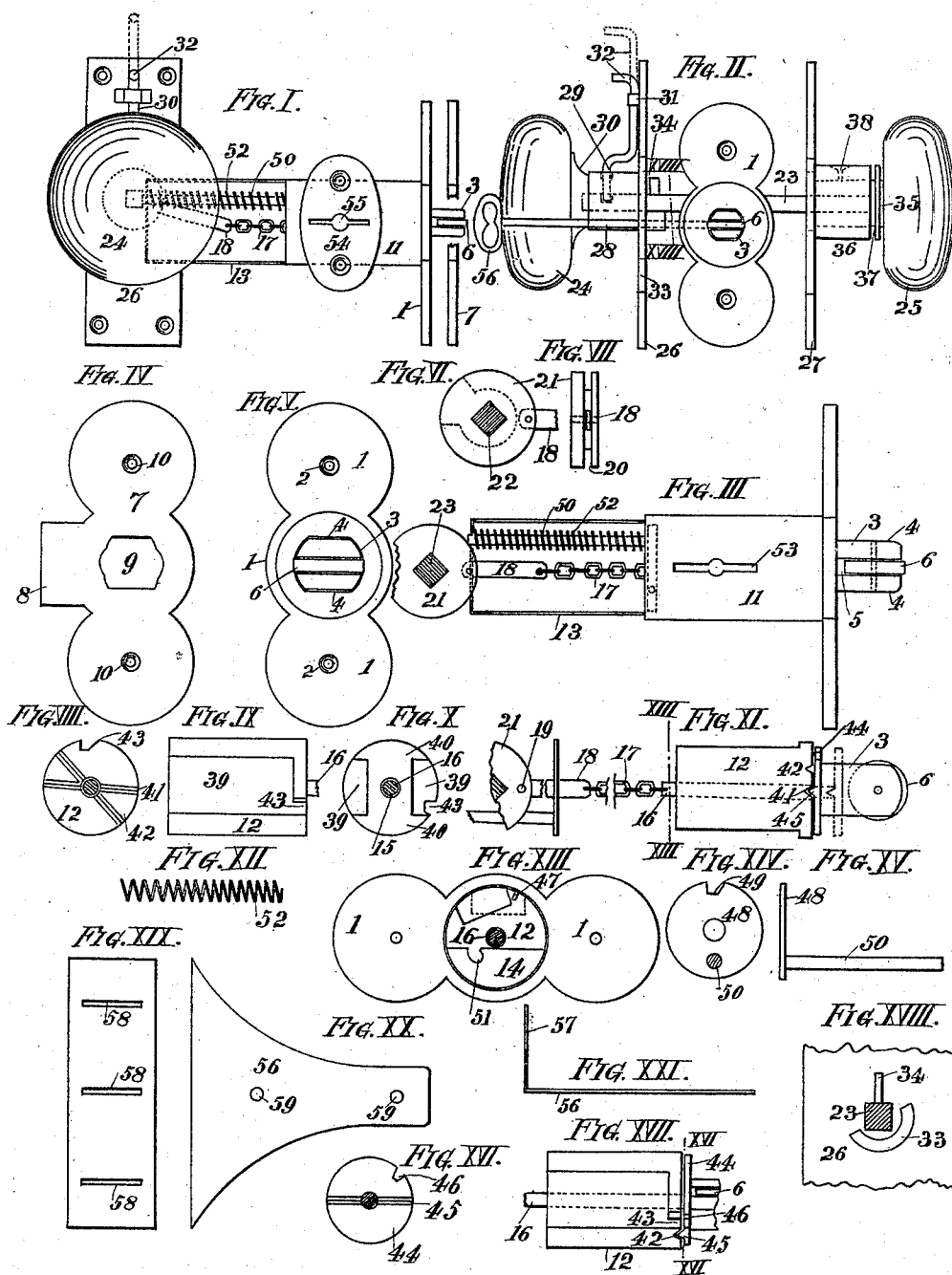


(No Model.)

J. W. T. MORRIS.
LOCK.

No. 584,697.

Patented June 15, 1897.



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UNITED STATES PATENT OFFICE.

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LOCK.

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To all whom it may concern:

Be it known that I, JOHN W. T. MORRIS, a citizen of the United States, residing at Summerland, in the county of Santa Barbara, State of California, have invented certain new and useful Improvements in Door-Locks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in mortise door-locks which may be readily placed in position with a minimum amount of chisel-work, the principal plates being circular in general outline, with the result that nearly all the toolwork can be done by boring with a bit, thus largely simplifying the work of placing the lock in position; and my invention consists in certain features of novelty hereinafter described and claimed.

