(No Model.)

2 Sheets—Sheet 1.

M. J. DALY.

ELEVATOR LOCK.

No. 590,967. Patented Oct. 5, 1897.

Fig. 1.

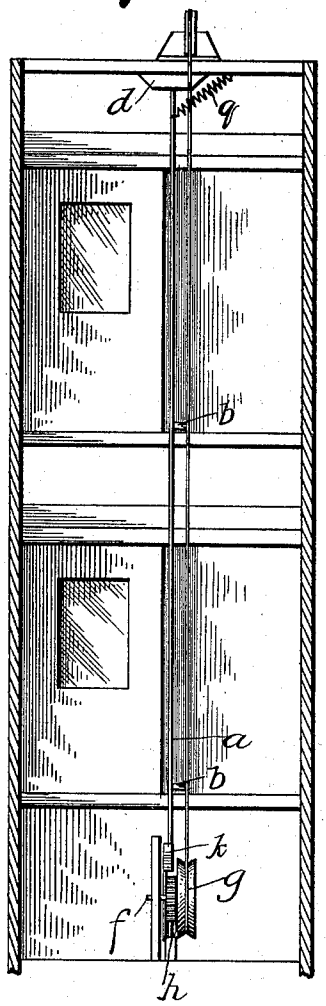
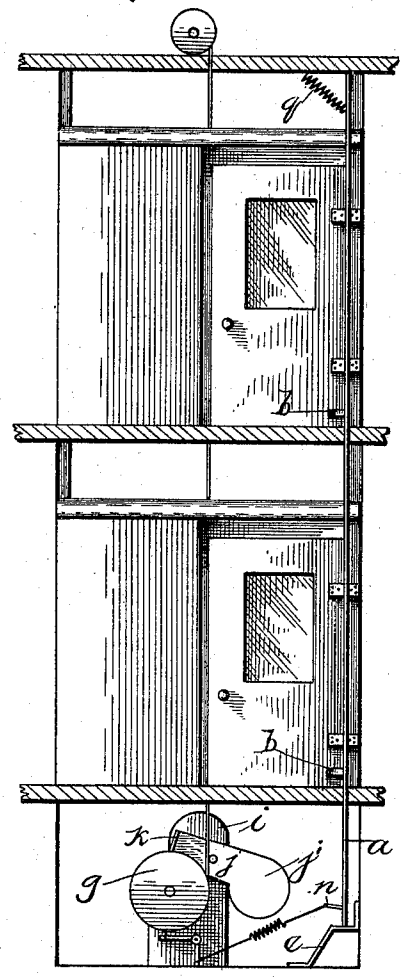


Fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

M. J. DALY.

ELEVATOR LOCK.

No. 590,967. Patented Oct. 5, 1897.

Fig. 3.

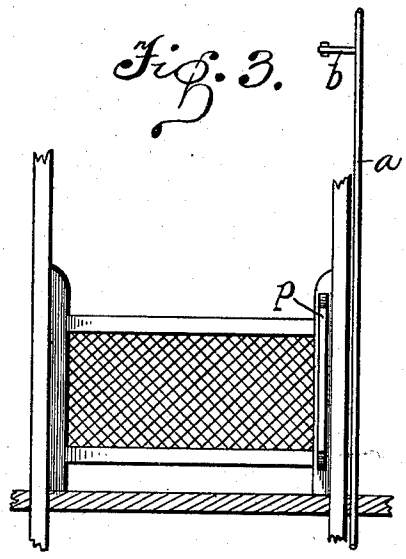


Fig. 4.

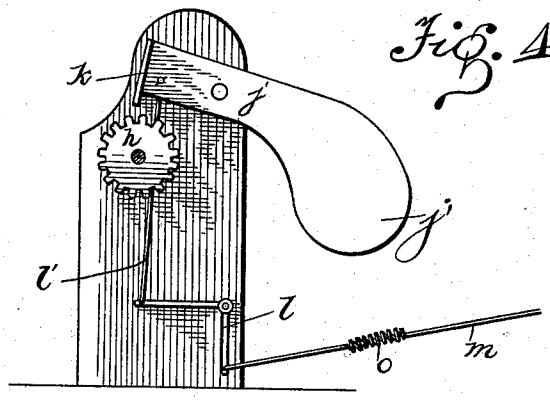


Fig. 5.

