

No. 823,222.

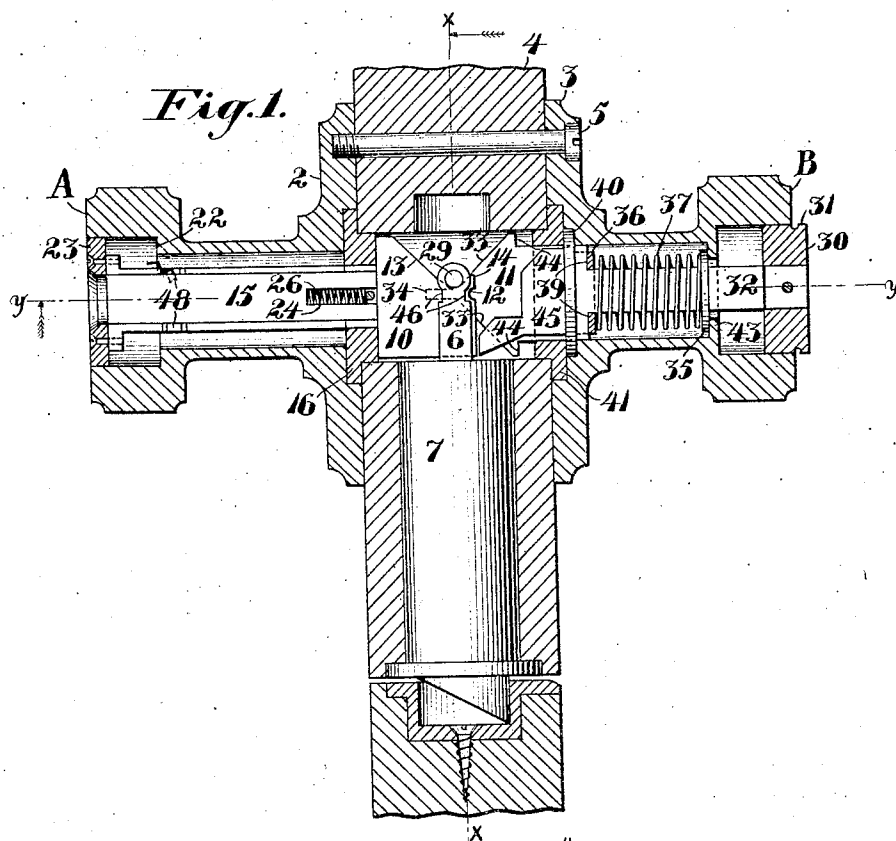
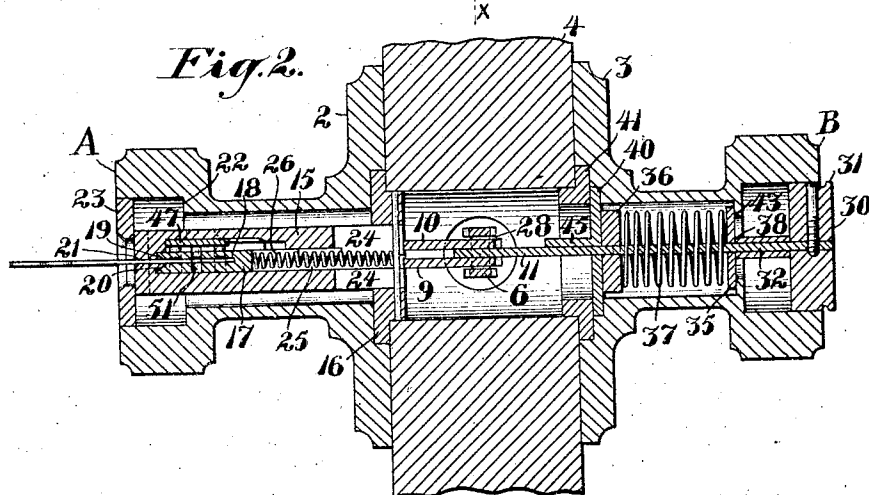
PATENTED JUNE 12, 1906.

