No. 842,834. PATENTED JAN. 29, 1907.

J. A. HURDLE.

KNOB LOCK.

APPLICATION FILED MAY 29, 1906.

Fig. 1.

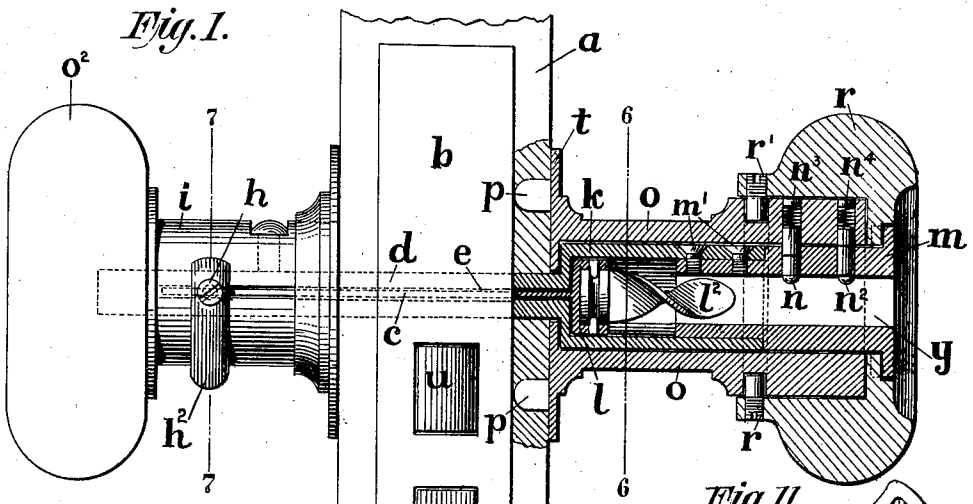


Fig. 11.

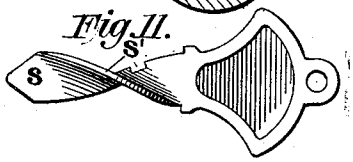
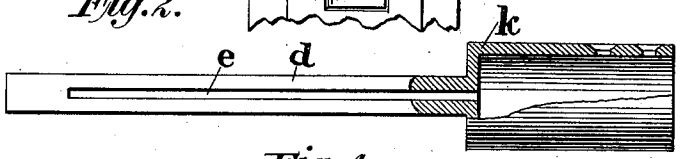


Fig. 2.



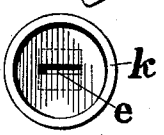


Fig. 3.

Fig. 10.

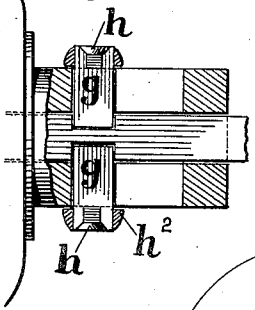


Fig. 4.

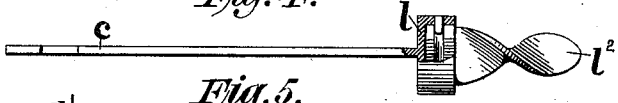


Fig. 5.

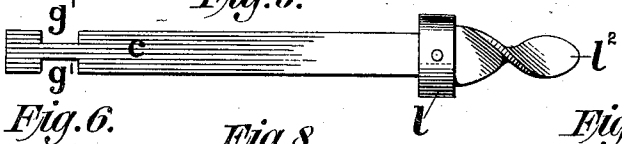


Fig. 6.

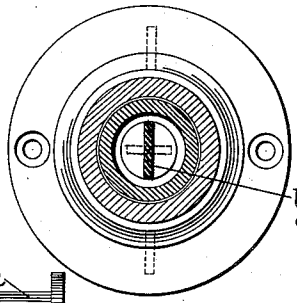


Fig. 8.

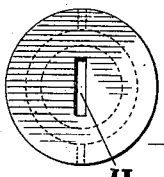


Fig. 7.

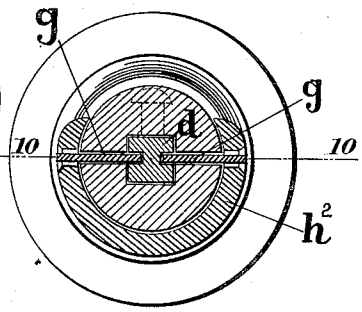
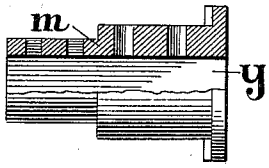


Fig. 12.



