900,629.

R. WETTEL & M. P. FREEBEY.

COMBINATION LATCH AND KEY LOCK.

APPLICATION FILED FEB. 15, 1906.

Patented Oct. 6, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

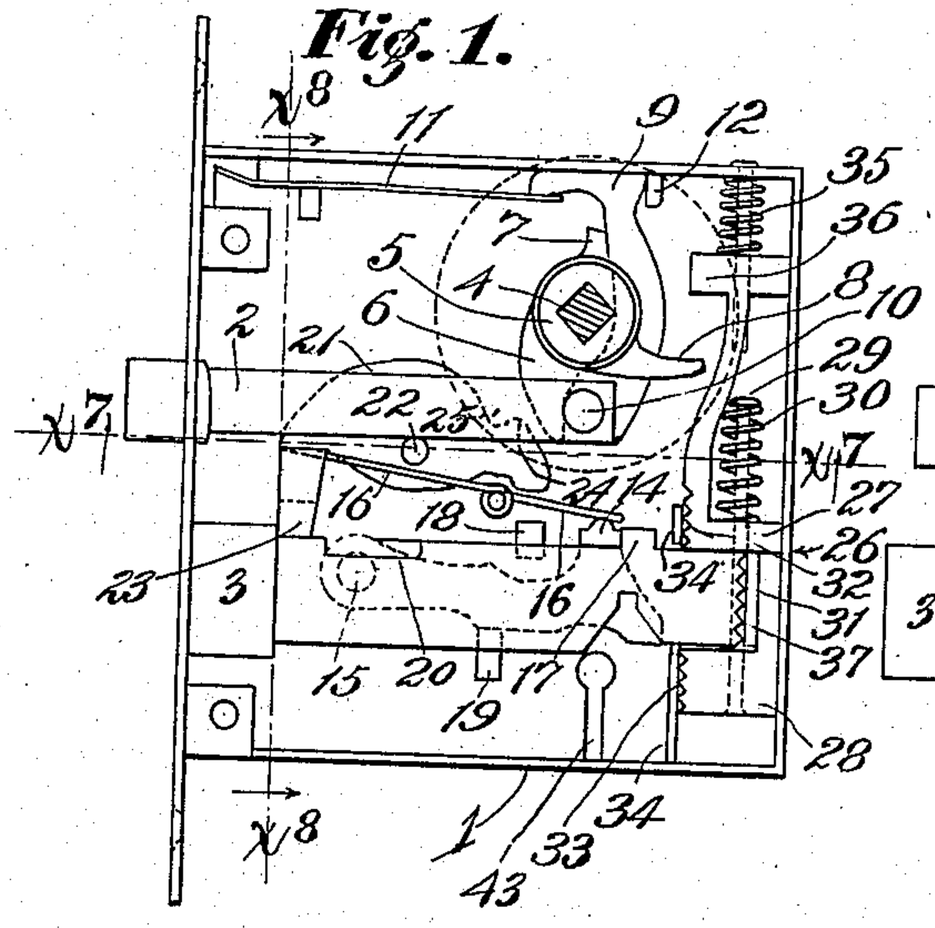


Fig. 2.

