

No. 855,177.

PATENTED MAY 28, 1907.

T. B. JACK.
DOOR LOCK.

APPLICATION FILED FEB. 9, 1907.

Fig. 1.

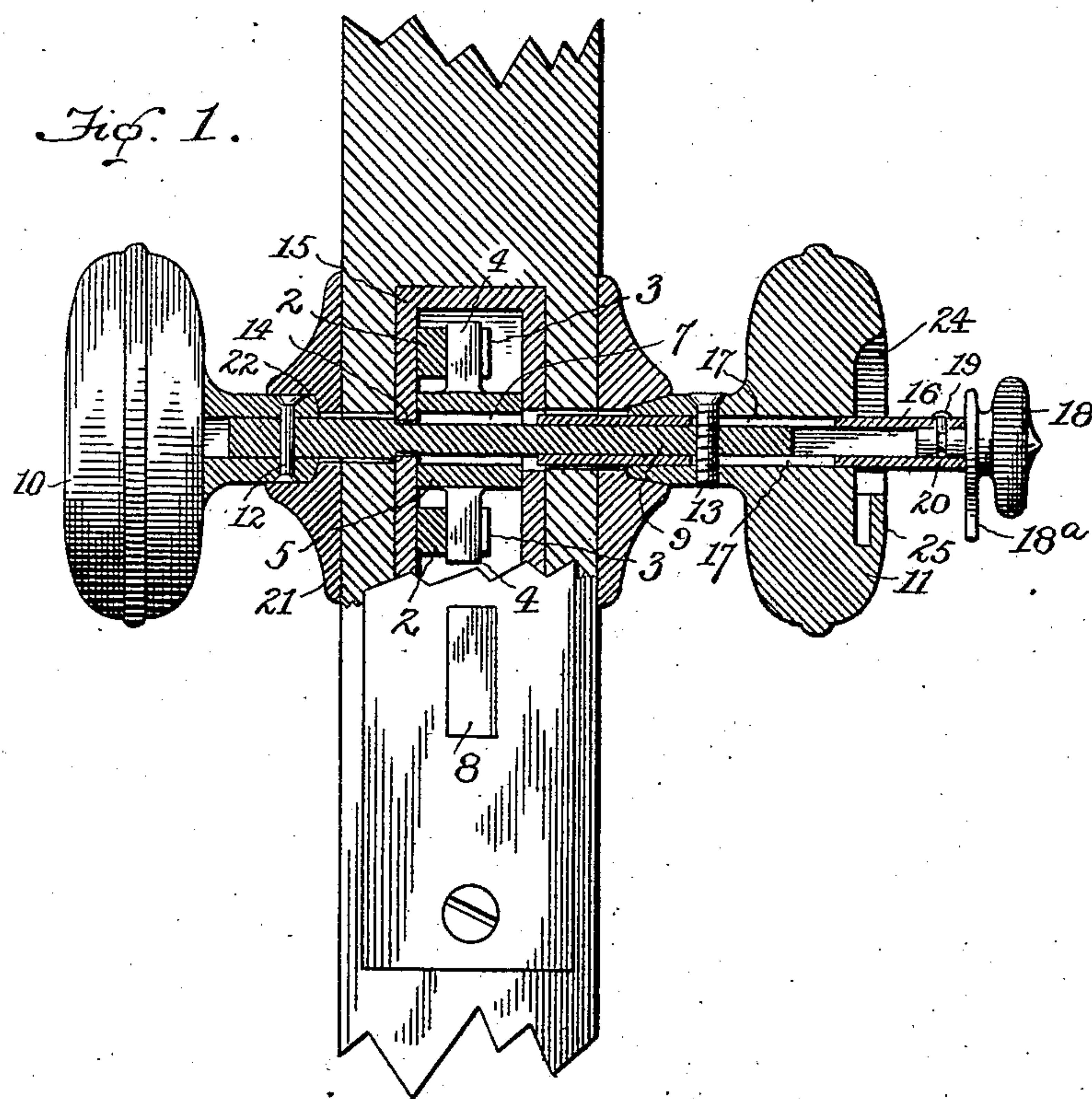


Fig. 2.

