(Model.)

# V. W. MASON.

## SAFETY APPARATUS FOR ELEVATOR PLATFORMS.

No. 276,849. Patented May 1, 1883.

Fig. 1.

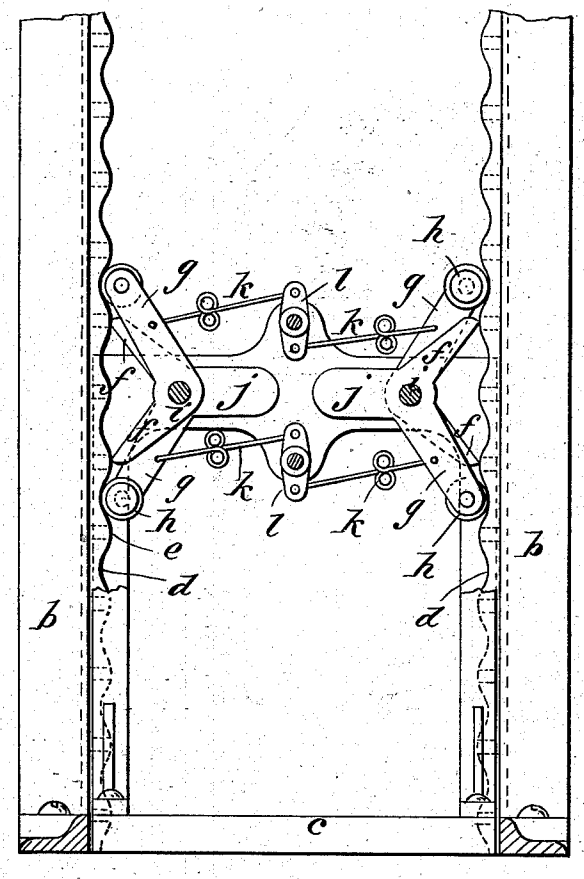



Fig. 3.

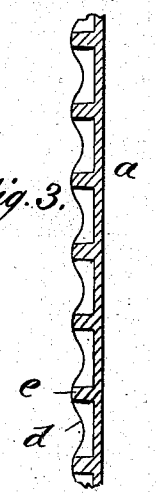
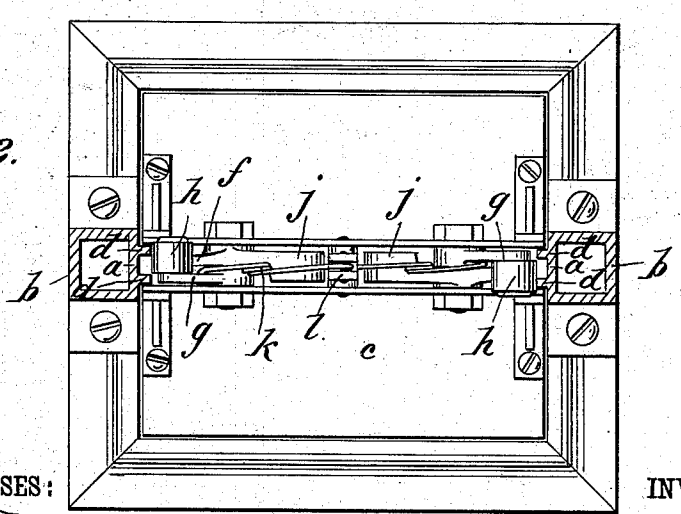



Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## SAFETY APPARATUS FOR ELEVATOR-PLATFORMS.

SPECIFICATION forming part of Letters Patent No. 276,849, dated May 1, 1883.

Application filed February 16, 1883. (Model.)

*To all whom it may concern:*

Be it known that I, VOLNEY W. MASON, of Providence, in the county of Providence and State of Rhode Island, have invented a new and Improved Safety Apparatus for Elevator-Platforms, of which the following is a full, clear, and exact description.

