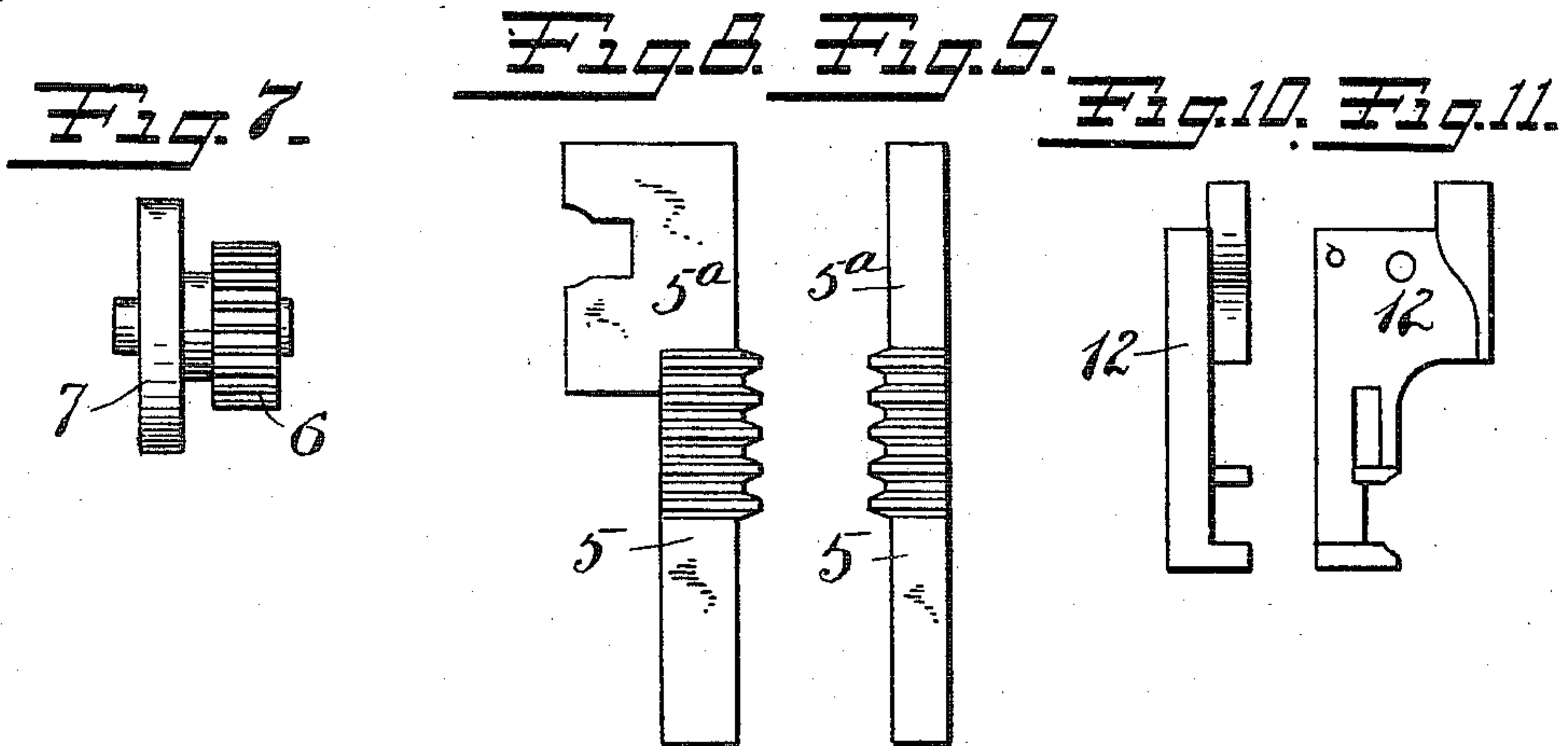
