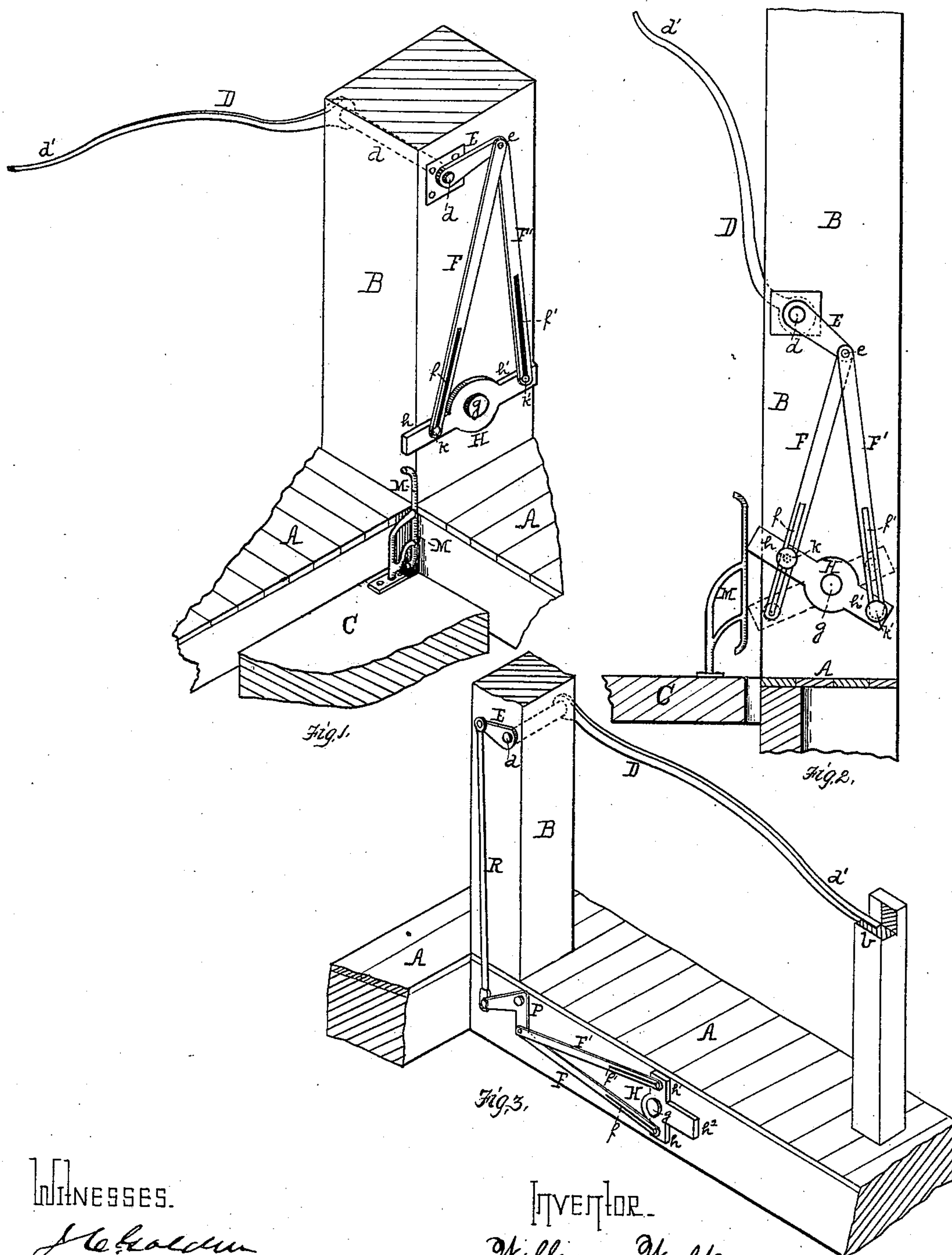


(No Model.)

W. WALKER.
Hatchway Guard.

No. 235,048.

