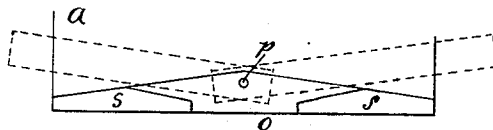
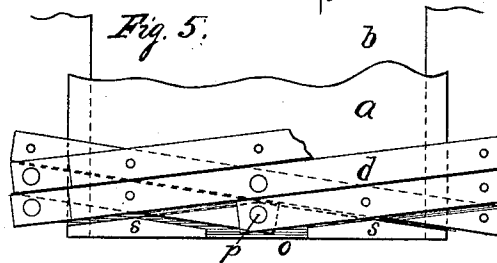
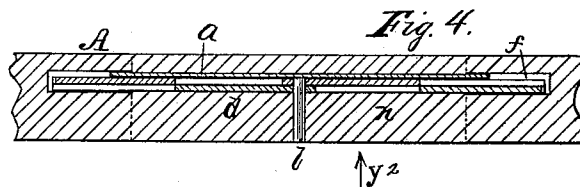
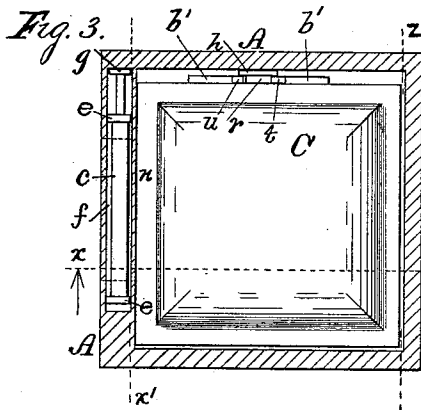
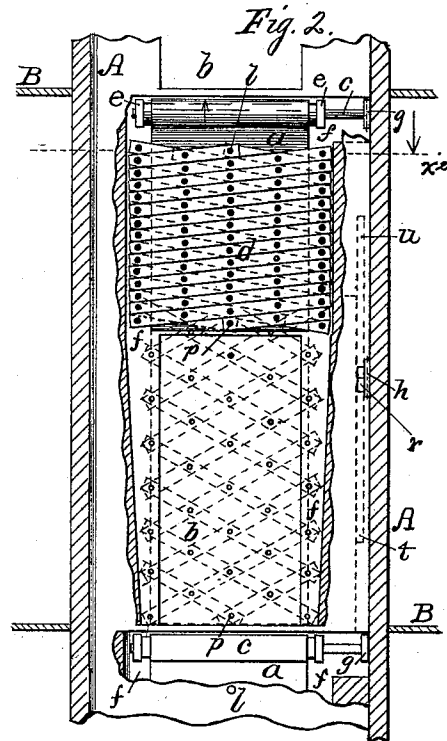
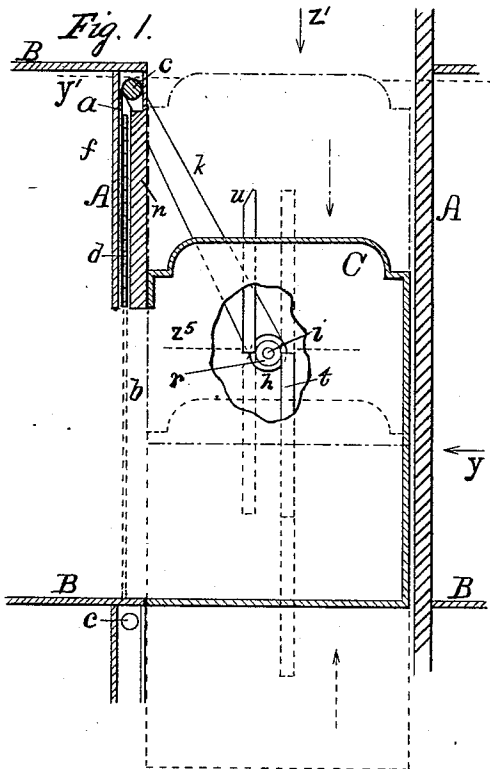


O. L. DAVIS.

DOOR GUARD FOR ELEVATOR WELLS.

No. 366,463.

Patented July 12, 1887.



Attest:
M. L. M. Derrutt
W. H. Whitmore.

Fig. 6.

Inventor:
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By E. B. Whitmore, Atty.

UNITED STATES PATENT OFFICE.

ORION L. DAVIS, OF ROCHESTER, NEW YORK.

DOOR-GUARD FOR ELEVATOR-WELLS.

SPECIFICATION forming part of Letters Patent No. 366,463, dated July 12, 1887.

Application filed February 10, 1887. Serial No. 227,094. (No model.)

