

No. 671,878.

Patented Apr. 9, 1901.

A. M. COYLE.
LOCK FOR ELEVATOR DOORS.

(No Model.)

(Application filed July 23, 1900.)

3 Sheets—Sheet 1.

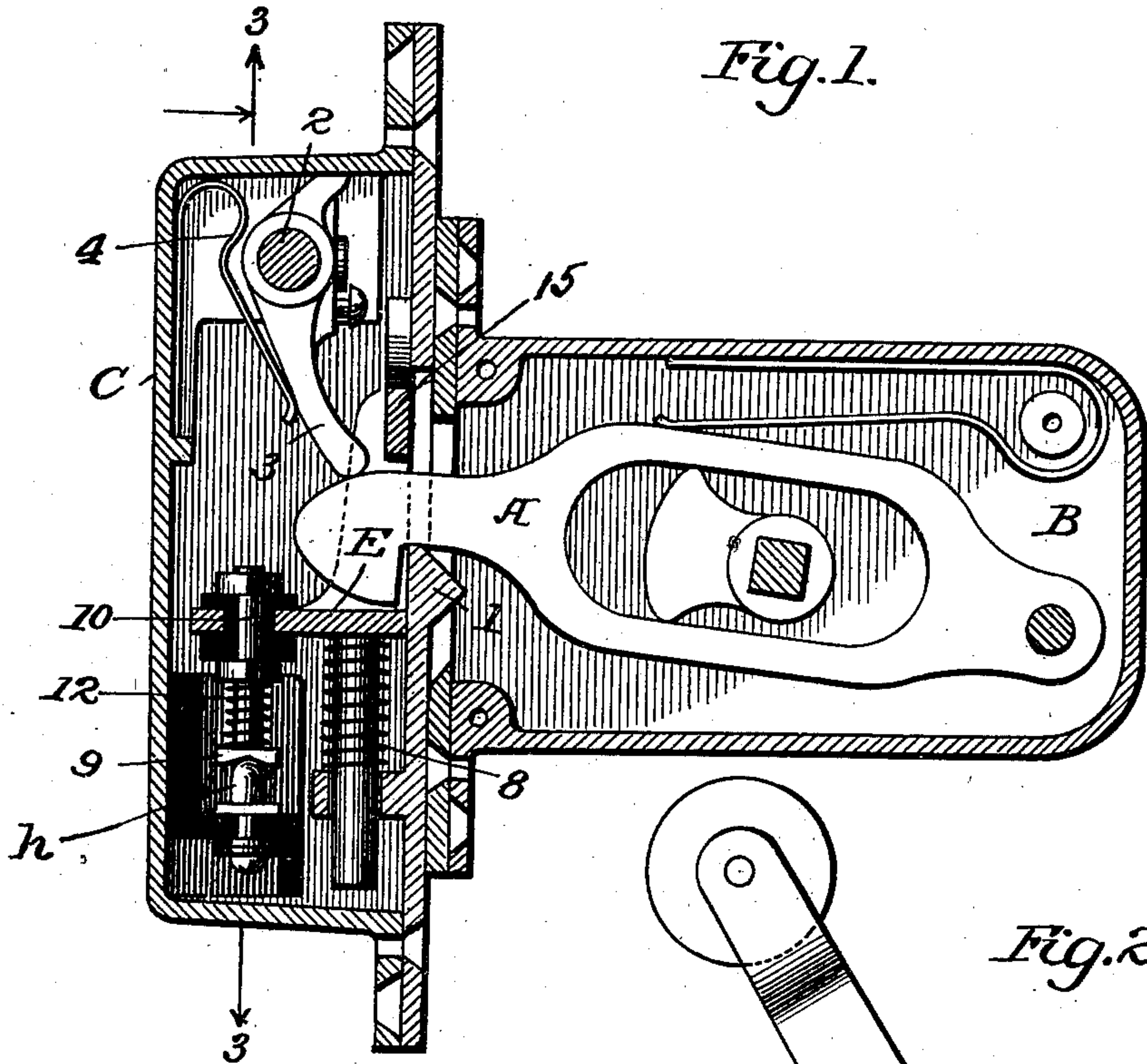
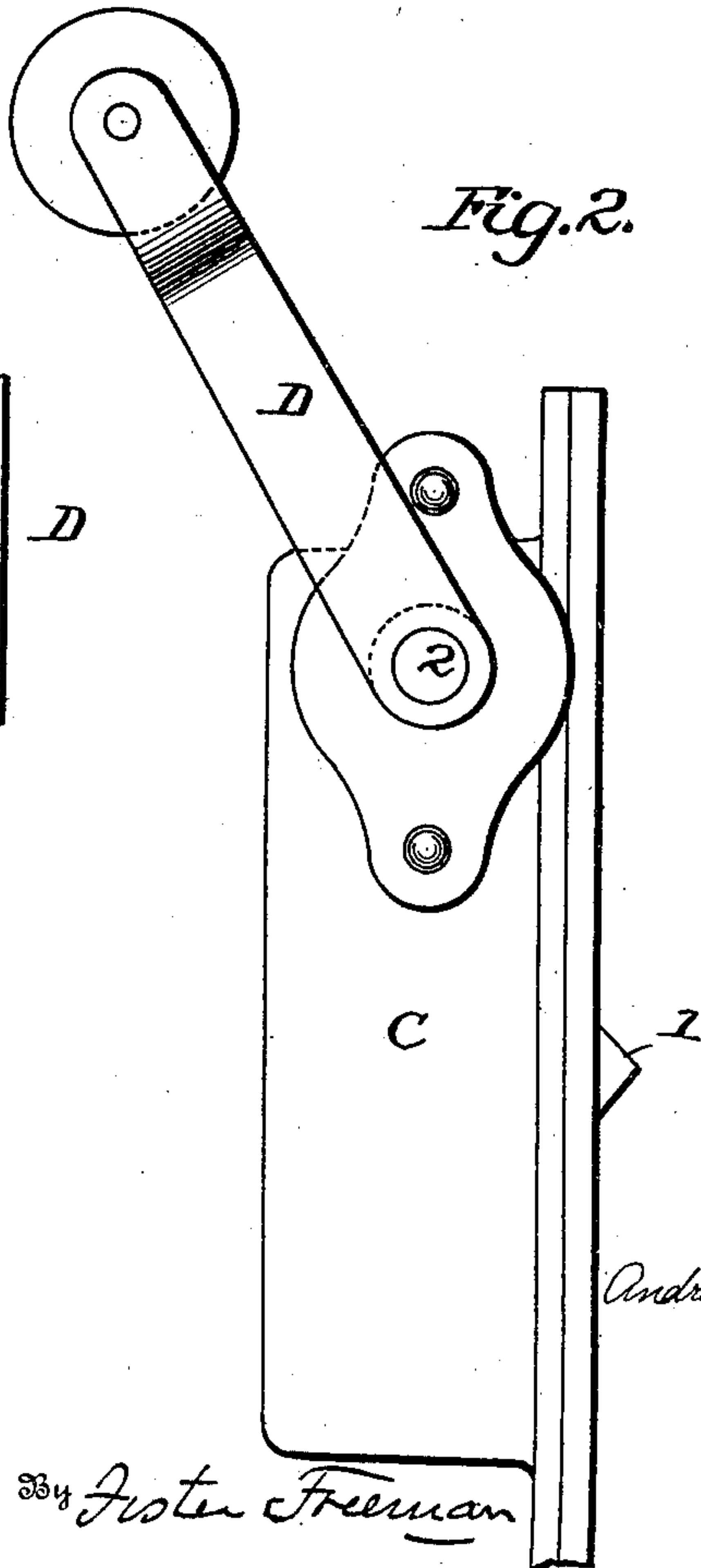
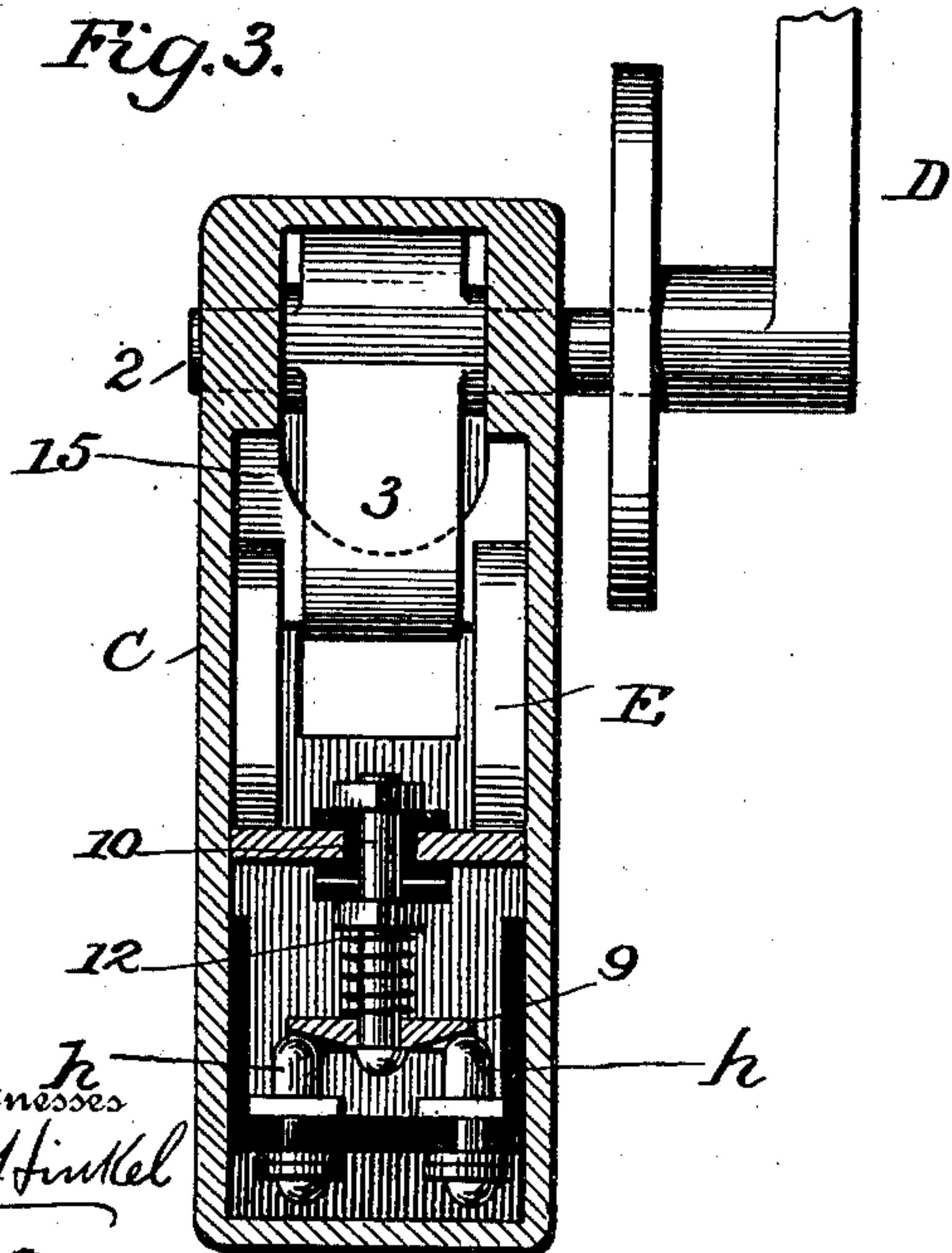