Patented Nov. 30, 1880.



WITNESSES.

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HATCHWAY-GUARD.

SPECIFICATION forming part of Letters Patent No. 235,048, dated November 30, 1880.

Application filed September 21, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM WALKER, of Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Guards for Elevators; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view illustrating my invention. Fig. 2 is a side view illustrating the motion of the same; and Fig. 3 is a perspective of another means of applying the operating mechanism.

Like letters of reference indicate like parts in each.

My invention relates to certain improvements in guards for preventing accidents at the elevators or hoists used in warehouses, manufactories, mines, and other places.

It is well known that serious accidents frequently occur at these elevators on account of persons falling down the elevator opening or shaft when the elevator is at another floor or landing. Heretofore different devices have been constructed for the purpose of preventing such accidents, such as sliding or hinged gates, which are operated automatically by the movement of the elevator, so as to be drawn in front of the elevator-entrance whenever the cage or car is not at the landing, and raised or thrown back when it is stopped at the landing. These apparatus were, however, complicated and liable to get out of order, and were also so expensive that they have not been generally adopted with freight-elevators, where they are most needed.

The object of my invention is to provide a cheap and efficient guard for these elevator-entrances which occupies very little space in mounting.

It consists, first, in an arm or rod pivoted at one side of the elevator-entrance, and provided with certain improved automatically-operating mechanism, whereby the arm is raised and held clear of the entrance by the cage when at the landing, but falls across the entrance and forms a guard as soon as the operating mechanism is freed from the cage in its passage up or down; and, second, in cer-

tain improvements in the mechanism for operating the pivoted arm or guard.

To enable others skilled in the art to make and use my invention, I will describe its construction and operation.

In the drawings referred to, A represents the building floor or landing, and B the upright at one corner of the elevator opening or shaft. C is the cage or car of the elevator, which is mounted in any desired manner, either in an inclined or perpendicular shaft, being illustrated in the drawings in connection with a perpendicular shaft. D is my improved guard, being a long arm of metal or wood extending across the elevator-entrance about three feet from the floor, so as to catch any person walking or falling against it. It is rigidly attached to a circular pivot-rod, *d*, which passes through the upright B and extends out a short distance on the other side, the end of the pivot-rod being angular for the reception of the crank E, to which the operating mechanism is attached.

The upper or free end, *d'*, of the guard D is bent forward, so that when the guard is raised by the mechanism it will extend out a short distance, and as soon as the guard is freed the weight of the free end *d'* will cause the elevator to fall across the entrance into a seat, *b*, at the opposite side thereof. Where the guard is formed of wood the free end *d'* may be weighted.

The crank E extends back from the rod *d* at about a right angle, and at the outer end thereof two slotted plates, F F', are loosely secured by means of a pin, *e*, the slots *f f'* of the plates extending from the lower ends part-way up the plates. Rigidly attached to the upright B, a short distance above the floor, is a plate, from which a pivot, *g*, extends out horizontally. On this pivot *g* is mounted a double lever, H, provided with the two arms *h h'*, one arm, *h*, being longer than the other and extending into the course of the elevator-cage. On the double lever H, on either side of the pivot *g*, and at equal distances therefrom, are the pins *k k'*, which fit within the slots *f f'* of the plates F F', the plates being secured around the pins by suitable washers. The plates are secured around the pins in such position that when the double lever H is hori-

zontal the pins lie in the bottom of the slots; but if either arm of the double lever is lowered the pin on the other arm will travel up in the slot, both plates, F F', being drawn
 5 down together by the pin on the arm which is lowered, and thus drawing down the crank E and raising the guard D out of the rest b. Supported at the corner of the elevator-cage C is the knocker M, by means of which the
 10 double lever is operated, as shown in Fig. 2. This knocker is supported above the elevator opposite the double lever when the cage is even with the floor. Its upper and lower edges are slightly curved, so that the knocker
 15 will strike the arm h of the double lever with less jar than where the straight knocker is used. When the knocker comes in contact with the double lever, either in descending or
 20 ascending, it either draws the arm h down, and thus operates the mechanism, or draws the arm h up, throwing the arm h' down with like effect.

