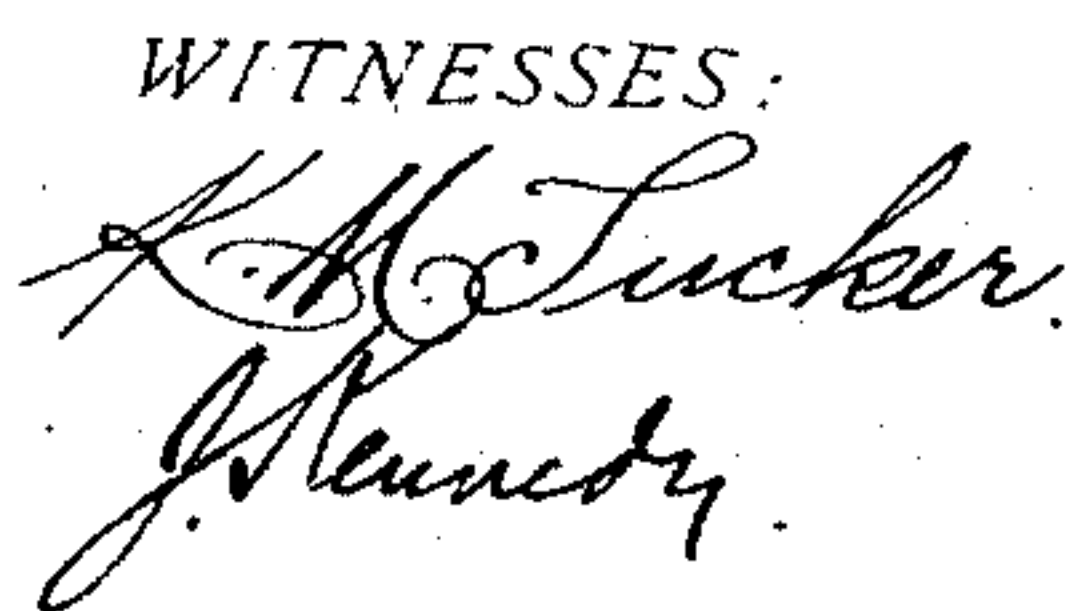


C. S. KENNEDY & J. W. McKEE.
CYLINDER LOCK.

Patented Aug. 11, 1896.



INVENTORS:
Charles E. Kennedy,
and James W. Mc Kee,
By Henry F. Parker,
ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES S. KENNEDY AND JAMES W. MCKEE, OF BROOKLYN, NEW YORK.

CYLINDER-LOCK.

SPECIFICATION forming part of Letters Patent No. 565,622, dated August 11, 1896.

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To all whom it may concern:

Be it known that we, CHARLES S. KENNEDY and JAMES W. MCKEE, citizens of the United States, and residents of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Cylinder-Locks, of which the following is a specification.

Our invention relates to that class of cylinder-locks in which the pin-tumblers are located in ducts perforated through the cylinder and are movable, so as to project into and engage with ducts in the shell or casing opposite both ends of said cylinder-ducts, so that security is promoted by the necessity of having the key adapted to move all of the tumblers into a position in which both ends of each pin are flush or coincident with the surface or joint between the cylinder and its case before the cylinder can be moved.

The object of our invention is to adapt the aforesaid class of lock to the use of a push-key having the wards in the end of its bit, and also to generally improve the construction of the lock; and to these ends said invention consists in certain novel features of construction and combinations of parts in a lock, as hereinafter described and claimed.

Referring to the accompanying drawings, in which similar characters of reference indicate corresponding parts throughout, Figure 1 is a sectional elevation showing the shell in longitudinal vertical section, partly at $x x$, Figs. 5 and 6, and showing the cylinder in side elevation at its normal or locked position, the key being shown withdrawn. Fig. 2 is a horizontal section of the shell and cylinder on the line $y y$, Fig. 1, showing the cylinder at a locked position. Fig. 3 is a horizontal section of the cylinder at $z z$, Fig. 2; and Fig. 4 is a cross-section of the cylinder at $z' z'$, Fig. 2. Fig. 5 is an inside end view of the shell. Fig. 6 is an inside end view of the escutcheon or outer head of the cylinder-shell, and Fig. 7 is a face view of the nut for securing the cylinder-shell.

A represents a door or other part to which the lock is attached.

B represents a latch, which may be of any well-known or suitable construction, but from the inside plate C of which the usual shell projection for the cylinder is omitted.

D represents the latch, and E the roll-back.

