

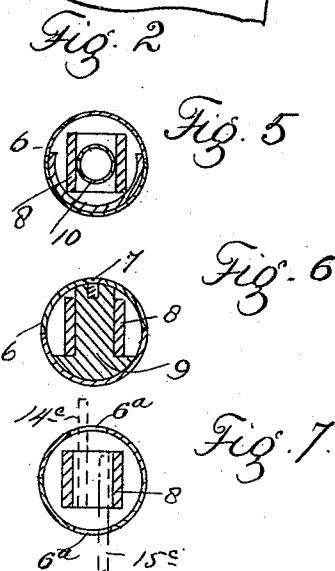
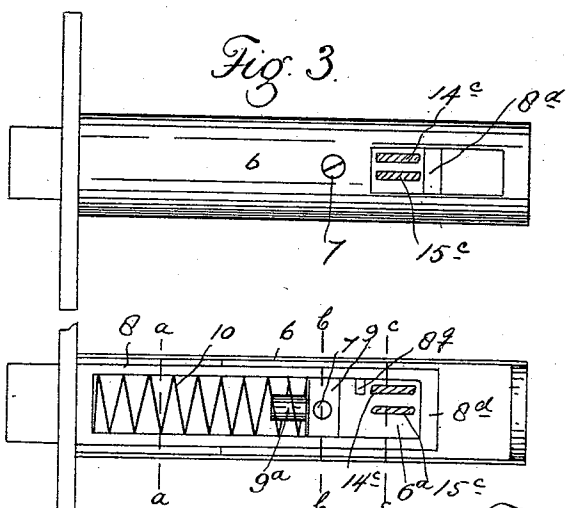
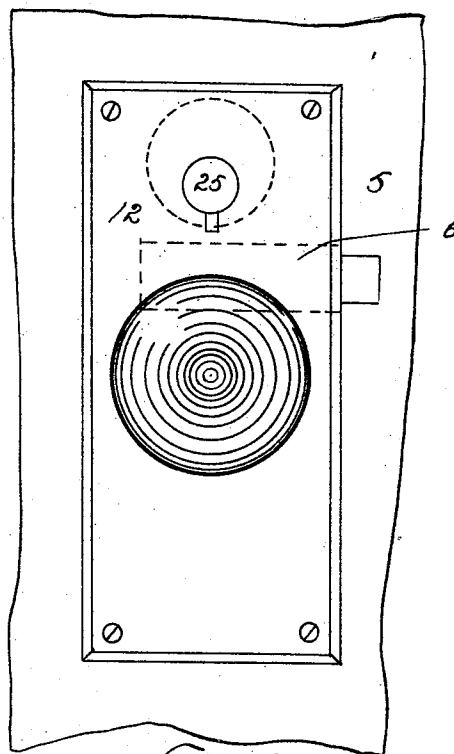
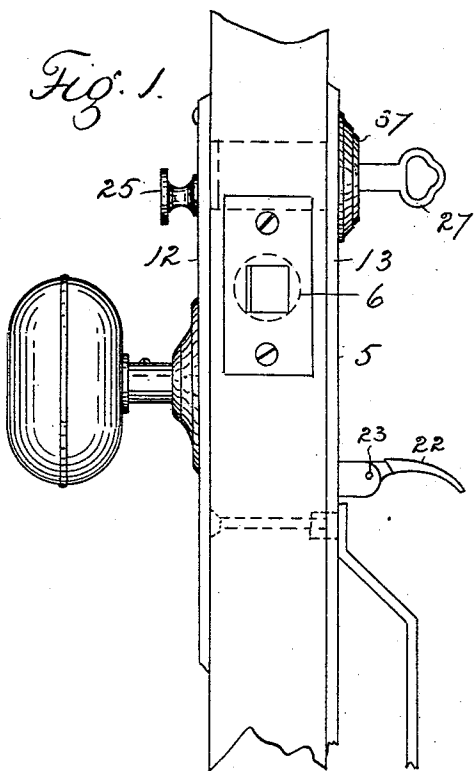
(No Model.)

2 Sheets—Sheet 1.

H. L. LINK.
LOCK.

No. 495,419.

Patented Apr. 11, 1893.