My invention relates to vibrating safety-catches contrived to gravitate from the rack-bars, and to be swung toward the bars by guide-rolls on them gravitating to and traversing zigzag ways, by which the thrusts of the rolls from the elevation of the ways will fail to swing the catches far enough to engage the racks at the ordinary speed of travel of the platform, allowing it to work unobstructedly; but any material increase of the speed of the platform will increase the thrusts of the rolls and cause the catches to engage the racks and lock the platform fast. I propose to provide catches and suitably-constructed racks for stopping the platform in the upward course as well as downward, because some platforms are counterbalanced more than the weight of the empty platform, and are liable to damage by ascending rapidly in case they become accidentally disconnected from the motor; and I also propose to arrange my improved catches for both sides of the platform in some cases, although they may serve well on one side only, all as hereinafter fully described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of an elevator-platform and a portion of the ways contrived according to my invention. Fig. 2 is a horizontal section of the ways and plan of the platform, and Fig. 3 is a section of a portion of one of the rack-bars.

I make the racks *a* for the ways *b*, in which the platform *c* works, with zigzag side flanges or cheeks, *d*, and cross-bars *e*, and provide the platform with catch-pawls *f* to engage the cross-bars *e* when the platform is to be arrested for safety, the cross-bars being continued for catching the pawls alike on both upper and lower sides, the cheeks or flanges being also guards to confine the pawls laterally when thrust in the rack, and the said pawls being provided with an arm, *g*, that balances them away from the rack, and has a roll, *h*, gravitating to contact with the zigzag ways *d*, so that when the speed of the platform is not too fast the pawls will not engage the racks; but in case the speed overruns the predetermined limit by the breaking of the ropes or other cause, so that the thrusts of the elevations or projections of the zigzag ways are greater on the rolls, or simply preventing the rolls from following in the bottom of zigzags, then the pawls coming in contact with cross-bars arrest the platform. For those pawls which are to stop the platform in its descent, the roll-arms of which extend above the pivots *i*, it will be sufficient to make said arms heavier than the pawls; but for the pawls having the roll-arms extending downward it may be required to provide counterbalance-weights *j*.

It will be noticed that, in consequence of the pawls being pivoted so as to balance from the racks, and to catch on them by their ends, instead of hooking on, the thrusts on them when they catch on the racks tend to keep them in contact, so that in case they only catch slightly at first they will be forced into the bottom of the racks and securely engaged by the momentum of the platform.

I have in this example provided catch-pawls for both sides of the platform, and connected the pawls of the opposite sides together by rods *k* and balance-levers *l*, in order that the pawls of both sides may engage the racks simultaneously to prevent distortion of the platform and spreading of the ways. Such connection is essential, particularly if the platform is wide between the guides. I make these rods elastic by means of the coils in them, or by any equivalent contrivance for lengthwise extension and contraction, as rigidity might cause breakage in case one of the pawls was to strike on top of a cross-bar and the other was to strike in the notch between the bars.

The zigzag guideways or cheeks *d* for vibrating the arms and guarding the pawls consist of flanges of the rack *a*, connecting the ends of the cross-bars *e*, making substantial racks adapted to guard the pawls against being thrust off laterally when they strike, and to sustain the great shocks to which they are subject in stopping the falling platform, and the cross-bars are adapted for engagement of the pawls in both directions of the travel of

the platform, as before stated. The arrangement of the pawls is simple and well calculated to be efficient and certain.

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

1. In elevators, the pawls made in the form of an obtuse angle, having the fulcrum at the vertex, one branch being a pawl and the other heavier one a roller-arm, as shown and for the purpose specified.

2. In a safety apparatus for elevators, consisting of gravitating pawls *f*, racks *a e*, and zigzag cheeks *d*, the platform having pawls on the opposite sides, and said pawls being connected by rods *k* and balance-levers *l*, substantially as described.

3. In a safety apparatus for elevators, consisting of gravitating pawls *f*, racks *a e*, and zigzag cheeks *d*, the platform having pawls on the opposite sides, and said pawls being connected by elastic or equivalent rods *k* and balance-levers *l*, substantially as described.

4. The combination, with platform *c*, racks *a*, and zigzag ways *d*, of duplicate pawls *f* in reverse arrangement for like action, whether the platform ascends or descends, substantially as described.

5. In elevators, the combination of the rods *k* and levers *l* to form connections for the catch-pawls on the opposite sides, whereby the opposite pawls will act simultaneously, as described.

6. The combination of safety-pawls *f*, gravitating from the racks, and zigzag ways *d*, arms of the pawls gravitating to the said ways, with the platform of an elevator, substantially as described.

7. The combination, in a safety apparatus for elevators, of the safety-pawls *f*, arms *g*, counter-balances *j*, cross-bars *e*, and zigzag ways *d*, substantially as described, and for the purposes set forth.

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