D. BORDER.
Lock and Key.

No. 199,023. Patented Jan. 8, 1878.

Fig. 1

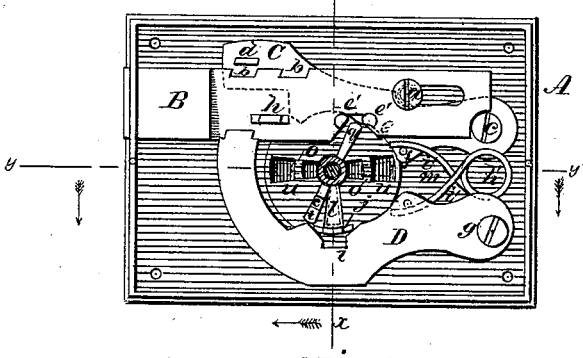


Fig. 2.

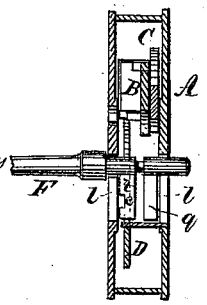


Fig. 4

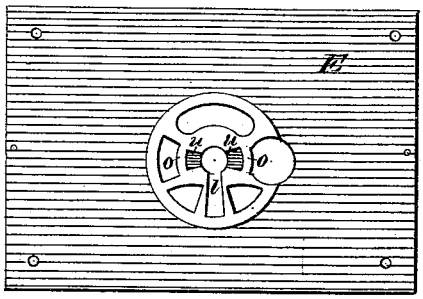


Fig. 5

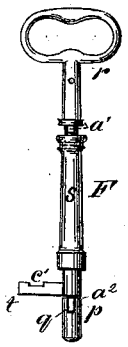


Fig. 3.

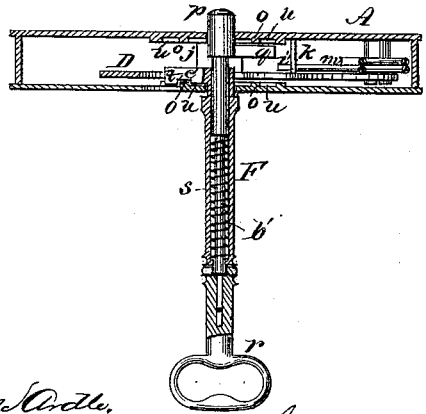
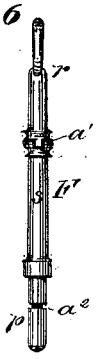


Fig. 6



WITNESSES:

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J. N. Scarborough.

INVENTOR:

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

DANIEL BORDER, OF BEDFORD, PENNSYLVANIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO LLOYD WALTER, OF SAME PLACE.

IMPROVEMENT IN LOCKS AND KEYS.

Specification forming part of Letters Patent No. **199,023**, dated January 8, 1878; application filed October 18, 1877.

To all whom it may concern:

Be it known that I, DANIEL BORDER, of Bedford, in the county of Bedford and State of Pennsylvania, have invented a new and Improved Lock and Key, of which the following is a specification:

Figure 1 is a side elevation of my improved lock. Fig. 2 is a transverse section taken on line *x x* in Fig. 1, looking in the direction indicated by the arrows. Fig. 3 is a longitudinal section taken on line *y y* in Fig. 1, and looking in the direction of the arrow. Fig. 4 is a detail view of the lock-cover. Figs. 5 and 6 are detail views of the key.

Similar letters of reference indicate corresponding parts.

My invention relates to the construction of locks and keys; and it consists in a lock having two oppositely-arranged tumblers, one above and one below the bolt, and in a key having a fixed and movable blade, both of which are upon the same side of the shank when the key is introduced into the lock, but are afterward shifted so that they are diametrically opposite, and may simultaneously engage the upper and lower tumblers of the lock.

In the drawing, A is the lock-casing, containing the bolt B, which slides through an aperture in the end of the casing, and is guided at its inner end by the stud *a*. Two notches, *b*, are formed in the upper edge of the bolt, and behind the bolt a tumbler, C, is pivoted at *c*, and is provided with a stud, *d*, which is fitted to the notches *b*. This tumbler is also provided with a curved edge, *e*, which is engaged by the key, and with a stud, *f*, for receiving the end of a spring. A tumbler, D, is pivoted on a stud, *g*, and is curved upward and notched, to engage the stud *h*, that projects from the face of the bolt B. It is also notched at *i*, to receive the guide *j*, that projects from the casing A at the lower end of the key-hole *l*.

A pin, *k*, projects from the tumbler D, to receive the spring *m*, which also presses upon the pin *f*, and tends to throw the two tumblers together.

The spring *m* consists of a coil, *h'*, having formed on it the arms *i'*, which are curved and crossed, and bent inward slightly at their ends, so as to engage the pieces *k f*, and hold the spring in its place in the lock.

At the back of the lock-casing, and around the key-hole, the casing is thickened, and recesses *u* are formed therein and upon each side of the key-hole, and are divided at or near their centers by ribs *o*. The lock-cover E is thickened and recessed in the same manner.

The key F consists of a shank, *p*, having the fixed blade *q* and bow *r*, the movable sleeve, *s*, having the blade *t*, and the spiral spring *b'*. The sleeve *s* is placed upon the shank *p* between shoulders a^1 a^2, and is thrown toward the shoulder a^1 by the spring *b'*. Two lugs are formed on the shoulder a^1, and corresponding notches are made in the end of the sleeve *s*. A notch, *c'*, is made in the edge of the blade *t*, for receiving the ribs *o* in its lock-casing.

The bolt is moved out by inserting the key and turning it toward the right, through a quarter of a revolution to the right, then drawing it out until the lugs on the shoulder a^1 are disengaged, when the blade *t* will be retained by the recess *u*, and the blade *q* may be turned a half-revolution to the left, and the lugs on the shoulder a^1 are permitted to engage the notches in the sleeve *s*, when the key may be pushed in and turned until the tumblers are disengaged from the bolt and the bolt is projected from the lock.

The blade *q* engages the tumbler C and the bolt B, which latter is provided with the usual notch for receiving the key, and with stop-pins *e'*, placed one at each side of the notch, for preventing the key from making an entire revolution. The blade *t* engages the lower tumbler D.

The key is removed from the lock by bringing the blade *t* into the recess *u* on the opposite side of the key-hole from the one before used, and drawing it out to disengage the lugs formed on the shoulder a^1, and turning it until both blades are upon the same side of the key-shank, when the key may be pushed in to disengage it from the recess, and the blades then turned to the key-hole, when the key may be withdrawn.

The operation of unlocking is simply the reverse of the locking process.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the bolt B, having notches *b* and stud *h*, the pivoted edge-curved tumbler C, having studs *d f*, the pivoted tumbler D, having pin *k*, and the armed coil-spring *m*, as shown and described.

2. The spring-pressed shank *p*, having shoulders a^1 a^2, fixed blade *q*, and bow *r*, in combination with the movable sleeve *s*, having blade *t*, and spring *m*, as and for the purpose specified.

DANIEL BORDER.

Witnesses:
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A. J. SANSON.