

M. J. O'MARA.

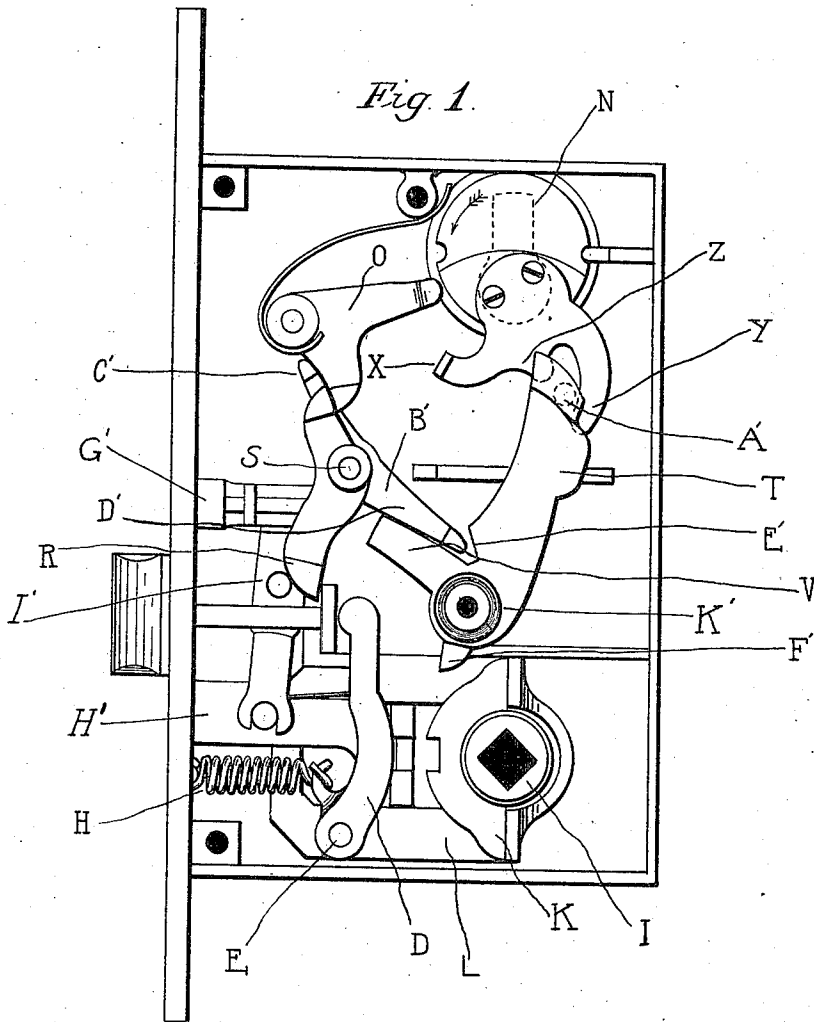
LOCK.

APPLICATION FILED JULY 28, 1911.

1,059,902.

Patented Apr. 22, 1913.

4 SHEETS—SHEET 1.



WITNESSES:

F. A. Carlson
H. P. Doolittle

INVENTOR.

