

PANIC BOLT.

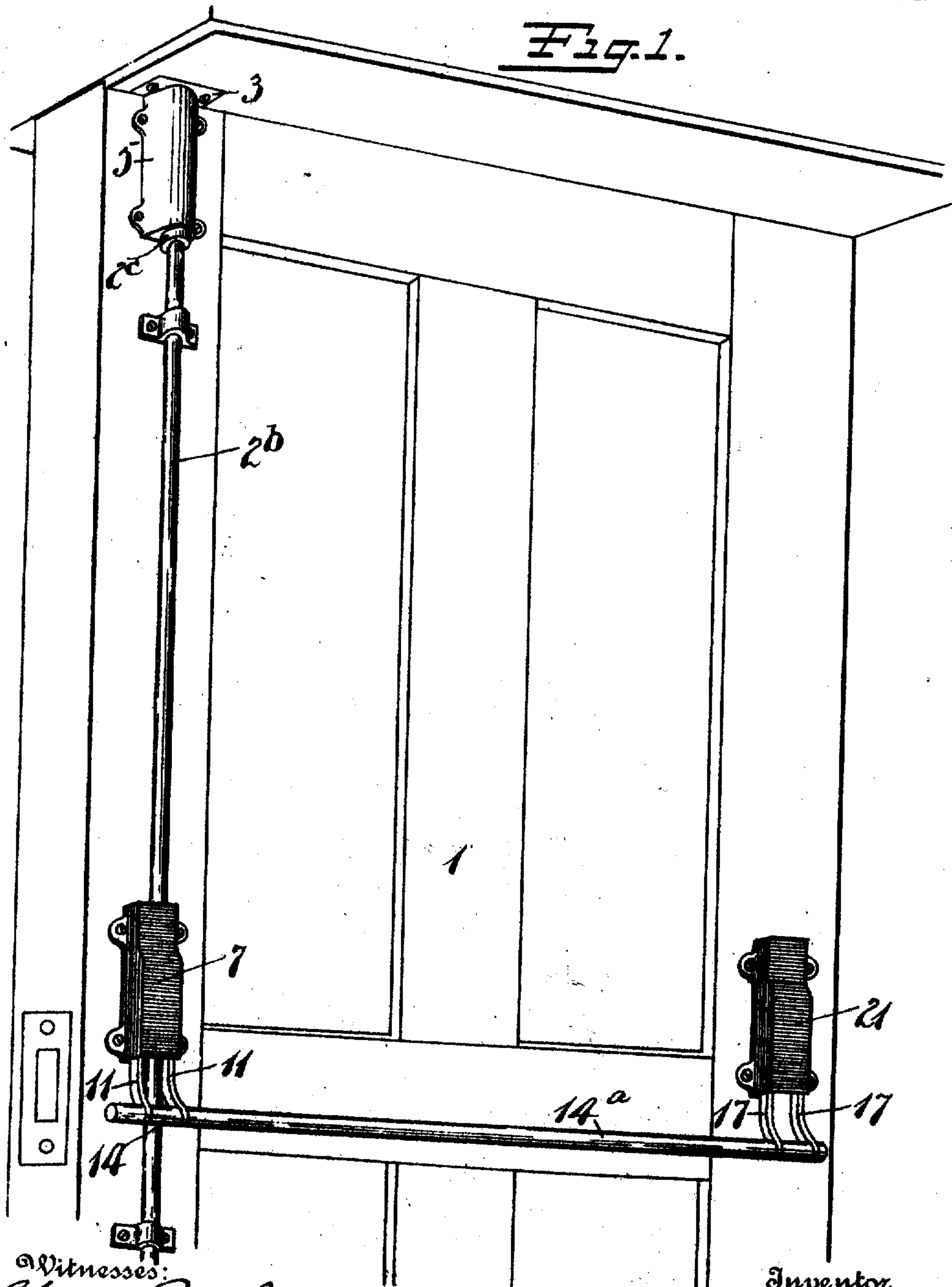
APPLICATION FILED JUNE 24, 1908.

912,211.

Patented Feb. 9, 1909.

2 SHEETS-SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

Fig. 4.

Fig. 3.

