

A. B. SEE.
Self-Closing Hatchways.

No. 153,121.

Patented July 14, 1874.

Fig. 1.

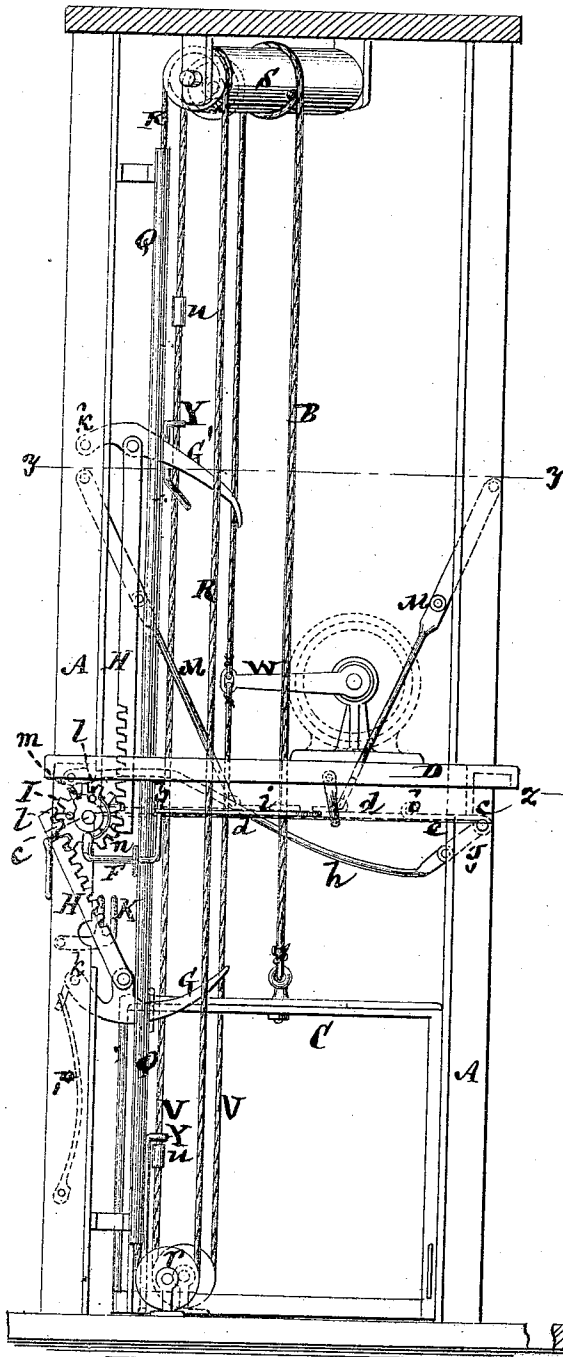
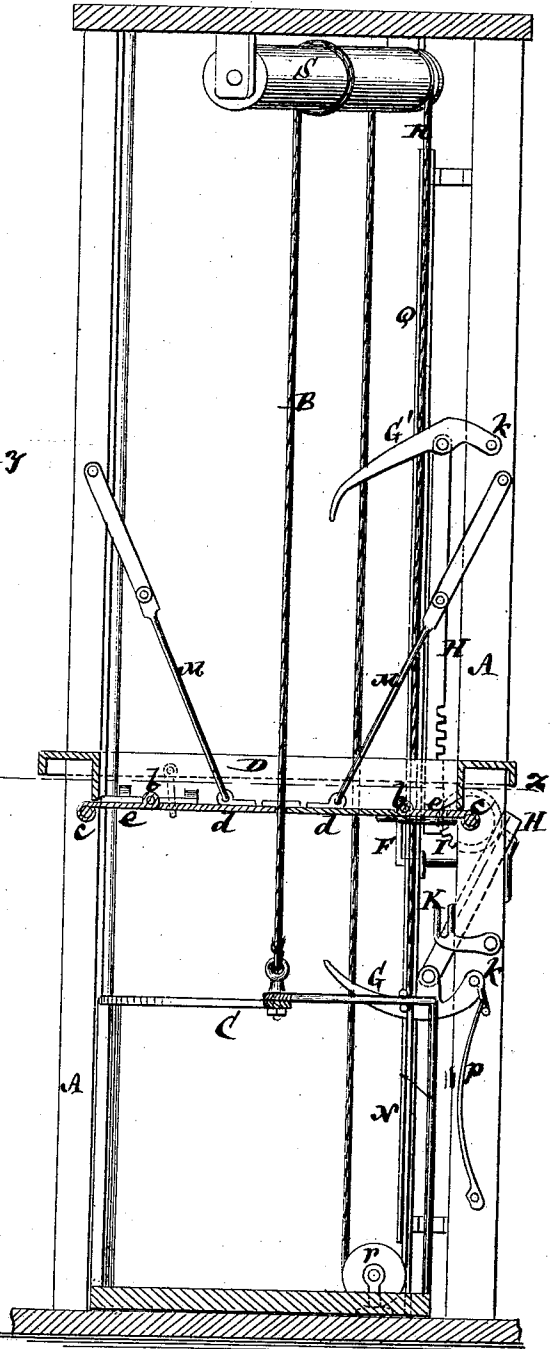


Fig. 2.



