2 Sheets--Sheet 1.

J. W. MEAKER.

Elevator Hatchway Protectors.

No. 139,014. Patented May 20, 1873.

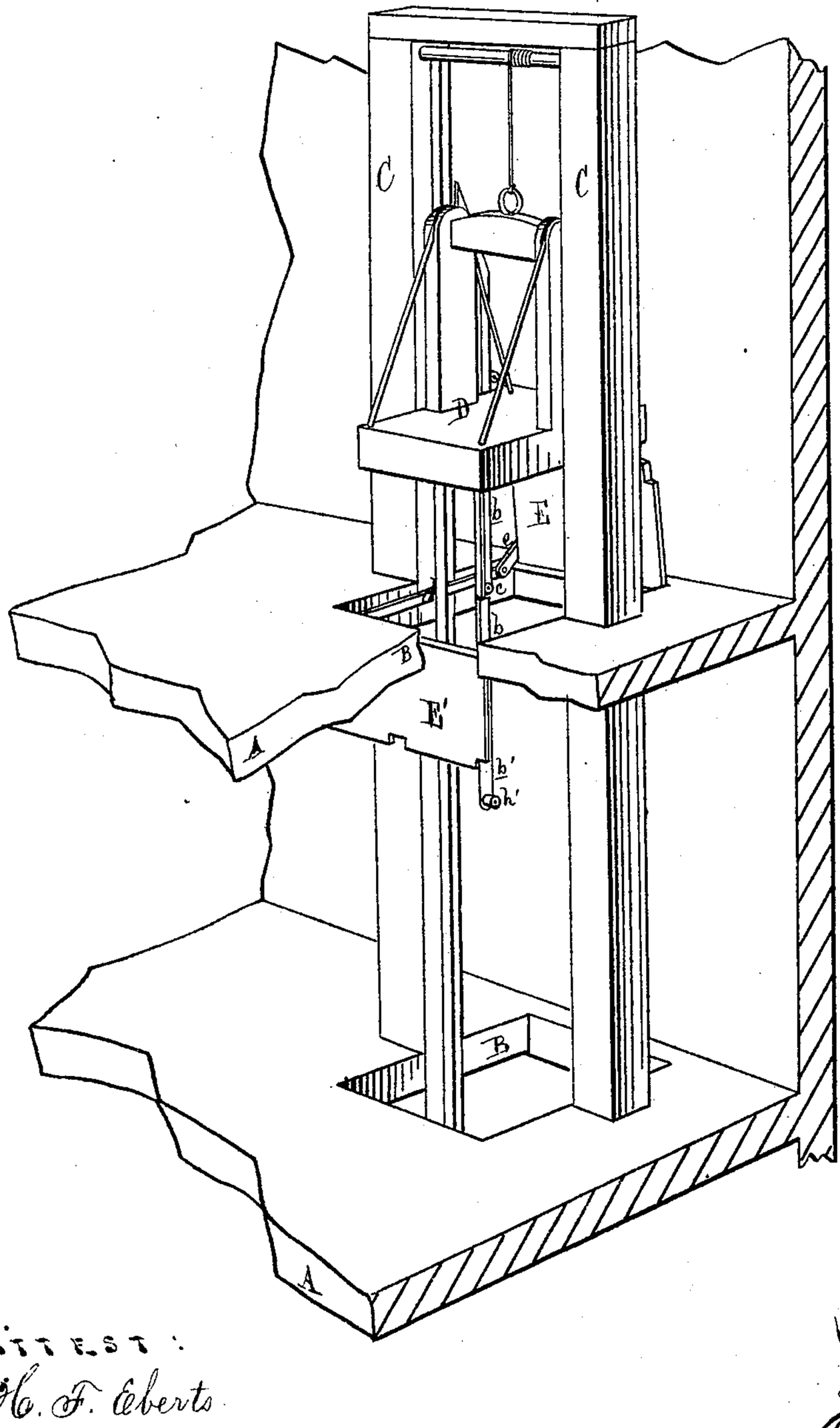

Fig. 1.