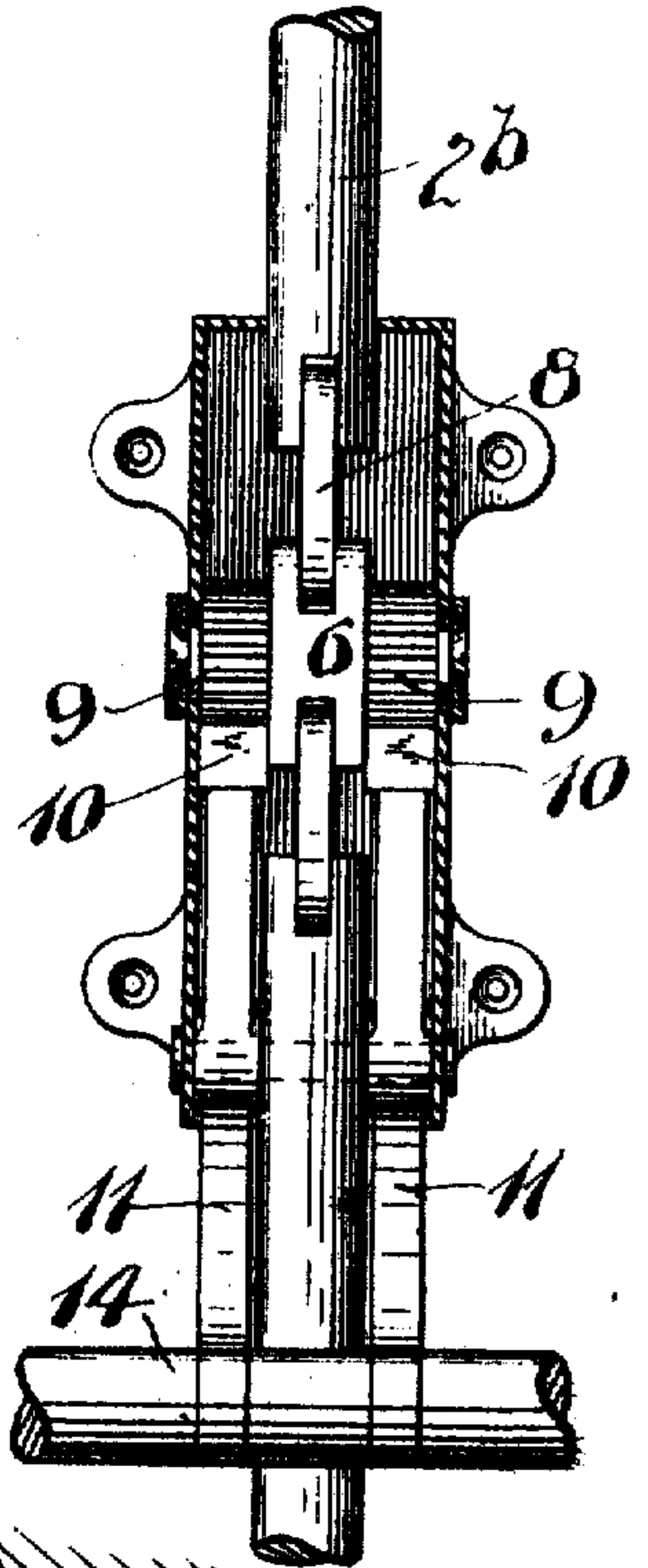
