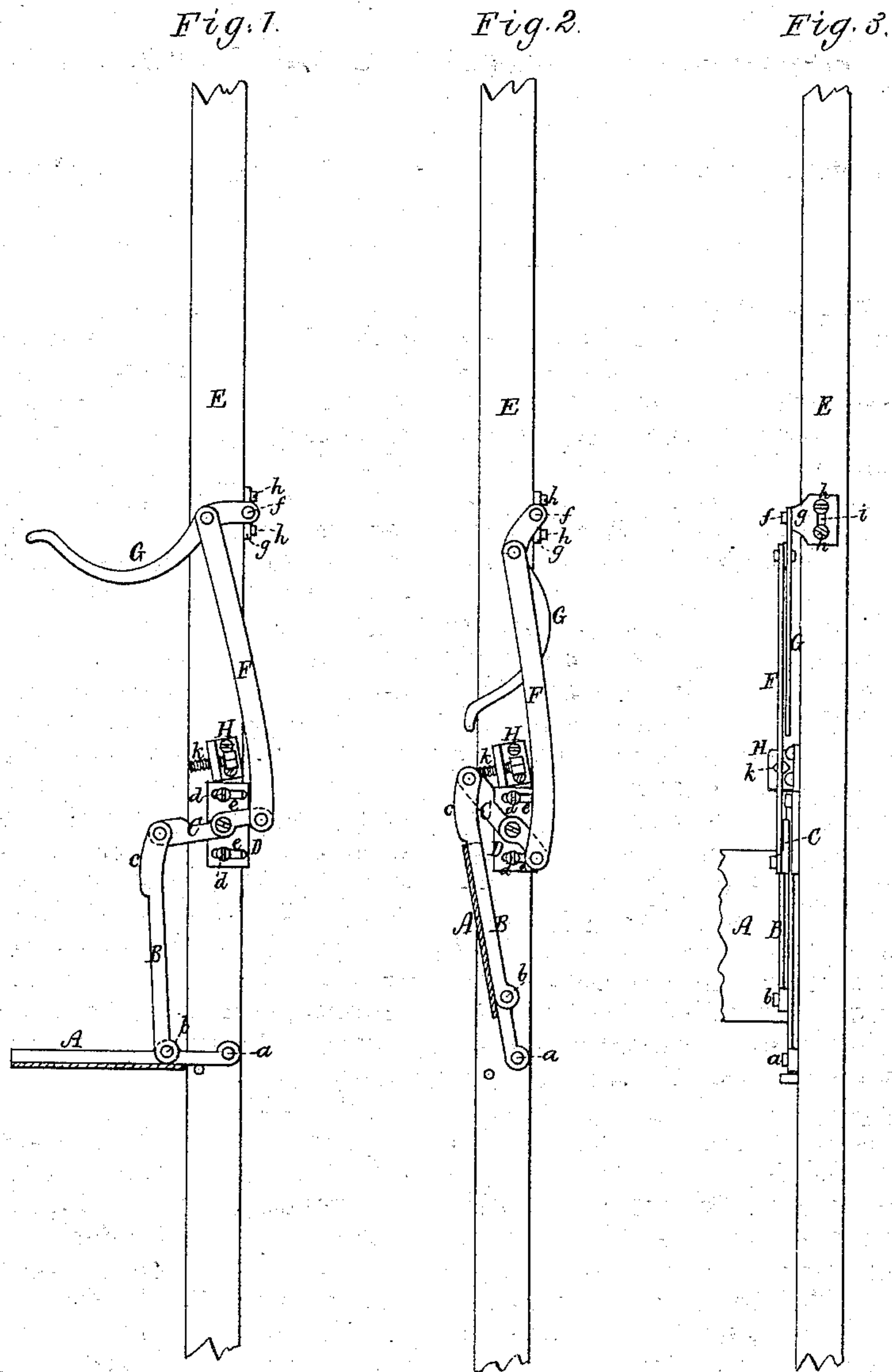


W. A. MORRISON.
Self-Closing Hatchways.

No. 154,070.

Patented Aug. 11, 1874.



Witnesses.
S. N. Piper.
J. R. Snow.

Wm. A. Morrison.
by his attorney
R. H. Edley

UNITED STATES PATENT OFFICE.

WILLIAM A. MORRISON, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN SELF-CLOSING HATCHWAYS.

Specification forming part of Letters Patent No. **154,070**, dated August 11, 1874; application filed July 7, 1874.

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 machinery for operating, by an elevator, the door of the hatchway pertaining thereto; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a front view of the mechanism with the hatchway-door in a horizontal position, or that which it takes when closed. Fig. 2 exhibits the positions of the parts when the door is raised to its highest point. Fig. 3 is an edge view of the several parts.

In such drawings, A denotes the hatch-door, having in advance of its hinges or pivot *a* a bar, B, which is pivoted to it, the joint-pin being shown at *b*. This bar, at its upper part, is provided with a cam, *c*, and is jointed at or near its upper end to an arm of a short lever, C, which is pivoted to an adjustable plate, D. The said adjustable plate is arranged against the elevator guide or post, E, and secured thereto by clamp-screws *d d* going through slots *e e* in the plate, all being as shown. To the other arm of the lever C another bar, F, is jointed at its lower part, it being also jointed at its upper part to a bent lever, G, near the fulcrum *f* thereof, which is at or near the rear end of said lever. This fulcrum projects from a plate, *g*, slotted vertically, and screwed to the post by screws *h h* going through the slot *i*. Directly over the lower adjustable plate is a bracket, H, which is fastened to the post, and supports an adjustable stop, *k*, which is a screw screwed through the bracket.

While the elevator or car is rising to and through the hatchway such car, or a suitable cover projecting from it, will be drawn up against the door A, and will force it upward into the inclined position shown in Fig. 2, the

side of the car pressing against the cam *c* and forcing the bar B against the stop *k*, which thus becomes a fulcrum to the bar to cause it to act as a lever to insure the door being moved up closely against it, and to be held there while the car or elevator is rising upon the cam. After the car has risen above the bar and the end of the lever G, the door, by its own weight, will descend and continue its descent until the car has passed above the fulcrum of the lever G. In descending, the car will first meet the lever G, and, by pressing it downward, will cause it, through the bars B F and lever C, to raise the door of the hatchway. Before such door is passed by the car the latter, by pressing against the cam *c*, will insure the door being thrown back, so as not to be in the way of the car in its further descent, the door subsequently falling down and closing after the car has passed the cam.

For the proper adjustment of the parts from time to time, as they may wear, or it may be necessary from other circumstances, I find adjustable fulcrums for the two levers are necessary.

I claim—

1. For operating the hatch-door, the levers G and C and the connection-bars B and F, pivoted together and arranged with such door, substantially as specified.

2. The cam *c* and the adjustable stop *k*, in combination with the levers G and C and the bars B and F, applied together and to the hatch-door, as set forth.

3. The adjustable fulcrum carriers or plates D *g*, in combination with the levers G C, combined and arranged with the bars B F and door A, all substantially as explained.

WM. A. MORRISON.

Witnesses:

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