

No. 778,551.

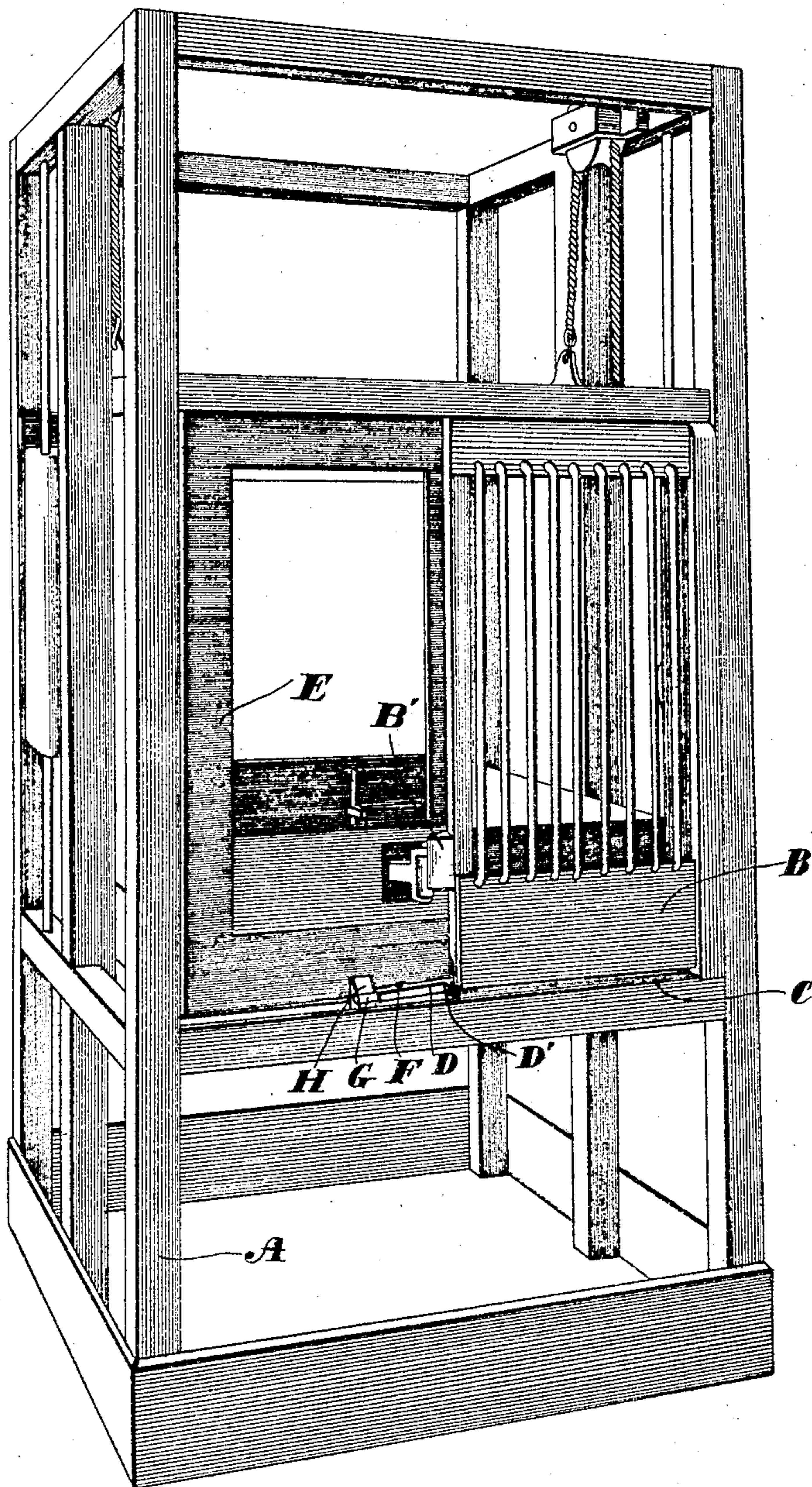
PATENTED DEC. 27, 1904.

R. J. ROULO.
ELEVATOR LOCK.

APPLICATION FILED MAY 2, 1904.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 2.

