F. B. PERKINS.

Safety-Catches for Elevators.

No. 162,252. Patented April 20, 1875.

Fig. 1.

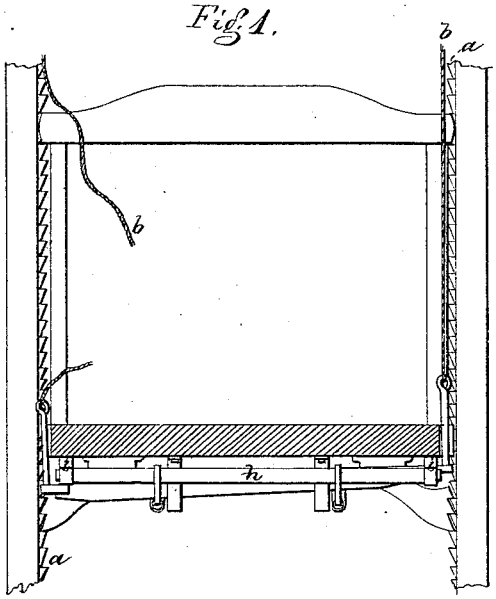



Fig. 2.

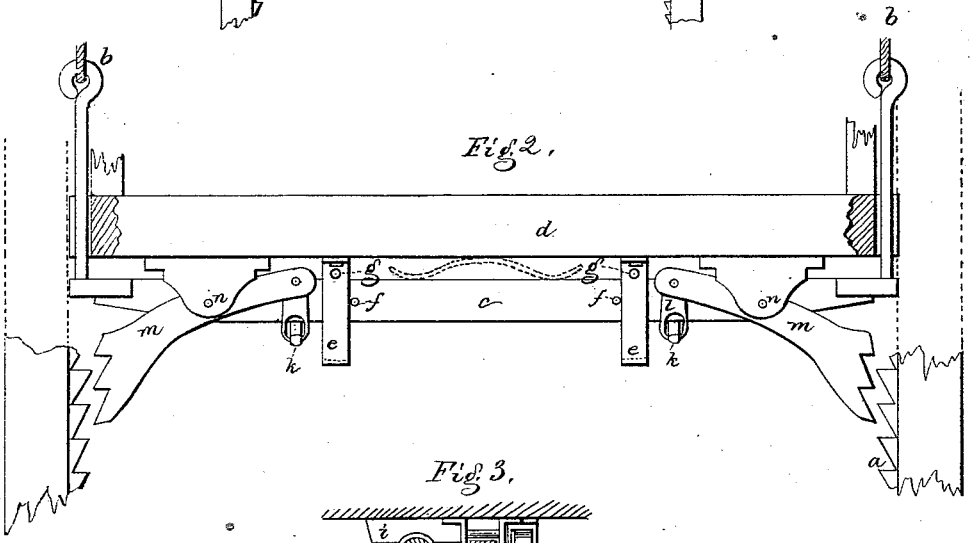
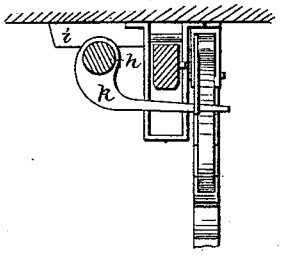



Fig. 3.




Witnesses.

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# UNITED STATES PATENT OFFICE.

FRANCIS B. PERKINS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO WHITTIER MACHINE COMPANY, OF SAME PLACE.

## IMPROVEMENT IN SAFETY-CATCHES FOR ELEVATORS.

Specification forming part of Letters Patent No. **162,252**, dated April 20, 1875; application filed March 27, 1875.

*To all whom it may concern:*

Be it known that I, FRANCIS B. PERKINS, of Boston, in the county of Suffolk and State of Massachusets, have invented an Improved Safety-Catch for Elevators, of which the following is a specification:

This invention relates to a device for locking the car or platform of an elevator or hoisting apparatus in its position in the event of the breakage of one of the suspensories; and it consists it the combination, with the platform or car of a hoisting apparatus, of a lifting-bar, to which the suspensories are applied, arranged so as to have no movement relative to the car or platform while the suspensories remain intact, and so as to operate as a lever upon breakage of one of the suspensories, and by such operation to cause pawls to engage ratchet-racks to lock the car or platform in position, the weight of the car or platform and the load thereupon becoming the force operative to cause engagement of the pawls with the ratchet-rack upon breakage of one of the suspensories.

