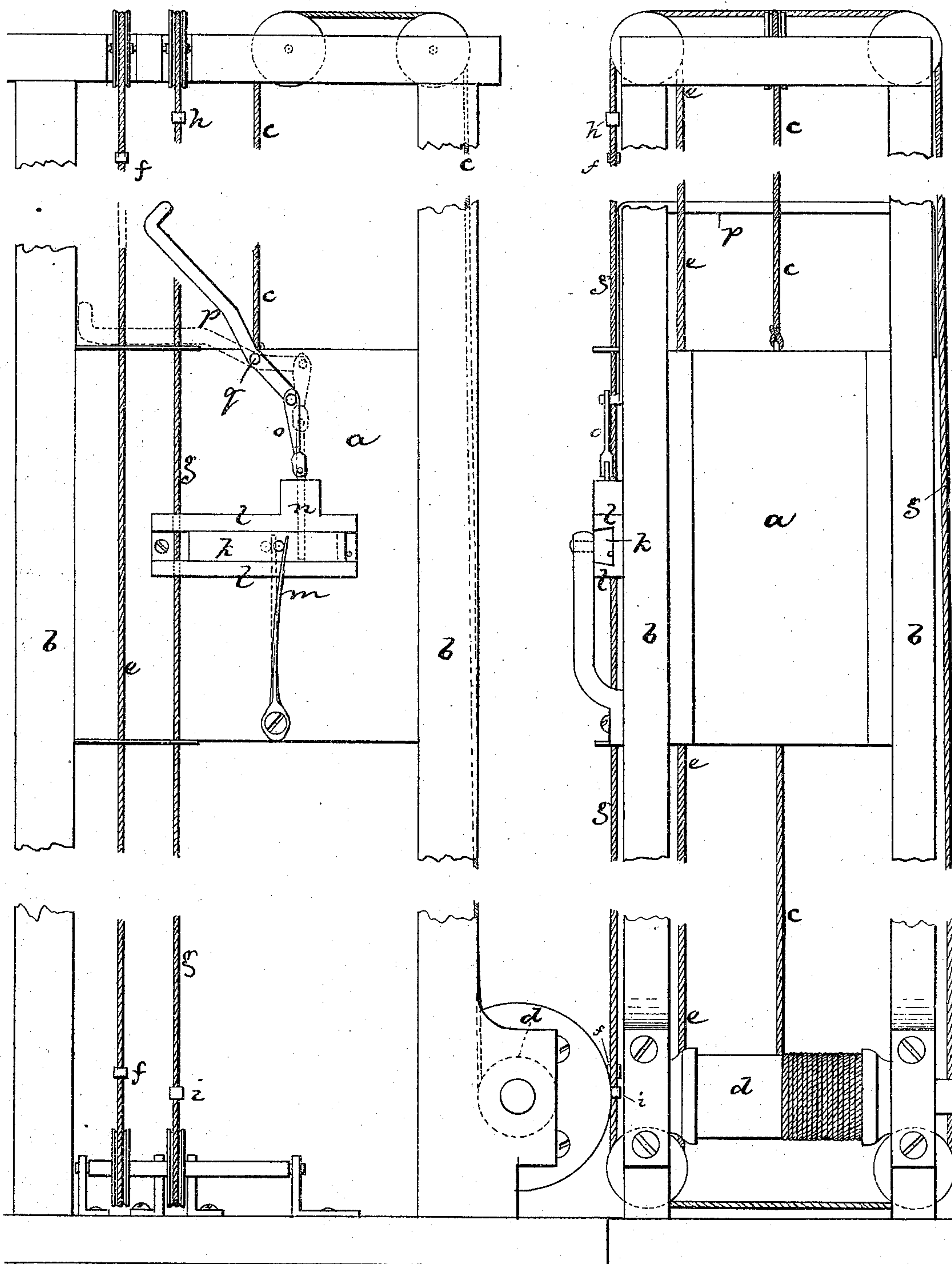


O. TUFTS.  
Elevators.

No. 143,944.

Patented Oct. 21, 1873.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN ELEVATORS.

Specification forming part of Letters Patent No. **143,944**, dated October 21, 1873; application filed September 3, 1873.

