D. M. Smith,

Bank Lock,

No. 6,272, Patented Apr. 3, 1849.

Fig. 9.



Fig. 5.

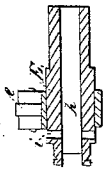


Fig. 2.

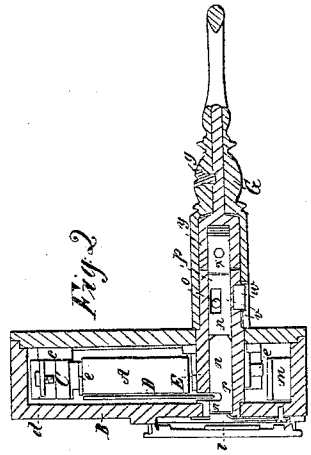


Fig. 8.

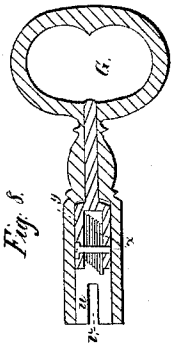


Fig. 6.

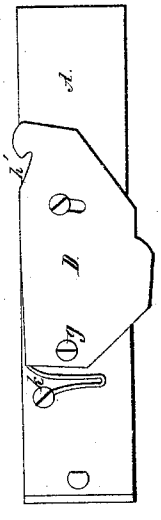


Fig. 4.

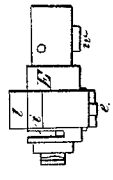


Fig. 3.

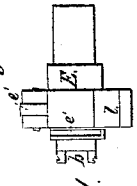


Fig. 1.

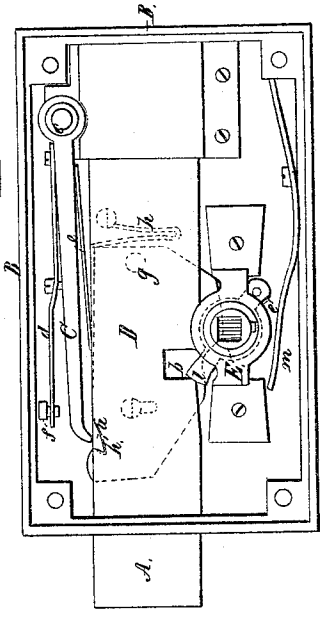
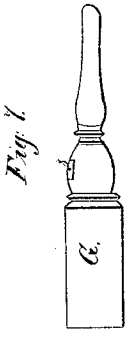


Fig. 7.



AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

DAVID M. SMITH, OF SPRINGFIELD, VERMONT.

BANK-LOCK.

Specification of Letters Patent No. 6,272, dated April 3, 1849.

To all whom it may concern:

Be it known that I, DAVID M. SMITH, of Springfield, in the county of Windsor and State of Vermont, have invented a new and useful Improvement in Bank or Safe Locks; 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.

Of the said drawings Figure 1, represents a side view of the lock, as it would appear were the covering plate of the box removed, and the bolt thrown forward. Fig. 2 is a transverse section of the lock taken through the middle of the rotating cylinder or barrel to be hereinafter described. Fig. 3 is a top view of the said cylinder, as it appears when removed from the lock. Fig. 4 is a side elevation of said cylinder. Fig. 5 is a horizontal section of it. Fig. 6 is a rear elevation of the main bolt and the catch plate and lever plate applied to it. Fig. 7 is a side view of the key and Fig. 8 is a horizontal and longitudinal section of it exhibiting the changeable bits and bit holder. Fig. 9 is another longitudinal section of the key taken in a plane at right angles to that in which the last figure is taken.

The purpose of my invention is not only to render the lock difficult to be picked, but at the same time difficult of access so as to be blown to pieces, by the explosion of gunpowder, or other explosive matter, introduced through what is usually termed the key hole.

A in the drawings denotes the main bolt of the lock, made with one notch *a*, in its upper edge, and another *b* in its lower edge, they being arranged as seen in Fig. 1.

B is the case or box of the lock, C a spring dog, pawl or lever which turns at its rear end upon a pin or fulcrum *c*, and has two springs *d*, *e* affixed respectively to its upper and lower sides and arranged as seen in Fig. 1. The spring *e* rests upon the upper edge of the bolt, while the spring *d*, has an adjusting screw *f* screwed through it near its front end, and made to simply rest against the upper side of the box of the lock. The spring *d* is not for the purpose of forcing the pawl downward, but is simply in connection with the other spring for the purpose of maintaining the dog in its proper position with respect to the main bolt. The adjusting and bearing screw *f*, serves to adjust the position of the front end of the dog.

