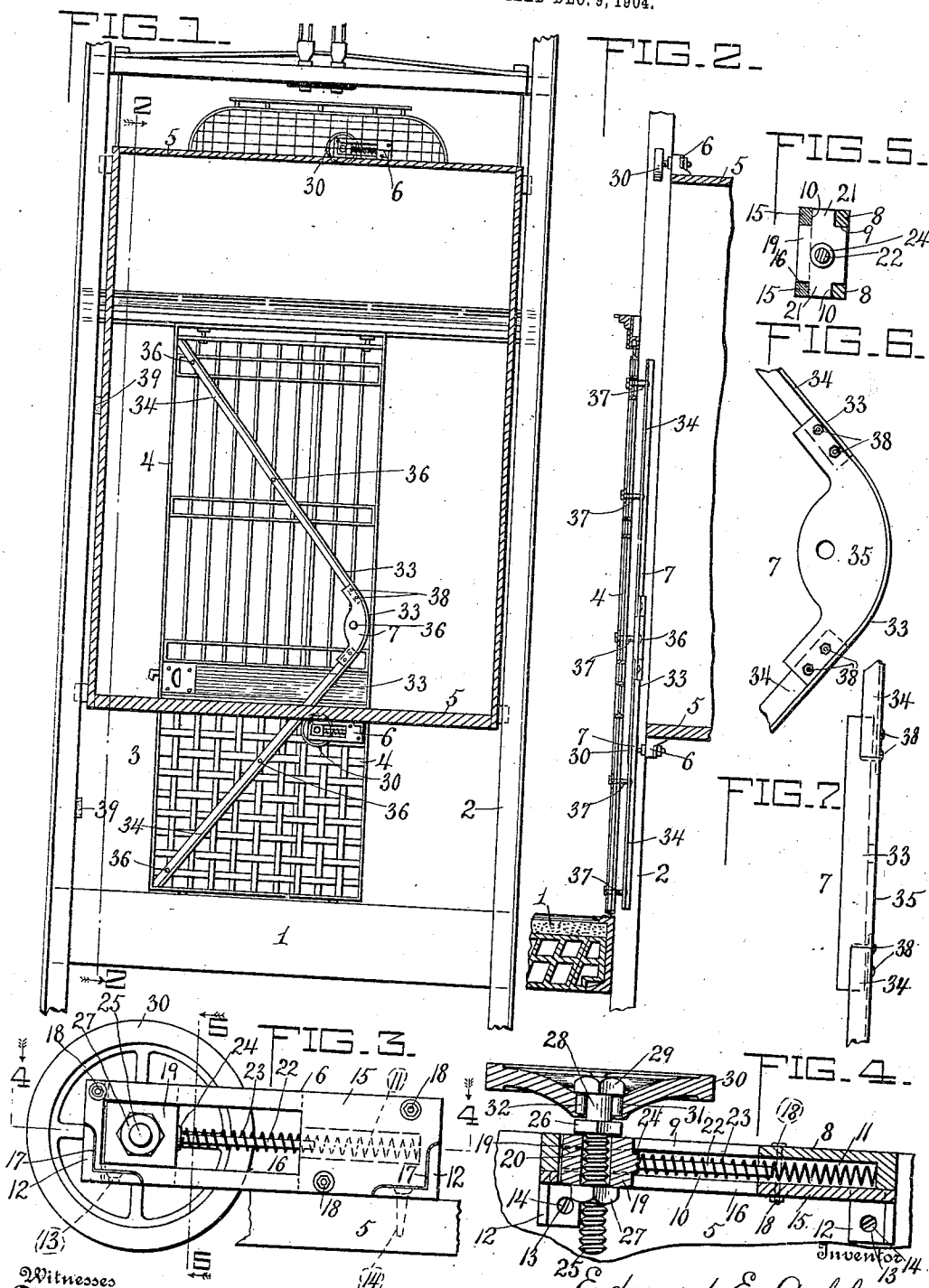


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PATENTED MAY 28, 1907.