Michael J. O'Mara

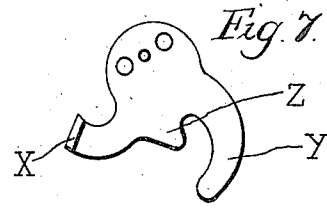
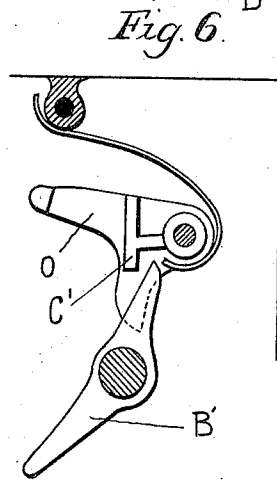
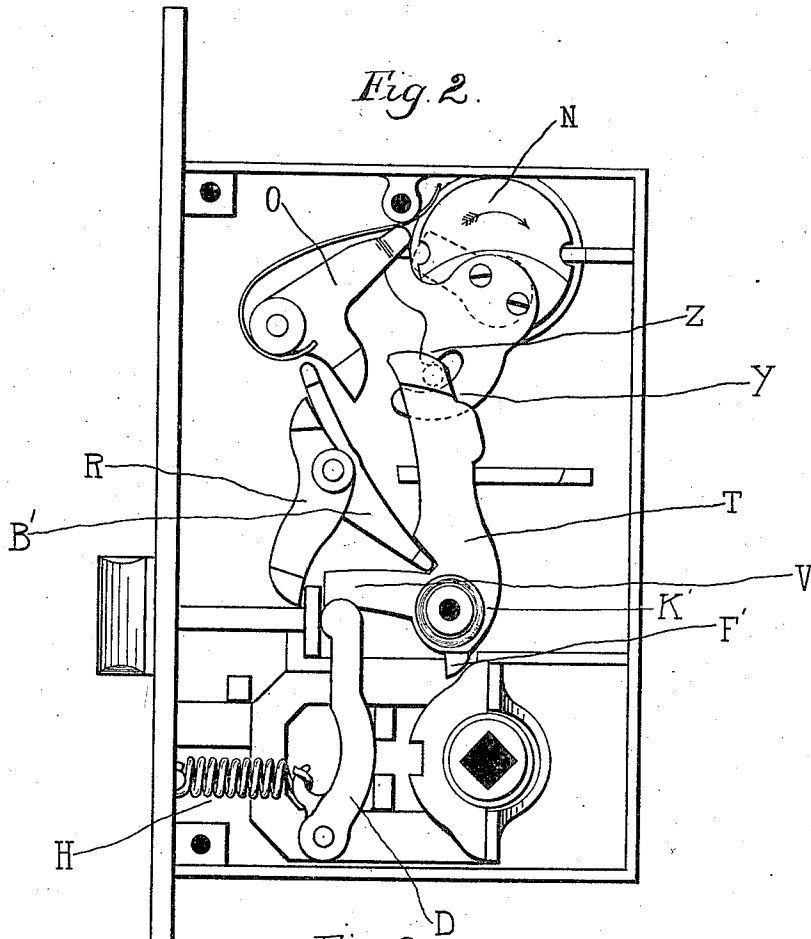
BY

Beach & Fisher
ATTORNEYS.

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WITNESSES:
F. A. Carlson
H. P. Doolittle

INVENTOR.
Michael J. O'Mara.
BY
Beach & Fisher
ATTORNEYS.

