

W. C. & J. M. THORPE.

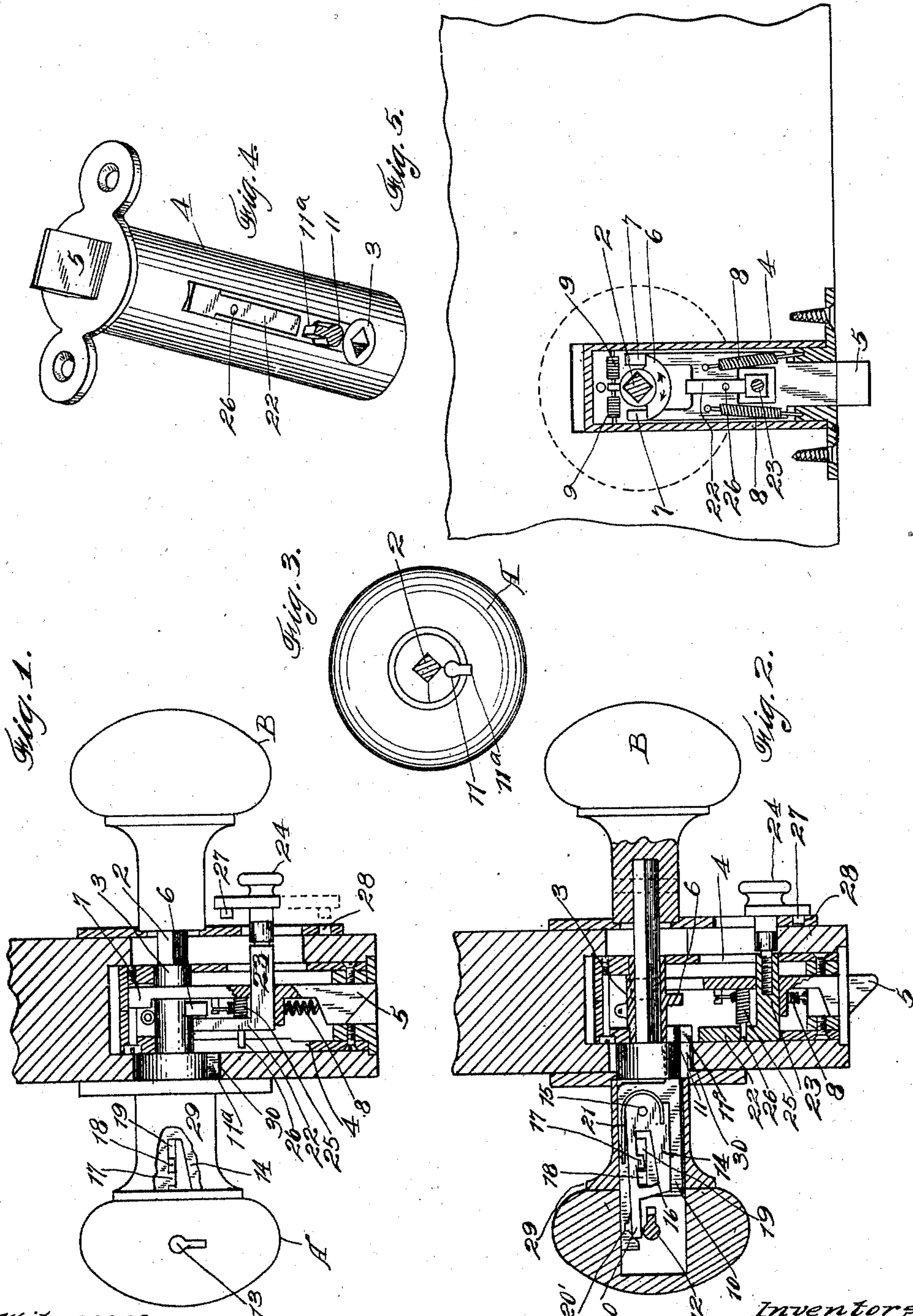
DOOR LOCK.