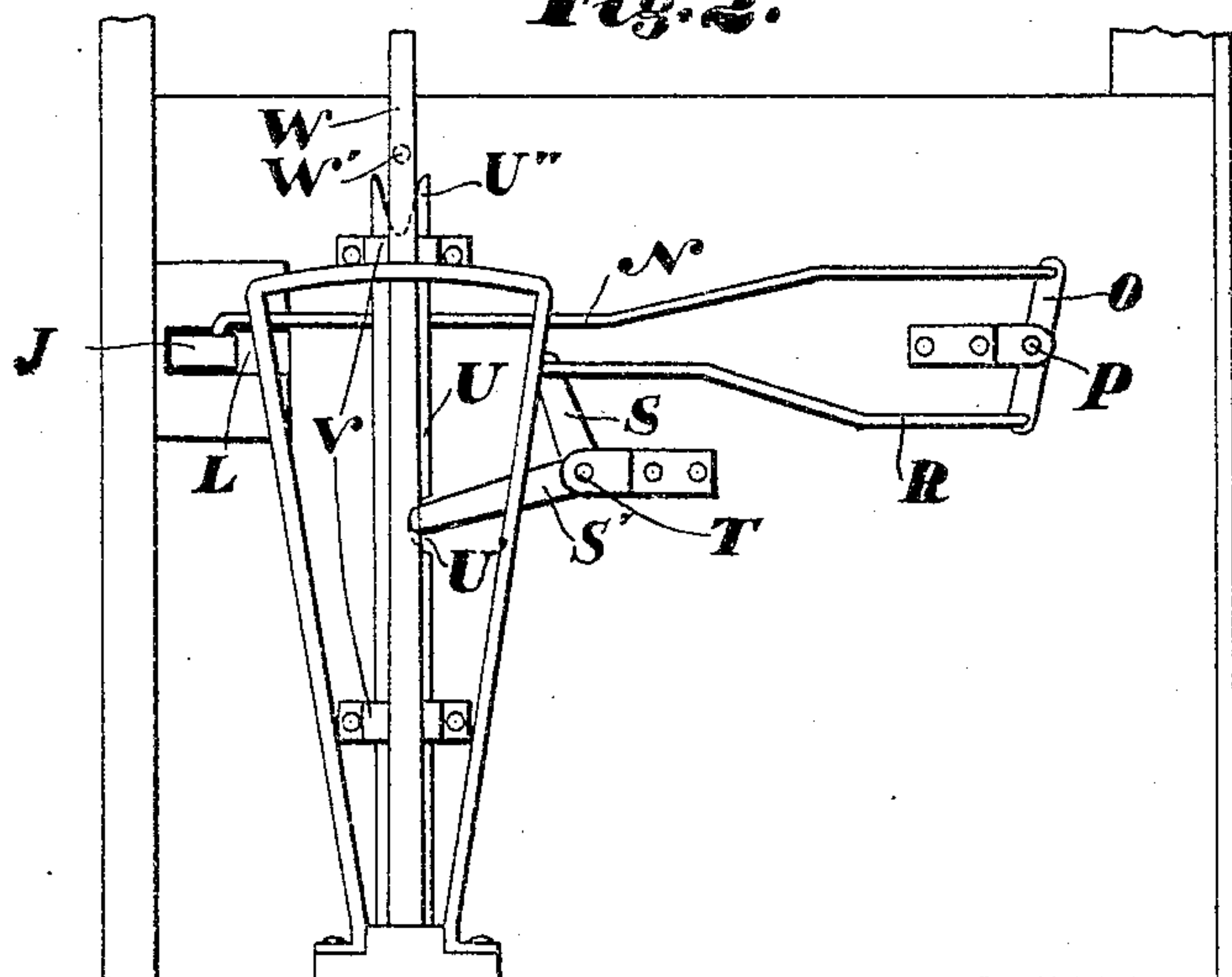


Fig. 3.