Fig. 3.



Witnesses
J. G. Finkel
Wm. Gillman

By Foster Freeman

Inventor
Andrew M. Coyle

Attorneys

No. 671,878.

Patented Apr. 9, 1901.

A. M. COYLE.
LOCK FOR ELEVATOR DOORS.

(Application filed July 23, 1900.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 4.

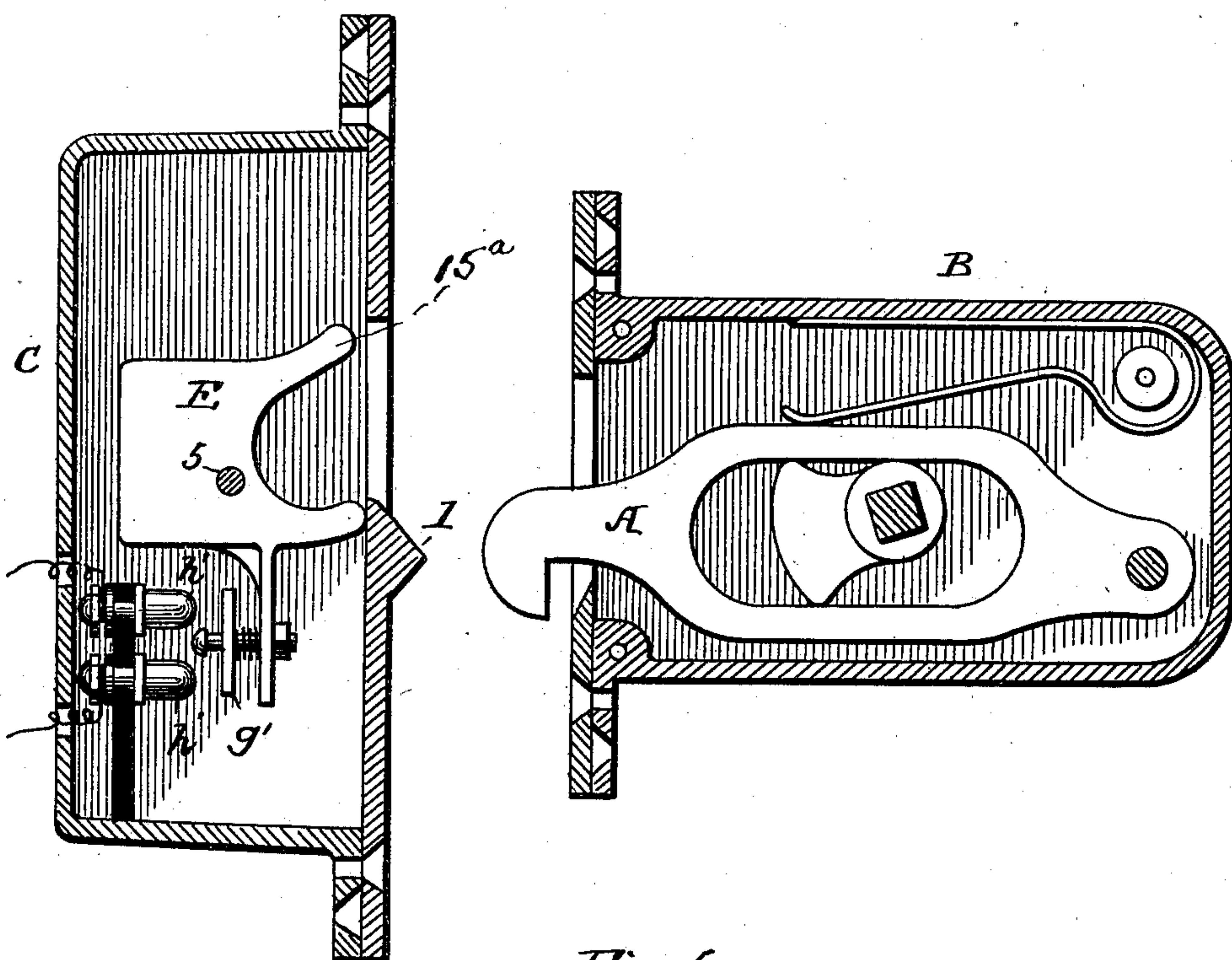
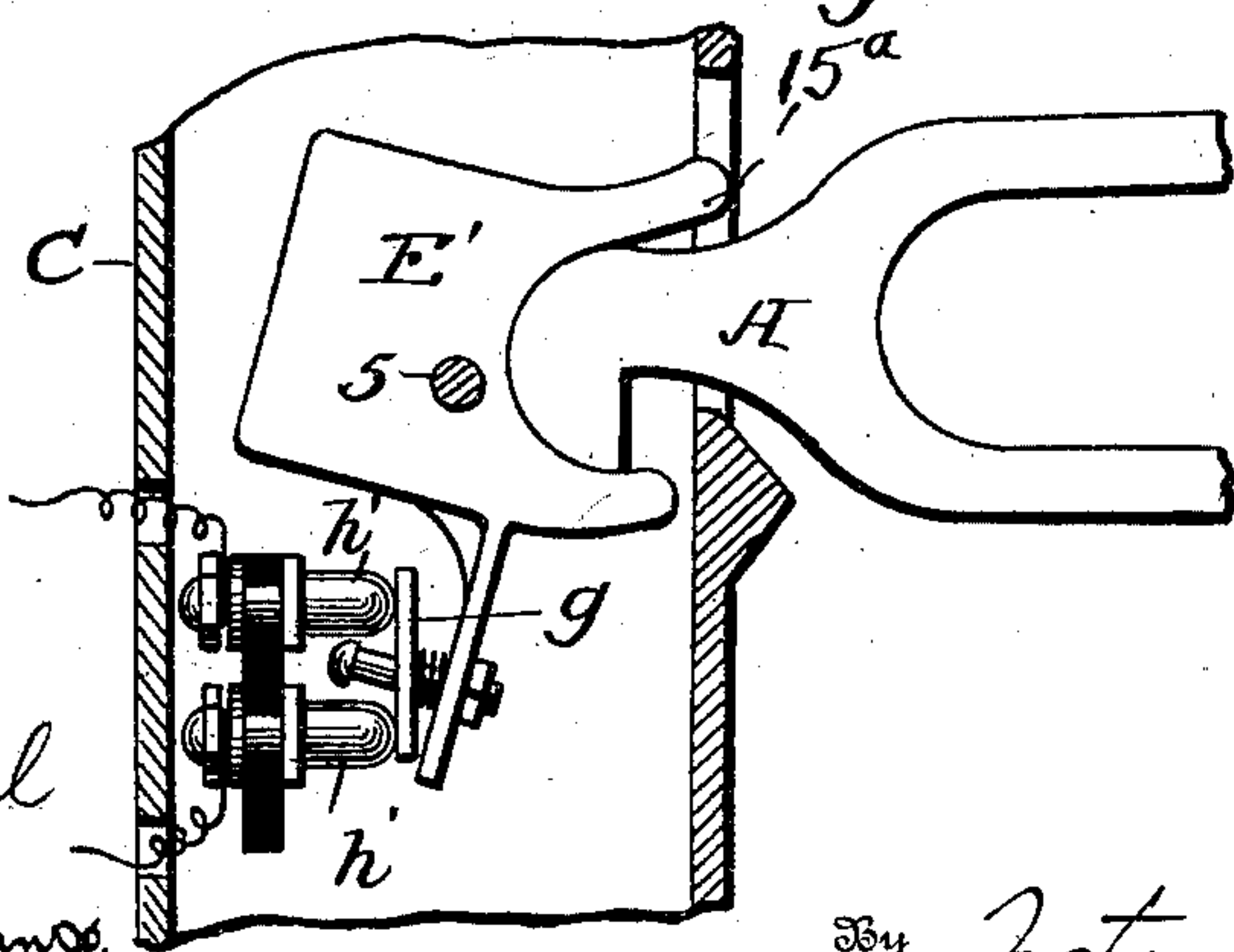


