

(No Model.)

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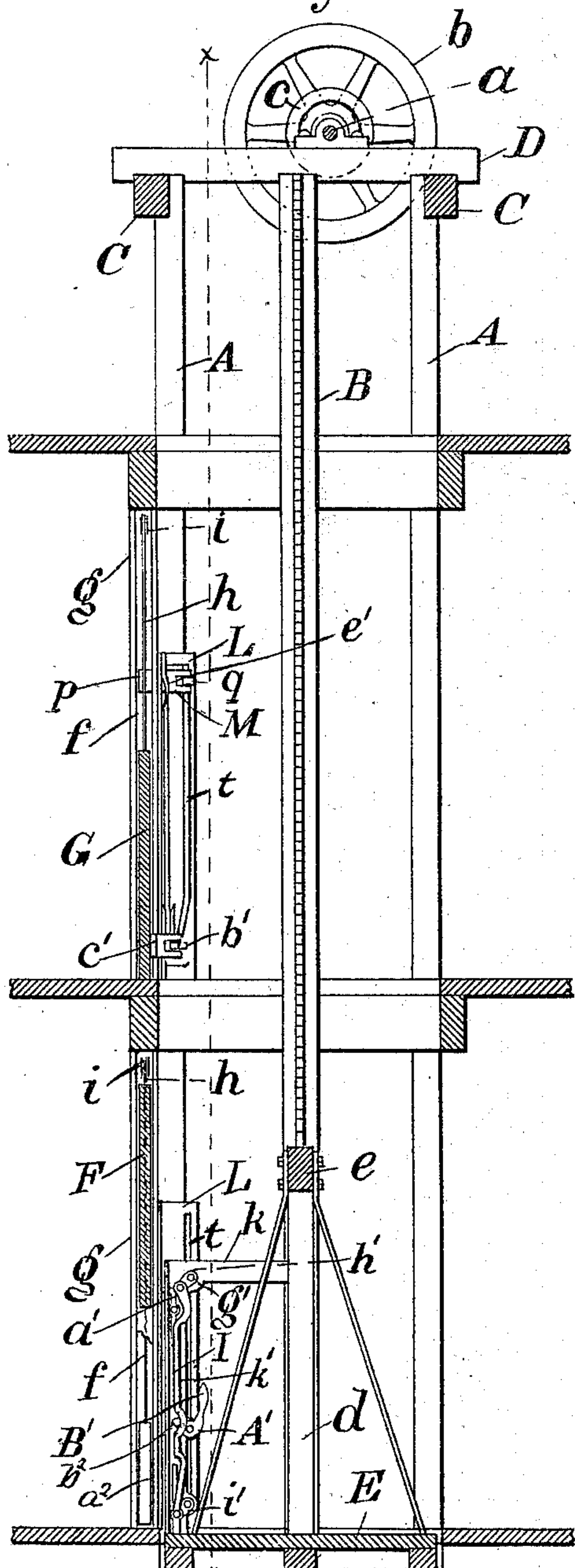
J. D. LIDDELL & W. H. DASHIELDS, Jr.

DEVICE FOR OPERATING VERTICALLY SLIDING DOORS OF ELEVATOR SHAFTS.

No. 559,180.

Patented Apr. 28, 1896.