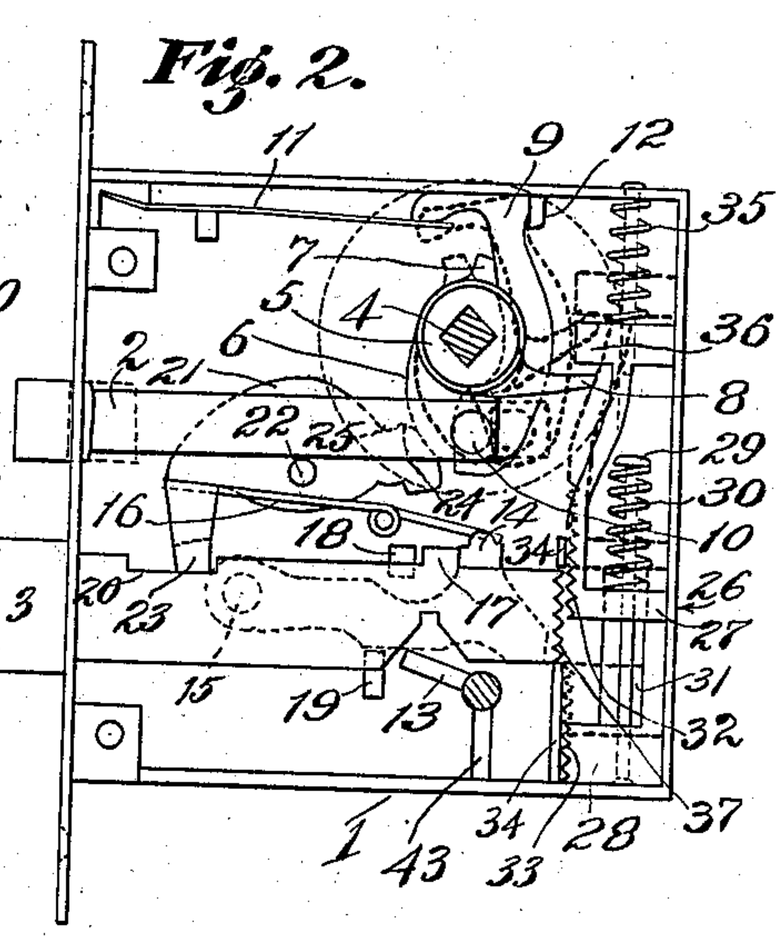


Fig. 3.

