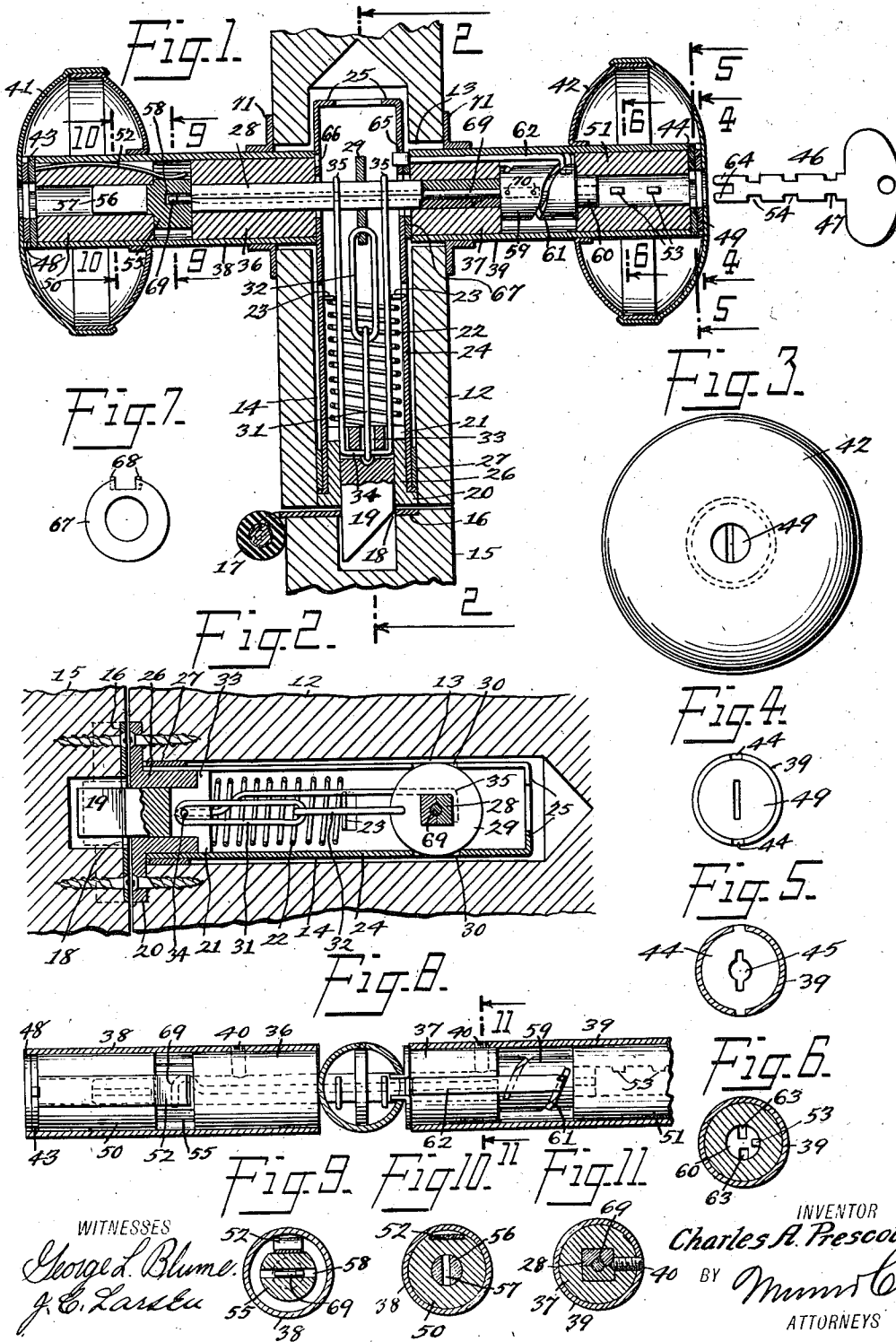


C. A. PRESCOTT.
LOCK AND LATCH.
APPLICATION FILED JULY 14, 1914.

1,123,004.

Patented Dec. 29, 1914.



WITNESSES

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CHARLES AUSTEN PRESCOTT, OF VICTORIA, BRITISH COLUMBIA, CANADA.

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1,123,004.

Specification of Letters Patent.

Patented Dec. 29, 1914.

Application filed July 14, 1914. Serial No. 850,932.

To all whom it may concern:

Be it known that I, CHARLES A. PRESCOTT, a subject of the King of Great Britain, and a resident of Victoria, in the Province of British Columbia, Dominion of Canada, have invented certain new and useful Improvements in Locks and Latches, of which the following is a specification.

