(No Model.) 3 Sheets—Sheet 1.

O. L. DAVIS.

DOOR GUARD FOR ELEVATOR WELLS.

No. 387,496. Patented Aug. 7, 1888.

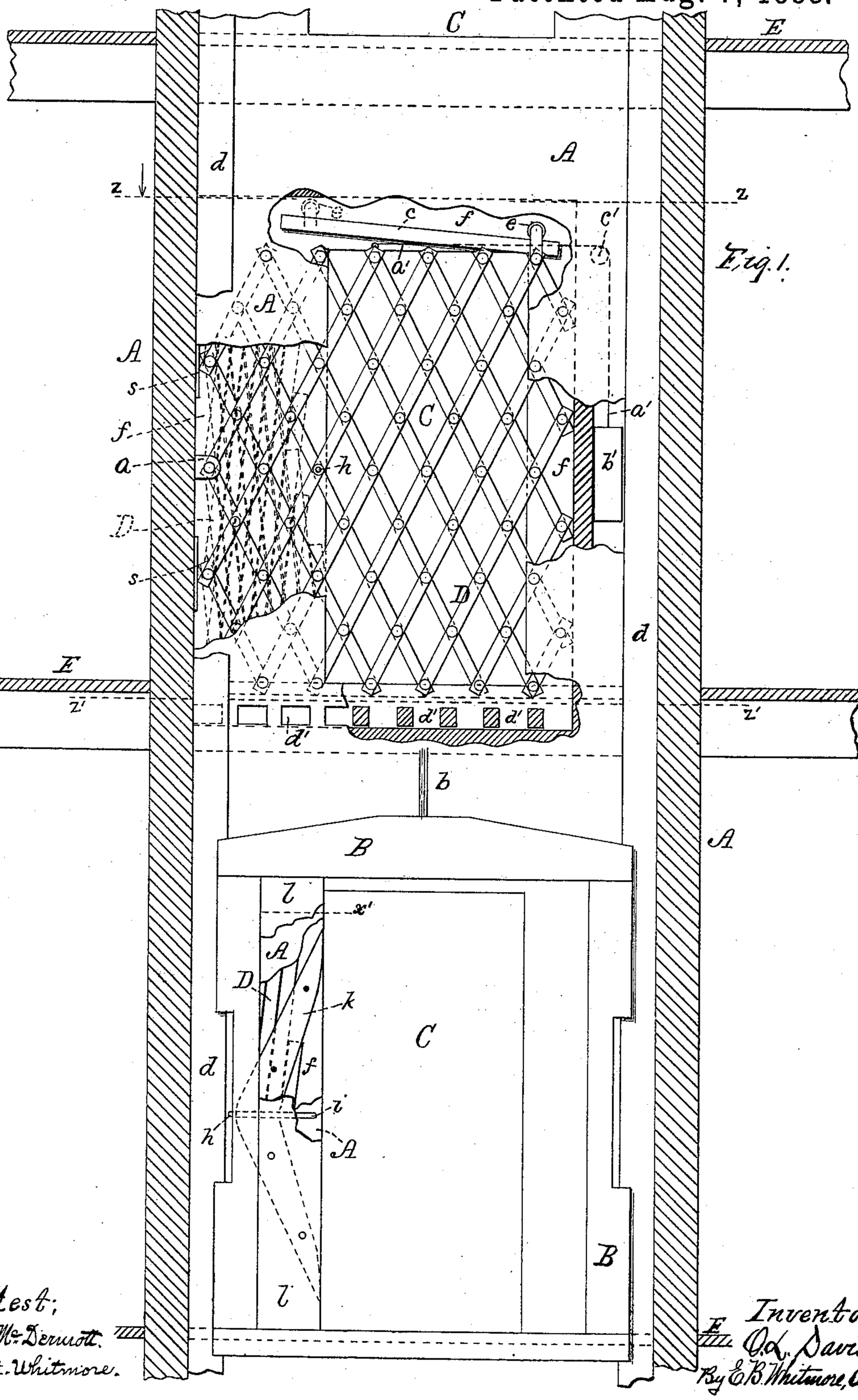

Fig. 1.