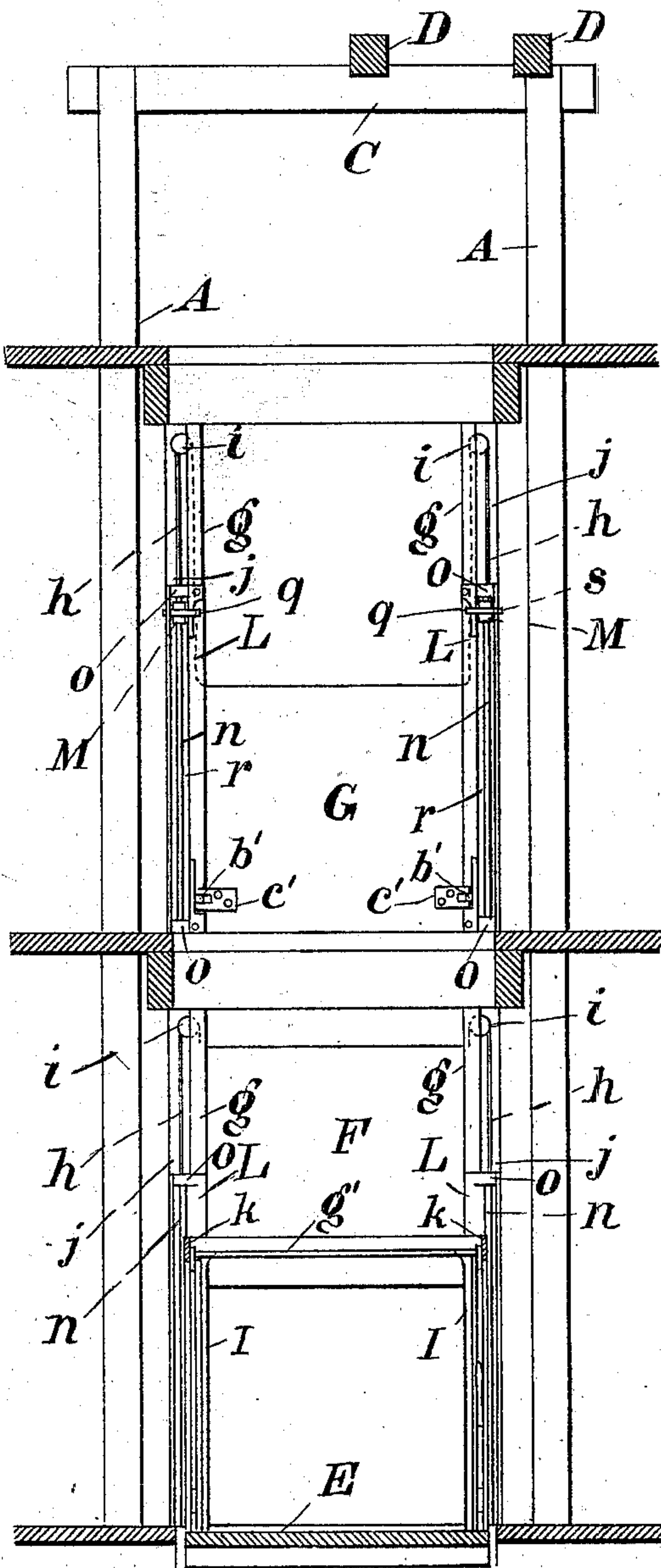
Fig 1.



-WITNESSES-

Dan'l Fisher
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Fig 2.



-INVENTORS-

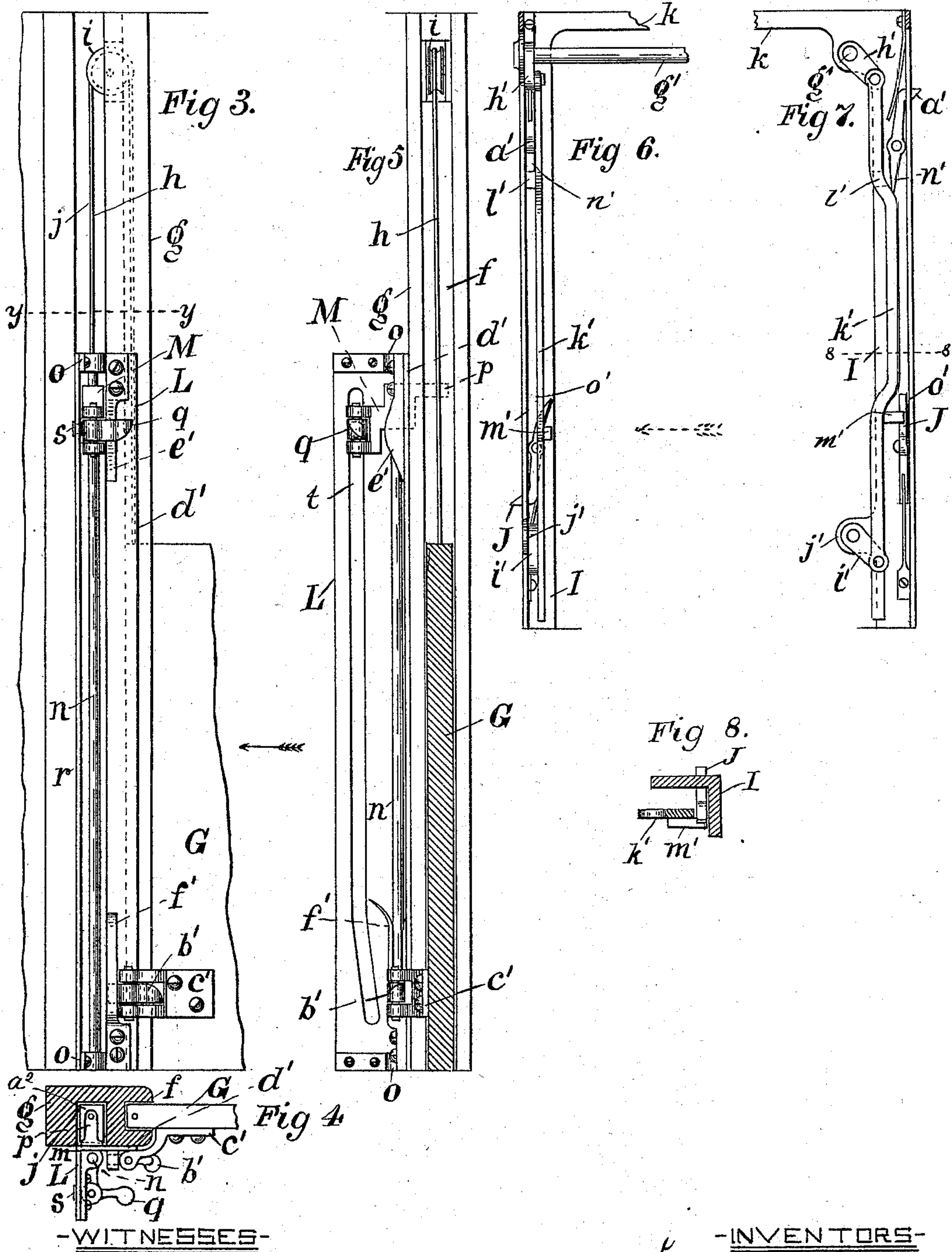
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UNITED STATES PATENT OFFICE.

