

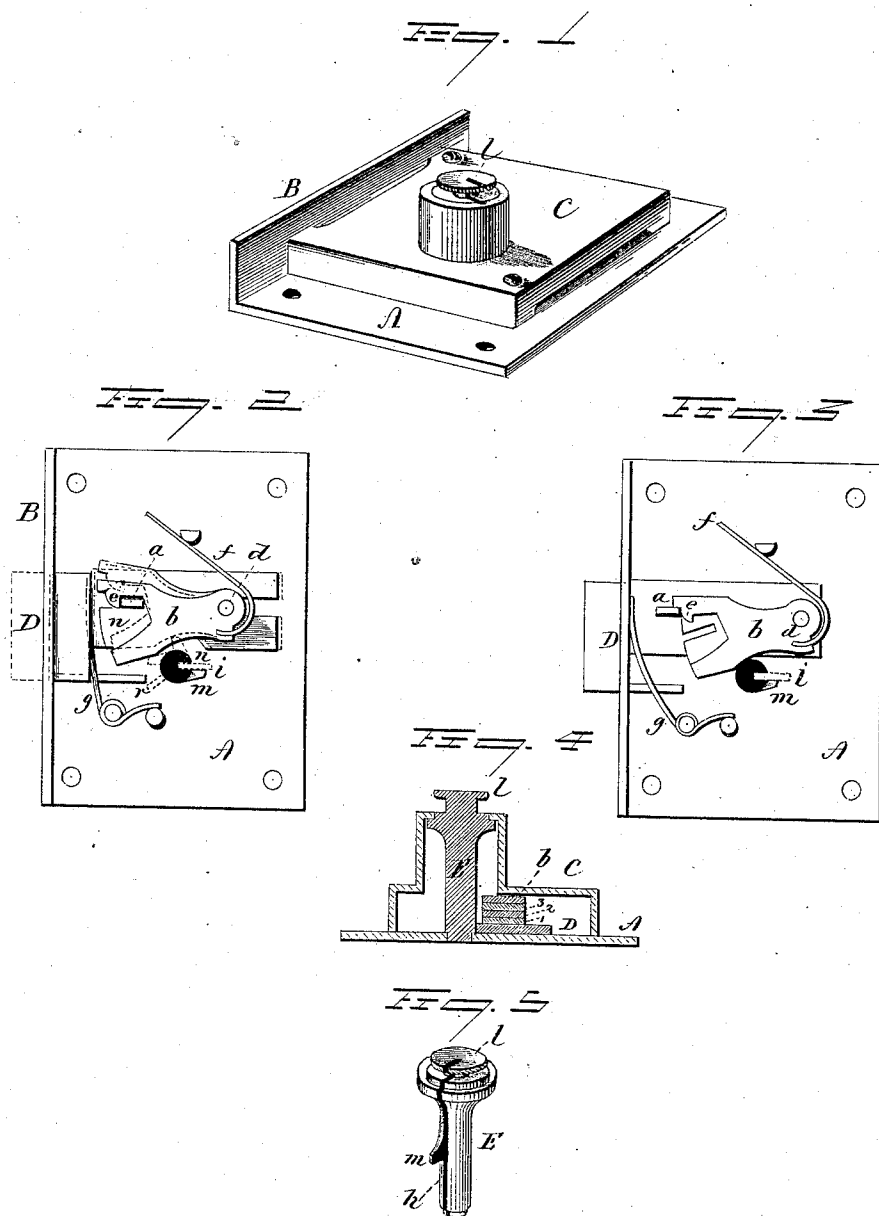
(Model.)

J. H. BARNES & J. H. WOOLASTON.

LOCK.

No. 314,778.

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UNITED STATES PATENT OFFICE.

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PLACE.

LOCK.

SPECIFICATION forming part of Letters Patent No. 314,778, dated March 31, 1885.

Application filed October 27, 1884. (Model.)

To all whom it may concern:

Be it known that we, JOHN H. BARNES and JOSEPH H. WOOLASTON, of New Haven, in the county of New Haven and State of Connecticut, have invented new Improvements in Locks; and we do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a perspective view of the lock complete; Figs. 2 and 3, an inside view of the lock, the covering-plate removed, in the two positions, respectively, of the bolt drawn and thrown; Fig. 4, a horizontal section through the cylinder, bolt, and tumblers; Fig. 5, a perspective view of the cylinder detached.