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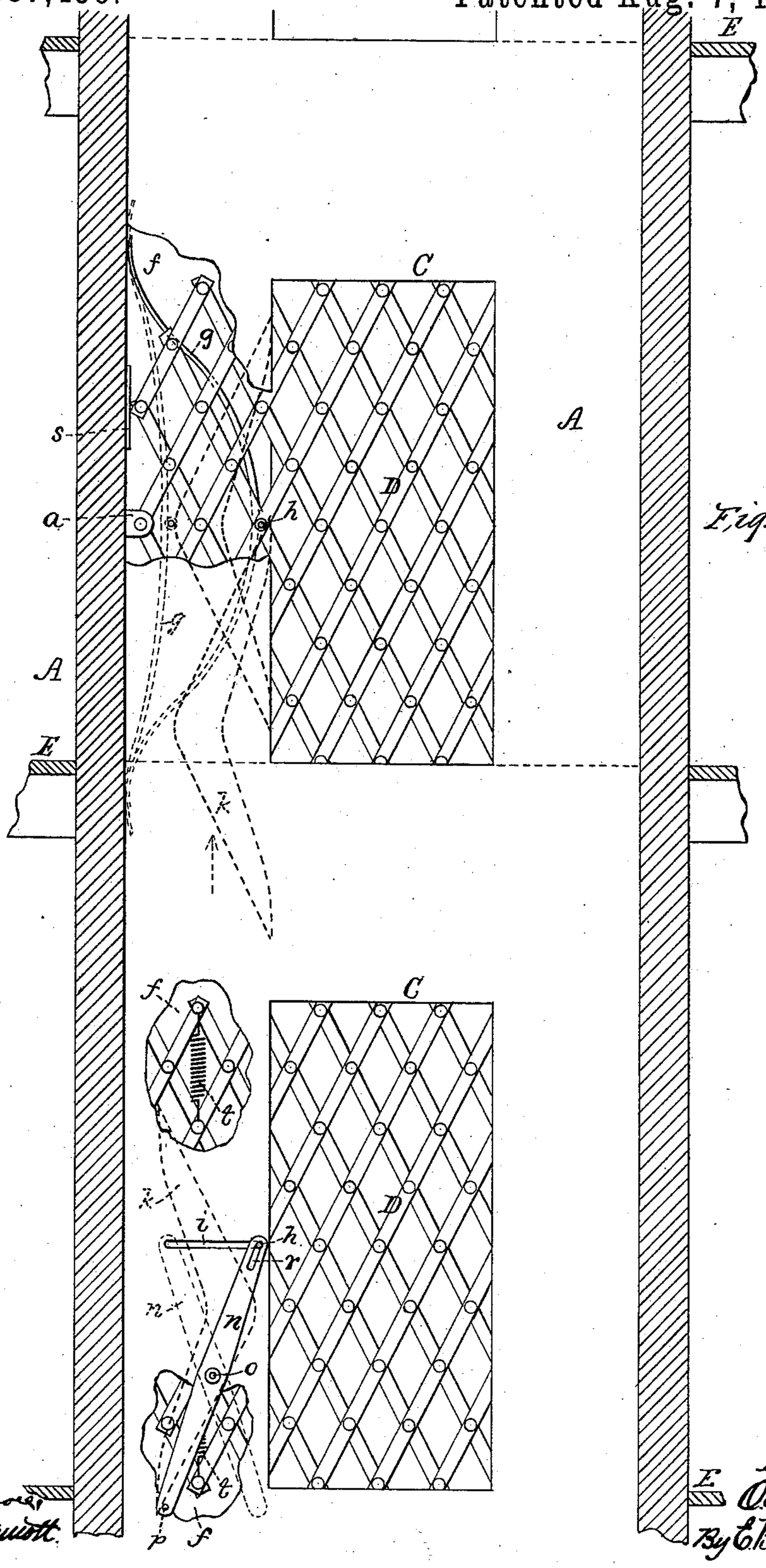

Fig. 2.

