

(No Model.)

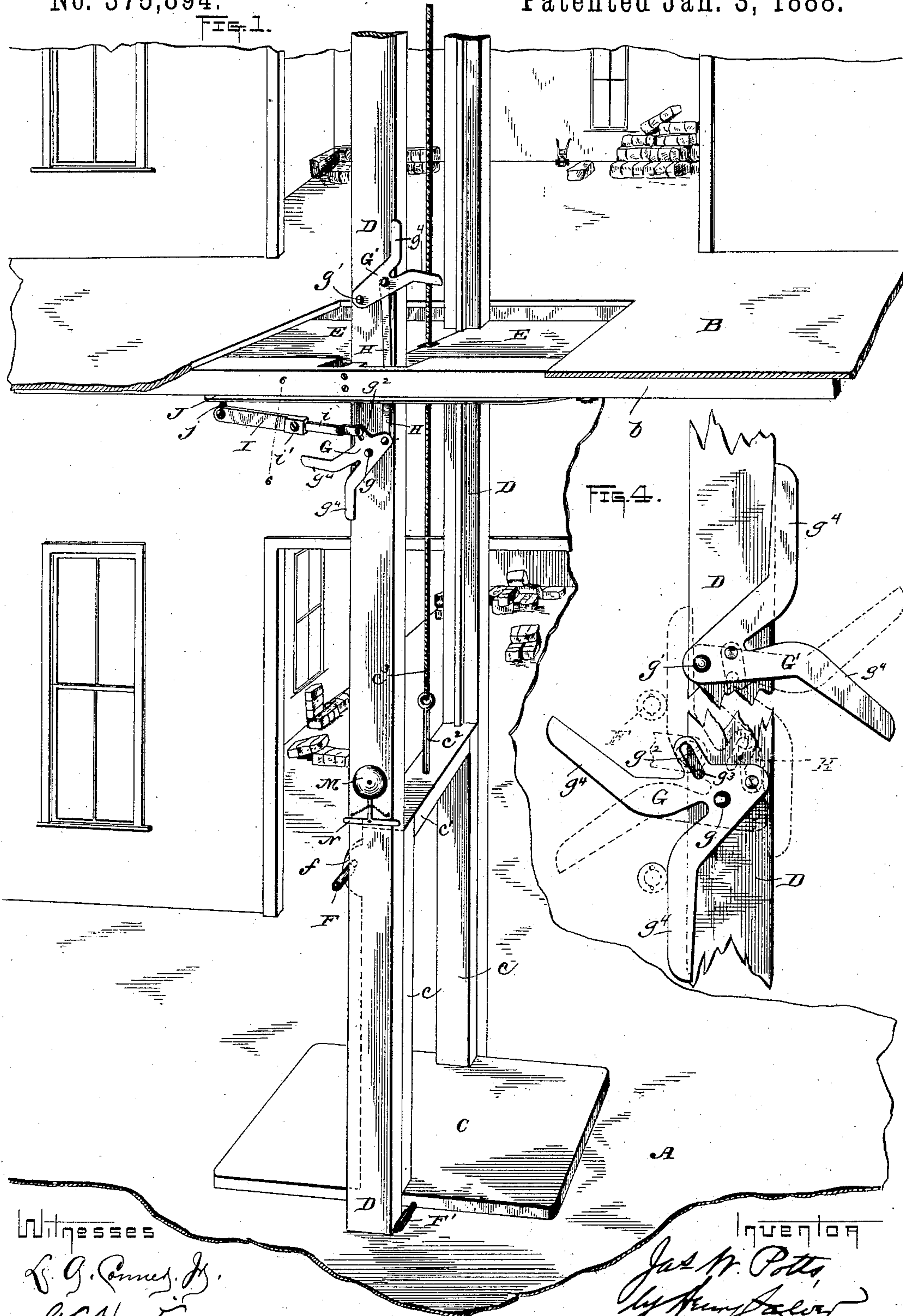
2 Sheets—Sheet 1.