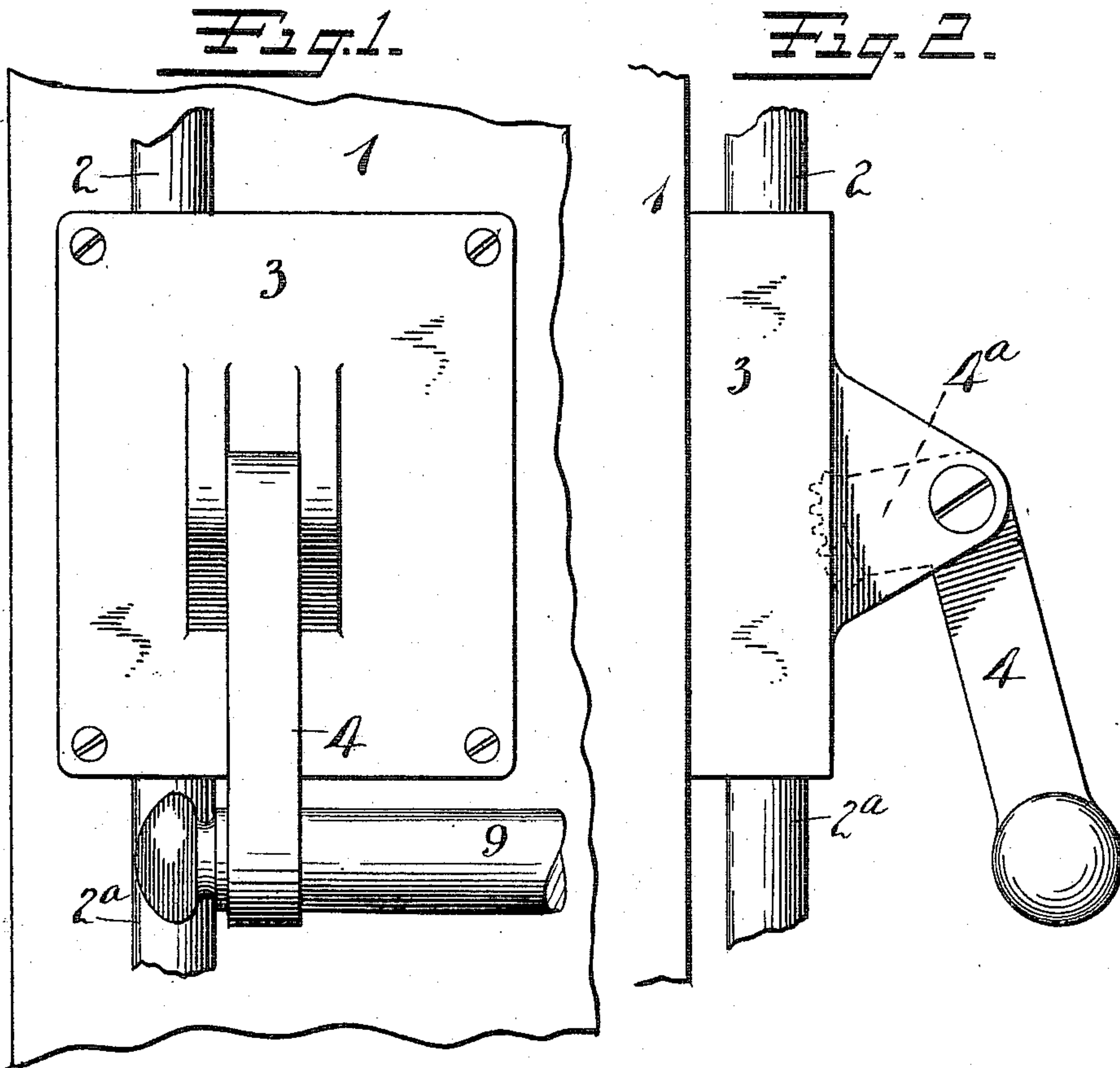


