

No. 858,390.

PATENTED JULY 2, 1907.

J. HILLEBRAND.
SAFETY DEVICE FOR ELEVATORS.

APPLICATION FILED NOV. 6, 1906.

2 SHEETS—SHEET 1.

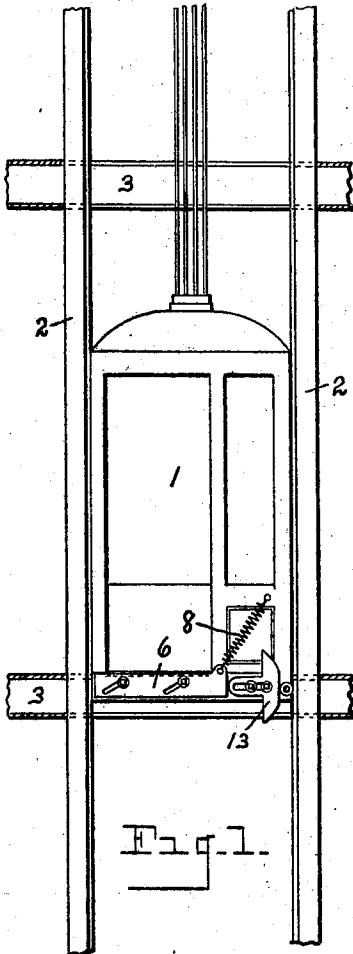


Fig. 1.

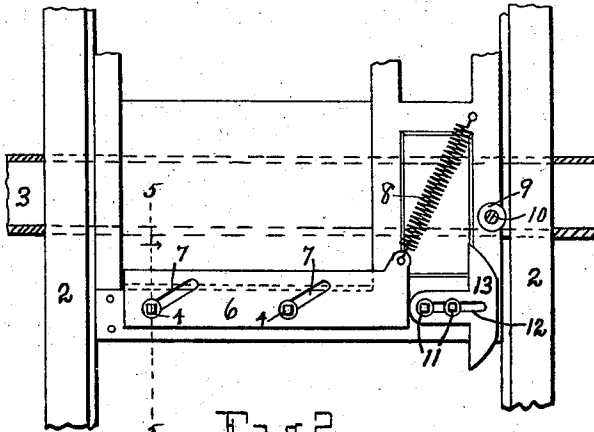


Fig. 2.

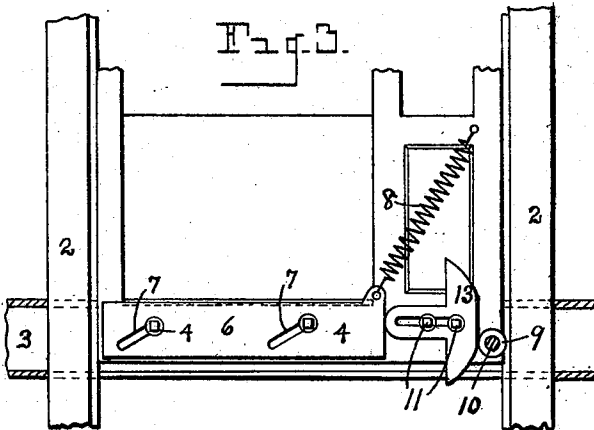


Fig. 3.

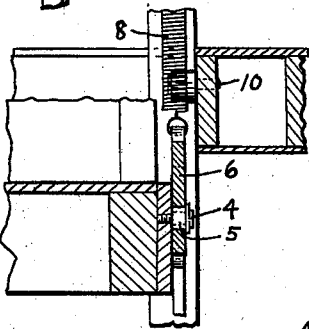


Fig. 4.

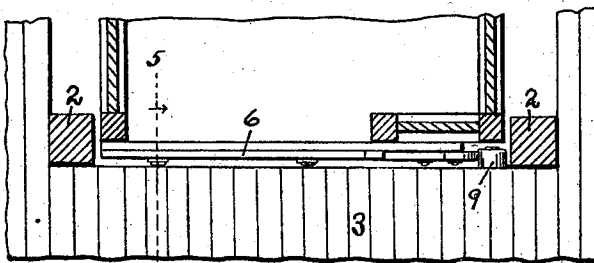


Fig. 5.

WITNESSES.

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Fig. 6.

