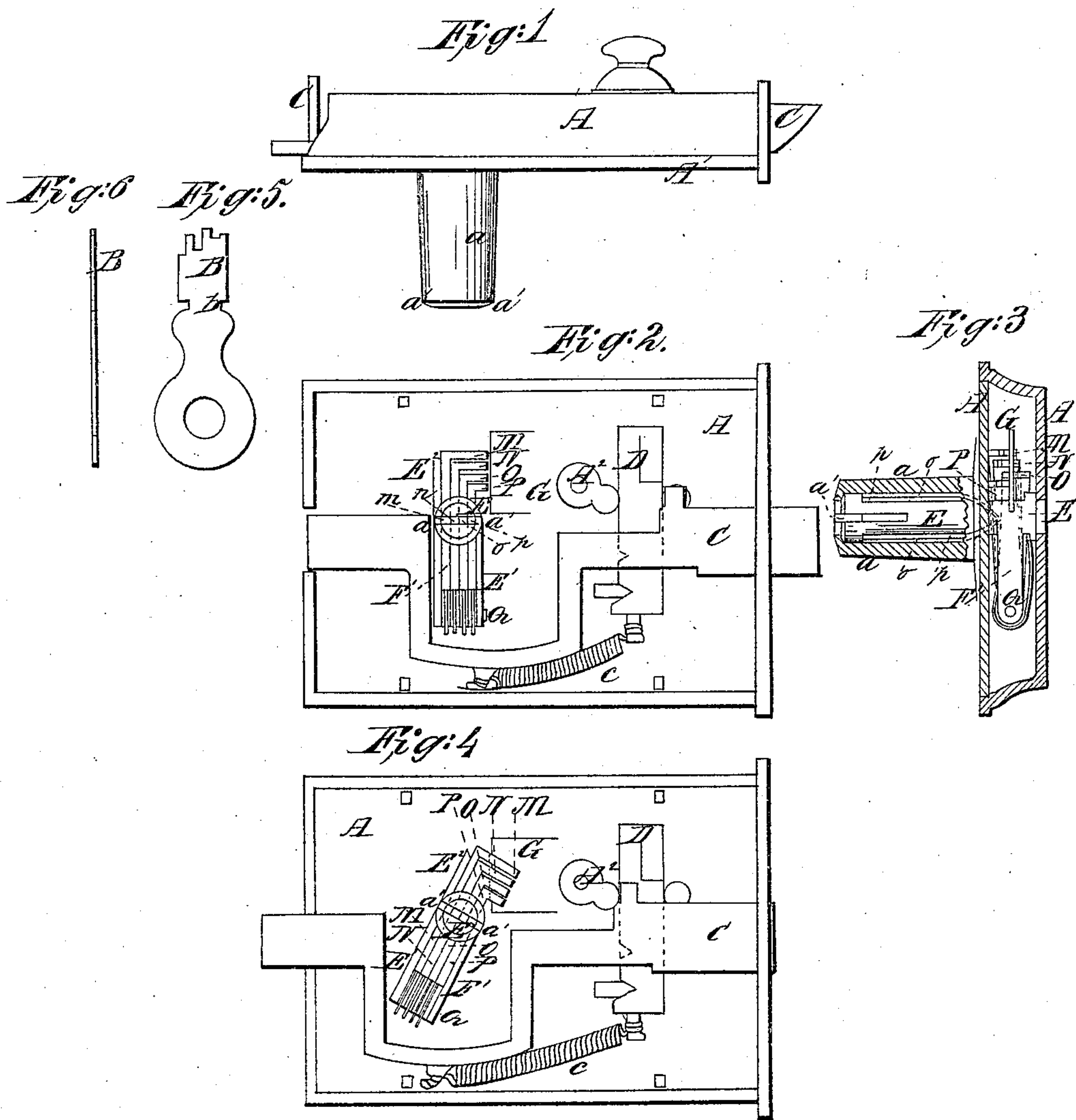


E. W. Brettell,

Latch

N^o 41,827.

Patented Mar. 8, 1864.



Witnesses:
W. Hendrickson
W. A. Albee.

Inventor:
E. W. Brettell
per Thomas D. Stetson, Attorney.

UNITED STATES PATENT OFFICE.

EDWARD W. BRETTELL, OF NEWARK, NEW JERSEY.

IMPROVEMENT IN LOCKS.

Specification forming part of Letters Patent No. 41,827, dated March 8, 1864.

