(No Model.) 2 Sheets—Sheet 1.

C. F. DE ARDEN.

DEVICE FOR OPERATING GATES TO ELEVATOR WELLS.

No. 506,163. Patented Oct. 3, 1893.

Fig. 1.

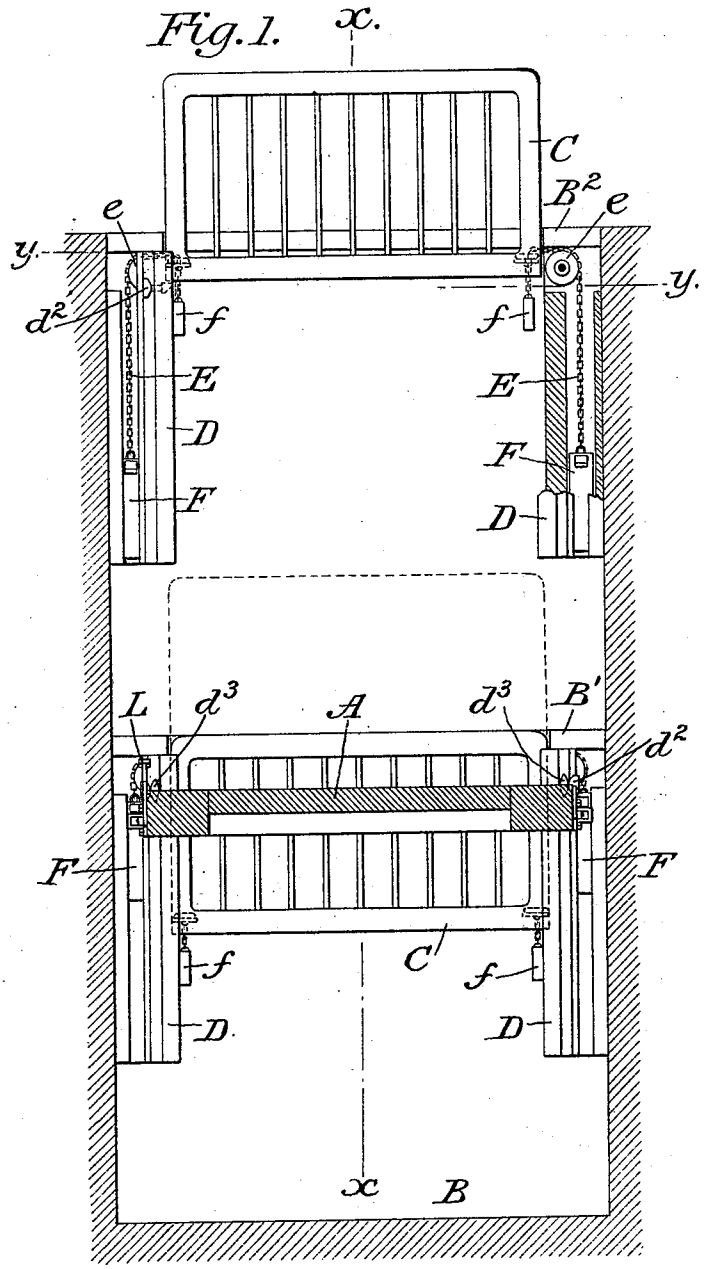
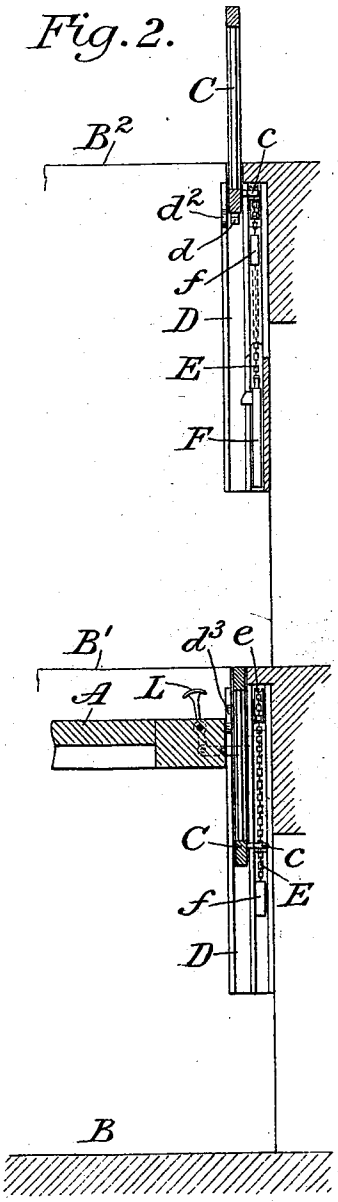


