

G. BAYER.

LOCK.

No. 172,375.

Patented Jan. 18, 1876.

Fig. 1.

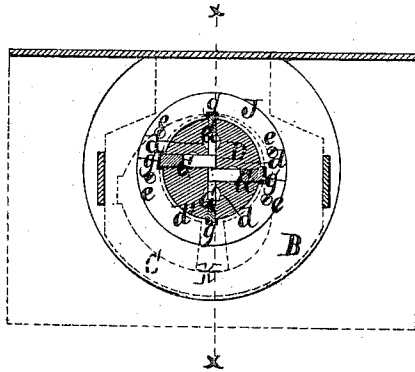


Fig. 3.

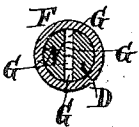


Fig. 4.



Fig. 2.

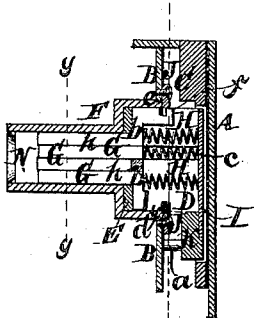


Fig. 5.

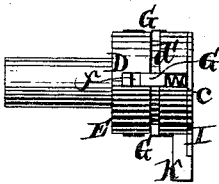


Fig. 6.

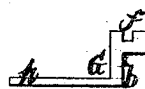


Fig. 7.



Witnesses.

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UNITED STATES PATENT OFFICE

GEORGE BAYER, OF NEW YORK, N. Y.

IMPROVEMENT IN LOCKS.

Specification forming part of Letters Patent No. **172,375**, dated January 18, 1876; application filed October 29, 1875.

To all whom it may concern:

Be it known that I, GEORGE BAYER, of the city, county, and State of New York, have invented a new and useful Improvement in Locks, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a sectional front view of my improvement. Fig. 2 is a section thereof in the plane of the line *x x*, Fig. 1. Fig. 3 is a cross-section in the plane of the line *y y*, Fig. 2. Fig. 4 is a front view of the cylinder, detached. Fig. 5 is a side view thereof. Fig. 6 is a similar view of one of the tumblers.

Similar letters indicate corresponding parts.

My invention relates to certain improvements in locks; and the invention consists in a novel construction and arrangement of parts, which will be fully hereinafter described, and specifically pointed out in the claim, a preliminary description being therefore considered unnecessary.

The cylinder is arranged in an outer casing which projects from the lock-plate to which the cylinder is attached, and by this means the mechanism of the lock is protected against external injury. The knife by which the cylinder is attached to the lock-plate is provided with notches into which the spring-tumblers project so as to prevent a rotation of the cylinder when the parts are in a normal state, and the spring-tumblers also are provided with notches, which, when the tumblers are depressed, are made to coincide with the knife, so that the cylinder may be rotated. The cylinder has a radial slot extending through it, and the tumblers are provided with elongated shanks, which project into such radial slot in such a manner that the said shanks are in a line with each other, and hence the tumblers may be depressed by the action of a flat key.

The elongated shanks of the tumblers and their arrangement in the cylinder constitutes an important feature of my improvement.

In the drawing, the letter A designates the face-plate, and B is the back-plate of my lock, connected to each other in the ordinary manner, and the pins *a*, which form the main part of this connection, form also the guides for a bolt, C. The letter D designates the cylinder of my lock. The form of this cylinder is clearly

outlined in Figs. 4 and 5, and it is made with a shoulder, E, to impart to it a narrow and a wide part. The cylinder is fitted to a casing, F, which is affixed to the back-plate B in any convenient manner, and when the cylinder is placed within this casing, it and the mechanism which it contains is protected against external injury. The end of the casing F is open and forms a key-hole for the lock. When the lock is put on a door the casing F is made to pass through the wood, so that it is exposed on the side of the door opposite the lock. G designates the tumblers of my lock. These tumblers are, in the present example, four in number, and they are bent at right angles, as at *b*, whence the tumblers extend in opposite direction. The part *b* of the tumblers rests in recesses *c* which are cut in the end of wide part of the cylinder D, and in the direction of its radii. The bent part *b* of the tumblers is subjected to the action of spiral springs H, which are placed in the recesses *c*, the latter being provided with lateral cavities *d*, Fig. 1, for this purpose. The springs H are held down in the recesses by a plate, I, fastened to the end of the cylinder D, and by the action of the springs the bent part *b* of the tumblers is held in contact with the shoulder E of the cylinder, and by this means the cylinder is prevented from turning, as I will presently more fully explain. The letter J designates a knife by which the cylinder D is attached to the back plate B of the lock. The knife has the form of a sectional ring, (see Fig. 1,) and it is made to catch in a groove, *d'*, formed on the circumference of the cylinder D, while it is fastened to the back plate B by means of screws *e*. By this arrangement of the knife J the cylinder D is firmly attached to the plate B, but at the same time is not thereby hindered from being rotated. The cylinder D is provided with a bit, K, which extends therefrom in the direction of its radii, and when the parts of the lock are put together is situated in an opening of the bolt C. When the cylinder D is rotated this bit K actuates the bolt C, and thus the bolt is driven or withdrawn according to the direction of the rotation of the cylinder. The knife J is provided with notches *g*, of the shape of the tumblers G, which project into such notches, as clearly shown in Fig. 1. In the outer edge

of each of the tumblers G are also cut notches *f*, of a shape corresponding to that of the circumferential groove *d'* on the cylinder, or nearly so, and the several notches are so located that when the tumblers are depressed against the action of the spring H the notches are made to coincide with the groove *d'* or with the knife, whereupon the cylinder D may be rotated. When, however, the tumblers G are allowed to yield to the action of the springs H the notches *f* are brought clear of the groove *d'*, and the cylinder is locked in position.

To depress the tumbler G I use a flat key of the character shown in Fig. 7, and to permit of the use of this key it is essential that the tumblers should be situated in a straight line. This purpose I accomplish in the following manner: I provide the tumblers with elongated shanks *h*, which extend from the bent part *b* outward, and arrange the tumblers in the manner shown in Fig. 1—that is to say, I place the ends of two of the tumblers next each other and arrange the remaining two tumblers opposite each other, and so that one of the sides thereof is coincident with the end of its adjacent intersecting tumbler. In the cylinder D, moreover, I form a slot, N, (see Fig. 3,) which extends through the cylinder and is parallel with the two tumblers which

are opposite each other. Now, by the peculiar arrangement of the tumblers G, the elongated shanks *h* thereof are made to occupy the slot N, and being thus brought in a line with each other, the tumblers may be depressed and the cylinder released and turned, so as to open or close the lock by the action of a flat key.

The tumblers G or their shanks are made of different lengths, so that the lock cannot be opened except by a key properly made.

It may be remarked that I do not wish to confine myself to the form of the bolt here shown, as the same may variously differ without departure from my invention.

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

In combination with the spring-tumblers G, the ends of which are arranged radially within the cylinder D, and provided with recesses *f*, as described, the elongated shanks *h*, arranged in line with each other, and the slot N in the cylinder D, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of October, 1875.

GEORGE BAYER.

Witnesses:

W. HAUFF,

CHAS. WAHLERS.