H. G. VOIGHT.

CYLINDER LOCK.

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978,964. Patented Dec. 20, 1910.

Fig. 1.

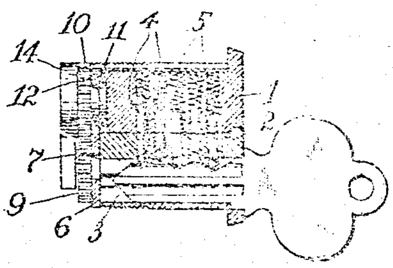
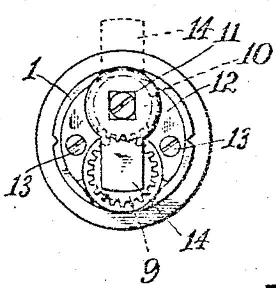
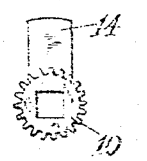


Fig. 2. Fig. 4. Fig. 3.





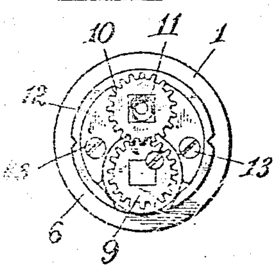


Fig. 5.

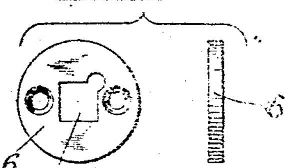


Fig. 6.

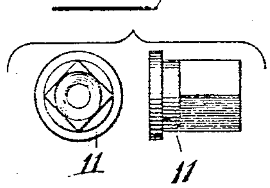


Fig. 7.

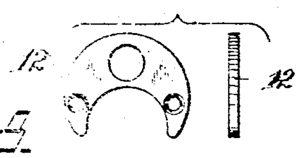
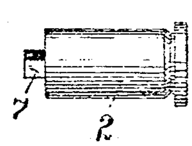


Fig. 8.



Witnesses:

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By his Attorneys

UNITED STATES PATENT OFFICE.

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CYLINDER-LOCK.

978,964. Specification of Letters Patent. Patented Dec. 20, 1910.

Application filed June 18, 1910. Serial No. 567,550.

To all whom it may concern:

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

My invention relates to improvements in cylinder locks and the object thereof is to so construct a lock of this character that it may be operatively mounted below the latch bolt without reversing the position of the cylinder lock as a whole and thus avoid reversing the normal position of the locking tumblers. Cylinder locks of ordinary construction consist of a lock cylinder having a locking plug eccentrically mounted therein, upon the inner end of which the cam arm for cooperating with the latch bolt is mounted. The lock is usually mounted above the latch bolt in order that the locking tumblers which cooperate with the locking plug may stand above said plug and may thus be moved into position to engage the key by the action of gravity as well as by the springs which are usually provided to effect such movement. If a cylinder lock of ordinary construction be mounted below the latch bolt, it is necessary to reverse the position of the lock in order to bring that side thereof carrying the eccentrically mounted locking plug adjacent the latch bolt to enable the cam arm of the lock to engage said bolt. In this position of the lock, however, the position of the tumblers is necessarily reversed and they stand below the locking plug. Under these conditions should any of the springs actuating the tumblers fail to act effectively the tumblers may be insufficiently elevated to register accurately with the break between the locking plug and the lock cylinder, thereby making it impossible to rotate the locking plug and cam arm by means of the key.

In order to overcome this defect my invention contemplates so mounting the cam arm that the lock may be mounted below the latch bolt with the cam arm in proper position to engage said bolt, while at the same time the locking tumblers stand above the locking plug in the usual manner.