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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DEVICE FOR OPERATING GATES TO ELEVATOR WELLS.

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Fig. 3.

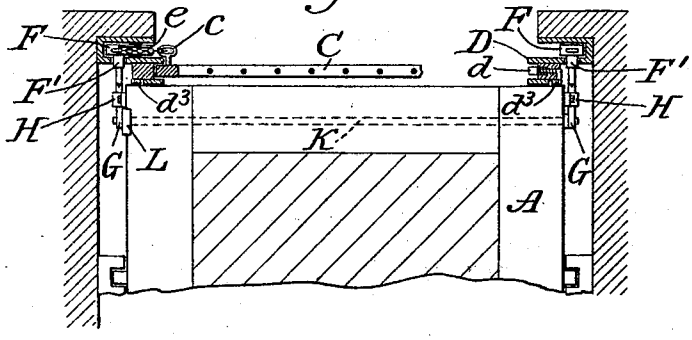


Fig. 4.

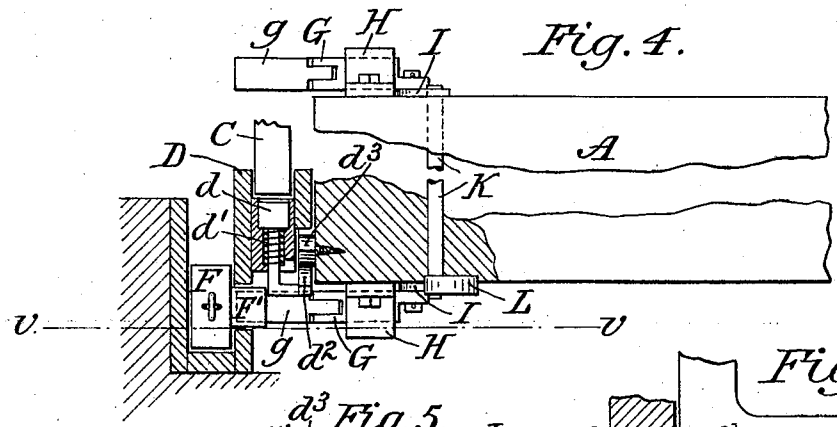


Fig. 5.

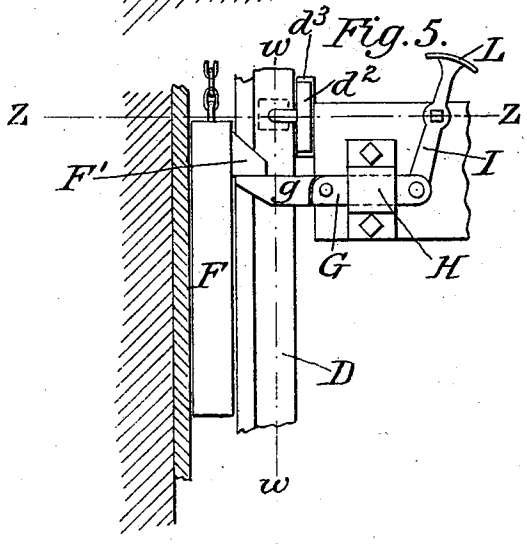
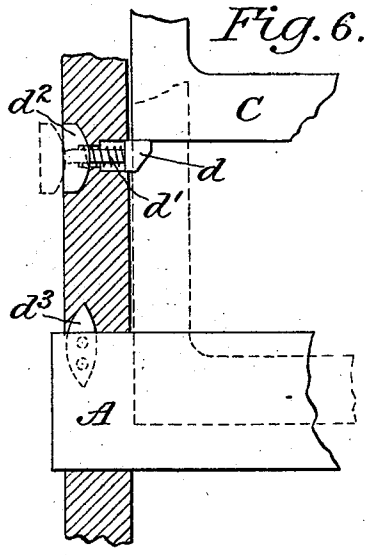