J. JORGENSEN.

LOCK.

APPLICATION FILED JUNE 7, 1905.

2 SHEETS—SHEET 1.



Witnesses:-

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C. A. Moore

Inventor,

John Jorgensen
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2 SHEETS—SHEET 2.

Fig. 3.

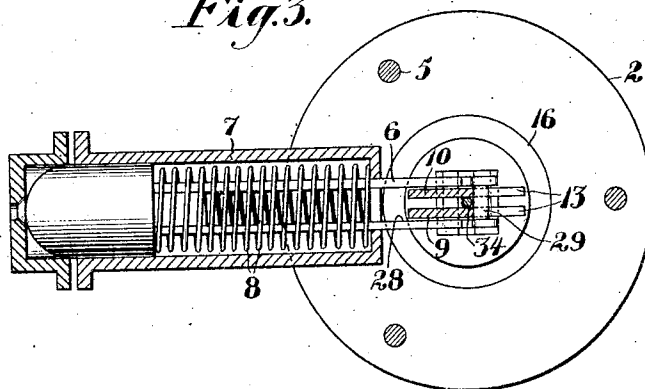


Fig. 4.

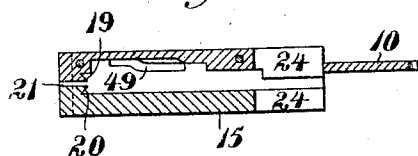


Fig. 5.

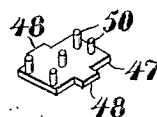
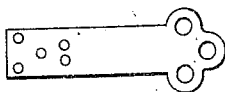


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN JORGENSEN, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-
HALF TO AUGUSTUS QUADE, OF SAN FRANCISCO, CALIFORNIA.

LOCK.

No. 823,222.

Specification of Letters Patent.

Patented June 12, 1906.

Application filed June 7, 1905. Serial No. 264,097.

To all whom it may concern:

Be it known that I, JOHN JORGENSEN, a citizen of the United States, residing in the city and county of San Francisco and State of California, have invented new and useful Improvements in Locks, of which the following is a specification.

My invention relates to locks for doors. Its object is to provide a simple practical lock suitable not only for the doors of residences and other buildings, but for vaults, safes, and all places generally where it is desired absolutely to prevent the picking of the lock.

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 horizontal section of my lock. Fig. 2 is a section on the line Y Y of Fig. 1. Fig. 3 is a section on the line X X of Fig. 1. Fig. 4 is a longitudinal section through the carrier. Fig. 5 is a perspective view of the tumbler-plate. Fig. 6 is a view of the key.

A and B represent respective outer and inner door-knobs, each having a hollow knob-shank and each shown as made integral with its knob-shank and with its respective flange 2 3. The knobs are secured rigidly to opposite sides of the door 4 by means of the screws 5, which pass from the inside of the door through the inner flange 3 and the door and screw into the outer flange 2, whereby the latter and its knob may only be removed from the inside. Both knobs and both shanks are thus stationary and non-rotatable, and the retraction of the bolt 6 is done by reciprocating a part in either of the knobs either by hand when the parts are adjusted in one way or by a key only from the outside and by hand from the inside when the parts are in normal locking position, all as in the manner to be explained hereinafter.

The locking-bolt 6 is slidable and suitably guided against rotation in the sleeve 7. A spring 8 operates to press the bolt 6 always outward into the path of the keeper carried by the door-jamb.