E. E. ASHLEY.
AUTOMATIC DOOR CLOSER FOR ELEVATOR SHAFTS.

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AUTOMATIC DOOR-CLOSER FOR ELEVATOR-SHAFTS.

No. 855,376.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed December 9, 1904. Serial No. 236,258.

To all whom it may concern:

Be it known that I, EDWARD E. ASHLEY, a citizen of the United States of America, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Automatic Door-Closers for Elevator-Shafts, of which the following is a specification.

My invention relates to an improved door closer which will automatically close each door to an elevator shaft as the car is moved either up or down the shaft, so as to prevent the many accidents which occur from the want of such means, and making it impossible for such doors to remain open, if accidentally left open, which so often happens, and thus leaves the door-opening unprotected so as to allow a person to walk accidentally into an open elevator shaft.

My invention consists in the novel features of construction hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 shows a view looking from the inside of a part of an elevator-shaft at a door-opening, a sectional view of an elevator-car, and an inside view of a door showing my improved automatic door-closer. Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1 looking in the direction of the arrows. Fig. 3 is an inner view of the upper car-member of the door-closer. Fig. 4 is a horizontal section thereof taken on the line 4—4 of Fig. 3 looking in the direction of the arrows. Fig. 5 is a transverse section taken on the line 5—5 of Fig. 3 looking in the direction of the arrows. Fig. 6 is an inside view of the connecting cam plate and adjacent strip sections of the door member of the door-closer. Fig. 7 is a rear edge view thereof.

Referring to Figs. 1 and 2—1 represents a floor of a building, an elevator-shaft or well, 3 a door opening, 4 a sliding door for guarding the door opening 3, and 5 an elevator-car, all of which may be of any suitable construction.

6 are the car-members and 7 the door-member of my improved door-closer. One of the car-members 6 is secured to the bottom of the car, while the other car-member 6 is secured to the top of the car.

Referring to Figs. 3, 4 and 5—each car-member 6 comprises an inner or base plate or casting 8, formed with a longitudinal side

opening 9, longitudinal bottom and top openings 10, an end recess or socket 11, and angular projections or lugs 12 at its ends having holes 13 for the screws or bolts 14 whereby the car-member 6 is secured to the car 5. 15 is a removable outer or cap plate or casting formed with a longitudinal side opening 16 coinciding with the side opening 9 of the inner plate 8 and with angular recesses 17 at its ends, corresponding in shape to the angular projections or lugs 12 of the inner plate 8 so as to fit the former and seat against the latter, the outer plate 15 and inner plate 8 being secured together by bolts 18. 19 is a slide block having a stem-opening 20 and adapted to slide back and forth in the longitudinal side openings 9 and 16 of the inner plate 8 and cap plate 15 respectively, and formed with tongues 21 adapted to slide in the longitudinal bottom and top openings 10, whereby the slide block 19 is guided in its movement and with a rearwardly extending rod 22 projecting into the end recess 11. 23 is an expansion spring surrounding the rod 22 and confined between the inner end of the end recess 11 and a shoulder 24 upon the inner end of the slide-block 19. Extending through the stem opening 20 of the slide-block 19 is a screw stem 25 rigidly secured by an inner nut 26 and an outer nut 27 located upon opposite sides of the slide block 19. The shank 28 of the screw stem 25 provides an axle or journal between the inner nut 26 and the head 29 of the screw-stem 25 for a wheel 30 mounted upon the shank 28, and having a concavity for the head 29 of the screw-stem 25, and a hub formed with a roller-race or socket 31 containing antifriction rollers 32 surrounding the shank 25, the wheel 30 being retained in position by the head 29 of the screw stem 28.

The car-members 6 are each of similar construction, but the bearing parts are reversed in position according to whether they are applied to the bottom or top of the car.