M. J. O'MARA.

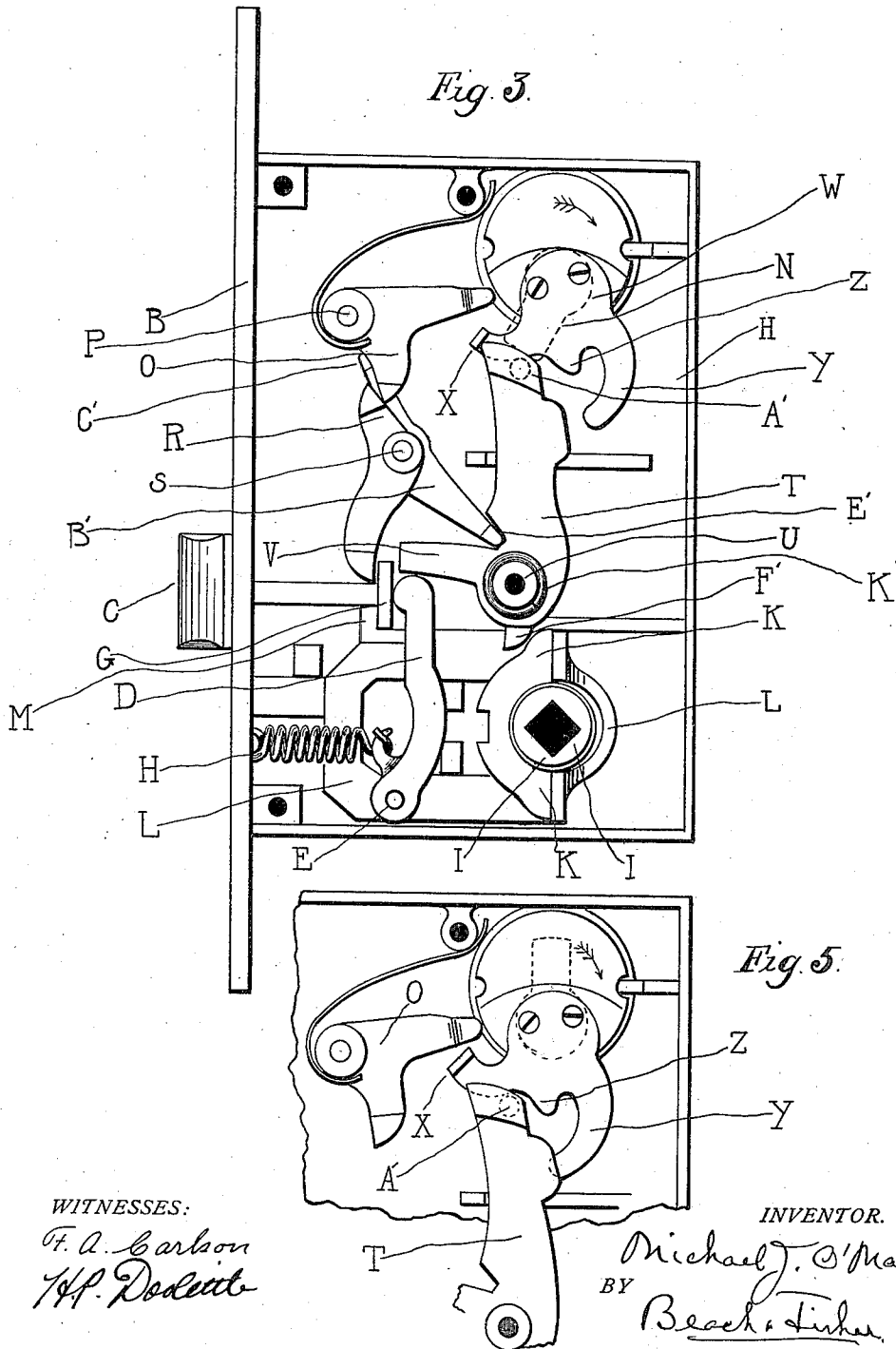
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4 SHEETS-SHEET 3.



WITNESSES:

F. A. Carlson
H. P. Dodge

INVENTOR.

Michael J. O'Mara
BY *Beach & Fisher*
ATTORNEYS.

M. J. O'MARA.

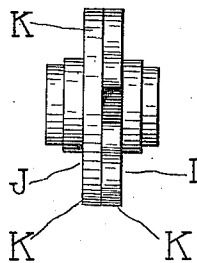
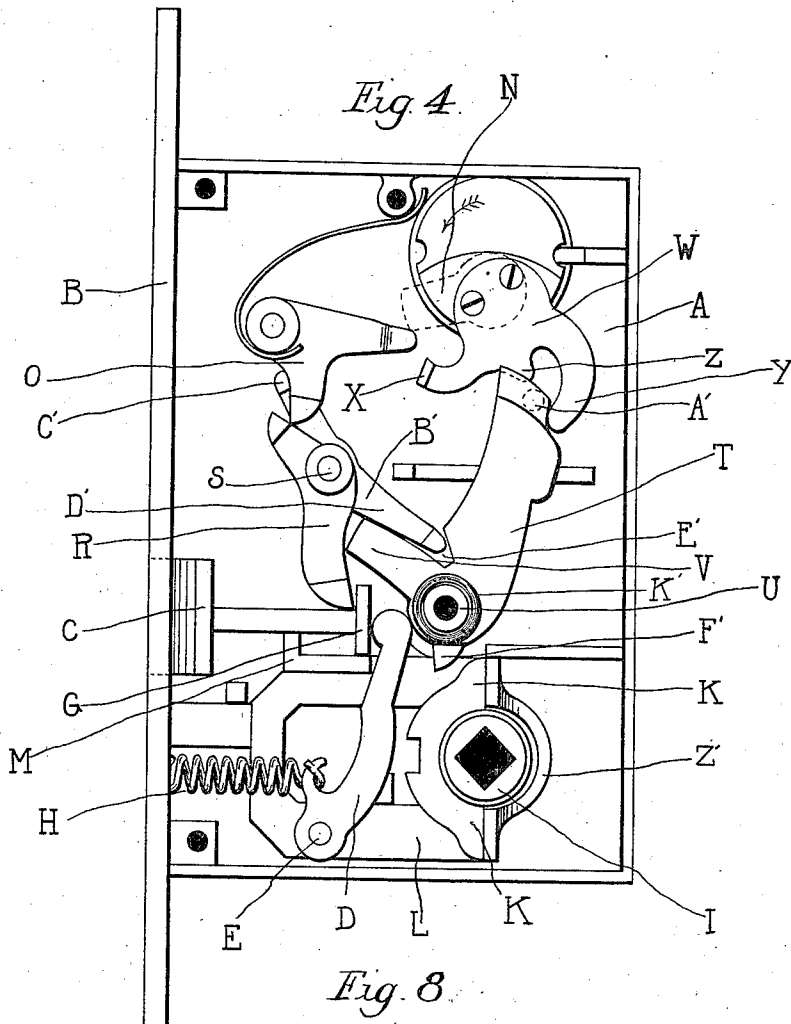
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4 SHEETS-SHEET 4.



