

No. 845,613.

PATENTED FEB. 26, 1907.

Y. Q. CALDWELL.
LOCK.

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Fig. 1.

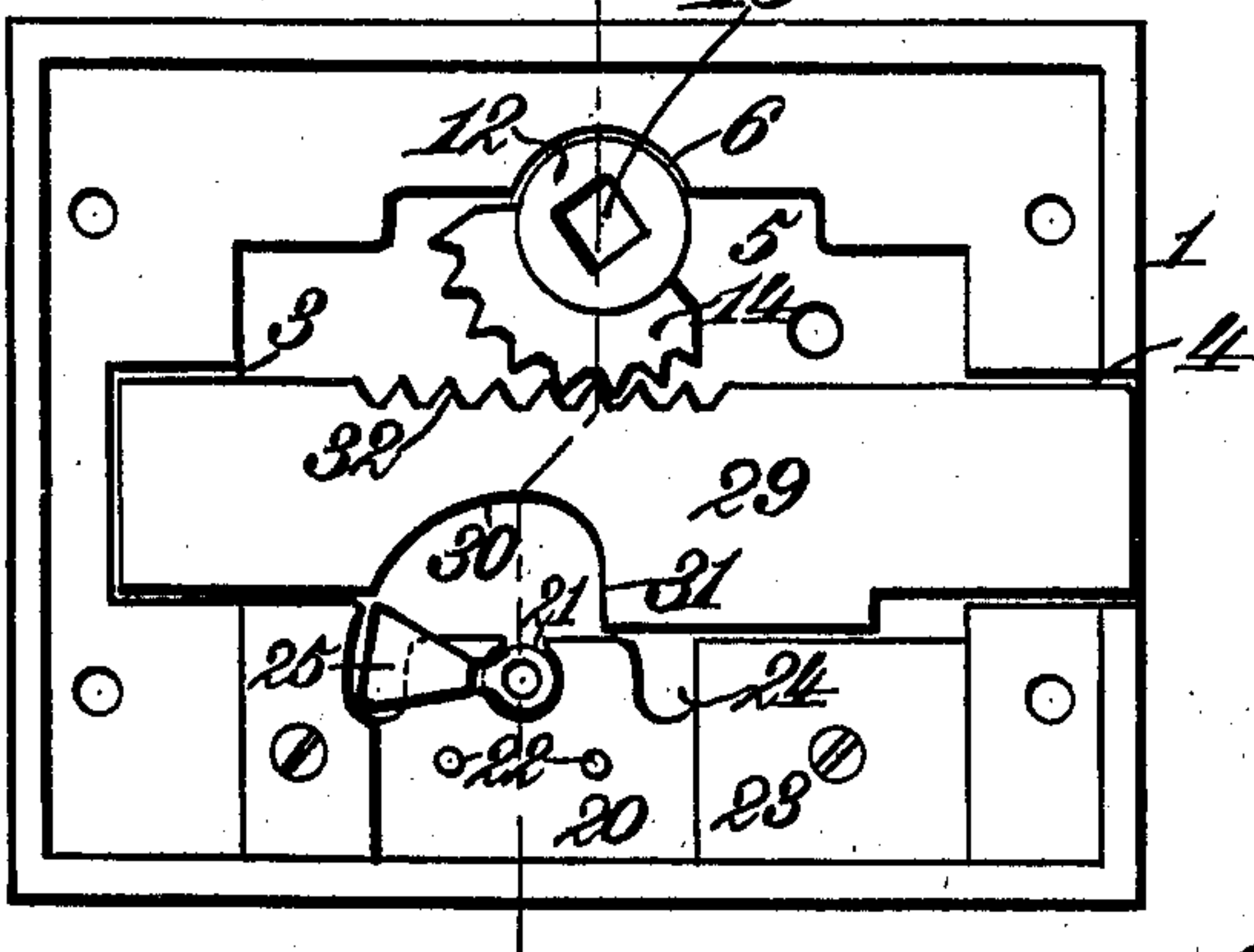


Fig. 2.