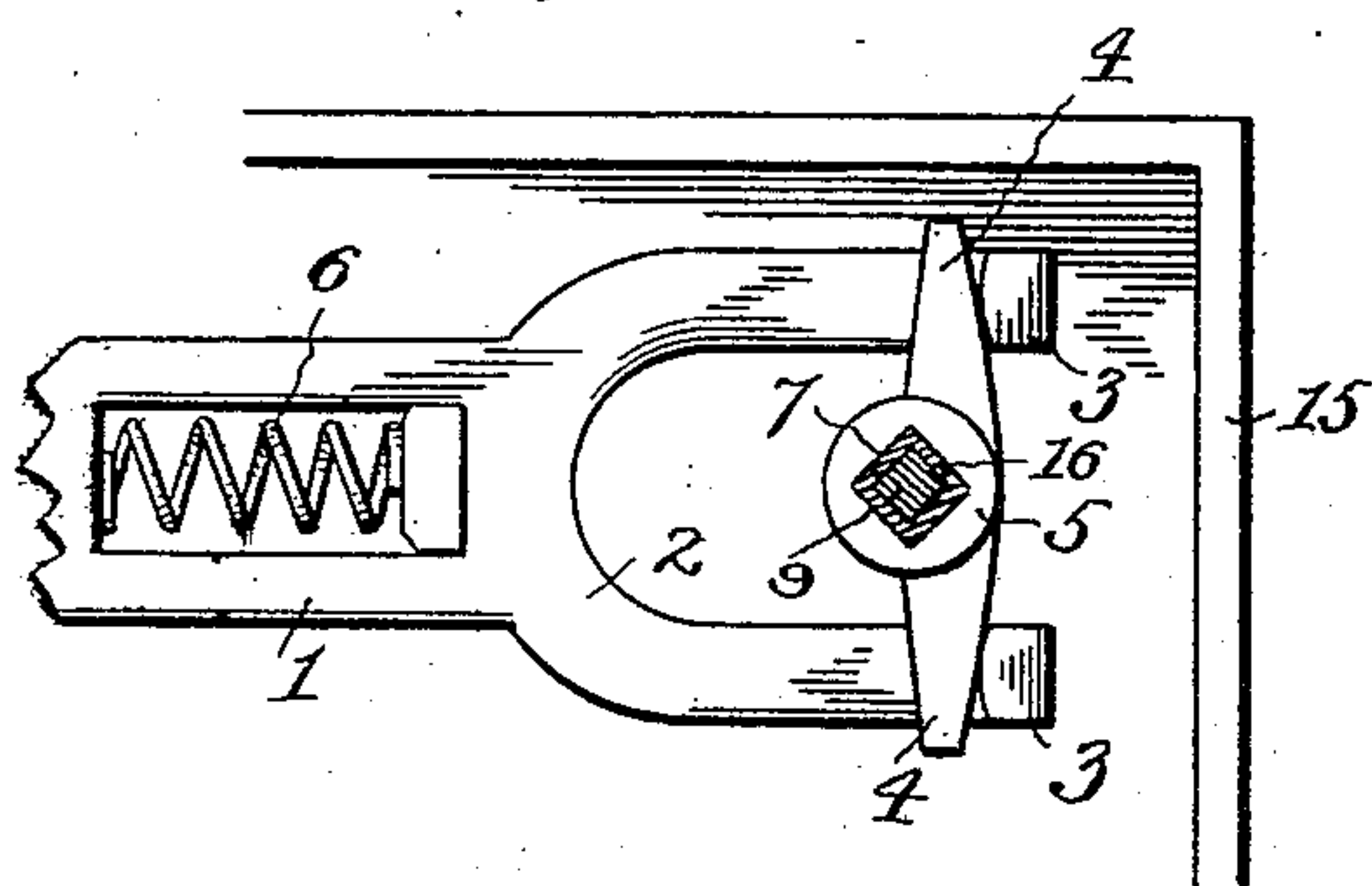
