(No Model.)

H. O. HOOPER.

SAFETY ATTACHMENT FOR ELEVATORS.

No. 398,728. Patented Feb. 26, 1889.

Fig. 1.

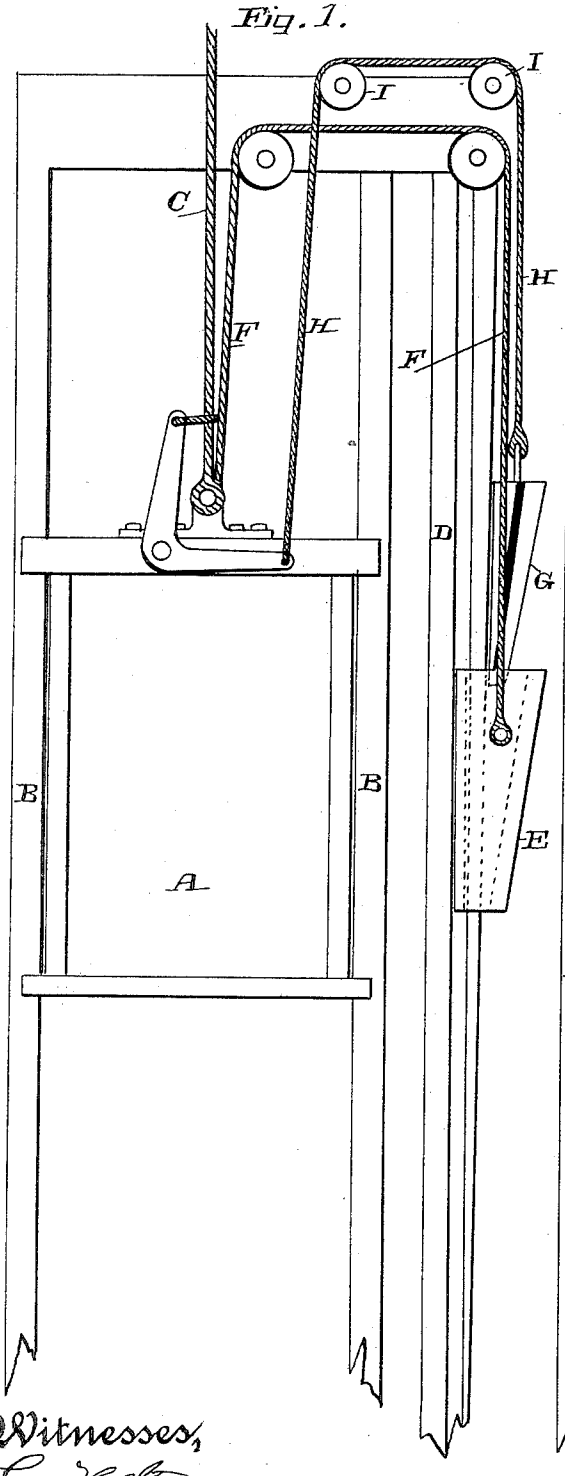
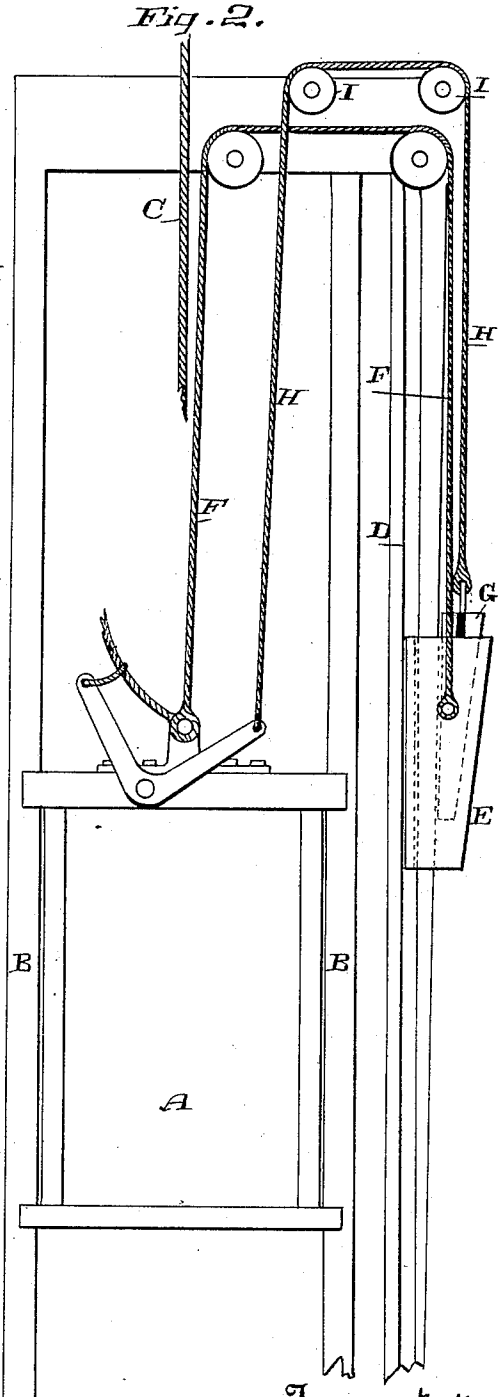


Fig. 2.



