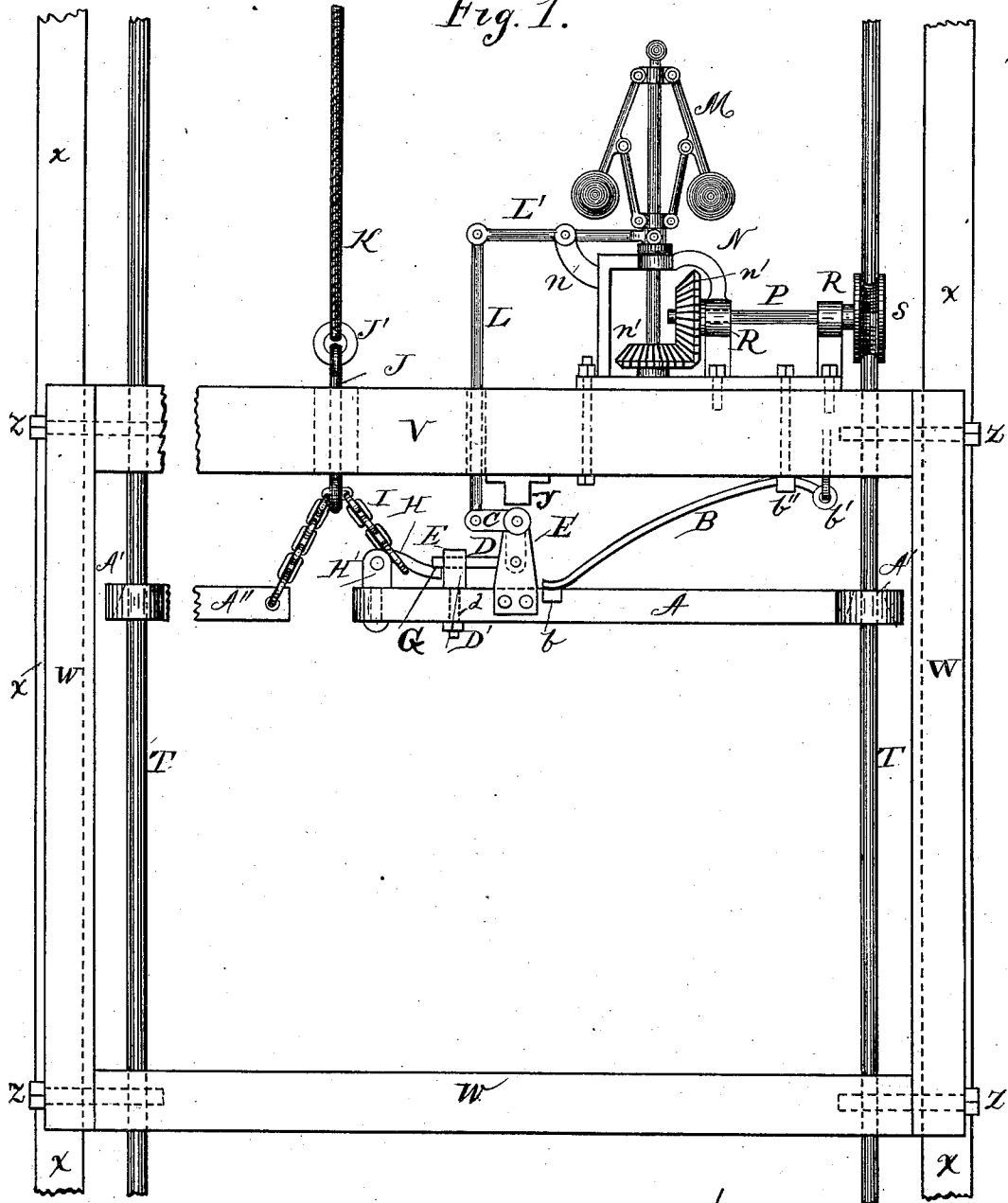


C. A. HOFFNAGLE.
SAFE GUARD FOR ELEVATORS.

No. 299,544.

Patented June 3, 1884.

Fig. 1.



Charles A. Hoffnagle,
Inventor,

by W. T. Fitzgerald,
Attorney.

Witnesses.
John C. Miller
A. L. Keiser.

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Fig. 2.

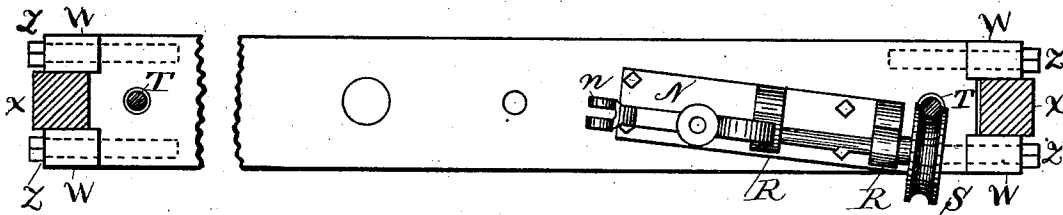


Fig. 3.

