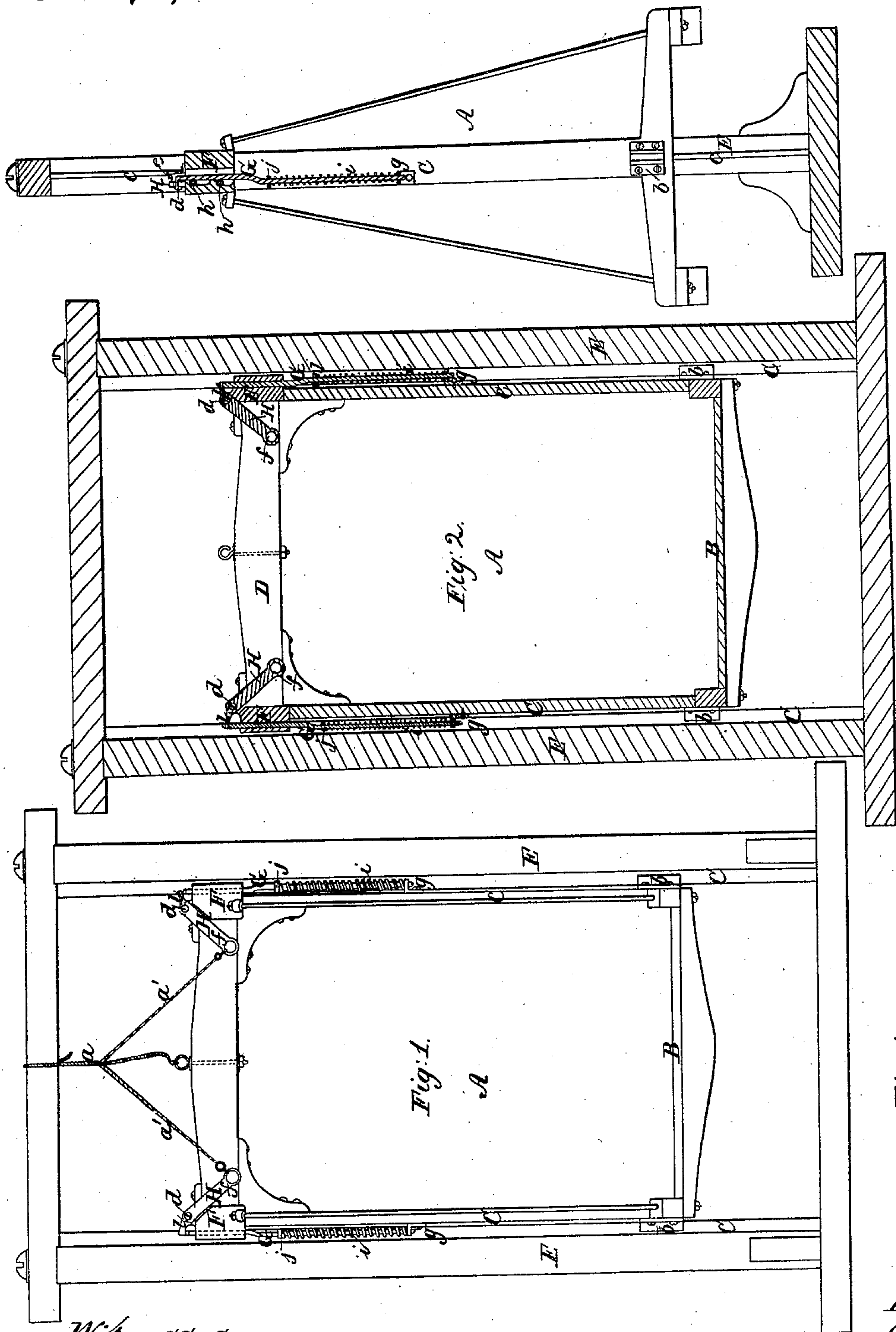


C. W. Baldwin.
Elevator.

Nº 70941.

Patented Nov. 19. 1867.



Witnesses;
E. C. Griffith
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United States Patent Office.

CYRUS W. BALDWIN, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 70,941, dated November 19, 1867.

IMPROVEMENT IN ELEVATOR.

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

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, CYRUS W. BALDWIN, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Elevator for raising merchandise; and do hereby declare the following to be a full, clear, and exact description of the same, due reference being had to the accompanying drawings, making part of this specification, and in which—

Figure 1 is a front elevation.

Figure 2 a vertical and longitudinal section, and

Figure 3 a vertical and transverse section of my invention.

Figure 4 is a plan of the elevator-carriage with its appliances, and

Figure 5 an edge elevation of the same.

Figure 6 is an elevation of one of its wedges and operating springs, to be hereinafter described.

The object of this invention is to arrest the downward motion of an elevator-carriage by the application or employment of friction between such carriage and its guides or "slides."