The outside knob carries two members for operating the bolt 6 and the inside knob carries one member for the same purpose, and these several members I shall designate here-

in as "bolt-actuators." The several actuators have a rectilinear movement rather than a rotative one, like ordinary roll-backs, to operate the bolt 6. The actuators which are carried by the outer knob are represented by the reference-numerals 9 10 and that carried by the inner knob by the character 11. The two actuators 9 10 comprise parallel spaced plates having similar notches 12 in their ends and similar cam-surfaces 13 on one side and similar projections 14 approximate to the outer ends of and standing at an incline to said cam-surfaces. One plate, as 9, is capable of a reciprocating movement independent of plate 10, but is normally spring-retracted, so that the two may stand side by side with the outlines of the two exactly alike. When viewed from either side, the plate which is in front shuts out the view of the plate behind. Both plates 9 10 are carried by a part 15, here shown as polygonal in outline and sliding and guided in a ring 16, sunk into and fastened to the inside of flange 2, with the carrier 15 housed in the outer knob and knob-shank. This carrier 15 is suitably chambered to contain a bifurcated normally spring-retracted latch-bolt 17, to which the actuator 9 is fixed. The actuator 10 is fastened direct to the inner end of the carrier 15, and both actuators are wider than the carrier and the hole in ring 16, through which the carrier operates, so that once the parts are assembled the carrier cannot be withdrawn outward through the ring 16 and knob A.

The latch-bolt is slotted at its outer end to provide a narrow keyway 18, and the ends of the forks formed by the slots are shaped to operate above and below respective knife-edge ledges 19 20 on the interior of the carriage 15. The end of the latter is closed, except for a narrow slot 21 between the ledges 19 20, and which slot registers with the keyway 18.

If desired, the size of the bore of the knob A may be somewhat increased for a short distance from its outer end to form a stop 22 for the flange or perforated disk 23 to abut against, which flange is fixed to the end of the carriage 15 and has a close sliding fit within the enlarged interior of the knob. The opposite sides of the carriage are slotted, as at 24, and the latch-bolt 17 is correspond-

ingly slotted, as at 25. A pin or stop member carried by a fixed part of the mechanism, as ring 16, extends across the slots 24 25 and forms a seat for one end of a spring 26. The other end of the spring seats against the wall of slot 25. This spring 26 has a double function. It operates to hold the latch-bolt 17 normally retracted within carrier 15 with the actuator 9 abutting against the end of the carrier and standing abreast of the actuator 10. The spring also operates to keep the carriage 15 normally retracted within knob A and its shank.

The actuators 9 10, which extend into the space between the flanges 2 3, are disposed horizontally and in the same plane with the slot 28 of the bolt 6. The rear wall of slot 28 here shown has a pin 29 normally resting in the angles formed by the cams 13 and projections 14, the spring 8 tending always to press the bolt outward to carry the pin 29 into these angles and into the immediate path of either of the cams 13. The result is that when either the actuator 9 is moved in singly by the pressure on the latch-bolt 17 or when the entire carriage and both actuators are moved in, as the carrier is adapted to be, the bolt will be retracted and it is possible to open the door from the outside.

The inside knob B carries suitable mechanism for controlling the movement of the bolt 6 by either the carriage 15 or the latch-bolt 17. A button 30, having a milled projecting edge 31, is mounted to have a limited sliding movement in the end of knob B and carries a stem 32, to which the actuator 10 is fixed. This actuator is in the form of a plate shaped somewhat like an arrow-head, with opposite cam-surfaces 33, having a central projecting pin portion 34. The stem 32 carries two spaced collars 35 36, between which is arranged a helical spring 37, surrounding the stem 32 and abutting against the collars 35 36 and tending to press them apart. The stem is made polygonal, and the collars have similar openings, so that the collars may be slidable on the stem and at the same time partake of the same rotative movement that the stem is subjected to at intervals.

The collar 35 adjacent to the button is limited in its outward movement on the stem by the stop 38, Fig. 2, and normally the collar 35 is supported against a shoulder 43 in knob B. The collar 36 is limited in its movement on the stem by a corresponding stop 39, but normally rests against a slotted disk 40, bearing against a ring 41, which is countersunk in and secured to the inside of flange 3. The stem 32 or a reduced portion of the actuator 11 has a limited reciprocating movement in the disk 40.

The flange 3 is suitably cut out beneath the ring 41 to accommodate disk 40 and to allow the latter a free rotative movement.