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES F. DE ARDEN, OF NEW YORK, N. Y.

DEVICE FOR OPERATING GATES TO ELEVATOR-WELLS.

SPECIFICATION forming part of Letters Patent No. 506,163, dated October 3, 1893.

Application filed February 20, 1893. Serial No. 463,062. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. DE ARDEN, of New York, in the county and State of New York, have invented certain new and useful Improvements in Devices for Operating Gates to Elevator-Wells; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The object of my present invention is to provide a simple and inexpensive, yet thoroughly effective means for operating gates to elevator wells, whereby the gate will always be in position to close the approach to the well except when the elevator-car is at the level of the floor, when the gate will move automatically out of the way.

My invention consists in the construction and arrangement of parts as hereinafter described and claimed.

In the accompanying drawings: Figure 1 is a vertical section through an elevator-well, on a broken plane parallel with the gate; two floors above the bottom are represented and the elevator-car is shown in section as approaching the lower floor from below. Fig. 2 is a vertical section of the same on the line *x*—*x* of Fig. 1. Fig. 3 is a partial horizontal section on the line *y*—*y* of Fig. 1, showing the car in plan view. Fig. 4 is an enlarged detail plan view, partly broken out and partly in section on the line *z*—*z* of Fig. 5. Fig. 5 is a detail view, partly in elevation and partly in vertical section, on the line *v*—*v* of Fig. 4. Fig. 6 is a detail view, partly in section on the line *w*—*w* of Fig. 5, and showing portions of the car and gate in elevation.

I have shown my improvements as applied to an elevator of the class known as basement elevators, in which the car A is adapted to be raised by a lifting force applied beneath the car and travels in suitable guides between the cellar or sub-basement bottom B, the basement floor B′ and the main floor or sidewalk level B^2, but it will be apparent that the improvements are applicable as well to other forms of elevators.

The gate C for each floor above the bottom, may be constructed in any suitable manner and is adapted to slide vertically in ways D, D, formed at each side of the elevator-well.

The gate is provided with eyes *c*, *c*, and is adapted to rest, when in its elevated position, as shown in the upper portion of Figs. 1 and 2, upon latches *d* which move through the walls of the ways D, D, and are pressed inwardly by springs *d′*. The under side of each latch is beveled off, as shown clearly in Fig. 6, and the outer end of the shank of the latch is provided with a lug or projection d^2.

At each end of the gate a chain E is passed loosely through the eye *c* and over a pulley *e* which is mounted on the casing of the elevator-well. The outer end of each chain E has secured to it a weight F, the two combined being sufficient, when unsupported, to raise the gate into its highest position. The inner ends of the chains are provided with weights *f* which are too large to pass through the eyes *c*, *c*, and are heavy enough to draw the chains and the gate down when the weights F, F, are raised. The weights F, F, are provided each with a lug or projection F′ to be engaged, as hereinafter described, by a finger carried by the elevator-car.

At each end of the front edge of the elevator-car A is fixed a cam d^3, which, when the car moves up nearly to the level of a floor, engages the lug or projection d^2 of the latch *d* and withdraws the latter from the path of the gate C, so that if it is at the time unsupported by the weights F, it will descend below the level of the floor and leave the approach to the elevator-well unobstructed. The car is also provided, as indicated above, with a finger G to engage the lug F′ of each weight F and raise the same as the elevator-car approaches a floor.