The plate C is recessed at 1 to admit the head of the nut 2, by which the shell F is secured after being inserted into the bore from the opposite side of the door. The escutcheon G is attached to the shell by screws 3 in the lugs 4, so that the escutcheon remains permanently on the shell in the condition in which the lock is sold in the market.

The roll-back E is provided with a squared hole into which the squared shank H of the cylinder I is inserted, as shown in Fig. 1.

The cylinder I contains a series of pins 5 6 7 8, which extend longitudinally through the cylinder and engage with respective opposite series of holes, the one series 9 10 11 12 being in the cylinder, as shown in Fig. 5, and the other series 13 14 15 16 being in the escutcheon, as shown in Fig. 6. The inner end 17 of the cylinder I and the inside surface 18 of the escutcheon G constitute what we herein term the "heads" of the shell, and may be variously constructed within the scope of our invention.

Various means may be provided for determining the positions of the pins by the insertion of the key. We show and describe one suitable means, as follows: The pins 5 6 7 8 are operated by a pack of tumblers 20 21 22 23, pivoted at 24 and engaging at their outer extremities with mortises 25 in the pins and kept outward by springs 30, and the key J, which is a push-key, having its wards in the end of the bit, enters the slot K and engages with the tumblers, the proper key insertion moving the pins until all are flush with the joints between the ends of the cylinder and the heads of the shell, when the cylinder may be turned to move the latch. An improper key insertion will not only leave some of the pins engaging with the holes 13 to 16, but throw others into the additional holes 9 to 12, thereby increasing security.

The pin-holes in the shell-heads should be located each in a different circle, as shown in Figs. 4, 5, and 6, that is to say, at different radii from the central axis of the cylinder, so as to prevent engagement of any pin except when the cylinder and latch are at a proper position for locking. The holes may be so arranged, however, (and as illustrated,) that by withdrawing the key when the latch is

moved back and the cylinder rotated to a position wherein one of the pins, for instance, 7, is permitted to enter a second hole, for instance 13, which is in substantially the same circle as the hole 15, (see Fig. 6,) the cylinder will be locked and the latch D will be held in a retired position, so that a person on the latch side of the door cannot lock it by any manipulation of the bolt or without the use of the key.

It will be seen that the hole 13 is located about one-sixth of a revolution from the hole 15 in the movement of the cylinder I. This distance corresponds to the necessary movement of the key to throw the latch-bolt from a locked to an unlocked position.

An advantage of our invention consists in that the extremities of the pins 5 6 7 8 bear square shoulders, making it difficult for a lock-pick to "feel" the lock, which feature is impossible with divided pins in which the spring-actuated sections are always pressed toward the cylinder and must be rounded or beveled in order to ride over the key-actuated sections of the pins in the cylinder, as is well known.

Having now fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a cylinder-lock, the combination of a stationary shell, a rotary latch or lock operating cylinder adapted to receive the key, and a series of pins movable longitudinally through the cylinder and parallel to the axis of said cylinder adapted to project and engage at either end of the cylinder with corresponding holes in heads of the shell adjacent to said cylinder ends, and means for operating the pins by the insertion of the key.

2. In a cylinder-lock, the combination of a stationary shell, a rotary latch or lock operating cylinder adapted to receive the key, a series of pins movable longitudinally through the cylinder and parallel to the axis of said

cylinder to engage at either of their respective ends with the shell, a series of pivoted spring-actuated tumblers adapted to be moved by the wards in the end of the key, said tumblers engaging with intermediate portions of the pins.

3. The combination of a shell, a rotary lock or latch operating cylinder of greater diameter than the key and having a centrally-located keyhole, and a series of pins movable longitudinally in the cylinder and parallel to the axis of said cylinder engaging with the front head or escutcheon of the shell in a series of holes adjacent to the margin of the key-opening in said front head or escutcheon.

4. A cylinder-lock constructed of a cylindrical shell shouldered within one end and open at the other, an escutcheon attached to the open end of the shell, and a rotary cylinder within the shell removable through said open end, adapted for the reception of the key inserted through the escutcheon, and provided with an integral rotary shank projecting through the closed end of the shell adapted for engagement with a lock or latch independently attached to the door or part.

5. A cylinder-lock adapted for insertion through a door or other part, having a cylindrical shell screw-threaded on the external surface of its body, and a screw-threaded sleeve surrounding said body upon said thread; the opposite extremities of the shell and the sleeve having flanges adapted to clamp upon opposite sides or portions of the door or part by revolving said sleeve.

Signed at Brooklyn, in the county of Kings and State of New York, this 7th day of August, A. D. 1895.

CHARLES S. KENNEDY.
JAMES W. MCKEE.

Witnesses:

JOHN A. HOLZAPFEL,
HENRY F. PARKER.