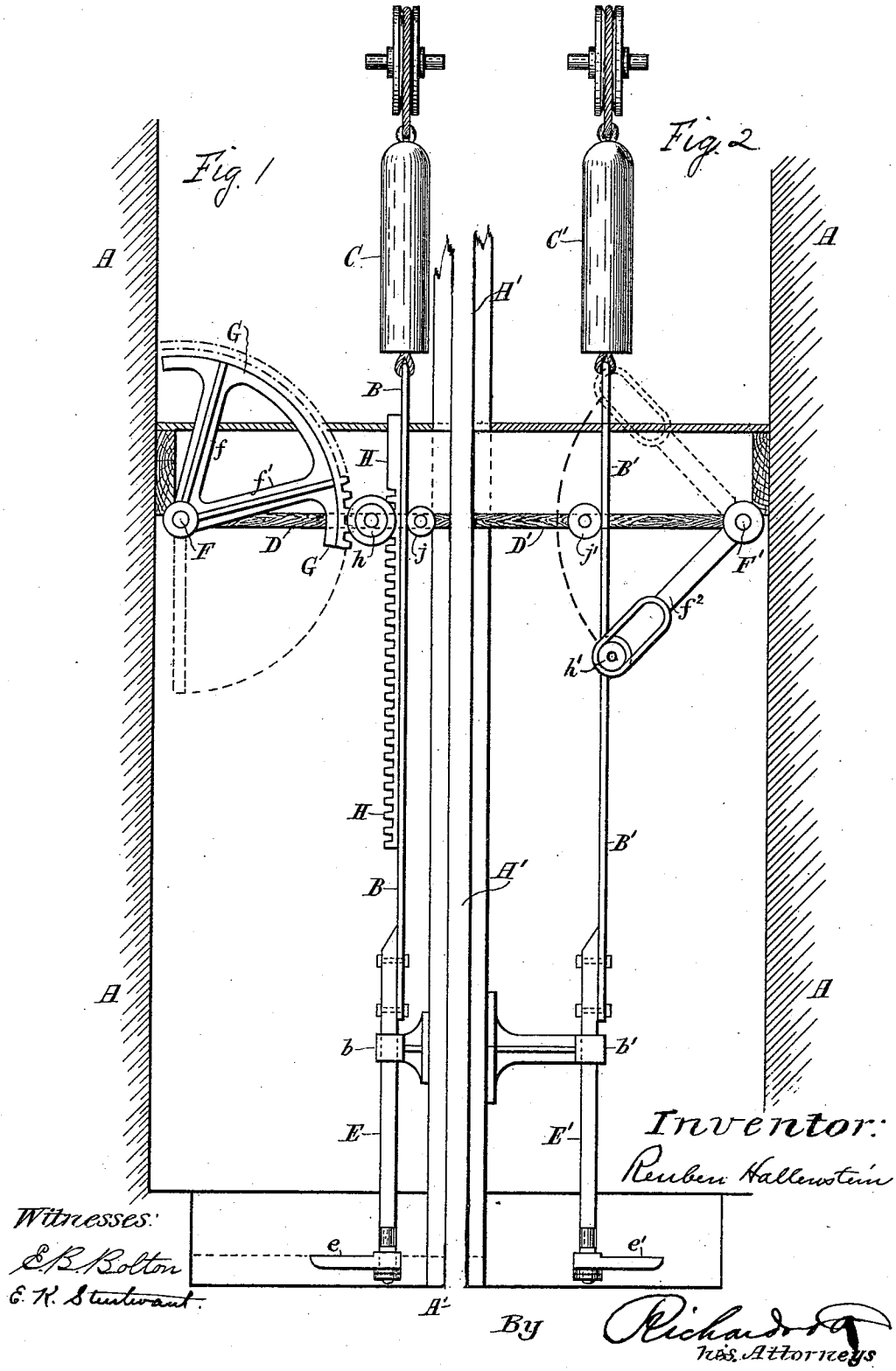
(No Model.)

R. HALLENSTEIN.

DEVICE FOR OPERATING HATCHWAY DOORS.

No. 464,564. Patented Dec. 8, 1891.



Witnesses:
E. B. Bolton
E. K. Stuntevant

Inventor:
Reuben Hallenstein

By Richards & Co
his Attorneys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

REUBEN HALLENSTEIN, OF MELBOURNE, VICTORIA.

DEVICE FOR OPERATING HATCHWAY-DOORS.