J. W. POTTS.

DEVICE FOR AUTOMATICALLY OPERATING HATCHWAYS FOR ELEVATORS.

No. 375,894.

Patented Jan. 3, 1888.



Witnesses

L. G. Conner, Jr.
G. C. Huntington

Inventor

Jas. W. Potts
By *Henry A. Jones* atty.

(No Model.)

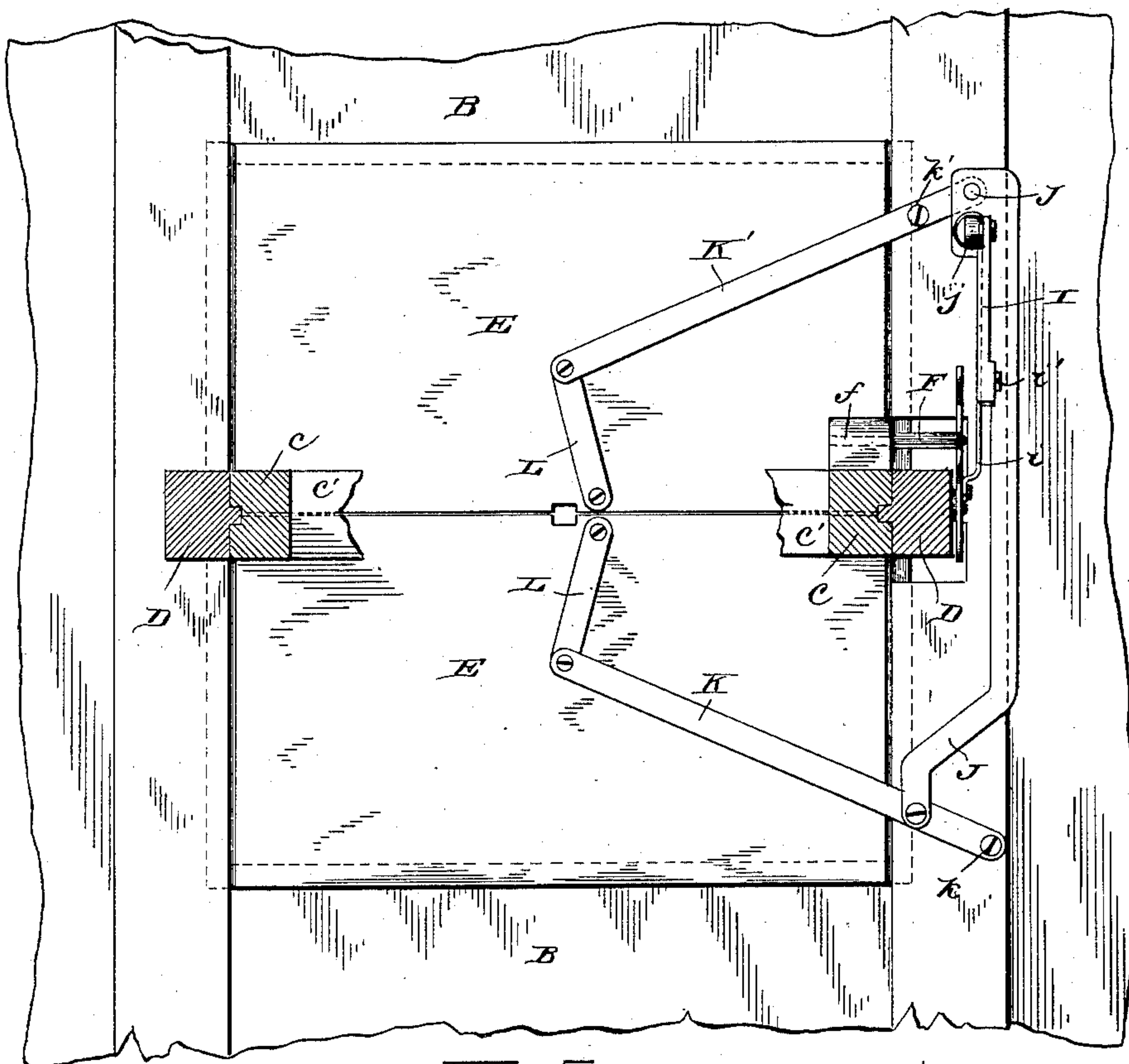
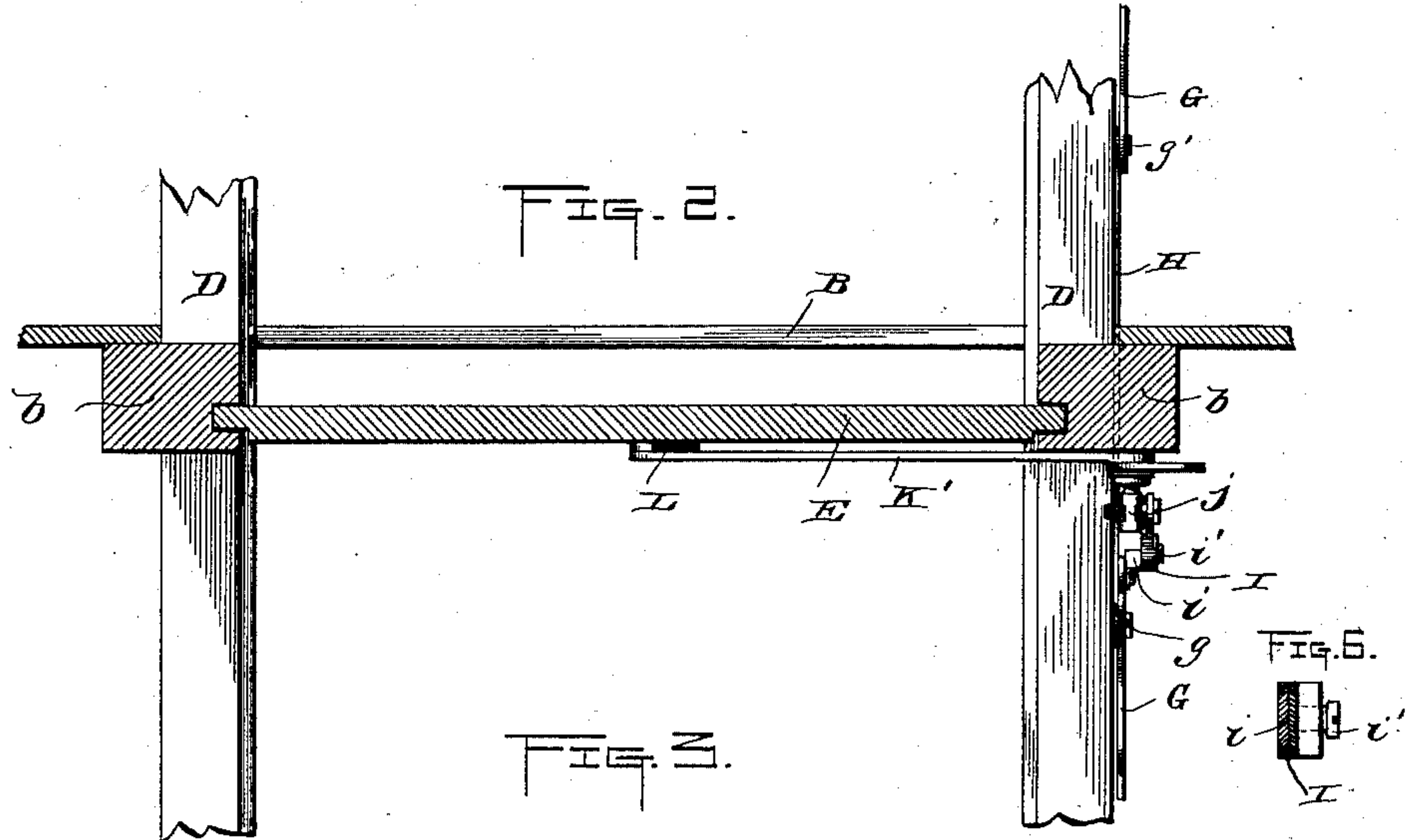
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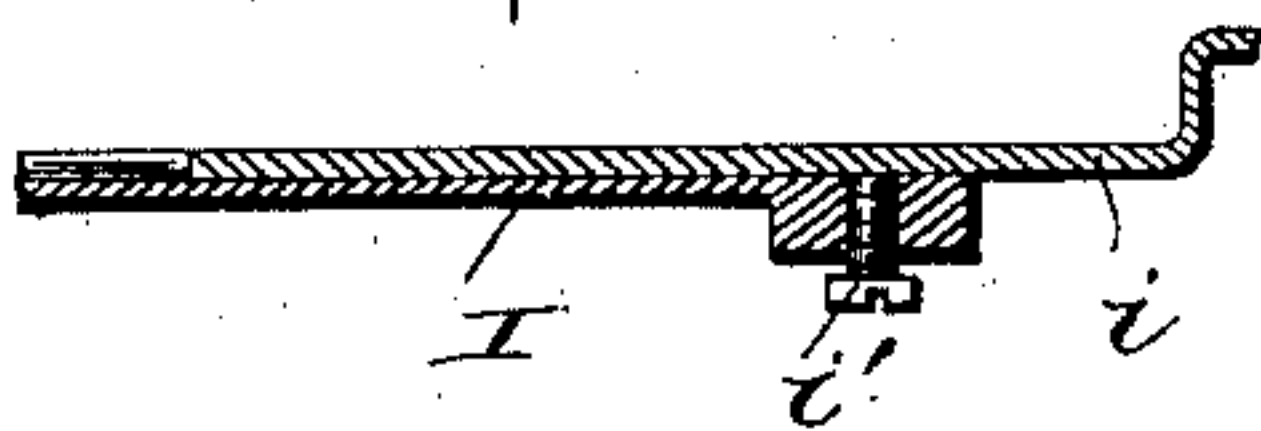
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Witnesses