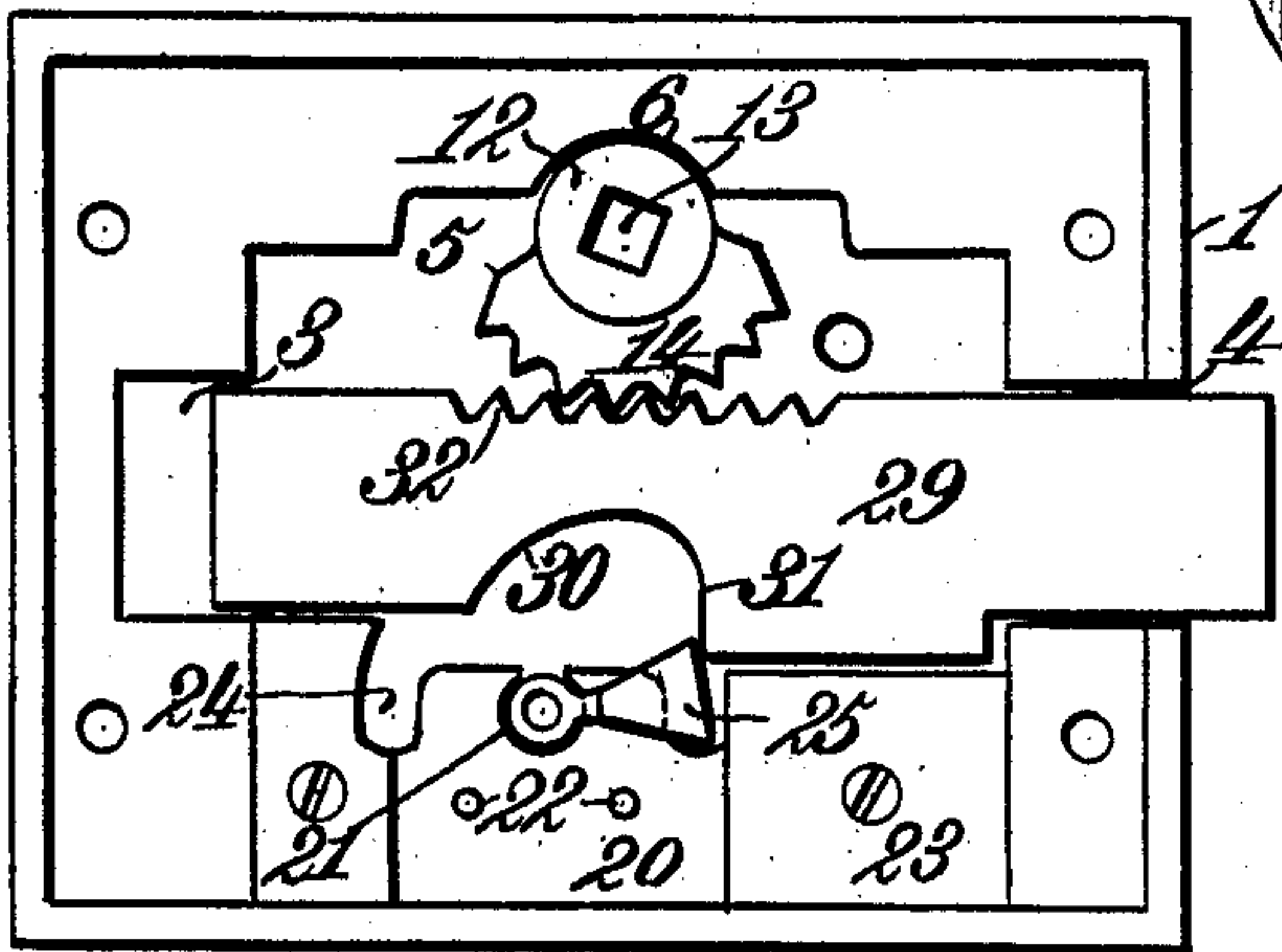


Fig. 3.