WITNESSES:

F. A. Carlson
H. P. Oslove

INVENTOR.

Michael J. O'Mara
BY *Beach & Fisher*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

MICHAEL J. O'MARA, OF NEW HAVEN, CONNECTICUT, ASSIGNOR TO SARGENT & COMPANY, OF NEW HAVEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

LOCK.

1,059,902.

Specification of Letters Patent.

Patented Apr. 22, 1913.

Application filed July 28, 1911. Serial No. 641,180.

To all whom it may concern:

Be it known that I, MICHAEL J. O'MARA, of the city and county of New Haven and State of Connecticut, have invented new and useful Improvements in Locks, of which the following is a full, clear, and exact description, when taken in connection with the accompanying drawings, which form a part thereof.

This invention relates to locks and more particularly to locks of the general type shown in the patent to William J. Carroll, No. 1,032,530, dated July 16, 1912. In locks of this kind the latch bolt is retractable by means of a key from the outside, and a deadlocking means for the latch bolt is provided which is adapted to be actuated either by the key or by means at the inside of the door, such as a thumb-turn or the like.

One object of the present invention is to provide a lock of this general type in which the means for actuating the deadlocking means from one side (the inside) of the door is operative under certain circumstances to prevent the retraction of the latch bolt by means of the key at the opposite side of the door.

Another object of the invention is to provide means whereby the deadlocking of the latch bolt from the outside of the door will be effective to prevent the blocking or disconnection of the latch bolt retracting means from the inside so that if the latch has once been deadlocked from the outside of the door it can be retracted from the outside by means of the key.

To these and other ends, the invention consists of the improvements and combinations of parts set forth and claimed hereinafter.

Referring to the drawings, Figure 1 represents a side elevation of a lock embodying the invention. In this figure, the cap plate on the outside of the lock case has been removed, and the bit of the outside cylinder lock (which is operated by the usual key) is indicated in dotted lines. Fig. 2 is a similar view with the parts shown in the position occupied when the latch bolt is deadlocked from the inside. In this figure, one portion of the divided hub is removed. Fig. 3 is a similar view, with the parts shown in the position occupied when the latch bolt is being deadlocked by the key from the outside, and the deadlocking lever has been moved

nearly to deadlocking position. Fig. 4 is a similar view, with the parts shown in the position occupied when the latch bolt is being retracted by the key from the outside. Fig. 5 is a similar view, with the parts shown in the position occupied when the latch bolt has been deadlocked by the key, and an attempt is made to deadlock it from the inside. Fig. 6 is a reverse view of some of the parts shown in Fig. 1. Fig. 7 is a detail view of the actuating plate, and Fig. 8 is a front edge view in detail of the divided hub.

In all figures, similar letters of reference represent like parts.

Referring to the drawings, the parts designated by the letter A represent the casing of a lock, B its face plate, and C the latch bolt which is adapted to be protracted to the position shown in Figs. 1, 2, 3 and 5, by means of a lever D pivotally mounted on the post E of a yoke L and having its free end bearing on the rear of the T-shaped end G of the latch bolt. A spring H secured to the casing and to the lever D holds the latch bolt normally in its protracted position.

A divided hub of well known construction is designated by the letters I and J, the wings K of which are adapted to engage flanges on the sliding yoke L, so that when the yoke is retracted a lug M thereon will engage the front face of the T-shaped end G of the latch bolt and retract it against the tension of spring H.

