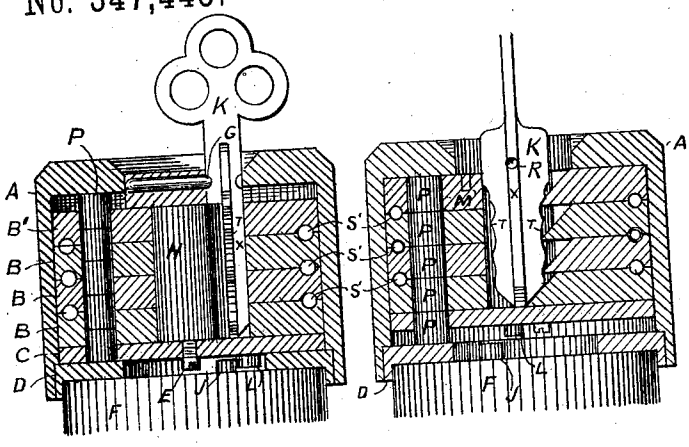
(Model.)

2 Sheets—Sheet 1.

D. H. SHERMAN.

LOCK ESCUTCHEON.

No. 347,445. Patented Aug. 17, 1886.



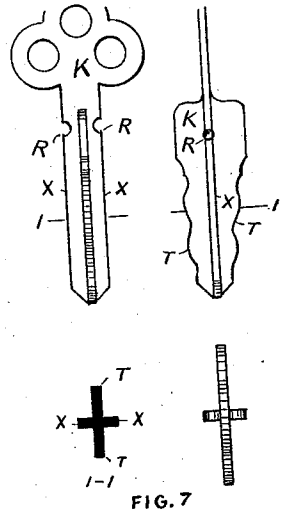


FIG. 7

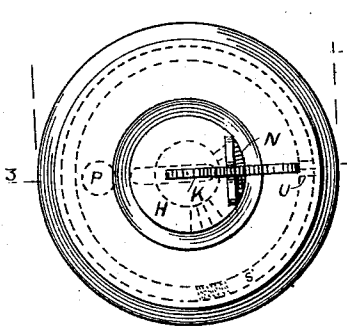


FIG. 1

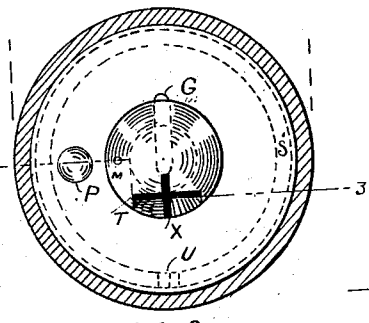


FIG. 2

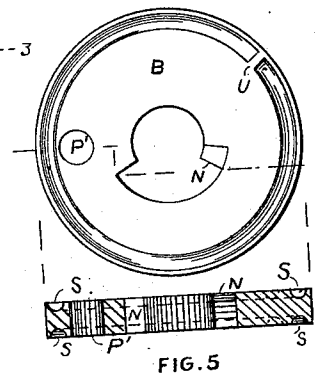
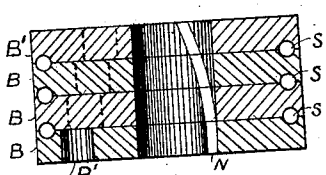
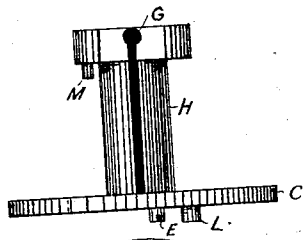


FIG. 5





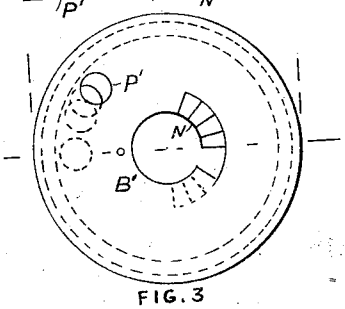


FIG. 3

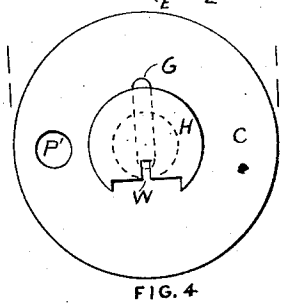


FIG. 4

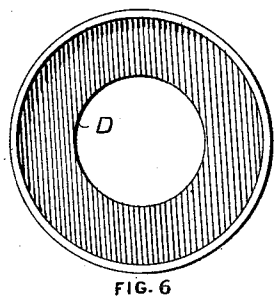


FIG. 6

INVENTOR.

