(No Model.)

# J. WALLENSTEIN.

## SAFETY DEVICE FOR PLATFORM ELEVATORS.

No. 490,328. Patented Jan. 24, 1893.

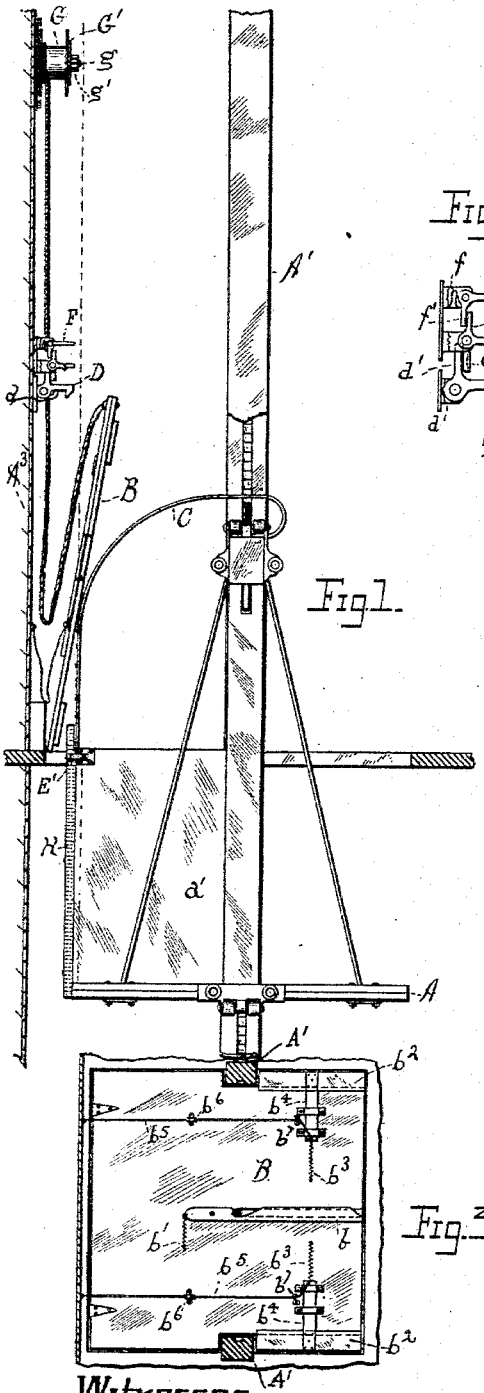

Fig. 1.

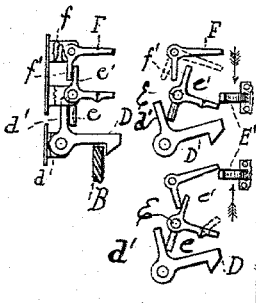

Fig. 4.



Fig. 5.