APPLICATION FILED MAY 22, 1909.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 1.

967,461.



Witnesses,

*F. E. Maynard.*  
*Chasberg.*

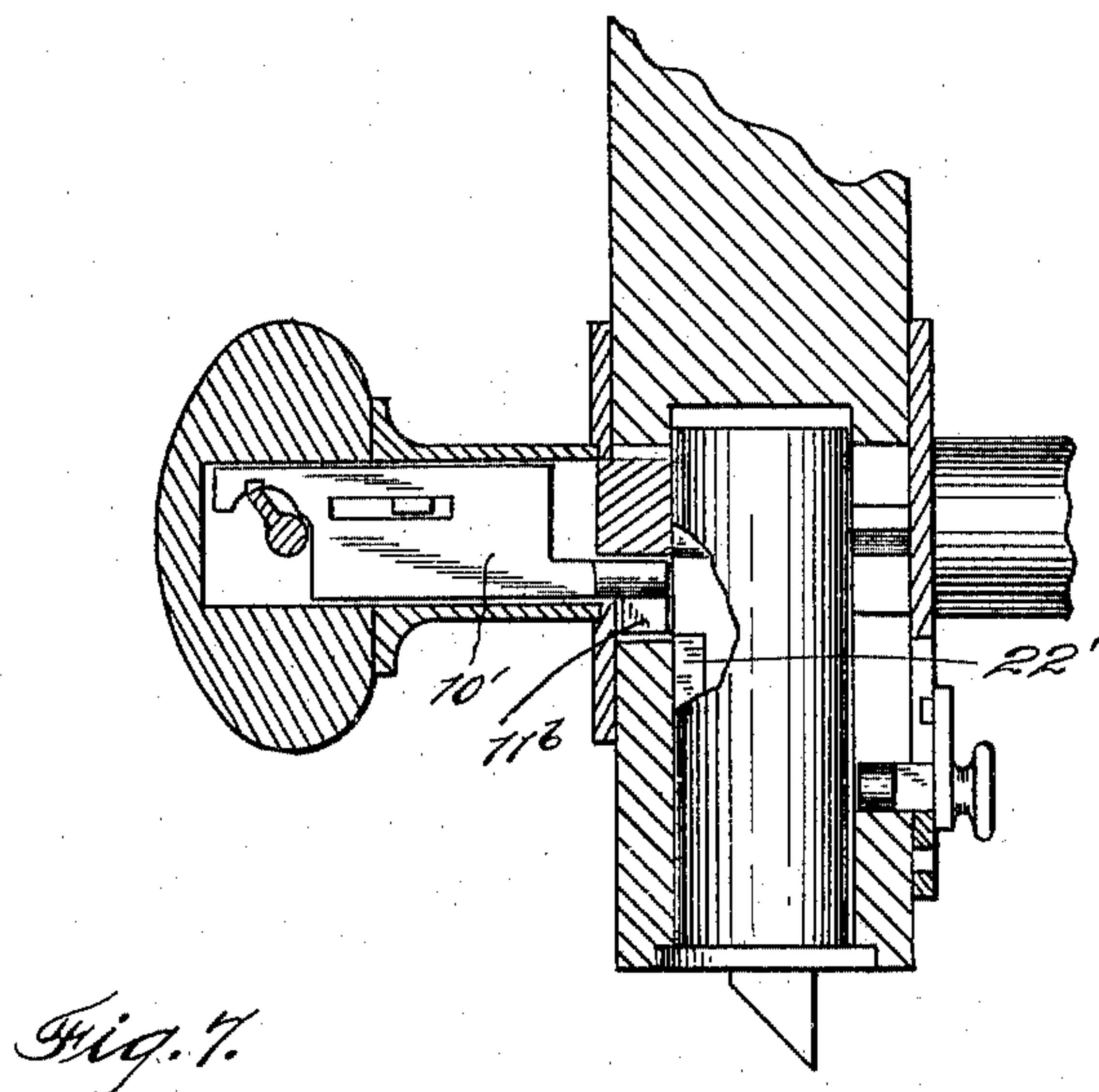
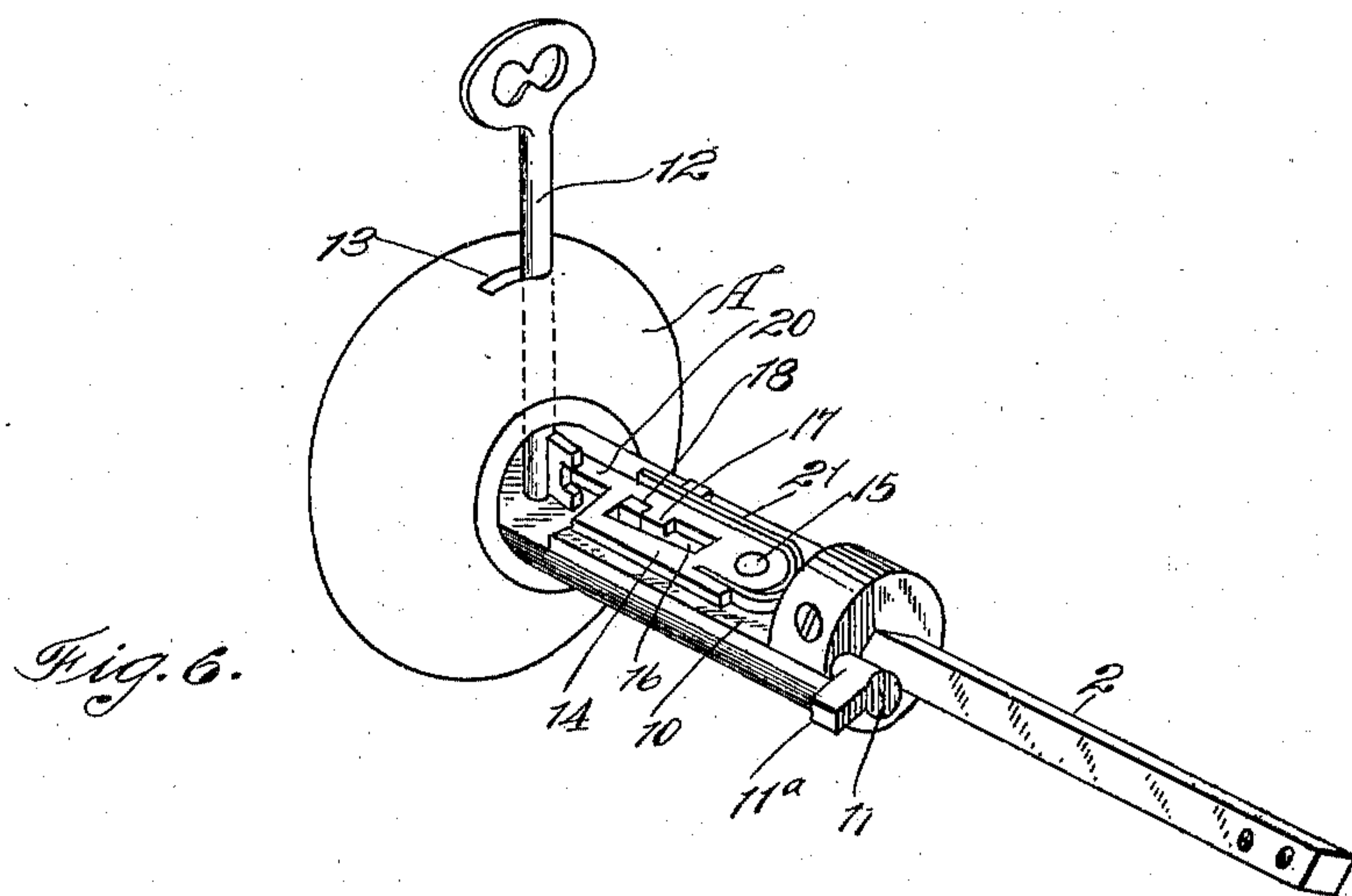
Inventors:  
*William C. Thorpe*  
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By *Geo. H. Strong.*  
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F. J. Maynard.  
H. S. Berg

Inventors;  
William C. Thorpe  
and Joseph M. Thorpe;  
By Geo. H. Strong  
their Attorney.