Fig. 5.



Witnesses
J. H. Hinkel
H. M. Gellman

Inventor

Andrew M. Coyle

By

Isler & Freeman

Attorneys

No. 671,878.

Patented Apr. 9, 1901.

A. M. COYLE.
LOCK FOR ELEVATOR DOORS.

(Application filed July 23, 1900.)

(No Model.)

3 Sheets—Sheet 3.

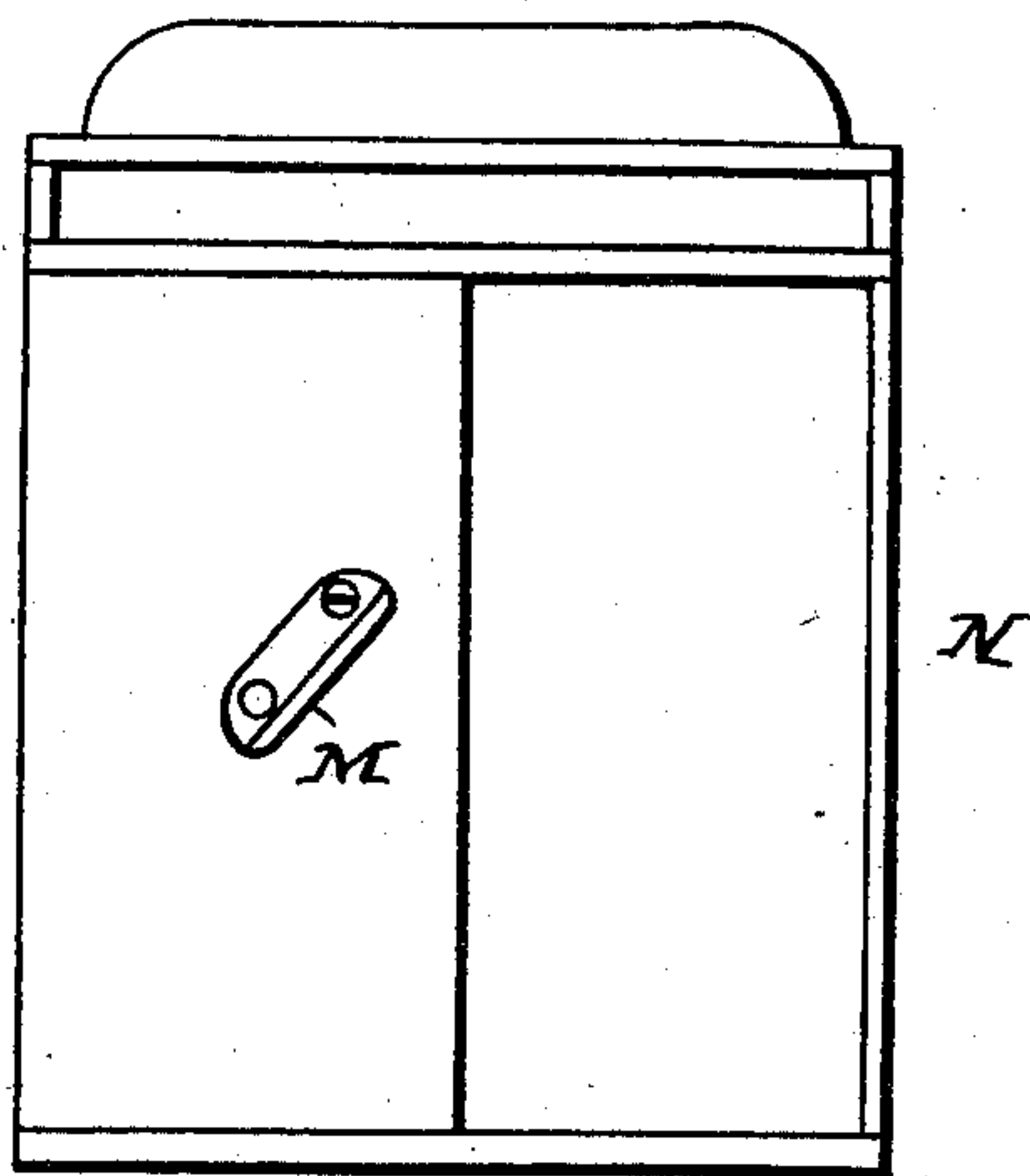
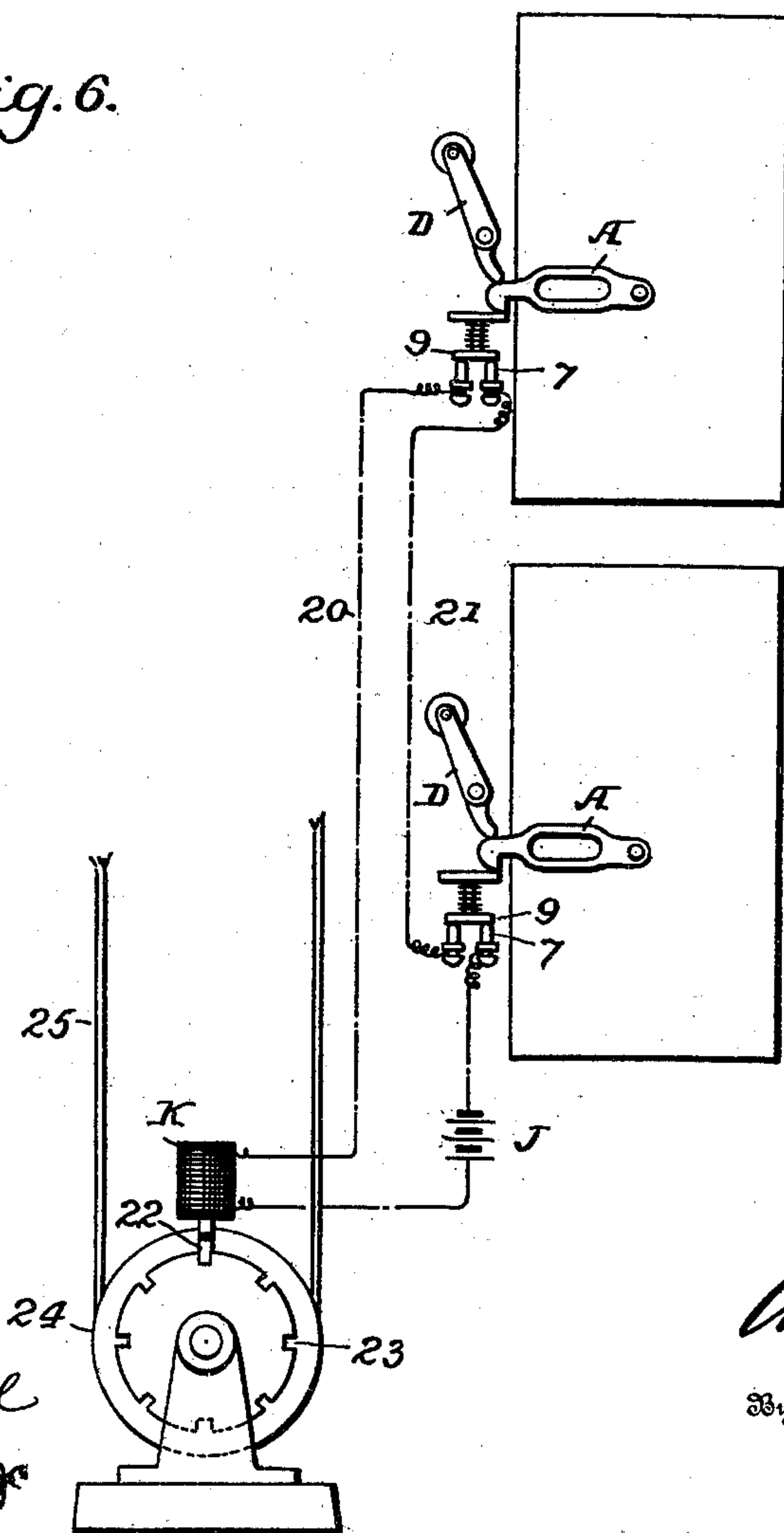