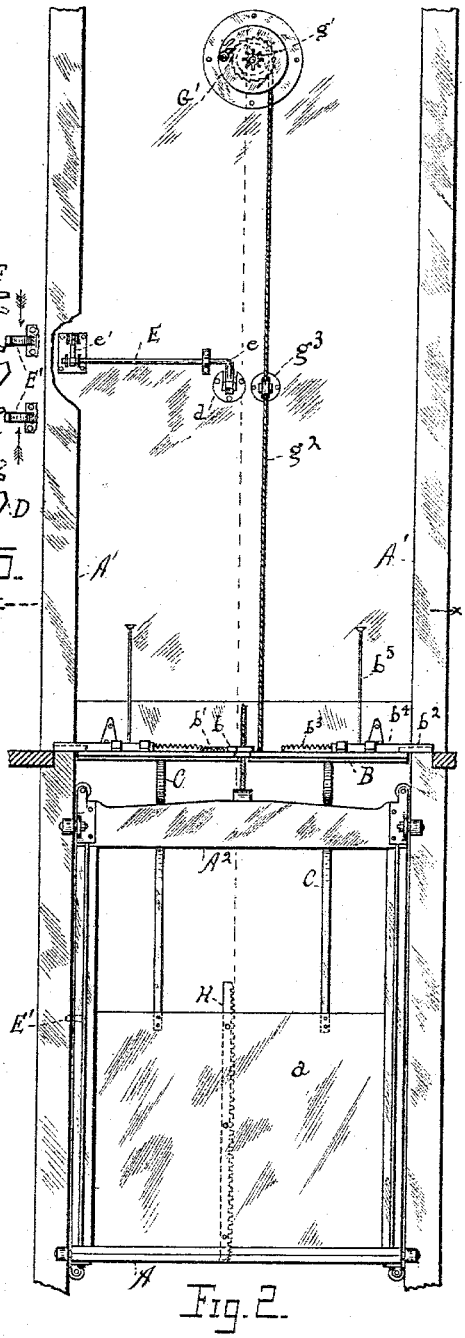

Fig. 2.



Fig. 3.

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# UNITED STATES PATENT OFFICE.

JACOB WALLENSTEIN, OF CINCINNATI, OHIO.

## SAFETY DEVICE FOR PLATFORM-ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 490,328, dated January 24, 1893.

Application filed August 29, 1892. Serial No. 444,367. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB WALLENSTEIN, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Safety Attachments for Platform-Elevators, of which the following is a specification.

My invention relates to platform elevators such as are usually employed in factories, ware-houses and wholesale jobbing houses. Its objects are to provide simple and inexpensive means to automatically close the elevator shaft after the platform passes any of the floors, either going up or down, for the purpose of protecting persons from injury, and reducing the risk of fire spreading from one story to another, and thus diminishing the cost of insurance.

The invention will first be fully described in connection with the accompanying drawings and then particularly referred to and pointed out in the claims.

Referring to the drawings in which like parts are indicated by similar reference letters wherever they occur throughout the various views: Figure 1 is a side elevation of a platform elevator provided with my improvements, parts of usual construction being broken away where necessary to expose parts of my attachments. In this view the platform is shown as on its passage through one of the floors of the building. Fig. 2 is a front elevation. The platform in this view is shown below one of the floors, and the trap closed. Fig. 3 is a plan view of one of the trap doors closed, as it appears after the elevator has passed through it; the view is taken through line $x\,x$ of Fig. 2. Figs. 4 and 5 are detail views in side elevation of the tripping devices for holding and releasing the trap door after the platform has passed in either direction.

The platform A, incased upon three sides by the partitions or ground boards $a$, $a'$, and the means for guiding, elevating and lowering it, are of ordinary construction and need not therefore be specifically described.

My safety attachments are applicable to any of the well known platform elevators and the description will, therefore, be limited to these attachments.

The trap doors B, for closing the well and cutting off communication between the different floors of the building after the platform has passed either floor, are hinged to the floors at the rear of the well. The door is slotted from the front edge back beyond the center to allow it to close. The sustaining cable passes through the slot. The slot is normally closed by a spring-pressed bar $b$, which is pivoted back of the rear wall of the slot, and has its forward end inclined, and that portion of the edge which passes the center of the door recessed, so that the cable will swing the bar back to allow the door to close, and when it is closed the spring $b'$, will swing the bar to its normal position, and close the slot, as seen in Fig. 3. The forward part of the door is cut away upon each side to allow it to open and close past the upright guide standards A′; and upon the front of the door at each side are arranged sliding shutters $b^2$. These shutters are held normally in their inward or open position by coiled springs $b^3$, which are connected respectively to the ends of the sliding bars $b^4$, and to pins secured in the door. When the door falls to the closed position these shutters are closed by wire cords $b^5$, which are connected to the sliding bars $b^4$, pass through guides $b^6$, $b^7$, secured on the door, and have their opposite ends secured in the back wall of the building. The purpose of these shutters and the pivoted bar $b$, is to automatically cut off all communication between the different stories of the building, by closing down the trap door either by hand or automatically by the movement of the platform.

The means to automatically open and close the trap door by means of the moving platform will now be described, and first the means for tripping the devices for holding the trap door open when the platform has passed the upper edge of the open door on its ascent.

