L. Lillie,
Lock.

No. 6872. Patented Nov. 13. 1849.

Fig: 4.

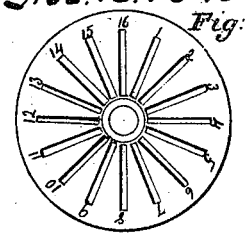


Fig: 1.

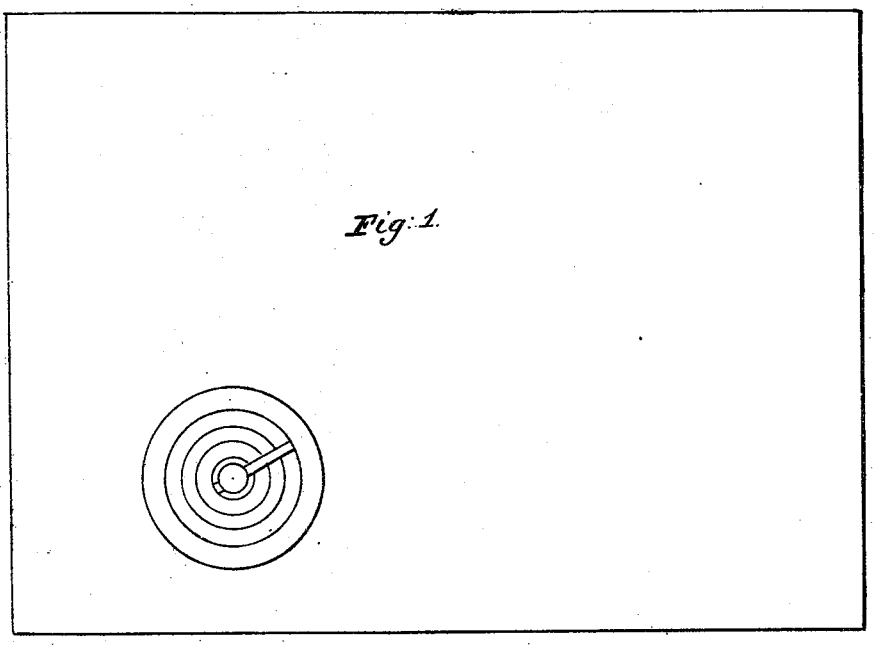


Fig: 5

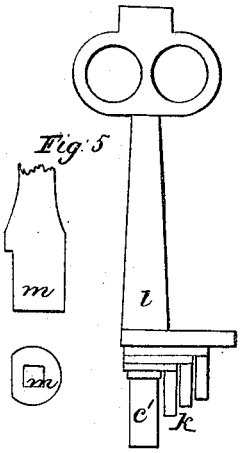


Fig: 2.

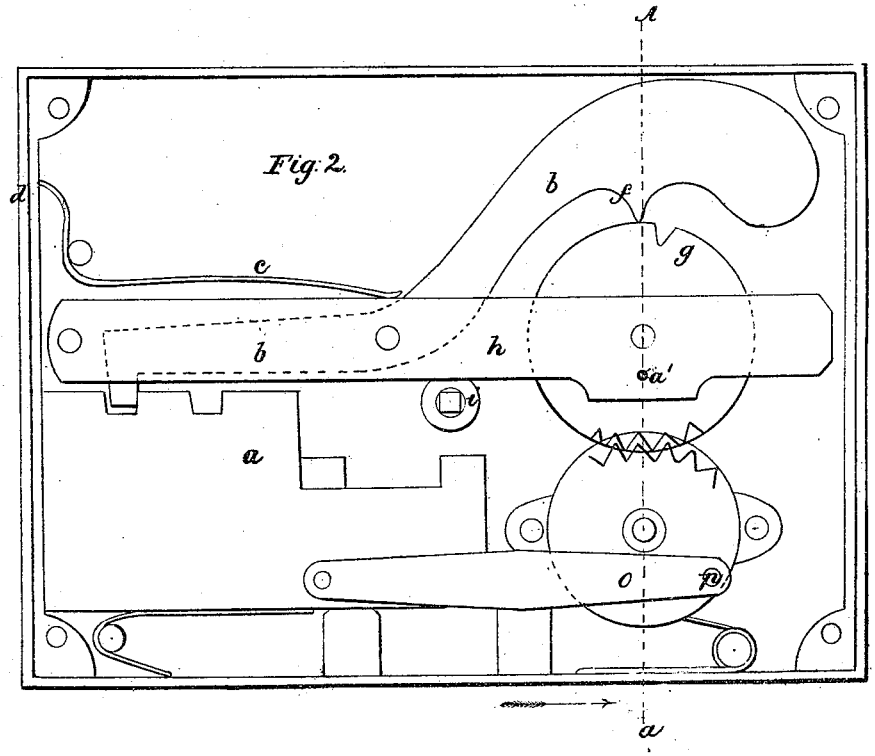
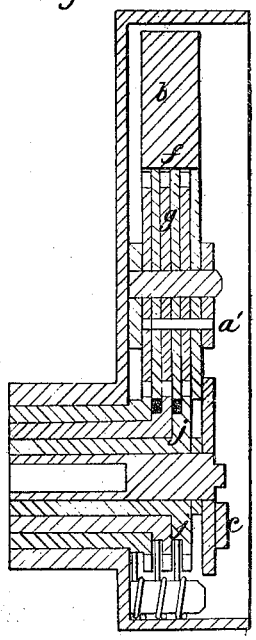


Fig: 3. A a, fig: 2.