My invention relates to locks, particularly to latches having spring actuated bolts adapted to be locked against opening except by the proper key; a further object is to provide such a latch which is operable by means of knobs on the opposite sides of a door and into which knobs the key is inserted to lock or unlock said latch; a further object is to provide means whereby, in the locked position of my latch, the knobs are held against rotation; a further object is to provide such a lock which requires that but intercepting holes be bored in a door or the like, one from the edge of the door and perpendicular thereto, and the other transversely of said first named bore, in order to mount my lock, thus saving labor and preventing the weakening of the door common to certain types of mortise locks; a further object is to provide such a lock which is adaptable to doors of varying thicknesses without altering the length of the knob shank; a further object is to provide a worm for moving the locking element into and out of locking position, and with which worm the proper key is adapted to be connected to rotate the same; a further object is to provide means for rendering the closing of a door easy and noiseless; and further objects are to provide such locks which are simple in construction, installation, and use, which are highly efficient and well adapted for the purpose for which they are intended, and which are comparatively inexpensive.

My invention is fully described in the following specification, of which the accompanying drawings form a part, in which the separate parts are designated by the same reference characters in each of the views, and in which:—

Figure 1 is a central, horizontal, section taken through a door provided with my invention, in unlocked position; Fig. 2 is a section taken on the line 2—2 of Fig. 1; Fig. 3 is a face view of either of the knobs; Fig. 4 is a section taken on the line 4—4 of Fig. 1; Fig. 5 is a section taken on the line 5—5 of Fig. 1; Fig. 6 is a section taken on the line

6—6 of Fig. 1; Fig. 7 is a detached view of a washer which I employ; Fig. 8 is a plan view of the parts connected with the knob shank, with reference to Fig. 1, with the shells or tubes in section; Fig. 9 is a section taken on the line 9—9 of Fig. 1; Fig. 10 is a section on the line 10—10 of Fig. 1; and Fig. 11 is a section on the line 11—11 of Fig. 8.

In the drawings forming a part of this application I have shown a fragment of a door 12, having a transverse bore 13, and a bore 14 intersecting the bore 13, horizontally of the door and from the front edge thereof, a fragment 15 of the door frame being also shown and to which is secured a striking plate 16 having a roller 17 thereon, and an opening 18 therethrough for the latch 19 which, in the form shown, is inclined as is common with spring latches, and it will be seen that the roller avoids the noisy impact of the latch against the striking plate as well as the frictional movement thereover.

The latch 19 is slidably movable in a face plate 20 secured in the front edge of the door, said latch having an inner flange 21 for preventing too great outward movement of said latch, and which tendency it has due to a coil spring 22 bearing against the inner end thereof, said spring also bearing against lugs 23 in a tube 24 extending approximately for the full length of the bore 14 and being preferably formed of sheet metal rolled into a tube open at one side, flanged at 25 at the inner end thereof, and held in close connection with the inwardly directed neck portion 26 of the face plate 20 by means of a collar 27.

The tube 24 is provided with diametrically opposite side openings for the passage of a knob shank 28 freely rotatable therein, said shank being angular and having a disk 29 mounted thereon and revoluble therewith, the tube 24 being slotted, at 30, for said disk, and said disk is connected with the latch 19 by means of connected links 31 and 32, the former of which is held within a slot 33 in the inner end of the said latch, and it will be seen that, if the shank 28 be rotated, the latch 19 is retracted against the coil spring 22 and which, when the shank is released, returns the latch to normal position; the link 31 is held within the slot 33 by means of a rod 34 passed through the inner end of the latch and being bent to form two arms 35 which are hooked at their ends and

normally engaged by the shank, as clearly shown in Figs. 1 and 2, and the object of which will be later explained.

The shank 28 is held against rotation in two cylindrical blocks 36 and 37, one on each side of the tube 24, in turn held against rotation within corresponding tubes 38 and 39, by means of set screws 40, Fig. 8, the former tube having a knob 41 thereon, and the latter a knob 42, and it will be seen that the knobs and shank thus rotate in unison and, when rotated, actuate the latch to open a door, the coil spring 22 returning these parts to normal position upon the release of the knobs, the retraction of the latch carrying the arms 35 backwardly until the hooked ends strike against the inner flange 25 of the tube 24, thereby preventing further rotation of the knobs, this being but one function of the said arms, however.

Secured to the ends of the tubes 38 and 39 are plates 43 and 44, respectively, each of which is provided with a circular, central, opening 45, Fig. 5, slotted outwardly at diametrically opposite points, the entire length of said opening being slightly greater than the width of a key 46, whereas the circular portion thereof is only slightly greater than a neck 47 of said key, whereby the latter is locked in said opening when in any other position, with respect to said opening, than that of said slots.

Interposed between the respective plates 43 and 44 and the knobs 41 and 42 are freely revoluble, slotted, disks 48 and 49, guarding the openings in said plates, as is common with locks employing flat keys, and within the tubes 38 and 39, adjacent the plates 43 and 44, are cylinders 50 and 51, respectively, having, each, a central, circular bore of a diameter exceeding the width of the key 46, the former having a plate spring 52 thereon and projecting inwardly thereof, and the latter having a plurality of small lugs 53 within the bore thereof, said lugs corresponding to the tumblers of conventional locks and being equal in number and corresponding to the arrangement of notches 54 in the sides of the key 46, whereby said key may turn when in proper position with respect to said lugs but not otherwise.

