S. LAWRENCE.

Self-Closing Hatchways.

No. 158,424. Patented Jan. 5, 1875.

Fig. 1

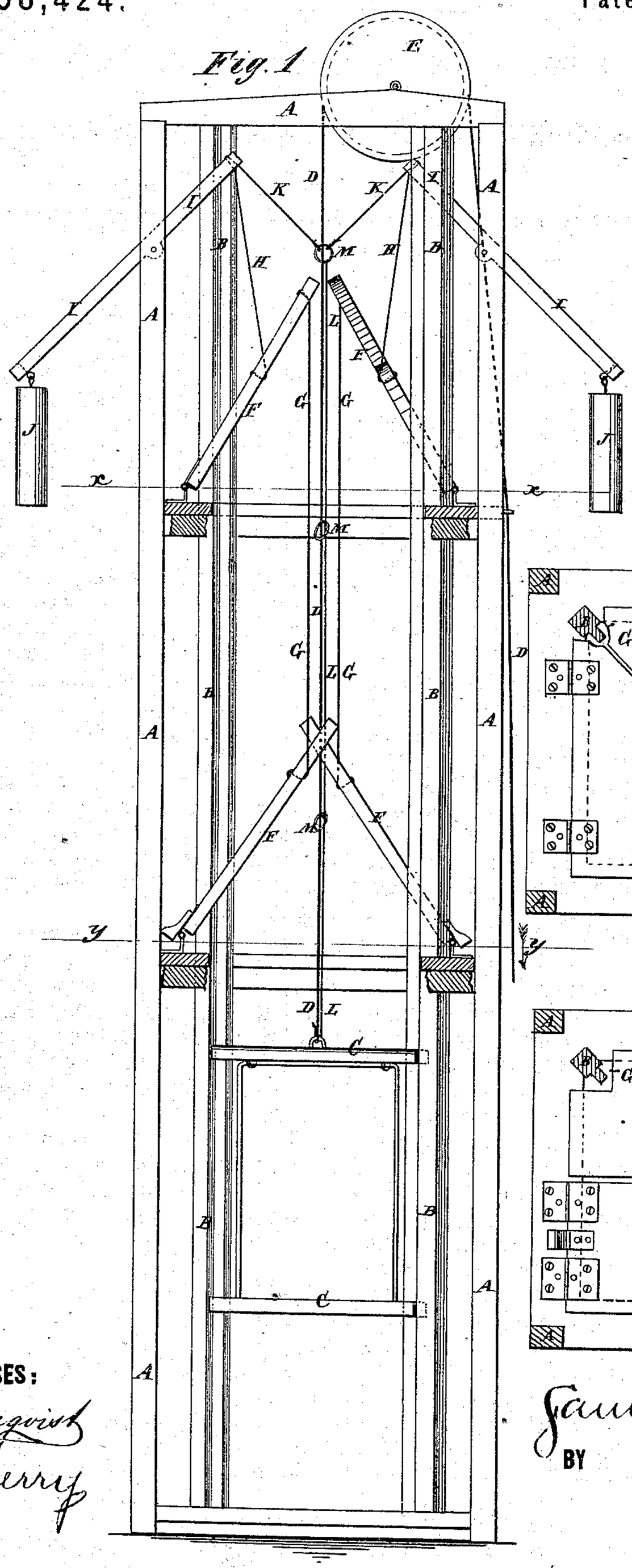


Fig. 2

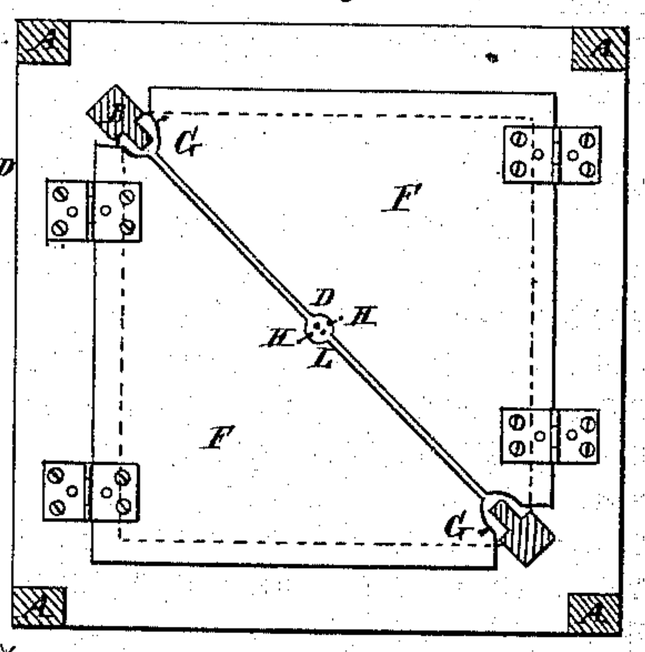
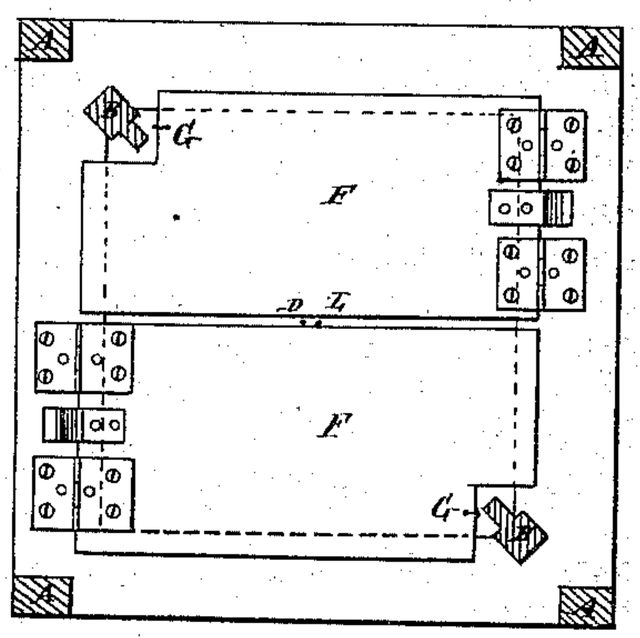


Fig. 3



WITNESSES:

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SAMUEL LAWRENCE, OF NEW YORK, N. Y.

IMPROVEMENT IN SELF-CLOSING HATCHWAYS.

Specification forming part of Letters Patent No. **158,424**, dated January 5, 1875; application filed December 19, 1874.

To all whom it may concern:

Be it known that I, SAMUEL LAWRENCE, of the city, county, and State of New York, have invented a new and useful Improvement in Hatchway-Covers, of which the following is a specification:

Figure 1 is a side view of an elevator to which my improvement has been applied. Fig. 2 is a horizontal section of the same, taken through the line *x x*, Fig. 1. Fig. 3 is a horizontal section of the same, taken through the line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention has for its object to improve the construction of well-hole elevators in such a way that the hatchway-covers may be opened and closed automatically as the carriage passes up and down, and will be operated gently and quietly, so as to avoid any slam or jar. The invention consists in the combination of the cords, the levers, and the weights with the hatchway-covers, the frame, and the carriage, and in the combination of the rings with the closing-cord and the hoisting-rope, as hereinafter fully described.

A represents the frame of the well-hole. B is the way upon which the carriage C slides up and down. D is the hoisting-rope, and E is the hoist-wheel, about the construction of which parts there is nothing new. F are the hatchway-covers, which may be made triangular, as shown in Fig. 2, or rectangular, as shown in Fig. 3. The covers F of the several floors are connected by cords or chains G, so that all the lower corners may be opened by opening the upper covers. To the upper covers F are attached the lower ends of cords or chains H, the upper ends of which are attached to the inner ends of the levers I, which are pivoted to the frame, and have weights J attached to their outer