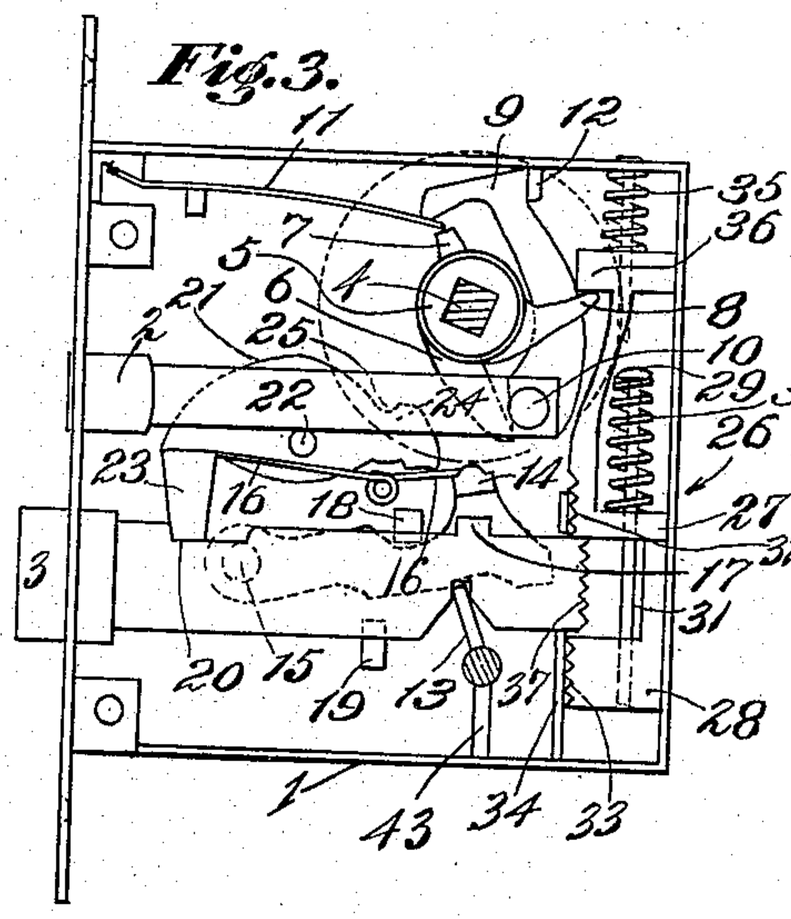
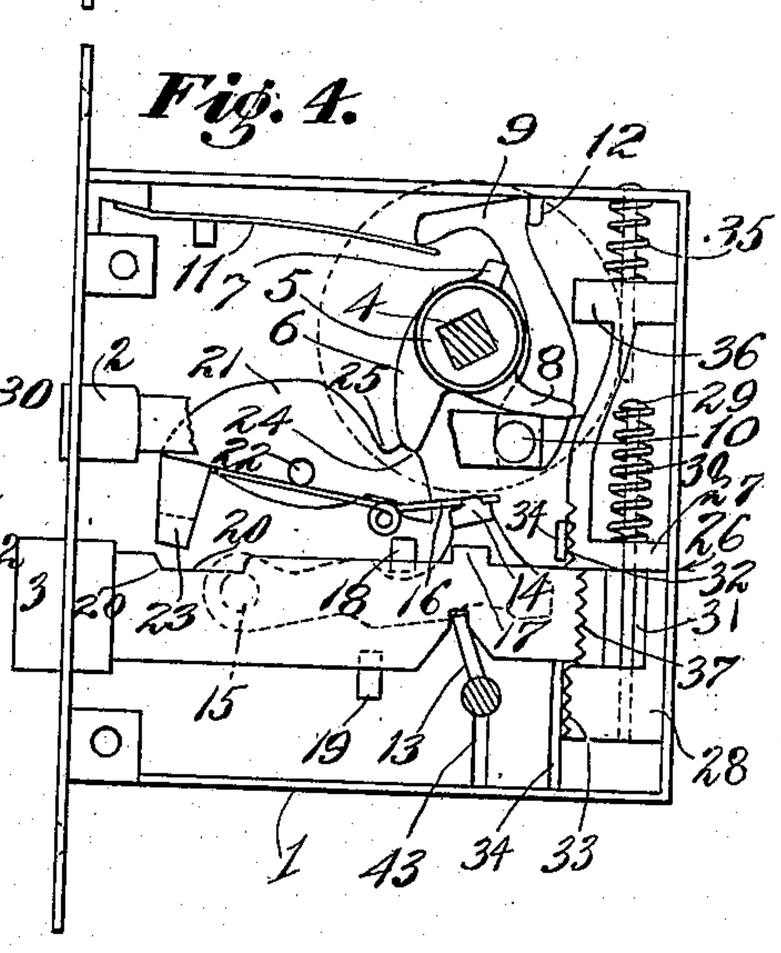


