

(No Model.)

R. LADE.

AUTOMATIC ELEVATOR GATE.

No. 312,276.

Patented Feb. 17, 1885.

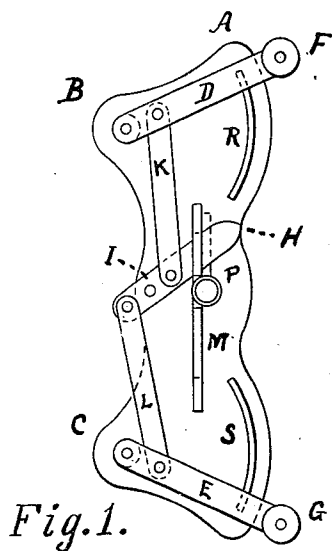


Fig. 1.

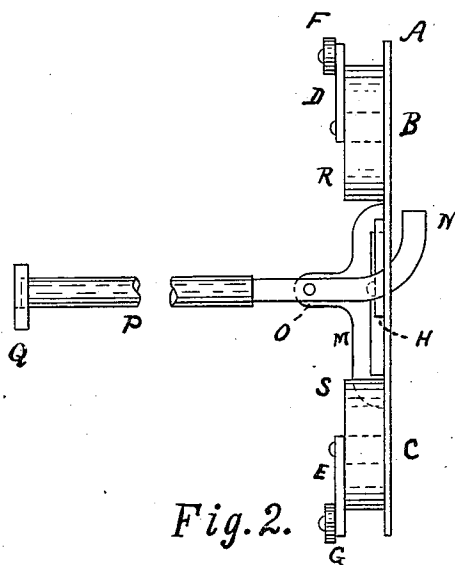


Fig. 2.

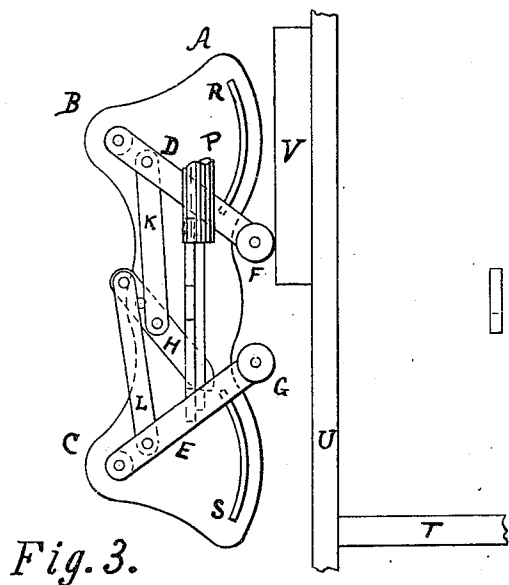


Fig. 3.

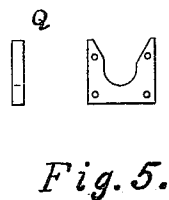


Fig. 5.

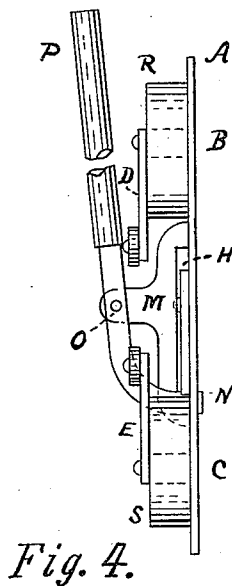


Fig. 4.

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UNITED STATES PATENT OFFICE.

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AUTOMATIC ELEVATOR-GATE.

SPECIFICATION forming part of Letters Patent No. 312,276, dated February 17, 1885.

Application filed December 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, ROBERT LADE, a citizen of Great Britain, residing at Holyoke, in the county of Hampden and Commonwealth of Massachusetts, have invented a new and useful Improvement in Automatic Elevator-Gates, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to improvements in gates operated automatically to guard the entrance to elevators and prevent accidents from falling through open elevator-wells; and the objects of my improvements are to provide a gate for this purpose which is simple, positive, and durable, and can be readily applied to any form of elevator under all conditions of position or surroundings. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the entire gate-operating mechanism unacted upon by the elevator; Fig. 2, a front view of same with parts in the same position as in Fig. 1 and showing the gate closed; Fig. 3, a side elevation of gate with elevator acting upon it; Fig. 4, a front elevation of the gate with the parts as in Fig. 3 and showing the gate open, and Fig. 5 side and front views of bearing for outboard end of gate-bar.