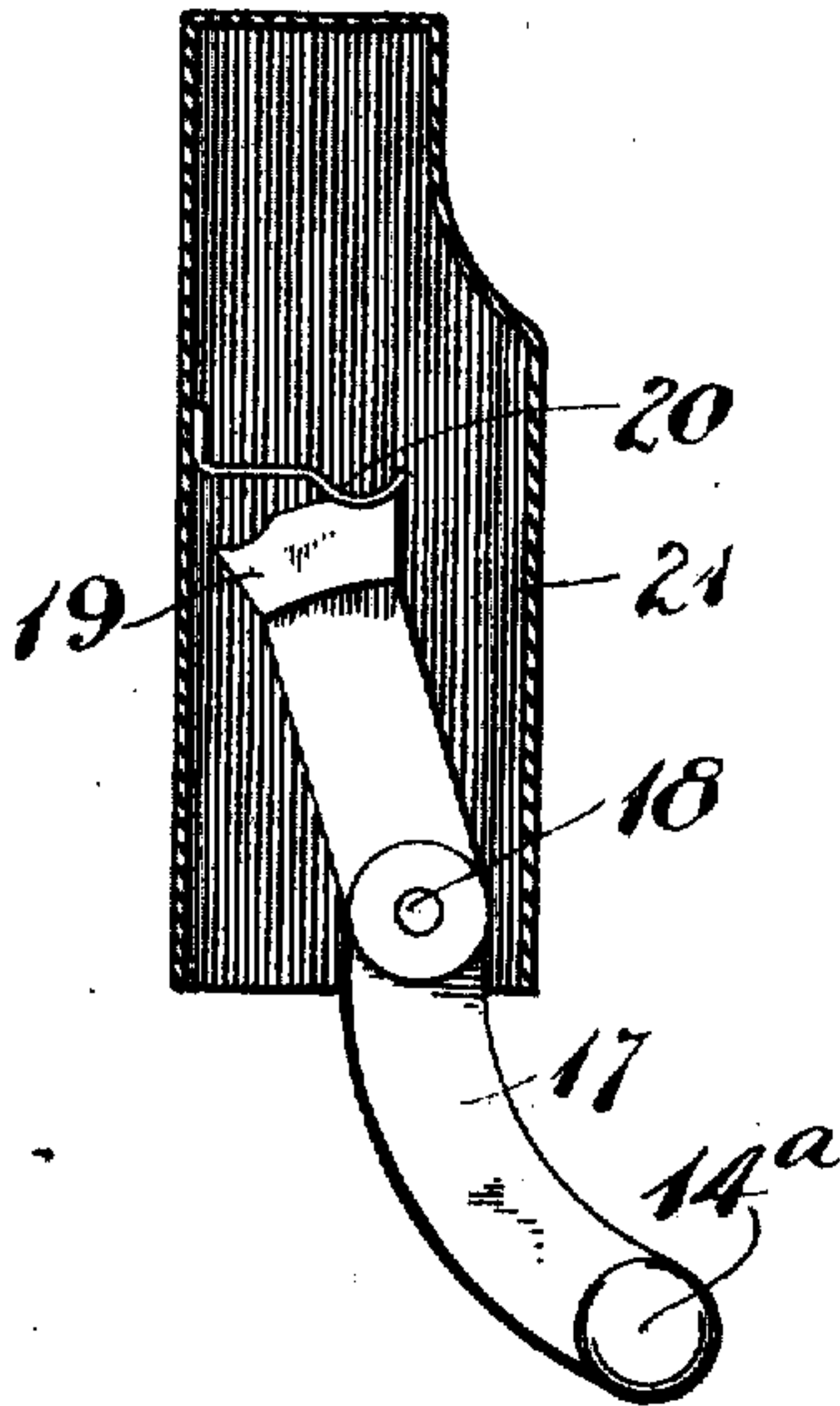
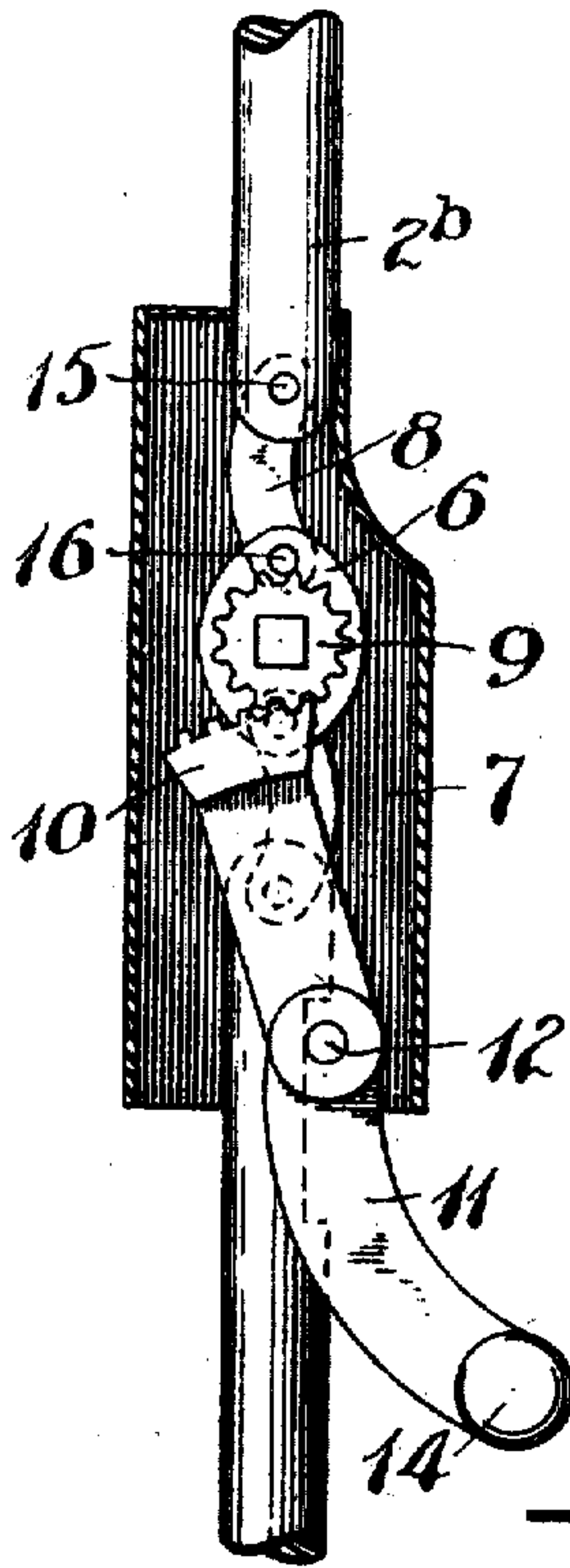