Daniel H Sherman.

WITNESSES.

Robt. H. Duncan

Robt. F. Taylor

N. PETERS. Photo-Lithographer, Washington, D. C.

(Model.)

2 Sheets—Sheet 2.

D. H. SHERMAN.

LOCK ESCUTCHEON.

No. 347,445. Patented Aug. 17, 1886.

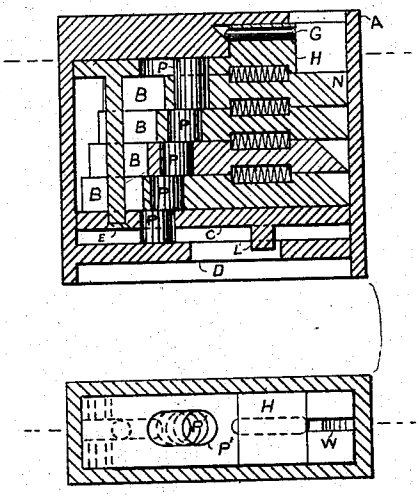


FIG. 8

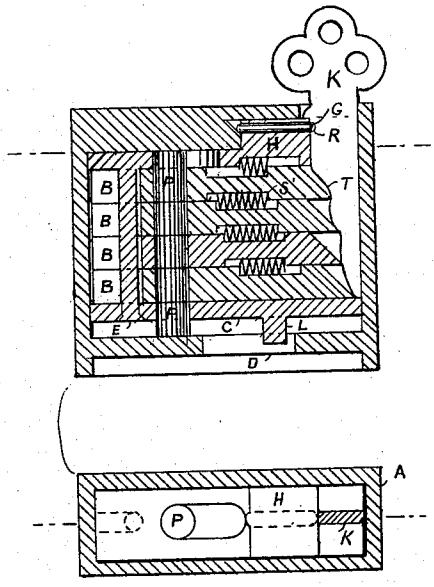


FIG. 9

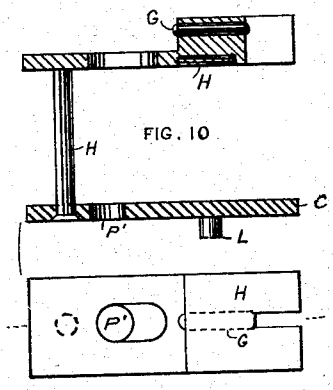


FIG. 10

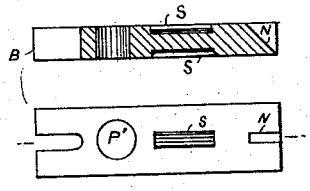


FIG. 11

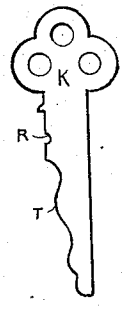


FIG. 12

WITNESSES.

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Robt F Taylord

INVENTOR.

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N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

DANIEL H. SHERMAN, OF BROOKLYN, NEW YORK.

LOCK-ESCUTCHEON.

SPECIFICATION forming part of Letters Patent No. 347,445, dated August 17, 1886.

Application filed March 24, 1886. Serial No. 196,256. (Model.)

To all whom it may concern:

Be it known that I, DANIEL H. SHERMAN, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented a new and useful Lock-Escutcheon, of which the following is a specification.

My invention relates to an improvement in a lock-escutcheon; and it consists, mainly, of a hub and a series of plates having chambers or channels and provided with a pin or pins, and arranged to be moved relatively to each other by a key to bring the chambers into alignment, and then to be pushed inwardly to make the coupling with the lock; and the object of my invention is to provide an escutcheon that is applicable to almost any style of lock and cannot be opened without the proper key. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top view, showing entrance for the key and the key in place; also a longitudinal section through the center, with the key fully entered and mechanism in place for operating the bolt of the lock. Fig. 2 is a plan and section of the plates with the top of the escutcheon-case removed in the plan, the parts being in position occupied after the key has been partially inserted, and before the escutcheon mechanism is coupled with the bolt in the lock. Fig. 3 is a cross-section and a plan of the plates with the hub removed, showing the key-slot and pin-chambers in their normal positions when the key has been withdrawn. Fig. 4 is a plan and elevation of the key-hub and inner plate secured thereto; also showing an automatic device for retaining the key in the hub when disconnecting the escutcheon-coupling from the bolt-coupling in the lock. Fig. 5 is a plan and section of a circular plate, showing the grooves for the springs, the pin-chambers, and the key-slot. Fig. 6 is a plan showing the escutcheon-plate between the escutcheon and the lock. Fig. 7 is a plan, section, and side elevation of the key.

