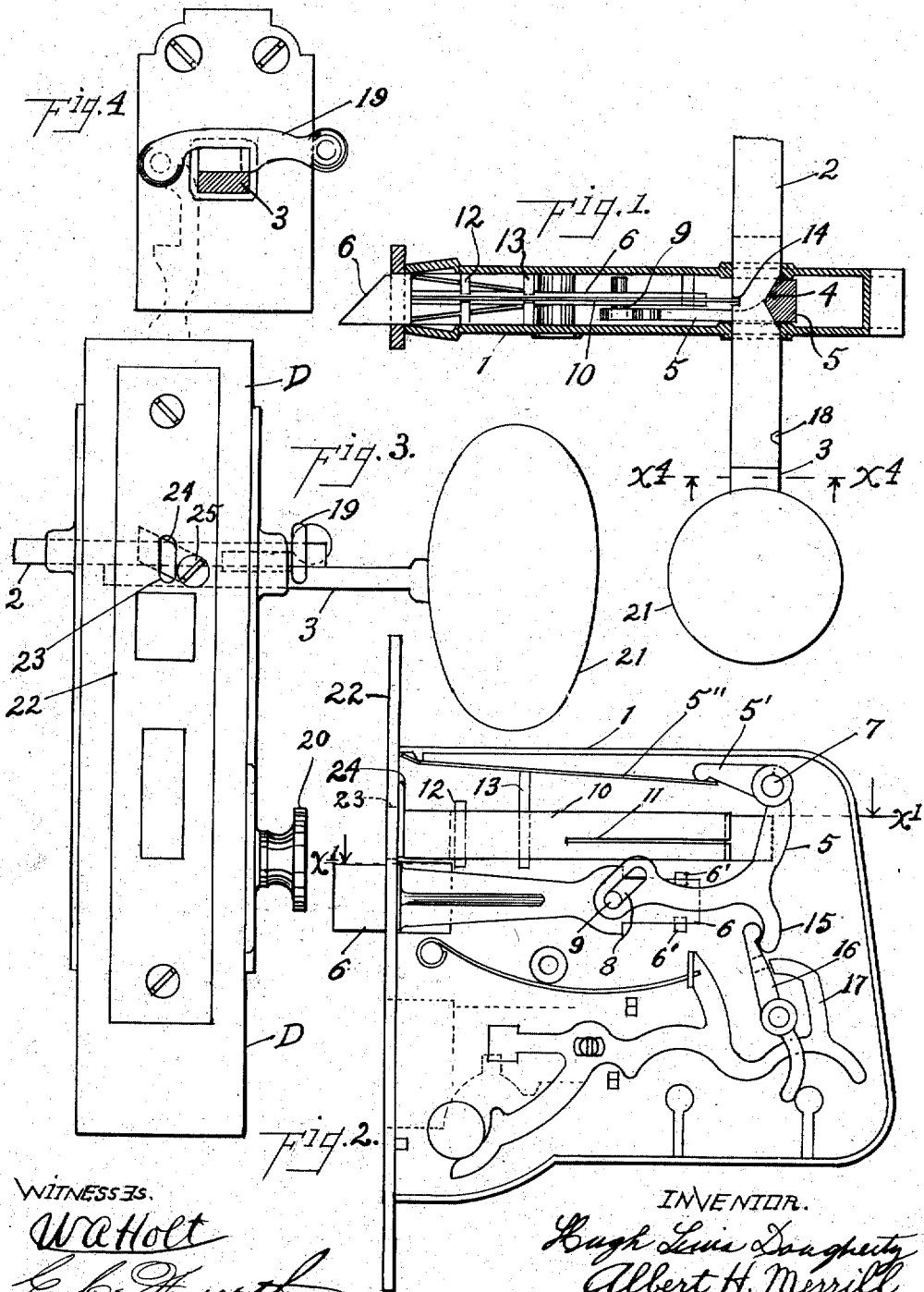


H. L. DOUGHERTY.
DOOR LOCK.
APPLICATION FILED MAY 24, 1909.

982,766.

Patented Jan. 24, 1911.



WITNESSES.

W. A. Holt
E. C. Smith

INVENTOR.

Hugh Lewis Dougherty
Albert H. Merrill
att'y.

UNITED STATES PATENT OFFICE.

HUGH LEWIS DOUGHERTY, OF LOS ANGELES, CALIFORNIA.

DOOR-LOCK.

982,766.

Specification of Letters Patent. Patented Jan. 24, 1911.

Application filed May 24, 1909. Serial No. 498,026.

To all whom it may concern:

Be it known that I, HUGH LEWIS DOUGHERTY, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Door-Locks, of which the following is a specification.

This invention relates to a door lock of that class which has a knob on each side of the door, which is intended to be pushed or pulled from either side of the door at will, and thereby move the latch.

An object of this invention is to provide a compact latch operating mechanism adapted to be inclosed in a small space, and which may be operated by a very short movement of a slidable knob spindle.

This invention further consists in an extremely simple, inexpensive and dependable arrangement of springs for retracting the knob spindle to its normal position.

