

W. MUIR.  
Self-Closing Hatchway.

No. 169,026.

Patented Oct. 19, 1875

FIG. 1

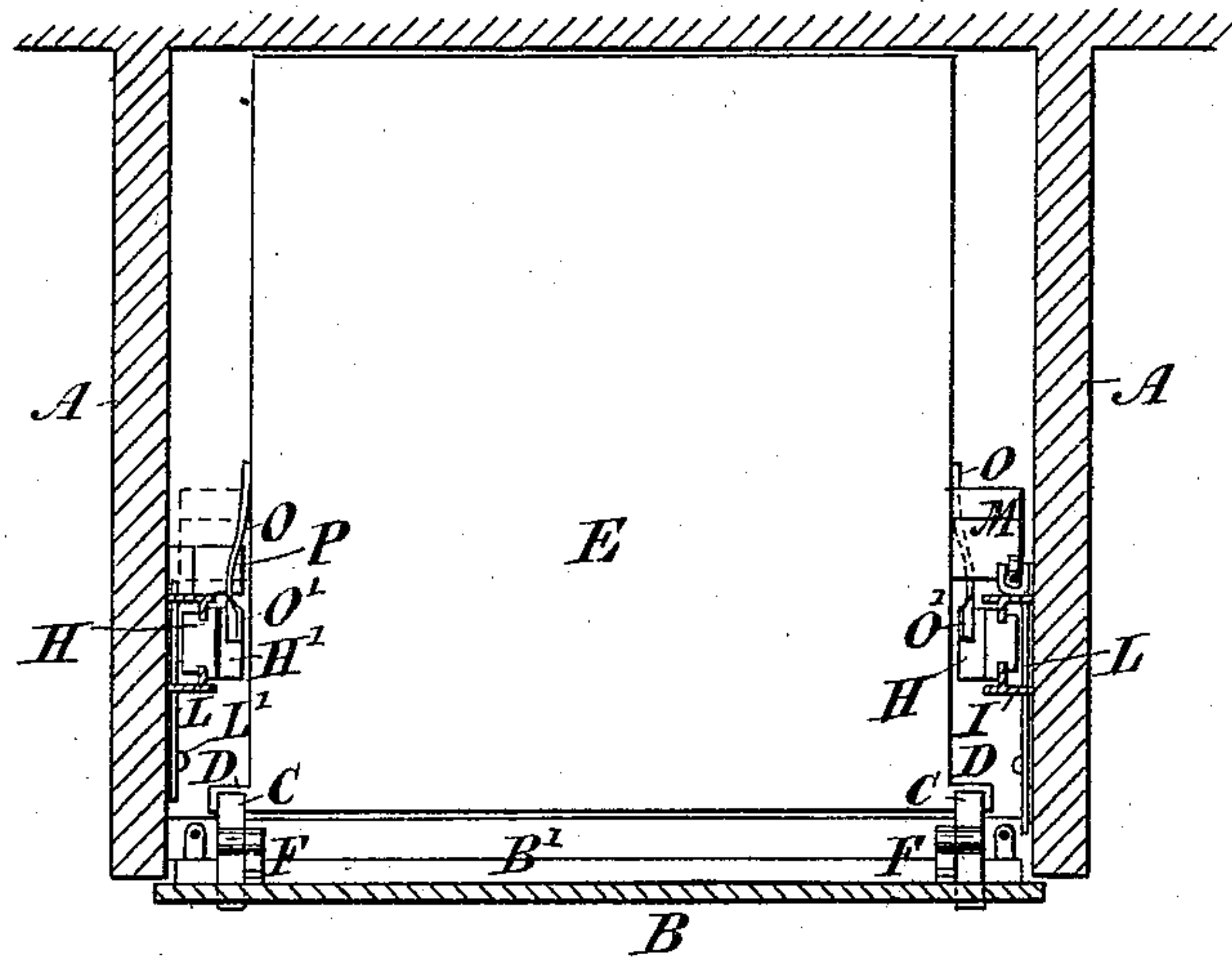