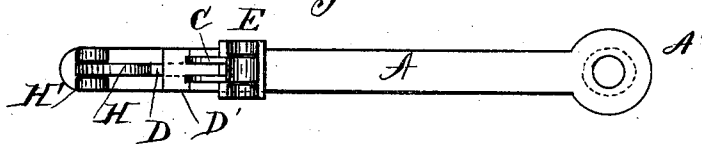


Fig. 4.



Witnesses.
John C Miller
A. L. Reyser.

Charles A. Hoffnagle,
Inventor,
by W. T. Fitzgerald,
Attorney.

UNITED STATES PATENT OFFICE.

CHARLES A. HOFFNAGLE, OF VERGENNES, VERMONT, ASSIGNOR OF ONE-HALF TO FREDERICK W. COE, OF SAME PLACE.

SAFEGUARD FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 299,544, dated June 3, 1884.

Application filed January 18, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. HOFFNAGLE, a citizen of the United States, residing at Vergennes, in the county of Addison and State of Vermont, have invented certain new and useful Improvements in Safety-Guards for Elevators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this improvement is to obtain security against the falling of elevator-cars by reason of other causes than the breaking of the hoisting-rope—such as may accrue from defects in or breakage of the machinery, whereby the car would be allowed to descend with such rapidity that the hoisting-rope could not slacken sufficiently to let the brake come into immediate action. These results are attained by the mechanism illustrated in the drawings, herewith filed as part hereof, in which the same letters of reference denote corresponding parts.

Figure 1 is a front elevation partly in section. Fig. 2 is a top view in section, showing the position of the governor-frame and friction-gear, and mode of connection with the elevator-rod. Fig. 3 is a top view of the automatic safety-brake. Fig. 4 is a longitudinal section thereof.

A represents the steel safety-brake, provided with an oval beveled hole at A', which fits over and clears the elevator-rod when the brake is in a horizontal position, as shown.

B is a steel spring secured to the hoisting-beam by staples or eyebolts *b'* and *b''*, and curved in a manner to give forcible tension upon the brake A at its bearing end, which spring is provided with perpendicular side extensions, *b*, which lap over the brake and hold the same securely in position.

E represents a centrally-slotted piece affixed to the brake as a fulcrum for the bell-crank lever C, to the lower end of which is connected the sliding bar D, which slides in a correspondingly-sized aperture through the guide or stud D', which is bolted to the brake, as shown at *d*.

H' is a centrally-slotted piece affixed to the

inner end of the brake A, and acts as a fulcrum for the automatic trigger H, pivoted thereto, and which engage with the chain I, which connects thence through the lower eye of the rod J, with the brake A'', acting upon the other side of the elevator-frame.

J' is a ring affixed to the upper eye of the rod J, for the attachment of the hoisting-rope K. The rod J should be of sufficient length to allow full action of the brakes A and A'' without the eyes coming in contact with the hoisting-beam V.

L is a rod connecting the bell-crank lever and sliding bar D, through the horizontal lever L', with the governor, which is affixed to the hoisting-beam V by means of the frame N, as shown.

P is a shaft, having bearings R R.

n' n'' are beveled gears meshing with each other, one being affixed to the governor-shaft and the other to the horizontal shaft P, to the outer end of which is secured the grooved friction-wheel S, which bears upon the elevator-rod T, and thereby receives motion from the same when the elevator-car is put in motion.

Y is a projection from the hoisting-beam, which engages with the piece E, attached to the brake A, and arrests the upward motion of the brake when the power is applied to elevating the car. The opposite brake, A'', is arrested by a similar appliance.

The operation of the improvement is very simple and easily understood. During ordinary motion of the elevator-car the governor will move slowly, and will have no appreciable effect upon the parts to which it is connected; but should any accident happen to disable the machinery so it could no longer hold the car in elevation or suspension, instantaneous velocity would be imparted to the governor through the friction-wheel S, and the governor would raise the lever L', and, by reason of its connection with the sliding bar D, through the rod L and bell-crank lever C, disconnect the same with the automatic trigger H, which would immediately release the connection of the brake A with the chain I, and both the brakes would promptly clutch the rods T and arrest the farther progress of the car.

Having explained the construction and op-

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eration of my improvement, what I claim as new, and desire to secure by Letters Patent, is—

In a safeguard for elevators, the steel brakes
5 A, having oval slots beveled inwardly from below, and provided with trigger H, bell-crank lever C, and sliding bar D, in combination with the chain I, springs B, governor M, and

friction-wheel S, all constructed and arranged to operate substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES A. HOFFNAGLE.

Witnesses:

JOHN D. SMITH,

ELECTA S. SMITH.