When the button is pushed in, the inner end of the spring presses collar 36 against

disk 40, and stop 38 on the actuator operates to compress the spring by carrying collar 35 forward. When the button is pulled out, the action on the spring is reversed and the shoulders 39 on the actuator carrying the collar 36 along to compress the spring.

The foregoing construction allows the button 30 to be pushed inward to retract bolt 6 or to be pulled outward, and when pulled outward the button and the actuator may be rotated for the purpose to be shortly explained.

A complete withdrawal of the actuator 11 from the inside of the lock will be prevented by means of the shoulders 44 abutting against the ring 41. The parts which are carried by the inner knob B are mounted so that the pin projection 34 on member 11 will always stand between the actuators 9 10 and approximately in the plane of the notches 12 in the ends of those actuators, and the button 30 is adapted to be turned so as to bring the actuator 11 into a plane parallel with and between the actuators 9 10 or to be turned into a plane at right angles to the plane of the actuators 9 10 and in line with the before-mentioned notches 12. When the three actuators all lie in parallel planes, the lock is then in operative position and may be opened from either the inside or outside, but the bolt 6 can only be retracted from the outside without the key when the actuator 11 happens to be turned in just a certain way to carry a locking member 45 out of the path of the actuator 10 and at the same time having all the actuators lying in parallel planes.

The locking member 45 consists of a projecting piece arranged parallel with the actuator 11 and rotatable with it and setting off to one side of the pin 34, whereby this locking member will describe an arc of sufficient radius when button 30 is turned to carry the locking member away from contact with and out of the path of the opposed actuator 10 and over to the opposite side into the plane of the actuator 9 and on the side occupied by the cams 13. The locking member 45 is fixed to and rotatable with the disk 40.

In practice the operation of the lock will be as follows: With the lock set to be opened from the outside only by means of a key inserted through slot 21 and into the keyway 18 the button 30 on the inside of the door is turned to bring the actuator 11 into a plane parallel with and between the actuators 9 10 and with the locking member 45 in the path of the end of the actuator 10. The locking member 45, which is held against any lengthwise movement, thus presents an effectual stop to any inward movement to the actuator 10, as by pressing in on the outer end of the carriage 15. A key, however, may be inserted into the keyway 18 to reciprocate the actuator 9, and thus retract the bolt 6 from the outside, also the button 30

may be pushed in to move back the bolt in case it is desired to open the door from the inside. If it is desired to set the lock so that it can be opened by hand from the outside, the button 30 is pulled out slightly and given a complete half-turn to bring the actuator 11 again into a plane parallel with and between the actuators 9 10, but carrying the stop member 45 out of interference with the outside actuators. This leaves the locking mechanism to be operated by an inward pressure on the outer end of the carriage 15 or by means of the key, as in the first instance, also the bolt can be retracted from the inside by pushing in as before on the button 30 to cause a cam 33 to push back on the pin 29, carried by the bolt 6. To set the lock against being opened from the outside by any means, it is simply necessary to pull out the button 30 a short distance and turn it a quarter-turn in either direction to bring the actuator 11 at right angles to the actuators 9 10 and then releasing the button to allow the actuator 11 to engage in the notches 12 and also in the notches 46 in the slotted sides of the bolt 6. It thus becomes impossible for any of the actuators to be reciprocated or for the bolt to be retracted.

In order to safeguard against an easy unlocking of the door and in order to prevent against the lock being picked, and also to provide for a wide range of action in the construction of the locks, I employ a tumbler mechanism in connection with the latch-bolt 17 and keyway 18 of the following construction: 47 represents a plate disposed in the recess in the carriage 15 and having projecting ends 48, slidable and guided in suitable cam-slots 49 in the walls of the carriage. This plate has a series of suitably-staggered pins 50, engaged in perforations 51 in the member 17. The perforations 51 extend across the keyway 18, so that the pins may interpose a suitable stop to the entry of an improper instrument in the keyway. Ordinarily, with the latch-bolt 17 and the actuator 9 fully retracted, the plate 47 is lifted by reason of the upraise in the slots 49 to carry the pins 50 out of the keyway, and thereby offer no opposition to the insertion of a key. The pins, however, are not entirely withdrawn from the holes, so that the result is when any inward movement of the latch-bolt 17 takes place the plate 47 will be moved along, too, and if the key which is inserted into the keyway is not of the right width and thickness and perforated in exact correspondence with the holes 51 the pins 50 will be pressed down so hard on the key that when it is attempted to push in the latch-bolt 17 farther the key will bind and the lock will refuse to work. The only way to open the lock from the outside when set to operate with the key alone from that side is to insert the key clear to the back of the keyway. Inasmuch as the pins