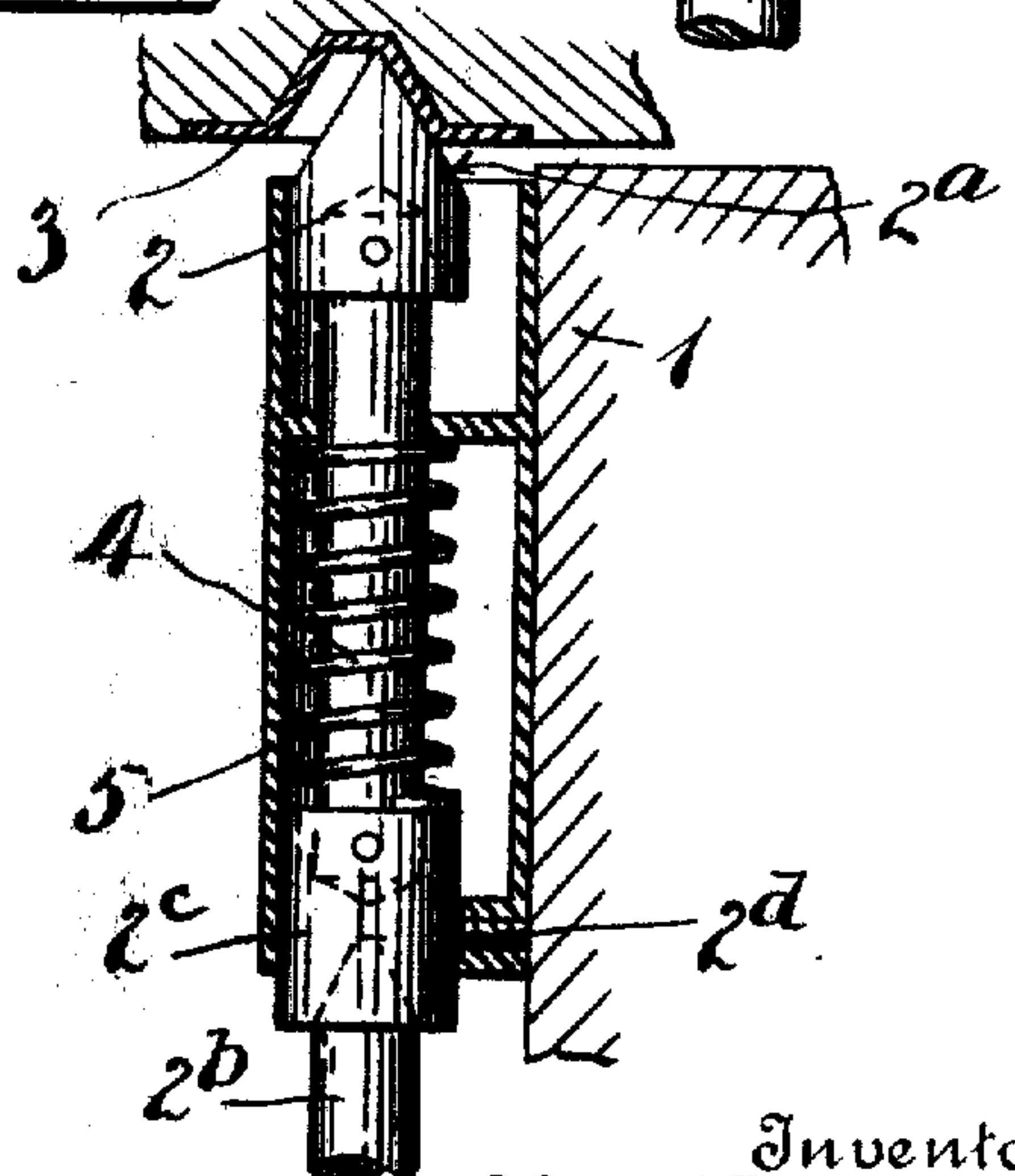
