

W. S. CLAWSON.  
DOOR LOCK.

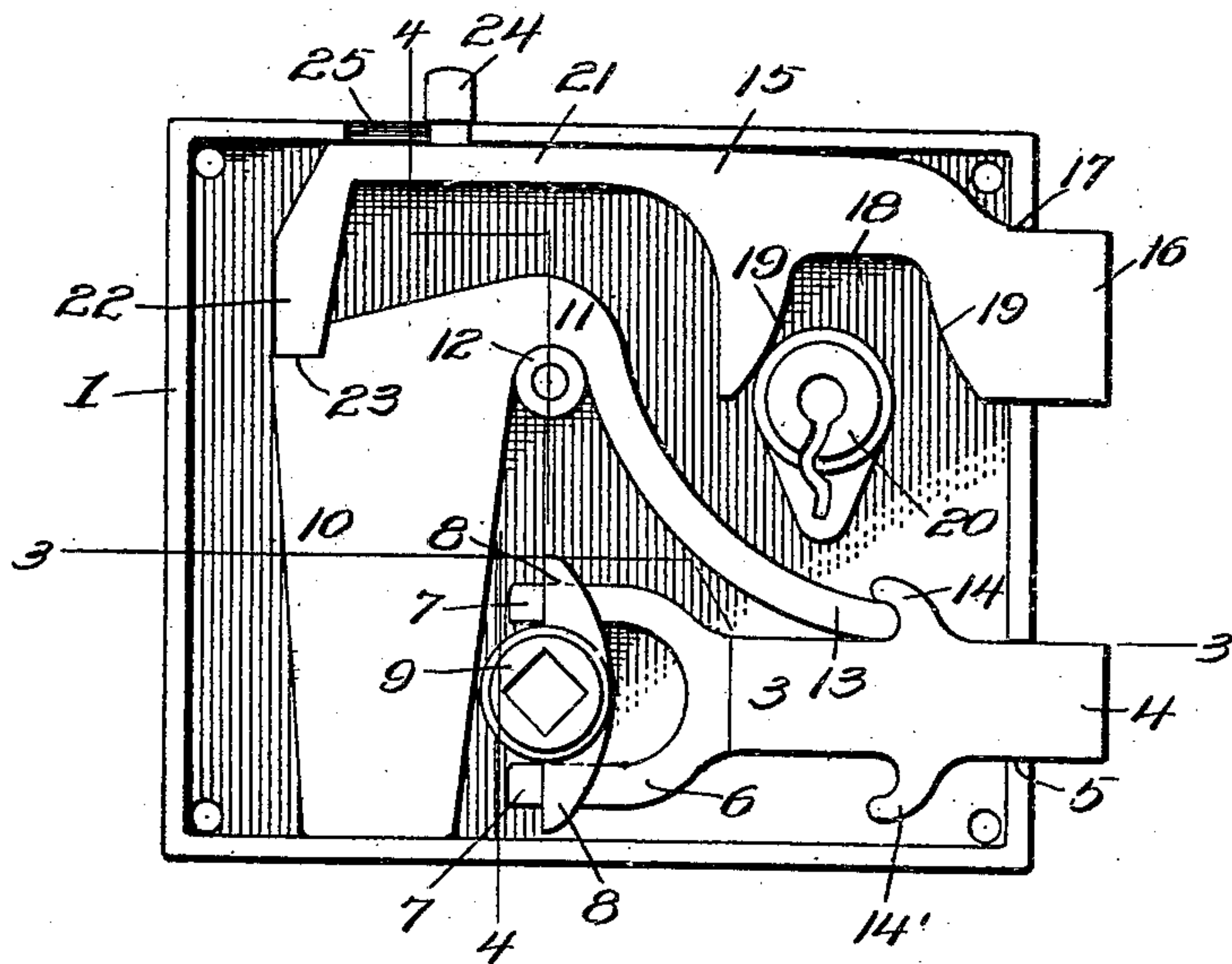
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931,567.