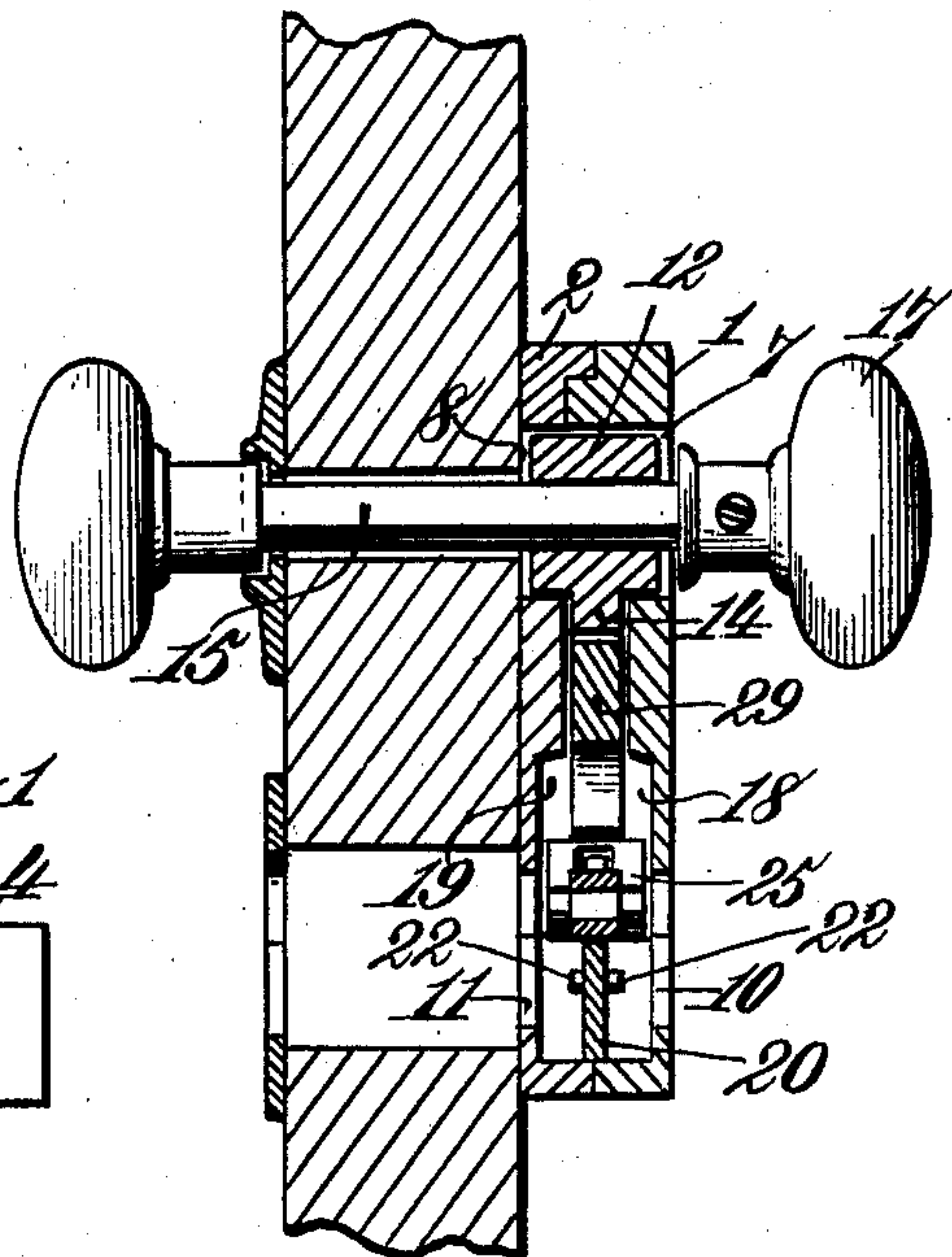


Fig. 4.

