

(No Model.)

J. A. DEAN.
ELEVATOR.

No. 472,012.

Patented Mar. 29, 1892.

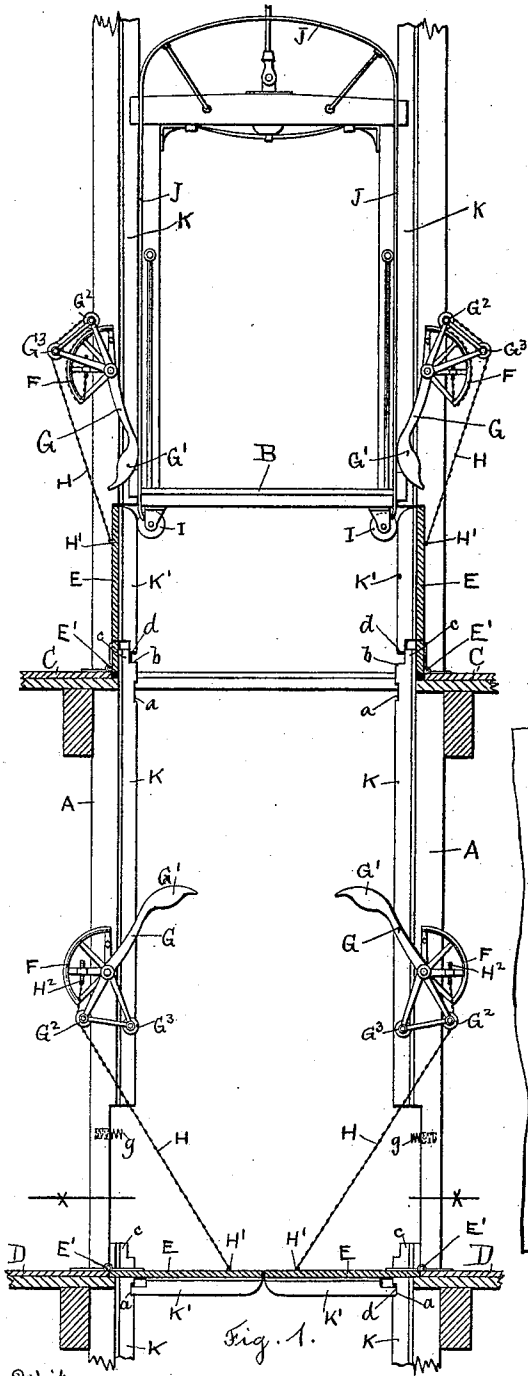


Fig. 1.

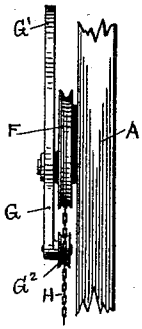


Fig. 3.

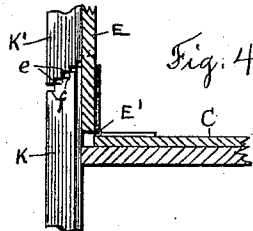


Fig. 4.

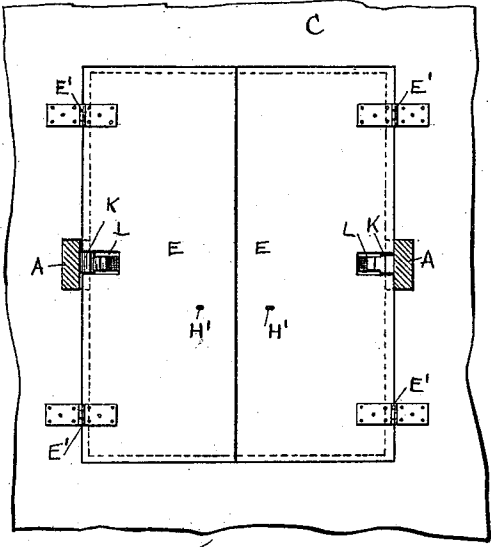


Fig. 2.

Witnesses
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UNITED STATES PATENT OFFICE.

JOHN A. DEAN, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO ISAAC S. WHITING, OF SAME PLACE.

ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 472,012, dated March 29, 1892.

Application filed October 6, 1891. Serial No. 407,833. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. DEAN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Elevator-Hatches, of which the following is a specification, reference being had to the accompanying drawings, in which—

10 Figure 1 represents in sectional view two elevator-hatches, together with their connected actuating mechanism, shown in elevation. Fig. 2 is a top view of the lower of the hatches shown in Fig. 1, the guide-posts being shown
15 in sectional view on line X X, Fig. 1. Fig. 3 represents in side view one of the stationary arcs and vibrating levers which is actuated by the moving car, and Fig. 4 represents a modified form of the guide-bars.