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 LOCKING DEVICE FOR EMERGENCY EXIT DOORS.  
 APPLICATION FILED AUG. 5, 1908.

983,011.

Patented Jan. 31, 1911.

2 SHEETS-SHEET 1.



Witnesses:  
*Chas. A. Reed*  
*Fred. M. Dammeyer*

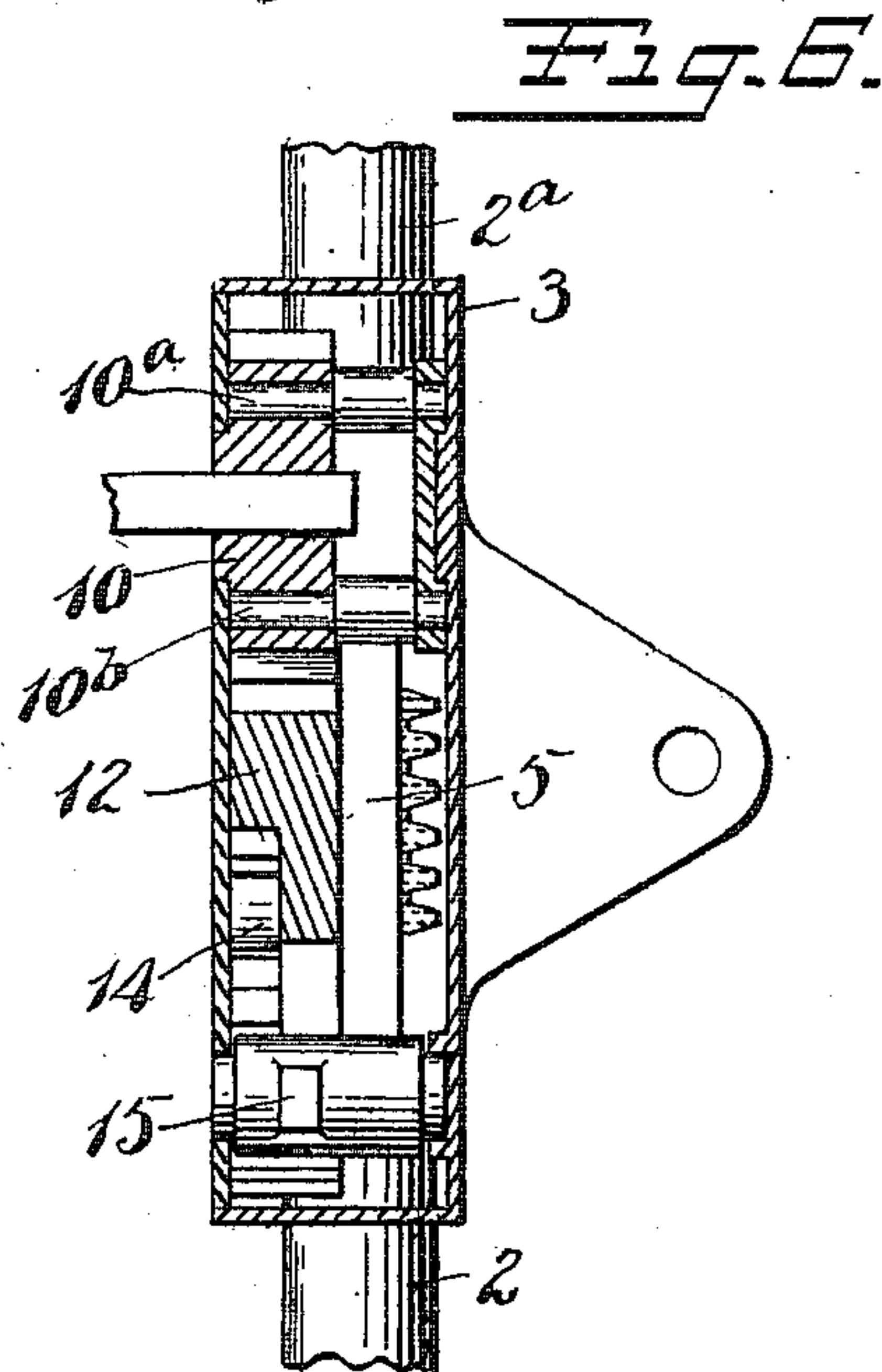
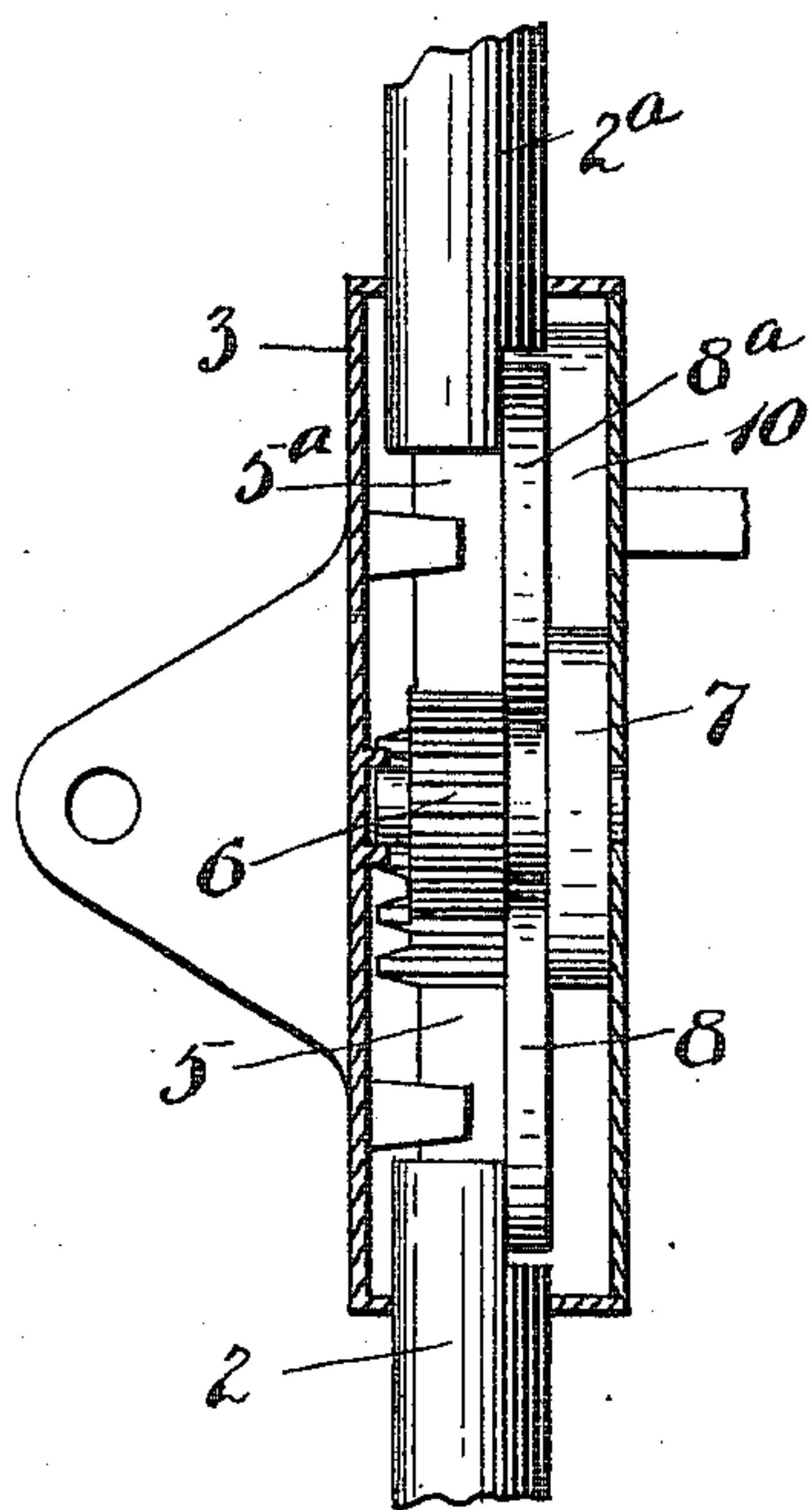
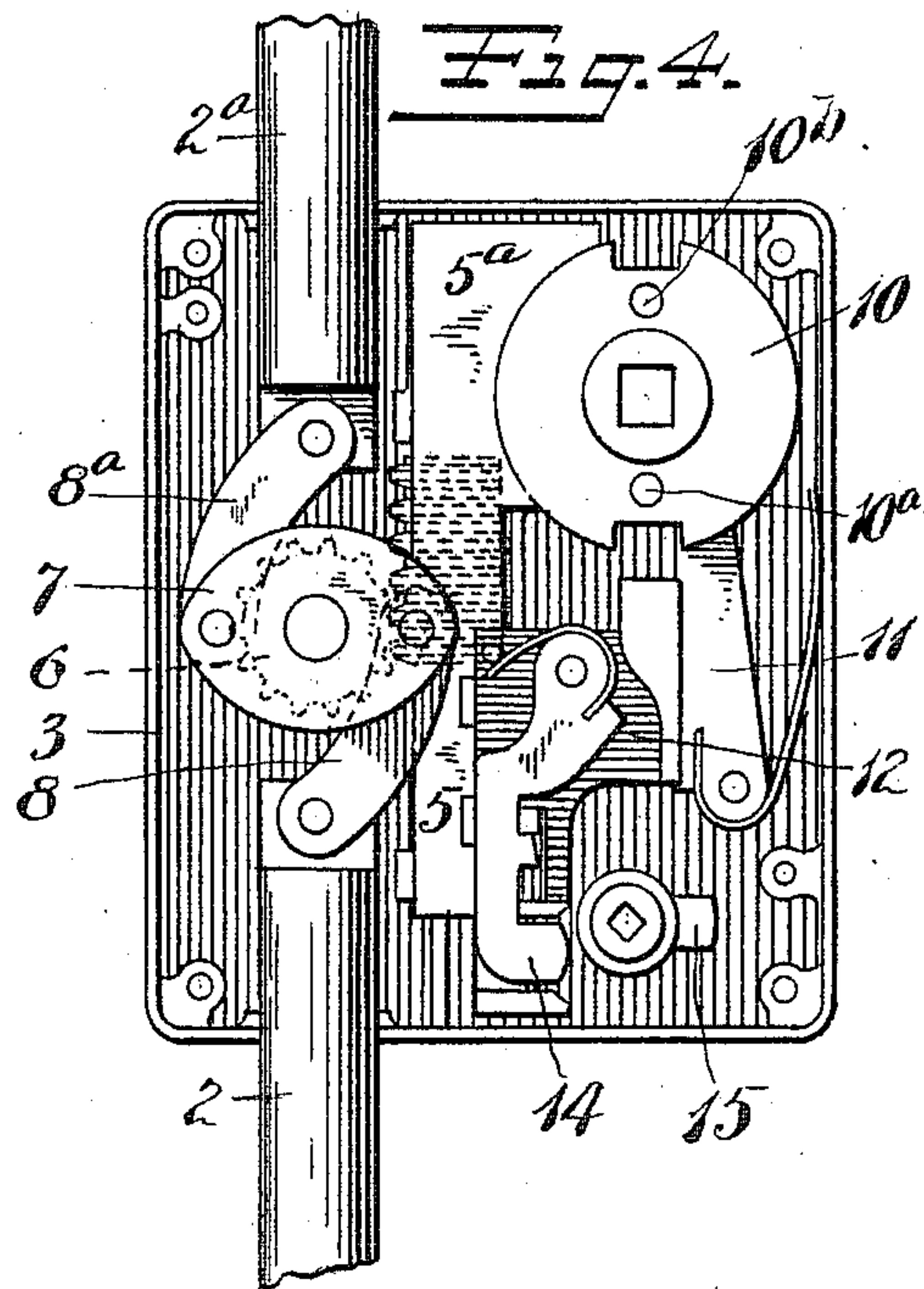
