N. WAING.

LOCK.

APPLICATION FILED FEB. 13, 1911.

1,042,508.

Patented Oct. 29, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

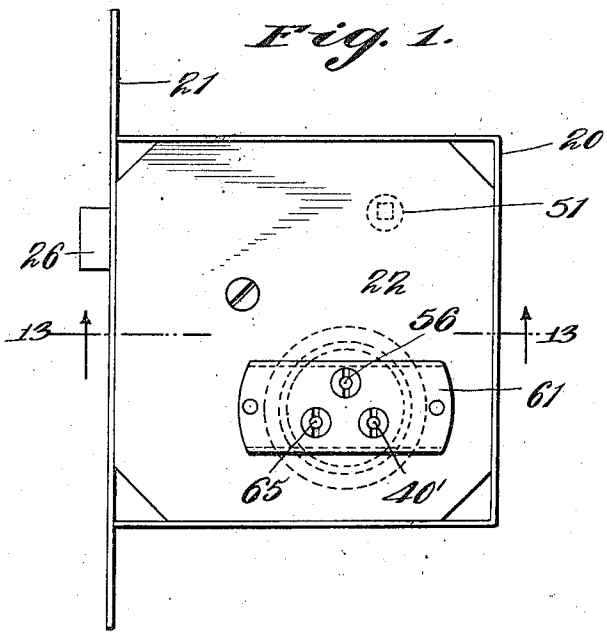


Fig. 9.

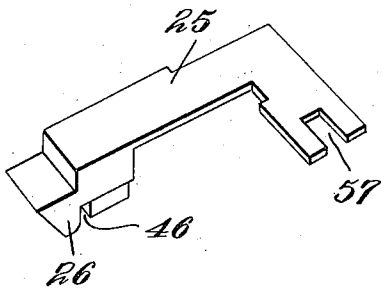


Fig. 10.

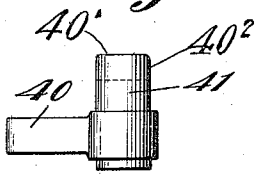
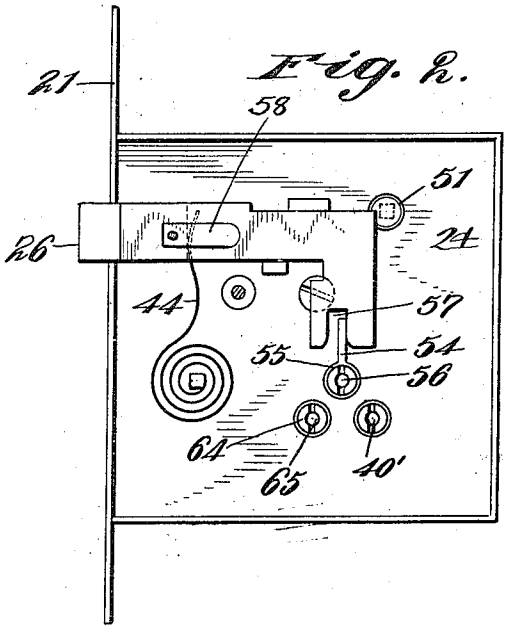


Fig. 2.



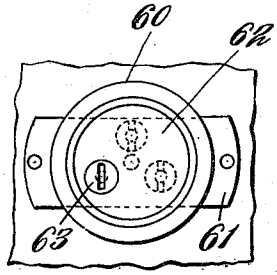


Fig. 11.

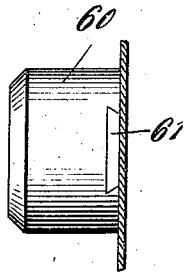


Fig. 12.

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2 SHEETS—SHEET 2.

Fig. 3.