*To all whom it may concern:*

Be it known that I, OTIS TUFTS, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Elevators; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The invention relates to a new method of stopping elevator-cars in case a car meets an obstruction, or in case the ordinary hand or check rope or rod passing through the car is broken. The common hand ropes or rods are provided, at or near the top and bottom of the hoistway, with stops, which stops are operated by contact of the car, to prevent over-rise or descent of the car, or to limit its motion in either direction, the hand-rope being also used to stop or start the car at any height. To prevent accidents from over-rise or descent, complicated and costly mechanism is generally employed, and my invention relates to a very simple provision for effecting the same result. For this purpose I combine with the ordinary check-rope an independent or auxiliary rope, which will be actuated to effect stoppage of the car when, and only when, the main check-rope, from breakage, fails to operate. This rope may be connected to the same shipper and brake mechanism with which the other rope is connected, or to independent mechanism, and may be located in any convenient position where it will be actuated by the car, the rope carrying stops so arranged as not to be touched in case the main check-rope is in condition to operate, but also so arranged as to be struck by the car in case the main rope is broken or is not in condition to be properly operated, the movement of the auxiliary rope then actuating the shipper or brake mechanism, or both, to stop the car. One part of my invention consists in combining with the main check rope or rod this auxiliary rope or rod. A car in its rise or fall is liable to meet obstructions, causing more or less damage if the movement of the car continues. To obviate this liability to injury, I combine with the car a lever and clamp mechanism, the clamp being fixed to the car and the bolt so arranged as to be thrown against the check-

rope to clamp or bind it by the stress of a spring, and being connected with the lever mechanism, which latter mechanism has projecting parts that, as the car approaches an obstruction, will meet the same and be so operated as to release the clamp, which will then be thrown against the check-rope, biting upon and operating said rope, so as to effect stoppage of the car. My invention consists, partly, in combining with a car such a clamp or lock mechanism and lever mechanism for meeting obstructions and effecting stoppage of the car.

The drawing represents, in side and front elevation, a car and car-ropes and hoistway-posts, with my invention applied thereto.

*a* denotes the car; *b*, the vertical or hoistway-posts; *c*, the hoisting-rope, and *d* the hoisting-drum. *e* denotes the ordinary hand or check rope or rod, operated by the attendant or occupant of the car to arrest or start the car, and having top and bottom stops *f*, by which the extent of movement of the car in each direction is limited. As this rope may be connected to the shipper or brake mechanism in the usual manner, such connection need not be shown or described. *g* denotes the auxiliary rope, which is also connected with the shipper or brake mechanism, and upon this rope are upper and lower stops *h i*, the former being located just above the upper stop *f* of the regular hand-rope *e*, and the latter just below the bottom stop *f* of said rope. The rope *g* passes through projections from the car, the same as does the rope *e*, and if the stops *f*, for any reason, fail to operate the car-projections will strike the stop *h* or *i*, and thereby effect the stop of the car. Upon one side of the car is shown a clamp or bolt, *k*, placed in guides *l*, through which the check-rope or the auxiliary rope runs, the guides being fixed to the car. The bolt is pressed forward by a spring, *m*, and is held back by a pin, *n*, which passes through the upper guide *l* into a socket in the bolt. This pin is shown as connected by a link, *o*, to one arm of a lever, *p*, which is pivoted at *q*, and has its other arm extending beyond the car. The distance from the top or bottom of the car to the outer end of the lever-arm is such that before the car moves a corresponding distance it can be stopped by the check-rope. The lever-arms extend across the hoistway so that an ob-

struction will be met thereby, and when the lever strikes any obstruction the lever is thereby moved so as to withdraw the pin *n* from the bolt *k*, the bolt being then shot forward against the rope by the spring *m*, cramping the rope in its guides, so that the rope will be operated and caused to apply the brake or shipper mechanism to stop the car, the stoppage being effected before the car can reach the obstruction.

The clamp and lever mechanism may, of course, be variously constructed and applied.  
I claim—

1. In combination with the car and its check-rope, the auxiliary stop-rope *g*, having its stops *h i* arranged, respectively, above and below the stops *f f* on the rope *e*, substantially as described.

2. In combination with the car *a* and its check or stop rope, the clamp *k*, arranged to operate substantially as described.

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