WITNESSES:
G. J. Rollman
Wm. McConnell

Fig. 4

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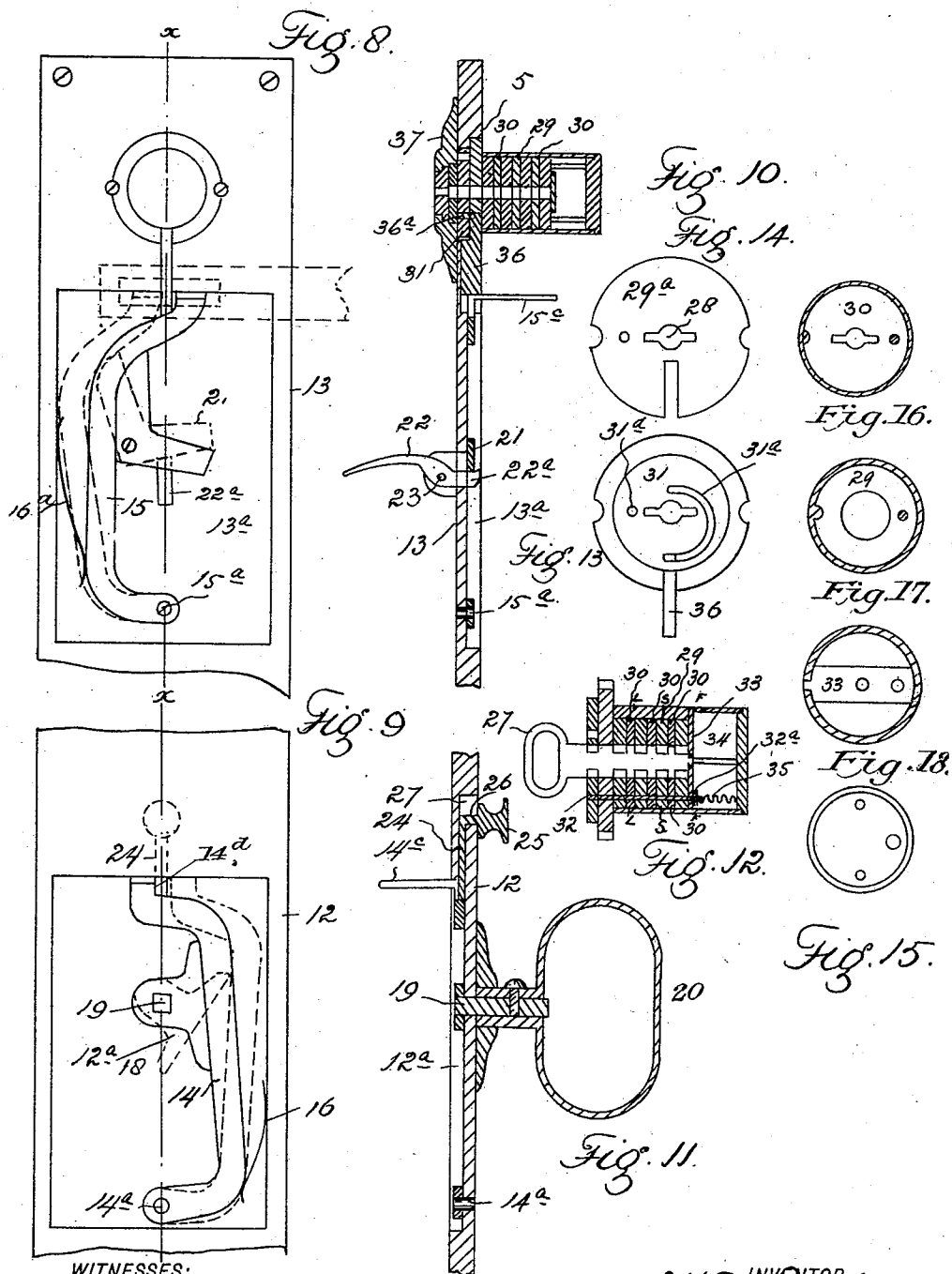
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H. L. LINK.
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2 Sheets—Sheet 2.

No. 495,419.

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WITNESSES:

C. J. Rollandet.
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INVENTOR
H. L. Link
BY
A. J. Brien
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UNITED STATES PATENT OFFICE.

HARVEY L. LINK, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF TO
HENRY N. BELLOWS, OF SAME PLACE.

LOCK.

SPECIFICATION forming part of Letters Patent No. 495,419, dated April 11, 1893.

