

(No Model.)

J. D. ROSS.
LOCK.

No. 586,628.

Patented July 20, 1897.

Fig. 1

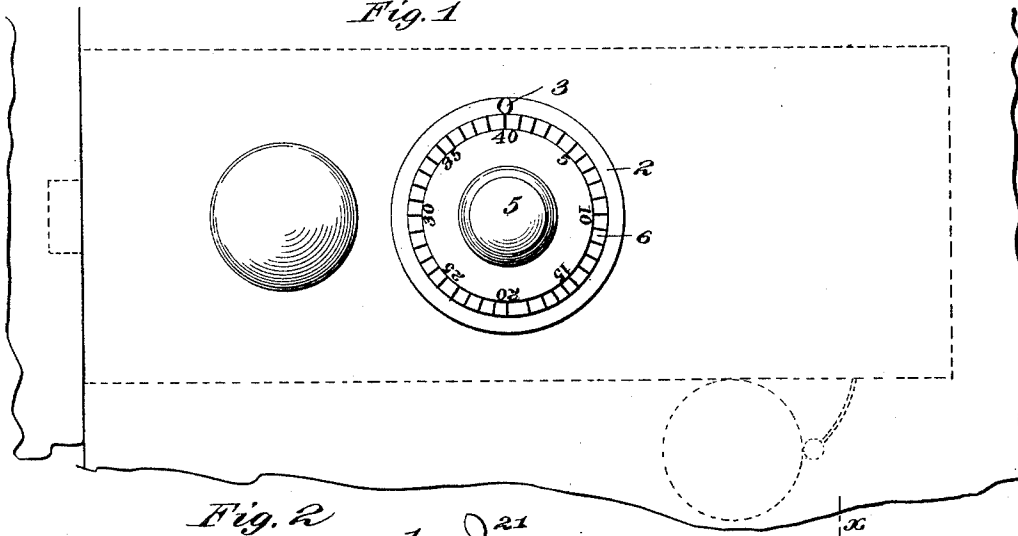


Fig. 2

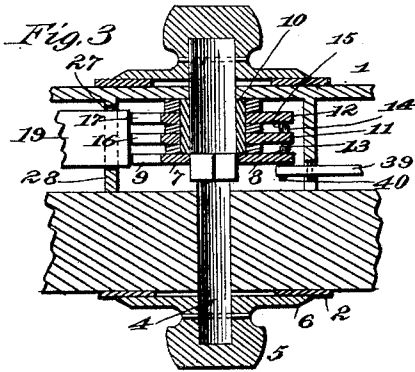
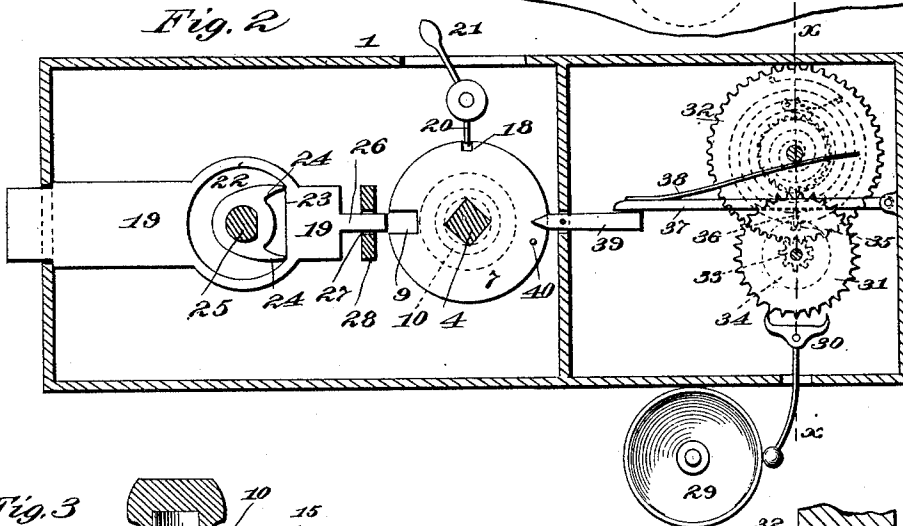


Fig. 4

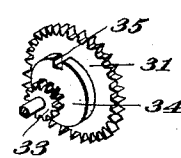
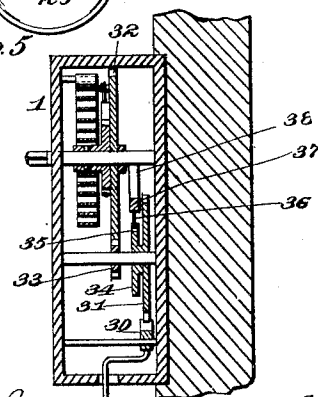


Fig. 5



Witnesses.

