

W. E. ESTEN.
TRIPPING MECHANISM FOR ELEVATOR WELL GATES.
APPLICATION FILED FEB. 3, 1912.

1,041,760.

Patented Oct. 22, 1912.

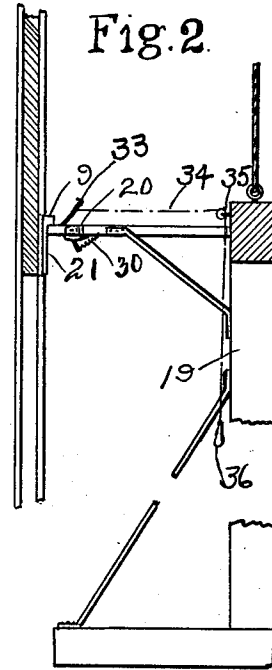
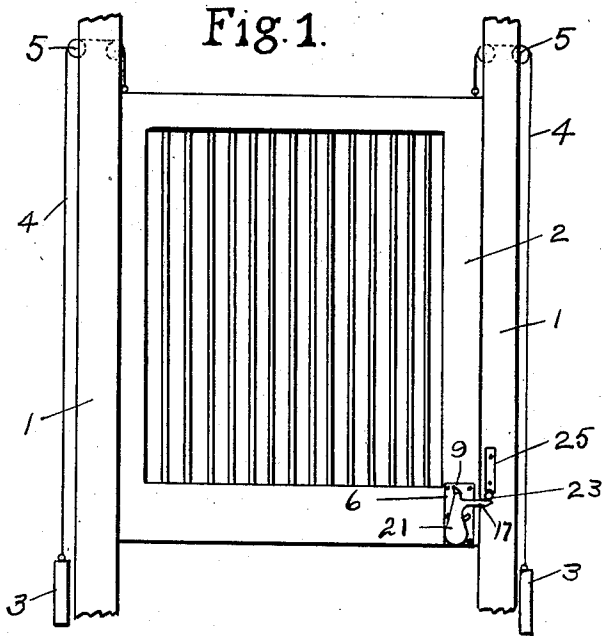


Fig. 3.

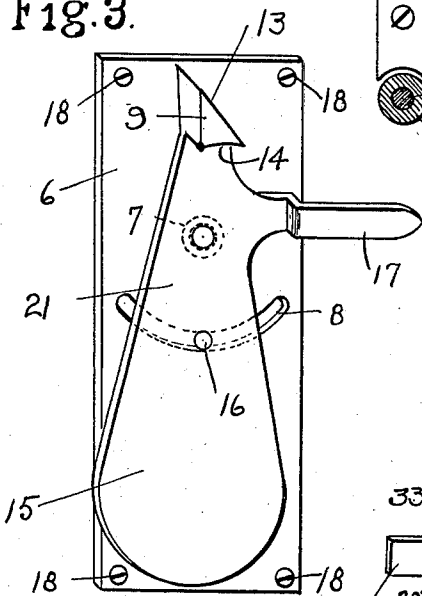


Fig. 5.

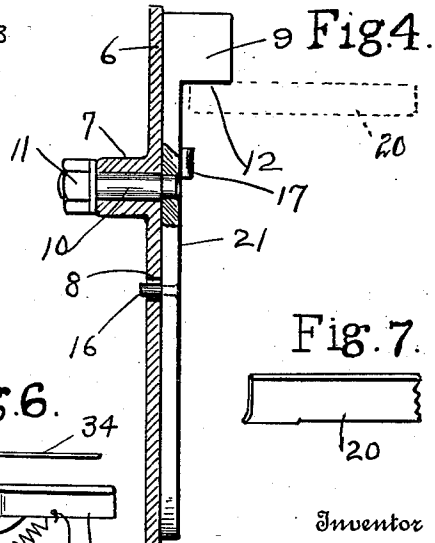
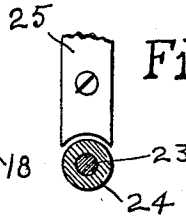


Fig. 6.

