

(No Model.)

2 Sheets—Sheet 1.

J. C. McMAHON.

DEVICE FOR AUTOMATICALLY LOCKING ELEVATORS.

No. 576,144.

Patented Feb. 2, 1897.

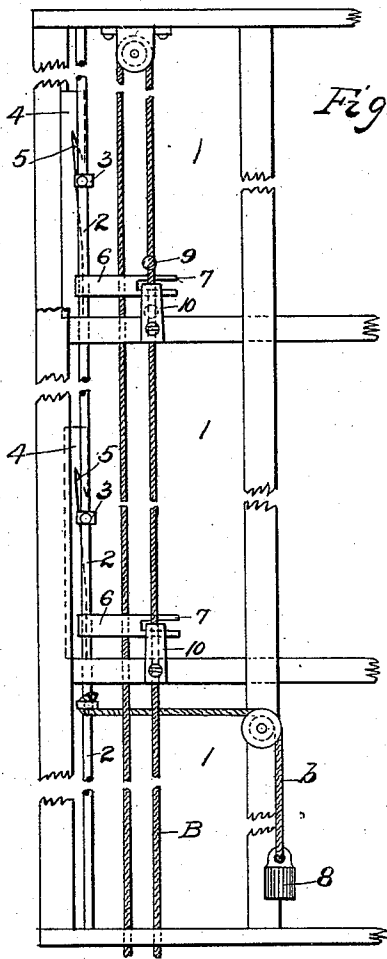


Fig. 1.

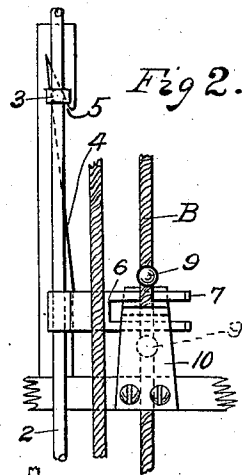


Fig. 2.

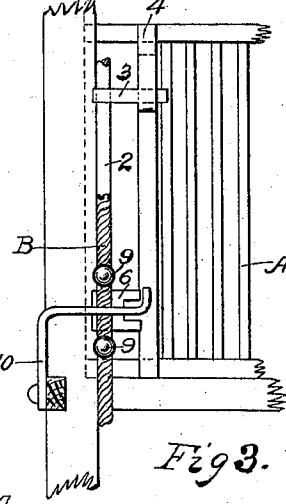


Fig. 3.

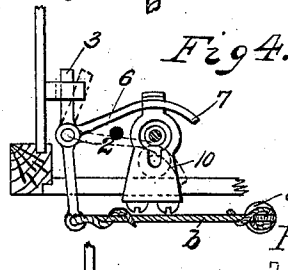


Fig. 4.

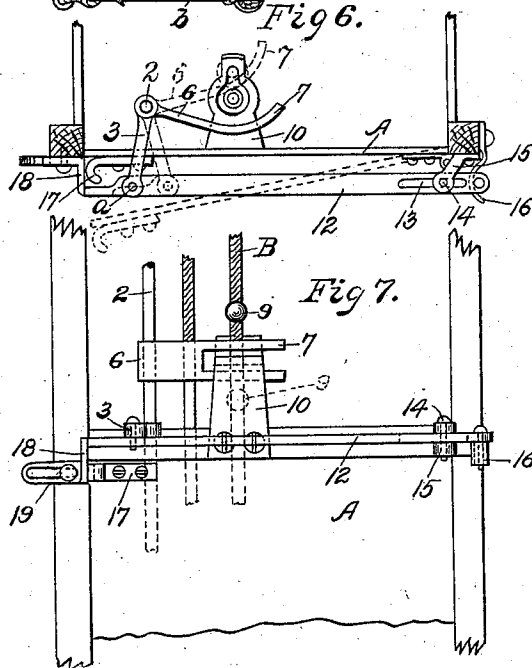


Fig. 6.

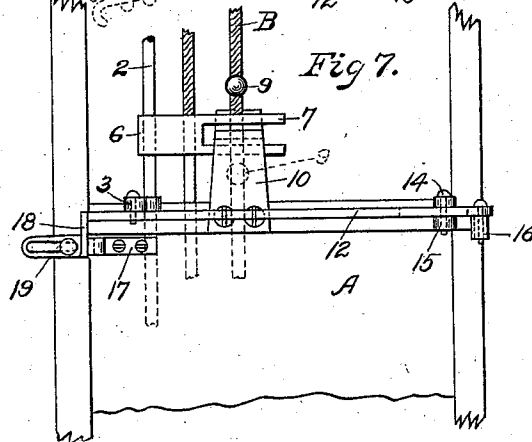


Fig. 7.

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(No Model.)