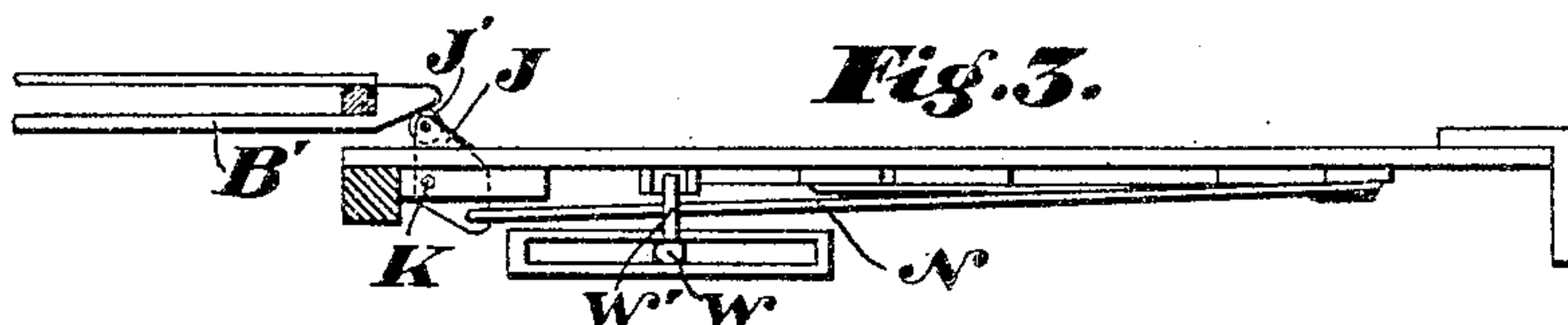
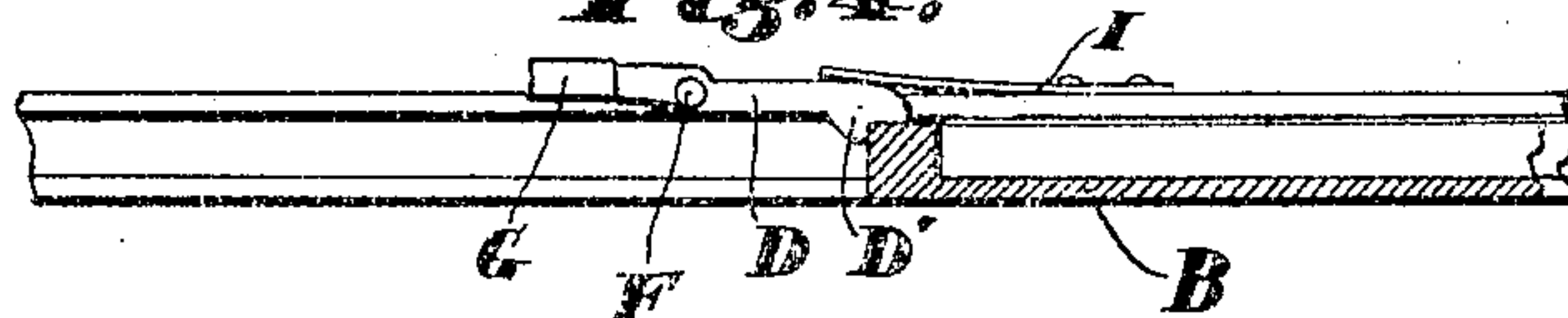


Fig. 4.



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UNITED STATES PATENT OFFICE.

RICHARD J. ROULO, OF LOS ANGELES, CALIFORNIA.

ELEVATOR-LOCK.

SPECIFICATION forming part of Letters Patent No. 778,551, dated December 27, 1904.

Application filed May 2, 1904. Serial No. 206,061.

To all whom it may concern:

Be it known that I, RICHARD J. ROULO, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Elevator-Locks, of which the following is a specification.

My invention relates to means to lock the doors of elevator-shafts and elevator-cages from being opened except when the elevator-cage is at the proper landing and when the elevator-door is opened to lock the elevator-cage against movement until the door is again closed; and the object thereof is to provide a simple and efficient device for that purpose which will work automatically. I accomplish this object by the mechanism described herein and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the top of an elevator-shaft with an elevator-cage therein equipped with my locking devices. Fig. 2 is a side elevation of the lever by means of which the movement of the cage is controlled and of the locking device by means of which said lever is secured against said movement when the elevator-cage is at a landing and the door in position to open. Fig. 3 is a plan of the parts shown in Fig. 2. Fig. 4 is a plan of the door-locking mechanism with part of the door shown in section.