Fig. 6.



Witnesses
J. G. Hinkel
Wm. J. Hinkel

Inventor
Andrew M. Coyle
By *Wm. J. Hinkel*
Attorneys

UNITED STATES PATENT OFFICE.

ANDREW M. COYLE, OF YONKERS, NEW YORK, ASSIGNOR TO THE OTIS
ELEVATOR COMPANY, OF EAST ORANGE, NEW JERSEY.

LOCK FOR ELEVATOR-DOORS.

SPECIFICATION forming part of Letters Patent No. 671,878, dated April 9, 1901.

Application filed July 23, 1900. Serial No. 24,577. (No model.)

To all whom it may concern:

Be it known that I, ANDREW M. COYLE, a citizen of the United States, residing at Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Locks for Elevator-Doors, of which the following is a specification.

My invention relates to locks intended especially for the landing-doors of elevators; and my invention consists in the features of construction and arrangement of parts having the general mode of operation as fully set forth and claimed hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section of my improved locking device. Fig. 2 is an outside view of the keeper-casing; Fig. 3, a transverse sectional elevation on the line 3 3, Fig. 1. Fig. 4 shows another construction, in which the slide is replaced by a swinging block. Fig. 5 is a view like Fig. 4, showing the parts locked together; Fig. 6, a diagrammatic view illustrating the circuits, including the door, locking devices, and means for locking the control device of the elevator mechanism.

