

(No Model.)

H. G. VOIGHT.
LOCK.

No. 572,844.

Patented Dec. 8, 1896.

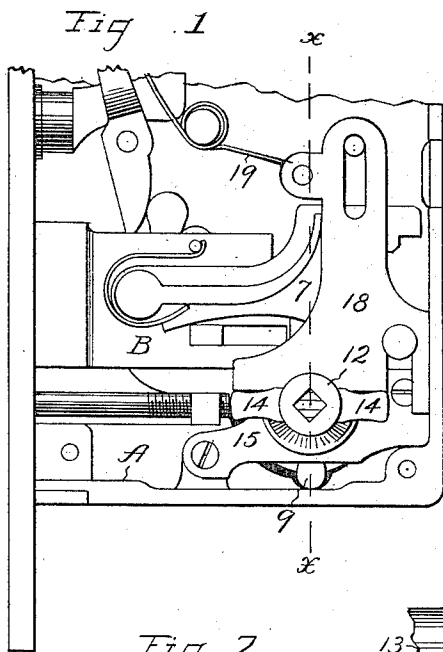


Fig. 2.

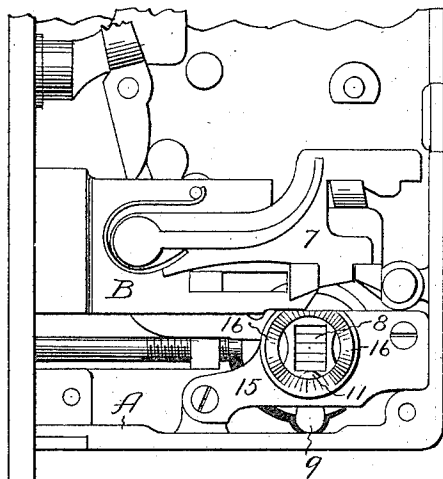
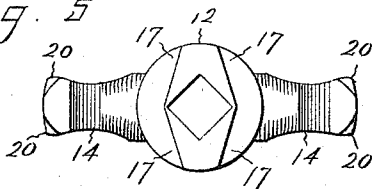


Fig. 5



Witnesses
Geo. Stipes
O. J. Egan

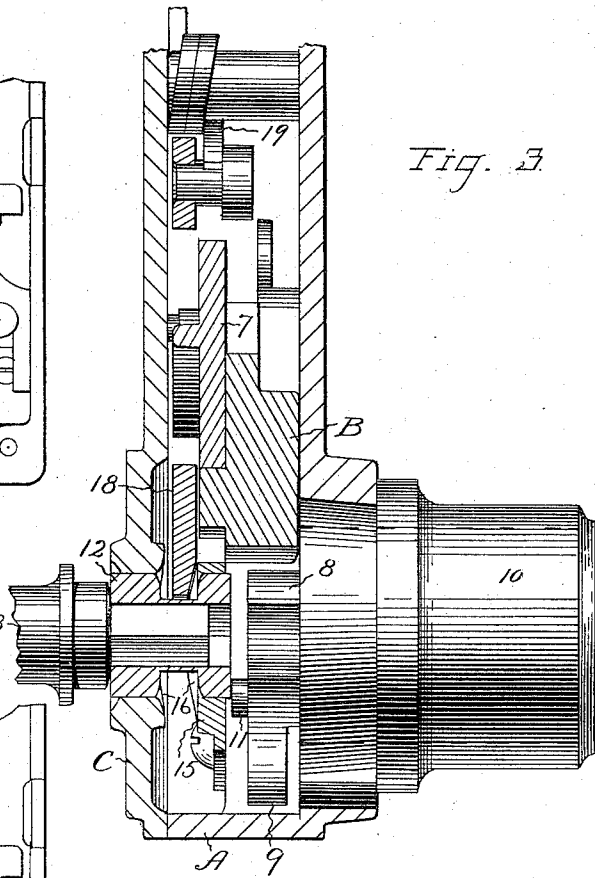


Fig. 4.