# UNITED STATES PATENT OFFICE.

WILLIAM C. THORPE AND JOSEPH M. THORPE, OF FRUITVALE, CALIFORNIA.

## DOOR-LOCK.

967,461.

Specification of Letters Patent.

Patented Aug. 16, 1910.

Application filed May 22, 1909. Serial No. 497,738.

*To all whom it may concern:*

Be it known that we, WILLIAM C. THORPE and JOSEPH M. THORPE, both citizens of the United States, residing at Fruitvale, in the county of Alameda and State of California, have invented new and useful Improvements in Door-Locks, of which the following is a specification.

Our invention relates to door locks. Its object is to provide a simple, practical door lock which can be manipulated from either the inside or the outside of the door when desired, which can be locked through the knob from the outside and still work from the inside, and which can be locked from the inside so that it cannot be worked from the outside.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a plan view in partial section of the lock with the latch bolt retracted. Fig. 2 is a similar view of the bolt in normal position with the door locked from the outside. Fig. 3 is an end view of the knob shank. Fig. 4 is a perspective of the latch bolt barrel or casing. Fig. 5 is a plan view in partial section taken through the barrel showing the latch bolt mechanism. Fig. 6 is a perspective of the outside knob and tumbler mechanism. Fig. 7 is a plan in partial section representing a modified form of tumbler.

A represents the outside knob and B the inside knob suitably connected together through the door by a polygonal knob spindle 2 which fits a collar 3 having a corresponding bore, and which collar is loosely mounted in the casing or barrel 4 which houses the latch bolt 5; the collar 3 having the cam shoulders 6 adapted to engage the projections or lugs 7 on the forked inner end of the latch bolt. The latter is projected normally outward into operative position to engage a keeper on the door-jamb, by suitable means, as the springs 8. Springs 9 act on the collar 3 normally to hold it with its cams 6 in neutral position with respect to the lugs 7, so as to allow the springs 8 to act on the latch bolt to project it outward into operative position. Manifestly by turning either of the knobs A—B in either direction, the cam shoulders 6 will engage one or

other of the lugs 7 on the latch bolt and retract the latter. Releasing the pressure on the knobs permits the springs 8 to again project the latch bolt outward as described.

In order to lock the knobs from turning we provide a tumbler plate 10 of suitable construction suitably housed in a chamber formed in the outside end of the knob shank, and which tumbler plate 10 has a tumbler member 11 adapted to slide back and forth lengthwise of the knob shank, according to the manner in which the key 12 is turned; this key being adapted to fit into a radially extending keyhole 13 in the outside knob A. The key 12 is of suitable construction and is adapted when inserted into the keyhole 13 to engage a locking plate 14 pivoted at 15 to the tumbler plate 10. This locking plate 14 is slotted, as shown at 16, and has a projection 17 on one side extending into the slot and adapted to engage on one side or the other of a lug 18 which is rigid with the knob shank and is immovable, but which projects through a longitudinal slot 19 in the tumbler plate 10. The free end of the locking plate 14 has a projection 20 extending into the path of the key 12; and tumbler plate 10 has a notch 20' to receive and engage with the key; so that by turning the key either way the locking plate will be moved, first, to disengage the projection 17 from the lug 18, and secondly, the tumbler plate 10 will be reciprocated. A spring 21 acts normally to press the end 20 toward the key and to cause the projection 17 to engage on one side or the other of the fixed guide lug 18. Thus in Fig. 1, the key having been turned to retract the tumbler member, the fixed guide lug 18 stands in front of the projection 17, so that the knobs can be turned and the bolt retracted. In Fig. 2, on the other hand, the key has been turned to move the tumbler into the lock to prevent the retraction of the latch bolt, as will be shortly described, and the fixed lug 18 stands behind the projection 17 on the locking plate 14. Consequently if the key is now withdrawn from the knob, the spring 21 will keep the locking plate 14 in engaged position with the lug 18, so that neither knob can be turned.