50 are so staggered and so numerous as to present a practically solid front to the entry of a key or other instrument not having the proper perforations, it is impossible, as has been amply demonstrated in practice, to pick the lock.

The purpose of the ledges 19 20 is to shield the outer bifurcated end of the latch-bolt 17 from being pushed in by a wire or some such other improper means.

It is possible that various modifications in my invention may be made without departing from the principle thereof, and I do not wish to be understood as limiting myself to the specific construction as herein shown and described.

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

1. In a lock, the combination of inner and outer hollow stationary knobs, a locking-bolt and separate actuators carried by each knob to retract the bolt, means to permit either of said actuators to operate independently of the other, and means to set one actuator to prevent the actuation of the other.

2. In a lock, the combination of outer and inner knobs, a locking-bolt, one of said knobs having a plurality of actuators operated by different means to reciprocate said bolt, and means carried by the inner knob to prevent the operation of one or both of said actuators.

3. In a lock, the combination of a locking-bolt, a knob supporting two actuators for said bolt, said actuators operable independently by different means, and means to permit the operation of only one of said actuators by its specific operating means.

4. In a lock the combination of a locking-bolt and operating means therefor, said operating means including a pair of actuators disposed on the same side of the bolt and engageable therewith, one of said actuators operable by a key only, and a key to operate said actuator.

5. In a lock, the combination of a locking-bolt and operating means therefor, said operating means including a pair of actuators disposed on the same side of the bolt and engageable therewith, one of said actuators operable by a key only, and a key to operate said actuator, and means to prevent the operation of the other.

6. In a lock, the combination of a locking-bolt and operating means therefor, said operating means including a pair of actuators disposed on the same side of the bolt and engageable therewith, one of said actuators operable by a key only, a key to operate said actuator, and means to prevent the operation of either of said actuators.

7. In a lock, the combination of inner and outer hollow, non-rotatable knobs, a locking-bolt, a plurality of actuators carried by one knob and engageable with the bolt to retract

the same, said actuators operable by independent means, and an independent actuator carried by the other knob.

8. In a lock, the combination of inner and outer hollow, non-rotatable knobs, a locking-bolt, a plurality of actuators carried by one knob and engageable with the bolt to retract the same, said actuators operable by independent means, and an independent actuator carried by the other knob, means to set said independent actuator to prevent the operation of one of said other actuators.

9. In a lock, the combination of inner and outer hollow, non-rotatable knobs, a locking-bolt, a plurality of actuators carried by one knob and engageable with the bolt to retract the same, said actuators operable by independent means, an independent actuator carried by the other knob, and means to set said independent actuator to prevent the operation of either of said other actuators.

10. In a lock, the combination of inner and outer hollow, non-rotatable knobs, a locking-bolt, a plurality of actuators carried by one knob and engageable with the bolt to retract the same, said actuators operable by independent means, and an independent actuator carried by the other knob, said independent actuator mounted for both a rotative and reciprocating movement.

11. In a lock, the combination of inner and outer hollow, non-rotatable knobs, a locking-bolt, a plurality of actuators carried by one knob and engageable with the bolt to retract the same, said actuators operable by independent means, and an independent actuator carried by the other knob, said independent actuator mounted for both a rotative and reciprocating movement, and a non-reciprocating stop rotatable with said independent actuator and interposable in the path of one of the other actuators.