Referring to Figs. 1, 2, 6 and 7—the door-member 7 of my door-closer comprises a V-shaped single cam-track or rail 33 extending from both the outer corners of the sliding door 4 to the rear edge thereof, thus providing an extended bearing upon the rear side of the cam-track for the wheels 30 of the car-members 6, which travel thereon to close the doors when they remain open or partly open, which results in the cam-track 33 lying in the path of the wheels 30 when the car passes up

or down. This cam-track 33 is preferably formed of two straight inclined wrought iron angle strips 34, a connecting curved wrought iron angle plate 35, one flange of these angle strips 34 and angle plate 35 being secured to the door by bolts 36 surrounded by spacing collars or thimbles 37, while their other flanges provide the cam-track 33. The angle strips 34 and angle plate 35 are secured together by bolts 38. Between the front edge of the door and the jamb I employ rubber bumpers 39 to stop the jar and deaden the noise.

The car-members 6, as hereinbefore stated, are placed one upon the bottom of the car and one upon the top of the car at the front of the latter and at a point about one-half inch less than the width of the sliding door from the side of the car, as shown in Fig. 2. The reason for setting the car-members one inch less than the width of the car door is to have the spring strain at the center point of the door, thus insuring the closing of the same, the cam-track or rail 33 being bolted in the position shown in Fig. 2, and the distance between the car and shaft is regulated by employing the spacing collars or thimbles, through which the bolts are passed of the requisite length, allowing the wheel to strike the cam-track or rail the width of the rim of the wheel and permitting a free passage of the car except at the point desired. The spring 23 takes the concussion of the impact of the wheels 30 with cam-track 33 and lessens the sound or noise when the wheel strikes the cam-track 33 as the car ascends or descends.

My door-closer, it will be observed, is set entirely out of the way and does not take any space which it is necessary to use for any other purpose, so that nothing is obstructed. It can remain in all cases, being located on the top and bottom of the car, and can be used in all kinds of buildings. It cannot get out of order easily, as it is very strongly constructed, and can be readily bolted on the car and door in a satisfactory and secure manner.

Having thus described my invention, the following is what I claim therein and desire to secure by Letters Patent:

1. The car-member of the door-closer comprising an inner plate, having longitudinal side, bottom and top openings, an outer plate having a longitudinal side opening, a slide block having a stem opening and bottom and top tongues and working in the longitudinal openings, a spring between the slide block and the end of the inner plate, a stem secured in the stem opening and having

a shank providing an axle, and a head, and a wheel mounted upon the shank.

2. The car-member of the door-closer comprising an inner plate having longitudinal side, bottom and top openings and an end recess, an outer plate having a longitudinal side opening, a slide-block having a stem opening, and bottom and top tongues and working in the longitudinal openings and a rearwardly extending rod projecting into the end recess, a spring surrounding the rod between the inner end of the end recess and the slide-block, a stem secured in the stem opening of the slide-block and having a shank providing an axle and a head, and a wheel mounted upon the shank.

3. The car-member of the door-closer comprising an inner plate having longitudinal side, bottom and top openings, an outer plate having a longitudinal side opening, a slide-block having a stem opening and bottom and top tongues and working in the longitudinal openings, a spring between the slide-block and the end of the inner plate, a screw stem having a shank, providing an axle, and a head, inner and outer nuts securing the screw stem in the stem opening, and a wheel mounted upon the shank.

4. The car-member of the door-closer comprising an inner plate, having longitudinal side, bottom and top openings, an outer plate having a longitudinal side opening, a slide-block having a stem opening and bottom and top tongues and working in the longitudinal openings, a spring between the slide-block and the end of the inner plate, a stem having a shank, providing an axle, and a head, a wheel mounted upon the shank, and having a concavity for the head of the stem and a hub formed with a roller race or socket, and antifriction rollers surrounding the shank within the roller race or socket.

5. The car-member of the door-closer comprising an inner plate, having longitudinal side, bottom and top openings and angular projections at the ends for securing the member, an outer plate having a longitudinal side opening, and angular recesses at the ends corresponding to and fitting the angular projections, a slide-block having a stem opening and bottom and top tongues and working in the longitudinal openings, a spring between the slide-block and the end of the inner plate, a stem secured in the stem opening and having a shank, providing an axle, and a head, and a wheel mounted upon the shank.

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