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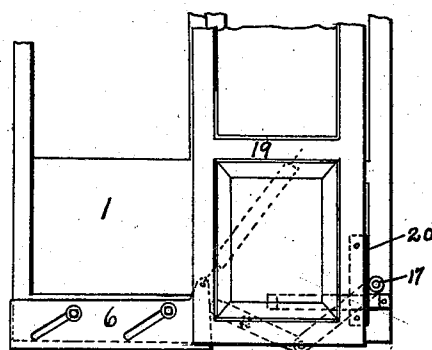
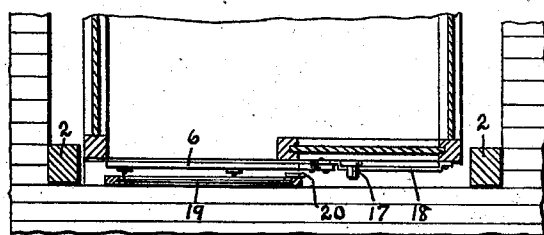
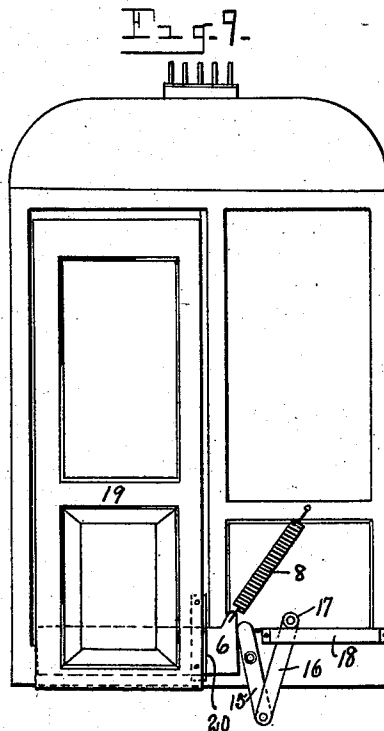
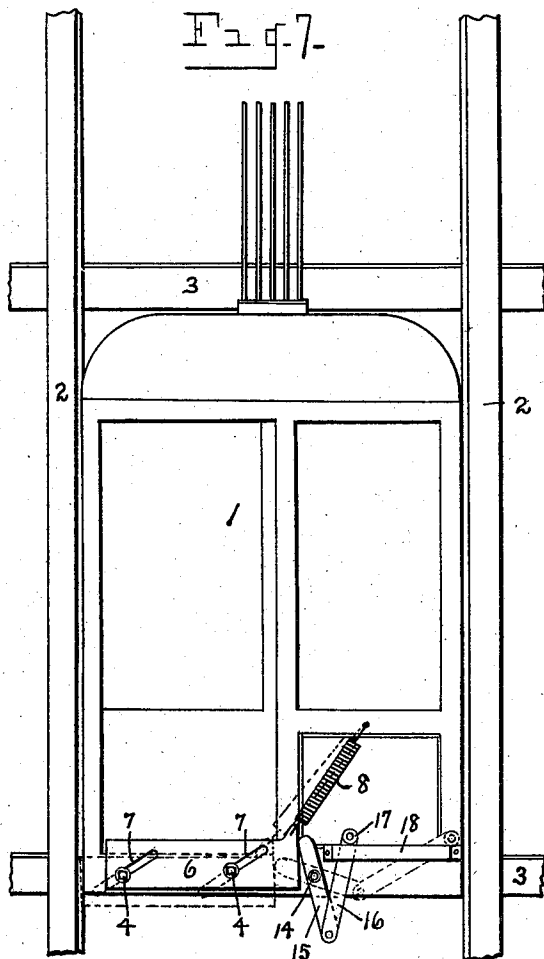
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN HILLEBRAND, OF DETROIT, MICHIGAN.

SAFETY DEVICE FOR ELEVATORS.

No. 858,390.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed November 5, 1906. Serial No. 342,028.

To all whom it may concern:

Be it known that I, JOHN HILLEBRAND, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and

Improved Safety Device for Elevators, of which the following is a specification.

My invention relates to devices which are designed to prevent injury to the operators or passengers in elevators, and the object of my improvement is to provide a simple, strong and inexpensive device which may be applied to the front of an elevator car, and prevent persons therein from inadvertently allowing a foot to project outside of the car.

My invention consists in a bar or barrier movably secured to the front of the car, on the outside, and so positioned that it will project above the floor of the car a sufficient distance to prevent the foot of the persons in the car from projecting beyond the outer face of the wall of the car.

It further consists in means for moving this bar or barrier so that it will not interfere with the free passage of persons into and out of the car when the floor of the car is level with one of the elevator landings and will cause the barrier to resume its operative position as soon as the car has left its landing, irrespective of whether it moves up or down.

I attain the object of this invention by the construction illustrated in the accompanying drawings, in which

Figure 1 is a view of an elevator car with one form of my improved device mounted thereon, the car being shown at a landing, and the barrier moved out of the way so as not to obstruct the movement of the passengers. Figs. 2 and 3 are views of the barrier, on somewhat larger scale, in operative and inoperative positions. Fig. 4 is a plan of the barrier secured to a car. Fig. 5 is a cross section on the lines 5-5 of Figs. 2 and 4. Fig. 6 shows a pin and collar for supporting the barrier. Fig. 7 is a view of another form of this device, the parts being shown in the operative position in dotted lines. Fig. 8 is a plan of the safety device. Fig. 9 is a view of the car and of an elevator shaft door in closed position. Fig. 10 is a view of a portion of the same with the shaft door open.

Similar reference characters refer to like parts throughout the several views.