FIG. 2

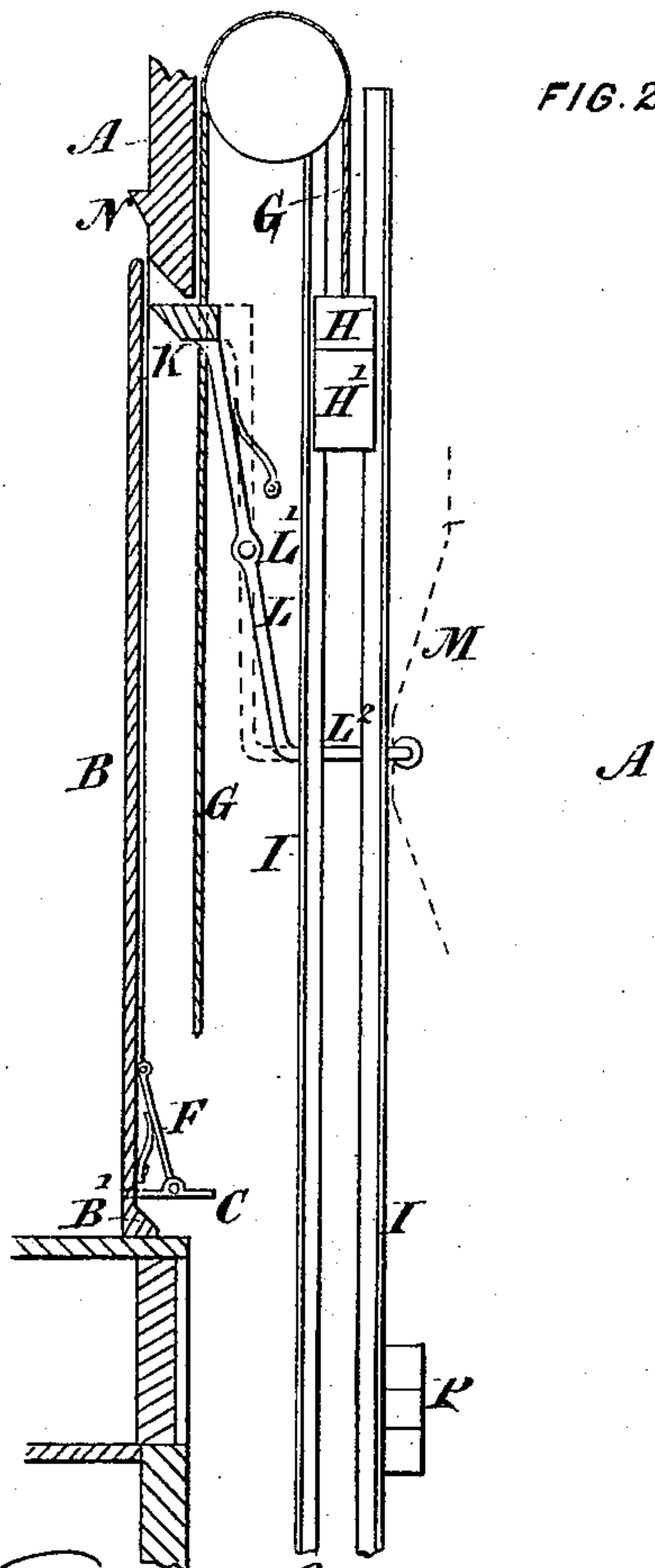
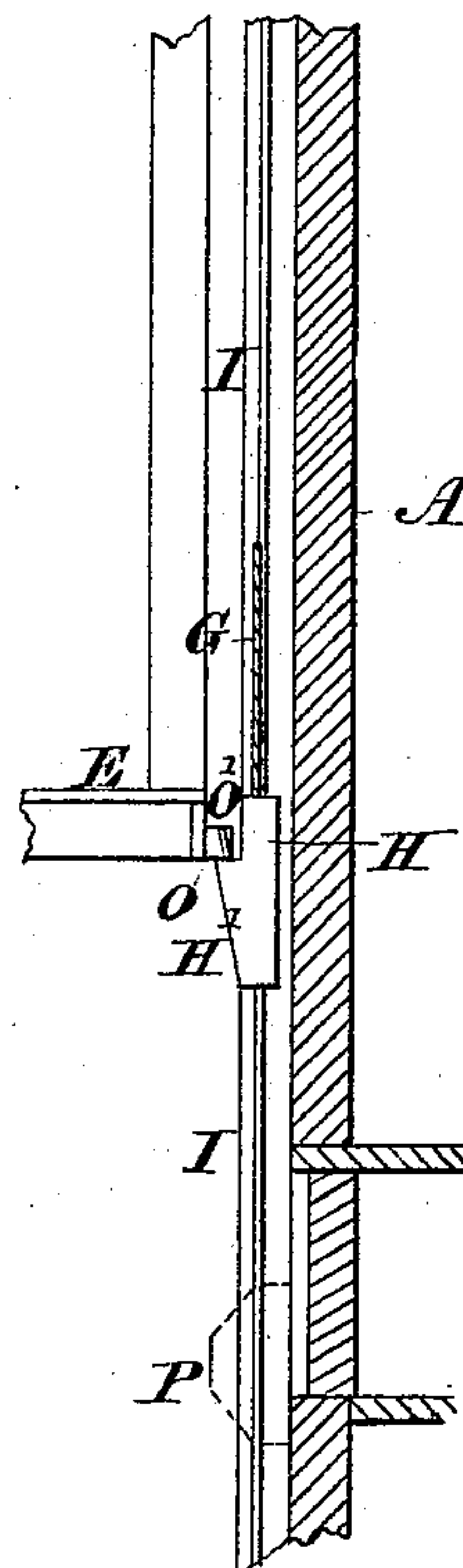