To all whom it may concern:

Be it known that I, ORION L. DAVIS, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in a Gate or Door-Guard for Elevator-Wells, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

The object of my invention is to produce a gate or door guard for the doorway of an elevator-well, the same being operated automatically by the car as it ascends and descends, the invention being hereinafter fully described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a vertical sectional elevation of a portion of an elevator-well with a car, floors, and other parts sectioned, as upon the dotted line x in Fig. 3, and viewed as indicated by the arrow pointed thereon, a part of the car being broken away to show parts beyond, parts being shown in various positions by full and dotted lines; Fig. 2, a sectional elevation of the same, viewed as indicated by arrow y in Fig. 1, parts being broken away, the side walls sectioned, as upon the dotted line z in Fig. 3, and the wall through which the doors are cut sectioned in part, as upon the dotted line x' , parts being shown in two positions by full and dotted lines, and the car omitted; Fig. 3, a horizontal section of the walls of the well, taken as upon the dotted line y' in Fig. 1, and viewed as indicated by the arrow z' . Fig. 4, drawn to a larger scale, shows a cross-section of a part of the wall over a doorway, taken as upon the dotted line x'' in Fig. 2, and viewed as indicated by the arrow pointed thereon; Fig. 5, a side elevation of the lower portion of the gate and curtain, drawn to the scale to which Fig. 4 is drawn, and viewed as indicated by arrow y'' ; Fig. 6, a view of the lower part of the curtain, seen in the direction in which Fig. 5 is seen, showing the bar with its weights secured to the lower end of the curtain, and pivoted to the lower middle joint of the gate. Fig. 7, drawn to a still larger scale, shows a side elevation of portions of the devices for operating the gate and curtain, seen in the direction in which Fig. 1 is seen, showing the means for adjusting the friction-drivers, the car being omitted,

and parts shown in two positions by full and dotted lines, parts being broken away and the figure condensed to occupy smaller space, the rests for the friction-drivers being centrally and vertically sectioned, as upon the dotted line x' in Fig. 9; Fig. 8, a view of some of the parts shown in Fig. 7, taken as indicated by arrow y' , the wall of the car being vertically sectioned, as upon the dotted line z' , a portion of the wall being broken out to better show the rack and pinion; and Fig. 9, a view of the parts taken as indicated by arrow x'' in Fig. 7, the wall of the car and rests for the friction-drivers being horizontally sectioned, as upon the dotted broken line y'' , there being also shown a horizontal section of a portion of a wall of the well, taken as upon the dotted broken line z'' in Fig. 1.

Referring to the parts of the device, A are the walls of the well of an ordinary passenger or freight elevator; B, the floors of the building pierced by the well, and C a car within the well, substantially of common form, designed to be operated by usual means.

b are ordinary doorways formed through the front wall of the well.

d is a gate or guard for a doorway, of the lazy-tongs form, and a a curtain parallel with the gate and touching the outer surface of the latter.

e is a horizontal roller immediately beneath the next door above, upon which to wind the curtain, resting in bearings e , secured to the front wall of the well, said gate, curtain, roller, and other parts occupying a vertical cavity, f , in the wall of the well, said cavity reaching substantially from floor to floor. This cavity is contracted at its lower end, to confine the lower part of the gate when dropped, which latter becomes narrower as it descends to the position shown in dotted lines in Fig. 2, to close or guard the doorway.

At its upper middle point the gate is suspended upon a horizontal pin, l , rigid in the wall n of the cavity f , and at its lower end the curtain is secured to a horizontal bar, o , likewise pivoted at p to the middle point of the lower end of the gate. From this construction it will be understood that if the roller be turned in the direction indicated in Fig. 2 the lower part of the gate will, from gravity, move

downward to the bottom of the door, effectually closing the latter, while if, when the gate is down, the roller be turned in the opposite direction the gate will be drawn up or folded above the door, as shown in full lines. As the gate moves up and down, it is guided by the walls of the cavity *f*.

At its extreme overhanging end the roller is provided with a wheel, *g*, rigid with the roller, next the inner surface of the adjacent wall of the well, and below said wheel is placed a friction-wheel, *r*, fitted to turn upon a horizontal stud, *t*, made rigid in the adjacent wall, said friction-wheel being formed with a part, *h*, opposite the wheel *g*. A band, *k*, connects said wheels *g* and *h*. On account of this construction, if said friction-wheel be turned one way or the other, the roller *c* will be correspondingly turned to operate the gate, as stated.

Upon the outside of the car are secured two driving-bars, *u* and *t*, in position to act upon the friction-wheel alternately and upon opposite sides thereof, serving to turn said wheel first in one direction and then in the other each time the car passes it. The friction-bars are formed with threaded parts *a'*, resting in horizontal bearings *b'*, projecting from the side of the car, said bars being held to move laterally from or toward the friction-wheel. Threaded pinions *c'* are fitted upon the parts *a'*, and held to occupy cavities *d'* in the bearings *b'*, which pinions, when turned one way and the other, cause the friction-bars to approach or recede from the friction-wheel.

f' are vertical toothed racks held to engage the various pinions, and fitted to slide in cavities *e'* in the side of the car, being held in place by caps *g'*. *h'* is a lever fulcrumed at *i'* to the side of the car, and joined at *k' l'* to the respective rack *f'*, by means of which said racks are moved endwise to turn the pinions, said lever being near and parallel with the inner face of the wall of the car.

