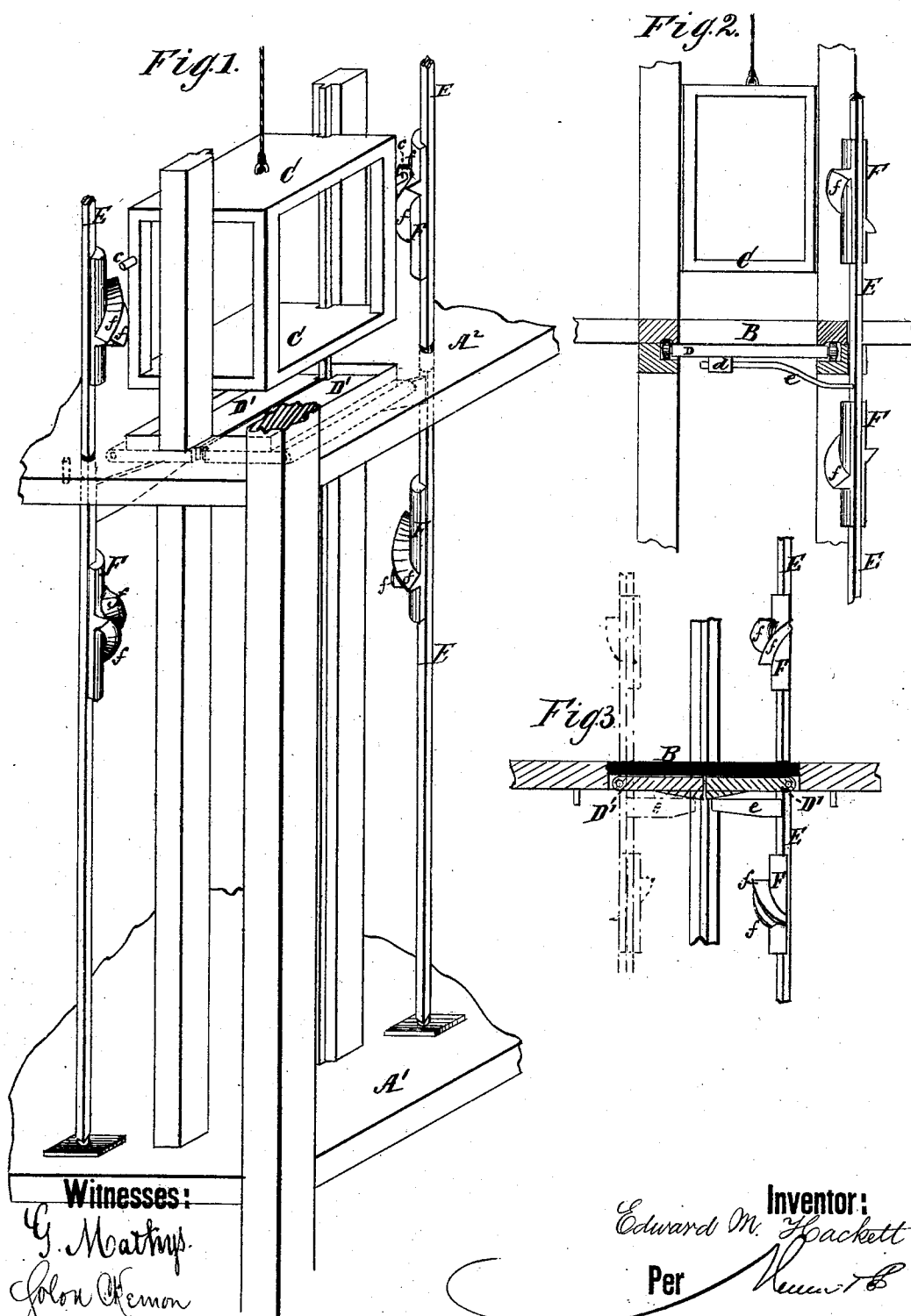


E. M. HACKETT.
Closing Hatchways.

No. 140,499.

Patented July 1, 1873.



Witnesses:
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UNITED STATES PATENT OFFICE.

EDWARD M. HACKETT, OF NEW YORK, N. Y.

IMPROVEMENT IN CLOSING HATCHWAYS.

Specification forming part of Letters Patent No. **140,499**, dated July 1, 1873; application filed June 19, 1873.

To all whom it may concern:

Be it known that I, EDWARD M. HACKETT, of New York, in the county of New York and State of New York, have invented a new and Improved Automatic Hatch-Closer; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 is a vertical section of a modification, and Fig. 3 is a vertical cross-section of Fig. 1.

The invention relates to means whereby the door or doors that cover the openings in floors through which pass elevators may be automatically closed and opened. It consists in causing a pin on the elevator to move through two spiral grooves, and thus vibrate a vertically-journaled shaft, which has an arm or arms that actuate the door or doors, as hereinafter described.

In the drawing, A¹ A² represent the several floors of a warehouse or other building; B, openings therethrough, and C elevators by which merchandise or other matter may be carried from one story to another. D represents a sliding door that covers one of the floor-openings B, and D' a pair of hinged doors, which subserve the same purpose. In the loop *d* of slide D loosely plays an arm, *e*, of a vertically-journaled shaft, E. At two different points on this shaft, one in each story, is rigidly attached a half-tube, F, having on its outer face two spiral parallel flanges, *f f*, which form a spiral groove, the grooves of the two half-tubes being in reverse directions. On

the elevator is a pin, *c*, which, as it moves up, turns the shaft E in one direction and opens the slide, while, after the elevator passes through the opening B, the pin *c* moves in the spiral groove of the other half-tube, reverses the shaft, and closes the slide-door D. Behind the hinged doors D' the arms *e e* play back and forth, raising and closing the doors, whose gravity causes them to fall when unsupported by these arms. Two shafts are required, with hinged doors, but the pin on the elevator and the spirally-grooved tubes operate as before.

This device is exceedingly simple, cheap, and effectual, and is withal conveniently applied.

I am aware that it is no new idea to make use of the rising-and-falling movement of the elevator to automatically open and close the hatch, and I therefore make no claim to such idea, broadly; but

Having fully described my invention, what I do claim as new, and of my invention herein, is—

The combination, with a hinged or a sliding door, the elevator C, and pin *c*, of a vertically-journaled shaft, E, spirally-grooved half-tubes F F, and arm *e*, the latter working beneath and forming a partial support for the door, and all arranged to operate in the manner and for the purpose specified.

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Witnesses:

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