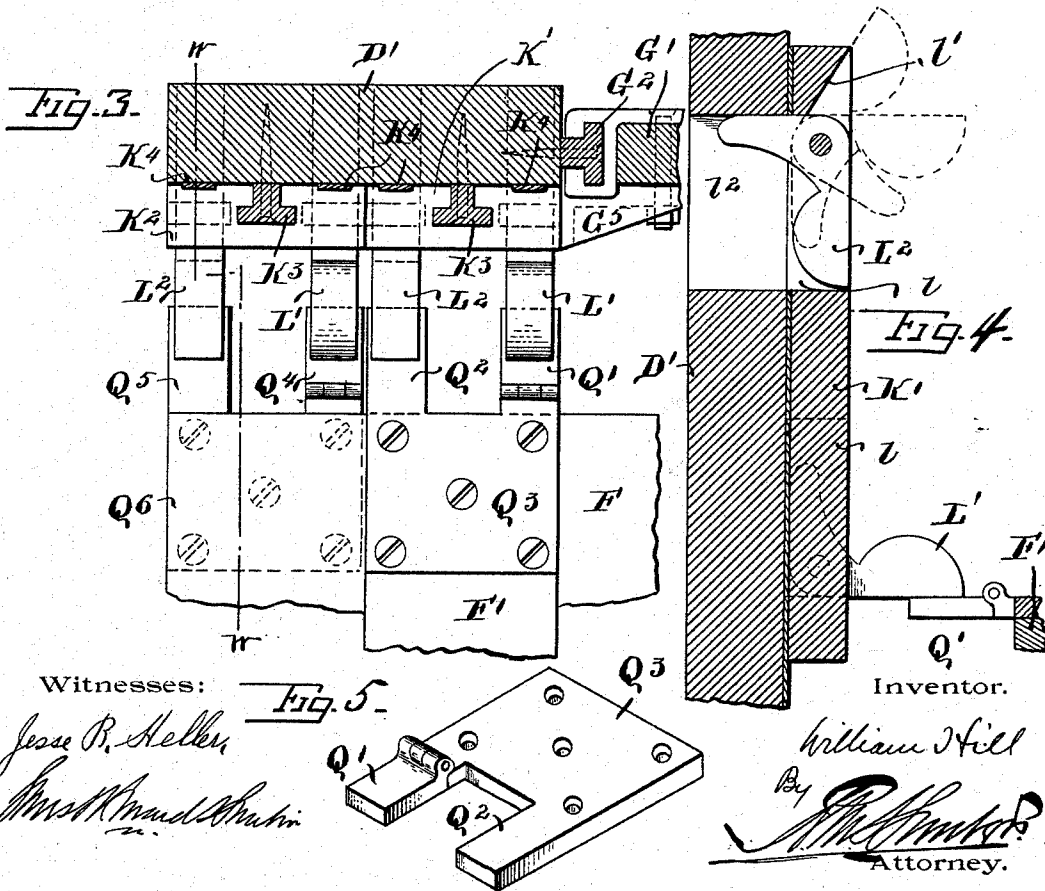


2 Sheets—Sheet 2.

No. 527,426.

Patented Oct. 16, 1894.



UNITED STATES PATENT OFFICE.

WILLIAM HILL, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE
MORSE, WILLIAMS & COMPANY, OF SAME PLACE.

ELEVATOR APPARATUS.

SPECIFICATION forming part of Letters Patent No. 527,426, dated October 16, 1894.

Application filed April 9, 1894. Serial No. 506,839. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HILL, of the city and county of Philadelphia and State of Pennsylvania, have invented an Improvement in Elevator Apparatus, of which the following is a specification.

My invention relates to elevator apparatus and consists of certain improvements which are fully set forth in the following specification and claims and are shown in the accompanying drawings.

More particularly my invention relates to devices for automatically actuating a movable part, such as a hatch door, gate or bar, when the elevator platform or cage has reached a certain position, and while I do not mean to limit my invention to the particular object which is actuated, I have shown my invention applied to a safety gate, which is automatically opened when the platform or cage reaches the level of the floor and is closed when the platform ascends or descends.

