W. Johnson,

Lock.

No. 20,716. Patented June 29, 1858.

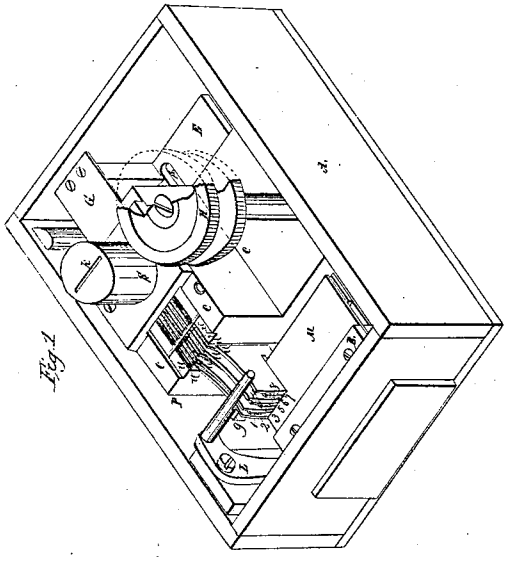

Fig. 1

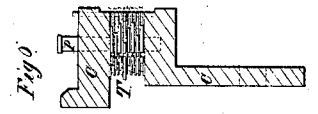

Fig. 5

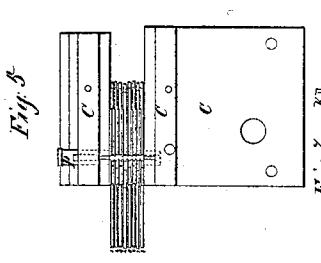

Fig. 6

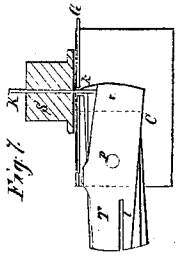

Fig. 7

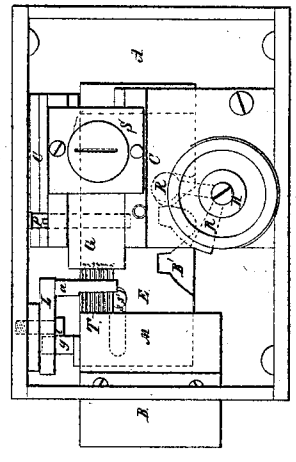

Fig. 2

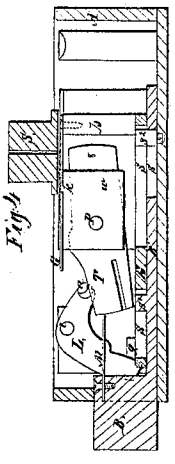

Fig. 4

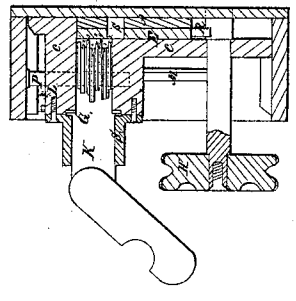

Fig. 3

UNITED STATES PATENT OFFICE.

W. JOHNSON, OF MILWAUKEE, WISCONSIN.

BANK AND OTHER LOCK.

Specification of Letters Patent No. 20,716, dated June 29, 1858.

To all whom it may concern:

Be it known that I, WILLIAM JOHNSON, of the city and county of Milwaukee, in the State of Wisconsin, have invented certain Improvements in Bank and other Locks; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in all the figures of which like letters and marks indicate like parts.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

Of the drawings Figure 1, is an isometrical view of the lock when unlocked; Fig. 2, is a top view of the lock when the bolt is thrown out; Fig. 3, is a transverse section; Fig. 4, a longitudinal section; Fig. 5, a top view of the tumblers in their frame; Fig. 6, a side view of the tumblers and their pivot, and Fig. 7, is a view of the tumblers when acted upon by the key, one side of the frame not being shown.

In each of these figures wherever so marked, A, indicates the case of the lock; B, the main bolt; C, the frame of the tumblers; E, the sliding bridge-plate; G, the sliding guard-plate; H, the handle of the wrench or bolt-key; K, the handle of the tumbler-key; L, an angular lever; M, rocking-stump or thrust-plate; P, pivot of the tumblers; R, R, two cams or studs on the inner end of the stem of the wrench or bolt-key; S, tumbler-key socket; T, the tumblers, which are numbered from 1 to 8.