When my improvements are applied to an elevator which is adapted to move only from one floor to another the fingers G might be fixed to the car, but if the elevator-car is to move at times beyond one floor it is necessary that the fingers G shall be withheld from engagement with the weights F in order that the gate C at that particular floor may remain in its elevated position. To this end the finger G is adapted to slide horizontally in a guide H and is adapted to be moved in or out at the will of the elevator-conductor by

levers I which are connected to a common shaft K. The latter is suitably journaled in the body of the car and is provided at one or both ends with a pedal L by which the conductor of the car can conveniently shift the fingers G as he desires.

In order to prevent breakage through forgetfulness of the conductor to withdraw the fingers G as the car passes down through a floor, the outer member *g* of each finger is secured to the body or main portion thereof by a hinge-joint so that the said member *g* may yield upwardly as it comes in contact with the lug F′ when the car moves down.

The operation of my improved device is as follows: As the car approaches a floor from beneath, the gate being then in its elevated position, as represented in the upper part of Figs. 1 and 2, the fingers G engage the weights F and raise them to the positions shown in the lower part of Figs. 1 and 2; the slack of the chains E, E, is taken up by the weights *f*, *f*, which fall away from the eyes *c*, *c*, and descend to their lowest positions, leaving the gate free to descend when the supporting latches or lugs are withdrawn. When the car is very near the level of the floor the cams d^3 engage the lugs d^2 and withdraw the latter from beneath the gate, allowing the same to descend below the floor as represented in the lower part of Figs. 1 and 2. While the car remains at the level of the floor it sustains the weights F, F, in their elevated positions and the gate therefore remains in its lowest position; but as the car descends from the level of the floor the weights F, F, also descend and through the engagement of the chains E, E, with the eyes *c*, *c*, of the gate by means of the weights *f*, *f*, or of other suitable stops attached to the chains near the weights *f*, *f*, the gate is raised again to its highest position. If the conductor wishes to pass through an intermediate floor without disturbing the gate he withdraws the fingers *g*, *g*, out of the line of the lugs F, F′, until he has passed that floor. As the car descends, however, the outer members of the fingers G, G, yield as they strike the lugs F, F′, and no attention on the part of the conductor is required.

I have shown and described two chains E with their attached weights, but it is obvious that a single chain with its weights might be employed by changing the point of connection of the chain from the end to the middle of the gate.

Various other modifications of the details of construction will readily suggest themselves.

I claim as my invention—

1. The combination of an elevator gate adapted to slide vertically and to drop below the level of the floor, a latch to hold said gate in its highest position, a chain connected to said gate and passing through a pulley, a weight connected to said chain and sufficient to raise said gate, a car, a finger fixed to said car and adapted to engage said weight to raise the same, and a cam fixed to said car, and adapted to withdraw said latch as the car moves up, substantially as shown and described.

2. The combination of an elevator gate adapted to slide vertically and to drop below the level of the floor, a latch to hold said gate in its highest position, a chain passing freely through an eye on said gate and through a guide-pulley, a weight attached to one end of said chain and sufficient to raise the gate to its highest position, a lighter weight attached to the other end of said chain and adapted to draw the chain back when the heavier weight is raised, a car, a finger attached to said car and adapted to engage the heavier weight to raise the same, and a cam fixed to said car and adapted to withdraw said latch, substantially as shown and described.

3. The combination of an elevator gate adapted to slide vertically and to drop below the level of the floor, a latch to hold said gate in its highest position, a chain connected to said gate and passing through a pulley, a weight connected to said chain and sufficient to raise said gate, a car, a finger carried by said car and normally adapted to engage said weight to raise the same, means to withdraw said finger out of the line of the weight, and a cam fixed to said car and adapted to withdraw said latch as the car moves up, substantially as shown and described.

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

CHARLES F. DE ARDEN.

Witnesses:

A. N. JESBERA,

A. WIDDER.