J. F. Coleman
H. A. Van

James D. Ross
By John Hedderburn
his Atty

UNITED STATES PATENT OFFICE.

JAMES D. ROSS, OF OLIVE, KENTUCKY.

LOCK.

SPECIFICATION forming part of Letters Patent No. 586,628, dated July 20, 1897.

Application filed May 22, 1896. Serial No. 592,572. (No model.)

To all whom it may concern

Be it known that I, JAMES D. ROSS, a citizen of the United States, residing at Olive, in the county of Marshall and State of Kentucky, have invented certain new and useful Improvements in Locks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in locks, the object of the same being to provide a simple and convenient combination-lock for doors, safes, bureaus, and the like which is simple in construction, which may be secured in its unlocked position, and which will trip an alarm into operation whenever it is turned to work the combination.

The invention consists of a locking-bolt mounted to reciprocate in a suitable lock-casing, means for shifting said bolt from the outside of the casing, a series of tumbler-disks for holding said bolt in its locked position, each of said disks having a notch or recess in its outer edge in which the end of the locking-bolt is adapted to fit when the notches or recesses register with one another just back of said locking-bolt, an alarm-bell, a spring-actuated cog-wheel engaging a pinion secured to an escapement for ringing said alarm, a stop-disk having a notch or recess in one edge secured to said pinion, an escapement-wheel, a stop-lever engaging said recess, and a lever for releasing said stop-disk actuated by the setting of the tumblers.

The invention also consists in other details of construction and combinations of parts, which will be hereinafter more fully described and claimed.

In the drawings forming part of this specification, Figure 1 is a side elevation of my improved lock shown upon the outside of a door. Fig. 2 is a vertical longitudinal section through the same. Fig. 3 is a section through the tumbler-shaft, showing the tumbler-disks thereon. Fig. 4 is a detail perspective view of the escapement-wheel for the alarm and the stop-disk secured thereto. Fig. 5 is a cross-section on the line *xx* of Fig. 2, the same being taken through the shafts upon which the escapement-wheel and winding-disk are mounted.

Like reference-numerals indicate like parts in the different views.

The lock-casing 1 is adapted to be secured to the side of a door or within a recess in a door and has upon its outer surface a disk 2, with a zero-point 3 marked thereon. Extending through the casing 1 at the center of the disk 2 is a shaft 4, having a knob 5 upon its outer end. Said shaft also has secured to it and moving with it a dial-plate 6, graduated as clearly shown in Fig. 1. On the inside of the casing the shaft 4 has secured to it a tumbler-disk 7, having a pin 8 projecting laterally from its inner surface and provided with a recess or notch 9 in one edge. Also surrounding the shaft 4 is a sleeve or hollow shaft 10, upon which are loosely mounted two or more tumbler-disks 11 12, the tumbler 11 having a pin or projection 13, which is adapted to be engaged by the pin on the disk 7, and is also provided with a pin 14 on its opposite side, which engages a pin 15 on the adjacent surface of the tumbler-disk 12. The said disks 11 12 are similar in all respects to the disk 7, being provided with peripheral notches or recesses 16 17, as clearly shown.

Each of the tumbler-disks 7 11 12 has in its outer surface a slit 18, all of which register with one another when the notches or recesses 9, 16, and 17 are alined just back of the locking-bolt 19. When in this position, the notches or slits 18 are adapted to be engaged by a stop-pin 20, mounted to turn in the upper part of the casing 1 and having an operating-handle 21 upon its upper end, which projects through an opening in the top surface of said casing, so that the tumbler-disks 7, 11, and 12 may be locked by hand for the purpose of permitting the opening of the lock without reworking the combination. The locking-bolt 19 is mounted to slide in suitable guideways on the inside of the casing 1 and has an opening 22 therein with one flat side 23, which is engaged by arms 24 24 upon the knob-shaft 25, through which said bolt is operated. The rear end of the bolt 19 has a projection 26 thereon, which moves through a slot 27 in a guideway 28 and is adapted to fit the notches or recesses 9, 16, and 17 when the latter are alined just in the rear of said projection. At all other times the locking-bolt 19 is prevented from being shifted by reason of the engage-

ment of the projection 26 with the edges of the tumbler-disks 7, 11, and 12.