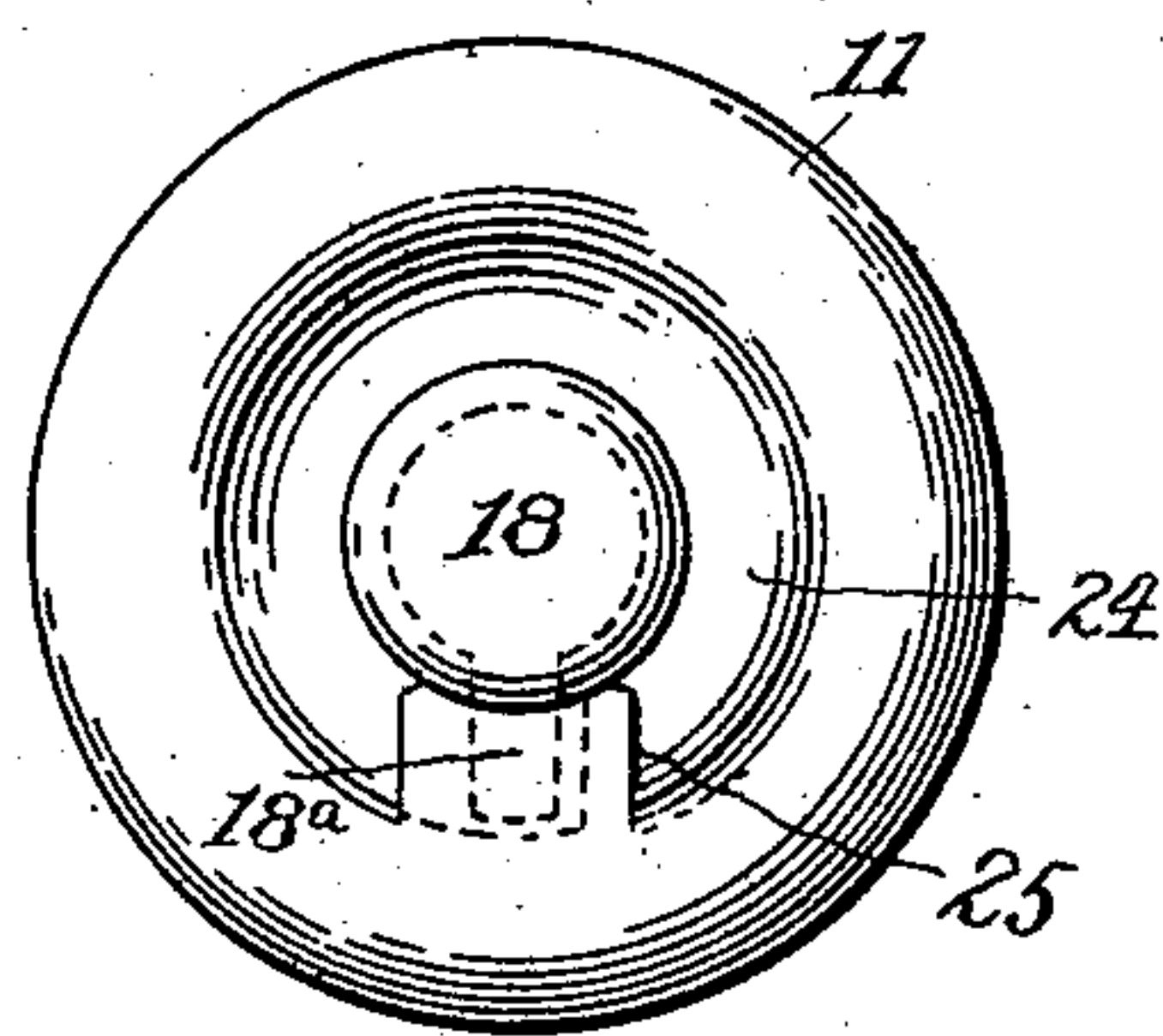


Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS B. JACK, OF HERMINIE, PENNSYLVANIA.

DOOR-LOCK.

No. 855,177.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed February 9, 1907. Serial No. 356,577.

To all whom it may concern:

Be it known that I, THOMAS B. JACK, a citizen of the United States, residing at Herminie, in the county of Westmoreland and State of Pennsylvania, have invented a Door-Lock, of which the following is a specification.

This invention is an improvement in locks, and relates more especially to the class of house-door locks.

The primary object of the invention is to improve or modify the construction of the prevailing type of house-door lock, whereby the knob-spindle in addition to performing its usual function of releasing the spring-latch of the lock may be made to work loosely in the lock mechanism so that the latch cannot be released by turning said spindle, whereby said latch in such instance performs the function of a locking-bolt.

With this principal object in view the invention consists primarily in making that part of the knob-spindle which passes through the latch-operating hub smaller than the square opening in the hub so as to work loosely therein, and mounting upon one end of the spindle a slidable sleeve having a squared end adapted to be moved in and out of engagement with the square opening in the latch operating hub, said sleeve having a projection at one side of the door, preferably the inner side, whereby it may be shifted into and out of engagement with the latch-operating hub, whereby when in its latter relation, or out of engagement with the hub, the latch cannot be released from the outer side of the door.

The following specification, in connection with the accompanying drawings, gives a full disclosure of the invention, and what I claim as novel is more specifically set forth in the appended claims.

In the drawings: Figure 1 is a vertical transverse sectional view through a door and its lock mechanism, showing the application of my invention thereto. Fig. 2 is a detail view of the spring-latch and its operating hub, showing the manner of connecting the spindle thereto. Fig. 3 is a view looking at the knob at the inner side of the door.

Like numerals of reference indicate like parts in all the figures of the drawings.

My invention is applied to the ordinary form of house-door lock, in which is employed the usual latch-bolt 1 having the

yoke 2 with the lugs 3, the latter being engaged by the oppositely disposed arms 4 projecting from the hub 5, through which latter the knob-spindle passes, the said latch being normally projected by a spring 6 and retracted by the operation of the hub 5 through the instrumentality of the spindle, as is usual. These parts, with the exception of the knob-spindle, hereinafter described, are all of the ordinary construction, and are shown herein for the purpose of illustrating the application of my invention. It will be obvious, however, that any other form of latch-bolt and operating device therefor may be employed, the only requirement being that the operating device for the latch be provided with some means, as a square opening 7, for the engagement of the knob-spindle therewith.

The lock may be also provided with the usual locking-bolt 8, and operating mechanism therefor (not shown), though of course this is not essential, for as will hereinafter appear the latch-bolt will perform the function of the usual locking-bolt in addition to its function as a latch.

In carrying out my invention the knob-spindle 9, preferably of one piece, is reduced in size where it passes through the square opening 7 of the hub 5, and so that said spindle of itself will not operatively engage the hub. The ends of the spindle pass through the door beyond the opposite sides thereof, and are provided with knobs 10 and 11 secured thereto. The knob 10, at the outer side of the door, is preferably secured to the spindle by means of a rivet 12, while the knob 11 at the inner side of the door is secured by the usual screw 13. By reducing the size of the spindle where it passes through the lock a shoulder 14 is formed and adapted to bear against that side of the lock-casing 15 toward the outer knob 10, for the purpose hereinafter explained.