On the rear face of the main bolt, is the catch plate or lever plate D, see Fig. 6. It is made of the shape exhibited in said figure, and turns on a screw pin or fulcrum *g*, and is pressed downward by a spring *h*, suitably applied to it. The said catch plate D has an angular notch *h'*, made in its upper edge and near its front end, and close to the notch *a*, as seen in the drawings. The lower part of the lever plate projects below the main bolt, and enters a recess *i*, cut in the side of the rotating cylinder or shaft E. The said cylinder or shaft E, is constructed with a passage *k*, made through it longitudinally, and of a square or other proper shape in section. It is provided with a projection *l*, for operating in the notch *b*, and throwing the main bolt. It also has a friction roller *e'*, applied to it, and on that side of it, opposite to that on which the stud or projection *l* is placed, the said friction roller being made to bear and operate against a spring *m*, disposed as seen in Fig. 1. The friction roller and spring however are not essential to the operation of the cylinder E, but are used to improve the same. The shaft or cylinder E, is disposed directly under and at right angles to the main bolt as seen in the drawings, and is made to rest and turn in suitable bearings, which will admit of its being rotated or partially revolved by the key when applied to it.

The passage *k*, of the shaft E, contains a series of notched slide plates *n*, *n*, *n*, &c., which are disposed side by side, each being kept in place by a pin *o*, which passes through the cylinder and a slot *p*, made through it (the slide plate). In the drawings each of these slide plates is shown as composed of two sections or pieces as seen at *r*, *s*. They may be so made, or be made in one whole piece. A small retractive spring *t*, is applied to the rear end of each of the slide plates, and the lock case and in such manner as to retract or force back the slide plate whenever it becomes necessary so to do. In the upper edge of each slide plate, a small notch *u'*, is made, the said notch not being cut at the same distance from the end of each slide plate, but a different distance therefrom in each plate, the said notches being so arranged that when

the slide plates are all forced forward by the changeable bits of the key, they (the notches) shall be all brought into line and directly under the recess *i*, and so that the catch plate D, may fall into them.

The key G is made with a tubular socket *u*, which fits on the part of the cylinder E′, which projects beyond the lock, the said tubular socket having a notch *v*, cut in it, to receive a projection *w*, which extends from the cylinder. A series of changeable bit plates *x*, *x* &c., are disposed within the keg as seen in Figs. 8, and 9, they being held in a holder *y*, which is inserted in the socket *u*, and confined therein by a screw *z*.

Should any one of the bit plates not be in its correct position with respect to the others, and its corresponding slide plate, it would not (when the key is applied to the cylinder E′, and forced downward so as to throw or move forward all the slide plates) move the slide plate (against which it might act) the correct distance to vary the notch of it, in such relation with respect to the recess of the cylinder, as to permit the catch plate to drop into the said notch. Consequently while the key and cylinder were next turned in order to throw back the main bolt the catch plate would be so elevated, that the front end of the dog C, would pass into the notch *h′*, and by it be drawn down into the notch *a* of the main bolt, and so as to prevent the retraction of the bolt.

From the above description it will be seen that although the main bolt can be readily locked or thrown forward, at any time, yet it cannot be unlocked or retracted, unless the several slide plates of the cylinder E, are all brought into such positions as will permit of their notches being brought into line with each other and directly under the recess of the cylinder, or so as to permit the descent of the catch plate, far enough to carry it entirely below and out of action with the front end of the dog, whenever it may be desirable to unlock the bolt. The cylinder or shaft E, is made to project through one side of the cover of the lock case, and the door to which the lock is applied.

From the above it will be seen that there is no opening on the lock, by which gunpowder or any explosive material may be readily introduced into it, when it is affixed to a door.

I lay no claim to a series of changeable bits affixed in or combined with a key, nor do I claim a cylinder to be rotated by a key made with either stationary or changeable bits, nor the combination of such a cylinder, one or more series of pins or slides, and an inclosing ring as used in the lock invented and patented by Linus Yale, nor do I claim a series of slides and a notched ring plate as used in the well known Bramah's lock but

That which I do claim as my invention is a combination of the following elements as applied to the main bolt of a lock and operated by a key made with either fixed or changeable bits, the whole being arranged and constructed substantially as hereinbefore explained.

1. The first of said elements of combination is a notch a shoulder or any mechanical equivalent therefor made in the main bolt or otherwise properly applied to it.

2. The second of the said elements is the spring dog C.

3. The third of the said elements is the catch plate or lever plate D, turning on a pin projecting from the main bolt and having a spring affixed to it and the bolt, for the purpose of throwing the plate down into the notches of the slide plates.

4. The fourth of the said elements, is a series of notched slide plates *n*, *n*, *n* &c. arranged within a cylinder or rotating shaft E, provided with retractive springs, and constructed, and made to operate in line of the axis of the cylinder or shaft, essentially as above specified.

5. The fifth and last of said elements is the rotary shaft or cylinder E, made substantially as above described, and provided with a bit or stud for operating in a notch *b*, made in the main bolt, and for the purpose hereinbefore specified.

In testimony whereof I have hereto set my signature this ninth day of December A. D. 1848.

DAVID M. SMITH.

Witnesses:
ISAAC G. DAVIS,
IRA DAVIS.