12. In a lock, the combination with inner and outer hollow, non-rotatable knobs, a locking-bolt, a pair of actuators carried by one of said knobs and reciprocal transverse to the bolt, said actuators operable by separate means, and one operable separately from the other, and means carried by the other knob to limit the movement of one or both of said actuators.

13. In a lock, the combination with inner and outer hollow, non-rotatable knobs, a locking-bolt, a pair of actuators carried by one of said knobs and reciprocal transverse to the bolt, said actuators operable by separate means, and one operable separately from the other, and means carried by the other knob to limit the movement of one or both of said actuators, said last-named means including an independent actuator interposable in the path of the first-named actuators.

14. In a lock, the combination with inner and outer hollow, non-rotatable knobs, a locking-bolt, a pair of actuators carried by

one of said knobs and reciprocal transverse to the bolt, said actuators operable by separate means, and one operable separately from the other, and means carried by the other knob to limit the movement of one or both of said actuators, said last-named means including an independent actuator mounted for reciprocation and rotation, and a rotatable non-reciprocating part interposable in the path of one of the first-named actuators.

15. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said knob, provided with an actuator engageable with the bolt, a second actuator supported by said carrier and movable independently thereof, and means to hold said bolt and actuators in normal operative relation to one another.

16. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said knob, provided with an actuator engageable with the bolt, a second actuator supported by said carrier and movable independently thereof, and means to hold said bolt and actuators in normal operative relation to one another, said independently-operable actuator being provided with a keyway, and a key fitting said keyway.

17. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said knob, provided with an actuator engageable with the bolt, a second actuator supported by said carrier and movable independently thereof, and means to hold said bolt and actuators in normal operative relation to one another, said independently-operable actuator being provided with a keyway, and means to prevent the actuation of the carrier to retract the bolt.

18. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said knob, provided with an actuator engageable with the bolt, a second actuator supported by said carrier and movable independently thereof, means to hold said bolt and actuators in normal operative relation to one another, said independently-operable actuator being provided with a keyway, and means to prevent the operation of either of said actuators.

19. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said knob, provided with an actuator engageable with the bolt, a second actuator supported by said carrier and movable independently thereof, means to hold said bolt and actuators in normal operative relation to one another, said independently-operable actuator being provided with a keyway, and means to prevent the operation of either of said actuators, said last-named means including a part interposable in the path of one of said actuators.

20. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said knob, provided with an actuator engageable with the bolt, a second actuator support-

ed by said carrier and movable independently thereof, means to hold said bolt and actuators in normal operative relation to one another; said independently-operable actuator being provided with a keyway, and means to prevent the operation of either of said actuators, said last-named means including a part non-interposable in the path of both of said actuators.

21. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said knob, provided with an actuator engageable with the bolt, a second actuator supported by said carrier and movable independently thereof, means to hold said bolt and actuators in normal operative relation to one another, said independently-operable actuator being provided with a keyway, and means to prevent the operation of either of said actuators, said last-named means including a reciprocating rotatable wedge-shaped member.

22. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said knob, provided with an actuator engageable with the bolt, a second actuator supported by said carrier and movable independently thereof, means to hold said bolt and actuators in normal operative relation to one another, said independently-operable actuator being provided with a keyway, and means to prevent the operation of either of said actuators, said last-named means including a reciprocating rotatable wedge-shaped member, and a non-reciprocating part rotatable with said member.

23. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said knob and provided with an actuator to engage said bolt to operate the same, another actuator slidably supported in said carrier and operable independently of the first-named actuator, said independent actuator having a keyway and tumbler mechanism interposable in the keyway.

24. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said knob and provided with an actuator to engage said bolt to operate the same, another actuator slidably supported in said carrier and operable independently of the first-named actuator, said independent actuator having a keyway and tumbler mechanism including a tumbler-plate movable in cam-guides in the carrier and provided with pins fitting perforations in the keyway portion of said actuator and intersecting the keyway.

25. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said knob and provided with an actuator to engage said bolt to operate the same, another actuator slidably supported in said carrier and operable independently of the first-named actuator, said independent actuator having a keyway and tumbler mechanism in

the keyway, said tumbler mechanism including a tumbler-plate movable in cam-guides in the carrier and provided with pins fitting perforations in the keyway portion of said actuator and intersecting the keyway, and means to prevent the operation of either of said actuators.

26. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said bolt and provided with an actuator to engage said bolt to operate the same, another actuator slidably supported in said carrier and operable independently of the first-named actuator, said independent actuator having a keyway and tumbler mechanism in the keyway, said tumbler mechanism including a tumbler-plate movable in cam-guides in the carrier and provided with pins fitting perforations in the keyway portion of said actuator and intersecting the keyway, and means to prevent the operation of either of said actuators, said last-named means including a wedge member interposable in the path of said actuators.

27. In a lock, the combination of a locking-bolt, a hollow knob, a carrier reciprocal in said bolt and provided with an actuator to engage said bolt to operate the same, another actuator slidably supported in said carrier and operable independently of the first-named actuator, said independent actuator having a keyway and tumbler mechanism in the keyway, said tumbler mechanism including a tumbler-plate movable in cam-guides in the carrier and provided with pins fitting perforations in the keyway portion of said actuator and intersecting the keyway, means to prevent the operation of either of said actuators, said last-named means including a wedge member interposable in the path of said actuators, and means permitting said wedge member to operate the bolt independent of said actuators.

28. In a lock, the combination of outer and inner hollow stationary knobs, a locking-bolt, a carrier mounted for reciprocation in the outer knob, a pair of actuators supported by said carrier, one of said actuators movable separately from the other, and an independent actuator carried by the inner knob and operable by a push-button.

29. In a lock, the combination of outer and inner hollow stationary knobs, a locking-bolt, a carrier mounted for reciprocation in the outer knob, a pair of actuators supported by said carrier, one of said actuators movable separately from the other, and an independent actuator carried by the inner knob and operable by a push-button, said independent actuator having a reciprocating and rotative movement.

30. In a lock, the combination of outer and inner hollow stationary knobs, a locking-bolt, a carrier mounted for reciprocation in the outer knob, a pair of actuators supported by

6
 said carrier, one of said actuators movable separately from the other, and an independent actuator carried by the inner knob and operable by a push-button, said independent
 5 actuator having a reciprocating and rotative movement, and a part rotatable with said independent actuator and interposable in the path of one of the first-named actuators on said carrier to prevent the operation thereof.

10 31. In a lock, the combination of outer and inner stationary knobs, a slotted locking-bolt, a pair of actuators operated by independent means suitably supported for reciprocation in the outer knob and engageable in the slot
 15 in said bolt to retract the latter, means for holding the bolt and actuators in operative relation, and an independent actuator carried by the inner knob and engageable with the bolt to retract the latter.

20 32. In a lock, the combination of outer and inner stationary knobs, a slotted locking-bolt, a pair of actuators operated by independent means suitably supported for reciprocation in the outer knob and engageable in the slot
 25 in said bolt to retract the latter, means for holding the bolt and actuators in operative relation, an independent actuator carried by the inner knob and engageable with the bolt

to retract the latter, said independent actuator mounted to rotate and adapted to lie in 30 a plane parallel with the first-named actuators, or in a plane transverse thereto.

33. In a lock, the combination of outer and inner stationary knobs, a slotted locking-bolt, a pair of actuators operated by independent
 35 means suitably supported for reciprocation in the outer knob and engageable in the slot in said bolt to retract the latter, means for holding the bolt and actuators in operative relation, an independent actuator carried by 40 the inner knob and engageable with the bolt to retract the latter, said independent actuator mounted to rotate and adapted to lie in a plane parallel with the first-named actuators, or in a plane transverse thereto, and a 45 rotatable stop turnable with said independent actuator and interposable in the path of one of the first-named actuators.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 50

JOHN JORGENSEN.

Witnesses:

S. H. NOURSE,
 HARRY J. LASK.