This invention relates to an improvement in locks, such as used for drawers and doors, and called "drawer" or "cupboard" locks, and particularly to that class in which the bolt is thrown by a mechanism independent of or without the presence of the key, the object being to construct the lock with a cylinder within a tube to receive the key, and which will revolve with the key to withdraw the bolt, the tube extending outside the front of the drawer or door to which the lock may be attached, and so that when the bolt is drawn and caught by a latch in the drawn position it may be released and thrown by the cylinder, independent of or without the employment of a key, and in such a construction of lock as more fully hereinafter described and particularly recited in the claims my invention consists.

A represents the principal plate of the lock; B, the face-plate turned up therefrom; C, the inclosing-case made fast to the plate A in the usual manner; D, the bolt arranged to be moved out and in through the face-plate, as from the position in Fig. 2 to that in Fig. 3 and return. The bolt is provided with the usual tumblers, here represented as three, marked 1 2 3 in Fig. 4, and which are arranged so that when the bolt is thrown, as seen in Fig. 3, the tumblers will fly beneath a stud or shoulder, *a*, on the bolt; but when

the tumblers are turned to bring their respective notches to register with the stud *a*, then the bolt may be drawn and the stud pass into said notches, as in Fig. 2, and in the usual manner.

b is a latch hung upon the same pivot as the tumblers, and so as to swing in a plane parallel therewith, its nose *e* arranged to catch over the stud *a* when the bolt is drawn, the latch forced so to do by its spring *f*, and when the latch is engaged with the bolt, as seen in Fig. 2, the bolt is held within the case of the lock until such time as the latch may be thrown from its engagement with the stud, as indicated in broken lines, Fig. 2. When so disengaged, the bolt is free to fly outward under the action of its spring *g*, and as seen in Fig. 3.

E is the key-cylinder, which is arranged in the case in its proper relation to the tumblers. It is constructed with a longitudinal groove, *h*, to receive the key. The groove is in one side of the cylinder, and so that the bit of the key may project therefrom, as indicated at *i*, broken lines, Fig. 2, the bit of the key being cut to correspond to the respective tumblers. The cylinder E is supported in the case in the usual manner, as seen in Fig. 4, taking a bearing at the rear and also near the front. The outside end is constructed in the form of a knob, *l*, through which the groove of the key-hole extends. This knob, when placed upon the drawer or door, stands outside of its front face and so as to be conveniently reached by the thumb and finger. On the cylinder is a cam, *m*, the path of which is in the plane of the latch *b*, and so that as the cylinder is rotated—say when the bolt is drawn as seen in Fig. 2—the cam *m* will strike the latch *b*, as seen in broken lines, and the continued rotation of the cylinder will, through the cam, force the latch to retreat to the position seen in broken lines, same figure, and so as to release the bolt from its engagement with the latch and permit the bolt-spring *g* to act and throw the bolt, as seen in Fig. 3. The latch may then act as one of the tumblers to stand against the stud *a*, and from which it must be removed before the bolt can be drawn; or the upper end of the latch may be beveled to

such an extent that the descent of the bolt will automatically force the latch to retreat, to permit the stud *d* to pass down into the notch of the tumblers.

5 To unlock the bolt the key is introduced, as seen in broken lines, Fig. 3, and turned in the usual manner. The cam *m* will throw the latch-bolt out of the path of the stud *a*, and the bit of the key will then act upon the tumblers
10 in the usual manner, and draw the bolt. As the bolt is drawn by the key, it passes inward slightly below the face of the plate B, as indicated in broken lines, Fig. 2—that is to say, the key gives to the bolt a little over-motion
15 before it can escape from the gate *n* of the bolt. This movement takes the stud *a* the same distance below the shoulder of the latch, and so that so soon as the key passes from the gate *n* the bolt will be forced outward until
20 the stud *a* comes against the shoulder of the latch, as indicated in Fig. 2. Thus arranged the key cannot be turned to throw the bolt, for the reason that the gate *n* has passed so far outward as to prevent the entrance of the
25 key when turned toward the bolt. The key may then be withdrawn, and when it is desired to throw the bolt, the thumb and finger are applied to the knob *l* of the cylinder and the cylinder turned, as before described, to turn
30 the latch from its engagement with the bolt, and so as to permit the bolt to be thrown by its own spring, independent of the key, and to further prevent the throwing of the bolt while the key is in the cylinder, we make an
35 extension, *r*, from the bolt downward toward the cylinder and in the path of the key, should the cylinder be turned in the direction of unlocking when the key is in the cylinder, and so that the key, striking the extension *r*, as
40 indicated in broken lines, Fig. 2, will prevent the turning of the cylinder in that direction. By this arrangement, after the key has been introduced and employed to draw the bolt, and it be left in the cylinder, it is positive evi-
45 dence that the bolt is not thrown.