Fig. 9.



WITNESSES:

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INVENTOR

Julian A. Hurdle

BY

Andrew Fowler Jr.

his ATTORNEY

UNITED STATES PATENT OFFICE.

JULIAN A. HURDLE, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO FEDERATION HARDWARE AND TOOL COMPANY, A CORPORATION OF NEW YORK.

KNOB-LOCK.

No. 842,834. Specification of Letters Patent. Patented Jan. 29, 1907.

Application filed May 29, 1906. Serial No. 319,283.

To all whom it may concern:

Be it known that I, JULIAN A. HURDLE, a citizen of the United States, residing at the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented new and useful Improvements in Knob-Locks, of which the following is a specification.

My invention relates to improvements in knob-locks, and more particularly to that class in which the locking mechanism is arranged in the spindle of the knobs and operated by a key inserted in a keyhole in one of the knobs; and the object of my invention is to provide a compact lock which cannot be picked and which may be attached to or connected with any mortise-lock having its knobs mounted on a connecting-spindle operating the latch.

My invention consists of a lock having a keyway arranged within one of the knobs and a key-follower connecting and corresponding within the spindle of the knobs and means for operating said key-follower.

In the drawings, Figure 1 represents my device assembled, partly in section, showing the manner in which the same is mounted upon the door. Fig. 2 is a detached detail view of the key-follower, carrier, or spindle, partly in section. Fig. 3 is an end view of the same. Fig. 4 is an edge view of the key-follower, showing the swivel portion partly in section. Fig. 5 is a detached plan view of the key-follower. Fig. 6 is a transverse section taken on line 6 6 of Fig. 1. Fig. 7 is a transverse section taken on line 7 7 of Fig. 1. Fig. 8 is a detached end view of the cylinder containing the keyway. Fig. 9 represents the same keyway-cylinder partly in section. Fig. 10 is a horizontal section taken on line 10 10 of Fig. 7. Fig. 11 is a separate view of a spiral key. Fig. 12 represents a plan view of the keyway-cylinder in which is shown two ward-holes.

Similar letters refer to similar parts throughout the several views.

My improved knob-lock is designed for use upon a door *a*, provided with a lock *b* of any style and having a latch-bolt *u*, and my improved device is designed for use in connection with the door-knobs of such door.

In the drawings, *a* represents a portion of the edge of a door having therein an ordinary mortise-lock *b*. The key-follower l^3, carried by the blade *c* in the slot *e* in the spindle *d* of the knobs, is secured to the end of the blade *c* by the usual swivel connection. The forward end of the carrier-blade *c* is provided with a cylindrical socket adapted to receive the swivel end *l* of the spirally-shaped blade l^2. The guide-plates *g g* at the base of the carrier-blade *c* fit into their seats *g' g'* in the carrier-blade *c*. The guide-plates *g g* are preferably held in position by means of screws *h h* in the semicircular slide-ring h^2, partly surrounding the knob-shank *i*. The head *k* of the spindle *d* is hollow to receive the key-follower l^3 and is secured in any desired manner, as by the screws *m' m'*, to the cylinder *m*, which is provided with sockets containing the ward-pins *n* n^2, projecting slightly into the keyway *y* and adapted to work in conjunction with the ward-pins n^3 n^4, arranged within the knob-barrel *o*. The base-plate *t* of the outer knob-barrel *o* may be provided with studs *p p*, which enter the wood of the door *a* when properly adjusted thereto and prevent the knob-barrel *o* from turning. This outer knob may be retained in position by a screw on the inner side of the door in the usual manner.

It will be obvious that the outer knob-section *r* will rotate upon its fixed knob-barrel *o* whenever the upper ends of the ward-pins *n* n^2 are brought flush with the outer circumference of the keyway-cylinder *m*. The knob o^2 on the inner side of the door may be integral with or otherwise fixed to its shank *i*.

