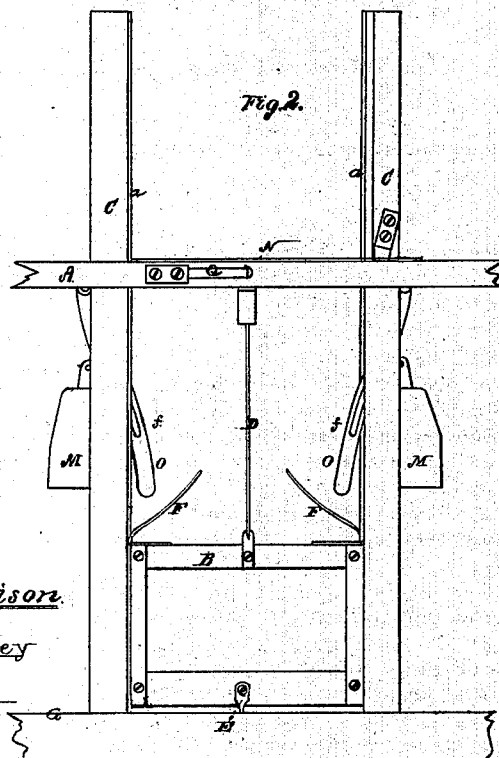
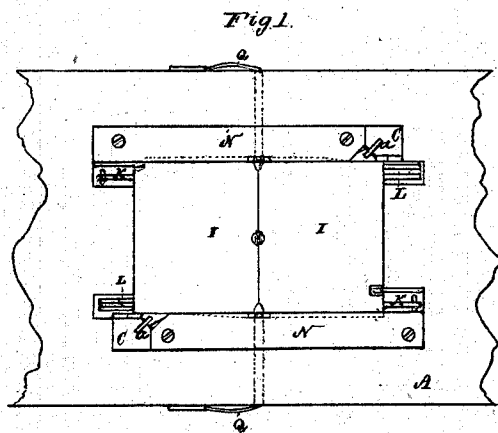


W. A. MORRISON.
Self-Closing Hatchways.

No. 146,141.

Patented Jan. 6, 1874.

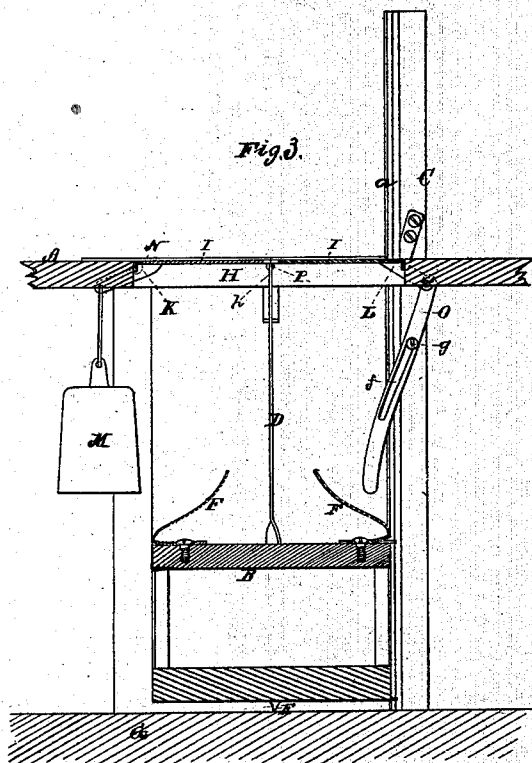
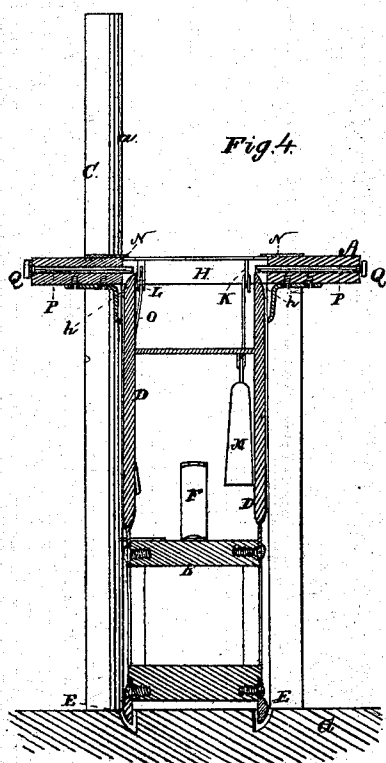


Witnesses

S. N. Piper
J. R. Snow

William A. Morrison

by his attorney
R. H. Ledy



UNITED STATES PATENT OFFICE.