Similar letters refer to like parts throughout the several views.

The plate A has two posts, B and C, on the top of which are pivoted the arms D and E. The other ends of said arms are fitted with the rollers F and G. The latch H is pivoted to the plate A by the pin I. Said latch is connected with the arm D by the bar K, and with the arm E by the bar L, all points of attachment of the connecting-bars allowing the pieces to turn freely. The end of the latch H projects through the bridge M and bears upon the inner end of the gate-lever N. This gate-lever N is pivoted to the bridge M at O, and its outer end is prolonged to any desired extent by the gate-bar P, formed of piping or other suitable material.

The mechanism described is attached to a post or other suitable support at one side of the opening to be guarded. The bar P, when in the position indicated in Figs. 1 and 2,

crosses this opening, and the end of the bar P rests in the bearing Q. The bearing Q (shown in detail in Fig. 5) is attached to a suitable support on the opposite side of the opening from that occupied by the plate A.

The guides R and S, projecting from the plate A, are for the purpose of supporting the outer ends of the bars D and E.

The action of the elevator upon the gate is shown in Fig. 3.

T is the elevator floor or platform. U is a vertical rod or post forming a part of the elevator and moving with the platform, and V the gate-block attached to the post U for the purpose of operating the gate mechanism.

The operation of the gate described is as follows: First, taking the parts in the position shown in Figs. 1 and 2, the elevator is away and the gate is closed. Suppose that the elevator is below and is rising. As it rises the block V approaches the roller G, and, striking it, raises the arm E as the elevator continues its upward course. When the arm E is raised, it pushes up the connecting-bar L, turns the latch H about its pivot I, throws down the point of the latch, and by means of the bar K draws down the arm D. As the point of the latch H descends it carries before it the inner end of the gate-lever N, and thus raises the gate-bar P, so that by properly locating the gate-block V the gate is opened at the proper time when the elevator reaches its floor. The face of the block V is located at the proper distance from the rolls, and the other parts properly proportioned, so that when the gate-bar is raised to a nearly vertical position the motion of the arms ceases and the parts stand as shown in Figs. 3 and 4.

In closing the gate, suppose the parts to be in position shown in Fig. 3, and the elevator to be ascending. As the gate-bar P was left in a slightly-inclined position, its weight is acting through the fulcrum O and inner end of the lever N to raise the point of the latch H, and thus, by means of the connecting-bars K and L, there is a pressure of the rollers F and G upon the gate-block V. When the end of the block V passes the roller F, the arm D is released, the parts return to the position shown in Fig. 1, and the gate is closed. By varying the position and length of the block

V it is obvious that the gate may be opened and closed during any desired positions of the elevator.

In the action described the movement of the elevator was supposed to be upward; but if downward the operation is the same, for if the block V starts from above the gate of Fig. 1 it depresses the arm D, throws down the point of the latch as before, and opens the gate. The slot in the bridge M, through which the latch H passes, is made of proper length to serve as a stop for the latch and leave the parts in the right position.

The object of the rolls F and G is to reduce friction, and also to insure the movement of the arms D and E in the proper direction. For instance, with gate mechanism and block as in Fig. 3, and the elevator descending, when V strikes the roll G the tendency is to swing the arm E up and in; but without the roller G there might be sufficient friction to carry the arm down and out, causing failure in operation and damage of the mechanism.

My invention may be readily attached to any elevator, because the position of the plate A and block V can be varied and length of gate-bar P adjusted to meet all requirements.

By using the weight of the gate-bar as a moving power, making direct connections throughout, and dispensing with the use of springs and other complications, my invention is rendered simple, positive, and durable, all of which were the objects sought.

The gates for upper and lower floors may be further simplified by dispensing, respectively, with the arms F and G and their connecting-bars.

I am aware that prior to my invention automatic elevator-gates have been made. I therefore do not claim, broadly, the moving of a gate by an elevator; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

The combination, in an elevator-gate, of the block V, rolls F and G, arms D and E, connecting-bars K and L, latch H, gate-lever N, bridge M, bar P, and bearing Q, substantially as and for the purpose set forth.

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Witnesses:

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