There is secured to the rear partition $a$, and to the upper cross rail $A^2$, of the platform, curved metal bars C, which, as the platform ascends, strike the underside of the door B, and swing it upon its hinges until its upper or front edge is engaged by the gravitating catch D, which is pivoted in a lug plate $d$, which is secured to the rear wall $A^3$. The catch D, has an upwardly extending arm $d'$, which is arranged back of the downwardly

bent end $e$, of a rock shaft E. This rock shaft is journaled in suitable bearings in the rear wall of the elevator shaft, and has an angular tappet $e'$, secured upon its end in the path of the knocker E', which is secured to the platform side $a'$. The horizontally projecting arm of the tappet $e'$, is rule-jointed so that the knocker may throw its end up in passing without affecting the shaft E, and on its downward movement the knocker E', will strike the hinged arm, carry it down, partially rotate the rock shaft, and throw the catch D, up, releasing the door B, and allowing it to fall against the curved plate C, and gradually assume its closed position as the platform descends below the floor of any of the stories. Directly above the tappet $e'$ is journaled another tappet F, for releasing the door after the platform has passed through any one of the floors in ascending. The horizontal arm of this tappet is held in the path of the knocker E', by a spring $f$. As the platform descends the vertical arm $f'$, is carried away from the vertical arm $e'$, of the tappet without affecting the rock shaft E; but when the platform ascends the arm F, is carried up and the vertical arm $f'$, rocks the shaft E, and releases the door B.

As the platform descends it is necessary of course that the door B, be opened in advance to allow it to pass. The means for accomplishing this result I will now describe: G, is a rope drum journaled upon a stud $g$, secured in the rear wall of the elevator shaft. Journaled upon the same stud is a pinion $g'$, the teeth of which are engaged by a rack bar H, which is secured upon the back partition $a$. The rope $g^2$, one end of which is secured to the drum G, passes back of a guide sheave $g^3$, and the opposite end is attached to the door B. When the elevator platform descends the rack H, engaging the gear $g'$, winds up the rope $g$, and elevates the door; the drum is driven in one direction by a click movement consisting of a ratchet wheel G', which is secured to the pinion $g'$, and a pawl pivoted upon the flange of the rope drum G, and engaging the teeth of the ratchet. Thus it will be seen that when the rack H, becomes disengaged from its pinion or gear $g'$, the drum is free to revolve and unwind the rope by the descent of the door in closing, and that when the rack engages its pinion as the platform ascends the pawl will slide around on the teeth of the ratchet without rotating the rope drum. The rope drum and its attachments are arranged, as shown, some distance above the edge of the open door, so that it will be opened fully before the platform reaches it in descending.

What I claim as new and desire to secure by Letters Patent is:

1. The combination of the platform, the hinged door to close the floor-opening for the platform, the curved bars C, secured to the platform to open the door as the platform ascends, the gravitating catch D, having arm $d'$, the rock shaft E, having a bent end $e$, to trip the catch when the shaft is turned, the tappet secured upon the shaft, and the knocker E', secured upon the platform to move said tappet, rock the shaft and release the catch, substantially as hereinbefore set forth.

2. The combination in a platform elevator of the hinged door B, the curved bars secured to the platform to elevate it when the platform is ascending, the catch to hold the door open until tripped by a moving part of the platform, the rope drum driven by a click in one direction, the rack secured to the platform, and the pinion, ratchet, and pawl driven by said rack as the platform passes, the rope secured to the door and rope drum, and tripping mechanism operated by the platform to release the door after the platform has passed in either direction, substantially as shown and described.

3. In a trap door for use with platform elevators, the combination of the door body B, hinged to one side of the elevator well or shaft, slotted to pass the elevator cable and cut away at each forward corner to pass between the side guides A', the pivoted bar and spring to normally close the central slot, the sliding shutters at each side of the door, the springs to normally hold them open, and the cord attached to said shutters and the wall of the shaft, to draw said shutters closed when the door assumes the closed position.

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