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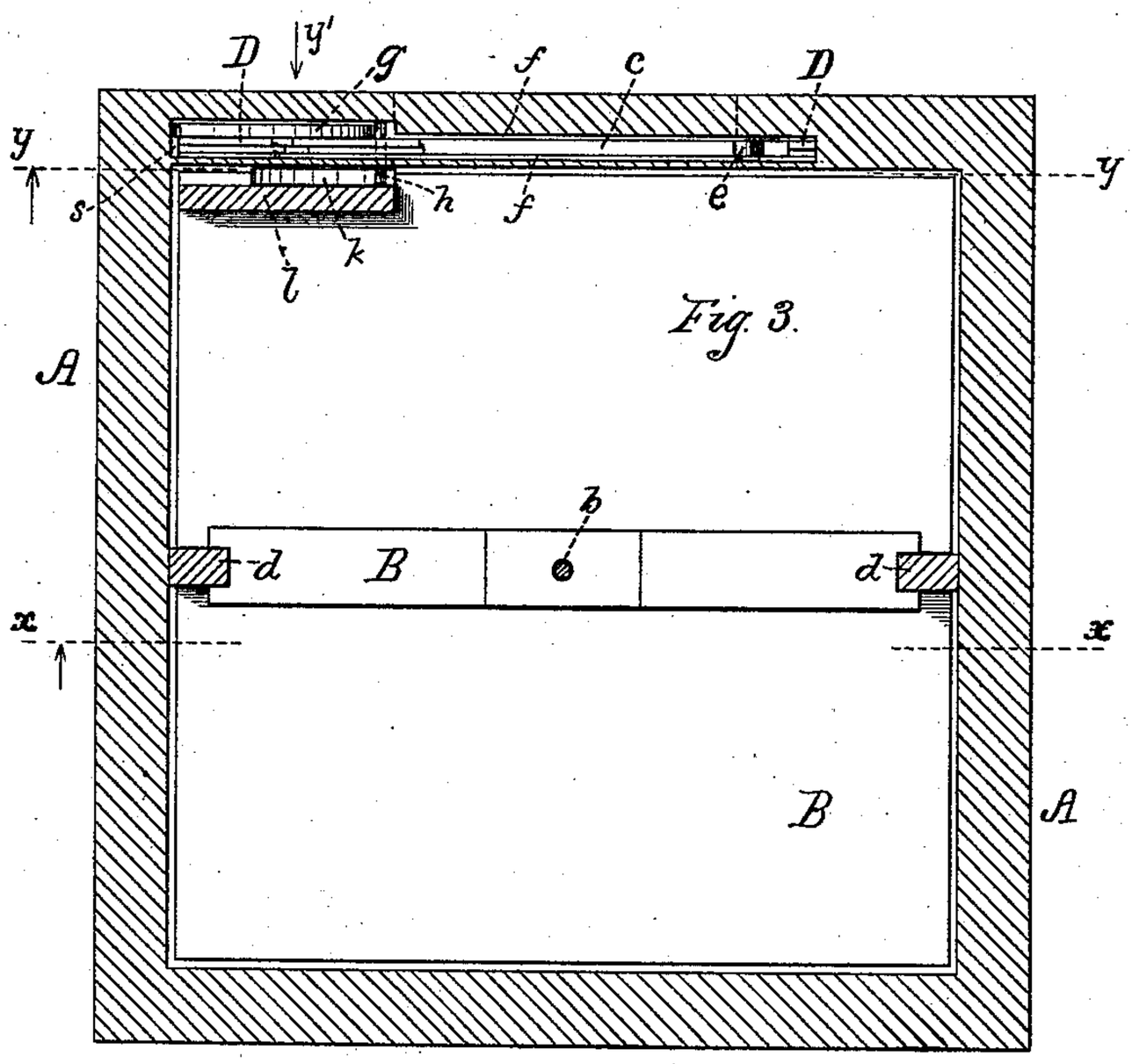

Fig. 3.

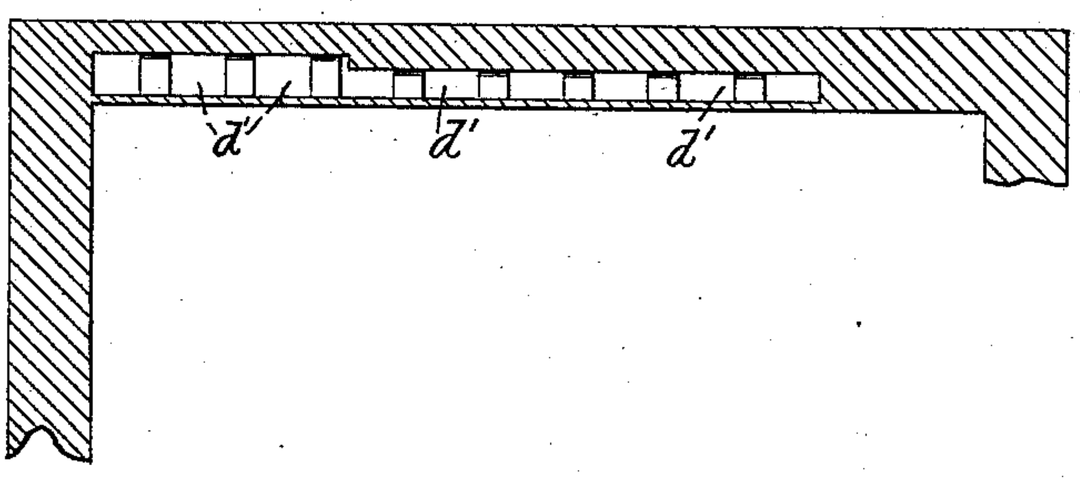

Fig. 5.