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 7.

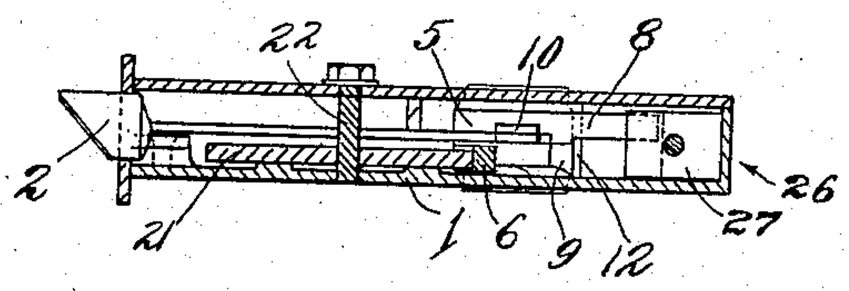

Fig. 6.

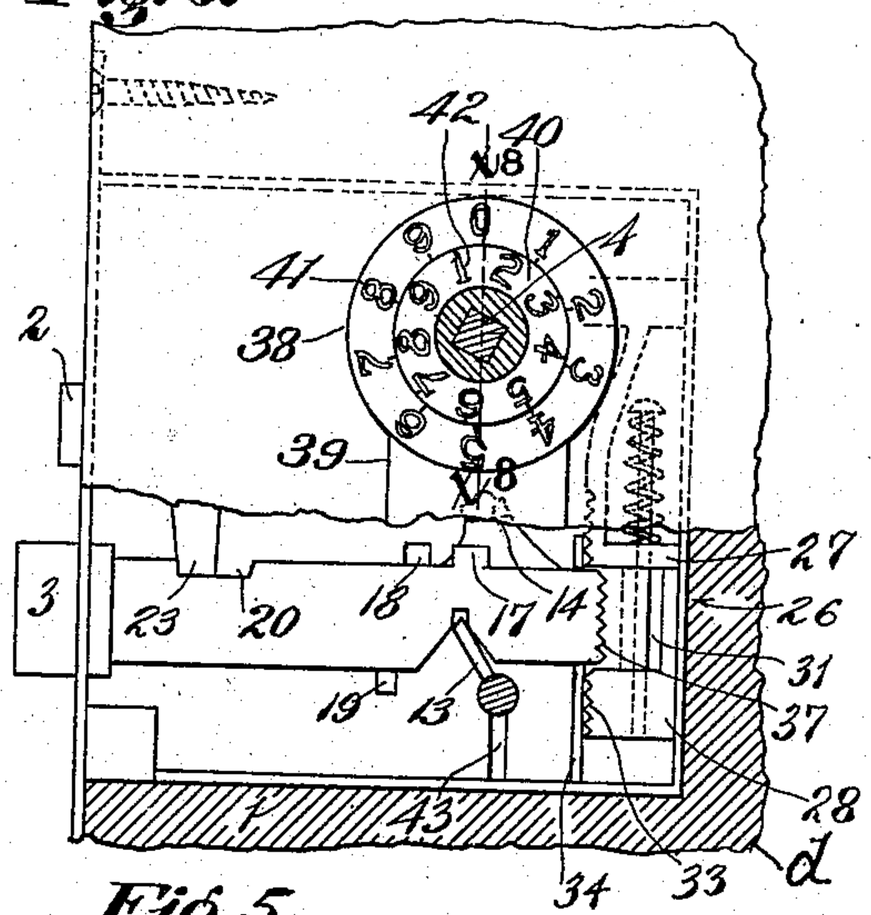

Fig. 5.

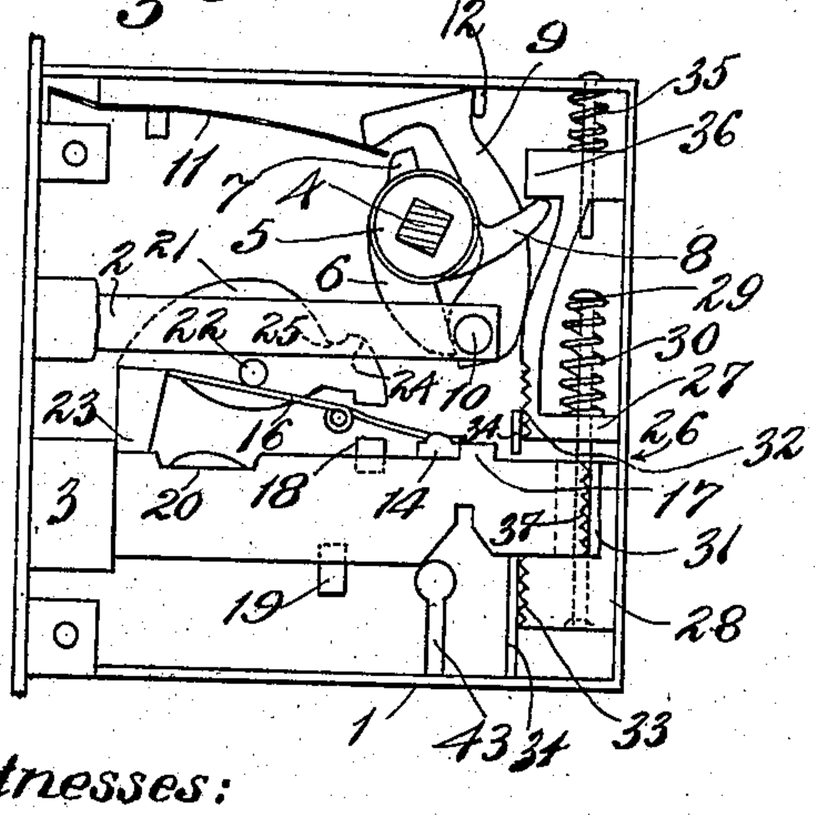

Fig. 8.