In the drawings the elevator-shaft A is provided with a sliding door B at the landing. This door moves on a sill C, which is on the level of the floor of the building. (Not shown.) To this sill is pivotally secured locking-bar D, having on the front end an arm D', which normally lies back of the door and prevents the same from being opened except when the elevator-cage E is at the landing, as shown in the drawings. This locking-bar is pivoted at F intermediate its ends and on the rear end thereof carries a roller G, which is adapted to be engaged by a shoe H, carried by the cage, which moves the locking-bar, so as to throw the arm D' thereof out of the path of the door, so that the door may be opened when the shoe is in engagement with the roller, which only occurs when the cage is in its proper position at the landing, because as

the cage passes up or down therefrom the shoe passes out of engagement with the end of the locking-bar and a spring I causes the locking-arm D' to be returned behind the door, and thereby prevent its being opened. On the inner side of the door is secured a bar B', which engages with the end of lever J, which lever is pivoted at K to the cage, passing therethrough in an opening L in the side of the cage. Pivotally secured to the inner end of this lever is a rod N, whose other end is pivotally secured to the upper end of a bar O, which last bar is pivoted intermediate its ends in bearings P, affixed to the cage. To the lower end of this bar, connected by rod R, is the bell-crank lever S, which is pivotally connected to the side of the cage in bearings T. The long arm S' of the bell-crank lever enters a notch U' in the locking-bar U. This locking-bar is vertically movable through guides V, and the top thereof is bifurcated, and the furcations U'' thereof are adapted when the bar is elevated to straddle the arm W' of the operating-lever W, which lever controls the movement of the mechanism (not shown) by means of which the cage is operated. To reduce the friction between the lever J and bar B', the lever is provided with a roller J'.

Now when the elevator-cage is approaching a landing the shoe H engages the roller G and moves the locking-bar D to withdraw the arm D' from behind the door when the cage reaches the proper position for the door to be opened, at which time the operating-lever W is in the position shown in Fig. 2. The elevator-door is then opened and as it moves along on sill C the bar B' on the door engages with lever J and through connecting mechanism causes the locking-bar U to move upwardly until the arms thereof straddle the arm W' of the operating-lever W, thereby preventing the movement of this lever as long as the door is open. As soon as the door is closed the parts of the locking device which secure the operating-lever against movement resume their normal position; and the operating-lever can then be moved to cause the movement of the cage in either direction. It will thus be seen that with an elevator

equipped with my locking devices and operated as described it is impossible for an accident to occur by reason of the stopping or starting of the elevator-cage while a person
5 is getting into or out of the elevator, as the door is always securely locked while the elevator-cage is in motion, and when the elevator-cage is at rest at the proper landing and the door is opened it is impossible to start
10 the cage until the door is closed.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of an elevator-cage; an
15 elevator-shaft having a sliding door at the landing thereof, said door having a bar secured to the inner face thereof; an operating-lever in said cage having an arm secured thereto; guides secured to said cage; a locking-
20 ing-bar vertically movable through said guides, said bar having the top thereof bifurcated and adapted to straddle the arm of the operating-lever, when said locking-bar is moved upwardly; and means to move said
25 bar upwardly upon the opening of the door.

2. The combination of an elevator-cage having a slot in the side thereof; a lever pivotally secured to said cage and having the outer end thereof passing through said slot and into the

path of movement of the door which controls
admission into said cage; a bar pivotally secured intermediate its ends to said cage; a rod
pivotally connected to the upper end of said bar and to said lever; a bell-crank lever pivotally secured to said cage in front of said
35 bar; guides secured to said cage; a locking-bar having a notch in the side thereof vertically movable in said guides and having the upper end thereof bifurcated, said notch being adapted to be engaged by the arm of the
40 bell-crank lever; an operating-lever having an arm adapted to be straddled by the arms of the locking-bar on the upward movement thereof, said operating-lever being adapted to control mechanism by which said cage is op-
45 erated; and an elevator-shaft having a sliding door provided with a bar on the side adjacent to the cage, said bar being adapted to engage the lever whose end passes through the slot in the side thereof upon the movement of the
50 door.

In witness that I claim the foregoing I have hereunto subscribed my name this 26th day of April, 1904.

RICHARD J. ROULO.

Witnesses:

G. E. HARPHAM,

HENRY T. HAZARD.