

(No Model.)

2 Sheets—Sheet 1.

R. HALLENSTEIN.
HATCHWAY DOOR OPERATING DEVICE.

No. 460,638.

Patented Oct. 6, 1891.

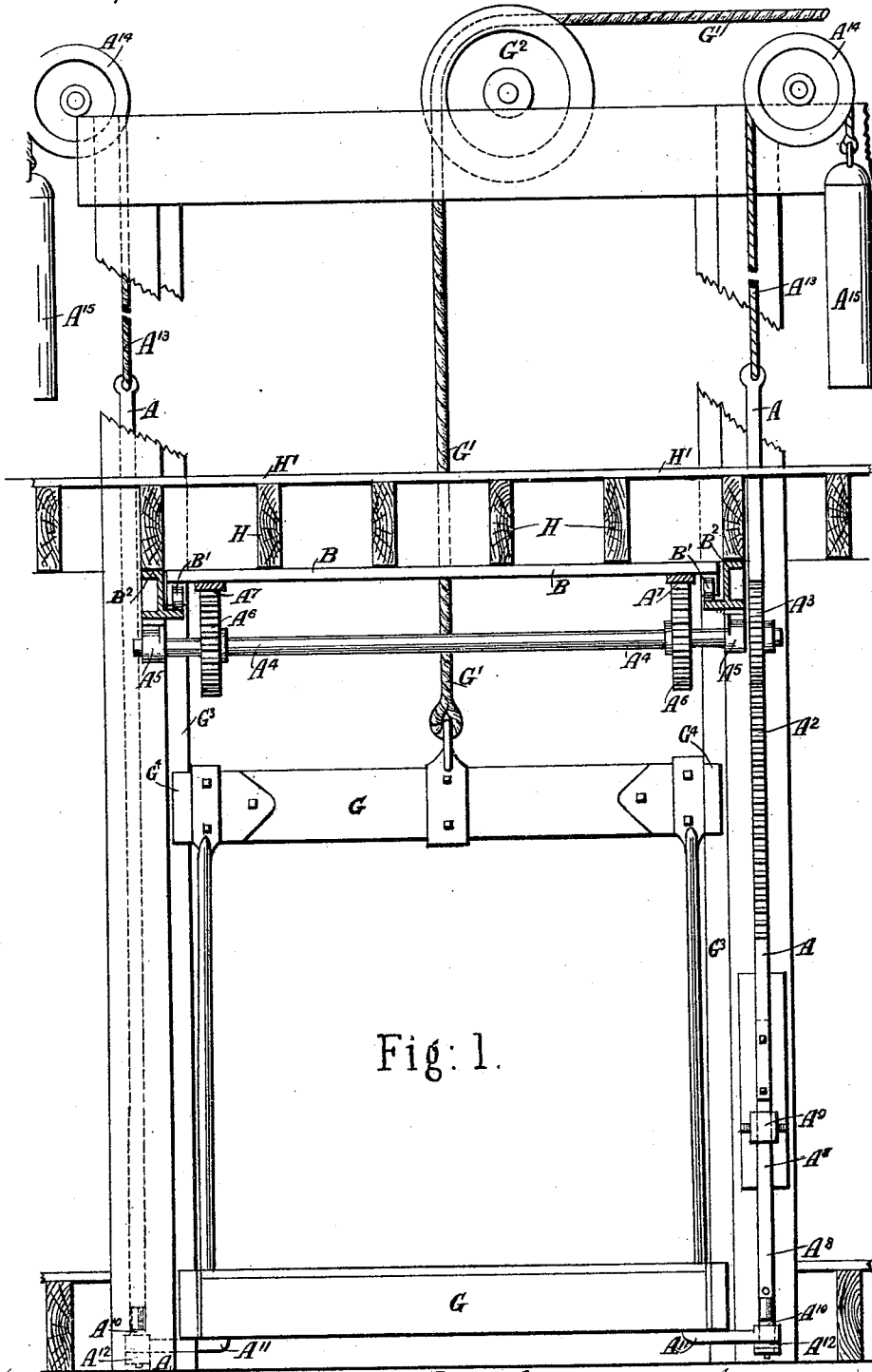


Fig: 1.

Witnesses
Jas H. Wright, X. Mary Public
Jonathan Bear

Reuben Hallenstein, Inventor

Inventor

2 Sheets—Sheet 2.

Patented Oct. 6, 1891.



Inventor:

Reuben Hallenstein

By *Richards & Co.*
his Attorneys

UNITED STATES PATENT OFFICE,

REUBEN HALLENSTEIN, OF MELBOURNE, VICTORIA.

HATCHWAY-DOOR-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 460,638, dated October 6, 1891.

Application filed October 13, 1890. Serial No. 368,046. (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, and in Italy November 13, 1890, LVI, 82.

To all whom it may concern:

Be it known that I, REUBEN HALLENSTEIN, merchant, a citizen of and resident in Lonsdale street, in the city of Melbourne, Colony of Victoria, have invented a new and useful Mechanism for Devices for Operating Hatchway-Doors, (which has been patented in Great Britain October 1, 1890, No. 15,541; in Belgium October 1, 1890, No. 92,171; in Turkey October 1, 1890, No. 196, and in Italy November 13, 1890, LVI, 82,) of which the following is a specification.