20 Similar letters refer to similar parts in the different figures.

My invention relates to certain improvements in the construction of elevator-hatches, and also to the operating mechanism by which
25 the hatch is raised and lowered by the movement of the car.

In the accompanying drawings, A A denote two vertical guide-posts, between which the car B moves.

30 C and D denote the upper and lower floors through which the elevator-car B passes, and which are closed by hatches embodying my invention, the hatches of the floor C being represented as open, and those of the floor D
35 as closed.

E represents in section the two folding doors, hinged at E' E' and arranged to fall into a horizontal position and close the floor-opening or to be raised into a vertical position to allow the passage of the car B. Rigidly attached to the guide-posts A are the segments F, and pivoted concentrically with the segments F are the levers G G, the inner curved ends G' being arranged when the hatches are closed to enter the elevator-shaft in the path of the moving car. The opposite ends of the pivoted levers G carry studs, upon which turn the scored rolls G² G³, placed in the planes of the segments F. A chain H
40 has one end attached at each one to the

hatches E, with the opposite end attached to adjustable eyebolt H², held in the segment F, the chain H' and the eyebolt H² passing between the end of the segment F and the guide-roll G². As the car B moves down-
55 ward the rolls I at the bottom of the car strike the curved ends G' of the levers G, depressing them into the position shown in the upper portion of Fig. 1, swinging the roll G² around the segment F, and causing the chain
60 H to be wound upon the segment F, with the chain passing over the rolls G² and G³ to the hatch E. By this arrangement the limited angular movement of the lever G takes up enough of the chain H to raise the
65 hatch E from a horizontal to a vertical position. Upon the sides of the elevator-car B are the metal strips J, which rub against the levers G as the car descends, holding the hatches open during the passage of the car.
70

The car B moves upon ways formed by the vertical guide-plates K, which are cut away above the floor, forming a recess to receive the hatches E when raised to a vertical position, and to the under side of the hatches E
75 are attached guide-strips K', in alignment with the vertical guide-plates K when the hatches are raised. The guide-plates K extend above the floor a short distance at each of the hatches, which are formed with a mortise L to receive the projecting ends of the
80 guide-plates when the hatches are closed, and the ends of the guide-plates K projecting through the floor are provided with notches a and shoulders b, forming a tongue c, which slightly overlaps the tongue d, similarly formed upon the lower end of the guide-strip
85 K', when the hatches are raised, bringing the shoulder b opposite the end of the tongue d, so as to support the hatches from being pushed downward in case the hinges E' become broken. When the hatches are closed, they fall over the ends of the guide-plates K, bringing the tongue d into the notches a.
90

In Fig. 4 I have shown a modified form of
95 the guide-plates K and strips K', which consists in forming a series of opposing steps, the steps e upon the lower end of the strips K', when the hatches are raised, resting upon the steps f, formed upon the guide-plates K.
100

The object of these steps is to support the strips *K'* from being pushed downward in case the upper ends of the strips are struck by a descending car. Recessed in the guide-
 5 posts *A* are the springs *g*, which are arranged to press against the elevated hatches and push them out of a vertical plane after the passage of the elevator-car, so as to insure their being carried down and closed by their
 10 own weight.

I am aware that it is not new to provide the guide-posts of an elevator with recesses to receive a hinged hatch, which carries upon its under side a guide-strip. Neither is it
 15 new to pivot a bell-crank lever upon the guide-posts, having one arm connected by a link with the hinged hatch and the opposite arm placed in the path of the moving car. I therefore claim neither of these features,
 20 broadly.

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

1. In an elevator, the combination, with a hinged hatch, of a pivoted lever *G*, a stationary
 25 arc *F*, and a flexible connection *H*, attached at one end to the hatch and at the opposite end to the stationary arc *F* and lying in the path of the vibrating lever, so as to be wound upon

the stationary arc as the lever is actuated by the moving car, substantially as described. 30

2. In an elevator, the combination, with a hinged hatch-door, of a stationary arc *F* and pivoted lever *G*, carrying rolls *G²* *G³*, and a flexible connection with one end attached to the hinged hatch and the opposite end attached
 35 to a fixed support and arranged in the plane of the stationary arc *F* and the rolls *G²* *G³*, so as to be wound thereon by the angular movement of the pivoted lever, substantially as described. 40

3. In an elevator, the combination, with the ways *K*, provided with the notches *a* and *b*, of hinged hatches *E*, and guide-strips *K'*, attached to the under side of the hinged hatches and notched to form the tongues *d*, arranged
 45 to engage the notch *a* when the hatch is closed and form an opposing surface to the notch *b* when the hatch is opened, substantially as described.

Dated at Worcester, in the county of Worcester, this 1st day of October, 1891. 50

JOHN A. DEAN.

Witnesses:
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 EMMA KESTER.