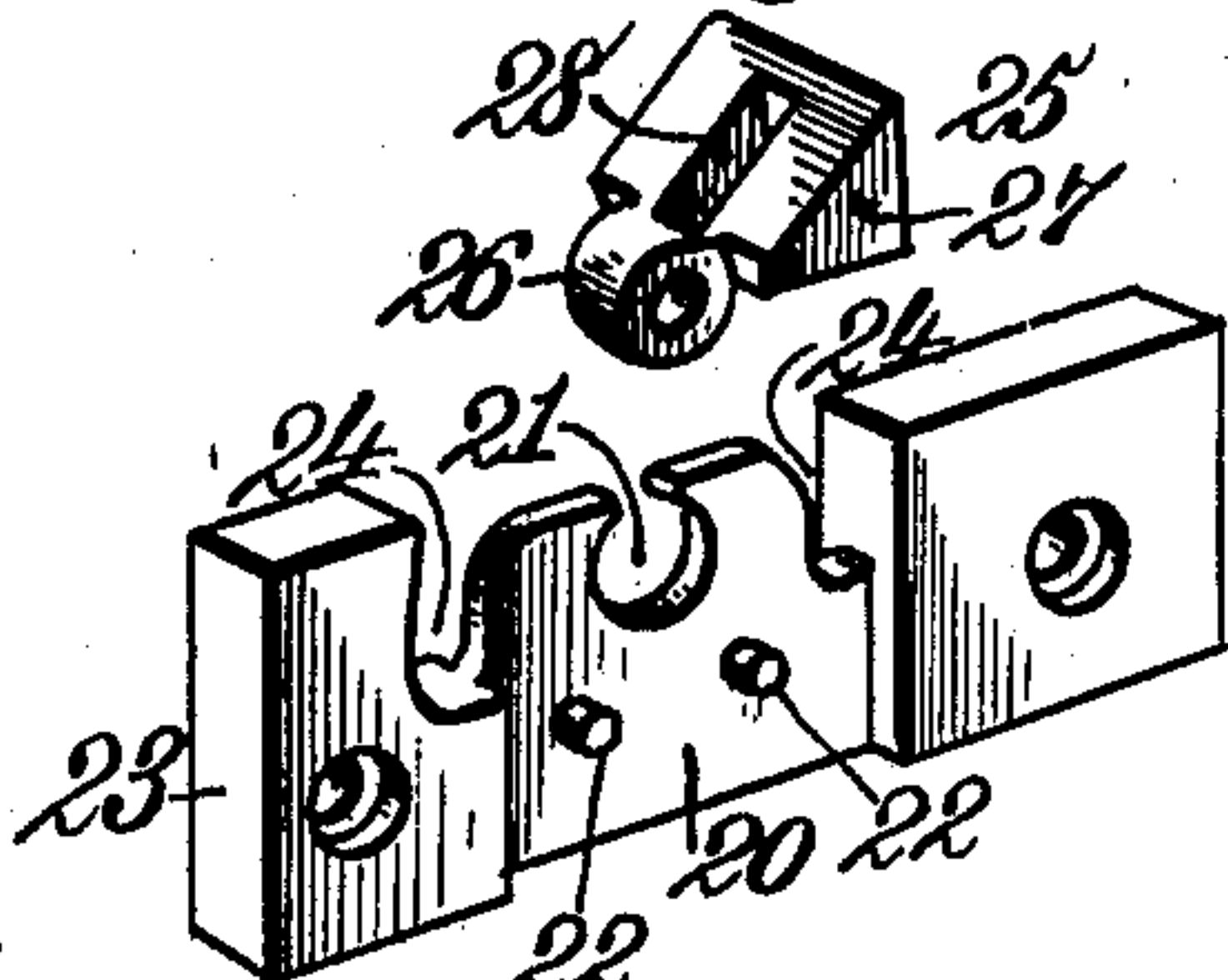
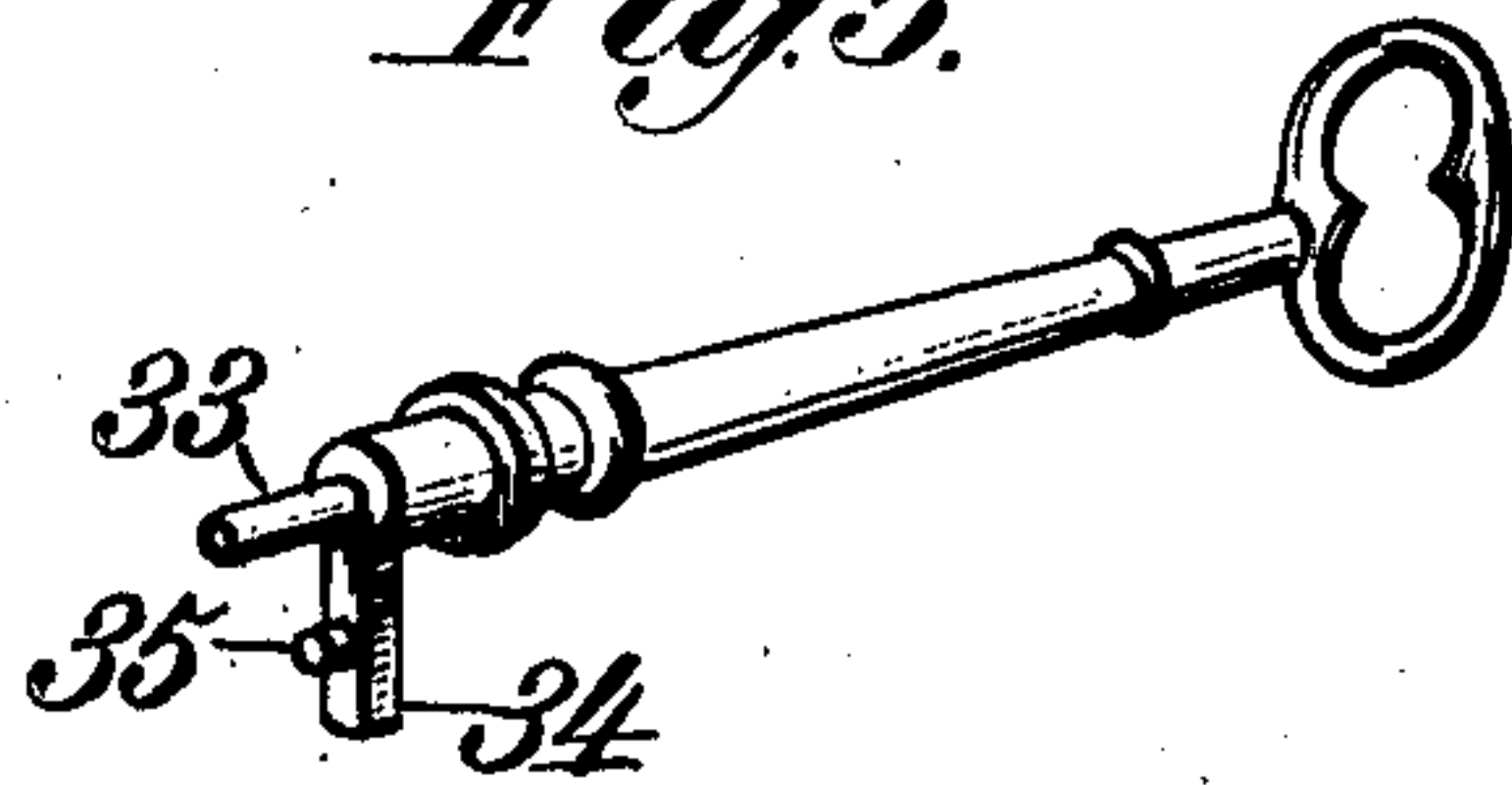