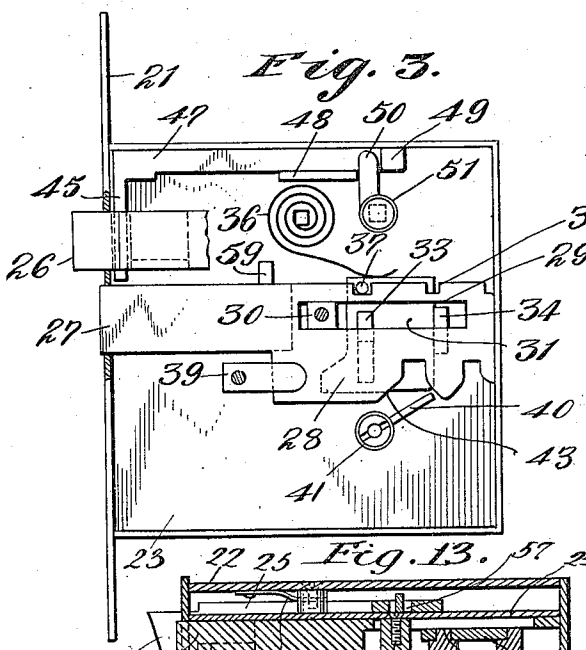


Fig. 4.

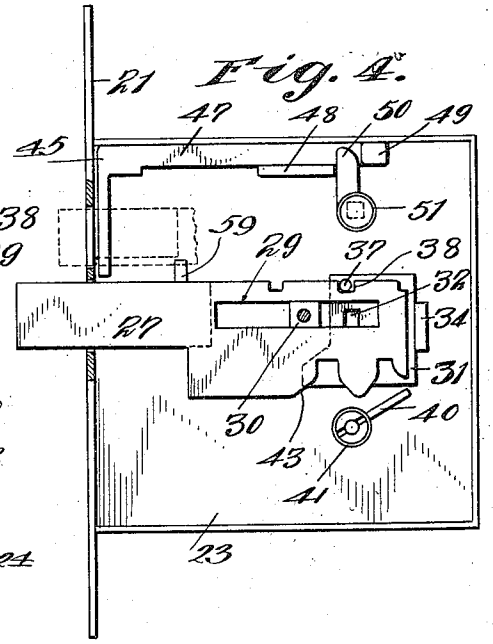


Fig. 13.

Fig. 6.

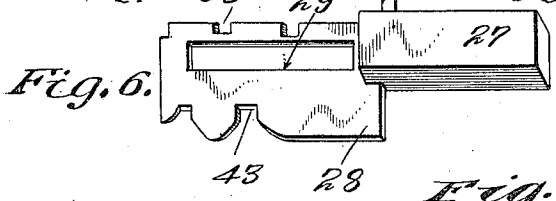


Fig. 7.

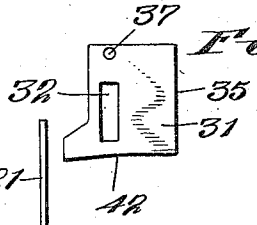
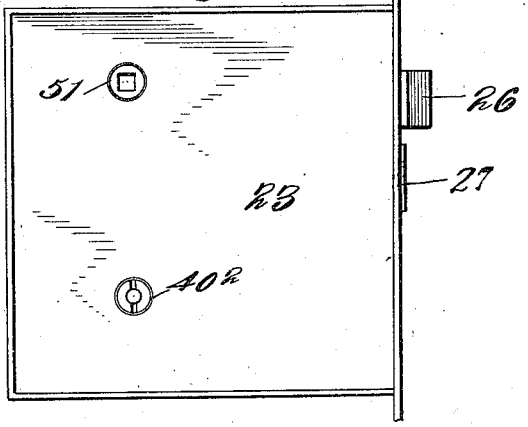


Fig. 5



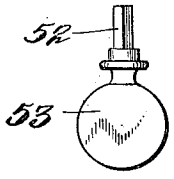


Fig. 8

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UNITED STATES PATENT OFFICE.

NIKOLAUS WAING, OF NEW YORK, N. Y.