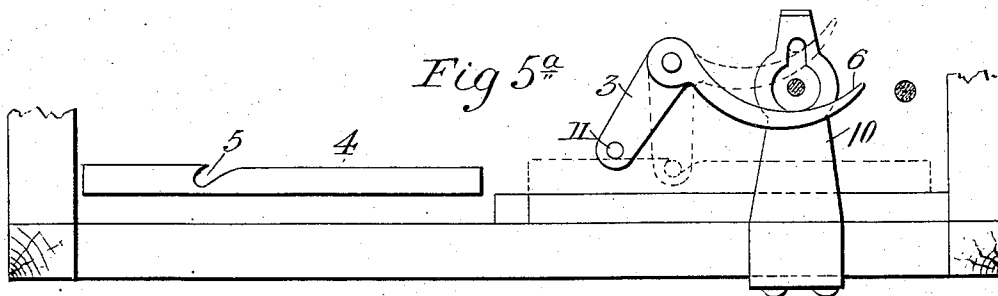
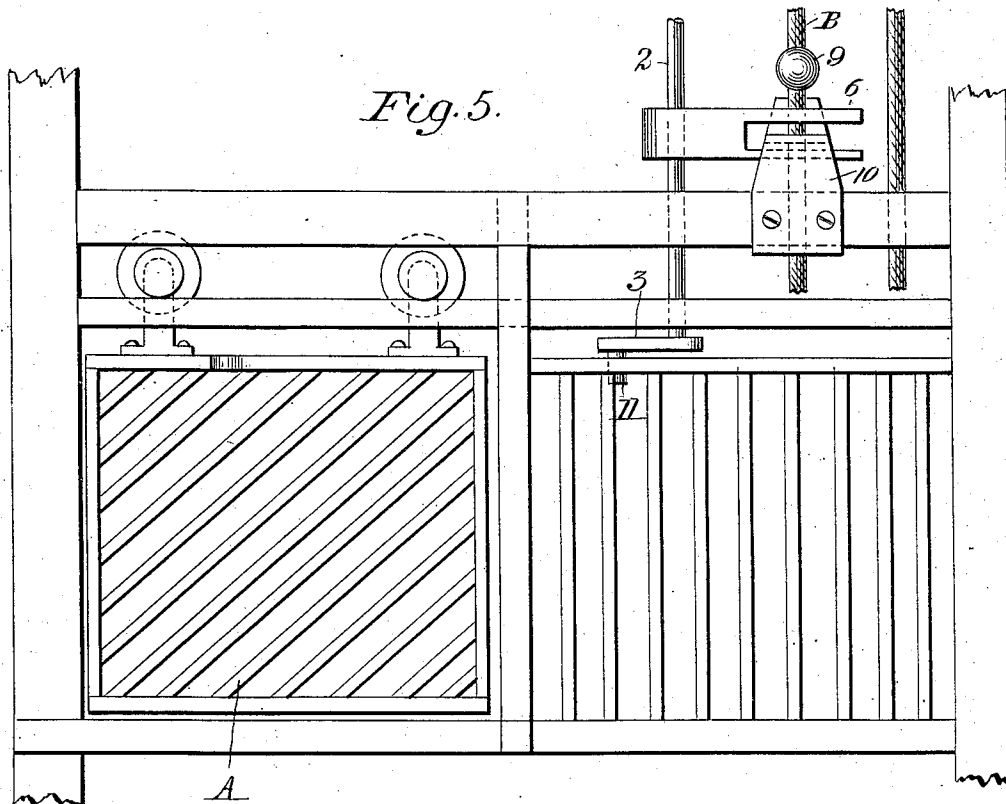
2 Sheets—Sheet 2.

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DEVICE FOR AUTOMATICALLY LOCKING ELEVATORS.

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Patented Feb. 2, 1897.



Witnesses:

William J. Brown
C. A. Williams

Inventor:

Josiah C. McMahon
by John H. Roney
his Attorney

UNITED STATES PATENT OFFICE.

JOSIAH C. McMAHON, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR, BY
DIRECT AND MESNE ASSIGNMENTS, TO THE EUREKA LOCK AND
IMPROVEMENT COMPANY, OF PITTSBURG, PENNSYLVANIA.

DEVICE FOR AUTOMATICALLY LOCKING ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 576,144, dated February 2, 1897.

Application filed December 5, 1895. Serial No. 571,142. (No model.)

To all whom it may concern:

Be it known that I, JOSIAH C. McMAHON, a citizen of the United States, residing at Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Devices for Automatically Locking Elevators by the Movement of the Door Thereof; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 indicates a side elevation of my improved automatic device for locking and releasing elevators. Fig. 2 is a side elevation of the same, enlarged. Fig. 3 is an end elevation of the same. Fig. 4 is a plan view of the same. Fig. 5 is a side elevation of the same applied to a horizontally-sliding door. Fig. 5^a is a plan of same. Fig. 6 is a plan view of a modification applied to a swinging or hinged door. Fig. 7 is a side elevation of the same.

My invention relates to safety attachments for elevators and elevator-shafts, the object of my invention being to produce a device adapted to hold the motor-controlling rope or chain of an elevator stationary by the opening of the door leading from said elevator and to prevent said controlling-rope being operated during the time the door remains open; and to this purpose it consists of the novel construction and arrangement of parts hereinafter specifically described and claimed.