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UNITED STATES PATENT OFFICE.

HENRY OTIS HOOPER, OF SAN FRANCISCO, ASSIGNOR OF ONE-HALF TO JOHN BRESMEN, OF EUREKA, CALIFORNIA.

SAFETY ATTACHMENT FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 398,728, dated February 26, 1889.

Application filed November 1, 1888. Serial No. 289,782. (No model.)

To all whom it may concern:

Be it known that I, HENRY OTIS HOOPER, of the city and county of San Francisco, State of California, have invented an Improvement in Safety Attachments for Elevators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a safety-attachment for elevator-cages, such as are used for hoisting purposes in mines or buildings.

It consists of a grooved and channeled weight traveling upon a guide or guides and connected with the elevator-cage by a rope passing over pulleys at the top, and in connection therewith of a wedge-shaped weight fitting into the groove or channel, said wedge being suspended at a point above the channel, so as to allow the weight to travel loosely unless the suspending-rope of the cage should break, when, by means of a lever-arm, the wedge falls into the groove or channel and binds between it and the guide-post, so as to check the movement of the cage.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a side elevation showing the cage properly suspended by its rope and the parts in their normal position. Fig. 2 shows the position of the parts when the suspending-rope has broken.

A is the elevator-cage, traveling between guides B in the usual manner and suspended by a rope, C, by which it is raised and lowered. At any suitable point with relation to the elevator-cage and the well in which it travels is fixed a vertical guide-post, D.

E is a weight, which is fitted to travel upon said guide-post, being grooved for that purpose, as shown. This weight has a wedge-shaped channel formed in it adjacent to the side of the guide upon which it travels. The weight is suspended by a rope, F, passing over pulleys in the upper part of the building or the frame-work of the elevator, and this rope is carried down and attached to the elevator-cage, so that the weight acts as a counter-balance for the cage.

G is a wedge of such form as to fit the wedge-shaped groove or channel, previously described, and this wedge is suspended by a rope, H, which passes over the pulleys I at the top of the frame-work. Thence passing down it is attached to one arm of the bell-crank lever J, which is fulcrumed upon the top of the cage, as shown. The arm of the lever to which the rope H is attached extends horizontally, and the other arm, extending perpendicularly beside the suspending-rope of the cage, is attached thereto by a small cord or otherwise. This holds the wedge in position above the wedge-shaped groove or channel in the weight, and if the elevator-rope should break the falling of the cage would rapidly draw the channeled weight upward, while the weight of the wedge G, acting upon the arm of the lever by which it is suspended, would pull this arm upward, thus allowing the wedge to drop and become firmly seated in the wedge-shaped groove, so as to bind against the side of the guide-post so strongly as to check any further motion of the elevator.

In order to insure the binding of the wedge against the face of the guide, this face is made slightly tapering from bottom to top, being thinnest or narrowest at the bottom and thickest at the top, so that as the weight travels upward the wedge-shaped space will continually become narrower, and when the wedge is fixed into the channel the compression will be made stronger and stronger until the whole is brought to a stop.

In order to relieve the sudden shock of stoppage when the wedge is dropped into the channel or groove, I prefer to make the wedge in two parts with a cushion of rubber or elastic material between them, and this will be compressed by the upward movement of the weight after the wedge is dropped into the channel, which will more gradually bring the cage to a stop.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with an elevator-cage and its suspending-rope, of a counterbalance-weight connected with the cage and traveling upon a guide, and having a wedge-shaped groove or channel adjacent to the guide, and the independent suspended wedge connected to the cage hanging in line with said groove

or channel, so as to fall therein and bind the wedge against the guide, substantially as herein described.

2. The elevator-cage with its suspending-rope, the counterbalance-weight traveling upon a guide and having the wedge-shaped channel adjacent to the face of said guide, in combination with a wedge, the rope by which the wedge is suspended above the wedge-shaped channel, and a lever one end of which is connected with the wedge-suspending rope and the other with the cage-rope, substantially as and for the purpose herein described.

3. The counterbalance-weight traveling upon a guide and having the wedge-shaped groove or channel adjacent to the guide, the wedge adapted to fit said groove and bind between the guide and the weight, the rope passing over pulleys at the top of the elevator-frame and connecting the channeled weight with the elevator-cage, and the second rope connecting the wedge-shaped weight with one arm of a lever, the opposite end of which is connected with the suspending-rope of the elevator-cage, so as to hold the wedge suspended above the groove or channel in the traveling weight and to allow the wedge to fall into the said groove or channel upon the breakage of the cage-suspending rope, substantially as herein described.

4. The elevator suspended and traveling between guides, and the counterbalance-weight connected with the elevator and traveling upon a guide, and having the wedge-shaped groove or channel formed between it and the guide, in combination with the two-part wedge having an elastic filling between the two parts, said wedge being suspended above the groove or channel in the weight, so as to be allowed to fall therein, substantially as herein described.

In witness whereof I have hereunto set my hand.

HENRY OTIS HOOPER.

Witnesses:
S. H. NOURSE,
H. C. LEE.