LOCK.

1,042,508. Specification of Letters Patent. Patented Oct. 29, 1912.

Application filed February 13, 1911. Serial No. 608,215.

To all whom it may concern:

Be it known that I, NIKOLAUS WAING, a subject of the Emperor of Germany, and a resident of New York city, borough of Bronx, in the county of New York and State of New York, have invented certain new and useful Improvements in Locks, of which the following is a specification.

This invention relates to locks and has for an object to provide a lock which will successfully baffle attempts to pick it.

The form of the invention herein illustrated embodies a spring-latch and a dead-bolt each separably operated by the same key and so related one to the other that they may be operated by the key in a predetermined sequence only, and that one—the latch, cannot be sprung back after the bolt has been shot.

In the drawings accompanying and forming a part of this specification one practicable form of my invention is illustrated, wherein,

Figure 1 represents the front of the lock, Fig. 2 represents the lock with the front plate removed, Fig. 3 represents the lock with the front plate and intermediate partition removed, and shows a portion of the spring-latch, the dead-bolt being in its retracted position. Fig. 4 is a similar view showing the dead-bolt shot to an intermediate position between its full extent of movement and its retracted movement. Fig. 5 is a rear view of the lock, Fig. 6 is a perspective view of the dead-bolt removed, Fig. 7 is a detailed or elevational view of the tumbler for the dead-bolt, Fig. 8 is an elevation of the knob for actuating the spring-latch from the rear, Fig. 9 is a perspective view of the spring-latch disassembled, Fig. 10 is an elevation of the lever for throwing the bolt, Fig. 11 is a view showing the barrel and its carrier mechanism, Fig. 12 is an elevation thereof, showing a portion of the plate of the lock in section, and Fig. 13 is a sectional view through the three lock plates taken at about line 13—13 of Fig. 1 looking upward.

The form of lock herein illustrated is what is generally known as a mortise lock. For convenience the side of the lock which will be toward the front or the outside of the door, if it is applied to an outside door, will be designated the front, and the portion of the lock which is directed inwardly will be called the back.

The lock is shown as comprising a frame member 20, which comprises a portion 21, an edge plate as it were for engaging the edge of the door. The casing portion comprises a front plate 22, a rear plate 23, and an intermediate plate or partition 24. The body portion of the spring-latch is mounted between the partition 24 and the front plate 22, and is so mounted that its body portion 25, will slide upon the front face of the partition 24, and its head portion 26, will occupy a position in a recess cut in the partition and will be guided by the edge plate 21 of the casing. The dead-bolt 27, will also be guided by the edge plate of the casing, and its body portion 28 will be located between the partition and the back plate. For the purpose of guiding the dead-bolt in its reciprocatory movement it is shown provided with a longitudinally disposed guide-way 29 for coöperation with a guide 30 carried by the back plate of the lock. The tumbler 31, for the dead-bolt is illustrated at Fig. 7 and is provided with a longitudinal guide-way 32 for engaging a guide 33 also carried by the back plate. An additional guide 34 is provided for engaging the rear face or edge 35 of the tumbler. A suitable spring 36 is provided for forcing the tumbler down to its normal position. In the normal position of the tumbler a lug 37 carried thereby will engage suitably formed notches 38, in the body portion of the dead-bolt, for preventing movement of the dead-bolt in either direction. In the present showing the dead-bolt will be shot forward to its full extent by means of two key movements. The tumbler, however, will lock the bolt in its intermediate position, that is the position to which it will be shot by a single key movement, or to which it will be retracted if fully shot by a single retractive operation of the key. A leaf spring 39, (see Fig. 3) is carried by the intermediate partition for engaging the body portion of the dead-bolt for preventing lateral movement thereof, and for affording a certain amount of frictional resistance to the movement of the same. A lever 40 is provided for actuating the dead-bolt. This lever is mounted upon a revoluble body portion 41 provided at its ends with key seats or sockets 40^1 and 40^2. The body 41 is mounted in suitable bearing openings in the front and back plates and also in the intermediate partition. The key seats or sockets at the re-

spective ends being open to the front and back of the lock respectively. The lever 40 will engage the lower edge 42 of the tumbler 31 and raise this against the pressure of the spring 36 to such a position that the lug 37 will clear the notches 38 whereby the lever 40 will then engage in one or the other of the recesses 43 in the body portion of the dead-bolt and move the dead-bolt either in or out as occasion may demand.