Fig. 5.



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UNITED STATES PATENT OFFICE.

YANCEY Q. CALDWELL, OF PARIS, TENNESSEE.

LOCK.

No. 845,613.

Specification of Letters Patent.

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Application filed March 17, 1906. Serial No. 306,623.

To all whom it may concern:

Be it known that I, YANCEY Q. CALDWELL, a citizen of the United States, residing at Paris, in the county of Henry and State of Tennessee, have invented new and useful Improvements in Locks, of which the following is a specification.

This invention relates to locks, particularly of the mortise type, though the same structure can be embodied in a surface lock.

The improved lock is of the springless construction and embodies a sliding bolt member which serves in the dual capacity of a locking-bolt, in conjunction with other controlling mechanism, and also a door-latch or latch-bolt operative under such conditions by a rotatable knob and spindle.

The primary object of the invention is to provide a lock having a simple construction of a durable nature and which may be cheaply produced.

In the drawings, Figure 1 is a plan view of a lock with a part of the casing removed and embodying the features of the invention. Fig. 2 is a similar view with a part of the casing removed and showing the bolt projected. Fig. 3 is a transverse vertical section on the line 3 3, Fig. 1, of the complete lock. Fig. 4 is a detail perspective view of a portion of the lock. Fig. 5 is a detail perspective view of the particular form of key for the lock.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numerals 1 and 2 represent front and back portions of the casing, having suitable width and length and preferably formed as separable sections for convenience in assembling the parts of the lock. The front 1 of the lock has formed therein a boltway 3 extending longitudinally thereof and in alinement with a bolt-slot 4 in one end of the said front. The upper part of the front 1 is also provided with an interior recess 5 of substantially rectangular contour and having a central arcuate counter-recess 6. The recess 5 communicates with the inner space of the front 1 adjacent to the boltway 3 and is intended to receive a bolt-controlling device, which is actuated by a knob and spindle in a manner which will be more fully hereinafter specified.