The operation of my improved elevator-guard is as follows: When the elevator-cage
 25 is at another landing or moving at a point where the knocker is not in contact with the operating mechanism the guard D extends across the entrance, the free end d' resting in the seat b, the double lever H being in its normal horizontal position, and the pins k k' resting in the bases of the slotted rods F F', as
 30 shown in Fig. 1. The arm forming the guard prevents the accidental falling down the shaft, as any person in danger of stepping over will
 35 come against it, the arm thus forming an efficient guard or protection against such accidents. When the elevator-cage comes to the landing in descending the knocker M on the
 40 cage strikes the long arm h of the double lever H and draws it down, throwing the double lever on an angle, and by means of the pin on the arm h drawing down the slotted plate F. This plate, in its downward motion, turns or
 45 draws down the crank G, and thereby raises the guard D clear of the entrance, the guard being held in this position as long as the knocker remains in contact with the double lever. When the cage comes to the landing in
 50 ascending the knocker M strikes the long arm h and pushes it up, throwing the opposite arm, h', of the double lever down, and with it drawing down the slotted plate F', operating the crank and guard in the same manner as
 55 where the downward motion is imparted to the plate F by the long arm h. As the plates F F' are both attached to the crank E they must ascend and descend together, and by forming the slots f f' at their bases the pin on the arm which is raised by the mechanism
 60 can run up its slot and permit the plates to work up and down together. The pivoted guard is thus raised and held clear of the entrance by the cage in either ascending or descending, giving free access thereto and being
 65 held entirely out of the way. As soon as the knocker M on the cage passes so that the long arm h is freed therefrom the weight of the

free end d' of the guard causes it to fall to place across the entrance, and thus draws the operating mechanism back to its normal position, throwing the long arm h out into the
 70 course of the knocker, to be caught by it in its next passage.

In Fig. 3 is shown another manner of applying the operating mechanism of my improved guard where there is no room to place
 75 the double lever on the upright. The double lever and slotted plates are arranged in a horizontal position on the side of the elevator-opening below the floor, and the lever H is
 80 provided with a separate arm, h², to engage with the knocker on the elevator, the end of said arm extending out into the course of the knocker. The ends of the slotted plates are
 85 pivoted to a pivot-angle, P, at the base of the upright B, and the crank E connected with the other end of the angle P by a rod, R. As the knocker operates the lever H in its upward or downward course the motion is im-
 90 parted through the slotted plates, pivot-angle, and rod to the crank which raises the guard, as above described.

By my invention I provide an efficient, simple, and cheap guard for elevators, operated
 95 automatically, so as to be kept closed at all times except when the cage is at or approaching the landing at which it is mounted, and then be held clear of the entrance and not in any way impede the loading or unloading of
 100 the cage.

The operating mechanism, as well as the guard, occupies very little space, and can be mounted at any elevator-landing.

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

1. In elevator-guards, the combination of an arm or rod pivoted at one side of the elevator-entrance, a double lever mounted at one side of the elevator-shaft and provided with an arm extending into the course of the elevator-cage, and intermediate mechanism whereby the double lever raises the guard when the lever-arm is either pushed down or raised by the movement of the cage, substantially as and for the purposes set forth.

2. In elevator-guards, the combination of the pivoted arm D, crank E, plates F F', and double lever H, substantially as and for the purposes set forth.

3. In elevator-guards, the combination of the crank E, double lever H, and connecting-plates F F', having the slots f f' at their base, substantially as and for the purposes set forth.

4. In elevator-guards, the combination of the crank E, rods or plates F F', double lever H, and knocker M, substantially as and for the purposes set forth.

In testimony whereof I, the said WILLIAM WALKER have hereunto set my hand.

WILLIAM WALKER.

Witnesses:

F. G. KAY,
 JAMES I. KAY.