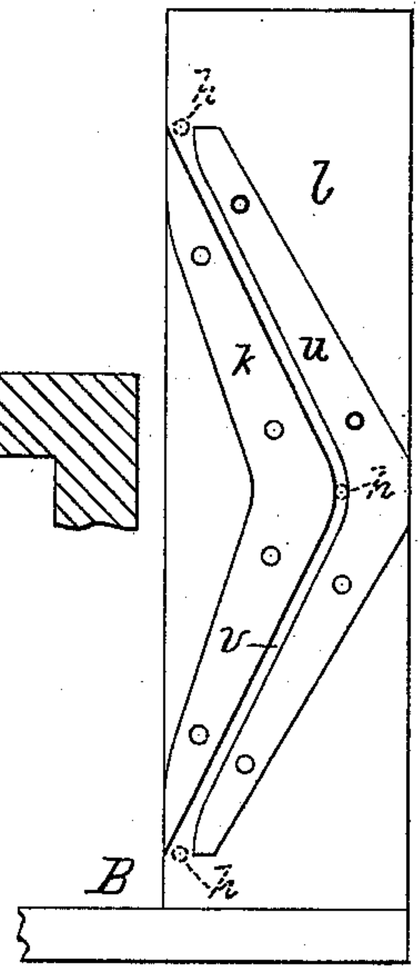

Fig. 4.

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Inventor:
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UNITED STATES PATENT OFFICE.

ORION L. DAVIS, OF ROCHESTER, NEW YORK.

DOOR-GUARD FOR ELEVATOR-WELLS.

SPECIFICATION forming part of Letters Patent No. 387,496, dated August 7, 1888.

Application filed December 5, 1887. Serial No. 257,003. (No model.)

To all whom it may concern:

Be it known that I, ORION L. DAVIS, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Door-Guards for Elevator-Wells, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

My invention relates to doorway-guards for the wells of freight-elevators more especially and the method of operating the guards by the moving car.

The object is to provide an expansible gate or guard for each doorway, having springs, cams, and other devices to open and close said guard, the invention being hereinafter fully described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a vertical section of an elevator-well and adjacent floors of the building, taken on the dotted line *x x* in Fig. 3, and viewed as indicated by the arrow pointed thereon; Fig. 2, a similar view, the section being on the dotted line *y y* in Fig. 3, drawn to further show the means for operating the gate or guard; Fig. 3, a transverse section of the well, taken on the dotted line *z z* in Fig. 1, the upright for holding the operating-cam being sectioned on the dotted line *x'* in Fig. 1; Fig. 4, a view of the upright for holding the cam, seen in the opposite direction to that in which it is seen in Fig. 1, or as indicated by arrow *y'* in Fig. 3; and Fig. 5, a cross-section of the well on the dotted line *z' z'* in Fig. 1, drawn to further show the dust-openings below the gate.

Referring to the parts, A represents the walls of an elevator-well; B, the car; C the doorways through the walls; D, the gates or guards to close said doorways, and E the floors of the building. The car, which is of common kind, is moved vertically along vertical guides *d* by a cable, *b*, in the usual manner. The gate is formed of the lazy-tongs style and held to expand and contract horizontally for the purpose of closing or opening the doorway, the gate being held in a vertical cavity, *f*, in the wall of the well. The gate is held by a strong holder, *a*, at one side of the doorway within the cavity *f* by means of a pivot-pin inserted at the intersection of two of the slats, from which it moves forward across the doorway, as shown in full lines in Fig. 1, or back within the broad part of the cavity *f*, as shown in dotted lines.

c is an inclined bar or track for supporting the weight of the forward part of the gate, said bar forming a track upon which a supporting-roller, *e*, rolls as the gate is moved forward or backward. From the pivotal motion of the slats of the gate as the latter is expanded the upper part slightly falls and rises again as the gate is contracted. The bar or track *c* is inclined to correspond to this rise and fall of the top of the gate, so that the latter may be equally supported in all positions.

g, Figs. 2 and 3, is a spring placed beside the gate on the opposite side from the well within the cavity *f* in position to bear against a projecting horizontal pin, *h*, passing through one of the points of intersection of the slats of the gate, said spring having its ends bearing against the wall of the well. The pin *h* is on a horizontal line with the holder *a*, and the action of the spring tends to force the pin farther away from the holder *a* or to expand the gate and close the doorway. This pin also projects from the gate toward the interior of the well, which end reaches through a horizontal slit, *i*, in the wall of the well.