WILLIAM A. MORRISON, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN SELF-CLOSING HATCHWAYS.

Specification forming part of Letters Patent No. **146,141**, dated January 6, 1874; application filed June 12, 1873.

To all whom it may concern:

Be it known that I, WILLIAM A. MORRISON, of Cambridge, of the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Elevators for Buildings; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a front elevation, Fig. 3 a longitudinal section, and Fig. 4 a transverse section, of one of my improved elevators.

There is to be to each floor A, through which the elevator-car B is to pass, or the hatchway or opening of such floor, a pair of hatches or doors, which are to be automatically opened preparatory to the passage of the car through the floor, and to be closed immediately thereafter, whether the car may be in the act of either ascending or descending.

In the drawings, the car is represented at B, as arranged between vertical posts C C, provided with guides *a a*, the said car having extended from its top two cammed rods, D D, and from its bottom two cams, E E, all as shown. It also has two curved safety-guides, F F, arranged on and projected from its top, in manner as represented. If we suppose G to be the floor of the cellar or basement, beyond which the car is not to descend, the first and each floor over such of the building is to be provided, as mentioned, with a hatchway for the car to pass through, such hatchway being shown at H, and as furnished with two hatches or doors, I I, hinged or pivoted to its opposite ends. From the outer end of each hatch two arms, K L, extend, one of which, viz., K, has suspended from it an overbalance-weight, M, such as will raise the hatch from a vertical or inclined position to a horizontal one, and against two stop-plates or thresholds, N N, arranged on opposite sides of the hatchway and on the floor, in manner as represented, and fastened to the floor. Each of the other arms L is pivoted to the upper end of one of two slotted bars, O O, arranged as shown. Through the slot *f* of each bar O a headed stud, *g*, projects from the next adja-

cent guide-post. Furthermore, in the floor, and close to where the inner edges of the doors or hatches come together, there are two slide-bolts, P P, to pass underneath both doors, and hold them in horizontal positions, each bolt being furnished with a spring, Q, to force it inward. The cammed rods D D and the cams E E are for the purpose of forcing backward such bolts, in order to allow of the hatches or doors being moved downward.

While the car may be ascending to the doors, the cams or inclined parts *h h* of the cammed rods will be moved between the doors or hatches and against the inner ends of the bolts, and will force the bolts back from underneath the doors. As soon as the top of the car may have arisen against the lower ends of the slotted bars O O it will commence to force such bars upward, in consequence of which the hatches will be caused to turn downward, and the bars be moved upward and laterally until the hatches may have been moved into vertical positions, the safety-guides F F operating also to guide or force the doors downward, and prevent them from catching upon the top of the car, so as to be an obstacle or obstacles to its movement. The car, continuing to rise, will pass the doors and up through the hatchway, the slotted bars during the ascent of the car having slipped off it. On the bottom of the car rising above the hatchway, the doors will be closed by the gravitating power of their overbalance-weights, and immediately after the cams E E may have passed above the bolts, such bolts will be shot forward by their springs, and will hold the hatches or doors in position. During a descent of the car, the cams E E will first be forced against the bolts, and will press them back from underneath the hatches, which, as the car may continue to descend, will be moved downward by it until it may have passed by them. This having taken place, the doors will be raised up by their overbalance-weights, such doors, while going up, moving against and being eased upward by the safety-guides.

I claim as my invention the following, viz:

1. The bolt or bolts P and actuating-springs Q, applied to the floor, in combination with the

cam E and cammed rod D, applied to the car, all being arranged with the car and hatchway, and to operate as set forth.

2. The overbalance-weights M M and arms K K L L, the slotted rod or rods O, the bolt or bolts P, the spring or springs Q, the cams E E, and the cammed rods D D, arranged

and combined with the car B, the hatches I I, and the hatchway H, all substantially in manner and to operate as specified.

WM. A. MORRISON,

Witnesses:

R. H. EDDY,
J. R. SNOW.