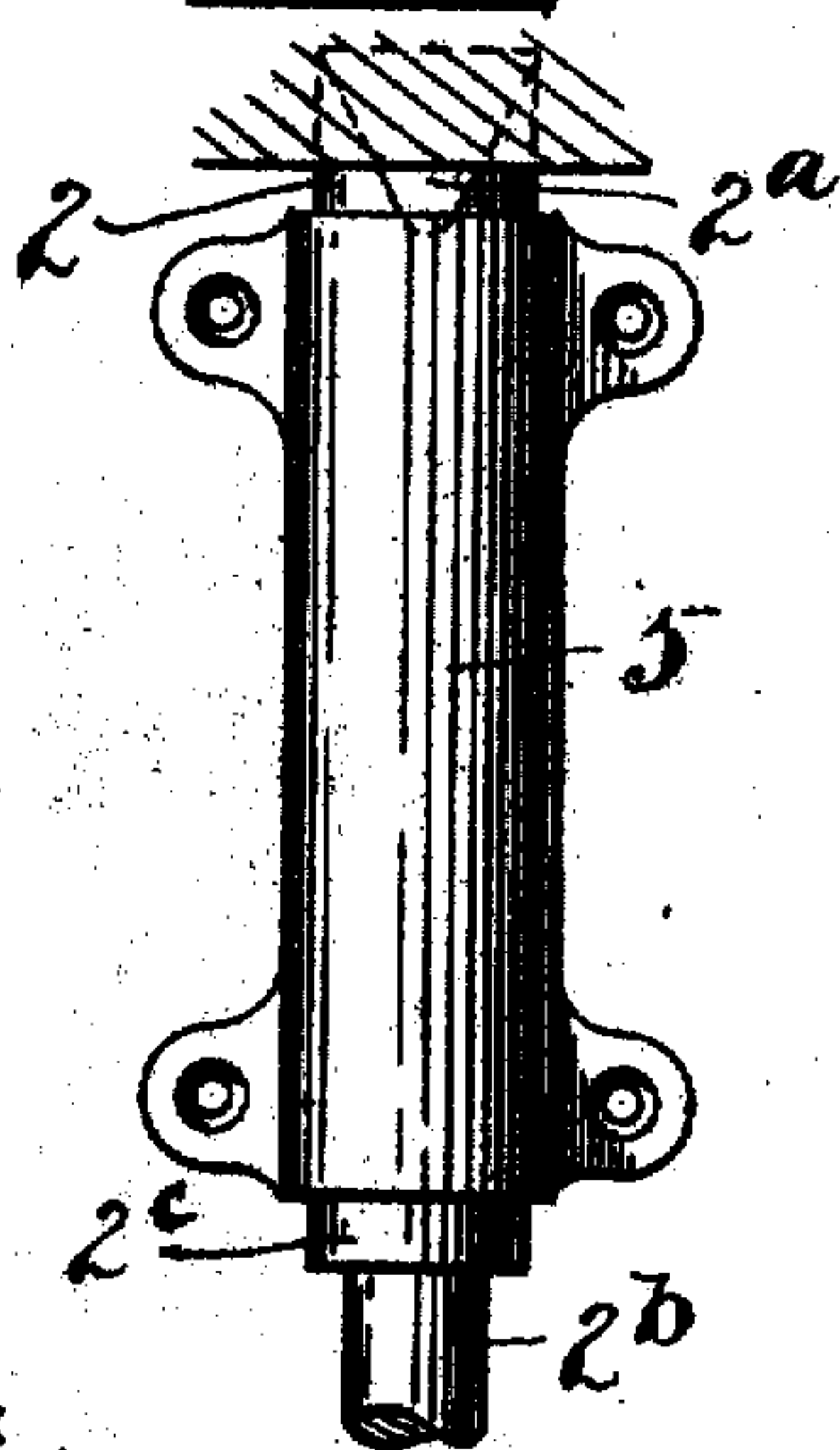