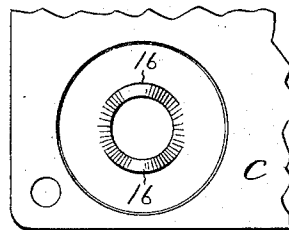
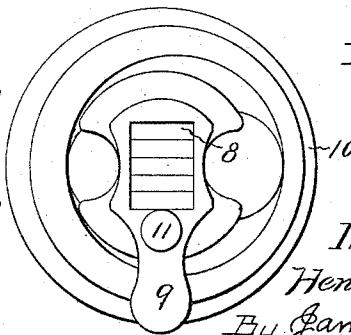


Fig. 6.



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By *James Shepard.*
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UNITED STATES PATENT OFFICE.

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LOCK.

SPECIFICATION forming part of Letters Patent No. 572,844, dated December 8, 1896.

Application filed April 25, 1896. Serial No. 589,058. (No model.)

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing at New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Locks, of which the following is a specification.

My invention relates to improvements in locks of the class in which the bolt is thrown by a knob or thumb-turn on the inside of the door and by a key from the outside of the door; and the main object of my improvement is to enable the key to always operate the bolt, no matter in what position the inside knob or thumb-turn may be left.

In the accompanying drawings, Figure 1 is a front elevation of my lock with the cap-plate removed, the part of the case containing the latch being represented as broken off. Fig. 2 is a like view of the same with the hub of the thumb-turn and its friction-tumbler removed. Fig. 3 is an enlarged sectional view, partly in elevation, of my lock on the line x of Fig. 1. Fig. 4 is an inner face view of a portion of the cap-plate, showing the bearing for the hub of the thumb-turn on the same scale as Figs. 1 and 2. Fig. 5 is an enlarged end view of the hub of the thumb-turn, showing its inner end; and Fig. 6 is an end view of the lock-cylinder and its hub or case.

I have shown my lock in a case A for a combined latch and lock; but I contemplate using it in a lock-case separate from the latch. The manner of combining the lock and latch forms no part of my present invention, and hence any further reference to the parts of the latch is considered unnecessary.

B designates a lock-bolt of ordinary construction provided with any ordinary form of tumbler or tumblers 7. I have also shown a cylinder-lock 8, carrying a bolt-throwing wing or bit 9 and mounted in the hub-like case 10, for throwing the lock-bolt by the application of a proper key from the outside of a door. These are of ordinary construction, and any other form of bolt-throwing bit may be substituted for the wing or bit 9, whether the same be mounted on a cylinder-lock or on an ordinary key, both being known equivalents. Said bolt-throwing bit carries also an eccentric projection or stud 11 at its inner end.

Within the lock-case I mount the hub 12 of the thumb-turn or knob 13 for being operated from the inside of the door, said hub being provided with the ordinary wings or arms 14 for engaging the talons of the lock-bolt and throwing the bolt by the thumb-turn from the inside of the door. This hub is in axial alinement with the axis of the bolt-throwing bit 9. In ordinary locks such hub is mounted in the cap C of the lock-case, but I give said hub a bearing at each end, supporting the inner end in a bridge 15, fixed within the lock-case A. I support the outer end of said hub in the cap C. In addition to supporting said hub axially at each end I provide the confronting sides of the bridge 15 and cap C, adjacent to the hub, with inclines or cams 16 for imparting to said hub a short longitudinal motion. The most projecting portions of the cams of the cap are opposite the deepest depressions in the cams of the bridge, so that the two together form practically a cam-groove, between which the arms 14 of the thumb-turn hub work and thereby impart this longitudinal movement to said hub. These cams or inclines are so located that when the hub 12 stands in its normal position with its arms parallel to the lock-bolt it also stands in its farthest position from the bolt-throwing bit. When said hub is turned in either direction from its normal position, it immediately moves endwise toward said bit until it has made a quarter-revolution. If its rotary movement is continued in one direction beyond a quarter-revolution, it moves endwise away from the said bit 9 until it completes a half-revolution and is then again in its normal position. The inner end of said hub 12 is slabbed off on two sides to form striking faces 17 for the engagement of the stud 11 on the bolt-throwing bit 9. For holding the hub 12 against accidental displacement and for throwing it from certain positions into its normal position I employ the friction tumbler or slide 18, which is pressed toward the said hub 12 and against its arms 14 by means of a spring 19. I prefer to leave the ends of the arms 14 at the portions upon which the friction tumbler or slide acts with nearly full corners, as shown, while these arms at the portions which act