Referring to the accompanying drawings, which illustrate the invention in the form at present deemed preferable, Figure 1 is a cross-section on line X¹ of Fig. 2, one of the knobs being omitted. Fig. 2 is an interior view of the lock, one side of the case being removed. Fig. 3 is a view of the front or left edge of the lock as seen in Fig. 2, a portion of the door being also shown. Fig. 4 is a face view of the inner escutcheon, one of the knob spindles being sectioned on line X⁴ of Fig. 1.

Referring in detail to the drawings, the lock case 1 is provided with oppositely disposed openings through the upper portion thereof to receive the superimposed axially movable knob spindles 2 and 3. Said knob spindles each have a beveled recess 4 cut into the side thereof thus making two equal inclined planes which operate upon the main operating lever 5 of the latch bolt 6. Said lever 5 is pivoted a little above said knob spindles on a pivot 7, the center of said pivot being at a point directly above the rear edge of said knob spindles 2 and 3. The free end of said lever 5 extends below said knob spindles and is provided with an inclined slot 8. The latch bolt 6 has a laterally extending pin 9 which slidably engages within said slot 8. A slight movement of the lever 5 will force the pin 9 from one end to the other of the slot 8. Therefore the inclined slot 8 coöperates with the pivotal arrangement of said lever with re-

spect to the knob spindles to constitute a movement-multiplying device adapted to operate in a compact space. The lugs 6' engage opposite sides of the rear portion of bolt 6 to cause said bolt to reciprocate in a horizontal direction. The main lever 5 is provided with an extension 5' which is operated on by a spring 5'' to restore the lever 5 to normal position.

In order to automatically restore the knob spindles 2 and 3 to the central or normal position, a spring 10 having a split 11 is mounted in guides 12 and 13, the portion of said spring above said split engaging a notch 14 in the upper spindle 2 to center said spindle, and the portion of said spring below said split engaging a like notch in the lower spindle 3 to center the same. The portion of the spring above the split is desirably made the widest because the outer knob spindle 2 comes on the outer side of the door D and should be heavier than the inner knob spindle 3.

The pivoted lever 5 is provided with a heel 15 for the purpose of being operated by a latch key lever 16 controlled by tumblers 17 which will not be described in detail because they form the subject matter of another application for patent. The same may be said of the small knob 20 shown in Fig. 3.

The upper knob spindle 2 is provided with a notch 18 with which a latching or locking lever 19 coöperates to lock said knob in the normal position if desired. Or, said locking lever may be dropped back of the end of the spindle 2 to lock the same in the retracted position. In Fig. 4 the inoperative position of said lever is indicated in dotted lines.

21 is the inner knob,—the outer knob is broken off to contract the drawings.

In order to provide for putting the split spring 10 in place, the face plate 22 of the lock is provided with a slot 23 which may be covered by a shutter 24 made fast to the screw 25 by which it is operated.

I claim—

1. In a lock, a knob spindle provided with a beveled recess cut into the side thereof thus making two inclined planes, a lever pivoted above said spindle and having a free end below said spindle provided with an inclined slot, said lever being normally seated in said recess in position to be rocked by said spindle in whichever direction the same is moved axially, and a latch bolt op-

eratively connected with said lever by means of a pin extending slidably through said slot.

2. In a lock in combination, a pair of
5 superposed axially movable knob-spindles, a split spring, the end of said spring at each side of the split therein engaging one of said spindles to center the same, and latch-
10 ing mechanism operatively engaging said spindles to be operated by axial movement thereof.

3. In a lock, in combination, an axially movable knob spindle provided with a beveled recess cut into the side thereof thus
15 making two inclined planes, latching mechanism seated in said recess to be operated by the axial movement of the spindle, and a leaf spring extending transversely of said spindle and having one end made fast and
20 the free end engaging in said spindle, said spring tending to center said spindle when said latching mechanism is in line with said recess.

4. In a lock, a knob spindle, a pivoted
25 lever mounted in operative relation to said spindle, there being an inclined slot through the free end of said lever, and a bolt having a pin which extends through said slot and slidably engages the same to multiply the
30 movement of said bolt.

5. In a lock, a knob spindle provided with a beveled recess in the side thereof, a pivoted lever, means to yieldingly hold said lever normally seated in said recess, and a

latch bolt provided with a transverse pin 35 extending therefrom, there being a slot in said latch lever inclined with relation to the length thereof through which said pin extends to multiply the movement of said bolt, said parts being so assembled that an
40 axial movement of the knob spindle will impart a sufficient swing to said lever to give a sufficient sliding movement of the slotted portion of said lever with relation to said latch bolt to retract the same. 45

6. In a lock, in combination, an axially movable knob spindle provided with a beveled recess cut into the side thereof thus
45 making two inclined planes, latching mechanism seated in said recess to be operated
50 by the axial movement of the spindle, a leaf spring extending transversely of said spindle and having one end made fast and the free end engaging in said spindle, said
55 spring tending to center said spindle to bring said recess in line with said latching mechanism, there being a slot through the end of the lock case to provide for the insertion of said leaf spring after the insertion of the knob spindle, and a shutter
60 to close said slot.

In testimony whereof, I have hereto affixed my signature, in the presence of two witnesses.

HUGH LEWIS DOUGHERTY.

Witnesses:

J. R. CATE,

JAMES N. SHERMAN.