To all whom it may concern:

Be it known that I, EDWARD W. BRETTELL, of Newark, in the county of Essex, in the State of New Jersey, have invented certain new and useful Improvements in Locks for Doors, &c.; and I do hereby declare that the following is a full and exact description of the construction and operation of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top view of a lock complete. Fig. 2 is a front view with the front plate removed, with the bolt in a locked position. Fig. 3 is a transverse section on the line *s s* in Figs. 1 and 2. Fig. 4 is a front view corresponding to Fig. 2, excepting that the cylinder is turned to withdraw the bolt or unlock the lock. Fig. 5 is the key represented in full. Fig. 6 is an edge view of the latter.

Similar letters of reference indicate like parts in all the figures.

My lock is cheap, but is provided with tumblers, which afford a high degree of security, and the key is small and a large number of such may be conveniently carried in the pocket.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation by the aid of the drawings and letters of reference marked thereon.

A is the main casing and A' the front plate, which is secured rigidly to A by the aid of a screw, A². From the front of A' the cylinder projects forward, as represented by *a*, and may be of any length desired, according to the thickness of the door or other work on which the lock is to be fitted. The interior of *a* is bored cylindrically from its back end nearly to its front. The front is also bored through, but the hole at that place is of smaller diameter. The lock is adapted to be operated by a flat key, B, having a neck, *b*, of a width not exceeding the diameter of the circular hole in the front of *a*. The working part of the key is a little wider and equal in width to the diameter of the interior of *a*. The metal at the sides of the hole in the front of *a* is removed at two points, *a' a'*, to allow the insertion of the wide part of the key B. After this has passed entirely through, the neck *b* is

sufficiently narrow to allow the key to be turned.

C is a bolt with a beveled end, and adapted in all respects to serve in the ordinary relation, and is what is sometimes known as a "latch-bolt." A spring, *c*, tends to keep the same always thrust out.

D is a slide provided with a knob, and adapted to secure the bolt at either end of its motion in the well-known manner.

E is the cylinder or turning part, hung in bearings at the front and rear, and provided with a stout cross-piece at the back end, adapted to operate the bolt C, and also to receive and support the L-shaped or bent tumblers M N O P and their respective springs, each of which presses its tumbler forward. These tumblers are all hung on a single pin or axis, Q, on the extremity of the arms E'. The cylindrical portion of E is occupied by four slides, *m n o p*, which are adapted to be acted on by direct pressure on the insertion of the key, and each presses on a separate tumbler at the base to communicate an amount of motion corresponding to that which each receives from the key.

The bent portion of each tumbler is notched deeply, as represented. The key presses the slides *m n o p* to different depths, and the key is so formed, according to the well-known laws, and the notches in the bent tumblers are so placed, that when the key is thrust in to its fullest extent the notches in the tumblers M N O P all coincide in position, each with the other.

G is a bridge or fence, secured firmly to the stationary portion of the lock. When the key B has been thrust in to its full extent, and the tumblers have been thereby forced backward in the lock so that the notches all coincide in position, each with the other, they also coincide in position with the fence G and allow the part E with its connections to be turned partially and throw back the bolt in the ordinary manner. In such case the notches in M N O P pass freely upon or outside of the fence G and offer no resistance to the motion; but when the key is not inserted, or any other than the true key is used, one or more of the tumblers M N O P will meet the fence in a wrong position and will resist and effectually prevent the turning of E.

The opening at the front of the lock is so small that it will not admit any large instrument, and the entire front end of the turning part E is too weak to allow of sufficient force being communicated through it to bend the tumblers by any violence. The arm E² serves as a guard, helping to resist any strain which may by any means become excessive on the tumblers. It fits close to the latter and receives directly any unfavorable strain.

My lock may be very cheaply constructed and adjusted, and combines in a good degree the compact form and cheap character of the common lock, the security from burglars due to the use of tumblers, and the lightness of the key due to locks operated by a knob.

Having now fully described my invention,

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

1. In locks, the employment of tumblers M N, &c., mounted in the turning part E, adapted to be adjusted by the thrusting motion of the key, and to present their ends simultaneously against the bridge G, substantially in the manner and for the purpose herein set forth.

2. In connection with the above, bracing the bent tumblers M N, &c., by an arm, E² extending from the cylinder, and arranged substantially as herein set forth.

E. W. BRETTELL.

Witnesses:

T. W. LANGSTROTH,
J. S. CRANE.