

No. 773,531.

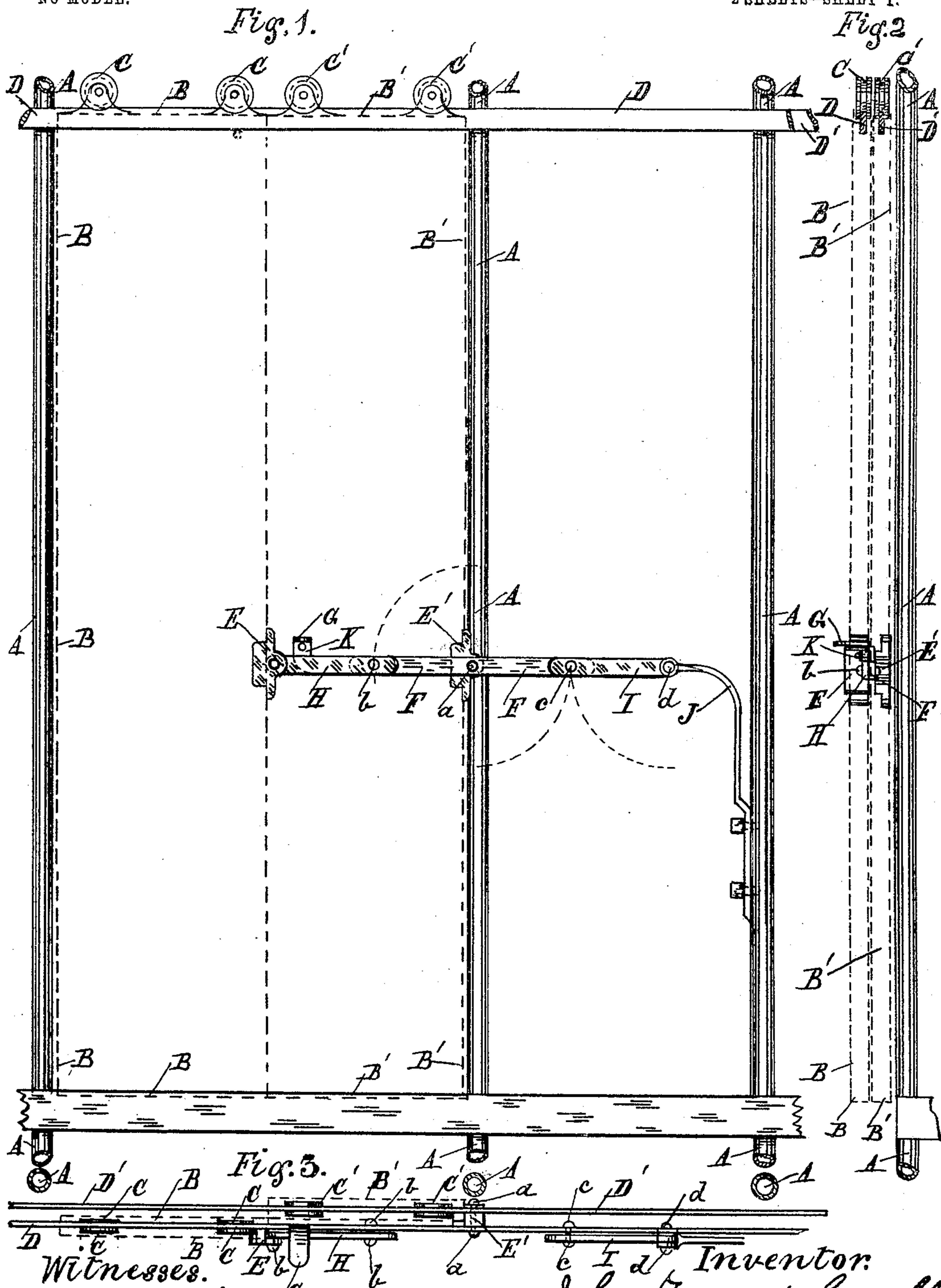
PATENTED OCT. 25, 1904.

J. F. CONNELL.
DEVICE FOR OPENING AND CLOSING DOORS.

APPLICATION FILED JUNE 19, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses.
Hadasah May
H. M. Rudman