Application filed November 18, 1892. Serial No. 452,465. (No model.)

To all whom it may concern:

Be it known that I, HARVEY L. LINK, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Locks; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in locks and the object of the invention is to provide a mechanism of this class which shall be simple in construction, economical in cost, reliable, durable and efficient in use.

To these ends the invention consists of the features, arrangements and combinations hereinafter described and claimed and will be fully understood by reference to the accompanying drawings in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a fragmentary edge view of a door provided with the lock. Fig. 2 is an outside view of the same. Fig. 3 is a view of the casing inclosing the locking bolt, the position of the projecting parts of the lock which operate the bolt being also shown. Fig. 4 is a longitudinal section taken through the casing, or a view with half of the casing removed, since in the manufacture of the lock this casing is made in two parts.

Figs. 5, 6, and 7 are transverse sections taken on the lines *a-a*, *b-b*, and *c-c* respectively, Fig. 4. Fig. 8 is an inside view of the outer plate and the mechanism attached thereto. Fig. 9 is a similar view of the inner plate. Figs. 10 and 11 are sections taken on the line *x-x*, Figs. 8 and 9. Fig. 12 is a section taken through the casing inclosing the wards, the key being shown in place. Fig. 13 is a plan view of the eccentrically slotted disk engaging the face of the ward casing. This view is obtained by removing the escutcheon. Fig. 14 is a face view of the ward casing after removing the disk shown in the last named figure. Fig. 15 is an inside view of the plug closing the inner end of the ward casing.

Figs. 16, 17, and 18 are sections taken on lines L—L, S—S, and F—F respectively, Fig. 12.

Similar reference characters indicating corresponding parts or elements of the mechanism in the several views let the numeral 5 designate the door the edge of which is recessed or bored to receive the barrel or tubular shell 6 which is preferably divided longitudinally into two sections connected by a screw 7. The barrel 6 receives the locking bolt 8, the central portion of which is cut away to allow the same to slip over and reciprocate upon a stop 9 made fast to one section of the shell and provided with a projection 9^a which enters a coil spring 10, one extremity of which engages the stop while the other extremity engages the bolt at the opposite end of the recess therein. To the opposite surfaces of the door are attached the inner metal plate 12 and the outer metal plate 13. These plates are provided with shallow recesses 12^a and 13^a on their inner surfaces for the reception of flat bow-shaped arms 14 and 15, the lower extremities of which are pivoted to their separate plates at 14^a and 15^a. These arms are provided with projections 14^c and 15^c extending outward from the planes of their respective plates and entering an opening 6^a in barrel 6 from opposite sides, projection 14^c being uppermost and lying in the path of a short pin 6^c projecting from the inner surface of the bolt. Arms 14 and 15 are held in their normal positions, as shown in full lines in Figs. 8 and 9, by leaf springs 16 and 16^a. These arms are actuated for the purpose of withdrawing the bolt by suitable levers 21 and 18 operated by suitable means as knobs or thumb levers extending to the outer surface of the door. Arm 14 is moved to the dotted line position as shown in Fig. 9 of the drawings, by a double bell-crank lever 18 made fast to a short rod or shank 19 secured to a knob 20, a partial rotation of which in either direction actuates the lever and withdraws the bolt, the projection 14^c acting against the rear extremity 8^a of the bolt. Arm 15 is actuated for the same purpose by a bell crank lever 21 engaged by the inner arm 22^a of a thumb lever 22 fulcrumed at 23. The door is locked by moving a pin into the path of each arm 14 and 15 whereby these arms

cannot be actuated, as is required to withdraw the bolt. On the inside of the door this stop consists of a vertically sliding pin 24, which passes through a suitable opening formed in the thick part of the plate into the upper portion of recess 12^a where it engages a shoulder 14^a formed on the arm and locks said arm in the normal position against the actions of lever 18. When stop 24 is moved to the locking position as just described, the door cannot be unlocked from the outside on account of a small pin 8^s formed on the bolt and so located that when the latter is withdrawn this pin engages the projection 14^c of the inner arm. Hence when the projection is locked from movement the bolt cannot be moved by any other means.