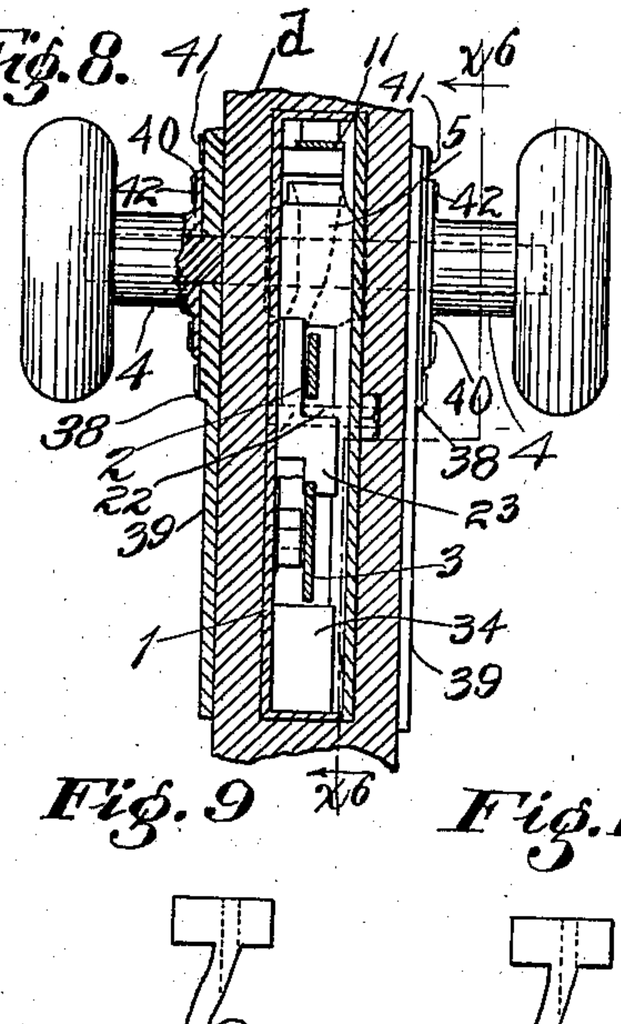

Fig. 9

Fig. 10.

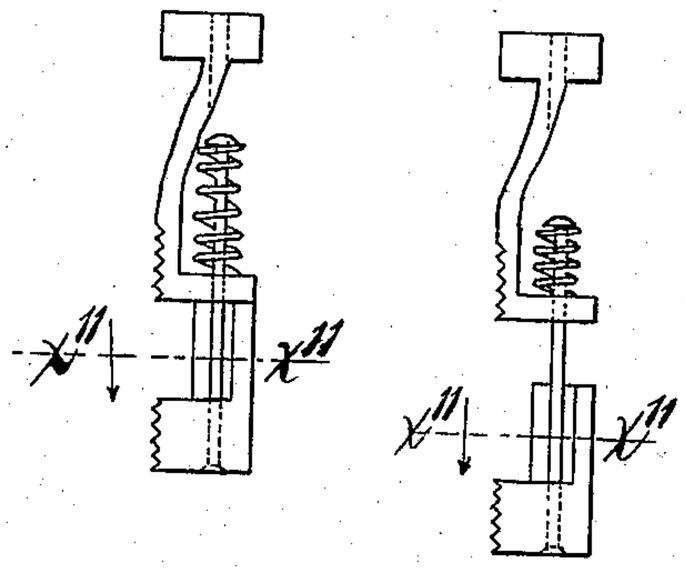

Fig. 11.

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UNITED STATES PATENT OFFICE.

ROBERT WETTEL AND MORDECAI P. FREEBEY, OF LOS ANGELES, CALIFORNIA.

COMBINATION LATCH AND KEY LOCK.

No. 900,629. Specification of Letters Patent. Patented Oct. 6, 1908.

Application filed February 15, 1906. Serial No. 301,205.

To all whom it may concern:

Be it known that we, ROBERT WETTEL and MORDECAI P. FREEBEY, both citizens of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Combination Latch and Key Lock, of which the following is a specification.

It is of the objects of this invention to provide a door-lock which when locked with a key can only be unlocked by the combined use of the key and the handle of the latch; to provide a lock that is non-pickable; to provide a combination and key-lock adapted to be unlocked from either side; to provide a door-lock giving maximum security with minimum cost of construction and maximum simplicity of parts.

The invention includes a lock provided with a key-operable bolt; means for intercepting said bolt, and means operable independently of the key for retracting the bolt-intercepting means. Said independent means for retracting the bolt-intercepting means may be provided with a combination or permutation device, and by such means the possessor of a key which fits the lock will be unable to unlock the lock unless he is master of the combination.

The accompanying drawings illustrate the invention.