SPECIFICATION forming part of Letters Patent No. 464,564, dated December 8, 1891.

Application filed May 18, 1891. Serial No. 393,211. (No model.) Patented in England October 1, 1890, No. 15,541; in Belgium October 1, 1890, No. 92,171; in Turkey October 1, 1890, No. 196; in France October 1, 1890, No. 208,578; in Italy November 13, 1890, LVI, 82; in Spain November 15, 1890, No. 11,291; in Brazil December 16, 1890, No. 1,018; in Cape of Good Hope February 4, 1891, and in Austria-Hungary February 12, 1891, No. 44,193, and No. 77,829.

To all whom it may concern:

Be it known that I, REUBEN HALLENSTEIN, merchant, of Melbourne, in the colony of Victoria, Australia, have invented an Improved Apparatus for Automatically Operating Hinged or Folding Doors Closing Lift-Openings in Floors of Buildings, of which the following is a specification.

This invention is specially adapted for lift-shafts where the lift passes through a number of floors. It is not the usual custom when the lift is not working to close the openings in the several floors through which the lift passes, but the apertures in the floors remain open, thus converting the lift-shaft into a huge chimney, which acts as a conductor to the flames in case of fires.

The object of this invention is special apparatus for automatically opening and closing hinged doors, which will effectually shut off communication between the floors of the building by way of the lift-shaft.

The means by which the desired object is attained will be more effectively understood by referring to the accompanying sheet of drawings, and in which—

Figure 1 of the drawings shows a hinged door opening downward, while Fig. 2 shows a hinged door opening upward.

A A are the sides of the lift-shaft.

A′ is the cage-guide running from the top to the bottom of the building.

B B′ are the rods, also running from the top to the bottom of the building. The rods B B′ are stayed and guided by guide-brackets *b b′*. Each of these rods is counterweighted by weights C C′, placed above the highest point to which the cage rises. The tendency of the counter-weights is to cause the rods to rise and thereby open the hinged doors D D′. The bottom of each rod is provided with a square guide-piece E E′, passing through the guide-brackets *b b′*. By means of the guide-pieces E E′ the rods B B′ are prevented from turning.

To the lower ends of the guide-pieces E E′ are secured toe or finger pieces *e e′*, which, when turned so as to project under the floor of the cage, will enable the weight of the descending cage to pull down the rods B B′ and thereby cause the doors D D′ on each floor to close.

F is a transverse shaft which forms the pivot or hinge of the door D. Radiating from the shaft F are arms *f f′*, which support at their outer extremities a segmental rack G, which gears either directly with a vertical rack H, secured to the rod B, (in which case the door D would open upward,) or indirectly through the medium of an intermediate pinion *h*, in which case the door D will open downward, as shown in the drawings. When the cage rises, it will release the toe-piece *e* and allow the counter-weight C to descend, thus drawing up the rod B and with it its series of racks H H. The result will be that the racks H H, gearing with the segmental racks G G, will cause the shafts F F to rotate and consequently open the doors upward if geared directly and downward if geared through the intermediate pinions *h h*. The right-hand half of the drawings exhibits exactly the same principle, but with a mechanical equivalent device substituted for the segmental and vertical racks. This device consists in attaching to the transverse shaft F′ a single radial arm f^2, provided with a slotted end, the length of the slot being the length of the versin of the arc through which the arm f^2 travels. The mode of operation is precisely similar to that described in reference to the devices shown in the left half of the drawings. The rod B′ is provided with an anti-friction roller *h′*, which takes into the slot at the end of the radial arm f^2. The rods B B′ are supported laterally by guide-rollers *j j*.

It will be obvious that the opening of the doors is caused automatically by the descent of the counter-weights, and the closing of the doors is also caused automatically by the descending cage impinging against the toe-pieces *e e′*.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

In an apparatus for operating hatchway-doors, the combination, with vertical counter-weighted rods and toe-pieces at their lower extremities against which the cage may impinge,

of transverse shafts forming pivots for the doors, arms radiating from said shaft, said arms being connected with and operated by the vertical rods, square guide-pieces at the bottom of the vertical rods, whereby they are prevented from turning, and guide-brackets through which said guide-pieces pass, substantially as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

REUBEN HALLENSTEIN.

Witnesses:

JONATHAN BEAR,
Bank Place, Melbourne, Patent Agent.
JOSEPH H. BUSH,
67 *King Street, Melbourne.*