The following-named figures of the drawings (Sheet II) illustrate modifications of the escutcheon, especially in the shape of the case, the plates, the hub, and the key. Fig. 8 is a plan and section of a rectangular form of escutcheon with the top of the case removed in the plan, with the key removed, and the parts in their normal positions. Fig. 9 is a plan and section of the rectangular plates, with the top of the escutcheon-case removed in the plan, the parts being in positions occupied after the key has been inserted and before the escutcheon mechanism is coupled with the bolt in the lock. Fig. 10 is a plan and elevation of the key-hub and inner plate secured thereto; also showing the automatic device for retaining the key in the hub when disconnecting the escutcheon-coupling from the bolt-coupling in the lock. Fig. 11 is a plan and section of a rectangular plate, showing the grooves for the springs, the pin-chambers, and the key-slot, and the rectangular slot for the hub. Fig. 12 is a plan of a key for the rectangular form of escutcheon.

The escutcheon shown in the drawings, Figs. 1 to 7, consists of an exterior shell, A, of cylindrical form, containing a number of circular plates, B, and a plate, B′, provided with a key-slot, N, with chambers P′ for the pins P, and with grooves S on their faces or sides for the admission of the springs S′, whose ends connect with an adjoining plate, B or B′, as shown at U in Figs. 1 and 5. A key-hub, H, having a key seat or slot, W, is passed through the plates B and B′ and secured to the inner plate, C, by a screw or rivet, E, or other means, and it is secured to the upper plate, B′, by a pin, M, or by other means, or the hub H and the upper plate, B′, may be made of one piece, if desired. Upon the inner side of the bottom plate, D, which is fixed to the escutcheon-shell A and separates the escutcheon from the bolt of the lock, rests a pin, P, formed of a number of lengths or pins, each pin corresponding in length to the thickness of the plates B and B′. The bottom plate, D, is provided with an opening for connecting the coupling L, fixed to the inner plate, C, with a corresponding coupling, J, upon the bolt mechanism F in the lock.

The plates B B′ C, hub H, and pins P are constructed and arranged in the escutcheon-shell A to move in the desired directions and to the desired extent.

The operation of the escutcheon is as follows: As the key enters the key-slots N and W the plates B and pins P are moved successively around the hub H and out of their normal po-

sitions, as shown in Fig. 3, until the pins P are exactly over and in line with one another, as shown in Fig. 2, the springs S operating to hold the slot N of the plates in contact with the irregular edge T of the key K. When the key has been fully entered, the hub H, the plates B, B′, and C are pushed inward, sliding upon the now aligned pins P, and connection is made by the coupling L with the coupling on the bolt of the lock, and longitudinal or rotary motion is imparted to such bolt, either by turning the key, the escutcheon mechanism, and the coupling, or by pushing the same farther into the lock, as may be desired. In sliding hub H, with the plates B, B′, and C, inwardly, the automatic bolt G in the hub H is forced from the position shown in Fig. 4 against the inclined or beveled top of the escutcheon-shell A into the recess R in the key K, as shown in Fig. 1, and the key cannot be removed from the hub until the plates are returned to their outward positions in the escutcheon-case A, as shown in Fig. 2. The removal of the key returns the pin G to its former position and permits the springs S′ to return the plates B and pins P to their normal positions, as shown in Fig. 3.

The modified or rectangular form of escutcheon shown in the drawings, Figs. 8 to 12, consists of an exterior shell, A, of rectangular form, containing a number of rectangular plates, B, provided with a key-slot, N, with a rectangular slot for the hub H, and with chambers P′ for the pins P, and with channels S on their faces or sides for the admission of the springs S′, whose ends abut against or connect with any adjoining plate B, and with the hub H, as shown in Figs. 8 and 9. A key-hub, H, having a key slot or seat, W, is passed through the plates B and secured to the inner plate, C, by a screw or by a rivet, E. Upon the inner side of the bottom plate, D, which is fixed to the escutcheon-shell A, and separates the escutcheon from the bolt in the lock, rests a pin, P, formed of a number of lengths or pins, each pin corresponding in length to the thickness of the plates B. The bottom plate, D, is provided with an opening for connecting the coupling L, fixed to the inner plate, C, with a corresponding coupling upon the bolt mechanism in the lock.

The plates B C, hub H, and pins P are constructed and arranged in the escutcheon-shell A to move in the desired directions and to the desired extent.