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2 Sheets--Sheet 2.

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Fig. 2.

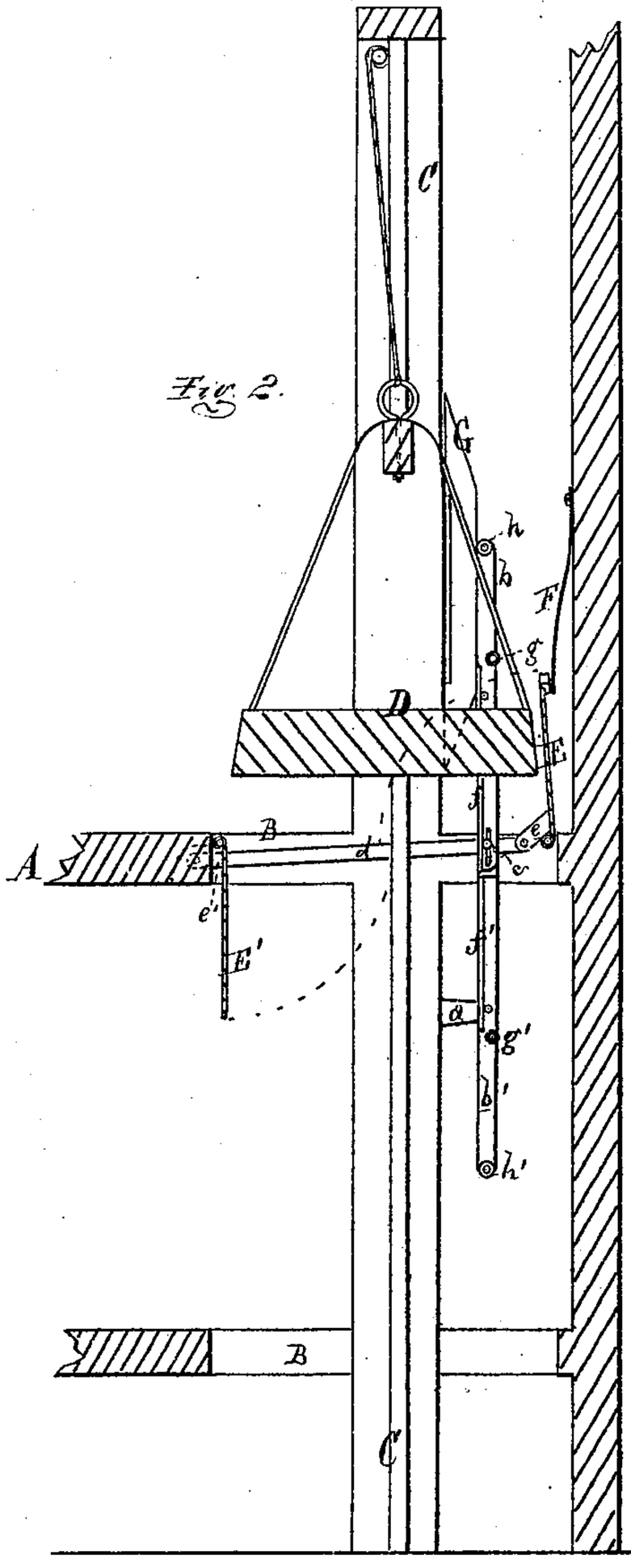


Fig. 3.