Fig. 5.

Fig. 6.



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PANIC-BOLT.

No. 912,211.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed June 24, 1908. Serial No. 440,084.

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 Panic-Bolts, of which the following is a full, clear, and exact description.

My invention relates to locks, and particularly to so-called panic door bolts, the object of the invention being to provide a simple and effective locking mechanism for doors, which mechanism shall be such that in the event of a panic and heavy pressure being applied to the inside of the door, such as would tend to cramp or bind the ordinary bolt, such pressure would be availed of and utilized to retract the bolt, so as to free the door and permit it to swing open.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 represents, by a perspective view, the main portion of my invention as applied to a door; Fig. 2 is a relatively enlarged side elevation of certain details of construction, one part being in section; Fig. 3 is a front elevation of said parts, also partly in section; Fig. 4 is a side elevation of another detail, also partly in section; Fig. 5 is a front elevation of another detail; Fig. 6 is a vertical section of the part shown in Fig. 5, certain details thereof being in elevation.

1 represents a door adapted to swing outwardly.

2 represents a bolt arranged to take into a suitable shaped keeper 3, carried by the casing. In this instance, the bolt shown is of the so-called "Cremorne" type, such type including a bolt-head arranged to take into the casing above the door, and another bolt-head arranged to take into the door sill. A description of one bolt-head and its various connections, will be sufficient, since said bolts may correspond. The locking side of said bolt-head 2 is beveled back, as best shown in Fig. 6, so as to present an incline, as indicated at 2^a. Pressure against the bolt shown in Fig. 6, from the left-hand side, would have a tendency to cause a retraction or repression of the bolt-head 2 by reason of the aforesaid incline, but when the door is locked, this retracted movement is effectively prevented, one means therefor being hereinafter described.

4 is a spring which is, by preference, provided and located within a housing 5, the operation of said spring being to aid in re-

tracting the bolt-head 2 in the event of an emergency. The bolt-head 2 is provided with a suitable tail 2^b.

6 is a crank member having a suitable pivotal mounting in the frame or case 7. 8 is a link connecting said member 6 with the tail 2^b.

9 is a gear mounted on the member 6.

10 is a segment meshing with gear 9, such segment being carried by the lever arm 11. The lever arm 11 is pivoted at 12 in the frame or case 7.

14 is a handle projecting sufficiently away from the door so that when said handle is pressed in or pulled out, it will rock the lever 11, moving the rack 10 and partially rotating the gear 9 and the member 6.

The arrangement and the proportion of parts is such that the pivotal connections 15 and 16 of the link 8 will approximately line up with the axis of the gear 9, when the bolt-head 2 is projected, thus forming a dead center, this serving as a very effective means to hold said bolt projected, excepting in the case of an emergency. As will be shown, when the said bolt is projected, the handle 14 stands in such a position that when pressure is applied thereto toward the door 1, it will move it in a direction to retract the bolt through the connections just described. From the foregoing it follows, that should this bolt be used upon a door of a public building or hall and should a panic occur on the inside, a crowd of persons pressing against the door would be bound to move the handle 14 in a direction to dislodge and retract the bolt-head 2 from keeper 3, thus unlocking the door and permitting it to swing open from the pressure within.