ends, of such a size as to overbalance the weight of the covers. I prefer to pivot the levers I by means of projections or arms attached to or formed upon the lower side of their middle part. This construction throws the levers I back from the frame A when the covers F are raised, so that they will be out of the way of the carriage, and at the same time enables said levers to be made shorter than would otherwise be necessary.

To the inner ends of the levers I are attached the upper ends of two cords, K, the lower ends of which are attached to the upper end of a single cord, L, which passes down along the side of the hoisting-rope D, and its lower end is attached to the carriage C. To the cord L, at suitable distances apart, are attached rings M, through which the hoisting-rope D passes, so that when the carriage C is raised the cord L may gather in loops at the top bar of the frame A, and may thus be prevented from becoming tangled.

By this construction, as the carriage C is raised the weights J raise the covers F, so that the carriage does not come in contact with said covers.

As the carriage in its descent approaches the bottom of the well-hole, its weight tightens the cords L K, draws down the inner ends of the levers I, and raises the weights J, allowing the covers F to close gradually by their own weight.

The hinges of the covers F should be set back from the edge of the well-hole, so that the said covers can never be raised quite into a vertical position, and will thus be always in position to close by their own weight, and at the same time, when opened, will be entirely out of the way of the carriage as it moves up and down.

The covers may be fastened open, if desired, without interfering with the upward and downward movement of the carriage C.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the cords G H K L, the levers I, and the weights J with the hatchway-covers F, the frame A, and the carriage C, substantially as herein shown and described.

2. The combination of the rings M with the cord L and the hoisting-rope D, substantially as herein shown and described.

SAMUEL LAWRENCE.

Witnesses:

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