The bit of a cylinder lock actuated by a key inserted from the outside of the lock casing is indicated by the dotted lines N. If the bit N is turned in the direction of the arrow (shown in Figs. 1 and 4) it is adapted to engage one arm of a bell crank lever O pivoted on a post P in the casing and held normally in the position shown in Fig. 1 by means of a spring Q. The other arm of the bell crank lever O is adapted to engage one end of a lever R pivotally mounted on a post S in the casing and swing it so that the other end of the lever R will engage the front side of the T-shaped end G of the latch bolt and retract the latch bolt. By this means, the latch bolt may be retracted by the cylinder lock on the outside. A lever T pivotally mounted on a post U in the casing has one arm V which when the lever is in the position shown in Figs. 2, 3 and 5 is adapted to fall behind the T-shaped end

G of the latch bolt and prevent the retraction of the latch bolt. The lever T is swung into operative position from its inoperative position shown in Fig. 1 either by means of the bit N of the outside cylinder when the bit is swung in the direction of the arrow, shown in Fig. 3, or by means of an actuating plate W operated by any suitable instrumentality from the inside of the door.

The actuating plate W (as shown more particularly in Fig. 7) is provided with three arms. One, that indicated by the letter X, is provided with a flange adapted to engage the lower side of one arm of the bell crank lever O to swing it to the position shown in Fig. 2, where it is removed from the path of the bit N of the cylinder lock. Another arm Y is adapted to engage a stud A' (shown in dotted lines, Figs. 1-5) on the under side of the upper end of the lever T to swing it into the position shown in Fig. 2, wherein the other arm V of the lever T will prevent the retraction of the latch bolt. The third arm Z is adapted to strike against the stud A' after the lever T has been swung by the bit N into the position shown in Fig. 5, so that the actuating plate cannot be turned farther in the direction of the arrow (Fig. 5) and cannot swing the bell crank lever O by means of the arm X sufficiently far to carry its end out of the path of the bit N, whereby the lever O may still be actuated and the latch bolt retracted by the key.

When the parts are in the position shown in Fig. 5, and the bit N of the outside cylinder is rotated in the direction of the arrow (Fig. 4) the bit will engage the bell crank lever O, as already pointed out, to retract the latch bolt through the lever R. In order to release the latch bolt before it is retracted by the bit N and levers O and R, a lever B' pivoted on the stud S is swung on its pivot by means of a flange C' on the other side of the bell crank lever O. The lever B' has its lower end D' projecting into a slot E' in the deadlocking lever T so that when it is swung on its pivot by means of the bell crank lever O this lower end D' will swing the lever T so that the arm V will be disengaged from the T-shaped end G of the latch bolt, permitting the latch bolt to be retracted by means of the lever R. On the lower side of the lever T is a shoulder F' adapted to come into the path of one of the wings K of the divided hub I and J, when the lever T is in the position shown in Figs. 2 and 5, so that upon the rotation of the hub the lever T will be rotated upon its pivot, and the arm V withdrawn from engagement with the T-shaped end G of the latch bolt. The ordinary knob stops are shown at G' and H', together with the usual lever I', so that from the face plate of the lock the outer portion I of the divided hub

may be locked against rotation in the usual manner. A coiled spring K' surrounds the stud U on which the lever T is mounted and bears laterally against the lever T to hold it by friction in any position to which it may be moved.