upon the bolt-talons may have their corners cut off, as shown at 20 in Fig. 5.

As before stated, when the thumb-turn hub is in its normal position it is forced endwise to its farthest position away from the bolt-throwing bit. In this position the bit and its projection 11 may be operated to throw the bolt by the key from the outside without engaging each other or moving the said hub 12. If, however, the bolt is thrown by the thumb-turn and the thumb-turn partly rotated, or the bolt is only partly thrown, so as to leave the hub standing at or about right angles to the position shown in Fig. 1, then the friction-tumbler will hold the thumb-turn in that position. If the thumb-turn is so left in an ordinary lock, the bolt cannot be thrown by a key from the outside. In my lock with the thumb-turn thus set it will have been moved endwise far enough to have one of the faces 17 come in the path of the projection 11 on the bolt-throwing bit, so that upon applying the key from the outside and turning it the hub of the thumb-turn is carried with the key and the bolt is thrown by the combined action of the bit 9 and hub 12, although the hub is actuated by the key instead of by the thumb-turn.

By my improvement there is no danger of so setting the thumb-turn on the inside that the bolt cannot be thrown by the application of the proper key from the outside. The thumb-turn hub, when in its normal position, is wholly disconnected from the bolt-throwing bit; but when not in its normal position it is so connected with the bolt-throwing bit as to be thrown into its normal position by the act of withdrawing the bolt from the keeper with the proper key. By the employment of the bridge the thumb-turn hub is supported at each end and the hub can be properly set in position before applying the cap-plate, whereby the lock can be more conveniently assembled.

After having disclosed a lock in which a displaced thumb-turn hub is turned to its normal position by the regular use of a proper key from the outside, various ways of so doing will readily suggest themselves to the skilled mechanic, and I wish it distinctly un-

derstood that I intend to cover all such changes as fairly fall within the scope and spirit of my invention, although they may differ from the details of construction herein shown and described.

I claim as my invention—

1. The combination with a lock arranged to have its bolt thrown by the application of a key from one side and by the hub of a thumb-turn or knob from its other side, with connecting devices for connecting the thumb-turn hub with the key-actuated bolt-throwing bit whenever said hub is turned from its normal position substantially as described.

2. In a lock of the class described the combination of a lock-bolt, a bolt-throwing bit for acting on said lock-bolt, a thumb-turn hub also arranged for acting on said lock-bolt, and means for connecting said thumb-turn hub and bit whenever the said hub is turned into a position to engage said lock-bolt and for disconnecting them whenever the said hub is turned into its farthest position from engagement with said lock-bolt, substantially as described and for the purpose specified.

3. In a lock of the class described the combination of a bolt-throwing bit, a thumb-turn hub and means for imparting an endwise movement to said hub through its rotation for connecting and disconnecting it from said bit, substantially as described and for the purpose specified.

4. In a lock of the class described, the thumb-turn hub, bearings at each end of said hub, and cams or inclines on the confronting faces of said bearings for imparting an endwise movement to said hub, substantially as described and for the purpose specified.

5. In a lock of the class described the combination of the thumb-turn hub for throwing the lock-bolt, with the cap-plate supporting said hub by one end, and the bridge within the lock-case for supporting said hub at its other end, substantially as described and for the purpose specified.

HENRY G. VOIGHT.

Witnesses:

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M. S. WIARD.