Elevator shafts are usually provided with doors at the landings, and as a rule, the interior in the front wall of the shaft is not a flat surface. On the contrary, a series of offsets occur consisting generally of landings and of the cross-bars over the doors. Persons traveling in the elevator car are liable to allow their feet to project beyond the edge of the car floor, giving rise to many serious accidents because of the feet being caught between the floor of the car and these offsets in the wall of the shaft. Such accidents usually occur while the floor of the car is passing the lower edge of one of the floors in

the building and would probably not occur if a bar or guard were secured to the front edge of the floor of the door-way of the car, to prevent the feet of the person standing therein, from projecting. Such a device should be equipped with operating mechanism whereby it could be moved out of the way when the floor of the car is level with the landing. In the drawings the safety device and two operating mechanisms are illustrated.

The elevator car 1 is designed to be guided within a shaft which is formed generally by the uprights 2 which extend between and beyond the floors 3. These parts may be of any desired construction. Secured in the front of the floor of the car are pins 4 upon which are loosely mounted the sleeves 5. The bar 6 is provided with diagonal slots 7, through which the pins and sleeves extend. The sleeves 5 prevent excessive friction. It will be understood that when this bar 6 moves to the left, it will lower, and when it moves to the right, it will rise. To move this bar to the right and up, which is its normal position, I employ the spring 8.

Secured to the shaft edge of each floor is a roller 9 carried by a screw or bolt 10 extending into the floor. Mounted on the screws 11 which pass through its slot 12 is the actuating plate 13. These screws 11 may be provided with collars 5 as before described. The operation of this device is as follows. Normally, unless the elevator car is not at a landing, there will be no rollers to press the actuating member 13 to the left and the spring 8 will be free to hold the plate or barrier 6 in the position shown in Fig. 2, where it will effectually prevent any one in the car from inadvertently permitting his foot to extend beyond the edge of the car floor. But when a car is just reaching a landing, a roller 9 will engage the cam shaped wing of the actuating member 13 and force it to the left, as shown in Fig. 3, which will cause the barrier 6 to be depressed. When in this position, it will be entirely out of the way and not impede the entrance or exit of the passengers.

In Figs. 7 to 10 inclusive, I have shown a modified form of this device which differs principally in the fact that means are provided which will be engaged by any of the doors of the elevator shaft to cause the barrier to be lowered. In the device first described, the rollers 10 of each floor will operate the barrier as the car reaches that floor, irrespective of whether the car is to stop there or not. As all the parts are made of metal, this unnecessary operation of the barrier will cause an unnecessary amount of noise. The slightly more expensive construction of Figs. 7 to 10 inclusive may therefore be preferred because of the absence of noise.

The elevator car 1, the uprights 2, the floors 3, the bolts 4, the rollers 5, the plate or barrier 6 with its slots 7, will be the same as in the previously explained construction and the parts will be normally held in the position shown in Fig. 7 by the spring 8. Pivoted to the

- front of the car floor on a pin 14, is a lever 15 to which is pivoted an arm 16 having a roller 17 at its upper end. The movement of the arm 16 is guided by the plate 18 which has its ends secured to the elevator floor as shown in Fig. 8. Each shaft door 19 has secured to its rear side a short bar 20, which is normally out of the path of the roller 17, as the car moves up and down, but which bar will engage the roller 17 and move it to the right, as shown in Fig. 10, whenever the shaft door is operated.
- 10 Moving this roller 17 and arm 16 to the right will cause the upper end of the lever 15 to move the barrier 6 to the left as shown in Fig. 10. Closing the door permits the return of all the parts under the pull of the spring 8. The operation of these parts are so similar to that of the
- 15 parts described that it is only necessary to call attention to the fact that the position of the bar 20 on the door 19 should be such that the roller 17 does not reach its outermost position until the shaft door has been fully operated.
- 20 Having now explained my improvements, what I desire to secure by Letters Patent is,—
1. A safety device for elevators, comprising a barrier slidably mounted for vertical movement at the floor of

the elevator car, means to normally hold it in position where it projects above the floor of the car, and means to cause the barrier to move laterally down level with the floor when the car is at a landing. 25

2. A safety device for elevators, comprising a bar having diagonal slots, pins secured to the frame of the car upon which pins the bar is mounted, a spring to normally hold the bar in an elevated position where it projects above the floor of the car at the point where passengers get on and off, actuating means for moving the bar down out of the way, and means located at the landings to cause said actuating means to move the bar. 30 35

3. A safety device for elevators, comprising a bar having diagonal slots, pins secured to the frame of the car upon which pins the bar is mounted, a spring to normally hold the bar in an elevated position where it projects above the floor of the car at the point where passengers get on and off, actuating means for moving the bar down out of the way, and means secured to a door of the elevator shaft whereby said actuating means may be caused to move the bar. 40

In testimony whereof I have signed my name in the presence of two subscribing witnesses. 45

JOHN HILLEBRAND.

Witnesses:

CHAS. J. TERMOTE,
EDWARD N. PAGELSEN.