The parts of my device being assembled, its mode of operation is as follows: In the drawing Fig. 1 the knob *r* is represented as being locked by the pin n^3, which engages the keyway-cylinder *m* and fixed knob-barrel *o*, thus preventing the spindle *d* from operating upon the latch-bolt *u*, with which it is connected in the usual manner. To unlock the knob *r*, thus permitting it to be rotated to turn the spindle *d* and throw the bolt *u*, the ward-pin n^3 must be raised until its upper end is even with the upper surface of cylinder *m*. For this purpose I provide a keyway *y* in the cylinder *m*, which for greater security may take a spiral course, and into this keyway *y* the ends of the ward-pins project. With this preferred form of keyway a counterpart spiral key *s*, as shown in Fig. 11, is inserted in the keyway *y* in the end of the knob *r*, which raises the ward-pin *n* in the

usual manner, and thereby releases the keyway barrel or cylinder m from the knob-barrel o, when the knob r may be turned, thus carrying with it the spindle portion d, and thereby throwing the latch-bolt u in the usual way. As many ward-pins may be used as desired; but I prefer to use two, as shown, the top edge of n^2 being normally flush with the top of the cylinder m and being pressed up to engage the knob-barrel o only when the key or other article is inserted in the keyway. The other ward-pin n^3, above the pin n, serves normally to lock the cylinder m by engaging the cylinder m and the barrel o of the knob, which engagement will be released only by the insertion of the key, which is provided with a socket s' on its edge to allow the ward-pin n^2 to drop out of engagement when the key is in position. The advantage of this arrangement is that the false ward-pin n^2 will serve to destroy any wax or other impression of the lock which may be attempted to be taken. When the key s is withdrawn, the knob r becomes locked by the pin n^3, as above described, and in order to use the knobs in the usual way the semicircular slide-ring h^2 is pushed forward and forces the key-follower, which I term here the "spirally-shaped blade" l^2, into the keyway y and operates the ward-pin n in the same manner as the key s, thus releasing the keyway barrel or cylinder m, when the knobs o^2 and r on either side of the door can be turned, and they remain so till the key-follower l^2 is forced back, either by the semicircular ring h^2 being moved rearward or by the key s being inserted in the keyway y and removed, when the knobs o^2 and r will become locked, as above explained.

I prefer to provide on the inner projection of the outer knob r two or more screws r' r', which revolve with the knob in the annular groove in the knob-barrel o to relieve the strain which would otherwise be borne by the ward-pin n^3 in opening and closing the door by means of the knob r.

I do not wish to confine myself to the exact construction as herein shown. While I have shown herein a spirally-shaped blade at the end of key-follower and a corresponding spirally-shaped keyway and key, other forms of construction may be used without departing from the spirit and scope of my invention. For instance, I may use at end of the key-follower any other shaped blade, instead of the spiral-shaped, and a corresponding shaped key and keyway in the outer knob or spindle.

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

1. In a device of the character described the combination of a rotatable cylinder having a spirally-shaped keyway and a spirally-shaped key-follower for unlocking said cylinder, substantially as shown and described.

2. In a device of the character described, the combination of a rotatable cylinder, a spirally-shaped keyway therein a ward-pin normally projecting in the keyway, a carrier in said rotatable cylinder and a spindle carrying a swivel key-follower for unlocking said cylinder substantially as shown and described.

3. In a device of the character described the combination of the knobs, a spindle connecting the same, a rotatable cylinder, a carrier between the knobs movably connected longitudinally with the spindle, a key-follower connected with the forward end of said carrier and adapted to operate within a keyway of the rotatable cylinder to unlock the same, substantially as shown and described.

4. In a device of the character described, the combination of a rotatable cylinder provided with a spiral keyway, a ward-pin projecting therein, a spindle connected with said rotatable cylinder and a carrier provided with a key-follower for unlocking the rotatable cylinder, substantially as shown and described.

5. In a device of the character described, the combination of a door, a lock, knobs situated on each side of the door, one of said knobs being provided with a rotatable cylinder, a spiral keyway therein, a spindle between said knobs, a carrier supported within said spindle, a key-follower for unlocking the rotatable cylinder, means for moving the said key-follower longitudinally whereby the outer of said knobs is engaged or disengaged and means for moving said spindle rotatively substantially as shown and described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 25th day of May, 1906.

JULIAN A. HURDLE.

Witnesses:
PAUL M. PELLETREAU,
ARTHUR M. MANDER.