Figure I represents a side elevation of my improved lock. Fig. II is an end elevation. Fig. III is a side elevation of the lock's cylinder and showing the flexible connection between the locking-bolt and the knob. Fig. IV represents a side elevation of the latch-plate intended to be secured to the door-jamb. Fig. V is an end elevation of the locking-bolt, showing antifriction-roller journaled to the same and showing the plate for securing the lock to the door. Fig. VI is a side elevation of the disk which operates the lock. Fig. VII is an edge view of the lock-operating disk. Fig. VIII is an end elevation showing the outer end of the locking-tumbler. Fig. IX represents a side elevation of the locking-tumbler. Fig. X represents an end elevation showing the inner end of the locking-tumbler. Fig. XI is a detail view showing the locking-tumbler and the locking-bolt with its flexible connection with the operating-disk. Fig. XII represents the coil-spring for holding the tumbler in its proper relation with the locking-bolt. Fig. XIII represents a section taken on line XIII XIII, Fig. XI. Fig. XIV represents an end elevation of the spring-guard. Fig. XV represents a side elevation of the spring-guard and rod on which the spring is placed. Fig. XVI is a section taken on line XVI XVI, Fig. XVII, showing inner face of

the disk on the inner end of the locking-bolt. Fig. XVII represents a side elevation of the locking bolt and tumbler. Fig. XVIII represents a section taken on line XVIII XVIII, Fig. II. Fig. XIX represents an end elevation of a gage for marking on a door where the necessary openings are to be made for the reception of the lock. Fig. XX is a side elevation of the gage. Fig. XXI represents an edge view of the gage.

Referring to the drawings, 1 represents a plate, preferably made of three circular portions, the end portions having orifices 2, in which screws may be inserted for securing the lock to the door. The central portion is pierced by an opening through which the locking-bolt 3 extends, the locking-bolt having two flattened sides 4, which correspond with the opening in the plate 1 and which prevents the bolt from turning in the plate. The locking-bolt 3 is provided with a central recess 5, in which is journaled an antifriction-roller 6.

7 represents a latch-plate intended to be secured to the door-jamb, and being of the same general outline as the plate 1, said latch-plate having a lip 8, extending beyond the outer edge of the plate proper and being slightly inclined, against which the antifriction-roller 6 in the end of the lock comes in contact when the door is being closed.

9 represents an orifice in the center of the plate 7, into which the outer end of the locking-bolt and antifriction-roller extend when the door is closed, thus holding the door in its closed position. Both ends of the plate 7 being the same the plate may be reversed at will according to whichever side of the door-jamb it is desired to place it, there being countersunk orifices 10 in the plate for the reception of screws for holding the plate in position. By the circular outline of the plates 1 and 7 it will be seen that in placing them in position in the door and door-jamb the openings for the reception of the same may be formed by the use of an auger or bit without resorting to the use of a chisel to any extent, a slight mortise having to be made for the reception of the lip 8 on the latch-plate.

11 represents a cylinder extending back from the plate 1 and inclosing the locking-

tumbler 12. At about midway of the length of the cylinder 11 I cut away substantially two-thirds of the same, leaving a segmental portion 13 with a semicircular plate 14 on its inner end. The tumbler 12 is provided with a central aperture 15, through which extends a rod 16. The outer end of the rod 16 is secured to the inner end of the locking-bolt 3, the tumbler being loosely mounted on the rod 16.

17 represents a chain or other flexible connection connecting the inner end of the rod 16 with the outer end of a flattened bar 18. The inner end of the bar 18 is pivoted by a pin 19 in a groove 20 of the lock-operating disk 21. The disk 21 is pierced with a square opening 22, which fits upon the square knob-shaft 23.

24 represents the inner and 25 the outer door-knob. The inner knob 24 is secured permanently to one end of the knob-shaft 23.

26 represents the inner and 27 the outer plates for securing the knobs to the door. The inner plate 26 is provided with a sleeve 28, extending outwardly from the plate, said sleeve having an orifice 29, said orifice extending through the sleeve and into the knob-shaft 23.

30 represents a thumb-lock movably secured to the plate 26 by means of a staple 31 and having its upper end bent outward and forming a thumb-piece 32, its lower end being bent into suitable form to pass into the orifice 29 in the sleeve 28 and shaft 23. The thumb-piece, being movable in its support, can be readily withdrawn and leave the knob free to turn. On the inner face of the plate 26 I provide a semicircular projection 33, partially surrounding the knob-shaft 23.

34 represents a pin placed on the shaft 23, said pin coming in contact with the projection 33 when the knob has been turned a sufficient distance, the object of said pin 34 being to prevent a further rotation of the knob than is necessary for the withdrawal of the lock and also to prevent withdrawal of the shaft from the plate 26. On the inner face of the outer knob 25 I provide an extension 35 for the reception of one end of the shaft 23.

36 represents a sleeve on the outer face of the plate 27, which fits over the extension 35 on the knob. Extension 35 is provided with a recess or groove 37, into which a set-screw 38 may extend in order to secure the knob to the plate. The shaft 23, resting freely within the extension 35, and the sleeve 36 being of some length, permits of the lock being secured to doors of varying thickness.

39 represents grooves or ways running lengthwise of the tumbler 12, leaving a solid portion 40 extending the full length of the tumbler. The outer edge of the tumbler 12 is provided with grooves 41 42, extending across the end of the tumbler, and with a notch 43, cut out of the edge of the tumbler, said notch 43 coinciding with one of the grooves 39.