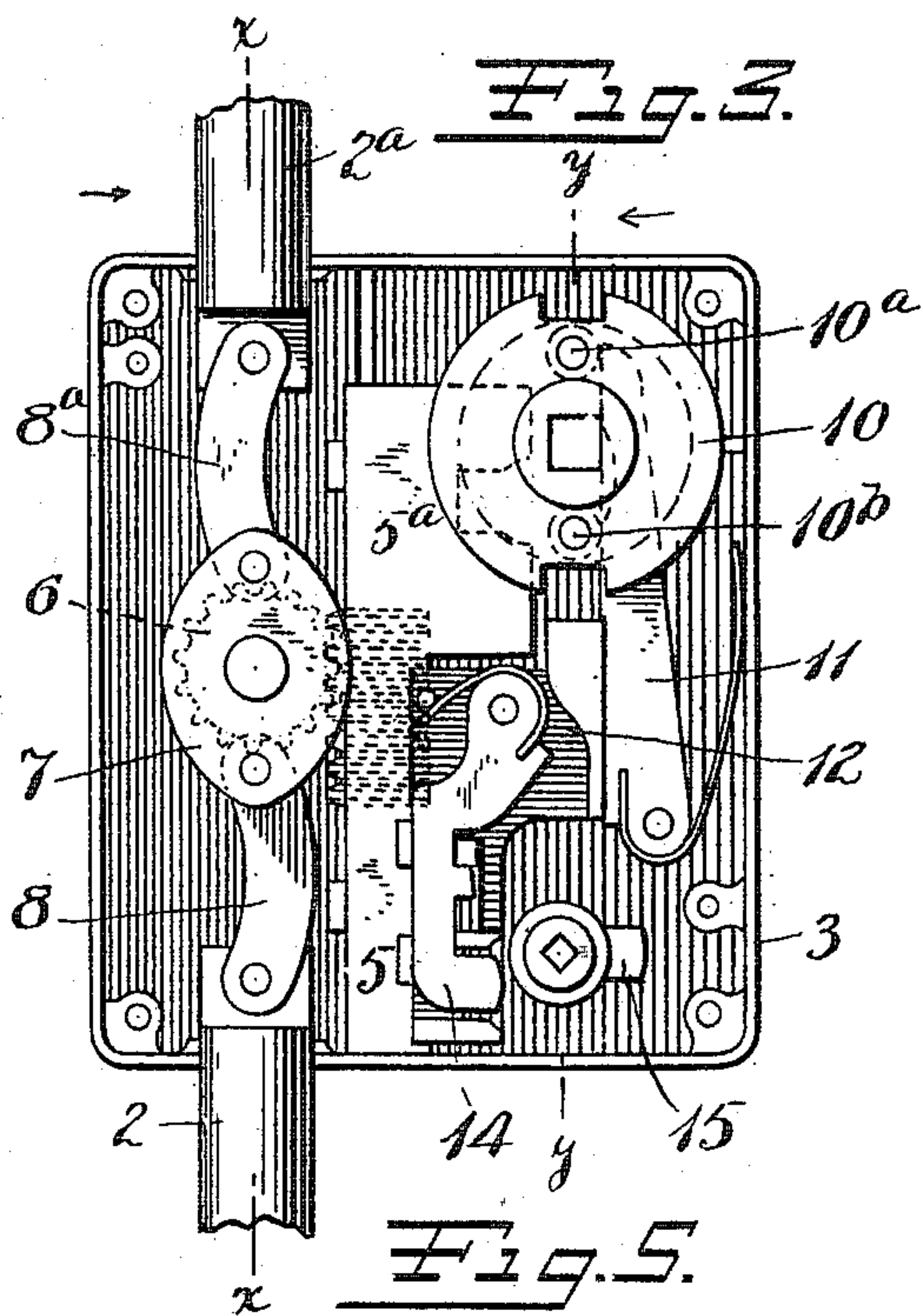
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## LOCKING DEVICE FOR EMERGENCY EXIT-DOORS.