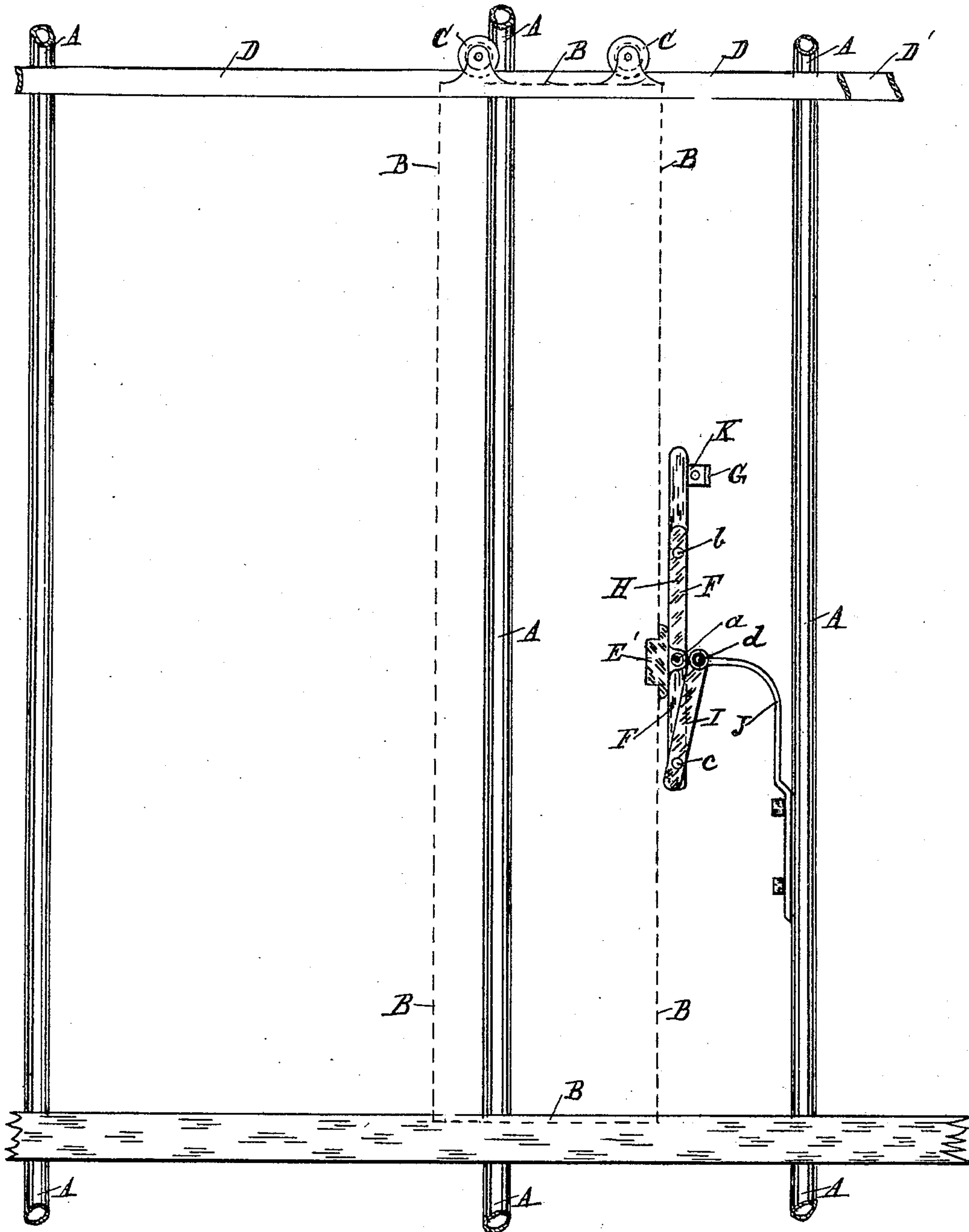
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Fig. 4.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN FRANCIS CONNELL, OF LOS ANGELES, CALIFORNIA.

DEVICE FOR OPENING AND CLOSING DOORS.

SPECIFICATION forming part of Letters Patent No. 773,531, dated October 25, 1904.

Application filed June 19, 1903. Serial No. 162,218. (No model.)

To all whom it may concern:

Be it known that I, JOHN FRANCIS CONNELL, of the city of Los Angeles, in the county of Los Angeles, in the State of California, have
 5 invented a new and useful Device for Opening and Closing Doors or Gates, (my said device being more especially applicable for opening and closing the doors of elevator-shafts and other inclosures,) of which the following
 10 is a full, clear, and exact description or specification, reference being had to the annexed drawings and to the letters marked thereon.

My said invention has for its object to operate with ease and practically without noise
 15 double doors or gates which are carried or suspended by rollers—that is to say, upon a horizontal bar or bars, as the case may be.

Upon the annexed drawings, Figure 1 is in part an elevation of that part of an elevator-shaft or other inclosure wherein a double
 20 sliding door is used for opening or closing a doorway therein, the double sliding door being indicated in dotted lines and the whole of the device constituting my invention being
 25 shown in full lines, as are also shown some main parts of the elevator-shaft or inclosure, as well as the bars upon which the rollers of the doors are carried. Fig. 2 is an end elevation corresponding to Fig. 1. Fig. 3 is a
 30 part plan corresponding to Fig. 1. Fig. 4 is another elevation corresponding to Fig. 1, but in which the double sliding doors are shown as drawn into the elevator-shaft or other inclosure and the doorway open for egress or
 35 ingress, as required, also showing the device constituting my invention in the upraised position corresponding with the opening of the door.