FIG. 3



*For Myself*  
*S. P. Kerr.*

Witnesses

*Wm. Muir*  
Inventor



# UNITED STATES PATENT OFFICE.

WILLIAM MUIR, OF MONTREAL, CANADA.

## IMPROVEMENT IN SELF-CLOSING HATCHWAYS.

Specification forming part of Letters Patent No. 169,026, dated October 19, 1875; application filed March 19, 1875.

### CASE B.

*To all whom it may concern:*

Be it known that I, WILLIAM MUIR, of the city of Montreal, in the district of Montreal and Province of Quebec, Canada, have invented certain new and useful Improvements in Hoistways; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention is applicable to those hoistways the doors of which are opened and closed by sliding up and down, and is intended to enable them to be worked automatically by the ascent and descent of the traveling cab or platform as it passes the several floors in any warehouse, obviating any chance of those accidents which are now so frequent, as the doors on each story are kept closed, except when the traveling platform is close to the level of the floor, and doing away with the objections to hoistways on the ground of communicating fire from one story to another, as, in this case, the hoistway is cut off from each floor through which it passes.

For fuller comprehension of my invention, reference must be had to the annexed drawings, in which similar letters of reference indicate like parts, and where—

Figure 1 is a plan view of hoistway and traveling platform. Fig. 2 is a sectional elevation, showing side of hoistway. Fig. 3 is a part sectional elevation, showing the action of the platform as it descends.

A is the frame-work of the hoist, of any usual size and construction, and B the rising and falling door, provided, as shown in Figs. 1 and 2, with a ledge, B<sup>1</sup>, the upper surface of which is beveled off. Through slots in the lower part of this door B pass, as shown at C, Figs. 1 and 2, stops, hinged so as to offer no resistance to any descending body, but acted upon by the projections D, secured, preferably, to the upper part of the traveling platform E, as it passes upward. F F are bars running diagonally from the stops C, and hinged to the door, and G G are the lines which are attached to the lower end of the door, and, passing over sheaves, have secured to their other ends weights H, running in guides I, and made somewhat lighter than the door. These weights