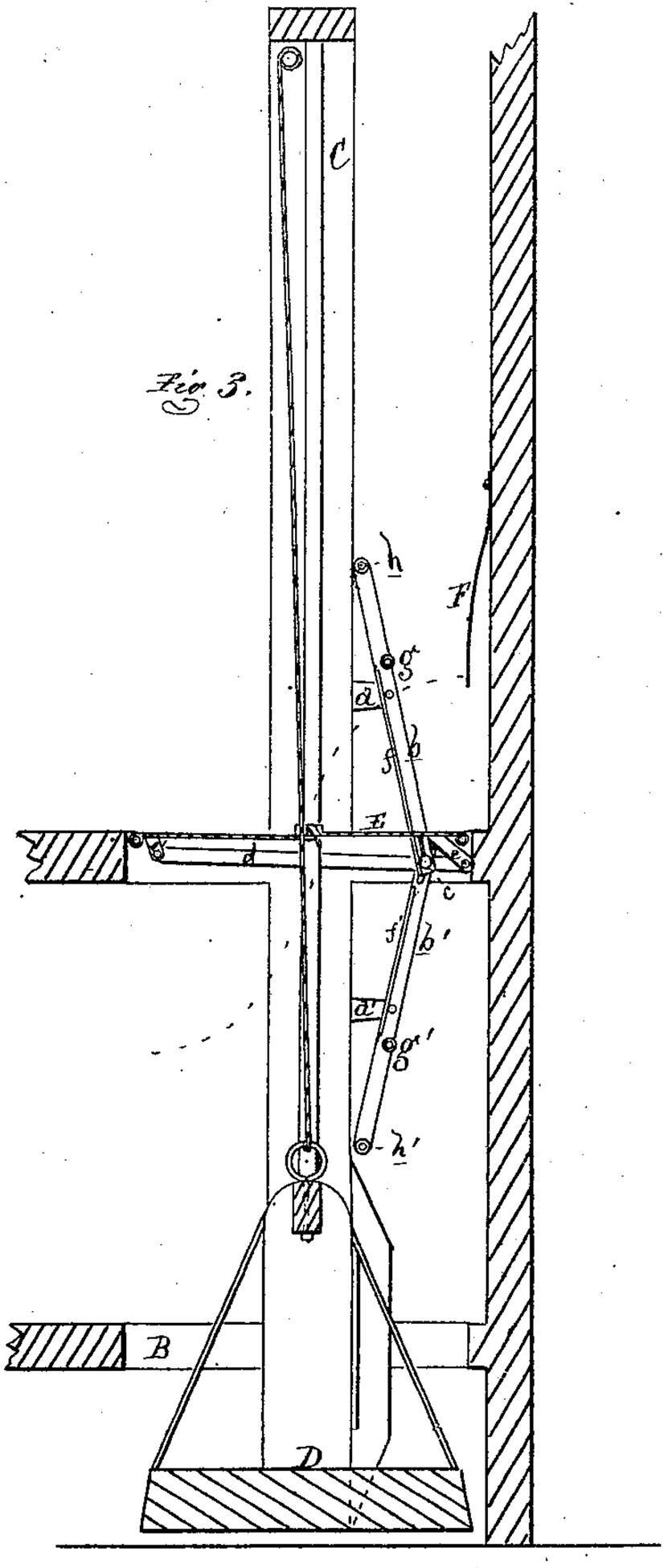
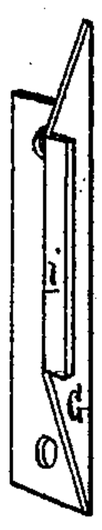


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN W. MEAKER, OF DETROIT, MICHIGAN.

IMPROVEMENT IN ELEVATOR-HATCHWAY PROTECTORS.

Specification forming part of Letters Patent No. **139,014**, dated May 20, 1873; application filed March 19, 1873.

To all whom it may concern:

Be it known that I, JOHN W. MEAKER, of Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Elevator-Hatchway Protectors; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1, Sheet 1, is a sectional perspective view of the elevator in a building, with one hatch fitted with my protector, the latter being shown opened by the passing platform. Fig. 2, Sheet 2, is a cross-section on *x x* in Fig. 1, showing the protectors open. Fig. 3 is a similar view, the protectors being closed by the platform which has passed down. Fig. 4 is a perspective view of the flanged cam-plate.

Like letters refer to like parts in all the figures.

The nature of this invention relates to certain devices attached to the guides and hatches of an elevator, which, in conjunction with a cam-plate on the moving platform, will automatically open and close protecting-doors in the hatches as the said platform passes through the several hatches. The invention consists in the construction and arrangement of a system of levers at each floor, actuating one or two doors hinged in each hatch-opening, for the purpose of opening the said doors as the platform approaches them, and for closing them after it has passed them in ascending or descending, and in connection with the said levers a flanged cam-plate on the moving platform, for actuating the said levers, and through them the doors, as more fully hereinafter set forth.