G. G. Jones &
J. C. Huntington.

FIG. 5.



Inventor

Jas W. Potts
by *[Signature]* Att'y.

UNITED STATES PATENT OFFICE.

JAMES W. POTTS, OF ST. JOSEPH, MISSOURI, ASSIGNOR OF ONE HALF TO
JOHN P. STRONG, OF SAME PLACE.

DEVICE FOR AUTOMATICALLY OPERATING HATCHWAYS FOR ELEVATORS.

SPECIFICATION forming part of Letters Patent No. 375,894, dated January 3, 1888.

Application filed May 17, 1887. Serial No. 238,493. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. POTTS, a citizen of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented certain new and useful Improvements in Automatically Operating Hatchways for Elevators, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to what are known as "self-opening" hatchways for freight-elevators, or hatchways which are opened on the approach of the carriage or car by a mechanism which is operated by the car, or a device moving therewith; and my object is to provide an efficient and inexpensive mechanism for the purpose mentioned, by which the hatchways will be opened as the car approaches the same, either from above or below, and will be closed as soon as the car has passed. I also prefer to provide an alarm which will be automatically sounded as the car is approaching the hatchways from either direction to give notice to any persons who may be on or near the hatchway-doors.

In the accompanying drawings, Figure 1 is a perspective view illustrating my invention. Fig. 2 is a vertical section through a hatchway. Fig. 3 is a bottom view of a hatchway, showing part of the operating mechanism. Figs. 4, 5, and 6 are detail views, the last-named figure being a section on line 6 6, Fig. 1.

A denotes what may be supposed to be the lower floor of a warehouse, and B the second floor thereof.