Figure 1 is a view of the lock, the key-bolt being unlocked, and the latch-bolt in latching position. Fig. 2 shows the same lock after the key-bolt has been thrown into locking position. A key is shown in the lock. Heavy dotted lines indicate the completion of the first movement of the latch in the operation of unlocking. Fig. 3 is a view of the same lock showing the first movement of the key-bolt for unlocking the same after the first unlocking movement of the latch has been completed. Fig. 4 is a like view of the lock showing the second unlocking latch movement completed and the key-bolt entirely released ready for unlocking. A portion of the latch is broken for clearness of illustration. Fig. 5 shows the final unlocked and unlatched position. In Figs. 1, 2, 3, 4, and 5, the face plate of the lock is omitted. Fig. 6 is a fragmental section of the lock with its permutation and escutcheon plates in place. Line x^6, Fig. 8, indicates the line of section. Fig. 7 is a section on line x^7—x^7, Fig. 1. Fig. 8 is a section of the lock in place in a door, the door-knobs or handles being shown. Lines x^8, Figs. 1 and 6, indicate lines of section. Figs. 9 and 10 are detached views illustrating the normal and an operative position of the locking-bar. Fig. 11 is a section on line x^{11}—x^{11}, Figs. 9 and 10.

1 is the frame or case of the lock; 2, the latch; 3, the key-bolt; 4, the latch-spindle; 5, the latch-dog mounted on the latch-spindle and having the usual latch actuating arms 6 and 7, and also having a lock-bar actuating arm 8.

9 is the usual latch-lever pivoted to the latch 2 by stud 10 and normally held in latching position by the usual latch-spring 11 and frame-stud 12.

13 is the usual key for the key-bolt 3.

14 is the usual key-bolt tumbler pivoted at 15, and 16 is the spring therefor. 17 is the usual lug on the key-bolt 3 to engage said tumbler 14, and 18, 19, are the usual key-bolt studs.

20 is a gain or notch in the key-bolt, and 21 is a catch pivoted to the case by pivot 22, and yieldingly held in engagement with the walls of the notch 20 of the bolt 3 by spring 16.

The tooth 23 of the catch 21 which engages the notch 20 of the bolt 3 is of less dimensions than the notch, to allow considerable play of the bolt 3 without releasing the bolt sufficiently to allow it to be entirely retracted by means of the key 13 until the tooth 23 is withdrawn from the notch 20.

The pivoted catch 21 extends into the path of the arm 6 of the latch-dog, and is constructed with a head 24 and a notch 25 adapted to be engaged by the arm 6 for the purpose of retracting the tooth 23 from the notch 20 when the spindle 4 is turned to a determined point, and to allow the tooth to again engage the notch when the latch-spindle 4 is turned beyond such point sufficiently to allow the arm 6 to enter the notch 25.

The construction just described constitutes means operated by the latch-spindle for locking and unlocking the key-bolt. 26 in a general way designates other means operated by the latch-spindle for locking and releasing the key-bolt; said other key-bolt locking and releasing means may be variously

constructed. In the drawing we have shown a form which we at present deem preferable. In this form a lock-bar is provided consisting of two members 27, 28, yieldingly secured together by pin 29 and spring 30 and provided with a recess 31 adapted to receive the rear end of key-bolt 3 to allow the bolt to be retracted when the lock-bar is in a determined position.

The lock-bar 27, 28, and the key-bolt catch 21 are at opposite sides of the latch-actuating arm 6 and lock-bar operating-arm 8, so that when the latch-dog is turned in one direction it will operate the key-bolt catch 21, and when turned in the other direction will operate the lock-bar member 27.

32, 33, are abutments on the lock-bar on each side of the recess 31 to intercept the end of the key-bolt 3 when the lock-bar is in any other than said determined position.

34 designates guides for the lock-bar, and 35 is a spring for normally holding the lock-bar in position to prevent the key-bolt from being retracted.

36 is a projection shown on the lock-bar to be engaged by the lock-bar actuating-arm 8 of the latch-dog.

The abutments 32, 33, of the lock-bar and the rear end 37 of the key-bolt may be serrated, as shown in the drawings, so that when the key-bolt engages either of the abutments the lock-bar will be held against retraction.

38 is a stationary permutation plate on the escutcheon plate 39 of the lock, and 40 is a rotatable permutation plate mounted on and rotating with the latch-spindle 4.

41 and 42 designate the permutation characters on said plates 38, 40, respectively.

The catch 21 and the lock-bar 27, 28, constitute a plurality of independent bolt-intercepting means, and the latch-dog 5 with its parts 6 and 8, constitutes means operable in one and then in the other direction for first retracting one and then the other of said bolt-intercepting means, and the key 13 and latch-spindle 4 must be appropriately manipulated in alternation in order to retract the key-bolt 3.