Witnesses.

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Fig. 3.

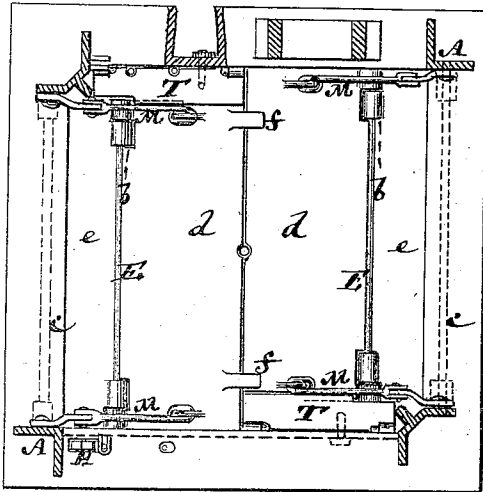


Fig. 4.

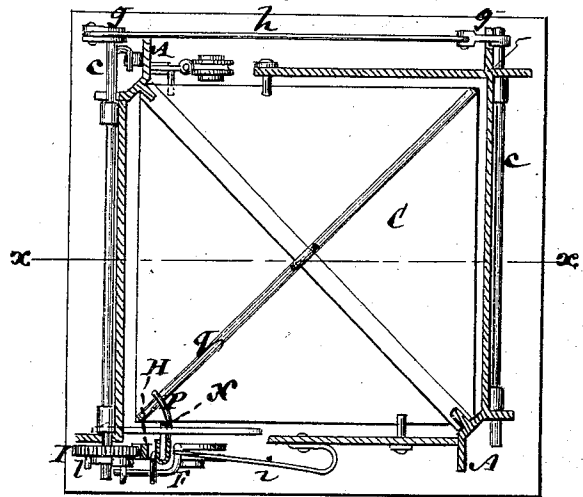


Fig. 5.

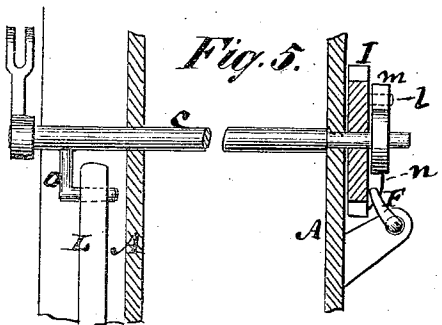


Fig. 6.