It is the object of my invention to accomplish the positive operation of such safety devices or movable parts easily and without jarring or slamming, and to employ mechanism little liable to get out of order.

It is also my object to enable the door, gate or other movable part to be positively opened and closed by mechanism operated by the moving platform or cage, so that a more certain and positive action may be obtained.

I shall now refer to the accompanying drawings for the purpose of particularly describing my invention.

Figure 1 is a front elevation of an elevator apparatus illustrating my invention as applied to a safety door or gate. Fig. 2 is a horizontal sectional view of the same on the line $y-y$ of Fig. 1. Fig. 3 is an enlarged view of a portion of Fig. 2. Fig. 4 is a vertical sectional view on the line $w-w$ of Fig. 3. Fig. 5 is a perspective view of one of the plunger operating plates carried by the elevator, and Fig. 6 is a vertical sectional view of a portion of the apparatus illustrating a modification of the door or gate actuating devices.

A is the well or shaft.

B is one of the floors.

D, D are the usual vertical ways, and E, E 50 the guides thereon.

F is the elevator platform or cage.

I have shown my invention applied to a safety gate or door, and in this case the apparatus is arranged to positively open and 55 close the door, both when the cage or platform ascends or when it descends.

G' is the safety gate which is adapted to guard the open hatchway and to be opened and closed by the ascending and descending 60 platform or cage. The ends of the gate G' are guided by suitable vertical guides G², G², and the gate may be connected with a counter balance weight G³, moving in a slide G⁴. (See dotted lines in Fig. 1.) 65

D' is a vertical way arranged adjacent to one end of the gate G', upon which are guided two sliding plungers K', K². These sliding plungers K', K² have their tops connected by a flexible connection M' passing over a guide 70 N' at the top of the way and their bottom similarly connected by a flexible connection M², passing about a guide N², at the bottom of the way. The plungers K', K² are so disposed with reference to one another that when 75 one is elevated the other is lowered and vice versa.

In Fig. 3 I have shown the preferred construction for supporting and guiding the plungers K', K². The plungers are shown 80 provided on their inner faces with longitudinal grooves adapted to T guide strips K³, secured to the way D', and between the inner faces of the plungers and the way are arranged vertical wear strips of metal K⁴. 85 These are however, details which may be varied.

L', L² are two triggers carried by each plunger and located one above the other and in different vertical planes. These triggers 90 are pivoted in recesses l in the plungers K', K², and are preferably of angular shape with their outer projecting ends weighted or made heavy. Under normal conditions the inner ends of the triggers L', L² rest against the 95 inner face of the way D', or against the guide strip K⁴, and thus maintain the weighted ends projecting outwardly, but permitting

I claim as new, and desire to secure by Letters Patent, is—

1. In an elevator apparatus, the combination with the moving cage or platform, and a movable part adapted to be actuated when the platform or cage has reached a certain position, of a movable piece or plunger connected with the movable part adapted to be actuated when the platform or cage has reached a certain position, a guide for said movable plunger provided with recesses located respectively at the upper and lower portions of the guide, a pair of independent movable projections carried by said plunger and normally projecting outward but adapted to be moved with reference to the plunger when the recesses in the guide are reached, and projections carried by the moving platform or cage adapted each to strike one of the projections.

2. In an elevator apparatus, the combination with the moving platform or cage, and a movable part adapted to be actuated when the platform or cage has reached a certain position, of a movable piece or plunger, a guide for said movable piece or plunger provided with recesses, one at the upper and the other at the lower portion of the guide, two independent triggers carried by said plunger or movable piece and normally projecting outwardly but each adapted to be moved with reference to the plunger when brought adjacent to one of the recesses in the guide, and one of said triggers being free to be moved when acted upon upwardly, a stationary projection carried by the elevator platform or cage and adapted to act upon one of the said triggers, a hinged projection also carried by said platform or cage and adapted to act upon the other of said triggers, and a connection

between said plunger and the movable part adapted to be actuated when the platform has reached a certain position.