Interposed between the cylinder 50 and block 36 is a member 55, flattened on one side as shown in Fig. 9, and having a reduced portion 56, freely rotatable within the bore of the cylinder 50, slotted at 57, as shown in Fig. 10, the plate spring 52 bearing on the said flattened portion and thus serving to maintain the member 55 in predetermined position with respect to the cylinder 50, but permitting its independent rotation as will be later described, and the member 55 is also slotted, at 58, on the inner end thereof, Fig. 9.

Interposed between the block 37 and the

cylinder 51 is a member 59 having a reduced neck portion 60 freely rotatable in the bore of the latter and having a worm groove 61 in the outer surface thereof, in which is engaged the inwardly turned end of a bar 62 slidable in a longitudinally arranged groove in the outer surface of the block 37, Figs. 1 and 8, and the end of the reduced portion 60 is provided with two, diametrically arranged, minute, recesses 63 into which the forked ends 64 of the key are adapted to enter and whereby said member 59 may be rotated by said key, this rotation moving the bar 62 inwardly of the latch tube 24 at 66 on the opposite side of the tube 24, or through an opening 65 therein, duplicated outwardly of said tube, according to the direction of key rotation, and in this inward movement of said bar it is carried in the path of movement of the adjacent arm 35, thereby preventing backward movement of said arm and, consequently, retraction of the latch 19, thus locking the knobs against movement through the medium of the links 31 and 32 connecting said latch with the disk 29 and which disk is immovable on the shank 28.

In practice, I provide a washer 67 in the position of the opening 65, shown in detail in Fig. 7, held thereat by lugs 68 thereon, and which washer is recessed on its periphery, between said lugs, for the passage of the bar 62, thereby insuring the register of the opening 65 and the end of the bar and serving to guide said bar in its movement.

As shown in Figs. 1, 2 and 11, the shank 28 is composed of two members, but this is not essential and was so made in the sample lock for ease of manufacture and assembling, but I do provide a longitudinal bore therethrough for a rod 69 which is secured, at one end, to the member 59, by pins 70, and the opposite end is angularly bent, as indicated by dotted lines in Fig. 8, whereby it may be engaged within the slot 58 and thus cause simultaneous rotation of the members 55 and 59, the object of this being to permit rotation of the worm member 59 by a key inserted into the knob 41, on the inner side of a door, and into the slot 57 of the member 55, to move the bar 62 into locking or unlocked positions from this knob, and, inasmuch as this is the interior of the door, there is no necessity for the tumbler lugs 53 employed at the opposite side of the door, although I may form both sides alike, and it will be noted that the handle of the key 46 is of relatively slight projection beyond the knob 42, when inserted therein, to lessen the danger of breaking the handle off while in the lock.

It will thus be seen that rotation of the worm member 59, either from the exterior or interior of the door, moves the bar 62 to prevent or permit rotation of the knob

shank 28, and I provide the opening 66 in the tube 24, and a second arm 35, in order to permit reversing the knobs and connected parts to accommodate my lock to either right or left opening doors, no structural change being necessary either in my lock or in the door to so reverse the lock.

As shown in Fig. 1, I make the bore 13 sufficiently large to admit the tubes 38 and 39, thereby making my lock adaptable to doors of varying thicknesses, within certain limits, and I provide flanges 71 to make a finish upon the door surfaces and to maintain the tubes 38 and 39 in relative positions.

It will thus be seen that I provide a spring latch which is also adapted for use as a lock, not only the latch being locked against retraction, but the knobs being also locked against rotation, this being accomplished by means of a key inserted into a knob, either or both, thereby reducing the number of parts in the lock and also greatly reducing the space required over the conventional mortise locks, and only two bores in the door are required, thereby saving much time and labor.

My invention is characterized by its great

simplicity, but I reserve the right to make alterations over the details shown and described, within the scope of the following claim, which do not depart from the spirit of my invention and, with such reservation,

What I claim as new, and desire to secure by Letters Patent, is:—

A device of the class described, comprising a casing, knobs rotatable on opposite sides thereof, a shank connecting said knobs, a disk on said shank, a spring actuated latch, a series of links connecting said disk and latch to retract the latter in the rotation of said knobs, a yoke-shaped rod connected with said latch and the arms of which are inwardly directed and bent to engage said shank to limit the outward movement of said latch, and key actuated means movable in the path of said arms to prevent the retraction of said latch.

In testimony whereof I have signed my name to this specification in the presence of the subscribing witnesses.

CHARLES AUSTEN PRESCOTT.

Witnesses:

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WILLIAM PENMAN.