This invention relates to apparatus whereby openings in floors of buildings—such as those caused by lifts or stairways—can be quickly opened or closed when required—as, for instance, for the purpose of localizing fire to a limited area in any part of the building, so that it can be successfully coped with and shortly got under. The closing of such openings is also useful for preventing burglars and other persons who may be illegally on the premises from gaining admission from one floor to another for purposes of plunder or escape and for the prevention of accidents resulting from such apertures being left open, particularly in the case of lift-openings, which are ordinarily a great source of danger to those whose duty calls them to be near such openings. At present when a fire breaks out in a building (especially a high one, in which the evil is intensified and aggravated to an enormous extent) no means exist for localizing or confining the flames to the floor in which the outbreak takes place; but the openings for lifts and stairs become a great source of danger, as they act as great flues, creating drafts which increase the combustion, with the result that life and property are frequently sacrificed to the flames. The apparatus for closing and opening these apertures can be actuated automatically by lifts, or in the absence of lifts it can be worked by hand-power from any floor or level in the building. The main feature of the apparatus is a balanced vertical rod, to which is attached at any part of its height a rack for actuating a toothed wheel or equivalent connections for the purpose of opening and closing hinged or sliding doors, as I shall describe, referring to the accompanying drawings.

Figures 1 and 2 are front and side elevations, respectively, of the apparatus, the floors at the landing being shown in section.

Throughout the several figures similar letters of reference denote similar parts.

A is a vertical rod guided by friction-rollers A'. To the rod A in a suitable position is attached a rack A², engaging with a toothed wheel A³ on a transverse shaft A⁴, mounted in bearings A⁵. On the shaft A⁴ are fixed toothed wheels A⁶, which gear with horizontal racks A⁷ on the sliding door B. This door B runs on anti-friction rollers B', working in guide B² on the floor. The lower part A⁸ of the rod A is preferably made of square section working in guide-brackets A⁹, the rod A being thus prevented from turning. The lower end is rounded at A¹⁰ to receive the finger A¹¹, which can turn thereon to an extent limited by stops A¹². The apparatus is thrown out of gear, allowing the lift to ascend and descend without opening or closing doors by turning this finger A¹¹ about one-quarter round, as is shown in Figs. 2 and 3. To the upper end of the rod A is attached a rope A¹³, passing over a pulley A¹⁴ and carrying a counter-weight A¹⁵, which actuates the rod A when it is released by the lift.

In Fig. 3 the sliding door B is shown to be actuated by the alternative method of levers and rods. The rod A has a pin E, carrying a roller E', which works in a slot E² in one arm of a bell-crank lever E³, centered at E⁴. To the other arm E⁵ of this lever is attached a connecting-rod E⁶, which is linked to the door B. The pivot E⁴ is carried by a bracket E⁷.

G is the cage or lift, suspended and worked by rope G' over the pulley G².

G³ are the guides, and G⁴ the clamps for same.

H are joists, and H' the floor of the building.

The doors B are made in halves, so that the rope or chain can pass through a hole formed partly in each half, which may be bushed with india-rubber or similar material.

The finger A¹¹ on the vertical rod A being placed under the floor of the lift G when the lift is at its lowest level in the building, the doors B or D on all floors are closed. When the lift G ascends, the rod A is caused to as-

cend by the counter-weight A^{15} and the rack A^2 , acting through the wheels A^3 and A^6 on the horizontal rack A^7 , the door B is opened so as to allow the cage G to ascend. The door
 5 thereafter remains open till the cage G again descends on the finger A^{11} , depressing the rod A, whereupon the doors on the several floors are closed and remain closed till opened again by the ascent of the cage G.

10 What I claim is—

1. In apparatus for opening and closing apertures of buildings by means of sliding doors, the combination of the slidable door B, running on anti-friction rollers B' in guide B^2 ,
 15 the vertical rod A, moving in guides A' , the transverse shaft A^4 , mounted in bearing A^5 , the toothed wheel A^8 on said shaft, the rack A^2 , attached to rod A and engaging said toothed wheel, the horizontal racks A^7 on the
 20 door B, the toothed wheels A^6 on shaft A^4 , engaging with racks A^7 , the guide-brackets A^9 , in which the lower squared part A^8 of rod A works, the finger A^{11} , adapted to turn on the end A^{10} , the stops A^{12} for limiting the move-

ment of said finger, the rope A^{13} , carrying a
 25 counter-weight A^{15} and passing over pulley A^{14} , and the car or cage for actuating the doors, as set forth.

2. In apparatus for opening and closing apertures of buildings by means of doors, the
 30 combination, with the door, of a vertical rod A, movable in guides A' and having the squared part A^8 , the guide-brackets A^9 , in which the lower squared part A^8 of rod A works, a finger A^{11} , adapted to turn on the end of the rod
 35 A, the stops A^{12} for limiting the movement of the finger, a rope A^{13} , carrying counter-weight A^{15} and passing over pulley A^{14} , the pin E, and the car or cage for actuating the same, substantially as described.

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

REUBEN HALLENSTEIN.

Witnesses:

JONATHAN BEAR,

Of Melbourne, Patent Agent.

CHARLES HARRISON,

Clerk at United States Consulate.