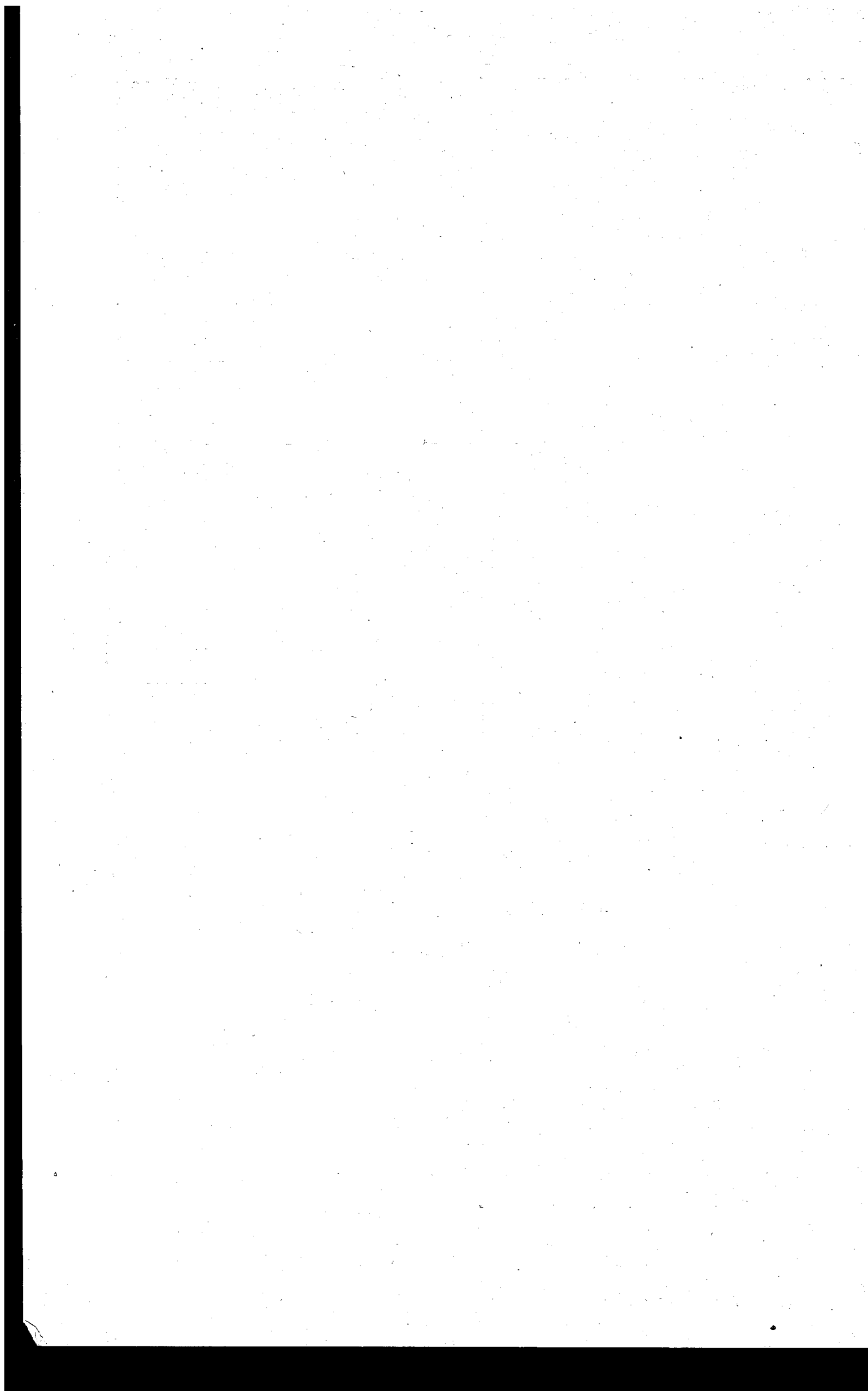
3. In an elevator apparatus, the combination with the moving platform or cage, and a movable part adapted to be actuated when the platform or cage has reached a certain position, of a pair of movable pieces or plungers connected together, a guide for said movable pieces or plungers provided with recesses, located at the upper and lower portion of the guide, pivoted triggers carried by each of said plungers or movable pieces and normally projecting outwardly, but each adapted to be moved on its pivot when brought adjacent to one of the recesses in the guide, and one of each of said pairs of triggers being free to be moved upward upon its pivot, a stationary projection and a hinged projection carried by the upper part of the moving platform or cage and one adapted to act upon one of the triggers of one plunger or movable piece and the other upon the other trigger of the said plunger or movable piece, a stationary projection and a hinged projection carried by the lower part of the moving platform and adapted to act one upon one of the triggers of the other plunger or movable piece and the other upon the other trigger of the said plunger or movable piece, and a connection between the one of the plungers and the movable part adapted to be actuated when the platform or cage reaches a certain position.

