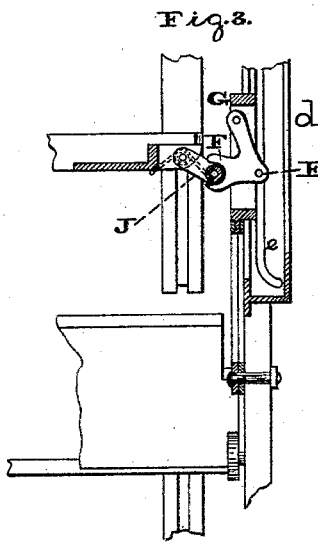
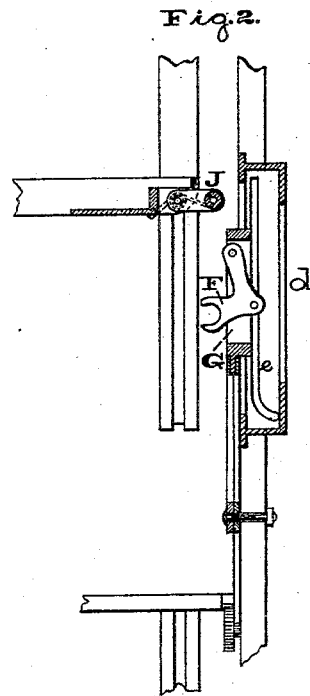
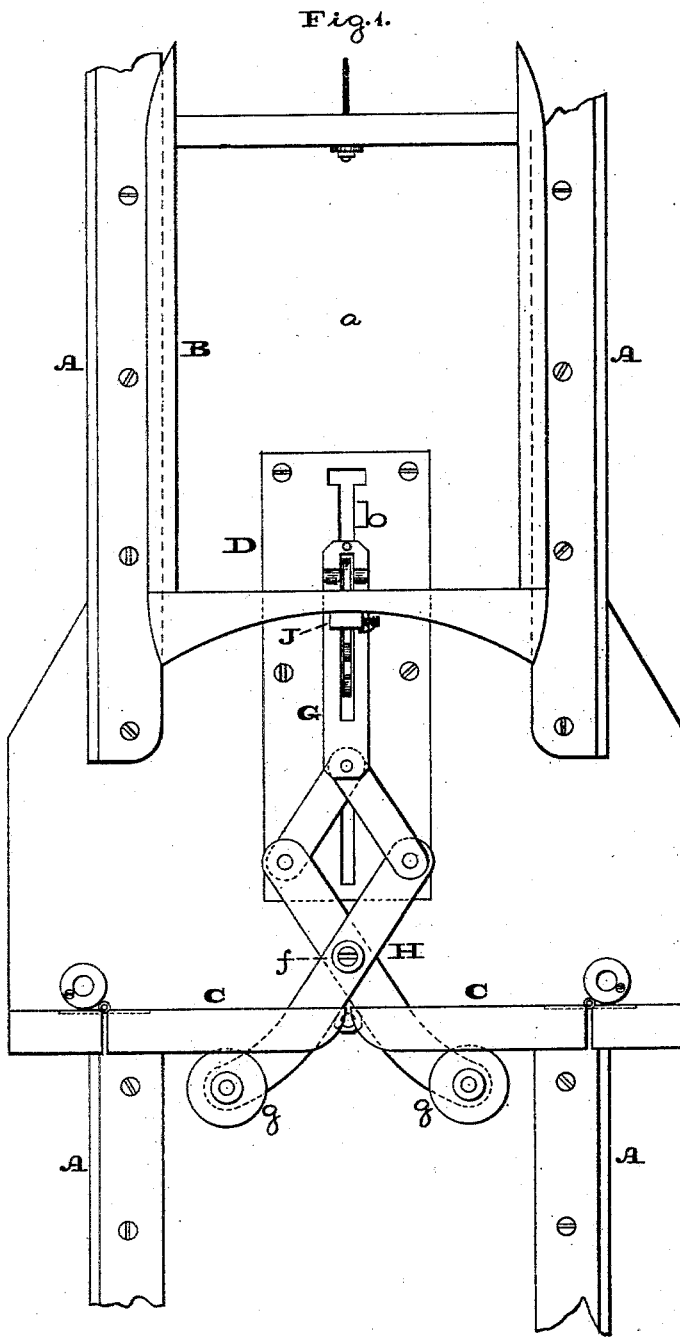


T. J. CLOSE.
Hatchway-Door Mechanism.

No. 210,838.