44 represents a disk on the inner end of the locking-bolt, said disk having a V-shaped rib 45 on its inner face, said rib being adapted to engage either of the grooves 41 42 on the outer end of the locking-tumbler.

46 represents a notch in the edge of the disk 44, which corresponds with the notch 43 in the tumbler.

47 represents a pin at the inner end of the cylinder 11.

48 represents a circular spring-guard adapted to fit over the rod 16 or chain 17 and having a notch 49 on its edge.

50 represents a rod secured to the spring-guard, said rod being adapted to rest, when in its normal position, in the extension 13 of the cylinder 11, the outer end of the rod 50 resting in a notch 51 in the semicircular plate 14 at the outer end of the extension 13.

52 represents a coil-spring placed upon the rod 50, said spring holding the spring-guard 48 against the inner end of the tumbler 12. The spring-guard 48, pressing against the end of the tumbler, holds the tumbler in engagement with the disk 44 by means of the rib 45 entering one of the grooves 41 42 in the outer end of the tumbler.

53 represents a key-opening leading through the cylinder 11, and 54 an escutcheon to be secured to the outer face of the door with a key-opening 55, there being a like escutcheon and a like opening through the cylinder on the opposite side of the door. When it is desired to unlock the door, a key 56 is inserted through the escutcheon 54 and the cylinder 11 into the grooves 39 in the tumbler, the tumbler being turned into the position shown in dotted line in Fig. XIII, with the pin 47 coinciding with the groove 39, in which position the notch 43 in the tumbler will coincide with the notch 46 on the disk at the inner end of the lock. When in this position, either of the knobs 24 25 may be turned with the disk 21, the bar 18 entering into the groove 20 and the locking-bolt withdrawn from the opening in the latch-plate 7. The lock can be readily prevented from withdrawal by inserting the key through the opening 55 into the groove 39 in the tumbler, the key coming against the wall at the side of the groove and turning the tumbler until it is thrown into the position shown in full line in Fig. XIII, at which point the groove 39 will be out of line with the pin 47, said pin preventing the withdrawal of the tumbler and also the lock until the tumbler has been turned back into the position shown in dotted line in Fig. XIII. As the lock is drawn backward the spring 52 will be forced against the inner face of the semicircular plate 14, and as soon as the knob is released said spring will force the lock back into its locking position.

I am able to save considerable time in placing my lock in position, as I dispense almost entirely with the use of a chisel. As this form of lock cannot be opened or forced back without turning the knobs, it will be readily

seen that by means of my thumb-lock on the inner side of the door I can securely lock the door against the use of any key or other instrument which might be inserted in the key-hole; for even were the tumbler forced backward on account of its being loosely mounted on the rod 16 the lock could not be forced backward with it. By taking out the spring-guard 48 the tumbler and lock may be readily withdrawn from the cylinder 11 in case it is desired to repair the same.

56 represents a gage having a portion 57 extending at right angles, the portion 57 having a series of slots 58. The gage being placed upon the door, the edge of the door may be marked through the slots 58, indicating the centers for the bit, in making the opening in the door for the plate 1 and the lock, said gage also having orifices 59 in its sides indicating the points for the escutcheons and knob-shaft.

I claim as my invention—

1. In a lock the combination, of an inclosing cylinder, a movable lock, a rod connected with the lock, a tumbler inclosed in said cylinder and movably supported on said rod, an extension on said cylinder, a spring-guard, a rod connected with said spring-guard and a spring encircling said rod, substantially as set forth.

2. In a lock the combination, of an inclosing cylinder with movable locking-bolt, a rod connected with the locking-bolt, a tumbler on said rod, a segmental extension of said cylinder, a semicircular plate at the end of said extension, a notch in said plate, a spring-guard, a rod connected with the spring-guard and having its inner end resting in said notch

and a spring on said rod, substantially as set forth.

3. In a locking-bolt the combination of an inclosing cylinder, a movable locking-bolt, a rod connected with the locking-bolt, a tumbler on said rod, grooves extending lengthwise on said tumbler, a disk on the locking-bolt and notches formed in the edges of said disk and tumbler, substantially as set forth.

4. In a lock the combination, of a locking-cylinder, a movable locking-bolt having a disk on its inner end, a rib on said disk, a locking-tumbler having longitudinal grooves, a rod connected with the locking-bolt on which the tumbler rests and retaining-grooves on the outer end of the tumbler in which the rib on the disk may engage, substantially as set forth.

5. In a lock the combination, of a movable locking-bolt, an antifriction-roller on its outer end, a supporting-plate, a cylinder, a rod connected with the locking-bolt, a tumbler on said rod, longitudinal grooves in said tumbler, a locking-pin on the inner side of said cylinder, a spring-guard circular in form and having a notch cut therein, a rod on the spring-guard and a retaining-spring on said rod, substantially as set forth.

6. In a lock the combination, of a knob-shaft, knobs thereon, supporting-plates, a projection on the inner face of one of said plates and a pin on the knob-shaft adapted to engage said projection, substantially as set forth.

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