A further improvement comprises extending the handle 14 across the full width of the door, as shown at 14^a (Fig. 1) connecting it with a lever 17 upon the opposite door stile. This lever 17 is fulcrumed at 18 and preferably carries a head 19, having notches therein arranged to be engaged by spring 20, arranged within a housing or frame 21. The function of the spring 20 is to hold said lever 17, and the associated parts, against being dislodged by vibration. If a crowd should press against the door 1, this pressure would be taken by the transversely extending handle 14^a, which would be forced inwardly, spring 20 yielding to permit the same. This would simultaneously cause the retraction of the bolt-head 2. The weight of a crowd

or the pressure against the inner side of a door will not cause the bolt-head 2 to wedge or jam because of the incline 2^a, but, on the contrary, by reason of said incline said bolt
 5 will be all the more readily freed when the proper time arrives, and in the event of a panic. This feature is one of the utmost importance, because in such an emergency the ordinary bolt will tend to cramp and bind,
 10 and even though special retracting devices may be employed, this cramping and binding may be so great as to absolutely prevent operation of said devices.

As shown, I preferably provide two levers
 15 11—11, and two heads 10—10. Likewise, I provide two levers 17—17, thus securing very great strength, for, in devices of this character, which are made for the express purpose of withstanding great strain and
 20 pressure in the event of an emergency, it is most important that these devices be efficient and durable.

Another feature of importance and involving a preferred construction, is the loose
 25 connection of the tail 2^b with the lower head 2^c of the bolt. In the preferred construction, the end of the tail 2^b is beveled, as indicated in dotted lines Fig. 6, and is arranged to take into a corresponding recess in
 30 the lower end of said lower bolt head, as shown. In this construction it follows that but very little strain is required upon the operating handle 14 to withdraw the tail 2^b, thus putting very little strain upon the inter-
 35 mediate connection between the handle and the tail. Under all ordinary circumstances, the bevel on the bolt head 2 would eventually force the bolt back, even though the spring did not operate, but the advantage of having
 40 the tail 2^b independent of the bolt would be found in the fact that if the bolt hung momentarily, during that period, there would be no excessive strain upon the handle and the intermediate part, but it would instantly
 45 operate to withdraw the tail 2^b, so that the bolt 2 would be subsequently forced back, either by the spring 4 or by the action of the bevel 2^a, as before explained. By this arrangement the danger of wrecking the
 50 apparatus is entirely avoided in the event of a sudden powerful movement on the handle which would not cause an immediate response on the part of the bolt.

Since in the preferred construction, the
 55 tail 2^b is independent of the head 2^c, it is preferred to have means to prevent the bolt 2 and head 2^c from rotating, such as a key or spline of any suitable form. In the draw-

ings, 2^d represents a key in the form of a screw carried by the case 5 at the rear, the
 60 nose of said screw projecting into a longitudinal groove at the back of the head 2^c. This guarantees the proper facing up of the bevel 2^a with the adjacent coacting surface
 65 of the keeper 3.

Another advantage of this construction resides in the arrangement by which only a very slight movement of the handle is required to completely withdraw the bolt tail
 70 2^b. In the arrangement shown it is obvious that the gear 9 must make substantially a quarter turn to completely withdraw said tail. By suitably proportioning the rack and the length of the lever 11, only a very slight
 75 movement (much less than a quarter turn) is required of the lever 11 to give the necessary movement to the gear 9.

What I claim is:

1. In a lock, a bolt, means for projecting
 80 said bolt, including a movable handle projecting outwardly from the door and movable toward and from said door, and an independent means for retracting said bolt when the handle is moved toward the door.

2. In a lock, a bolt, means for projecting
 85 said bolt, including a movable handle projecting outwardly from the door and movable toward and from said door, an independent means for retracting said bolt when the handle is moved toward the door, said
 90 means comprising a spring operating against the bolt projecting movement of the handle.

3. In a lock, a bolt, means for projecting
 95 said bolt, including a movable handle projecting outwardly from the door and movable toward and from said door, an independent means for retracting said bolt when the handle is moved toward the door, and a toggle system of connection between the
 100 handle and the bolt for holding the bolt projected while the handle is in the out position.

4. In a lock, a bolt, means for projecting
 105 said bolt, including a movable handle projecting outwardly from the door and movable toward and from said door, an independent means for retracting said bolt when the handle is moved toward the door, and means automatically controlled by the movement of the handle for holding the bolt in
 110 its projected position when the handle is in the out position.

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