J. Oxnard,

Lock.

No. 3,990. Patented Apr. 10, 1845.

Fig. 6.

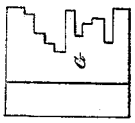


Fig. 3.

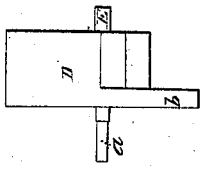


Fig. 4.

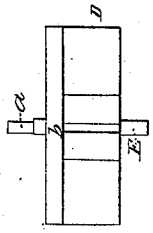


Fig. 2.

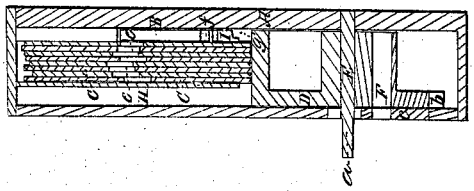


Fig. 5.

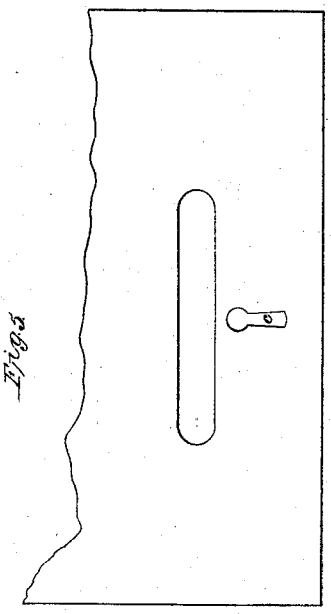
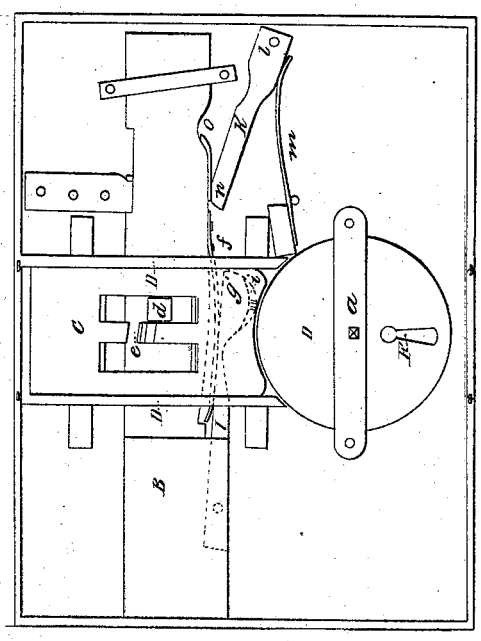


Fig. 1.



UNITED STATES PATENT OFFICE.

JOHN OXNARD, OF PORTLAND, MAINE.

LOCK FOR BANKS, VAULTS, SAFES, &c.

Specification of Letters Patent No. 3,990, dated April 10, 1845.

To all whom it may concern:

Be it known that I, JOHN OXNARD, of the city of Portland and State of Maine, have invented a new and useful Improvement in Locks for Doors, &c., of the construction and operation of which the following description and accompanying drawings taken in connection constitute a full and exact specification.

Of the drawings above mentioned, Figure 1, represents the interior of the lock case, and the arrangement of the bolt, sliding tumblers and other operative parts therein, the cover or movable plate of the lock case being supposed removed in order to clearly exhibit them. Fig. 2, is a transverse section of the lock taken centrally through the tumblers.

Such other figures or drawings as may be necessary to the description hereinafter given will be therein referred to and described.

The lock case (A, Figs. 1, 2), is a rectangular or other proper shaped box of metal, whose top plate (represented in Fig. 5) is removed from it for the purpose hereinbefore set forth. In the said lock case, a bolt (B) and series (C) of sliding tumblers or plates, such as usually employed in bank locks, are disposed with respect to each other as seen in Figs. 1, 2. Instead of raising the said tumblers, by a key constructed in the usual manner, I employ a circular, or other proper shaped piece of metal (D,) which is placed immediately below the tumblers and supported in such manner in bearings in or applied to the lock case, as to revolve on its axis or center E. The said piece of metal, is to be moved or caused to turn upon its center, by a simple key, which is to be made to fit upon a square stud, projecting from the central part of said circular piece of metal, as seen at, *a*, Figs. 1, 2, 3 and 4. The said piece of metal (D) has a rectangular or elongated orifice formed through it (as seen at F,) into which a bit plate of metal (G) is to be inserted and so adapted thereto, as to be placed therein and removed therefrom at pleasure. A side view of the circular block (D), is given in Fig. 3, and a front elevation of it in Fig. 4. A portion of its lower part on each side of the bit plate is removed as seen in the drawings, the remaining portion of the said lower part, (which is represented at *b* in Figs. 3 and 4) constituting, as it were, a flanch or projection, which receives, and in part sustains the bit plate G. When the cover of the lock, (see Fig. 5) is applied to, or inserted in, its place within the case, a small elongated orifice (*c*) in it, of a size large enough to permit the passage through it of the bit plate, should come just over and correspond with, the hole or passage F, in order that the bit plate may be readily inserted in, or withdrawn from, the revolving block D, as occasion may require. The tumblers are to play within, or between side partitions H, H, which should extend down to the block D, and may continue partially around it, if desirable.