I will now describe my invention, reference being had to the accompanying drawings, forming part hereof, in which like letters and figures indicate like parts wherever they occur.

Referring to said drawings, 1 indicates an elevator-shaft of the usual construction. 2 indicates a rod extending from the bottom to the top of said shaft and secured in bearings projecting from the side of one of the beams of said shaft, if necessary; or, as shown in the drawings, secured in bearings at the bottom and top, respectively, of the shaft. Said

rod is provided with a number of arms 3 3, corresponding in number with the number of floors or stories in the building. Said arms project toward the door A, as shown in Fig. 1 of the drawings, when said door is a vertical-sliding one. The end of said door adjacent to said rod is provided with a strip or piece 4, which tapers or inclines toward the top of said door and terminates near the top thereof in an outwardly-projecting slot 5. In other words, the side of the door adjacent to the rod is provided with an inclined plane, which when said door is being elevated impinges against one of said arms, thereby rotating or throwing said rod in a direction from the door and carrying the bar 6, which is rigidly secured upon said rod 2 and terminates in a clutch 7, against the motor-controlling rope or chain B of the elevator, as shown in Fig. 4, whereby said controlling rope or chain is gripped or clutched and held stationary or locked during the time the door remains open. In closing the door the arm follows the plane in its descent until said arm enters the slot in said inclined plane near the top of said door, whereby the rod 2 is rotated toward the door, thus releasing the rope from the clutch and enabling the elevator to be operated.

A counterweight 8, attached to an arm by means of a rope or chain *b*, may, if necessary, be used to throw the clutch out of engagement with the motor-controlling rope or chain of the elevator. The motor-controlling rope or chain is provided with a number of knots or stops 9 9, so arranged thereon that they will come opposite the respective stories or floors of the building, whereby a firmer clutch may be had upon said rope or chain. Said rope operates in a guide formed in a bracket 10, the outer end of which is provided with stops or checks to limit the outward movement of the clutch-rod.

It is obvious that my invention may be adapted to horizontally-sliding doors and to doors mounted on hinges without departing from the spirit of my invention, and in Figs. 5, 6, and 7 I have shown, respectively, my invention applied to horizontally sliding and swinging doors. In Fig. 5 I show it applied

to a horizontally-sliding door, in which case the inclined plane 4 is attached to or made a part of the top of the door instead of the side, as in the case of a vertically-movable door, and the arms that impinge upon the incline plane have attached thereto a member 11, projecting downwardly therefrom, which impinges against the inclined plane. It is also obvious that a spring attachment of any usual construction may be used instead of the counterweight 8.

In Figs. 6 and 7 is shown a modification of my device applied to outwardly-swinging doors, in which case arms 3 on said rod 2 project through a slot or opening above the door toward the outside, being pivotally connected at *a* to the horizontal rod 12, which is provided with a slot 13 at the end opposite said pivotal connection and in which a pin 14 passes, and through an orifice in the bracket 15. 16 is a blade-spring, the retraction of which, when the door is thrown open, causes said bar-rod 12 to move therewith, whereby the rod 2 is rotated and the clutch-bar is thrown against the rope. When said door is closed, the stop-block 17, attached to the door, impinges against the shoulder 18, formed in one end of the rod 12, causing the rod to be moved in a reverse direction to that in which the spring moved the same, reversing the rod 2, and releasing the clutch, the slot 19 in the end of the rod enabling the rod 12 to be reciprocated.

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

1. In a locking device for elevators, the combination of an elevator-shaft; a vertical rod extending from the bottom to the top substantially of the shaft, and provided with a series of arms projecting substantially at

right angles therefrom, and a series of bars adapted to engage the motor-controlling rope or chain; doors each having an inclined plane adjacent to one of said arms, and adapted to engage against said arm and transmit motion to said rod, substantially as and for the purpose set forth.

2. In a locking device for elevators, the combination of a vertical rod having a series of arms, and a series of clutch-bars, substantially at right angles to said arms; doors each having an inclined plane adjacent to one of said arms, and adapted when being opened, to impinge against said arm and transmit motion to said vertical rod; a motor-controlling rope or chain having series of stops thereon, whereby said rod is caused to rotate and the clutch-bars thereon to engage the motor-controlling rope or chain between the stops thereon, substantially as described.

3. In a device for automatically locking and releasing elevator-doors, the combination of a rod or shaft extending from the bottom to the top substantially of the elevator-shaft, and having a series of arms, and a series of clutch-bars; a door, adapted when being opened, to rotate said rod in one direction; a counterweight connected to said rod, and adapted to rotate said rod in an opposite direction; a motor-controlling rope or chain having a series of stops thereon, adapted to be engaged or clutched by the clutch-bars on said vertical rod, substantially as herein described.

In testimony that I claim the foregoing I hereunto affix my signature this 2d day of December, A. D. 1895.

JOSIAH C. McMAHON. [L. S.]

In presence of—

JAS. J. McAFEE,
C. A. WILLIAMS.