JOHN D. LIDDELL AND WILLIAM H. DASHIELDS, JR., OF BALTIMORE,
MARYLAND.

DEVICE FOR OPERATING VERTICALLY-SLIDING DOORS OF ELEVATOR-SHAFTS.

SPECIFICATION forming part of Letters Patent No. 559,180, dated April 28, 1896.

Application filed May 25, 1895. Serial No. 550,632. (No model.)

To all whom it may concern:

Be it known that we, JOHN D. LIDDELL and WILLIAM H. DASHIELDS, Jr., of the city of Baltimore and State of Maryland, have invented certain Improvements in Devices for Operating the Vertically-Sliding Doors of an Elevator-Shaft, of which the following is a specification.

In the description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a vertical section of the improved apparatus. Fig. 2 is a vertical section of Fig. 1, taken on the dotted line $x x$. Fig. 3 is an enlarged elevation of a portion of one of the uprights forming a part of the elevator-shaft, together with a part of the door and its operating attachments. Fig. 4 is a cross-section of Fig. 3, taken on the dotted line $y y$. Fig. 5 is a view of Fig. 3, looking in the direction indicated by the arrow in full lines. Fig. 6 is a view of a portion of the door-elevating mechanism looking from the platform toward the sliding vertical door. Fig. 7 is a view of Fig. 6, looking in the direction indicated by the dotted arrow.

Referring now to the drawings, A and B are the uprights, which support the stringers C and the sills D, which latter sustain the shaft a , upon which are secured the sheaves b and c . Over the sheave b is rove a rope (not shown) which controls the valve of the elevator-engine, and to the one c is attached the rope (also not shown) by which the platform E is suspended. The platform E has the usual framework, consisting of the standards d and the cross-beam e .

F is the door for the lower floor, and G the door for the floor above. These doors slide in grooves f , formed in vertical jamb-pieces g .

The doors F and G are provided each with a cord h at either side thereof, which passes over a roller or sheave i in the jamb-piece g , and at the ends of the cords are weights a^2 , (shown in Fig 1) in which a part of the frame is removed to expose them, which are for the purpose of counterbalancing to some extent the weight of the doors. The cords and

weights are in rabbets j in the jamb-pieces g . (See Figs. 3 and 4.) A top view of one of the weights a^2 is shown in Fig. 4.

The two corners of the platform next to the sliding door are each provided with an angle-iron bar I, which extends from the platform to a point somewhat lower than the beam e . These angle-iron bars are united together and to the standards d of the platform by means of a bar k , the whole forming a frame. (See Figs. 1, 6, and 7.)