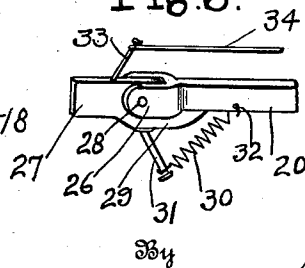
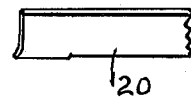


Fig. 7.



Witnesses
E. J. Ogden
Frederic A. Greene

Inventor
William E. Esten.

Howard E. Barlow
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM E. ESTEN, OF PAWTUCKET, RHODE ISLAND, ASSIGNOR OF ONE-HALF TO
ELISHA H. HOWARD, OF PROVIDENCE, RHODE ISLAND.

TRIPPING MECHANISM FOR ELEVATOR-WELL GATES.

1,041,760.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed February 3, 1912. Serial No. 675,306.

To all whom it may concern:

Be it known that I, WILLIAM E. ESTEN, a citizen of the United States, residing at the city of Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Tripping Mechanism for Elevator-Well Gates, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to tripping mechanism for elevator well gates.

The laws in many States now demand that the openings to freight elevator wells shall be provided with suitable gates or closures, and that such gates or closures shall carry suitable mechanism whereby the elevator car in rising will engage and raise the gate a predetermined distance and then automatically release the same to return by gravity.

The object of the invention is to provide a device of this character which is very simple and practical in construction and that may be readily applied to any elevator well gate that opens vertically, the same comprising a latch or engaging member pivotally hung to the gate and normally held in engaging position by means of a counter weight, or other suitable means, the latch also being provided with suitable means whereby when the elevator car descends it will be easily deflected or moved to one side to permit the downward passage of the actuator on the elevator car.

A further object of the invention is to provide a stop on the wall of the elevator well for tripping the latch as the gate rises and also to provide a guard adjacent said stop for guiding and controlling the latch tripper back to a point below said stop as the gate descends.

A further object of the invention is to provide the actuator or arm which is carried by the elevator car, with a movable end portion adapted to be manually operated and moved from its engaging position, so that the operator may cause the elevator car to engage and operate only such gates as may be desired on its upward travel.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully de-

scribed and particularly pointed out in the appended claims.

Of the accompanying drawings: Figure 1— is a face view of the counter weighted elevator well gate from its inner side, showing the same nearly at the end of its upward stroke and its latch in position to be engaged and tripped by the stop on the wall. Fig. 2— is a side elevation, partly in section, showing a portion of the elevator frame and the actuating arm extending outward therefrom into engagement with the latch on the gate. Fig. 3— is an enlarged view, slightly in perspective, showing the counter weighted latch member pivotally mounted on its plate. Fig. 4— is a side elevation showing the latch and a central section through the plate to which the latch is attached. Fig. 5— is a view showing the stop pin and its roller and the guard for controlling the return of the latch tripper. Fig. 6— is a detail in perspective illustrating a portion of the actuating arm, the end of which is arranged to be moved out of its engaging position. Fig. 7— is a detail showing the end of the actuating arm as being stiff and rigid and without a movable member attached thereto.

Referring to the drawings, 1—1 designate the vertical guides which run along on the inner wall of the elevator well for guiding the vertical travel of the gates or closures 2. Each gate that controls an opening into the well is provided with counter weights 3 suspended on cords 4 led over pulleys 5 to counterbalance in a measure its own weight, and permit the gate to gradually return to its closed position after having been raised by the upward travel of the elevator.

In the construction of my invention I provide a front plate 6 adapted to be secured to the inner face of the gate at its lower edge by screws 18—18. This plate is preferably provided with an inwardly extending bearing hub 7, see Fig. 4, and also with a slot 8 formed on the arc of a circle struck from the center of said pivot. The latch itself is provided with a body portion 21 in which is riveted a pivot pin 10, which pin extends through the bearing 7 and is provided with a nut 11 for securing the latch in position on said plate. The upper end of this plate is

provided with an overhanging head or engaging member 9 which projects forward as at 12 from the face thereof. One side of this head is beveled as at 13 for the purpose hereinafter described, while the under side 14 is curved on the arc of a circle struck from the pivoting point 10. The lower portion of this latch is enlarged as at 15 providing a counter balance or weight below the pivot point for normally holding the head portion of the latch in an upright position. This body portion is provided with a stop pin 16 which engages the slot 8 whereby the oscillating motion of this latch is limited to prevent the same from describing a complete circle even though the device may be engaged by a very rapidly running elevator. A finger 17 extends laterally from the body of the latch over one of the guides at the side in order to engage the stop member presently described.