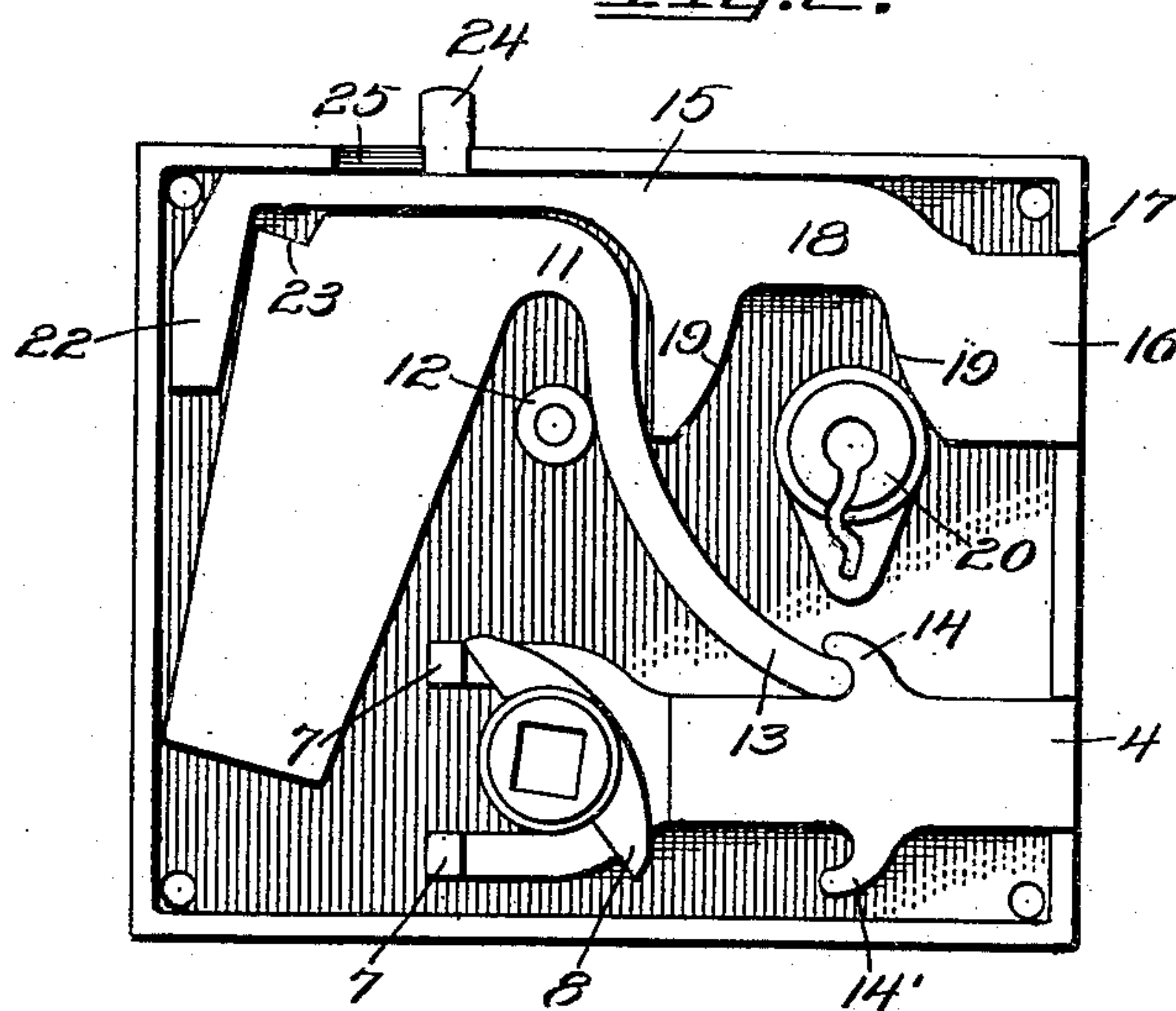
Patented Aug. 17, 1909.