The tumbler member 11 is of cylindrical form and has a radial projection 11<sup>a</sup> which is movable according as the tumbler plate is reciprocated into and out of the path of



a stop member 22 which is rigid on a stem 23, which stem carries a turnable thumb-piece and locking member 24.

By referring to Fig. 2, it will be seen that  
 5 when the lug 11<sup>a</sup> is thrust inwardly by the tumbler 10, it registers with the slotted wall of the casing 4 (Fig. 4) thereby preventing the rotation of the knobs A—B, and also prevents reciprocation of stop 22 which  
 10 normally lies in the same slot receiving the projection 11<sup>a</sup>. Thus the thumb-piece 24 cannot be pushed toward the spindle 2 unless it is first pulled sufficiently to carry the stop 22 out of line with the interposed  
 15 projection 11<sup>a</sup>. The stop member 22 and stem 23 move back and forth with the latch bolt 5 and also have a limited movement transversely of the latch bolt, so that the stop member 22 may be carried into or out  
 20 of engagement with the tumbler 11. For this purpose the stem 23 has a sliding movement in, and crosswise of, the latch bolt 5, and the stem is made polygonal to work in a corresponding guide in the latch bolt so  
 25 that the member 22 cannot turn. A spring 25 encircling a fixed guide pin 26 acts on the stop member 22 to project the latter outwardly into opposed position to the tumbler projection 11<sup>a</sup>, as shown in Fig. 2;  
 30 but, as represented in Fig. 1, the spring and the space allowed within the lock permit the stop member 22 to be moved inwardly, as shown in Fig. 1, whenever the thumb-  
 35 hold 24 is grasped and pulled outwardly, as shown. One side of the barrel 4 is slotted lengthwise, as is likewise the side of the door, to accommodate the stem 23 as the latch bolt moves back and forth.

The thumb-piece 24 carries a latch member 27 which is adapted to engage a notch 28 in the face plate of the lock, when turned in dotted line position, Fig. 1, and as represented in Fig. 2, so as to prevent the latch  
 40 bolt 5 being moved. When the latch 27 is caught in the notch 28 it is impossible to turn the knob, even if the tumbler plate is in the unlocked position of Fig. 1.

The tumbler plate 10 and its locking plate 14 are suitably incased by a sleeve 29 surrounding the outside portion of the knob  
 50 shank.

In operation, the parts being suitably assembled in a door, the lock is worked as follows: Ordinarily, where it is desired to  
 55 operate the latch by means of the knobs, the key 12 is turned so as to release the locking plate 14 from the locking lug 18 and reciprocate the tumbler plate so as to withdraw the tumbler catch 11<sup>a</sup> into the space 30 in  
 60 the door casing and out of the path of the stop member 22 on the latch bolt. Also, the thumb-piece 24 is drawn outward to disengage the catch 27 from its seat 28 and turned into full line position of Fig. 1.  
 65 Then it is possible to work the latch by

turning the knob. If the thumb-piece 24 is turned so that the catch 27 is engaged with the hole 28, as shown in Fig. 2, then it is impossible either to turn the knob or re-  
 70 tract the bolt.

If it is desired to lock the door from the outside, the key is turned to throw the tumbler plate inwardly and carry the projection 11<sup>a</sup> into the path of the stop member 22. In  
 75 this case the knob cannot be turned because of the projection 11<sup>a</sup> engaging the stop member, but the latch can be retracted from the inside by simply pulling out on the thumb-  
 80 piece 24 so that the stop 22 will be carried past the end of the tumbler when the latch is pushed back by turning the knob, as shown in Fig. 1. Thus the latch can  
 always be worked from the inside, no matter whether the door is locked or not; while the knob can not be turned to open the door,  
 85 either when the door is locked, or when the latch 27 is engaged with its keeper 28.