983,011.

Specification of Letters Patent.

Patented Jan. 31, 1911.

Application filed August 5, 1908. Serial No. 447,074.

*To all whom it may concern:*

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, Hartford county, Connecticut, have invented certain new and useful Improvements in Locking Devices for Emergency Exit-Doors, of which the following is a full, clear, and exact description.

My invention relates to locks, and particularly to the so called panic bolts, the object of the invention being to provide in that type of a lock certain new and useful features whereby compactness, simplicity, durability and high efficiency are attained.

In the drawings Figure 1 is a front view of my invention as it appears in use, certain parts being broken away. Fig. 2 is a side elevation thereof. Fig. 3 is a view from the inner side of the lock case, the cap being removed and the said parts being inverted relatively to the position in which they stand in Fig. 1. Fig. 4 is a view similar to Fig. 3, but showing certain parts in a different position. Fig. 5 is a section on the line  $x-x$  of Fig. 3 looking in the direction of the arrow, certain parts being shown in elevation. Fig. 6 is a section on the line  $y-y$  of Fig. 3 looking in the direction of the arrow. Figs. 7, 8, 9, 10 and 11 are views of detached details.

1 represents a portion of a door to which the bolt is to be applied. It should be stated at the outset that "panic bolts" so called, are of that type designed particularly for use on exit doors of public buildings, such as theaters, schoolhouses and other places where crowds are liable to congregate. In the event of fire or panic, with the ordinary bolt applied to such exit doors, there is grave danger that pressure against the door will cause the parts to so bind that the door cannot be opened even though it swings outwardly. The purpose of the "panic bolt" is to prevent this dangerous condition the operating parts of the lock being so constructed and arranged that the weight of the panic stricken crowd against the door may be utilized to operate the bolt to permit the door to open freely.

In the drawings I have shown my invention as provided with bolts 2—2<sup>a</sup>, these being of the "Cremorne" type and arranged to project one into the top of the door cas-

ing, the other into the sill. Any suitable form of bolt head may be employed. In the drawings I have shown only the shank or body of each bolt, since in this case no invention is attributed to the form of bolt head to be selected.

3 is the lock case arranged to be secured to the door in any well known manner.

4 represents a hinged operating lever carried by the case 3.

4<sup>a</sup> is an extension, the end of the latter being in the form of a toothed segment. This toothed segment engages with the toothed rack formed on a slide 5. 6 is a pinion meshing with rack teeth on said slide 5 at substantially right angles to the plane of engagement of the segment extension 4<sup>a</sup>. The pinion 6 carries the actuating cam 7 and the latter is connected by links 8—8<sup>a</sup> with the bolts 2—2<sup>a</sup>.

From the foregoing it follows that when the slide 5 is reciprocated, it will turn the pinion 6, which, in turn, will operate the cam 7 to advance or retract the bolts 2—2<sup>a</sup> according to the direction of movement of the slide 5.

9 represents a bar broken away at one end but carried by the operating lever 4. This bar 9 extends across the inner side of the door to which the lock is applied and is provided with a suitable support at its opposite end, for example a support similar to that for the lever 4. When the bar 9 is pulled away from the door, and the lever 4 is swung outwardly, this movement will cause the projection of the bolts 2—2<sup>a</sup>, thereby locking the door. In the event of a panic, pressure against the bar 9 will cause the lever 4 to swing in a direction to move slide 5 so as to retract said bolts and free the door, hence the danger of jamming the door in such an emergency is avoided. By arranging the parts as already described, which involves placing the pinion and its cam in a plane parallel with the face of the lock case 3, great compactness is attained.