In locking the door from the outside a key 27 is employed which enters a suitable opening 28 formed in the face 29^a of casing 29 carrying any desired number of wards 30. Engaging the face of the ward casing and leaving a key-hole coinciding with that in said face is a disk 31 which is also provided with an eccentric slot 31^a and a small aperture 31^d into which projects a pin 32 which passes through coinciding apertures formed in the wards, their separating washers and a bottom plate 33 into a space 34 in the bottom of the casing. Plate 33 engages a shoulder 32^a formed on the pin which is supported by a coil spring 35, one extremity of which engages the bottom of the casing, while the other extremity engages shoulder 32^a of the pin which projects into the opening. Plate 33 is movable and is engaged by the inner extremity of the key when inserted. Hence by pressing the key inward pin 32 is disengaged from disk 31. The construction of the key is such that when it is so depressed its projections lie between the wards and engage disk 31. When in this position the turning of the key gives disk 31 a partial rotation. The pin 36, forming the stop for arm 15 is provided with a projection 36^a extending into slot 31^a of the disk, which slot being eccentrically formed with reference to the key hole, as shown in Fig. 13, the partial rotary movement imparted to the disk by the turning of the key, moves pin 36 back and forth, locking or unlocking the arm 15 as may be desired. It will be observed that disk 31 is covered by the escutcheon 37.

The construction and operation of the lock, it is believed, will be fully understood from the foregoing description. It will be observed from the description that if arm 14 is locked the door is locked from both sides, while if this arm is free to move the door may be opened at pleasure from the inside, while it is locked against any one attempting to enter from the outside without a key. It will also be seen that the construction of the ward mechanism, the wards being removable, gives practically unlimited facilities for key-variation and at very little expense. It is often desirable for various reasons to so alter the

lock that the former key will not fit it. Hence it is only necessary to remove the old wards, substitute new ones of different constructions and furnish a new key to correspond. The outer plate 13 should be fastened by screws extending from the inside of the door for obvious reasons. Or the wards, which should be made to vary in size or thickness, may be removed from their casing and replaced in a different order. In this case the same wards are used and only the key is changed.

Having thus described my invention, what I claim is—

1. In a lock the combination with the bolt of two arms, one located on each side of the door and pivoted to a suitable supporting plate, and each carrying a projection extending into the central recess of the bolt which is provided with a pin adapted to engage one projection as the bolt is withdrawn whereby the locking of one arm from movement prevents the withdrawal of the bolt by the use of the other arm, substantially as described.

2. In a lock the combination with a spring actuated reciprocating bolt, of a spring actuated pivoted arm secured to a supporting plate and carrying a projection engaging the bolt, a lever engaging the arm and means connected therewith, as a knob or thumb lever, for actuating the arm in opposition to its spring and withdrawing the bolt, a sliding locking stop for the arm and means for operating the same, substantially as described.

3. In a lock the combination with the bolt of two arms, one located on each side of the door, each pivoted to a suitable supporting plate and carrying a projection extending to engagement with the bolt, a lever engaging each arm and means connected therewith, as a knob or thumb lever, whereby one arm may be moved and the bolt withdrawn from either side of the door, a sliding locking stop for each arm and means for operating the same, substantially as described.

4. In a lock the combination with the bolt of two arms, one located on each side of the door and pivoted to a suitable supporting plate, and each carrying a projection extending into the central recess of the bolt which is provided with a pin adapted to engage one projection as the bolt is withdrawn whereby the locking of one arm from movement prevents the withdrawal of the bolt by the use of the other arm, and an independently operated locking stop for each arm, substantially as described.

5. In a lock the combination with the bolt and means for manipulating the same, of a casing fashioned to receive the key and carry a disk slotted eccentrically with reference to the key hole and a locking pin engaging this slot whereby as the key is turned the disk is moved and said pin actuated to lock or unlock the door, substantially as described.

6. In a lock the combination with the bolt and operating parts, of a casing fashioned to re-

ceive the key and carrying a disk eccentrically
slotted with reference to the key hole, a spring
actuated pin entering an aperture formed
in the disk and a plate engaging the pin and
5 engaged by the key when inserted in the cas-
ing whereby the pressure of the key depresses
the pin from engagement with the disk, and
a locking pin engaging the slot in the disk
whereby as the disk is turned by the move-

ment of the key the locking pin is actuated, 10
substantially as described.

In testimony whereof I affix my signature in
presence of two witnesses.

HARVEY L. LINK.

Witnesses:

WM. MCCONNELL,
HENRY N. BELLOWS.