The operation of the lock is as follows: The parts are normally in the position shown in Fig. 1. When it is desired to deadlock the latch bolt by means of a key from the outside of the lock, the bit N is turned in the direction of the arrow (Fig. 3) and the deadlocking lever T is swung on its pivot, so that the arm V drops behind the T-shaped end G of the latch bolt. To release the latch bolt from engagement by the arm V and to retract it by means of the key from the outside of the lock the bit N is rotated in the direction of the arrow (Fig. 4) so that it engages the bell crank lever O, which constitutes a connecting and controlling member intermediate the operating members N and W and the latch bolt and deadlocking means, and the bell crank lever O in turn operates the lever B' to swing the lever T on its pivot, and the lever R to retract the latch bolt. When it is desired to deadlock the latch bolt from the inside so that it cannot be released or retracted by any key from the outside, the actuating plate W is turned in the direction of the arrow (Fig. 2), the deadlocking lever being in the position shown in Fig. 4, and the arm Y will by engagement with the stud A' rotate the said deadlocking lever T so that the arm V will prevent the retraction of the latch bolt. At the same time, the arm X which constitutes a throw off means for releasing the operative connection between the member N and latch bolt deadlocking member will, as described, swing the bell crank lever O out of the path of the bit N of the outside cylinder. To release the latch bolt and to retract it from the inside, it is merely necessary to turn the inside knob when the inside portion J of the divided hub will engage the lug F' of the lever T and rotate it on its pivot, so that the arm V is withdrawn from engagement with the latch bolt, and the latch bolt will be retracted through the sliding yoke L. If the latch bolt is deadlocked by means of a key through the outside cylinder, the throw off means for disconnecting the member N from the parts to be operated cannot be operated through the inside accidentally because, as shown in Fig. 5, any movement of the plate W in the direction of the arrow will be prevented by the arm Z striking against the stud A' on the under side of the lever T, which stud thus constitutes a stop means to prevent the actuation of the throw-off. This action is effected because the arc of movement of the arm Z intersects the arc of movement of the stud A', and when the deadlocking lever is in normal re-

tracted position the stud A' lies against the arm Y, and below the arm Z.

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

1. In a lock, a latch bolt, means operable from one side of the door for retracting or deadlocking said latch bolt by means of a key, and means operable from the opposite side of the door for rendering said first means inoperative; substantially as described.

2. In a lock, a latch bolt, a retracting member therefor, a deadlocking member therefor in operative connection with said retracting member, means to move said deadlocking member into operative position from opposite sides of the door, and means to throw said retracting member out of operation; substantially as described.

3. In a lock, a latch bolt, a retracting lever therefor, a deadlocking member in operative connection with said lever, means to operate said lever from one side of the door, and means operative from the opposite side of the door to move said deadlocking member into deadlocking position and to render said lever inoperative; substantially as described.

4. In a lock, a latch bolt, a deadlocking member therefor, a retracting member therefor, in operative association with said deadlocking member, key actuated means at one side of the lock to operate said retracting member, and means actuated from the opposite side of the lock to throw said retracting member out of operative relation to said key actuated means; substantially as described.

5. In a lock, a latch bolt, a retracting member therefor, a deadlocking member for said latch bolt operatively associated with said retracting member so that the retracting member may move the deadlocking member into inoperative position, key actuated means to engage said deadlocking member and said retracting member, and means to throw said key operated member out of operative relation to said key actuated means; substantially as described.

6. In a lock, a latch bolt, a single means at one side of the lock to deadlock said latch bolt or retract the same, and means operable from the opposite side of the lock to render said first means inoperative to retract the latch bolt; substantially as described.

7. In a lock, a latch bolt, a single key actuated mechanism at one side of the lock for retracting the latch bolt as the key is moved in one direction and for deadlocking the latch bolt as the key is moved in the opposite direction, and means operative from the opposite side of the lock to deadlock the latch bolt by said first means and

to prevent the retraction of the latch bolt by the latter; substantially as described.

8. In a lock, a latch bolt, means operative from one side of the lock to retract the latch bolt or deadlock the same, and means operative from the opposite side of the lock for preventing the retraction of the latch bolt by said first means when the deadlocking means is in inoperative position, said last means being constructed and arranged to permit the retraction of the latch bolt from the first named side of the door if said latch bolt has first been deadlocked by said first means; substantially as described.

9. In a lock, the combination with a latch bolt, of deadlocking means therefor, means on the outside of the door for moving said deadlocking means to deadlocking or released position, means on the inside of the door for moving said deadlocking means to deadlocking or released position, and means operated by said inside means to prevent the release of said deadlocking means by said outside means; substantially as described.

10. In a lock, the combination with a latch bolt, of a deadlocking member therefor, a member operable by a key from the outside of the door to operate said deadlocking member and retract the latch bolt, a member operable from the inside of the door to set said deadlocking member in operative position, a controlling member intermediate said operating members and the deadlocking member and the latch bolt, and means carried by the member operable from the inside to move said controlling member out of the path of the outside operated member upon the deadlocking movement of said inside operated member, substantially as described.