2 SHEETS—SHEET 1.

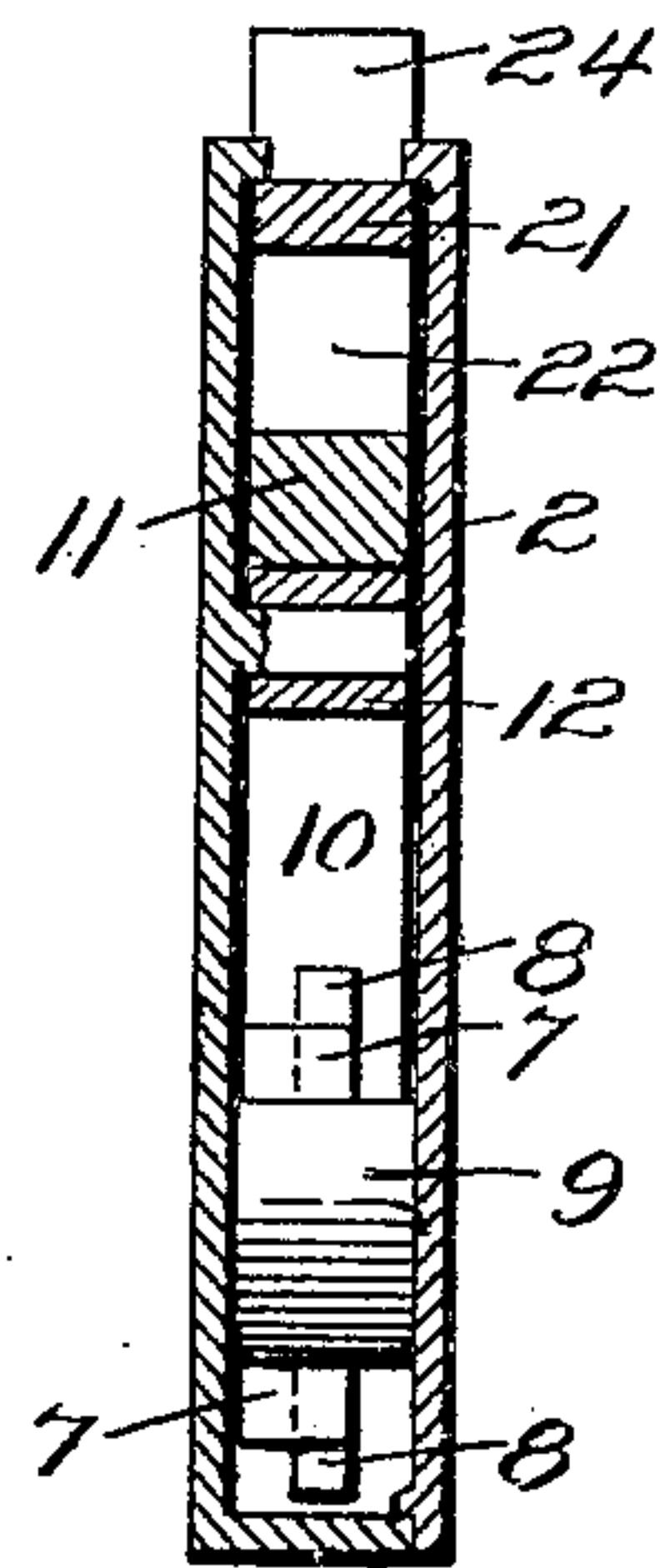
*Fig. 1.*



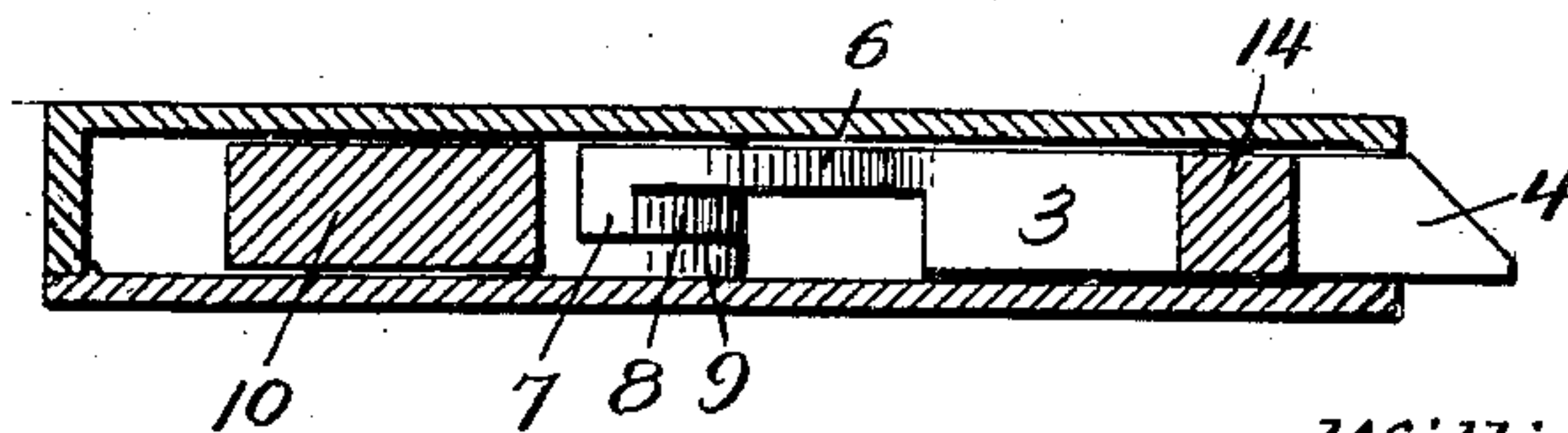
*Fig. 2.*



*Fig. 4.*



*Fig. 3.*



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Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM S. CLAWSON, OF LAWRENCE, KANSAS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE CLAWSON LOCK MANUFACTURING COMPANY, OF KANSAS CITY, MISSOURI, A CORPORATION OF MISSOURI.