The bit plate G (a side view of which as detached from the block D, is given in Fig. 6, wherein it will be seen that it resembles the bits of a common key) being inserted in the revolving block D, on turning the said block, the said bit plate will be carried around by it, so as to be brought beneath, and in contact with the sliding tumblers, and in such manner as to act on them, as a key usually does, or will elevate them to the positions required for the movement of the bolt stud (*d*) through the horizontal passage (*e*) of each of the sliding tumblers and then meets a pin or catch *i* on the end of a small spring lever I (which is jointed at one end to the lower part of the bolt and has a spring (*f*,) applied to it on the bolt, and acting upon it in such manner, as to force it downward,) against which it acts, so as to force or throw the bolt forward. On reversing the movement of the block D, so as to carry the bit plate around in contact with the front side of said pin or catch *i*, (extending from the spring lever I) and continuing the movement of the block D, the bolt is thrown back within the case—or, in common parlance, is "unlocked."

From the above, it will be seen, that a very slight movement of the revolving block, either to the right or left, completely closes up any passage into the lock, through what may be termed the key hole thus rendering it either impossible or extremely difficult for a pick lock to insert any instrument into the lock, or obtain such access to the tumblers and other parts, as may be required to pick it. The bit plate may have a small staple, fitted in its upper edge, through which, (staple) a hook may be passed, in order to remove it from the lock, or instead thereof, any other suitable mechanical de-

vice may be resorted to, in order to effect the same object.

It is well known, that the mode generally adopted in order to pick locks of this description, (that is, those having moving tumblers connected with the main bolt), has been to insert some instrument through the key hole, and into the lock, and by the same to act upon the bolt, in such manner as to press or force it back, so that its stud which projects through the tumblers, shall be borne against the rear sides of each of the front vertical slots of the series of tumblers. This done, some means are next resorted to, whereby the levers may be successively and carefully elevated, to the height necessary to allow of the passage of the bolt stud through the horizontal slots, of the tumblers, and into the rear vertical slot. The back pressure of the bolt is relied upon, to keep each tumbler at the proper elevation when raised thereto.

By examining my improved lock it will be seen, that the only chance a picklock has to operate on the tumblers, when the bit plate G, is removed from the revolving block D, is to insert some instrument in the block D, in the place of the said bit plate. We will suppose, for the sake of illustration, that he has by some means raised one of the tumblers to the height required. This being effected, the next operation to be performed by him, is to turn the block D, back to the position, which will enable him to insert a bit or some other instrument in the block, by which he can operate on some one of the tumblers. Generally speaking, the removal of the force from the bolt by which it is pressed back, as before described, would so relieve the raised tumbler from the pressure of the bolt stud, as to allow the weight of the tumbler to cause it to descend. The weight and friction of the bolt, however, may prevent this, and, therefore, in order to insure the fall of the tumbler I apply a contrivance to the bolt, which will throw it forward, or overcome its inertia, at the moment the block D, is moved for the purpose above named. The said contrivance consists of a lever *k*, (see Fig. 1,) which turns upon a pin or fulcrum at one end or at *l*, and is placed with respect to the bolt as seen in the drawing. It is forced against the lower side of the bolt, by a spring *m*, and when the bolt is thrown forward its (the lever's) upper end *n*, is thrown upward, into a curved cam notch *o*, cut in the lower edge of the bolt, as seen in Fig. 1. The said notch is to be so formed, that whenever pressure is applied to the bolt, in order to throw it back and cause its stud to bear against the rear sides of the front vertical slots of the tumblers, the inclined front side of the notch *o*, will slightly depress the end of the lever in contact with it. On removal from the bolt, of the force, by which it is thrown back, the pressure of the spring lever *k*, against the inclined front side of the notch *o*, will throw the bolt forward, so as to permit the raised tumbler to fall.

Having, therefore, described my improvement, I shall claim—

The revolving block (D) and bit plate (G) as applied to each other and to the bolt, and operating upon the bolt through a spring lever or other suitable contrivance connected to the bolt, the whole being substantially as herein above set forth.

In testimony whereof, I have hereto set my signature, this first day of January A. D. 1845.

JOHN OXNARD.

Witnesses:

EDWARD FOX,

THOMAS SEAL.