In the drawing, A A represent two of the floors in a building, in which are cut the hatchways B, up each side of which are erected the posts C, which serve as guides for the elevator-platform D in its vertical movement. The elevator shown is placed near the side wall of the building, and its door next the wall is arranged to open upward, and the other door to open downward. Where the hatches are away from the wall, both doors are arranged to open downward, so as to give free access to the hatch from both sides.

I will now proceed to describe the mechanism which actuates the first-mentioned protectors. E is a door, preferably of metal, hinged to the back edge or combing of the hatch, and is of such size as to close one-half of the said hatch. E′ is a similar door hinged to the front combing of the hatch to open downward, while the door E opens upward. *a* is a bracket bolted to and projecting backward from one of the posts C, above the floor. *a′* is a similar bracket below the floor, in like manner bolted to the same post. *b* is a lever pivoted to the bracket *a*, as shown. *b′* is a similar lever pivoted to the bracket *a′*. The ends of the levers *b b′* overlap one another, each of the ends having cut in it a longitudinal slot. A headed bolt, *c*, passing through both slots into a horizontal bar, *d*, connects or pivots the levers together, and to the bar *d*, which at one end is pivoted to an arm, *e*, projecting from the edge of the door E, and at the other end is pivoted to a similar arm, *e′*, projecting from the door E′. The inner edge of each bar *b* and *b′* has a flange turned at a right angle with the body projecting toward the other side of the hatchway, as shown at *f f′*. At the ends of the flanges a friction-roller, *g* or *g′*, is placed on a stud on the face of the levers *b b′*. When the levers *b b′* are brought into a straight perpendicular line, the doors E E′ will be opened, as seen in Fig. 2; but the weight of the door E and bar *d*, when the levers are free, will raise the door E′ as the door E drops, the levers assuming the position shown in Fig. 3. F is a half-leaf spring, which may be placed on the wall to throw forward the door E out of its vertical position and assist it to close when free to do so. G is a metal plate vertically secured to the stile of the platform, with its ends sloped away, converting it into a cam. At the edge of the shortest straight side it is turned outwardly to form a flange, *i*. At the top end of the lever *b*, a friction-roller, *h*, is journaled thereon. At the lower end of the lever *b′*, a similar roller, *h′*, is journaled on its face.

The platform being in the position shown in Fig. 3, when drawn upward the wedge-shaped

end of its cam-plate, coming into contact with the friction-roller h', gradually brings the levers into a vertical position and opens the gates, which are kept open by the flange i passing behind the flanges of the levers b b' successively, the gates being closed as soon as the wedge-shaped lower end of the cam G passes above the roller h at the top of the lever b. A reverse movement of the platform opens and closes the gates as it passes down through the hatchway.

A self-acting lock may be applied to the doors to lock the one to the other when closed.

Where both doors are to drop in opening the hatch, two cams are placed on the platform facing in opposite directions, each acting on the system of levers described, applied to open and close the door which it faces, being connected therewith by a separate bar, d, instead of the latter acting on both doors. Each door has a notch in the middle of its edge for the elevator hoist-rope to pass through. By having the doors open in opposite directions, the one door balances the other, and thus but little power is required to open them, which is an important feature where the elevator is operated by hand-power.

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

1. The brackets a a', levers b b', provided with the flanges f f' and friction-rollers g g' h h', the said levers being pivoted to the bar d, which in turn is pivoted to the arms e e' on the doors E E′, hung in opposite sides of a hatchway, and actuated by a flanged cam-plate, G, on the moving platform D, substantially as described and shown, and for the purpose set forth.

2. The doors E E′, hung in an elevator-hatchway so as to open in opposite directions by the cam G actuating a system of levers, substantially as herein described, for the purpose of having one door balance the other, as described and shown.

JOHN W. MEAKER.

Witnesses:

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