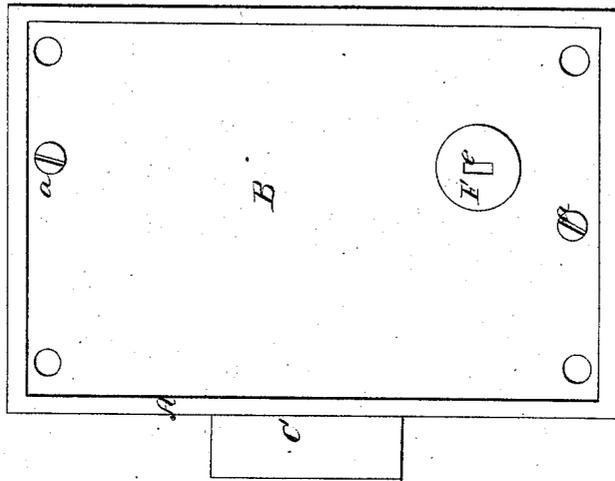


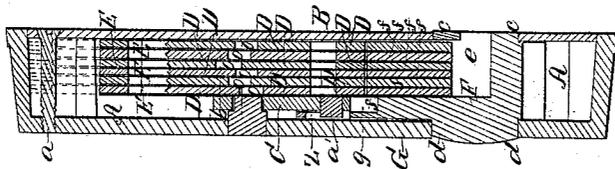
*J. R. Bugbee,*  
*Lock.*

*N<sup>o</sup> 8,060.*

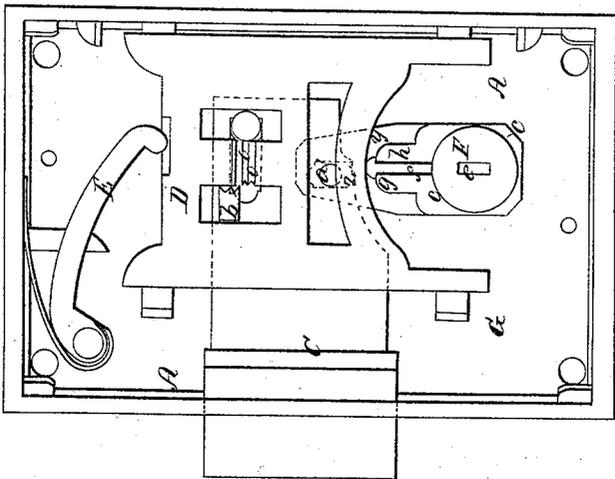
*Patented Apr. 22, 1851.*



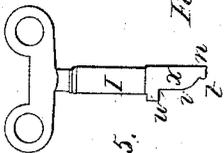
*Fig. 1.*



*Fig. 3.*



*Fig. 2.*



*Fig. 5.*



*Fig. 6.*



*Fig. 4.*

# UNITED STATES PATENT OFFICE.

JAMES R. BUGBEE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO BUGBEE & ROBINSON.

## IMPROVED LOCK AND KEY.

Specification forming part of Letters Patent No. 8,060, dated April 22, 1851.

*To all whom it may concern:*

Be it known that I, JAMES R. BUGBEE, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Powder-Proof Locks for Safes, Bank-Vaults, &c.; and I do hereby declare that the same is fully described and represented in the following specification and accompanying drawings, letters, figures, and references thereof.

In the said drawings, Figure 1 denotes a side view of a lock having my improvement. Fig. 2 shows the same as it appears when the cover-plate of the case or box is removed. Fig. 3 is a vertical and transverse section of the lock, taken through the revolving key-block. Fig. 4 is a side view of the separate bit-plate or secondary key. Fig. 5 is a side view of the wedge-key to be hereinafter described.

In the said drawings, A represents the case or box of the lock made in the usual manner and with a movable cover-plate B, which is confined in place by screws *a a*.

C is the bolt, whose stud *b* operates in connection with a series of tumblers or slide-plates D D D, &c., in the usual way, each of the said tumblers being provided with a depressing-spring E.

F is a block of metal so adapted to the lock-case as to be capable of being partially revolved, it having cylindric journals *c d*, which rest and move in corresponding apertures or bearings made, respectively, in the two side plates B G of the lock-case. One at least of these journals is made to extend entirely through the cover-plate or side plate of the lock. A rectangular recess or key-hole cavity *e* is sunk within the block. A set of tumbler-elevators or pins *fff* is inserted in the block and between the orifice *e* and the tumblers, there being a pin *f* to each tumbler, and each pin being made to extend into the cavity *e* and so adapted to the block as to be capable of being freely slid or moved upward or against its tumbler, so as to cause the elevation of the same.

A side view of one of the pins *ff*, &c., is given in Fig. 6, wherein it will be seen that the said pin is provided with a stop or head *g*, which, when the pin is at its lowest position, rests on the upper part *h* of the turning block F.

These pins or tumbler-elevators are made of equal lengths and operate in conjunction with a separate bit-plate or secondary key H. (Represented in Fig. 4.) This plate is made with a series of bits *i k l m n o*, corresponding in number with that of the tumblers and elevators. It is also made with a straight bottom *p q*, an inclined plane *q r*, and a hook *s* or other equivalent contrivance, which, in connection with a hook *t* on the end of the key I, (see Fig. 5,) enables a person to extract or remove the key H from the orifice or cavity *e*. The said key I is made with a wedge or inclined cam or plane *u v* and a plane surface *v w* on the post *x*, which is constructed of a width to correspond with and enter that of the key-hole orifice *e*. The bolt is moved by means of a projection *y*, which extends from the block F, and has a cavity or recess *z* made in it, and so as to receive a stud *a'* from the bolt, the same operating somewhat as a common key operates in throwing the bolt either backward or forward, the form of the said projection *y* and the recess being denoted in Fig. 2 by dotted lines.

In operating the lock the secondary key or bit-plate is first inserted within the orifice or key-hole *e* of the block F and with its bits standing upward or toward the elevators. Next the part *x* of the key I is forced endwise into the said cavity, so as to carry the inclined surface wedge or cam *u v* against the cam or inclined surface *q r* of the bit-plate and elevate the bit-plate and cause the part *p q* of it to rest upon the part *v w* of the key I. This operation will throw the bits against their respective tumbler-elevators and thereby raise up the tumblers, so as to carry all their cross or horizontal slots *o* into proper position to allow the stud or pin *b* of the bolt to pass through them. Now if we apply force to the key I, so as to turn it and the block F, we may throw the bolt either forward or backward, it being understood that the bearing-surfaces of the tumblers on the tumbler-elevators are to be so curved as to create no motion of the tumblers during such motions of the bolt.

A lock so constructed can be made not only powder-proof, but with so many tumblers as to be of great value as a protector against the operations of burglars, whether they be such

as are commonly resorted to in order to pick it, or blow it up, or injure it by gunpowder or any other explosive material introduced into it.

What I claim as my invention is—

The wedged or cam key I and the separate bit or secondary wedged or cam key H, in combination with the vibrating block F, the key-recess and the tumbler-elevators, the

whole being constructed, arranged, and operating substantially as hereinbefore specified.

In testimony whereof I have hereto set my signature this 6th day of March, A. D. 1851.

JAMES R. BUGBEE.

Witnesses:

R. H. EDDY,

BENJAMIN EDDY.