The rear portion of the spindle is of the same size as that part which passes through the hub 5, and has slidably mounted thereon a sleeve 16, the latter having its inner end squared to engage the correspondingly-shaped opening 7 in the operating hub 5. The slidable engagement of the sleeve with the spindle, so as to turn therewith, is secured preferably by having the spindle square in cross-section and providing the sleeve with a corresponding opening, and the

sliding movement of the sleeve upon the spindle may be limited by the screw 13 which passes through opposite slots 17 in said sleeve. The outer end of the sleeve passes through the knob 11 and is provided with a milled wheel 18, by which it is conveniently pushed in and out, said wheel being secured to the sleeve in any suitable manner, for instance by means of a pin 19 and groove 20, as shown. The arrangement of the sleeve is such that when moved to the limit of its outward movement the inner end thereof is disposed slightly beyond the hub 5, as shown in Fig. 1, so that said hub cannot be turned by turning the spindle. But when the sleeve is moved inward it will operatively engage the hub so that when the spindle is turned by either knob said hub will be turned to release the latch. In this manner, as will be readily seen, the spring-latch may act either as a latch or a locking-bolt, according to the disposition of the sleeve on the spindle, and as the sleeve can be operated only from the inner side of the door the latter cannot be unlocked from the outer side when the sleeve is disposed out of operative relation to the hub.

Certain precautions are taken to prevent the lock from being tampered with, as for instance removing the outer knob 10 and pushing the spindle in so as to permit the insertion of a square rod that will operate the hub 5. In the present instance, therefore, the door-plate 21 which receives the knob 10 is provided with a deep recess, as 22, which receives so much of the inner end of the hub of the knob as to include the rivet, and thus prevent said rivet from being forced out. Of course when this deep recess is provided an ordinary screw, as used in connection with the knob 11, may be used, as it is protected against removal, but inasmuch as a screw would be liable to get loose and bind in the recess a rivet is more satisfactory. As an additional security against tampering with the lock in the manner stated I purpose that the shoulder 14, hereinbefore referred to, shall act to prevent an inward movement of the spindle in case the outer knob is removed, inasmuch as said shoulder will contact with the lock-casing, the opening in said lock-casing being slightly smaller than the shoulder. The withdrawal of the spindle from the outer side of the door is prevented of course by the knob 11 which bears against the inner door-plate. In applying the spindle it is inserted from the outer side of the door, and after slipping on the sleeve 9 and knob 11 the screw 13 is threaded through the

sleeve and spindle and serves to securely connect the parts.

The bearing of the knobs in the door-plates disposes the reduced portion of the spindle at the center of the opening 7 in the operating-hub 5, and so that the spindle will not wear the opening when the sleeve is out of operative engagement therewith.

It will be understood, of course, that the lock may be used on the front door of a dwelling, or to the doors leading to apartments in a hotel or other hostelry, and in every instance will provide a secure lock for the door without the employment of the removable key usually employed.

In order to retain the sleeve 16 in engagement with the latch operating hub 5 I provide the rotatable knob 18 on the outer end of said sleeve with a projecting finger 18^a, adapted to engage behind a plate or keeper 25 formed on the knob 11. The space behind the plate which receives said finger is closed at one end, so that the finger will be held in engagement with the keeper when the knob 11 is turned to open the door. This will prevent accidental disengagement of the sleeve.

Having described my invention, I claim:

1. In a door lock, the combination with the latch, operating-hub therefor, and knob-spindle, the latter being smaller than the opening in the operating-hub through which it passes, of a sleeve slidably mounted on the knob-spindle and adapted to be moved in and out of engagement with the operating-hub.

2. In a door lock, the combination with the spring-latch and operating-hub therefor, the latter having a square opening there-through, of a spindle extending through the operating-hub and smaller than the opening therein, a sleeve slidably mounted on the spindle and extending through one of the knobs and adapted to be moved in and out of engagement with the opening in the operating-hub, said sleeve having slots at opposite sides, a screw connecting the knob to the spindle passing through said slots to limit the movement of the sleeve, and a milled wheel or knob secured to the outer end of the sleeve, substantially as shown and described.

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

THOMAS B. JACK.

Witnesses:

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