In both the front and rear sections 1 and 2 of the lock-casing upper transversely-alined openings 7 and 8 are formed, and directly below the same and in vertical alinement with

the centers thereof are keyhole-openings 10 and 11. Within the openings 7 and 8 and inclosed by the sections 1 and 2 is a rotatable sleeve 12, having a squared opening 13 there-through and an integral toothed segment 14. A squared knob-spindle 15 is inserted through the opening 13, and on opposite extremities of said spindle are knobs 16 and 17, the knob 17 being removable for obvious reasons. The inner surface of each front and rear section 2 around the keyholes 11 and 12 is formed with cavities, as at 18 and 19, and through a portion of the cavity 18 a supporting-partition 20 is located and has a central circular seat 21 near its upper edge and carries below the said seat projecting pins 22 on opposite sides of the vertical center thereof, which extend outwardly from opposite sides of said partition.

The partition 20 is formed by reducing an intermediate portion of a bar or member 23, which is suitably secured in the casing against the front section 1, and, in addition to the circular seat 21, the upper edge of the partition has recesses 24 on opposite sides of the seat to permit ample movement of a bolt-controlling member or tumbler 25, having a tubular fulcrum-knuckle 26 at its inner extremity, which is freely movable in the seat 21, and an outer segmental member 27, formed with a slot 28, extending therethrough in radial relation to the knuckle to allow the said segmental member to move over opposite portions of the partition 20. The maximum movement of the bolt-controlling member or tumbler as an entirety in opposite directions provides for clearance of the same from the under edge of a bolt 29, slidably disposed in the boltway 3 and having one end thereof movable inwardly and outwardly through the bolt-slot 4. The bolt 29 in its under edge is formed with a curved slot 30, merging into a vertically-straight shoulder 31, against which the segmental member 27 of the tumbler is adapted to contact. The shouldered portion 31 of the bolt depends below the rear part of the lower edge of said bolt to enable the segmental member 27 to have positive contact with said shoulder and also to permit said segmental member to be fully withdrawn from the rear portion of the slot 30 during certain operations of the bolt through the medium of the knob-spindle 15, the rotatable sleeve 12, and toothed segment 14. The toothed segment 14 is held in continual mesh with a series of rack-teeth 32 in

the upper edge of the bolt 29, directly over the slot 30, and by this means the bolt can be operated by turning the knob-spindle. The key, as shown by Fig. 5, has a reduced stem 33 and an angular bit 34, with a stud 35 projecting in planes at right angles from the front edge thereof. The said key is insertible into opposite sides of the lock through the openings 10 and 11, and the stem 33 enters the tubular knuckle 26. The bit 34 is adapted to contact with either side edge of the rear portion of the segmental member 27, and when it is rotated the said segmental member or the bolt controller or tumbler complete is shifted from one side to the other of the seat 21 in accordance with the direction of movement of the key. The stud 35 on the bit bears against the opposite side edges of the segmental member 27 to insure a more positive operation of the controller or tumbler, and said stud is in such position that it will pass the projecting ends of the pins 22. These pins 22 prevent the use of any key other than one particularly formed for operating the lock and as just described, and it is obvious that a key with a wider bit would be stopped in its movement by the pins.

In ordinary operations of the lock or when it is undesirable to secure the bolt 29 against movement by the operation of the bolt controller or tumbler, including the segmental member 27, rotation of the knob-spindle 15 will actuate the sleeve 12 and the toothed segment 14, and consequently move or slide the bolt 29, the movement of the said bolt in opposite directions being of course controlled by a corresponding rotation of the knob-spindle. When it is desired to lock the bolt against movement, the key is rotated to bring the bit 34 thereof in contact with the bolt-controller or tumbler and to throw the segmental member 27 forwardly against the shoulder 31, such movement of the tumbler causing the bolt 29 to be projected and be retained in projected locked position until a reverse movement of the key and the segmental member 27 is set up, and in this reverse movement the segmental member striking the rear wall of the slot 30 will simultaneously draw the bolt inwardly into the lock-casing, and at the same time the secondary member 27 will be thrown around clear of the lower edge of the bolt and again permit the latter to be operated solely by the knob-spindle, as before explained.