In Fig. 7, we have shown a modification in which a simple form of tumbler block 10' is employed, which is shifted back and forth  
 90 to carry the tumbler member 11<sup>b</sup> into and out of the path of the stop member 22' on the latch bolt.

It is manifest or possible that the construction herein specified may be varied  
 95 without departing from the principle of the invention, and we desire it to be understood that the invention is not limited to any specific form or arrangement of parts, except in  
 100 so far as such limitations or their mechanical equivalents are specified in the claims.

Having thus described our invention, what we claim and desire to secure by Letters Patent is—

1. In a lock, the combination of a recip-  
 105 rocating latch bolt, means including a knob and its spindle for actuating the latch bolt, a key, said knob having a radially extending key hole, a tumbler carried by the knob spindle and operated by the key, a turnable  
 110 thumb piece and a stop member carried thereby and movable into range of action of the tumbler and adapted to prevent the operation of the latch bolt by the knob.

2. In a lock, the combination of a recip-  
 115 rocating latch bolt, a knob having a knob spindle to actuate the latch bolt, a key, the knob having a radially extending keyhole, a tumbler carried by the knob spindle and operated by the key, said tumbler interposed  
 120 in the path of stop means on the latch bolt to prevent the operation of the latter by the knob, and means connected with said stop on the latch bolt to disengage the latter from  
 125 the tumbler independent of the key.

3. In a lock, the combination of a recip-  
 130 rocating latch bolt, means including a knob and a knob shank for operating the latch bolt, a tumbler member mounted in and slidable lengthwise of the knob spindle, and a



stop member carried by and movable crosswise of the latch bolt and engageable with said member to prevent the actuation of the latch bolt.

5 4. In a lock, the combination of a reciprocating latch bolt, means including a knob, a knob spindle and a roll-back for actuating the latch bolt, a tumbler member slidable lengthwise of the knob spindle, a key for operating the tumbler, said knob having a key hole through which a key is passed to actuate the tumbler, and a stop member carried by the latch bolt and arranged parallel therewith and movable into the range of action of the tumbler, and adapted to be engaged by the tumbler, to prevent the operation of the latch bolt by the knob.

10 5. In a knob, the combination of a reciprocating latch bolt, means including a knob, a knob spindle and a roll back for actuating the latch bolt, a tumbler member slidable lengthwise of the knob spindle, a stop member carried by and movable crosswise of the latch bolt and engageable with said tumbler to prevent the actuation of the latch bolt by the knob, a key operating through the knob for actuating the tumbler, a fixed member on the knob shank, and a locking member carried by the tumbler and engageable and disengageable with said fixed member.

25 6. In a lock, the combination of a reciprocating latch bolt, a knob and a knob spindle operative on the latch bolt to actuate the latter, a tumbler member slidable lengthwise of the knob shank, means on the latch bolt

engaging with the tumbler member to prevent the actuation of the latch bolt, and a key for operating the tumbler, said mentioned means on the latch bolt including a stop member carried thereby and movable crosswise of the latch bolt. 40

7. In a lock, the combination of a reciprocating latch bolt, means including a knob and a knob spindle engageable with the latch bolt to operate the latter, a tumbler member carried by the knob spindle and movable lengthwise thereof, and a stop member carried by and movable crosswise of the latch bolt and engageable with said tumbler. 45

8. In a lock, the combination of a reciprocating latch bolt, means including a knob and a knob spindle engageable with the latch bolt to operate the latter, a tumbler member carried by the knob spindle and movable lengthwise thereof, a stop member carried by and movable crosswise of the latch bolt and engageable with said tumbler, said stop member having a thumb-piece, and means cooperating therewith to limit the movement of the latch bolt. 50

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

WILLIAM C. THORPE.  
JOSEPH M. THORPE.

Witnesses:

W. B. RINEHART,  
L. B. PUTZMAN.