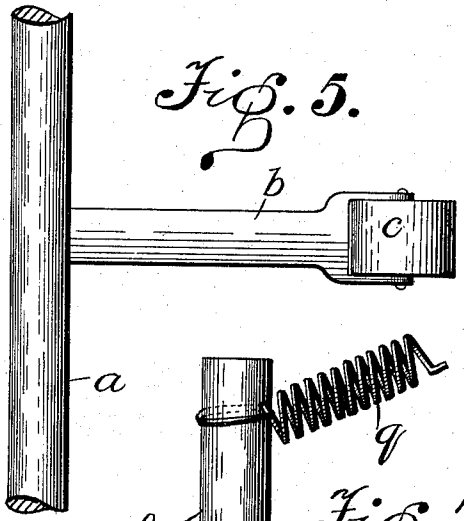


Fig. 7.

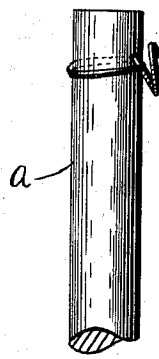
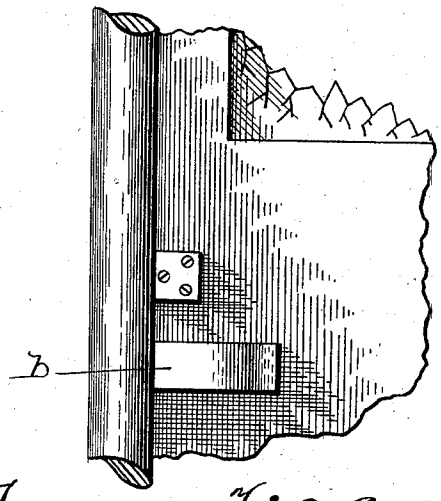


Fig. 6.



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UNITED STATES PATENT OFFICE.

MICHAEL J. DALY, OF PITTSBURG, PENNSYLVANIA.

ELEVATOR-LOCK.

SPECIFICATION forming part of Letters Patent No. 590,967, dated October 5, 1897.

Application filed April 6, 1896. Serial No. 586,386. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL J. DALY, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Elevator-Locks, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in elevator-locks, and has for its object the provision of new and novel means whereby the elevator-cage will be locked at each floor when the door is opened and prevented from ascending or descending until the door is again closed.

A further object of the invention is to construct an elevator-lock of the above-described class that will be entirely automatic in its operation, locking the car when the door is opened and releasing the same when the door is closed, thus preventing many accidents caused by the elevator-car moving either upward or downward while the door is open.

A still further object of the invention is to construct an elevator-lock that can be applied either to a sliding or swinging door or to an elevator-gate, and that will be extremely simple in its construction, strong, durable, effectual in its operation, and comparatively inexpensive to manufacture.

With the above and other objects in view the invention finally consists in the novel construction, combination, and arrangements of parts to be hereinafter more specifically described, and particularly pointed out in the claim.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like letters of reference indicate similar parts throughout the several views, and in which—

Figure 1 is a sectional view of an elevator-well, showing my improved lock as applied to a sliding door. Fig. 2 is a similar view showing the application to a swinging door. Fig. 3 is a front view of an elevator-gate, showing manner of operating my improved lock with same. Fig. 4 is a side view of the locking mechanism. Fig. 5 is a side view of a portion of the rod, showing the operating arm and roller. Fig. 6 is a similar view showing the application to a swinging door. Fig. 7 is a side view of the upper portion of the rod, showing the retracting-spring.

In the drawings, *a* represents a vertical rod which is suitably located in the elevator-shaft, its position being largely determined by the nature of the doors employed.