With this object in view the invention consists in the construction and arrangement of parts a preferred embodiment of which is illustrated in the accompanying drawings, in which

Figure 1 is a longitudinal section of a cylinder lock embodying the invention; Fig. 2 is an end view of the device shown in Fig. 1, looking from the left; Fig. 3 is a view similar to Fig. 2 with the cam arm removed; Fig. 4 is a view of the cam arm detached, showing the actuating pinion connected therewith; Fig. 5 comprises a plan and edge view respectively of a holding and spacing washer cooperating with the locking plug, said part being shown enlarged; Fig. 6 comprises a side and end elevation of a pivot stud or pin for connecting the cam arm and its operating pinion with a supporting plate for said parts; Fig. 7 comprises a side and edge view respectively of said supporting plate, and Fig. 8 is a view of the locking plug detached.

In the embodiment of the invention here shown 1 indicates the lock cylinder and 2 the locking plug having the usual slot 3 for the key.

4 indicates the locking tumblers which may be of usual construction and which are held in operative position by means of springs 5.

6 indicates a washer secured to the inner end of the locking plug and of slightly greater diameter than said plug, in order to hold the latter in the lock cylinder. The inner end of the locking plug is provided with a projection 7 Fig. 8 preferably rectangular in outline which extends through an aperture 8 in the washer 6 and upon which also is secured a pinion 9. By this construction it will be seen that the pinion 9 is caused to rotate with the locking plug. Geared to the pinion 9 is a second pinion 10 which is secured to a pivot stud or pin 11 pivoted in a crescent-shaped plate 12, which plate is secured to the inner end of the locking cylinder by means of screws 13, Fig. 2, and lies substantially flush with and extends partially around the holding washer 6 on the end of the locking plug. Also fixed to the pivot stud 11 and rotatable with the pinion 10 is the cam arm 14 which in normal position extends diametrically across the lock cylinder and over the pinion 9.

By the construction heretofore described it will be seen that when the locking plug

is rotated by means of the key, the pinion 9 will cause simultaneous but reverse rotation of the cam arm through the pinion 10. From an inspection of Fig. 1, it will be seen that when a lock of this construction is mounted below the latch bolt the pivot of the cam arm will be located on that side of the cylinder adjacent the bolt and consequently said arm will stand in a position to operate the same upon rotation of the locking plug. It will also be observed that in this position of the lock the tumblers will extend above the locking plug and hence will be moved to operative position with respect to the key by gravity as well as the action of the springs 5, so that notwithstanding defective action of any of the springs the tumblers will always drop by gravity to proper operative position.

While I have herein described a preferred embodiment of my construction, it is to be understood that the same may be varied in detail and relative arrangement of parts within the scope of the appended claims.

What I claim is:

1. In a cylinder lock for bolt mechanisms, a cylinder, a key operatable plug eccentrically mounted in the lower portion thereof, tumbler mechanism for locking said plug, said tumbler mechanism being arranged in the cylinder above the plug, a bolt controlling cam-arm rotatably mounted at the inner end of the cylinder above the inner end of the plug, and means of operative connection between said plug and said cam-arm whereby rotation of the former will cause the rotation of the latter.

2. In a cylinder lock for bolt mechanisms, a cylinder, a key operatable plug eccentrically mounted in the lower portion thereof, tumbler mechanism for locking said plug, said tumbler mechanism being arranged in the cylinder above the plug, a bolt controlling cam-arm rotatably mounted at the inner end of the cylinder above the inner end of the plug, and means of operative connection between said plug and said cam-arm whereby rotation of the former will cause the rotation of the latter, the said connection means comprising two intermeshing gears respectively mounted on and rotatable with said plug and cam arm.

3. A cylinder lock, comprising a lock cylinder, a locking plug eccentrically mounted in the lower portion thereof, tumbler mechanism overstanding said plug, a pinion mounted upon the rear end of said plug, a plate detachably mounted on said cylinder above said plug, a stud rotatably mounted in said plate, a cam arm and pinion carried by said stud, said pinion meshing with the first mentioned pinion whereby said lock may be operatively mounted below the latch bolt with the locking tumblers overstanding said locking plug.

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