From the foregoing it will be seen that a positively-operating means for a bolt is provided without the use of springs or other fragile or readily-breakable parts and by the improved organization lock structures may be rendered more durable and positive in their operation.

One of the most essential features of the lock is that in the operation of the bolt-con-

troller or tumbler, through the medium of the bit of the key, the bolt 29 may be either projected and held in locking position or simultaneously drawn into the lock-casing when the tumbler is thrown over into releasing position, thus facilitating the opening of a door or closure on which the lock may be used.

As a safety means the lock is also advantageous in that a particular form of key is required to operate the same and means provided for preventing the use of a key having a bit other than the form prescribed.

Though the preferred form of the lock has been set forth, it is obvious that changes in the proportions, dimensions, and minor details may be resorted to without departing from the spirit of the invention.

Having thus described the invention, what is claimed is—

1. In a lock, the combination of a casing, a springless bolt slidably mounted in the casing and having teeth in the intermediate portion of the upper edge thereof, a slot in the lower edge directly under the teeth, the slot having a front vertical wall, a knob-spindle carrying a toothed segment held in continual mesh with the teeth of the upper edge of the bolt, and a reversely-movable key-operated bolt-controller to engage the slot in the lower edge of the bolt and operating to draw the bolt into the casing in its releasing movement, the controller engaging a portion of the front vertical wall of the slot to hold the bolt in immovable locking position and also completely clearing the bolt when the latter is released.

2. In a lock, the combination of a casing, a springless bolt slidably mounted in the casing and having a lower slot with a front vertical wall, the front wall of the slot depending below the rear wall of the same, and a key-operative controller disposed to engage the slot of the bolt and operating to lock the latter when projected by movement of the controller in one direction and releasing and indrawing the bolt by a movement of the controller in an opposite direction.

3. In a lock, the combination of a casing, a springless bolt slidably mounted therein and provided with teeth in the intermediate portion of the upper edge thereof, and a slot in the lower portion directly under the teeth, the front wall of the slot being extended downwardly below the rear wall of the same, a knob-spindle carrying a toothed segment to engage the teeth of the bolt, and a tumbler movable in opposite directions and disposed to engage the slot in the lower portion of the bolt to either lock the latter when in projected position or release said bolt, said tumbler being adapted to be engaged by a key having a reduced stem to enter a part of the tumbler, and a bit to cooperate with the remaining part of said tumbler.

4. In a lock, the combination of a casing, a

springless bolt slidably mounted in the casing and having teeth in the upper edge thereof, and a slot in the lower portion immediately below the teeth, the said slot having a front wall depending below the rear wall thereof, a knob-spindle carrying a toothed segment continually held in mesh with the teeth in the upper edge of the bolt, and a key-operated segmental tumbler movable in opposite directions and disposed to enter the slot of the bolt and engage the front depending wall of the said slot to hold the bolt in locked position, the tumbler being cleared from the slot when the bolt is withdrawn or released.

5. In a lock, the combination of a casing, a springless bolt slidably mounted in the casing, a partition in the lower part of the casing having a central seat, a bolt-controller having a knuckle rotatably disposed in said seat and a segmental member to engage the bolt, said controller adapted to be operated by a key engaging both the knuckle and the segmental member.

6. In a lock, the combination of a casing, a springless bolt slidably mounted in the casing, a partition in the lower part of the casing having a seat therein and recesses on opposite sides of the seat, a bolt-controller having a tubular knuckle to engage the seat, and a slotted segmental member movable in oppo-

site directions and disposed to contact with the under portion of the bolt, and a key having a reduced stem to fit in the knuckle and a bit with a projection to engage the said segmental member of the controller.

7. In a lock, the combination of a casing, a springless bolt slidably mounted therein and having a slot in the lower edge thereof, a tumbler movably held to engage the slot of the bolt and shiftable in opposite directions in an arcuate path, the free end of the tumbler being adapted to bear against the front wall of the slot of the bolt to lock the latter in projected position, said tumbler being also adapted to have its opposite side edges engaged by a key, and pins located in opposite positions with relation and adjacent to the fulcrum of the tumbler and projecting in the direction of the path of movement of the bit of the key to prevent the insertion of any key other than that particularly prepared for operating the tumbler.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

YANCEY Q. CALDWELL.

Witnesses:

A. B. MITCHENER,
W. N. BARHAM.