In Fig. 1 of the drawings, wherein the application to a sliding door is shown, the rod *a* is located near the center of the width of the elevator-shaft, and is provided at each floor with arms *b b*, carrying in their free ends rollers *c c*. The vertical rod *a* is secured at the top of the elevator-shaft in a bearing *d*, and is supported at its lower end by a bracket or stand *e*. On the shaft *f*, which carries the operating-sheave *g*, around which passes the hand controller-rope, is provided a cog-wheel *h*, and to the brace or stand *i* of the operating-shaft is pivotally attached a dog *j*, having a weighted end *j'*, and the other extremity provided with a catch *k*, adapted to engage the cog-wheel *h*, secured on the shaft *f*. To the stand *i* is pivotally secured a bell-crank *l*, the horizontal arm of which is connected by a rod *l'* to the upper end of the dog *j*, and the vertical arm is connected by a rod *m* to an arm *n*, secured on the rod *a*. This rod *m* is formed with a spiral portion *o* at any suitable point throughout its length, which is shown in Figs. 2 and 4 as at or near the middle of the rod.

In Fig. 2 of the drawings I have shown the application of my improved elevator-lock on a swinging door, and in the view the rod *a* is shown as being located near the corner of the elevator-shaft, and the rod *a* is provided with arms *b b*, adapted to engage the door when same is opened and turn the rod, and in the application to a door in the form of a gate, as shown in Fig. 3, a cam *p* is provided on the gate and engages the roller *c* of the arm *b* when the gate is raised and operates the rod in the same manner as in the other constructions, as will be hereinafter more specifically described. Near the top of the rod *a* in each of the constructions is secured a spring *q*, having its other end secured to the casing or framework of the elevator-shaft and

serving to return the rod to its normal position.

The operation of my improved elevator-lock will be readily apparent from the views of the same which I have shown in the drawings, but to enable those unskilled in the art to more clearly understand the same I will describe the operation, as follows: We will assume that all the parts have been secured in their respective positions and that the lock is applied to an elevator equipped with the sliding doors. When the door is closed, it will be out of engagement with the arms *b b*, allowing the car to ascend and descend without interruption. When the door is opened, however, it will immediately engage the rollers of the arms *b b*, and the pressure against the same will cause the rod to turn in its bearings, which will operate the rod *m*, bell-crank *l*, and rod *l'*, drawing the catch *k* of the dog *j* into engagement with the cog-wheel *h*, locking the operating-shaft and preventing the car from ascending or descending. By means of the rollers *c c* and the arms *b b*, which may be of rubber or other flexible material, if so desired, very little resistance is offered to the operator in opening the door, while at the same time effectually operating the rod to throw the dog in engagement with the cog-wheel and lock the door. In closing the door as soon as the same has passed the point of contact with the rollers the weighted end *j'* of the dog will withdraw the catch of the dog from engagement with the cog-wheel *h*, and the spring *q* at the top of the rod will assist in returning the rod *a* to its normal position.

It will be observed that the operation of the swinging door is substantially the same as that given above for the sliding door, the door engaging the arms *b b* when opened and turning the rod *a*, throwing the dog into engagement with the cog-wheel in the same manner, and in the application to the sliding gate the rod *a* is turned by reason of the cam *p* coming in contact with the roller of the arm and the dog placed in engagement with the cog-wheel in the same manner.

It will also be observed that the sliding door may also carry a cam operating against the rollers of the arms in a similar manner to that shown and described for the vertically-sliding gate, and I therefore do not wish to limit myself to the exact construction as herein shown and described, as it will be noted that this and various other changes may be made in the details of construction without departing from the general spirit of my invention.

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

In an elevator, the combination of the controlling rope or rod, the elevator-shaft, floor-doors, and a vertical rod supported in fixed bearings so as to rock or turn and extending lengthwise the elevator-shaft, said rod being provided with radial arms adapted to be struck by the floor-doors when the same are opened, and being independent of the controller rope or rod, and provided with connections at or near its lower end for locking the valve-operating devices.

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL J. DALY.

Witnesses:

ALFRED M. WILSON,

H. E. SEIBERT.