The spring-latch is normally sprung forward by means of a suitable spring 44 and is controlled as to the limit of its forward movement by means of a finger 45 engaging a notch 46 rearward of its head and which finger will be drawn up against the edge plate 21 by means of the forward movement of the spring-latch. The finger 45 is carried by means of a slide 47, shown mounted in the upper portion of the frame, and guided by a suitable guide 48. The slide 47 is provided with a lug 49 which will be engaged by a lever 50, supported by a revoluble body 51, mounted in suitable bearing openings in the rear plate and the partition 24 and provided at the portion where it projects through the rear plate 23 with a square opening 51, for receiving the square shank 52 of a latch actuator or knob 53. This is for operating the spring-latch from the inside of the door. The spring latch will be operated from the outside of the door by means of a lever 54 carried by a revoluble body 55 mounted in bearing openings in the front plate and the partition 24, and provided at the portion where it extends through the front plate with a key seat or socket 56. The end of the lever 54 is located in a notch 57 of the body portion 25. A leaf spring 58 similar to the spring 39 is carried by the front plate 22 for engaging the flat face of the spring-latch for affording a certain amount of resistance to its movement and for preventing lateral play.

The finger 45 is shown extending a short distance below the spring-latch and toward the dead-bolt. The dead-bolt is shown carrying a pin 59 which, upon the extreme forward movement of the bolt when this is shot, will assume a position in the path of movement of the finger 45 when this moves inward with the spring-latch, so that the spring-latch cannot be moved independently of the bolt after the bolt has been fully shot. It can neither be moved back by either of the levers 50 or 54 nor be sprung back by the engagement of an instrument from the outside.

It will be seen that the two bolts in the lock, namely the spring-latch, and the dead-bolt, when in the fully locked position must be actuated in proper sequence and each by its individual actuator. If the dead-bolt is fully shot and it is desired to open the door from the outside a key must be inserted in the key seat or socket 40^1 and the dead-bolt moved back by two complete rotations of the key; then the key will be inserted in the key seat or socket 56 and the spring latch will be retracted. If the dead-bolt is fully shot and it is desired to unlock both bolts from the inside of the door, the key must be inserted in the key seat or socket 40^2 and the bolt retracted by two rotations of the key and then the spring latch will be withdrawn by means of the latch knob 53.

To make the lock more complete in its equipment to baffle the intruder who would pick the same a guard is provided over the key seats upon the outside of the door. A lock barrel 60 is illustrated, which in practice may be readily assembled with the lock when this is being inserted in the mortise cut for the same in the door. A plate 61 is shown mounted upon the front plate 22 of the lock which plate 61 is provided with undercut or dovetail edges located parallel with the line of movement of the lock into its mortise. The barrel 60 is provided with a coöperative dovetail opening. A proper opening will be made in the door communicating with the mortise; the barrel will be placed in position in such opening, and the lock inserted in the mortise, when the dovetail connection between the plate 61 and the barrel 60 will hold the barrel securely in position. This barrel will carry the proper key guide.

The key barrel 60 is shown provided with a plate 62 which is mounted therein for rotation. A key guide 63 is mounted in the plate 62 for rotation, and is mounted in such a position that it will have an orbital movement upon the rotation of the plate 62.