Patented Dec. 17, 1878.



Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS J. CLOSE, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN HATCHWAY-DOOR MECHANISMS.

Specification forming part of Letters Patent No. 210,838, dated December 17, 1878; application filed April 25, 1878.

To all whom it may concern:

Be it known that I, THOMAS J. CLOSE, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Opening and Closing Doors of Hoistways, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a face view of the device embodying my invention. Figs. 2 and 3 are vertical sections of portions thereof.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of a series of jointed levers operating after the manner of lazy-tongs, and adapted to open the door or doors of a hoistway by the engaging action of the descending car.

It also consists of the door or doors made self-closing and controlled by the ascent of the car, so as to prevent rapid closing and slamming of the door or doors.

Referring to the drawings, A represents guides of the hoistway; B, the car moving thereon, and C the hoistway doors, which parts may be of desired form and construction.

To the abutment, back, or wall *a* of the hoistway there is secured a plate, D, having a vertically-extending slot, *b*, and from said plate there project flanges *d*, having slots *e*, whose lower portions are curved or angular. In these slots *e* there plays a horizontal pin or bolt, E, secured to or formed with a pronged latch, F, suspended at its upper end from a slotted guide-block, G, which is properly held to the plate D, so as to permit sliding motions thereon, the latch F swinging in the slot of the guide-block G and the slot *b* of the plate D.

To the lower end of the guide-block G there is pivoted the upper end of a series of levers, H, jointed together and to the abutment, back, or wall *a*, the fulcrum whereof is shown at *f*, said levers forming what is termed "lazy-tongs."

The lower ends of the levers have horizontally-projecting arms or rollers *g*, which are so disposed that when in their normal positions they are beneath the hoistway-doors C, which rest on said arms or rollers.

J represents a hinged arm projecting from the car B toward the abutment, back, or wall

a, and adapted to engage with the prong of the latch F, the normal position of said arm being horizontal, or nearly so, and held thereat by means of a spring or weight suitably applied.

The operation is as follows: When the car descends the arm J comes in contact with the upper face of the upper prong of the latch, thus causing the descent of the guide-block G and said latch. The series of levers H are so operated by the movement of the guide-block that the lower levers of the series are separated and the lower ends thereof are elevated. Owing to the contact of the arms or rollers on said ends with the under face of the doors C, the latter are raised or opened and maintained in a vertical position until the lower end of the car enters the open space between the doors.

The pin or bolt E of the latch F moving in the slots *e*, and reaching the curved or angular portions of said slots, the latch is drawn from the arm J, thus releasing the latter and allowing the car to continue its downward descent, the doors resting there and gradually closing.

The weight of the doors on the levers restores the latter to their normal position.

When the car ascends it raises or opens the doors and holds them open. The levers not being controlled, the block G and upper sections of the lever H are permitted to fall by their own gravity, the lower ends of the lower sections of the levers separating and rising. The latch F now reassumes the position it occupied when released from the projecting arm J during the descent of the car. The car continues to ascend, and the arm J reaches a position opposite the crotch of the prongs of the latch F, at which moment, the pressure of the doors against the car being relieved, said doors fall on the arms or rollers at the lower ends or extremities of the levers H, thereby causing said levers or guide-block to rise, advancing the latch F toward the arm J, the crotch embracing the end or roller of said arm J, so that the ascent of the latch, guide-block, and levers is controlled, and consequently the too-rapid closing or slamming of the doors is prevented.

Owing to the hinged or movable nature of the arm J, the latter is permitted to yield and ride over the upper prong of the latch when

said latch is at its greatest elevation and assumes its normal position.

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

1. A series of jointed levers operating after the manner of lazy-tongs, and opening the door or doors of a hoistway by the action of the descending car engaging with said levers, for the purpose specified.

2. The lazy-tongs levers, in combination with mechanism for controlling the self-closing door or doors by the ascent of the car, substantially as and for the purpose set forth.

3. The latch F, in combination with the lazy-tongs and the projecting arm J of the car, substantially as and for the purpose set forth.

4. The latch F, with pin or bolt E, and the flanges d, with slots e, substantially as and for the purpose set forth.

5. The guide-block G and latch F, in combination with the hoistway-doors and the car and operating levers, substantially as and for the purpose set forth.

THOS. J. CLOSE.

Witnesses:

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