In the drawing, Figure 1 shows a side view of this mechanism as it appears when called into action by breakage of one of the suspensories. Fig. 2 is the opposite side view on a larger scale than seen in Fig. 1, exhibiting the parts as they appear with the suspensories intact and the car hanging therefrom. Fig. 3 is a transverse sectional elevation of the mechanism.

The platform or car, guide-posts, and guide-ratchet rack-bars *a* are as commonly used. Instead of attaching the suspensories *b b* to the top or cross bar of a car or platform, they are connected to the ends of a lifting-bar, *c*, which is shown as placed beneath the base *d* of the car or platform, and within loops *e*, which restrain it from lateral motion, endwise motion being prevented by pins *f*, which pass through the guide-bar, and touch against the inner edges of the loops, in which the guide-bar fits loosely, so that it may move up and down therein. Through the upper part of each loop passes a pin, *g*, said pins making bearings for the bar when the platform or car *d* hangs suspended in its normal condition, or making fulcrums or pivoting points or edges for the lifting-bar *c* to tip or incline upon when either suspensory breaks. *h* is a rocker-shaft mounted so as to move freely in bearings *i*, and having near each end a rocker-arm, *k*, the free end of which passes loosely through the lower end of a link, *l*, pivoted to the short arm of the pawl-lever *m*, hung on a pivot, *n*, secured to *d*. The pawl-cut or long arm of each lever *m* is made heavy enough to gravitate to the position seen in Fig. 2, when not subjected to action through the lifting-bar *c*. The arrangement shown in the drawings provides for two suspensories, which are located closely along one side of the guiding-ratchet rack-bars *a*. This might be supplemented by two other suspensories, similarly located on the other side of the guides *a*, and all the parts of the mechanism described as novelties would then be duplicated, except the links *l* and levers *m*, for the rocker-arms of the duplicated mechanism would then pass through the lower ends of links *l*, and would work as and under the circumstances herein described.

The operation is as follows: With the suspensories intact the lifting-bar *c* remains in position, as shown in Fig. 2, and the heavy pawl-cut ends of levers *m* hang down, as seen in Fig. 2, clear of the edges of the ratchet-teeth on *a a* as the car or platform is raised or lowered; but let either of the suspensories break, and then the lifting-bar *c* will pivot on one of the pins *g*, and will act as a lever, to the short arm of which the unbroken suspensory is attached, the long arm moving downward, striking one of the rocker-arms *k*, and moving the other through the connection of both with their shaft *h*, thus forcing both the pawls into engagement with the ratchet-teeth. Should there be in duplicate lifting-bars, rocker-shafts, and rocker-arms, then a breakage of any of the suspensories would cause the pawls to engage the ratchet-rack teeth and lock the car or platform, as before described.

The mechanism has been described as placed beneath the floor of the car or platform, as there it will usually be located, because it is there most out of sight, and best shielded from accident; but when, for any reason, it cannot well be so located—as, for example, where a pit or opening cannot be made in the

lower floor or l evel, which the platform or car-floor is to reach—it may be attached beneath the ceiling of a car, or to the cross-bar of a platform.

Two or more suspensories have never, in my experience, been known to break at the same time; still, to provide for a contingency so remote, a spring may be so placed as to operate to move the lifter-bar toward and against the rocker-arms, should such breakage occur. Such a spring is shown in dotted lines over the lifter-bar in Fig. 2, arranged so as to move the lifter-bar toward and upon the rocker-arms upon simultaneous breakage of the suspensories.

I claim—

In a hoisting apparatus having a suspended platform or car, the combination of the lifting-bar with the rocker-shaft, and its levers connected to detaining-pawls, all adapted to operate, as set forth, with suspensories, either intact or broken.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANCIS B. PERKINS.

Witnesses:

J. B. CROSBY,

S. B. KIDDER.