

D. M. Smith,

Permutation Lock.

N^o 4,635.

Patented July 14, 1846.

Fig. 8



Fig. 3

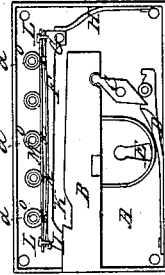


Fig. 4

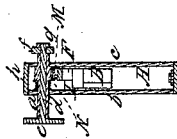


Fig. 5

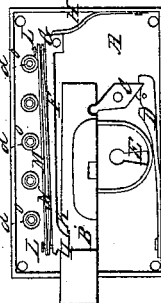


Fig. 6

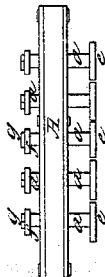
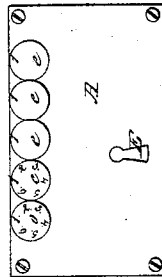


Fig. 1



UNITED STATES PATENT OFFICE.

DAVID M. SMITH, OF SPRINGFIELD, VERMONT.

LOCK FOR DOORS, &c.

Specification of Letters Patent No. 4,635, dated July 14, 1846.

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 Locks for Doors, Safes, &c.; and I do hereby declare that the nature of the same is fully set forth, and represented in the following specification, accompanying drawings, letters, figures, and references thereof.

Of the aforementioned drawings, Figure 1 is an external side view of my improved lock. Fig. 2 is a top view of it. Fig. 3 is a section of it taken through the middle of the case, and parallel to one of the side plates. Fig. 4 is a vertical and transverse section, taken through the axis of one of the cam shafts to be herein after described. Fig. 5 exhibits a view of the parts as they appear when the bolt is thrown forward or locked.

In said figures A denotes the case or box of the lock within which the operative parts are arranged.

B is the bolt which at its rear part is jointed to one end of a small lever C and whose other end acts against a spring D formed and arranged as seen in the drawings. E is the key hole. Above the bolt is a lever catch F whose seat end is made to turn upon a fulcrum or saw pin G and has a spring H adapted to it in such manner as to always exert a force upon the lever, so as to throw its front end upward. The said front end of the lever has a projection I upon it which is beveled off or made angular as seen in Figs. 3 and 5 and acts, when the bolt is thrown forward, in connection with a corresponding notch K made in the upper side of the bolt.

Directly above the lever F, and kept in position by two screw pins inserted through it and the lever is a long thin plate or bar which has a curved bow spring N inserted between it and the lever F and acting upon it in such manner as to force it away from the upper edge of the lever.

The central part of the bow spring rests against the lever F while the two extremities or ends of the said spring are disposed in contact with the ends of the bar M, as seen in the drawings. The bar M should slide freely upon the screw pins L L in directions toward or from the lever catch F.

A series or row of small cams or eccentrics O O O &c is arranged above the bar M

as seen in Figs. 3, 5. In the figures each cam is represented as a simple cylinder having a segment of its periphery removed, the same being more particularly exhibited in Fig. 1 and on a larger scale. Each cam is fixed upon one of several tubes *a, a, &c* which pass through and turn in the back and front plates *b, c*, of the lock and constitute the turning journals of the cams. Each of the said tubes has a round pin *d* passed through it, the said pin being of the same diameter as that of the interior of the tube. The pin *d* has a circular head or plate *e* fixed upon one end of it, and a screw *f*, and nut *g*, applied upon its opposite end, the object of the said screw and nut being simply to confine the pin to the tube. This they do by drawing the head against the end of the tube, while the nut is being forced down (when turned) against the opposite end of the tube. The front face of each of the plates or heads, *e, e* should be divided and numbered as seen at 1, 2, 3, and on each. A small helical spring *h* is placed upon each tube (*a*) and between the eccentric or cam upon the tube and the back plate of the lock, as seen in the drawings. The object of the spring is to press the cam against the opposite plate and thereby create a friction sufficient to keep the tube stationary in its bearings in any position in which it may be turned by its divided head or plate (*e*). Whenever either of the eccentrics or cams is turned in its bearings by the fingers of a person applied to its head *e* it will press upon the spring bar M and depress it a little. This being the case, if the key is turned so as to throw the bolt forward, the projection I of the lever F will when the notch K comes directly underneath it be forced into the notch by the power generated in the spring N by the cam aforesaid. Consequently whenever any attempt is made to throw the bolt back its retraction will be prevented by the projection I acting against the front end of the notch K. The spring lever will not rise high enough to allow of the recession of the bolt until all the straight parts (*a*) (see Fig. 6) of the eccentrics are brought parallel to the top of the spring lever or in line with each other.

From the above it will be seen that by means of the divisions and figures upon the heads or circular plates *e, &c* the cams may be at any time brought into their correct positions to enable a person to throw back

the bolt by using the key, and should but one of the cams be out of place, it would cause such a depression of the spring lever as to prevent the recession of the bolt. The
5 manner in which the plates *e, e*, are adapted to their respective cams or eccentrics enables them to be adjusted to them in such manner as may be at any time desirable.

What I claim as my invention and desire
10 to secure by Letters Patent is—

The combination of the spring bar M with the cams O, O, &c and spring lever F

the whole being applied to the main bolt and made to operate together substantially as above specified.

In testimony that the foregoing is a true
description of my said invention and im-
provements I have hereto set my signature
this eighteenth day of March in the year
eighteen hundred and forty six.

DAVID M. SMITH.

Witnesses:

SAMUEL W. PORTER,
FREDERICK W. PORTER.