In practical use, when the key-bolt is retracted, as shown in Fig. 1, the latch 2 is free to be moved by the manipulation of the spindle 4, and at each movement of the handle for the releasing of the latch 2 the lock-bar 27 will be operated.

When it is desired to lock the lock, the same may be accomplished in the usual manner by the key 13, as indicated in Fig. 2, whereupon the key-bolt catch 21 engages in the notch 20 thus to prevent the retraction of the key-bolt 3 until the catch is released by operating the latch-spindle 4.

It will be noted from Fig. 2 that when the key-bolt is locked the lock-bar member 27 intercepts the key-bolt 3 to prevent its retraction. In said Fig. 2 the key-bolt is prevented from initial retraction by the abutment 32 until the lock-bar member 27 is retracted into position indicated by the heavy dotted lines by turning spindle 4.

When the latch has been moved into the position indicated in dotted lines in Fig. 2, and in solid lines in Fig. 3, it is possible to retract the key-bolt, as indicated in Fig. 3, until the outer wall of notch 20 engages the catch tooth 23 which prevents complete retraction of the key-bolt until the latch-spindle 4 is turned to cause the dog 6 to engage the head 24 of the catch 21 and move said catch to withdraw the tooth 23 from the notch 20.

It is to be understood that when the key 13 is turned for the purpose of retracting the key-bolt, it lifts the dog 14 to release the key-bolt. When the latch-spindle is stopped at the appropriate place, the key can be further turned to thus entirely retract the key-bolt 3 into the recess 31 therefor.

If the latch-dog 5 is not turned appropriately relative to the manipulations of the key, the key-bolt will not be released by the catch 21, and it is necessary in order to unlock the key-bolt that the latch-spindle 4 first be turned in one direction to a determined position; then the key-bolt must be moved by the key to a determined position; then the latch must be moved in an opposite direction to a determined position, and thereupon the key may be operated to fully retract the key-bolt.

In practice, the parts may be so constructed that the recess 31 may receive the bolt 3 when the latch-spindle has not been turned far enough to fully retract the latch, so that after the bolt 3 has been fully retracted there must be a further releasing movement of the latch-handle in order to unlatch the door. Such further movement is allowed by the spring 30 which is arranged to normally hold the abutment 33 at a distance from abutment 32 equal to the width of the end of the bolt 3, so that in case the latch-handle is turned too far before the bolt 3 is retracted the abutment 33 will intercept the bolt. If the latch-spindle is not turned far enough the spring 35 holds the abutment 32 in position to intercept the bolt. If the bolt is retracted while either abutment is in the path of the bolt, the serrations engage and prevent movement of the intercepting abutment.

The lower guide 34 extends from the rim of the frame to the bolt 3 so as to prevent anyone from reaching the member 28 of the lock-bar by means of an instrument inserted through the key-hole 43.

By reason of the latch spindle being provided with dogs adapted to collide with movable elements of the lock to operate the same, but being detached from said elements of the lock. it is possible, by the aid of the indi-

cating means consisting of the characters on plates 38 and 40, to operate the lock with the secrecy of a combination lock.

What we claim is:—

1. A lock provided with a bolt, a plurality of bolt-intercepting dogs, a key for releasing one of said dogs and operating the bolt, and means operable first in one and then in the other direction for releasing first one and then another of the other bolt-intercepting dogs.

2. A lock provided with a latch and a bolt, a plurality of means for intercepting the bolt, and means for retracting the latch operable in one and the other direction to operate first one and then another of the bolt-intercepting means.

3. A lock provided with a bolt, a lock bar in the path of the bolt provided with yieldingly separable abutments spaced apart to provide a recess to receive the end of the bolt, means to retract the bolt, means to move the lock-bar into position to admit the end of the bolt into said recess, and a latch spindle adapted to move the recess in the lock bar beyond the end of the bolt when the bolt is extended.

4. In a lock, a bolt, a latch, a lock-bar to intercept the bolt, said lock-bar being formed of two members yieldingly connected together and provided with abutments respectively, and with a recess to receive the bolt between said abutments; means to retract the latch and to move the lock-bar.

In testimony whereof, we have hereunto set our hands at Los Angeles, California this 8th day of February 1906.

ROBERT WETTEL.
MORDECAI P. FREEBEY.

In presence of—

JAMES R. TOWNSEND,
JULIA TOWNSEND.