## DOOR-LOCK.

No. 931,567.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed March 23, 1909. Serial No. 485,303.

*To all whom it may concern:*

Be it known that I, WILLIAM S. CLAWSON, a citizen of the United States, residing at Lawrence, in the county of Douglas and State of Kansas, have invented new and useful Improvements in Door-Locks, of which the following is a specification.

This invention relates to improvements in locks of that type having a latch bolt and a locking bolt.

One object of the invention is to provide a lock which dispenses with the use of controlling springs, thus eliminating a type of element which is liable to easily break and render the lock inoperative.

Another object of the invention is to provide a lock having a gravity controlled element to project the latch bolt, and which is also adapted to lock both bolts in projected position.

Still another object is to provide a lock in which the locking bolt may be both projected and retracted from the interior without the use of a key, but cannot be retracted from the exterior without the use of a proper key.

With these and other objects in view, the invention consists of the features of construction, combination and arrangement of parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a view of the inner side of the lock with the face plate of the casing removed, showing the bolts projected. Fig 2 is a similar view, showing the bolts retracted. Figs. 3 and 4 are cross-sections on the lines 3—3 and 4—4 of Fig. 1. Fig. 5 is a view similar to Fig. 1 showing a modified construction. Fig. 6 is a cross section on an enlarged scale on line 6—6 of Fig. 5. Fig. 7 is an elevation of a portion of the lock shown in Fig. 5 with the latch bolt retracted. Fig. 8 is a top plan view of the latch bolt shown in Figs. 5, 6 and 7.

In the form of my invention disclosed in Fig. 1, wherein I have shown the invention embodied in a rim lock, 1 designates the casing of the lock having an open outer side adapted to be closed by the usual face plate 2, the casing and lock being secured to each other and to the door in any preferred manner. Within the lower front portion of the casing is arranged a latch bolt 3 having an outer locking end 4 movable through a slot 5 in the front end wall of the casing. The inner

or rear end of this bolt, whose locking end is adapted to engage a suitable keeper on the door frame, is forked or bifurcated, as shown at 6, and the arms of this fork are formed with lateral lugs 7 adapted to be engaged by the oppositely extending arms 8 of a rotary tumbler 9 mounted upon the knob shaft, not shown, in the usual manner, so that upon turning said shaft in one direction or the other the latch bolt may be retracted.

The bolt 3 is controlled and automatically projected by a gravity tumbler 10, comprising a metallic block or plate vertically arranged in the rear portion of the casing and preferably having a slightly tapering form, as shown. The lower or reduced end of said tumbler is adapted to rest upon the bottom of the casing when the bolt 3 is projected, to prevent further downward and forward movement of said tumbler. The upper front portion of the tumbler block is provided with a forwardly and downwardly curved shoulder 11 which is mounted for pivotal movement upon a pin or roller 12 supported by the casing, and is formed with a downwardly and forwardly projecting arm 13 terminating at its free end above the bolt 3 and engaging a curved finger 14 projecting upwardly and rearwardly from the central portion of said bolt. It will thus be understood that when the bolt is retracted by the action of the knob shaft, the finger 14 engaging the arm 13 will carry the latter rearwardly with it and cause the tumbler block to swing upwardly and forwardly on the pivot 12, and that when the knob shaft is released the tumbler will drop by gravity to its normal position and automatically project the bolt through the forward motion of the arm 13. Hence provision is made for the projection of the latch bolt by a simple type of gravity controlled element, whereby the use of springs or other parts liable to easily break and render the lock inoperative is obviated. The bolt 3 is provided below the finger 14 with a duplicate finger 14', thus adapting it to be reversed for use upon a reversely swinging door.

Arranged within the upper portion of the casing is a horizontal sliding locking bolt 15 having an outer locking end 16 movable through a slot 17 in the outer end wall of the casing. The front portion of said bolt in rear of the nut 16 is formed with a substantially V-shaped slot 18 providing opposite