B′ indicates the plate attached to the bolt; *a*, an elongated pin secured to the angular lever L, and extending over the tumblers; *b*, an upright piece connecting plates E and G; *g*, a pin or stud attached to the end of sliding plate E; *k*, marks the slot in the tumbler-key socket and also that in the sliding guard-plate G, for the passage of the tumbler-key; *l*, marks the screw which affixes the angular lever L, to the plate of the case of the lock; *s*, *s*, slots in sliding bridge-plate and in bolt-plate; *s′*, *s²*, pins for guiding these plates and fitting into the slots here named; *t*, slits in the ends of the tumblers for the thrust-plate M; and, *u*, guide plates between the tumblers.

It will readily be seen that, a lock constructed as is indicated by these several marks of reference on the drawings has full and ample provisions against being picked or being forced by pressure on the end of the bolt; and this lock, therefore, is a perfect security lock against the ordinary attempts of burglars. It will, also, be noticed that no springs are used in this lock, and that while on this account it is more difficult to pick by feeling for the tumblers in the usual way of lock-pickers, it is, also, less likely to get out of order or its parts to become deranged.

The leading features of this lock are:

First, that the tumblers are nearly or quite centrally pivoted, lying horizontally when the lock is on the door or placed vertically, having free play and not controlled or actuated in any way by springs. Hence when the bolt is thrown out for locking and the tumblers have been forced down behind the thrust-plate of the bolt, a pick introduced through the slot in the socket and guard-plate might press the one end of the tumblers down and press outward the ends next to the thrust-plate, but no indication could be obtained of the relation of the slits in the tumblers to that plate. The usual way of picking tumbler locks, therefore, would be unavailable.

Second, in the connection of the key-hole guard-plate to the sliding bridge-plate, which allows of the moving of the two plates by one common means.

Third, in interposing between the tumblers and the bridge-plate an angular lever, which while it depresses the tumblers at the proper time when the bolt is thrown out, acts as a lever to hold the tumblers against the thrust of the bolt when an effort is made to force the lock by pressure on the end of the bolt; and fourth, in so arranging the plate of the bolt with the bridge-plate and the guard-plate, that the three are operated by a common device and yet have different periods of motion.

These distinctive features will each be clearly seen by noticing the operations of the parts of the lock.

Fig. 1 of the drawings shows the bolt within the case, or the lock unlocked. The thrust-plate, M, is within the slits of the tumblers, the elongated pin, *a*, is resting upon the tumblers, the stud, *g*, of the sliding bridge-plate rests against the frame of the tumblers, and the guard plate and the sliding plate are to their extreme inner throw. The operative parts of the lock were brought to this position from that represent-

ed by Figs. 2 and 4, the locked condition, by the following movements. The handle, H, was moved to a slight degree, the one cam or stud, R, moving the bridge-plate and the guard-plate so as to bring the slot of the guard-plate in line with that of the key socket, and relieving the angular lever, L, from the pressure of the stud, *g*, of the bridge-plate. During this movement the bolt continued at rest. The tumbler-key was then inserted and the slits of the tumblers being brought in line with the edge of the thrust-plate, M, the further rotation of the handle, H, moved the cam R of the bolt-plate into its recess and thus brought back the bolt. In the movements thus recited it should be noticed that the tumblers are left by the key in the proper position for the entering of the thrust-plate, M, and so remain, the key being necessarily withdrawn to allow the further movements; for while the key is in its socket and in the slot of the guard-plate it prevents the guard-plate being moved, and by the connection of this plate, through the upright piece, *b*, prevents the motion of the bridge-plate and the bolt of the lock.

The changing of the lock from its unlocked to its locked condition, as represented by Figs. 2 and 4, is accomplished by the simple turning of the handle, H, toward the outer end of the bolt, each and every operative part of the lock deriving its motion either directly on indirectly from the two cams or studs of the bolt key.

Having thus fully described the construction and operation of my invention, what I claim as new and desire to secure by Letters Patent is—

1. Interposing between the key-hole of the lock and the rocking stump or thrust-plate of the bolt, centrally pivoted horizontal tumblers, which by the act of the key alone are brought into proper position to allow the unlocking movement of the bolt when the key is withdrawn, the whole being constructed and capable of being operated as herein set forth.

2. So connecting the sliding bridge-plate to the sliding guard-plate that the latter shall be moved, to bring its slot in line with the slot in the socket, by the motions of the bridge-plate, and allowing the bridge-plate motion only when the key shall be withdrawn from the socket, as herein described.

3. Interposing between the horizontal tumblers and the pin or stud of the bridge-plate an angular lever constructed as, and operated by the means herein described.

4. The arrangement of the bolt-plate with the bridge-plate and the guard-plate, in their relation to each other and to the moving parts of the lock, so that while being operarted by the same means they have different periods of motion, as herein set forth.

Milwaukee, June 1st, 1858.

WM. JOHNSON.

Witnesses:

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L. A. SCHMIDTNE.