Elevators of the freight type are usually provided with a frame work 19, to the upper portion of which or to any other suitable portion of the elevator car, may be connected an actuator in the form of an arm 20 or other suitable form to extend outward and engage the overhanging head 9 of the latch, as the elevator car rises to carry the gate upward with it. In order to limit the rise of this gate I have provided a tripping stop which is constructed preferably of a pin 23 fastened to the guide frame 1, this pin having a roller 24 mounted thereon so that when the gripper finger 17 engages the same, it will turn and easily permit the finger to slide past. This stop is also provided with an upwardly extending guard member 25 secured just above it, and along which this stripper finger is adapted to slide for a short distance before the gate is actually released, and which guard is adapted to guide and control the return of said finger to a point below the stop as the gate descends, thereby preventing any possibility of said finger from squarely engaging the roll on its downward travel to jam and so stop the descent of the gate. In the use of gate raising mechanism of this character particularly in tall buildings where many gates are employed, it is sometimes found desirable to pass any one or a number of floors without stopping and without operating the gates at these floors. One way of accomplishing this is to provide the actuating arm 20 with a forked end as at 26, see Fig. 6, and to mount a member 27 in said fork end on a pivot 28, the underside of this member being provided with a rearwardly extending lip 29 projecting back to engage the underside of the arm 20 to form a stop and support this member in operating position. One end of a spring 30 is attached to a downwardly extending pin 31

on the under side of this member and at its opposite end to the hole 32 in the arm, whereby this member is normally held in its extended or engaging position. Another pin 33 extends upward from the upper edge of this member and to which the operating cord 34 is connected and led back over the pulley 35 and down to the handle 36 whereby the elevator attendant, may at any time during the upward travel of the elevator car, by pulling this handle 36, raise the member 27 out of its engaging position so that it will not operate the gate in passing. When it is desired to operate the next gate the operator simply releases the handle and the member 27 returns automatically to its normal or engaging position. I do not however wish to limit myself to the particular construction herein shown and described for preventing the engagement of the elevator arm with the gates, as any suitable means which may be connected to this operating arm for accomplishing this purpose will fall within the spirit and scope of my invention.

The operation of the device may be more clearly described as follows: The gate or closure is normally held in its closed position by gravity. As the elevator car rises the actuator 20 engages the under curved portion 14 of the overhanging head or engaging member of the latch and the gate moves upward to its open position as the elevator car ascends. If it is desired to hold the gate in this open position the elevator car is stopped by the operator so that its floor will be level with that of the opening. If he wishes to continue to the next floor above, the tripper finger 17 on the gate after being raised a short distance more comes in contact with the stop 24 held in a fixed position on the frame work or wall of the well, and the head or engaging portion of the latch is moved to the right, thereby withdrawing it from engagement with the actuator 20 permitting the elevator to continue upward without the gate, the latter being thus released returns by gravity to its normal or closed position, its downward motion being controlled by the counter weights 3. If, however, it is desired to pass one or more of the gates on the upward trip without operating them, it is only necessary for the elevator attendant to pull the handle 36 and so move the member 27 to a position where the gate may be passed unmolested and he continues to hold the handle in the same position until just before reaching the gate to be next operated, in which case he simply releases the cord permitting the member to return automatically to its extended position whereby it engages and moves this next gate to its open position. When the car descends the end of this member 27 engages

the upper edge of the latch head 9 and is tipped upward permitting it to pass without affecting the position of the gate.

In some cases it is desired that the engaging end of the arm 20 shall be stiff and rigid and not provided with a removable portion, in which case the overhanging latch head 9 is provided with a beveled portion 13 whereby the same may be engaged by the rigid end of this arm 20 and swung to the left out of the path of said descending arm which with the car continues downward without moving the gate.