The great advantage of this class of locks is that a person having several keys upon a string may draw the bolt of several locks without detaching the keys from the string, and leave
50 the locks in condition for the bolt to be thrown without the presence of the key. The arrangement of the bolt with relation to the key, so that under the action of the key in drawing the bolt an over motion must be imparted to
55 the bolt before the bit of the key can escape from the gate, and then the bolt returned under the action of the spring, so as to prevent the return of the key into the gate, may be applied in other locks of this class—that is to
60 say, locks provided with a device to catch the bolt when it is drawn and hold it so that the bolt can be released only by disengaging this device and the device operated independent of the key. We therefore do not wish to limit
65 this part of our invention to the particular device herein described for catching and holding the bolt.

From the foregoing it will be understood that we do not claim, broadly, a latch arranged to engage the bolt in its drawn position com-
70 bined with a device independent of the key by which the latch may be moved from its engagement with the bolt, and so as to leave the bolt free to be thrown by its own spring.

We are aware that a lock has been constructed with a cylinder through which the key enters
75 the lock, and which cylinder rotates with the key, and that in such a lock a latch has been provided to hold the bolt in its drawn position to be disengaged by the cylinder; but in
80 such construction the disengagement of the latch has been produced by a longitudinal movement of the cylinder, the rotative movement of the cylinder having no effect upon the said latch; and we are also aware that a lock
85 having a latch to engage the bolt in its drawn condition has been provided with a cam within the lock to disengage said latch; but it has been entirely independent of and separate
90 from the key cylinder or guard. We do not wish to be understood as claiming either of such constructions, the essential feature of this part of our invention being a cam on the cylinder adapted to engage said latch by a rota-
95 tive movement of the cylinder; but

What we do claim is—

1. The combination of the bolt and its spring with a latch, *b*, hung in the case, arranged to engage a corresponding shoulder on the bolt when the bolt is drawn, a cylinder arranged
100 in the case, the axis of which is at right angles to the plane of the bolt, and constructed to receive the key by which the bolt may be drawn, the said cylinder arranged for rotation both with and independent of the key, and
105 constructed with a radially-projecting cam, *m*, the path of which is in the plane of the said latch, substantially as described, and whereby by the rotation of the cylinder the latch will be moved out of engagement with
110 the drawn bolt, substantially as described.

2. The combination of the bolt D, latch *b*, hung in the case to swing in a plane parallel with the plane of the bolt, the bolt constructed with a shoulder with which said latch may
115 engage when the bolt is drawn, a spring arranged to throw the said bolt when free, a cylinder arranged in the case, its axis at right angles to the plane of the latch, and constructed with a groove, *h*, to receive the key,
120 the cylinder also constructed with a cam, *m*, projecting radially therefrom, the path of said cam *m* being in the plane of said latch, the bolt constructed with a gate, *n*, in such relation to the key that the key will give to the bolt an
125 over motion beyond the engagement of the bolt with the latch, substantially as described.

3. In a lock, the combination of the bolt D, a spring arranged to throw said bolt, a latch hung in the case to swing in a plane parallel
130 with the plane of the bolt, the bolt constructed with a shoulder with which said latch will engage, a cylinder arranged in the case, its axis at right angles to the plane of the latch, said

cylinder arranged for rotation upon its own axis, and constructed with a longitudinal groove to receive the key and with a cam, *m*, arranged to operate upon said latch in the rotation of the cylinder, the said cylinder extended outside the case, and terminating in a knob form, *l*, substantially as described.

4. The combination of the bolt *D*, latch *b*, hung in the case to swing in a plane parallel with the plane of the bolt, the bolt constructed with a shoulder with which said latch may engage when the bolt is drawn, a spring arranged to throw the said bolt when free, a cylinder arranged in the case, its axis at right angles to the plane of the latch, and constructed with a groove, *h*, to receive the key, the cylinder also constructed with a cam, *m*, projecting radially therefrom, the path of said cam *m* being in the plane of said latch, the bolt constructed with a gate, *n*, in such relation to the key that the key will give to the bolt an over motion beyond the engagement of the bolt with the latch, the bolt also constructed with a projection, *r*, toward the cylinder in the

path of the key when the bolt is drawn, substantially as described.

5. In a lock, the combination of the bolt, constructed with a gate through which the key works in drawing the bolt, the said gate terminating at a point distant from the face of the bolt less than the distance from the outer surface of the face-plate to the point where the bit of the key escapes from the gate, and whereby the key will draw the face of the bolt inside the surface of the face-plate, a spring in connection with the bolt, the tendency of which is to throw the bolt outward, a catch arranged to engage the bolt in its drawn condition, and when the face of the bolt is substantially flush with the surface of the face-plate said bolt-engaging device arranged to be thrown out of engagement independent of the key, substantially as described.

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