The slide 5 is provided with a notch or talon designed to receive a roll-back, which in this particular instance comprises a rotatable roll-back member 10, mounted in the case and controlled by a knob-spindle (not shown) designed to carry its knob at the outer side of the door, whereby the bolt may



be operated at the proper time from the outer side. In the particular form shown the roll back member 10 carries the pins  $10^a$   $10^b$  arranged to engage in the talon or head  $5^a$  at the proper time and at other times to be entirely free thereof, by being out of the line of movement of the head  $5^a$ , as shown in Fig. 3.

11 is a spring controlled friction lever designed to bear against both pins  $10^a$   $10^b$ , to frictionally engage the roll back member 10 in its idle position.

Looking at Fig. 3 if the roll back member 10 were rotated reverse clockwise, the pin  $10^b$  would engage in the talon or head  $5^a$  and would reciprocate the slide 5, shifting it to the position indicated in Fig. 4 and withdrawing the bolts 2— $2^a$ . As soon as the bolts are withdrawn, the roll back 10 would be moved a step farther until the pins  $10^a$  and  $10^b$  assume the position indicated in Fig. 4, in which position they are both out of line with the head  $5^a$ , thus making it possible to still operate the bolts 2— $2^a$  independently by means of the lever 4 at the inside of the door.

12 is a dog slidable in the case 3, the nose of the dog being designed to engage in suitable notches in the roll-back member 10, one of which always faces up therewith when said dog is in its normal position. This dog 12 preferably carries a tumbler 14, which may be actuated by roll back 15, which latter is actuated by any suitable means such as a key controlled spindle of any suitable design and construction. In Figs. 3 and 4 this dog 12 is shown as retracted. If the roll back 15 were turned reverse clockwise it would first release the tumbler 14 then shift the dog from the position shown to that in which the nose of the dog would engage in the notch in the member 10 facing said nose, thus locking the latter against movement.

It will now be seen that, because it is possible to operate the bolts from the outside of the door and to lock said outside operating means, it is of the utmost importance to guard against so locking the mechanism as to prevent any one, who may be accidentally inside the building, from escaping. To that end in the preferred form of this invention I employ substantially the means shown herein, or an equivalent means, whereby the two operating devices, to wit, the lever 4 and the roll back 10 have independence of action. By this arrangement should any one find himself supposedly locked in a building equipped with such a lock, he may freely escape by merely pressing in on bar 9 so as to project lever 4, which latter moves the slide 5 as usual in view of the fact that the head  $5^a$  is out of line of the actuating

pins  $10^a$   $10^b$  even though the roll back 10 is locked.

It will be understood, of course, that I have shown my invention only in its preferred form, appreciating that it would be impossible to show all the modifications thereof which would occur to the mechanic skilled in the art after a reading of the foregoing description and a study of the drawings referred to therein.

What I claim is:

1. In a panic bolt, a bolt member, a reciprocating slide arranged at the side of said bolt and operatively connected therewith, an operating member for operating the said slide and operatively engaging the same on a plane substantially at right angles to the plane of engagement between said slide and bolt, and a second means for operating said slide from the opposite side of the door, one of said means operating independently of the other, said slide being normally disengaged from one of said means.

2. In a panic bolt, a case, a bolt member, two independent oppositely arranged bolt operating devices including one member in common, said last mentioned member being operatively connected to said bolt by rack and pinion engagement, one of said operating devices being normally disconnected at a point within the case from said member in common.

3. In a panic bolt, a case, a bolt member, two independent oppositely arranged bolt operating devices including one member in common, separate from the bolt, said last mentioned member in common to said operating devices being operatively connected to said bolt by a rack and pinion engagement, one of said operating devices being mounted within the case normally disconnected from said member in common, and a dead locking device for the latter.

4. In a panic bolt, two oppositely arranged aligned bolt members, means for simultaneously projecting or retracting the same including a toggle connection, a pinion connected thereto, a slide rack for engaging said pinion, an operating member making operative engagement with said slide rack in a plane at substantially right angles to the plane of engagement of said rack and pinion, and a second operating means normally disconnected from said slide rack but arranged to make operative engagement therewith, said last mentioned operating means being accessible from the opposite side of the door from the first operating means.

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Witnesses:

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