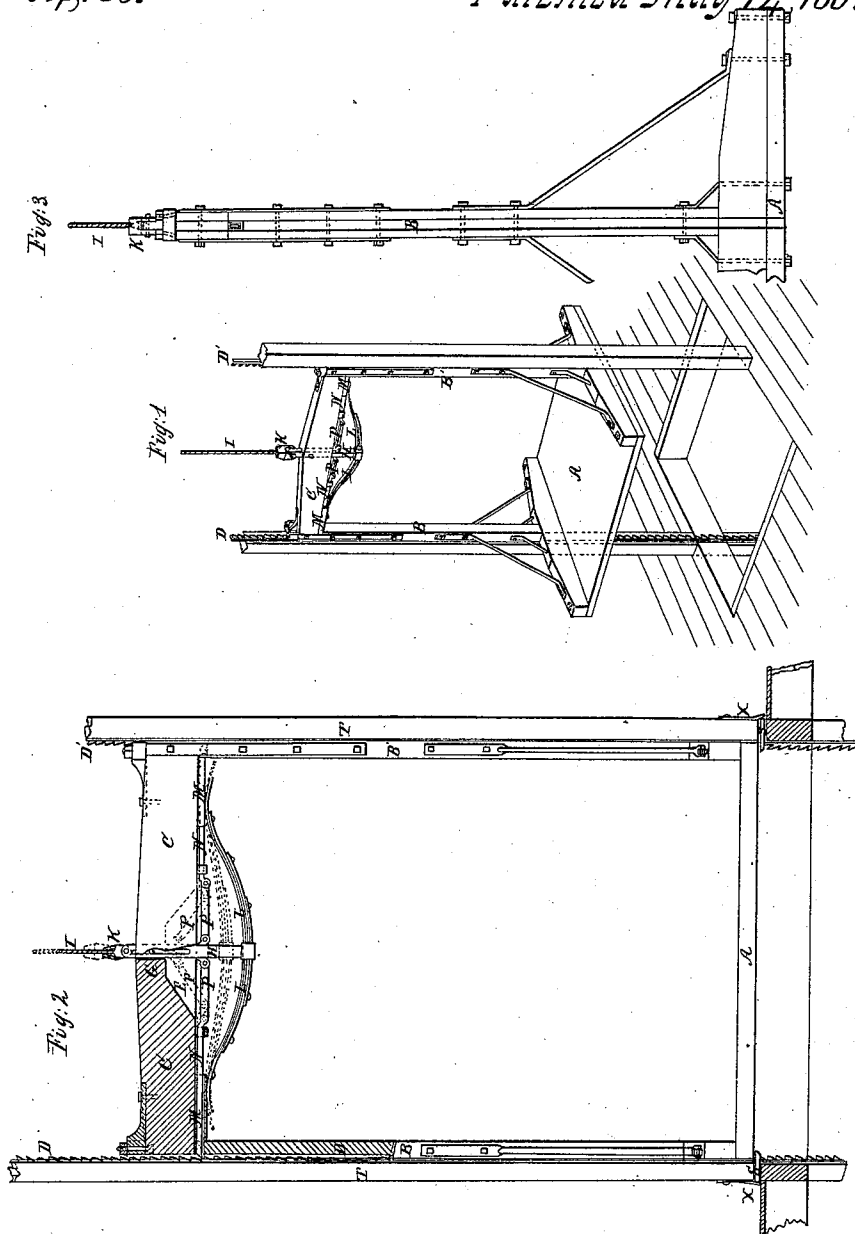


W. Miller, Elevator.

N^o 64,785.

Patented May 14, 1867.



Witnesses
Saml. S. Fisher
James Moore

Inventor
Wm. Miller

United States Patent Office.

WILLIAM MILLER, OF CINCINNATI, OHIO.

Letters Patent No. 64,785, dated May 14, 1867.

IMPROVEMENT IN HOISTING MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, WILLIAM MILLER, of Cincinnati, in the county of Hamilton, in the State of Ohio, have invented a new and useful Improvement in Hoisting Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification. In the drawings—

Figure 1 represents a perspective,

Figure 2 a top, and

Figure 3 a side view of my improved apparatus.

The nature of my invention consists, first, in operating the safety-pawls, bolts, or catches of a hoisting machine by toggle-levers, in connection with a spring, in such a manner that the levers will gain power as the spring loses it, thus securing the connection of the bolts or catches with the rack teeth, and the instantaneous stoppage of the platform in a more prompt, certain, and effectual manner; and the nature of my invention consists, secondly, in providing a hoisting machine with additional safety-stops to prevent damage when the rope is broken at the drum from over-winding.

My first improvement may be thus described: A is a platform, attached to which is the frame B B' C, the bars B and B' being grooved on their outer surface so as to embrace the racks D D', and thus retain the frame and platform in position while moving up and down. These bars are connected at the top by a cross-piece, C, which is furnished with a recess, E, and a slot, G. Through the slot the rod H passes, having the lifting-rope I attached to its upper end, through the medium of the jointed connection K. To the lower end of rod H is attached the centre of the spring L L, the ends of which extend to each side of the rod, passing under the lower sides of the slides or bolt-cases M M. Through these slides the pawls or catches N N work freely, having their outer ends bevelled to correspond to the teeth of the racks D D', and their inner ends jointed to the levers P P, which, in turn, are jointed to rod H at such a point on the rod that when the weight of the platform is removed from the rope I, the spring L L is relaxed, and the pawls are in the rack teeth, the levers P P and catches N N will form substantially a straight line. In operating this device, the rope is drawn up, contracting the spring L L, withdrawing the bolts N N from the rack teeth, and lifting the inner end of the levers P P into the recess E as shown by the red lines in fig. 2. If the rope should break, the spring would immediately retract, pulling down the rod H, forcing the levers and bolts into line, and throwing the latter promptly into the racks. It is evident that the power of the levers is constantly increasing as they approach a straight line, while the power of the spring is decreasing with its gradual relaxation. I am aware that springs have been heretofore used in connection with safety-pawls and racks upon hoisting machines, in one case to draw down a wedge which passes between the pawls and forces them outward, and in another case where it is applied to depress the inner ends of the two bent levers such as are shown in the patent of E. G. Otis, dated January 15, 1861; but in the first case the descending wedge gains no power in its descent, and in the second the levers lose power by the gradual shortening of the arm to which the power is applied.

My second improvement is found in the catches S S, located just above the upper floor of the building in which the hoister is used, in the side pieces T T, so that while the platform may come to the level of the floor without passing them, if by accident or negligence the platform should be carried above the floor and up to the drum or pulley, so as to break the rope, the catches, which are pressed back by the platform in its passage, are, as soon as it rises above them, immediately thrown forward by the springs X X, and form rests or stops by which the apparatus is caught as it descends, and kept from falling.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of rod H, levers P P, and pawls N N, jointed substantially as described with the racks O O and a spring, L, substantially as and for the purposes set forth.
2. The catches S S and spring X X, or their equivalents, for the purpose of affording an automatic stop for the platform, (to which they are not attached,) when the safety apparatus fails to act as described.

WM. MILLER.

Witnesses:

SAMUEL S. FISHER,
JAMES MOORE.