The operation of the escutcheon is as follows: As the key enters the key-slots N and W the plates B and pins P are moved successively along the hub H, passed through the rectangular hub-slots in the plates, the springs S′ holding the key-edge of the slot N in contact with the irregular edge T of the key K from the normal positions of the plates and pins (shown in Fig. 8) until the pins P are exactly over and in line with one another, as shown in Fig. 9, and the key has fully entered, when the key K, hub H, and plates B and C are pushed inward, sliding upon the aligned pins P, and connection made by the coupling L with the coupling on the bolt of the lock, and motion imparted to the lock-bolt. In sliding the hub H and the plates B and C inwardly the automatic bolt G in the hub H is forced from the position (shown in Fig. 8) against the inclined or beveled part of the escutcheon-case into the recess R in the key, as shown in Fig. 9, and the key cannot be removed from the hub until the plates are returned to their outward position in the escutcheon-case A. The removal of the key returns the pin C to its former position and permits the springs S′ to return the plates B and pins P to their normal positions, as shown in Fig. 8.

The above-described construction of the plates and other mechanism contained in the lock-escutcheon I consider preferable; but it is obvious that the action of the plates, pins, and springs with the key would be similar, provided the hub was passed through a square or oblong opening in the plates larger than the hub, and the plates themselves were of a similar form and controlled by springs so arranged as to bring the plates to bear against the curved edge or edges of the key when entered in the escutcheon. In such case the key would give a longitudinal or lateral movement to the plates, as desired, in bringing the pins into alignment before pushing inward to make the coupling with the lock. It is also obvious that the plates provided with the pin chambers or channels and arranged substantially as herein described could be aligned upon a single pin so notched alternately upon its sides and corresponding to the thickness of its respective plate as to allow that plate to be pushed inward when the wider portion of the pin-channel has been brought into the required position by the key.

The plate-key K in Fig. 7 is unlike those of ordinary construction in having a rib or flange, X, rolled or drawn upon each face between the two edges or sides thereof, each rib being so proportioned and adapted to the key-groove W in the hub H, and the edges or sides T T being so cut, corrugated, or curved alike to operate to move the plates B, as heretofore shown, when the key has been entered either way. This form and construction removes the annoyance in entering the key when a certain side of the same must be entered in a particular direction, and the key is of greater strength and stiffness, obviating a fault found with all thin plate-keys as heretofore made.

A difference of one-fiftieth of an inch in the position of any one of the pins P will prevent the opening of the lock, and this difference with that obtained in the form of keys, and the curve given to the key-slot N in the plates B, give a greater possible range for positions or permutations than are usually obtained in this class of lock-escutcheons, which, with the absence of tumbler-slots or pin-holes to indicate a given required position, and the entire freedom of the plates to move in the escutch-

eon-case, and the independent as well as the collective movements of each plate, render the chance to open the lock-escutcheon without the proper key improbable, if not hopeless. It is clear that the strain upon the key is at a minimum when the plates are in position for coupling, as it is then distributed upon its entire length by the united pins, P, locking together the plates B, as shown.

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

1. The combination, in a lock-escutcheon, of a hub and a series of slotted plates, the plates being controlled by springs, and being provided with pin chambers or channels, and with pins loosely fitted therein, whereby, when the plates are in their normal position, the pins of the adjacent plates are held out of alignment, and the coupling device is prevented from being moved inwardly to connect with the lock.

2. The combination, in a lock-escutcheon, of a hub and a series of slotted plates, the plates being provided with pin chambers or channels and corresponding pins, and being constructed and adapted to be moved relatively to each other and to the hub by a key introduced into the key-slot, whereby the pins will be brought into alignment, and the plates and escutcheon-coupling can be pushed inwardly with the key to connect with the coupling of the lock.

3. The combination, in a lock-escutcheon, of a hub, a series of plates constructed and adapted to be moved in the escutcheon-case to and from the lock, and a device for connecting the key and the hub, by which the hub, plates, and escutcheon-coupling are forced inward by pressure on the inserted key, and are drawn outward by the act of withdrawing the same.

4. In a lock-escutcheon in which the engagement with the lock is made and broken by the advance and withdrawal of the parts, a pin loosely inserted in the hub and controlled by a bevel on the case adjacent the hub, in combination with a key provided with a part or notch for engaging and releasing the pin, and thereby forcing the parts inward and outward as the key is pressed inward or withdrawn.

DANIEL H. SHERMAN.

Witnesses:
ROBT. H. DUNCAN,
ROBT. F. GAYLORD.