I claim:

1. In a device of the character described, an actuator carried by the elevator car, an engaging member carried by the well gate, means whereby said member is held normally in the path of travel of said actuator to be engaged thereby when the car rises, and means whereby the engaging portion of said member may be moved laterally across and from the path of travel of the actuator to disengage the latter and release the gate when the latter has been raised a predetermined distance.

2. In a device of the character described, an actuator carried by the elevator car, an engaging member carried by the well gate, means whereby said member is held normally in the path of travel of said actuator to be engaged thereby as the car rises, means whereby the engaging portion of said member may be moved across and from the path of travel of said actuator to disengage the same when the gate has been raised a predetermined distance, and means whereby said member may also be moved laterally from the path of said actuator as the car descends.

3. In a device of the character described, an actuator carried by the elevator car, an engaging member pivotally held to swing laterally on the well gate, means whereby said member is normally held in the path of said actuator to be engaged thereby as the car rises, and means whereby the engaging portion of said member is swung laterally on its pivot to disengage said actuator when the gate has been raised a predetermined distance.

4. In a device of the character described, an actuating arm carried by the elevator car, a latch pivotally held on the well gate, a counter weight for holding said latch normally in engaging position in the path of travel of said arm to be engaged thereby when the car rises, and a stop on the side wall for causing said latch to disengage said arm when the gate has been raised a predetermined distance.

5. In a device of the character described, an actuating arm carried by the elevator car, a latch pivotally held on the well gate, means for holding said latch normally in

engaging position in the path of travel of said arm to be engaged thereby when the car rises, a tripper finger on said latch, and a stop on the wall for engaging said finger to move the latch out of engagement with said arm to release the gate and permit the car to pass on without it when the gate has been raised a predetermined distance.

6. In a device of the character described, an actuating arm carried by the elevator car, a latch pivotally held on the well gate, means for holding said latch normally in engaging position in the path of travel of said arm to be engaged thereby when the car rises, a stop on the side of the side wall of the well for causing said catch to disengage said arm when the gate has been raised a predetermined distance, and a guard for guiding and controlling the return of said finger to a point below said stop as the gate descends.

7. In a device of the character described, an actuating arm carried by the elevator car, a latch pivotally held on the well gate, means for holding said latch normally in engaging position in the path of travel of said arm to be engaged thereby when the car rises, a tripper finger on said latch, and a stop on the wall of the well for engaging said finger to move the latch out of engagement with said arm to release the gate and permit the car to pass on without it when the gate has been raised a predetermined distance, said latch being provided with a beveled head whereby it may be engaged by and moved from the path of said arm as the car descends.

8. In a device of the character described, an actuator carried by the elevator car, an engaging member carried by the well gate, means whereby said member may be normally held in the path of said actuator to be engaged thereby when the car rises, means whereby the engaging portion of said member may be automatically moved across and from the path of travel of said actuator to disengage the same when the gate has been raised a predetermined distance, and means for preventing said actuator from engaging and operating the next gate as the car moves upward past the same.

9. In a device of the character described, an actuating arm carried by the elevator car, a latch pivotally held on the well gate, means for holding said latch normally in engaging position in the normal path of travel of said arm to be engaged thereby when the car rises, means for moving the latch to disengage said arm to release the gate when the latter has been raised a predetermined distance thereby, and means whereby said arm may be prevented from engaging and operating the next gate as the car moves upward past the same.

10. In a device of the character described, an actuating arm carried by the elevator car, a latch pivotally held on the well gate, means for holding said latch normally in
5 engaging position in the normal path of travel of said arm to be engaged thereby when the car rises, a tripper finger on said latch, and a stop on the wall for engaging
10 said finger to move the latch out of engagement with said arm to release the gate and permit the car to pass on without it when

the gate has been raised a predetermined distance, and manually operable means for moving a portion of said arm to prevent it from engaging and operating the next gate 15 as the car moves upward past the same.

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

WILLIAM E. ESTEN.

Witnesses:

HOWARD E. BARLOW,
E. I. OGDEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."