In testimony of which invention I have hereunto set my hand.

WILLIAM HILL.

Witnesses:

ERNEST HOWARD HUNTER,
WM. L. EVANS.



(No Model.)

J. HOLTZHouser.
WEIGHING SCALE.

No. 527,427.

Patented Oct. 16, 1894.

Fig. 1.

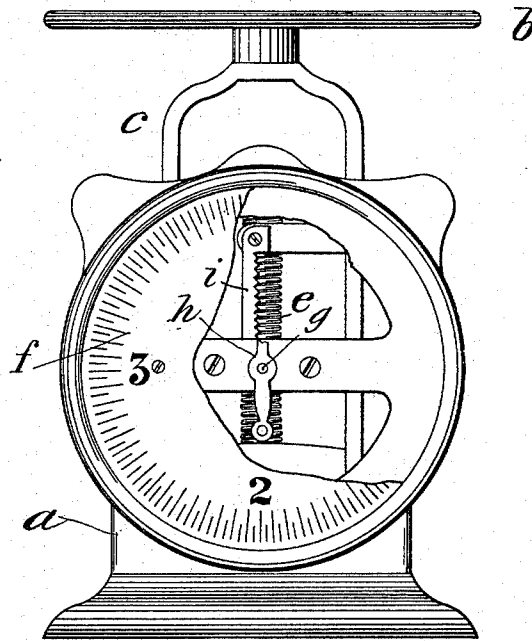


Fig. 2.

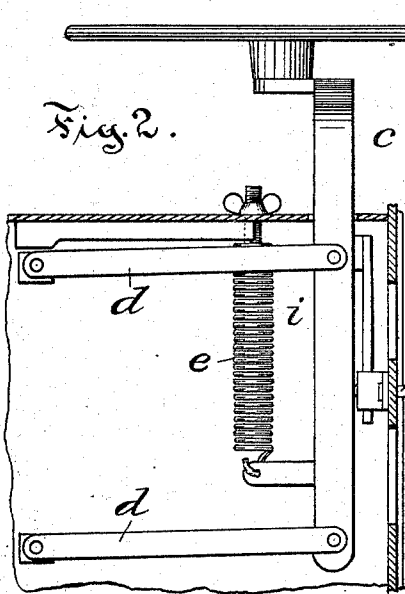


Fig. 3.

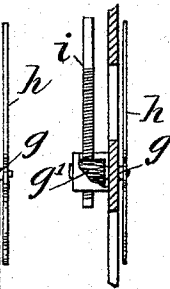
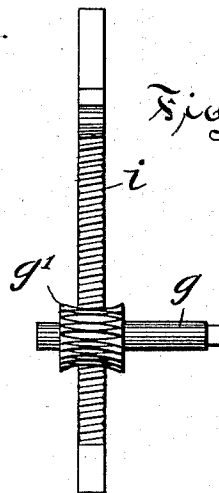


Fig. 4.



Witnesses:

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