Suitable wards may be provided within the key barrel or within the guide 63 as occasion may demand. The orbital path of movement of the key guide 63 will bring this into registry with the key seats or sockets 40^1 and 56 so that when one desires to unlock the door the key will be inserted partially in the key guide 63 and the plate 62 rotated until the key guide 63 registers with the key socket 56, when the key will be further inserted and into such a position that it will seat in the seat 56 when the spring-latch may be retracted. If, however, the dead-bolt has been shot, the key will be inserted partially within the key guide 63 and this moved until it registers with the key seat 40^1 when the key will be moved into such a position that it will fully seat therein, then the dead-bolt will be retracted and the key partially withdrawn, the plate 62 rotated until the key-guide 63 registers with the key seat 56, when the key will be further advanced until it seats in the key seat 56, whereupon the spring-latch may then be retracted.

For the purpose of still further baffling

the intruder a rotatable member 64 is mounted in the plate 22 and is provided with a key seat 65. This member, 64, is not connected with any operative mechanism of the lock but is in the path of revolution of the key-guide 63. Normally the key-guide will be positioned for registry with the key seat 65 so that a person unacquainted with the operation of the lock, even though equipped with a key which will actuate the lock, upon inserting it in the key guide 63 and causing it to seat in the socket 55 will be unable to actuate the lock or to ascertain that the key he is employing is not the proper key for the lock, except that the bolts will refuse to respond to the movement of the key. When the key guide 63 is in registry with the idle socket 65 the plate 62 acts as a shield for the active key seats hiding them from view. The key sockets 40^1, 56 and 65 will be arranged about the orbital path of the key guide 63 which orbital path has as its center the center of rotation of the plate 62.

Although but one form of this invention is illustrated and described in detail, yet it will be apparent that many changes may be made without departing from the spirit of this invention, and that certain parts of the invention may be used without other parts thereof.

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

1. The combination with a reciprocatory latch, of a spring for holding this normally advanced, a slide movable in a path parallel with the movement of the latch, a finger carried by the slide, a recess in the latch for engaging the finger, the finger extending beyond the latch, a detent for engaging the finger for preventing forward movement of the latch beyond its normal position, a dead-bolt, a pin carried by the dead-bolt and located in position for interposition in the path of retractive movement of the finger when the bolt is fully shot.

2. The combination with a lock casing provided with front and back plates and an intermediate partition, of a bolt and actuating mechanism therefor mounted between one plate and the partition, and a latch mounted between the other plate and the partition.

3. The combination with a lock casing, of a spring latch and a dead bolt located therein, an actuator-lever for each of these provided with a body portion having a key seat and mounted for rotation in the casing, a rigid partition between the said levers, and a rotatable plate mounted on the casing and having a key guide in the plate located in position to register with the respective key guides in the lever bodies.

4. The combination with a lock casing, of a spring latch and a dead bolt located therein, an actuator-lever for each of these provided with a body portion having a key seat and mounted for rotation in the casing, the key seats being located adjacent one to the other, and a rigid partition between the said levers.

5. The combination with a lock casing, of a spring latch and a dead bolt located therein, an actuator-lever for each of these provided with a body portion having a key seat and mounted for rotation in the casing, and the key seats being located adjacent one to the other.

6. In combination, two bolts, two levers, one for actuating each bolt and located adjacent one to the other, and a rigid partition between the levers and between the bolts contiguous to the levers.

7. In combination, two bolts, a lever provided with a body portion having a key seat for each bolt, the key seats being located adjacent one to the other, the bolts having their lever engaging portions located adjacent one to the other, and a partition located between the levers.

8. In combination, two bolts, a lever provided with a body portion having a key seat for each bolt, the key seats being located adjacent one to the other, the bolts having their lever engaging portions located adjacent one to the other, a partition located between the levers, and a rotatable plate mounted on the casing and having a key guide in the plate located in position to register with the respective key guides in the lever bodies.

Signed at New York city, in the county of New York and State of New York this 23rd day of January A. D. 1911.

NIKOLAUS WAING.

Witnesses:

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FRANK M. ASHLEY.