To contract the gate for the purpose of opening the doorway, a pressure must be brought upon the pin in a direction opposite to that exerted by the spring. This I effect by providing a vertical cam, *k*, secured to the car in position to act upon the pin as the car passes, the cam being secured to an upright timber, *l*, of the car in position to bear against the pin. In Fig. 2 the cam is shown in dotted lines in its position when about to engage the pin, which latter, with the gate, from the form of the cam, is forced to the left as the cam ascends, compressing the spring and opening the doorway by contracting the gate to the position shown in dotted lines in Fig. 1. The actuating-cam may be a single piece, *k*, or two corresponding pieces, *k u*, as shown, this being mainly a matter of convenience. When both parts are used, they are placed so as to form a parallel race, *v*, between them, along which the pin *h* moves as the car passes. The part *u* of the cam when used serves to steady the

pin and the movement of the gate by preventing the pin from bounding when encountered by the part *k* of the cam. It also acts to assist the spring to close the gate. By these means each doorway is kept closed or guarded by the gate except when the car is present.

I find it sometimes desirable to place the cam at the lower part of the car, in which case I employ a lever, *n*, Fig. 2, to act directly upon the pin *h*, the cam operating the door by means of the interposed lever. The lever is pivoted at *o* to the wall of the well beneath the slit *i*, its upper end holding the pin *h* within a longitudinal slot, *r*. The lever is provided with a projecting pin, *p*, at its lower end, against which the cam acts exactly as if it were the pin *h*, except that the cam is reversed, as shown in dotted lines at the lower part of Fig. 2.

The pin *h*, resting in the slit *i*, acts as a support for the gate, and should said gate in some construction of elevators be required to be placed farther back from the inner face of the wall of the well than here shown the pin may be lengthened or other simple mechanical means employed to connect the lever with the gate thus more distantly placed.

In addition to or in place of the elliptical spring *g*, spiral springs *t* may be employed for closing the gate. These are attached to adjacent pivot-pins of the slats of the gate, as shown in Fig. 2 in vertical lines, so as to tend to pull said pivot-pins toward each other, which act to expand the gate and throw it forward across the doorway. A greater or less number of these simple springs may be employed, hidden within the cavity *f*, to operate a gate.

As an additional means for closing the gate, I employ a weight, *b'*, suspended by a cord, *a'*, extending over a pulley, *c'*, and attached to one of the upper angles of the gate, as shown in Fig. 1.

s shows vertical strips of metal in the cavity *f* both above and below the holder *a* for the gate, against which the angles of the gate bear. Those below the holder act with the supporting-roller *e* to prevent the gate from sagging at its front edge, and all of them serve in the capacity of anti-friction slides for the slight vertical motions of the gate resulting from its expansions and contractions as it is closed or opened.

Below the gate openings *d'* are formed, communicating between the well and the cavity *f*, to allow accumulated dirt or dust to escape that might otherwise collect in the cavity and interfere with the free movement of the gate.

What I claim as my invention is—

1. In combination with an elevator-car provided with a vertical cam, a movable gate for a doorway of the well hinged or pivoted at one side of said doorway and provided with a projecting pin to be acted upon by said cam to move said gate toward one side, and a spring or springs bearing upon said gate, so as to move the latter in the opposite direction, substantially as shown and described.

2. A laterally-operating gate of the lazy-tongs form for an elevator-well, consisting of slats crossing each other and joined by pivot-pins at the points of intersection, said gate being provided with a projecting pin, in combination with a lever pivoted to the wall of the well in position to bear upon said pin, and an elevator-car provided with a cam to act upon said lever, said wall of the well being formed with a slit, *i*, and a rest for said pin, substantially as shown and described.

3. In combination with an elevator-car provided with a vertical cam, a laterally-expansible gate for a doorway of the well hinged or pivoted at one side of said doorway and provided with a projecting pin to be acted upon by said cam, an inclined track, and a supporting-roller for the gate resting upon said track, substantially as shown.

4. A gate for the doorway of an elevator-well, consisting of oppositely-inclined slats crossing each other and joined by pivot-pins at the points of intersection, said gate being held at one side of said doorway and provided with a projecting pin, in combination with a car having a vertical cam to act upon said projecting pin, and springs connecting said adjacent pivot-pins in vertical lines, so as to draw said connected pivot-pins toward each other to close the gate, substantially as described.

ORION L. DAVIS.

Witnesses:
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M. L. MCDERMOTT.