UNITED STATES PATENT OFFICE.

LEWIS LILLIE, OF TROY, NEW YORK.

MEANS OF CHANGING THE COMBINATION IN REVOLVING TUMBLER-LOCKS.

Specification of Letters Patent No. 6,872, dated November 13, 1849.

To all whom it may concern:

Be it known that I, LEWIS LILLIE, of Troy, in the State of New York, have made certain new and useful Improvements in Combination Locks for Banks, Vaults, &c.; and I do hereby declare that the following is a full, clear, and exact description of their nature and construction and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings making part of this description.

Figure 1 is an elevation of a lock. Fig. 2 is an elevation of the lock with the lock plate removed. Fig. 3 a cross vertical section taken at the line (A, *a*) of Fig. 2, and Fig. 4 a view of the key and register for setting it.

The nature of my invention consists of a mode of securing the auxiliary bolt which enters a recess in the main bolt to secure it when thrown out by means of a series of rotating tumblers notched on their periphery so that the auxiliary bolt can only be liberated when the notches of all the series of rotating tumblers coincide.

My invention also consists in varying the series of notched tumblers in a hinged or vibrating frame and making their outer peripheries with cogs and combining them with a series of corresponding cogged tumblers connected with the stationary back plate, so that when the frame of the notched series is elevated or vibrated sufficiently to disengage the cogs the other series will be free to rotate so that the combination may be varied at pleasure, to suit any variation in the key and while the key is in place the vibrating frame may be let down to insure the adjustment of the parts. And my invention also consists in operating the main bolt to throw it in and out by the rotation of a plate back of the combination tumblers, by having the said plate connected by a joint link with the main bolt.

In the accompanying drawings (*a*) represents the main bolt with two notches in the upper edge into either one of which fits the auxiliary bolt (*b*) which is acted on by a spring (*c*) attached to the lock plate (*d*), so that the tension of the said spring shall always keep this auxiliary bolt in one of the notches of the main bolt. The auxiliary bolt (*b*) is provided with a projection or spur (*f*) which rests on the periphery of a series of rotating tumblers (*g*) that turn on the same axis, each one of these tumblers has a notch in the periphery so that when the notches on all of them coincide and are in the position shown in the drawing the spur (*f*) falls by its own weight in them which permits the auxiliary bolt to ascend and liberate the main bolt, but when all or any of the tumblers are in any other position the auxiliary bolt must be in one of the notches to hold the main bolt in place.

The tumblers (*g*) are mounted in a vibrating frame (*h*) which when let down rests against a stop (*i*) and then the cogs on the periphery of the tumblers engage the cogs of a corresponding series of tumblers (*j*) that have their bearings in the frame or case of the lock, so that when in the position represented in the drawings, and the keys adapted to the combination of the tumblers (*j*) the two series of tumblers can be rotated so as to elevate the spur (*f*) and with it the auxiliary bolt into one of the notches of the main bolt.

When it is desired to vary the combination the pins (*k*) on the key (*l*), are placed in any desired relative position to suit the combination desired, the tumblers which have been previously turned so as to have the spur (*f*) in the notches of the tumblers (*g*) are elevated by means of an auxiliary key (*m*) Fig. 5, until the cogs of these tumblers are liberated from the other series of tumblers, and then these latter can be changed to suit the combination adopted for the key and when the key is inserted the vibrating frame is let down to engage the two series of tumblers. In this way any combination desired can be made without the necessity of taking apart the lock or any portion of it.

A rotary plate back of the second series of tumblers has a connecting rod jointed to one arm of a lever (*o*) that turns on a fulcrum pin (*p*), the other arm of the said lever being adapted to act on the main bolt so that when the tumbler is turned the main bolt is thrown in and out.

The key (*i*) is composed of a series of vibrating pins (*k*) turning on the shaft (*c'*), these pins can be set by means of the register plate shown in Fig. 4, on any combination of numbers and then permanently fixed

in that position. Instead of using a register plate for the purpose of setting the key to a certain combination, the numbers may be marked on the shanks of the pins of the key, but the register is more expeditious.

In order to find the combination in which the lock sets, in case it should be lost, insert a wire through the small hole (*a'*) in the back of the lock; it will bear against the inner one of the series of rotating tumblers, then turn the said tumbler until the small hole in it comes opposite to the hole in the case, and so on with the other tumblers until the wire passes through the holes of all the tumblers, then the notches of the rotating tumblers will be in line, the clog will fall by its own weight, and the bolt may be turned.

What I claim as my invention is—

Hanging the series of rotating tumblers in a hinged or vibrating frame, their outer periphery being provided with cogs which gear into the cogs of the series of tumblers connected with the stationary lock plate, so that when the said frame is elevated the tumblers of the other series will be free to turn in order to suit any variation in the set of the key.

LEWIS LILLIE.

Witnesses:
A. P. BROWER,
WM. BISHOP.