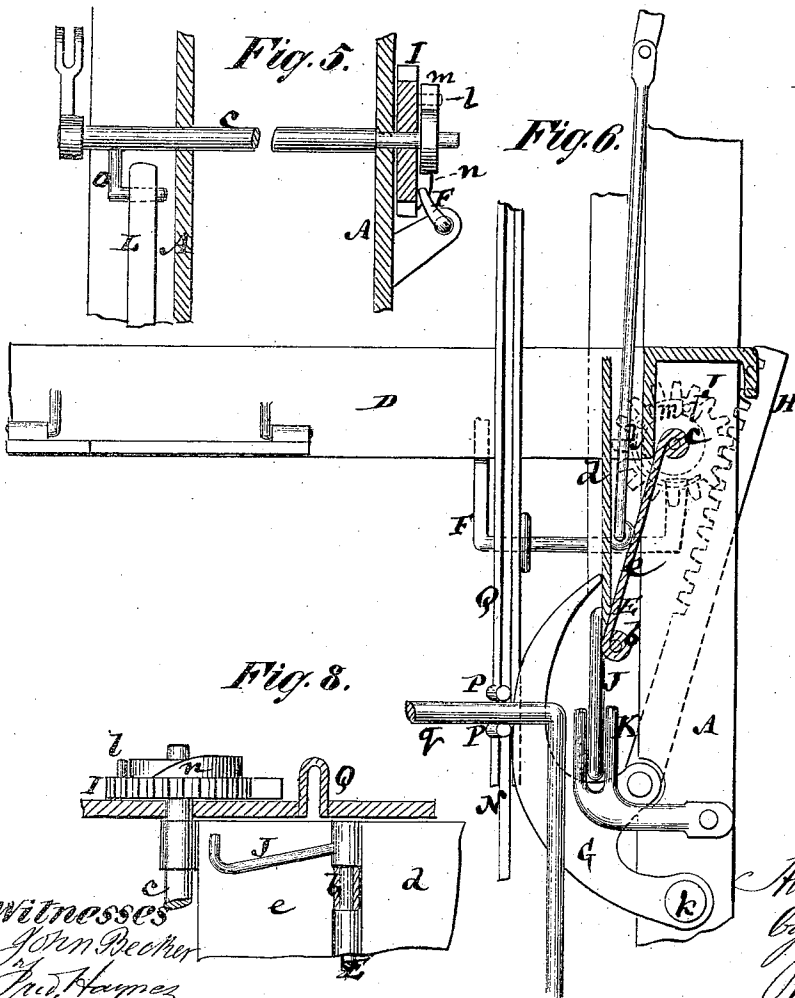


Fig. 7.

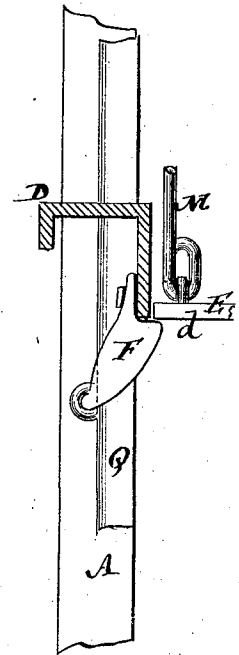
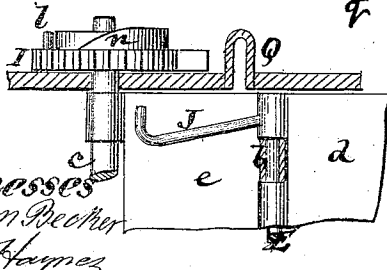


Fig. 8.



Witnesses
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Alfred B. See
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UNITED STATES PATENT OFFICE.

ALONZO B. SEE, OF YONKERS, NEW YORK.

IMPROVEMENT IN SELF-CLOSING HATCHWAYS.

Specification forming part of Letters Patent No. **153,121**, dated July 14, 1874; application filed February 7, 1874.

To all whom it may concern:

Be it known that I, ALONZO B. SEE, of Yonkers, in the county of Westchester and State of New York, have invented certain Improvements in Hoisting Apparatus, of which the following is a specification:

This invention principally relates to means for actuating the doors or platforms of hatchways for a hoisting apparatus by means of the ascending or descending load or car, so that the doors or platforms will be swung open whenever the load or car approaches them from above or below, and will be shut when the load or car in its upward or downward motion has passed them. The invention is here shown applied to jointed doors or platforms hinged to the surrounding frame-work or flooring, as in Letters Patent No. 142,738, issued to me September 9, 1873, but so that the jointed doors or platforms open upward instead of downward.

The invention consists in various novel combinations of devices for opening and closing the hatchway doors or platforms, and for automatically stopping the hoisting engine as the load or car reaches the upper and lower termini of the hoistway.

In the accompanying drawing, Figure 1 represents a side elevation of a hoistway, in which a car or elevator is used, and having my improvements applied. Fig. 2 is a vertical section on the line *xx*, Fig. 4. Fig. 3 is a horizontal section on the line *yy* of Fig. 1, and Fig. 4 a horizontal section on the line *zz* of Fig. 2. Fig. 5 is a rear view, upon a larger scale, of certain details employed in opening the doors or platforms; Fig. 6, a side view, in part, of the same, and other details for opening doors or platforms, with the actuating cam or cams thrown back, as when opening the doors. Fig. 7 is a rear view in illustration of one of the catches for supporting one of the doors or platforms when closed, and Fig. 8 an inverted plan or under view, in part, mainly an illustration of the cam for controlling the catch which supports the doors and of the hook by which the doors are held open.

Similar letters of reference indicate corresponding parts.

A A are the posts and stationary frame-

work of the hoistway. B is the hoisting-rope, which is here shown as attached at its lower end to a car or elevator, C, but which may be directly applied to the load. D is one of any number of floors through which the car C is moved in its travel up and down the frame A A. E E are the doors or platforms by which the openings in the floors within the frame A A are opened and closed. There are two of these platforms to each floor-opening, and each of them is jointed as at *b*, a short distance from their hinges *c*, thus forming a larger inner portion, *d*, and a smaller outer portion, *e*. When the platforms are closed, the inner edge of the portions *d* face and lie close to each other, and one platform has lugs *f*, which overlap the other platform. The hinges or pivot-pins *c* of the platforms have cranks *g*, which are connected by a rod, *h*, so that when one of the platforms is swung on its pivot the other will, by such connection, be moved in the same manner. These platforms open upward, and when fully open the two sections *d* *e* of each platform are folded against each other in vertical position or thereabout, as shown in Fig. 6. Said platforms are supported, when closed, by a swinging crank-catch, F, controlled by a spring, *i*, which projects and holds the catch under the side or edge of the platform or door.