11. In a lock, the combination with a latch bolt, of a pivoted deadlocking member, a key for actuating said member from the outside of the door, a rotatable operating member actuated from the inside of the door, and means to prevent the operation of the deadlocking member from the outside when set in operative position by the inside actuating means, substantially as described.

12. In a lock, the combination with a latch bolt, of a pivoted deadlocking member, a pivoted member controlling the release of said member and the retraction of the latch bolt, a rotatable key actuated member operable from the outside of the door to engage said controlling member, a swinging member operable from the inside of the door, and means to move said pivoted controlling member out of the path of the member operable from the outside of the door upon the deadlocking movement of the means operable from the inside, substantially as described.

13. In a lock, the combination with a

rotatable bit, of a swinging plate, a pivoted deadlocking member operable by said bit and plate, a connecting lever operable by said bit and plate, a pivoted latch retracting member and a pivoted releasing member for said deadlocking member both operable by said connecting lever, and a projection carried by said plate to contact with and move said connecting lever out of the path of said bit, substantially as described.

14. In a lock, the combination with a latch bolt, of means operable from the outside of the door for deadlocking and releasing said bolt, means operable from the inside for deadlocking said bolt, means to prevent the release of said latch bolt from the outside when deadlocked from the inside, and separate means operable from the inside of the door for releasing said latch bolt when deadlocked either from the outside or inside of the door, substantially as described.

15. In a lock, the combination with a latch bolt, of deadlocking means therefor, separate means for operating said deadlocking means from the inside of the door and from the outside thereof, means operable by the inside operated means in its deadlocking movement to prevent the operation of said deadlocking means from the outside of the door, and means to prevent the action of said first named preventing means upon the deadlocking of the latch bolt from the outside, substantially as described.

16. In a lock, the combination with a latch bolt, of a bolt retracting knob on the outside of the door, knob stop means, latch bolt retracting means operable from the outside independently of the knob and knob stop means, and means operable from the inside of the door for preventing the retraction of said latch bolt by said independent means, substantially as described.

17. In a lock, the combination with a latch bolt, of a bolt retracting knob on the outside of the door, stop means, separate deadlocking means for the latch bolt, means operable from the outside and independently of said knob, and knob stop means releasing the deadlocking means and retracting the bolt, and means operable from the inside of the door for preventing the operation of said independent means, substantially as described.

18. In a lock, the combination with a bolt, of bolt retracting means operable from the outside of the door, a controlling member intermediate the said means and the bolt, means operable from the inside of the

door for throwing said member out of operative relation to said bolt retracting means, and stop means to prevent the operation of said means for throwing out said controlling member, substantially as described.

19. In a lock, the combination with a bolt, of a deadlocking member therefor, means operable from the outside of the door for operating said deadlocking member and retracting the bolt, a controlling and connecting member intermediate said operating means and the bolt and deadlocking member, throw off means for said latter member operable from the inside of the door, and a stop to prevent the operation of said throw off when the bolt has been previously deadlocked from the outside, substantially as described.

20. In a lock, the combination with a bolt, of a deadlocking member therefor, an operating member for said deadlocking member having means to engage and move said deadlocking member from retracted to operative position and having means to contact with said deadlocking member to stop the movement of said operating member when the deadlocking member has been independently moved to operative position, substantially as described.

21. In a lock, the combination with a latch bolt, of deadlocking means therefor, means operable from the outside of the door for operating said deadlocking means, means operable from the inside for preventing the operation of the deadlocking means from the outside, and means to block the operation of said preventing means from the inside when the deadlocking means has been previously operated from the outside, substantially as described.

22. In a lock, the combination with a latch bolt, of deadlocking means therefor, means operable from the outside of the door for operating said deadlocking means and retracting said bolt, a controlling lever intermediate said operating means and the bolt and deadlocking means, a rotatable operating member operable from the inside of the door and having a part to operatively engage said deadlocking means, a part to move said controlling lever out of operative position, and a part to engage said deadlocking means to prevent the above actuation of said controlling lever, substantially as described.

In witness whereof, I have hereunto set my hand on the 24th day of July, 1911.

MICHAEL J. O'MARA.

Witnesses:

JOHN H. SHAW,

BERTHA RAY.