The latch A, of any suitable character, either pivoted or sliding, is carried by a casing B, secured to the door—as, for instance, the door at an elevator-landing. As shown, the latch has a hooked end for engaging the keeper 1 of a keeper-casing C, secured to the door-frame, the beveled end of the latch riding over the inclined face of the keeper.

Through the casing C extends a rock-shaft 2, carrying the arm 3, which is moved outward by a spring 4, and a lever D on the shaft outside of the casing is arranged to be actuated by the elevator-cage or, for instance, a projection M thereon, so that the arm 3 will be drawn inward, compressing the spring when the cage is in a proper position for the door to open.

When the door is closed, the latch enters the casing C and descends and engages the keeper. When the cage is moved out of position opposite the door, the lever D being released the arm 3 will swing forward above the latch and act as a detent to lock it in engagement with the

keeper. This serves to prevent the landing-door of an elevator provided with the improved locking device from being opened until the detent is shifted, which can only occur when the cage is in position opposite the landing. The arm 3 is so arranged that if from accidental cause the door should be open when the cage is not in the proper position it would not interfere with the door being closed. Under such circumstances the latch, entering the casing C, will strike and carry back the arm 3, and when the latch descends and engages the keeper the arm 3 will swing forward above the latch and act as a detent to hold it in engagement with the keeper, preventing the landing-door from being again opened.

Within the casing C are two insulated electric terminals *h h*, which are intended to be in circuit with means for locking a control device of the elevator mechanism, so that the latter cannot be started until the electric circuit is completed through said terminals. To prevent the starting of the apparatus except when the latch is in complete engagement with the keeper, I provide means whereby the circuit is only completed after the latch has fully entered the keeper-casing. Thus a movable piece, as a slide E, is lifted by a spring 8 to a position to be engaged by the head of the latch as it enters the casing C, and said head as it descends bears on and depresses the slide, and thereby brings a bridge 9 against both terminals to electrically connect them. As shown, the bridge is a plate 9, supported by a pin 10, which is carried by and insulated from the slide E and depressed by a spring 12, which yields as the bridge strikes the terminals, and thus insures a yielding contact. As soon as the handle of the latch is turned and the end of the latch begins to move upward the slide E will begin to rise, being forced up by the spring 8 and also by the head of the latch, which as it rises makes contact with a cross-arm 15 of the slide E, so that the circuit will be positively broken before the latch can disengage from the keeper. The terminals are in a circuit including the bridges, conductors, a battery J, and a solenoid K, which when excited lifts a bolt 22 out of a re-

cess in the edge of a disk 23, connected to the shaft of the pulley 24, around which the control-rope 25 passes.

In Fig. 4 the movable piece is a block E', swinging on a center 5. This block is made heavy at the back, so as normally to take the position shown in full lines to hold the circuit open. When the latch enters the casing C, the block E swings down, bringing the bridge g' against the terminals h' h', and when the head of the latch rises it makes contact with the arm 15^a, insuring positively an upward movement of the bridge independent of any spring action.

Without limiting myself to the precise construction shown, I claim—

1. The combination of a keeper-casing provided with electric terminals, a movable piece within the casing carrying a contact-plate to engage said terminals, said movable piece having spaced bearing-faces, and a latch adapted to enter the casing and project between the bearing-faces of the movable piece, whereby when the latch is moved in the direction of either bearing-face it will positively actuate the movable piece, substantially as and for the purpose set forth.

2. The combination of a keeper-casing provided with an opening, a latch adapted to en-

ter said opening and project into the casing, an arm pivoted within the casing with its free end adapted to project into the path of movement of the entering-latch and its pivot being to one side of said path, means normally tending to move the free end of the arm into position to hold the latch in its locking position, said means being yieldable to permit the arm to swing on its pivot when struck by the entering-latch, and means exterior of the casing connected to the arm to actuate the latter, substantially as set forth.

3. A keeper-casing provided with a rock-shaft extending transversely through the same and carrying an arm outside of the casing, a pendent arm on the shaft within the casing with its lower end in position to be struck by and to swing inwardly from the entering-latch, and a spring for rocking the shaft in a direction to swing the pendent arm over the latch when the latter is in locking position, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ANDREW M. COYLE.

Witnesses:

D. L. HOLBROOK,
W. A. MORSE.