In Figs. 1, 2, 3, and 4 of the annexed drawings the tubes A are constructive parts of the framing of the inclosure of an elevator-shaft
 40 such as is commonly used in buildings having several floors.

My invention in the figures of the drawings
 45 is shown applied to the operating of two sliding doors or gates whose outlines are marked in dotted lines B and B'. These doors or gates are provided with antifriction-rollers C C and C' C', respectively, at the top of each, and
 50 these rollers suspend each door or gate B and

B' upon and from the horizontal carrying-bars D and D' in the usual manner, and these bars D and D' are at such distance from each other that the doors or gates B and B' may be moved
 parallel to each other and into the opened or
 55 closed position, as shown at Figs. 1, 3, and 4. Upon one of the vertical edges of each door B and B' there is attached a pivot-carrying block E or E'. Upon the pivot *a* of the block E' there is carried the pivotally-operating bar
 60 or lever F, and this bar or lever F is capable of being moved upon its pivot *a* through an angle of about a quadrant or quarter of a circle during the act of opening or closing the
 65 doors or gates B and B'—that is to say, during the act of moving the doors or gates from the positions they are shown to occupy in Fig. 1 to the position they are shown as occupying
 in Fig. 4, or vice versa. The bar F is moved
 70 upon its pivot *a* from the horizontal position (shown at Figs. 1, 2, and 3) to the vertical position (shown at Fig. 4) by the attendant in the elevator-cage or elsewhere (according
 75 to the situation of the door or gateway whereat or whenever my said invention is applied) applying his finger to the lifter G at the outer end of the pivotal bar F, and as this movement continues to be imparted to the pivotal
 80 bar F, so the bar F and the links H and I, respectively and pivotally connected to the bar F by the respective pivots *b* and *c* do, by their combined action and by reason of the link I
 85 being also pivotally connected to the stiff spring J by the pivot *d*, which spring J is rigidly fastened to the tube A of the elevator-inclosure or to other fixed or stationary object, cause the doors or gates B and B', and
 90 simultaneously therewith the bar F and the links H and I, to be moved into the open position of the doors or gates and of the said pivoted bar and links. (Shown at Fig. 4.) When
 it is desired to move the doors or gates B and B' into the opposite or closed position, then
 95 the attendant applies his hand to the door or gate B, causing it to roll by its supporting-rollers C C upon the bar D, which movement being imparted to the door B causes it to pull
 100 the link H, the pivoted bar F, and the link I gradually into the horizontal position, which these parts occupy when the doors or gates

B and B' are closed, as shown at Figs. 1, 2, and 3. The spring J by reason of its elasticity prevents a hard or unyielding blow of the doors or gates or of the moving parts of the device constituting my invention from taking place at the termination of the movements of the said doors and gates and moving parts in either direction—that is to say, at the completion of the opening or the closing of the said doors or gates—while for the purpose of preventing a hard blow taking place at the instant when the outer end of the bar F reaches the horizontal position (shown at Figs. 1, 2, and 3) the face of the lifter G is provided with a pad of india-rubber K, which comes into contact with the upper edge of the link H when the parts reach the horizontal position referred to.

Having now particularly described and ascertained the nature of my said invention and the best system, mode, or manner I am at present acquainted with for carrying the same into practical effect, I desire to observe in conclusion that what I consider to be novel and original, and therefore claim as the invention to be secured to me by Letters Patent, is as follows:

1. The device for opening and closing double sliding doors or gates, said device consisting of a pivot on one of the sliding doors or gates, a manually-operated lever mounted movably

on said pivot, a link connected movably at one end to one arm of said lever, and at the opposite end to the other sliding door, another link connected movably at one end to the other arm of said lever, the opposite end of said link being connected movably to a stiff spring rigidly supported, all operating together in the manner and for the purposes substantially as set forth.

2. The combination of the double, sliding doors, the pivot on one of the sliding doors, the lever mounted on said pivot, the two links connecting the lever to the other sliding door and to the stiff spring respectively, the stiff spring and the rigid support of the stiff spring, substantially as hereinbefore described.

3. The combination of the double, sliding doors, the pivot on one of the sliding doors, the lever mounted on said pivot, the two links connecting the lever to the other sliding door and to the stiff spring respectively, the stiff spring and the rigid support of the stiff spring, the pad, substantially as hereinbefore described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JOHN FRANCIS CONNELL. [L. s.]

Witnesses:

ST. JOHN DAY,
HADASSAH DAY.