The mechanism for opening and shutting the platforms connects with only one of the doors on each floor, the other platform, by its connection, as described, opening and closing in unison with the platform which is directly acted upon.

The primary devices for opening the platforms in the up and down travel of the car or load consist of upper and lower curved cams or shoes G G', pivoted at *k k* to one of the posts, and having attached to them racks H H, which gear, on reverse sides of its axis, with a pinion, I, which is loose on the hinge-pin *c* of one of the platforms, but made to vibrate the hinge-pin and so open the platforms by means of either one of two drivers or studs, *ll*, according to the direction in which the pinion is turned by reason of the up or down travel of the car, said drivers being on the face of the pinion, and at such distance apart that when either shoe G or G' is first acted

upon the pinion I will have a certain amount of lost motion before its operating-driver *l* or *l'* comes in contact with an arm or projection, *m*, fast to the hinge-pin of the operating-platform to effect the opening of the platforms.

The object of this lost motion in the pinion I is to make it first serve to remove the catch F from its locking-support of the platform. To this end the inner end of the crank-catch F is moved during the early motion of the pinion in either direction by a cam, *n*, on the face of the pinion to withdraw the catch from the platform, (see Figs. 1, 4, 6, and 8,) after which the further movement of the pinion by either driver *l* and the projection *m* effects the opening of the platforms.

The platforms are held open for the passage of the car or load in between them by a hook or rod, J, fast to the operating platform, entering within a fixed fork, -K, on the post, as shown in Fig. 6, and the platforms are closed when released from action by the shoes G G', by means of a spring, L, bearing on an arm, *o*, attached to the hinge-pin *c* of the one platform, as shown in Fig. 5; or they may be closed by a weight. A spring, *p*, applied to one of the shoes, serves to insure the proper and steady action of the latter.

In addition to the catch F, jointed stay-rods M may be used to support the platforms when closed.

The shoes G G' are not operated upon directly by the car or load to open the platforms, but indirectly by a slide, N, with which the car may be connected in a free or independent manner by means of a fork, P, on the slide arranged to clip a cross-brace, *q*, of the car, or said slide be otherwise equivalently connected with the car or load, so that the car or load is unrestricted as regards vibratory motion or action, and the platform-opening devices are consequently at liberty to act with more freedom than when the car or load directly operates them. This slide N, the upper end of which acts on the under side of the shoe G, and the lower end on the upper side of the shoe G', and travels within a vertical guide, Q, and is raised or lowered by a rope or chain, R, passing round the hoisting-drum S, and round a lower pulley, *r*, and attached at its ends to the top and bottom of the slide N.

The invention is here shown as applied to corner elevators—that is to say, hoisting ap-

paratus or elevators placed in the corners of buildings, as described in my hereinbefore-referred-to Letters Patent, and in which there are used additional platforms, T, along the sides of the projecting posts to fill the spaces which would otherwise be left open, said additional platforms T being hinged to the floor and supported by springs which hold them in a horizontal position, but allow them to yield up or down under the influence of the moving car or load, and causing them to immediately resume their horizontal position after the car or load shall have passed them. In such corner elevators there is a difficulty in providing, unless making a wide and objectionable opening, for automatically stopping the engine at the termini of the car's travel. This I obviate by means of knots or projections *u* on the endless rope or chain V, by which the operator controls the stopping and starting lever W of the engine, and cause the car, as it reaches the top and bottom positions of its travel, to strike one or the other of two vertical slides, Y Y, which, being brought up or down against the knots *u*, serve to actuate the lever W, and shut off the steam. This does away with all objectionable opening in the platforms, and insures the car or load being arrested before damage can be done by the car or load overshooting the mark.

I claim—

1. The combination, substantially as herein described, with the pinion I on the hinge-pin of the opening and closing platform, of the racks H H on opposite sides of said pinion, and the pivoted shoes G G'.

2. The pinion I, fitted loosely on the hinge-pin *c* of one of the opening and closing hatches, in combination with the drivers *l l'*, the arm or projection *m* of said hinge-pin, the cam *n*, and the spring-catch F, essentially as specified.

3. The rod or hook J attached to one of the opening and closing hatches, in combination with the fixed fork K, substantially as and for the purpose herein set forth.

4. The slide N and fork P, in combination with the pivoted shoes G G' and guide Q, for opening the platforms, essentially as described.

ALONZO B. SEE.

Witnesses:

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WM. P. FITCH.