At one side of the lock-casing 1 is mounted an alarm-bell 29, which is adapted to be rung
5 by means of an escapement and hammer 30, actuated by the escapement-wheel 31, which is rotated by a spring-actuated cog-wheel 32, engaging a pinion 33, secured to the escape-
10 ment-wheel 31. Secured to the same shaft as the escapement-wheel 31 and pinion 33 and located between them is a stop-disk 34, having
15 a notch 35, within which fits a lug or finger 36 upon a lever 37, fulcrumed at one end to the frame and normally urged downwardly
20 by a spring 38, which bears against the shaft upon which the spring-actuated cog-wheel is mounted. Adapted to engage the free end
of the lever 37 is a trip-lever 39, fulcrumed in the edge of the lock-casing 1, the short arm
of which is adapted to be brought into en-
25 gagement with a pin 40 upon one of the tumbler-disks when the latter is rotated.

The operation of my lock is as follows, it being assumed that the locking-bolt 19 is in its
25 closed position, as shown in Fig. 2: As heretofore stated, the extension 26 on the locking-bolt 19 normally engages the outer edges of the tumbler-disks 7, 11, and 12. In order,
30 therefore, that the said locking-bolt may be shifted in its bearings, it is necessary to so turn the tumbler-disks that the notches or recesses 9, 16, and 17 in their outer edges shall
35 be brought into line one with the other just in the rear of the extension 26. To do this, the shaft 4, carrying the disk 7, is turned, say, to the left until a certain number on the dial 6 is
brought opposite the zero-point 3 on the plate 2. As this is being done the pin 8 on the disk
40 7 engages the pin 13 on the disk 11, and the pin 14 on the disk 11 engages the pin 15 on the disk 12, turning the latter disk until the notch or recess 17 therein is in its proper position.
The shaft 4 is then turned, we will say, to the right until another number on the dial 6 is
45 brought opposite the zero-mark 3 on the plate 2. During this operation the pin 8 on the disk 7 engages the pin 13 on the disk 11 and the latter disk is turned to the right in the proper
50 position, the disk 12 remaining stationary. The necessary operation would be to turn the shaft 4 in the opposite direction until a third number on the dial 6 is brought opposite the
zero-point 3. The disk 7 is the only one turned this time, and when it has been brought
55 to the proper point the three disks 7, 11, and 12 have their notches 9, 16, and 17 in proper position behind the extension 26. The locking-bolt 19 may then be shifted by turning
60 the shaft 25. If it is desired to keep the tumblers 7, 11, and 12 in unlocking position, it may be done by turning down the handle 21 and bringing the pin 20 into engagement with the aligned slits or notches 18 in the edges

of said tumbler-disks. The said bolt 19 is now free to be turned back and forth as often
65 as may be desired, just as it would be in an ordinary lock. When it is desired to lock the same permanently, the stop-pin 20 is removed from the slits 18 and the shaft 4 turned,
70 disarranging the tumblers 7, 11, and 12. As the tumbler-disks are turned for the purpose of setting the combination the pin 40 is brought into engagement with the free end
of the trip-lever 39, elevating the lever 37 and removing the lug or projection 36 thereon
75 from the notch in the stop-disk 34. When thus released, the escapement-wheel 31 is free to be rotated in its bearings by the engagement of the spring-actuated cog-wheel 32 with
80 the pinion 33, secured to said escapement-wheel. The alarm 29 is thereby sounded, giving notice that the lock is being operated.

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

1. The combination with a locking-bolt having an extension on the rear end thereof and means for shifting said bolt, of a series of tumbler-disks rotatably mounted in the
90 rear of said bolt and having peripheral notches or recesses therein, a shaft to which one of said tumbler-disks is secured, having a dial-plate thereon, a sleeve on said shaft upon which the other of said disks are loosely
95 mounted and pins upon each of said tumbler-disks engaging pins upon the next adjacent disk, a stop-pin in the lock-casing adapted to engage peripheral slits in said disks and a handle for operating said pin projecting
100 through the upper edge of the lock-casing, as and for the purpose set forth.

2. The combination with a locking-bolt, a series of tumbler-disks, one of said disks having a pin thereon and means for turning said
105 disks to permit the operation of said bolt, of alarm mechanism, consisting of a gong and hammer therefor, an escapement-wheel through which said hammer is operated, a drive-wheel engaging a pinion and secured
110 to said escapement-wheel, a stop-disk also secured thereto and having a notch or recess in one edge thereof, a stop-lever having a lug or projection thereon normally engaging said
115 stop-disk and a trip-lever for throwing said stop-lever out of engagement with said disk, the said trip-lever being actuated by the pin on one of said tumbler-disks, substantially as and for the purpose described.

In testimony whereof I have signed this specification in the presence of two subscrib-
120 ing witnesses.

JAMES D. ROSS.

Witnesses:

J. M. BEAN,
R. M. PACE.