The wheel *r* may be formed with gear-teeth upon its convex face, instead of being smooth, driving-bars *u* and *t* being correspondingly toothed, and sprocket-wheels may be substituted for the band-wheels *g* and *h*, a chain being used instead of a band, should this be found desirable. A simple intermediate may also be placed between the wheels *g* and *h*, should it be found convenient in regulating the speed of the gate, this being a mere matter of judgment on the part of the builder. The curtain may also be dispensed with in any case if found unnecessary, and a simple cord attached to the gate at *p* to lift the latter, the cord winding upon the roller *c* like the curtain.

The car being at the bottom of the well, and all the gates above it closed, the operation of the device is as follows: The car moving upward brings the upwardly-projecting driving-bar *u* in contact with the wheel *r*, as indicated by dotted position in Fig. 1, which serves to raise the gate or guard, so as to have

the doorway open by the time the floor of the car is even with the floor of the building. Continuing upward, the bar *t* next encounters the wheel *r*, and turning it in the opposite direction, lowers the gate to again close the doorway as the car leaves the latter. When the car moves downward, the bar *t* first turns the wheel to raise the gate as the car approaches the door, and as it leaves the latter the bar *u* acts upon the wheel to close the door, by dropping the gate. Should it be wished to pass a door at any time without using it, the lever *h'* is pressed down to the dotted position by the operator, which serves to throw the driving-bars *u* and *t* apart, so that they pass the wheel *r* without touching it, the bars being again brought to a position by the lever to act upon the wheel when a door is to be used to let off or take on passengers or freight.

Weights *s* may be attached to the bar *o*, the ends of which, occupying the cavity or guide *f*, serve to steady the curtain and prevent its being swayed by currents of air.

What I claim as my invention is—

1. A gate for the door of an elevator-well, formed of inclined bars made to cross each other and joined at the various points at which they cross by pivot-pins, said gate being supported at the middle point of its upper end upon a rest over the door and beneath the door next above, in combination with a lifter for said expansible gate, secured to the lower end of the latter, a roller for said lifter above said gate and below the door thereabove, and guides for said gate to move up and down in, to the end that said gate may be gathered in the space between said doors, for the purpose of opening the door guarded by the gate, substantially as shown and described.

2. A gate or door-guard for an elevator-well, formed of inclined bars made to cross each other and joined at the various points of crossing by pivot-pins, said gate or guard being supported at the middle of its upper end upon a rest above the door, and having a horizontal bar pivoted at the middle point of its lower end, in combination with a curtain secured to said horizontal bar and a roller for said curtain above said gate or guard, substantially as described and shown.

3. A gate or guard for the doorway of an elevator-well, formed of inclined bars crossing each other and joined at the various points of crossing by pivot-pins, said gate or guard being supported at the middle point of its upper end upon a rest above the door, a horizontal bar pivoted at the middle point of the lower end of said gate, a curtain secured to said horizontal bar, and a roller for said curtain above said gate, in combination with weights at the lower end of said gate, substantially as shown.

4. An expansible gate or door-guard supported at its upper end, a curtain or lifter secured to the lower end of said gate, a roller for said lifter above said gate, a wheel, *g*, upon said roller, a wheel, *r*, provided with a part, *h*,

in line with said wheel *g*, and a connecting-belt for said wheels, in combination with drivers, substantially as shown.

5 An expansible gate or door-guard supported at its upper end, a curtain or lifter secured to the lower end of said gate, a roller for said lifter above said gate, a wheel, *g*, upon said roller, a wheel, *r*, in line with said wheel *g*, and a connecting-belt for said wheels, 10 with adjustable drivers for said wheel *r*, secured to the car, substantially as and for the purpose set forth.

6. In combination with a gate for the door of an elevator-well, a lifter for said gate, a 15 roller for said lifter, provided with a wheel, a driving-wheel and a driving-belt for said roller, adjustable drivers for said driving-wheel, pro-

vided with internally-threaded gears, toothed racks for said gears, and a lever to operate said racks, substantially as and for the pur- 20 pose specified.

7. In combination with a gate for the door of an elevator-well, a lifter for said gate, a roller for said lifter, provided with a wheel, a driving-wheel and a driving-belt for said 25 roller, and driving-bars for said driving-wheel, on opposite sides thereof and placed one above the other, substantially as and for the purpose set forth.

O. L. DAVIS.

Witnesses:

E. B. WHITMORE,
M. L. McDERMOTT.