abutting shoulders 19, which slot is adapted to receive the point of a V-shaped or tapering key-actuated tumbler 20, which is engageable with the abutting shoulders 19 to project and retract said bolt. The tumbler 20 is provided with a preferred type of slot designed to register with keyholes in the rear and face plates of the lock, by which it may be actuated upon the insertion of a proper form of key. The bolt 15 is provided with a rearwardly projecting shank or extension 21 overlying the tumbler 10 and formed at its rear end with a depending detent or locking arm 22 adapted to engage a recess 23 in the upper rear portion of the tumbler, by which the latter may be held from upward and forward pivotal movement when the bolt 15 is projected, as shown in Fig. 1, to keep the bolt 3 projected and prevent it from being retracted by the actuation of the knob shaft. The bolt 15 is provided with a finger piece 24 projecting downwardly through and movable in a slot 25 formed in the upper wall of the casing, by which said bolt may be manually projected and retracted from the inner side of the door. As a result of this construction, it will be seen that the locking bolt may be both projected and retracted without the use of a key from the inner side of the door, and that when said bolt is projected the latch bolt 3 will also be locked thereby in projected position, thus giving double security when it is desired to lock the door against intrusion from the outside except to an authorized person having the kind of key designed for use to operate the tumbler 20. It will be observed that the space below the shank 21 and between the portions 19 and 22 of the bolt 15 is of proper shape to receive the upper portion of the gravity tumbler 10 when said bolt 15 is retracted, thus permitting said gravity tumbler to swing upward in the operation of retracting the bolt 3, as shown in Fig. 2.

In the embodiment of the invention shown in Figs. 5 to 8 inclusive, the construction of the lock is substantially the same except that the finger piece 24 and slot 25 are dispensed with and a guiding means for the bolt 15 provided consisting of a longitudinal slot 26 formed in said bolt and engaging a guide pin 27 carried by the casing. In this construction, therefore, it will be understood that the bolt 15 can only be actuated through the operation of the tumbler 20 by a proper key, but that said bolt when projected serves to lock the gravity tumbler from movement and also hold the bolt 3 projected. In this construction I also provide means supplemental to the knob shaft and tumbler by which the latch bolt 3 may be retracted from either the inner or the outer side of the door, or both, as desired, when the locking bolt 15 is in retracted position. The casing disclosed in this instance is designed for a mortise lock,

and in the bottom portion of said casing is pivotally mounted a bell crank lever 28 having one of its arms 28<sup>a</sup> vertically movable through a slot 29 in the lower wall of the casing and its other arm 28<sup>b</sup> slidably and pivotally connected with the bolt 3. The slot 29 communicates with a transverse passage 30 formed in the door, to the opposite sides of which are secured plates 31 carrying handles 32 by which the door may be opened independently of the knobs. These plates are slotted in line with the passage 30 and have each pivotally mounted thereon a lever 33 which projects at one end into the passage 30 and engages the under side of the arm 28<sup>a</sup>, while its outer end is provided with a thumb or finger piece 34, by which said lever 33 may be swung to lift the arm 28<sup>a</sup> and thus effect the retraction of the bolt 3 in an obvious manner. It will be observed that the thumb piece 34 is arranged above the handle 32 so that the outer end of the lever 33 may be depressed by the thumb of the hand of the operator engaging said handle to elevate the inner end of the lever to retract the bolt. This construction allows the latch bolt 3 to be retracted from either side of the door, and the latter to be opened by either handle 32 in lieu of the usual knobs, thus permitting the knob shaft to be dispensed with if desired, but only one of the levers 33 may be employed to enable the bolt 3 to be retracted from the inner or outer side of the door, in which event the slot in the plate at the opposite side will be omitted so that said plate will cover the adjacent portion of the passage 30. This type of lock affords convenience in the operation of latching and unlatching an inside door when it is desired to enable the same to be released from either side of the doorway, but by employing only one lever 33 on the inner side of the door the lock may be employed as efficiently for outside doors. This construction, as well as that shown in Figs. 1 to 4 inclusive, may therefore, be employed to enable the latch bolt to be manipulated from the inside and prevent it from being manipulated from the outside, while securing the advantage of holding both bolts from retraction when the locking bolt 15 is projected.

Having thus fully described the invention, what is claimed as new, is:—

1. A lock embodying a latch bolt, means whereby the same may be manually retracted, and a gravity controlled element for automatically projecting said bolt, a locking bolt provided with means for engaging and holding said element in latch bolt projecting position when said locking bolt is projected, and means for manually shifting said locking bolt.

2. A lock embodying a sliding latch bolt, means for manually retracting the same, a pivotally mounted gravity tumbler having



an arm engaging said bolt and adapted to automatically project the same, a sliding locking bolt, a projection carried by said locking bolt to engage and hold the tumbler 5 in latch bolt projecting position when said locking bolt is projected, and means for manually shifting said locking bolt.

3. A lock embodying a sliding latch bolt having a finger, means for manually retract- 10 ing said bolt, a pivotally mounted tumbler block having an arm engaging said finger and adapted to automatically project the

latch bolt, a key actuated locking bolt, a projection carried by said locking bolt to engage and bolt said tumbler block in latch bolt 15 projecting position when the locking bolt is projected, and means for manually shifting said locking bolt.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM S. CLAWSON.

Witnesses:

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