C is the platform of the elevator-car, c the uprights thereof guided between the posts D of the elevator-shaft, and c' the upper cross-piece of the car to a bolt, c^2 , on which the hoisting-rope c^3 may be attached. The hatchway-doors E are adapted to slide in ways formed in joists or beams b beneath the floors. The elevator-car is provided with two projecting pins or arms, F and F', the former being carried by a block, f , attached to the upper part of one of the uprights c and the other by the platform of the car. To one of the posts D are pivoted at g and g' the forked levers G and G', the lever G being below the hatchway and the lever G' above the same. These levers are connected together by a rod, H, and

the lever G is provided with an arm, g^2 , to which is attached one end of an adjustable bar, I i , which may be lengthened and shortened (for properly adjusting the parts when assembling the same) by sliding the part i in or out of the part I and securing it in any desired position by the set-screw i' . The bar I is pivotally attached to a hanger or projection, j , on a bar, J, which is in turn pivotally connected at or near its opposite ends to the hatchway-operating levers K and K', pivoted to the beam b at k and k' , respectively.

It will be observed that the bar J is attached to the lever K inside of its pivot or fulcrum k , while the said bar is attached to the lever K' outside of its fulcrum k' . These levers being thus of different orders, so that a movement of the bar J in either direction will cause the said levers to move in opposite directions, and as the inner ends of the said levers are connected by the links L with the sliding hatchway-doors, it follows that when the said levers are operated by the said bar the said doors will be caused to recede from or approach each other simultaneously to open or close the hatchway.

The operation of my device is as follows: As the elevator-car is approaching the hatchway from below the pin F enters the fork of the lever G and turns the said lever on its fulcrum, thus, through the bars I i and J, levers K and K', and links L, opening or sliding back the hatchway-doors E. When the car has risen above the hatchway, the pin F' thereon enters the fork of the lever G', which is arranged in a direction opposite to the lever G, and is, moreover, a lever of a different order, so that as the said lever G' is moved upward by the said pin F' the hatchway-doors will be closed. When the car descends, these operations will be reversed, the hatchway-doors being opened by the lever G' and closed by the lever G, and as these two levers are connected together by the bar or rod H they will move simultaneously, and thus set each other in proper positions to be engaged by their respective operating-pins.

To prevent the doors E from rebounding when opened or closed suddenly, the forked levers G and G' may have straight extensions g^4 to their arms, and as the inner sides of these

extensions will be vertical the pins or arms F and F' will bear against the same for a limited time sufficient to permit the doors to come in a position of rest, or to a full stop 5 after having been opened or closed.

The arm g^2 of the lever G, to which the bar I i is attached, is preferably slotted at g^3 , so that the connection of the said bar and lever may be adjusted to be nearer to or farther 10 from the pivotal point g of the said lever, and thus the movement given to the sliding doors E can be regulated as may be desired. The rod or bar I i is preferably made in two parts adjustably connected, as above described, for 15 convenience in adjusting the parts in proper positions when assembling the same together; but this adjustment, although convenient, is not positively necessary, and the said bar may be in one solid piece, if desired.

20 To give warning of the approach of the elevator-car from above or below, I prefer to use an automatic alarm, which may consist simply of a gong, M, to be sounded by spring-retracted hammer-carrying levers N, to be operated by the pins F and F', as will be readily 25 understood, and thus persons on or near the hatchway-doors will be notified of the approach of the car and have time to get out of the way.

The pins F and F' are preferably provided with rollers or sleeves to lessen the friction. 30

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. The combination, for automatically operating hatchway-doors, of two levers, K and K', of different orders, connected with said 35 doors, an elevator-car having upper and lower projections or pins, as F F', two connected levers, as G G', one above and the other below the hatchway, and connections between the said levers G G' and the door-operating levers 40 K K', substantially as set forth.

2. The combination, with the elevator-car having the upper and lower pins, F and F', of the connected forked levers G and G', the bar J, a rod or bar to connect the bar J with the 45 lever G, the levers K and K', of different orders, and the links L, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES W. POTTS.

Witnesses:

C. F. COCHRAN,
E. E. McCAMMON.