J J are pawls pivoted in the angle-bars I with their points projecting through holes in the same. The pawls are spring-held, so that their normal position is an extended one, as shown in Fig. 6.

L L are other angle-iron bars, situated exteriorly of the elevator-platform and in the corners formed by the uprights A and the jamb-pieces g . The plates or flanges of the angle-iron bars L are slotted, and near to the angle m is a vertical rod n . The ends of these rods are secured to lugs o .

M M are blocks adapted to slide vertically on the rods n , having tailpieces p , which project through the slots r in the angle-iron and into the rabbets j in the jamb-pieces g . The ends of these tailpieces are attached to the cords h of the door. Consequently when the blocks M are lowered the doors are raised, and vice versa. To these blocks M are pivoted catches q , having tailpieces s , which slide in the slots t in the other flange of the angle-iron bars L. These slots t are vertical, except near to the bottom, where they are inclined, as shown in Fig. 5. When the tailpieces s are in the vertical part of the slots t , the catches are in alinement with the pawls J, and then the pawls in the lowering of the platform serve to depress the catches and thereby open the doors; but when the tailpieces enter the inclined portion of the slots the catches are gradually turned around, so as to deflect them out of the path of the pawls, and when the catches are fully turned the doors fall by reason of their own weight.

The normal position of the lower door F is an elevated one when the platform is down, but as the platform is raised the pawls are

lifted, and the catches following them the door falls by its own weight. As the platform reaches the door G of the upper floor it has to open it; and to this end the angle-iron bars I are provided near to their upper ends with other spring-held pawls a' , which come into contact with catches b' , pivoted to brackets c' , secured to the door. These catches are normally in the path of the spring-held pawls a' , and as soon as the pawls come into contact with them the door G is raised; but in order that the door G may be lowered when the platform has passed the second floor the flanges d' of the angle-iron bars L have rounded projections e' , which as the tailpieces of the catches b' come into contact therewith deflect said catches, and the catches being moved out of the path of the pawls a' the door falls of its own weight.

In order that the catches may be replaced or restored to the position wherein they will come into contact with the pawls as the platform again passes the second floor in an upward direction, the flange d' at its lower end has a deflecting-strip f' , between which and the said flange the tailpieces pass on the fall of the door.

In some cases it is advisable to pass certain of the floors without opening the doors thereat, and to provide for such a requirement the bars k have a cross-shaft g' , the ends of which rest in suitable bearing-boxes. On this shaft and immediately within the bar k are keyed arms h' , and these arms are connected by means of links k' to similar arms i' , pivoted to studs j' , projecting from the angle-iron bars I. These links have offsets l' and m' , which, as the arms are thrown outward by means of the handle hereinafter referred to, move into the path of the pawls a' and J and come in contact with their tailpieces n' and o' . By this means the points of the pawls are drawn in and made inoperative to move the latches by which the doors are operated. The movement of the links k' , as before referred to, is effected by the bent lever A' , one arm of which is connected to one of the links and the other provided with a handle B'. The said lever is

fulcrumed at b^2 to the adjoining flange of the angle-iron bar L. (See Fig. 1.)

Supposing the elevator-platform to be in its lowest position, as shown in the drawings, and the door-opening mechanism to be operative upon the rising of the platform the pawls J in ascending allow the catches q to rise, and the door F falls by its own weight. As the platform reaches the second floor the pawls a' , which project in a direction at a right angle with that of the others, J, coming in contact with the catches b' , which project from the door G, and the door is therefore opened and remains open until the tailpieces of the catches strike the rounded projections e' when the catches are thrown around out of contact with the pawls and the door falls by its own gravity. On the return or descent of the platform the pawls J strike the upper catches q , which are indirectly attached to the cords h of the upper door, and carry them down, thus opening the door; but when the tailpieces s of these upper catches q enter the inclined portion of the slots t the catches are turned around and detached from the pawls, and the door falls. As the platform continues to descend and it approaches the lower floor the door F is acted upon and opened, as was the one G, and it remains open until the platform is again raised.

We claim as our invention—

In combination with an elevator-platform and a door with counterbalancing cords and weights, movable catches on the doors and other catches attached to the counterbalancing-cords, spring-held pawls on the frame of the platform adapted to engage with the said catches, devices to deflect the said catches out of the path of the spring-held pawls as the door reaches its highest position, and other devices to restore the said catches to their normal position on the closing of the door, substantially as specified.

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Witnesses:

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