The present instance is one form of application of the principle of my invention, and consists in combining with the elevator-carriage and its guiding ports or "slides" two or more wedges or inclined blocks, so disposed as to interpose themselves between the carriage and its guides upon the breaking of the supporting or elevating rope or chain, and, by their friction upon such parts, arrest the descent of the carriage.

In the drawings accompanying and making part of this specification, as before mentioned, A denotes the carriage of the elevator, B being its platform, C C its side rails or supports, and D its cross-head. The hoisting-rope is shown at *a* as connected to the top of the cross-head in any proper and secure manner. The carriage A is provided at each side with clasps, *b b*, which straddle and slid upon ribs or slides, *c c*, making part of two posts or uprights, E E, properly situated and secured for supporting the elevator-carriage, and allowing of its necessary movements. Two other clasps, F F, are applied respectively to each end of the cross-head D, and, like the clasps *b b*, before mentioned, straddle and slide upon the ribs *c c*, the arrangement of the clasps *c c* and F F being such as to allow of free vertical movements of the carriage.

The device for stopping any sudden or accidental fall of the carriage is constructed as follows: A sliding-bar, G, is applied to each side of the carriage A, and slides freely, at its lower end, in a shaft or step, *g*, affixed to the outside of each rail C or C, the upper end of which is tapering or wedge-formed, transversely, as shown in fig. 3 of the drawings, and slides within each clasp F F, and in contact with the front face of the ribs or slides *c c*. Two or more friction-rolls, *h h*, are applied within the chamber of each clasp F F, and upon which the wedges G G bear and roll, thus removing or reducing the friction of such clasp and wedge, and throwing it between the opposite side of such wedge and the face of the rib *c*. The object of this arrangement of the rolls is to allow the wedges, upon breaking of the hoisting-rope, to remain comparatively stationary against the rib, while the carriage moves upon such wedge, and is securely locked against descent. Were it not for this arrangement of the friction-rolls, and if the friction were equally distributed upon the different parts, the carriage would be much more liable to slip upon its supports. To each upper corner of the cross-head D, upon one side, I apply a tripping lever, H, by means of a fulcrum-pin, *d*, and standard or start *e*, such fulcrum being near the upper end of the lever, in order to throw the excess of power into its lowest or longest arm *f*. A rope or chain, *a'*, is secured to the lower end of such arm, the opposite end of such rope being fixed to the hoisting-rope *a*, the portion of such hoisting-rope between the ends of the ropes *a' a'* and the cross-head D being considerably slack, as shown in fig. 1 of the drawings. A spiral or other suitable spring, *i*, is coiled about each bar, G, and between the shelf *g* and a collar, *j*, fixed upon such bar at about its middle, and serves, by its tensile power, to force such bar upward. The shorter or uppermost arms, *l l*, of the levers H H, rest upon the top of the bars G G.

In the ordinary use of the above-described elevator, the strain upon the hoisting-rope, necessary to overcome the weight of the carriage, will tighten the slack of such rope, which will, by drawing upon the ropes *a' a'*, raise the longer arms of the levers H H, and by so doing cause their shorter arms to depress the wedges G G, and allow the carriage to rise and fall freely, the springs *i i* being retracted by this lowering of the wedge or its bar. On fracture of the hoisting-rope *a*, the ropes *a' a'* will instantly slacken, and remove the pressure of the levers H H upon the wedges G, and allow the latter to be driven upward by the action of the springs. As

before observed, the excess of friction between the wedges and the ribs *c c*, will cause the two to adhere together to a great extent, while the friction-rolls allow the carriage or its clasps to lower upon such wedges, and be securely locked thereto, thus arresting the downward motion of such carriage smoothly and steadily, but very suddenly, and before it has sufficient time to obtain much impetus.

The loss of human life from want of some certain protection against accidental fall of an elevator-carriage has become a matter of frequent occurrence. The incomplete and insufficient manner in which many elevators, claiming to be secure against accident, are constructed, renders a reliable one of very great importance and value. I believe my present invention to be such a one, and that it is novel and original with myself.

It will be manifest that instead of the wedges, other suitable friction devices, such as cams or eccentrics, may be applied to the carriage so as to effect in a measure the same results accomplished by the means herein specifically set forth. In every case the principle of operation remains the same, the friction devices being so combined with the carriage and rope, or other suitable means for supporting the same, as not to interfere with the ordinary movements of the carriage, but only to operate to prevent the accidental fall of the carriage which would otherwise result from the breaking or sudden slackening of the rope or other supporting device.

What I claim, therefore, and desire to secure by Letters Patent, is—

In an elevator or hoisting apparatus, as described, the combination with the elevator-carriage and rope, or other device for supporting or suspending the same, of the wedges for preventing the accidental fall of said carriage, under the arrangement and for operation as set forth.

I also claim the combination and arrangement with the carriage *A* and its supporting rope, of the levers *H H*, ropes *a' a'*, and wedges *G G*, or their equivalents, substantially in manner and for the purpose as before described.

C. W. BALDWIN.

Witnesses:

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