H are, as shown in Fig. 3, formed with a projection, H<sup>1</sup>, on their faces, the use of which will be hereinafter described. K is a stop or rest, upon which the doors stand when raised to their full height. This is carried on bent levers L, pivoted, as shown in Fig. 2, at L<sup>1</sup>, and extended so as to pass through the guides I and behind the weights H, as shown at L<sup>2</sup>, terminating in a rounded end or in a forked arm carrying a roller, or any other suitable device for reducing friction. The arms L<sup>2</sup> are acted upon by inclined planes M, as shown in dotted lines, Fig. 2, secured to the sides of the traveling platform E, which, as it rises or descends, gradually push forward the lower end of the lever L till it is brought into the position shown by the dotted lines in Fig. 2, thus drawing back the rest K, and allowing the door to descend and close. N is a projection or projections set some little distance above the rest K, and pressing against the bars F as the door rises, for the purpose of disengaging the stops C from the projections D on the traveling platform. As shown at Fig. 2, springs are provided to these bars F to restore them to their position directly the pressure is removed. O O are springs secured to the lower sides of E, which, as the platform descends, strike against the projections H<sup>1</sup> of the weights H, and, by drawing them down, raise the door to the height required. The part O<sup>1</sup> of these springs which comes in contact with H is, as shown in Figs. 1 and 3, turned so as to correspond in slope with the under surface of the projection H<sup>1</sup>, so that, as the platform E ascends, it readily yields to the pressure and allows the platform to pass up freely and without impediment. Instead of springs hinged bars may be used, provided with springs to keep them pushed out to the proper extent, and turned to the same bevel as the under sides of H<sup>1</sup>, where they come in contact with them, as already described. P is a projecting piece, beveled both above and below, and pressing against the spring O, as the cab passes upward, so as to force it inward and free it from the weight H at the proper time.

The operation of my invention is as follows:



As the traveling platform E ascends, the projections D, secured to the upper part of the frame of the car, strike against the hinged stops C, thus carrying the door up with the platform. The door rises till the bars F come in contact with the projection N, which, gradually forcing them outward, releases the stops C from the projections D, leaving the door supported under the ledge B<sup>1</sup> and held up by the rest K, and allowing the platform to proceed upward. As soon as the action of the inclined planes M presses the arm L<sup>2</sup> of the lever L forward, the rest K is withdrawn from under the ledge B<sup>1</sup>, the door then descending and closing, a buffer of any suitable kind being provided to receive it. These inclined planes M are arranged to work in combination with the platform, one set on its upward, and the other on its downward, passage, and are so timed as to allow it to pass some little distance either above or below the level of the floor before their action takes place, so that even if the platform be not stopped at the exact level required, the doors will be retained at their elevation by the rest K until the platform can be adjusted to the required point. As the platform descends the springs O engage with the projections H<sup>1</sup> of the weights H, and, by drawing these down, raise the door to the proper height, where it is retained by the rest K, till, in the downward passage of E, the springs O come in contact with the projections P, which press them inward, releasing them from the weights H<sup>1</sup>, thus, as these weights

are lighter than the door, allowing it to descend directly they are disengaged from the platform. The rest K is withdrawn from under the door at the proper time by other inclined planes M, as just described. The beveled under surfaces of P, offering no resistance to the springs O, allow the platform to pass freely as it rises.

I do not claim any improvements on the traveling platform, or on the means whereby it is worked; nor is my invention applicable to hatchways or to any kind of hoist-doors other than those which slide upward; but

What I claim as my invention is as follows:

1. In combination with the rising doors of a hoistway, hinged stops C, acted upon by projections formed on the traveling platform in its upward movement, and yielding to the same as it descends, the stops being disengaged from the platform, as it rises, by the projection N, formed on the hoistway, all substantially as set forth.

2. The combination of the rest K and pivoted levers L with arms L<sup>2</sup>, for the purpose of retaining in a raised position the doors (sliding upward) of any hoistway, and the inclined planes M, secured to the traveling platform E, to reverse this action and allow the door to fall, substantially as described.

Montreal, 23d day of January, A. D. 1875.

WM. MUIR.

Witnesses:

FRAS. HY. REYNOLDS,  
S. J. KERR.