

(No Model.)

G. T. HETZEL.
LOCK.

No. 532,877.

Patented Jan. 22, 1895.

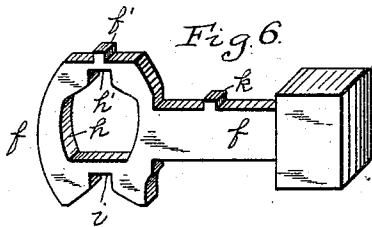
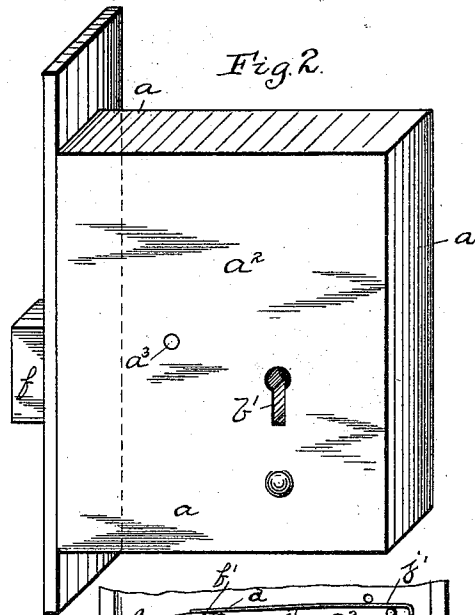
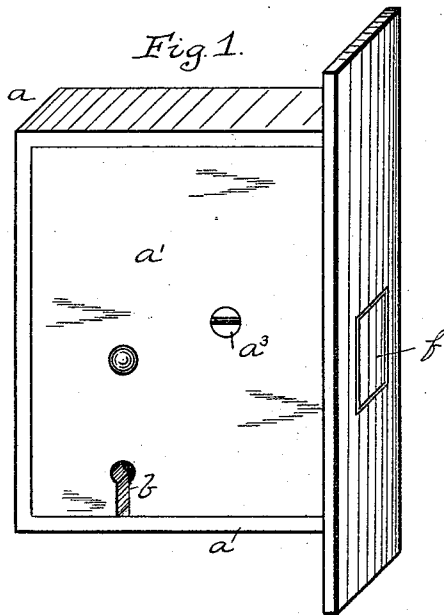
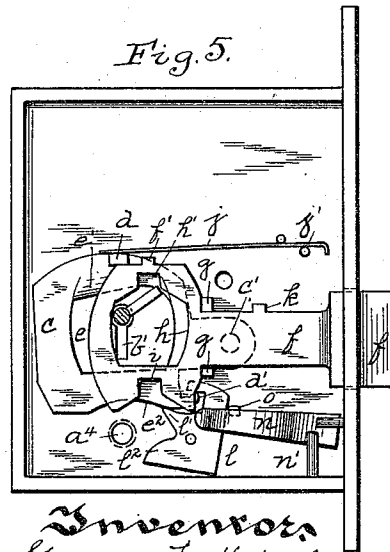
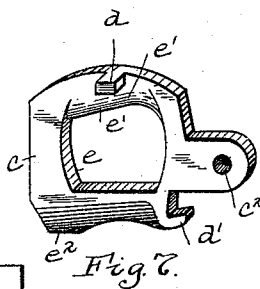
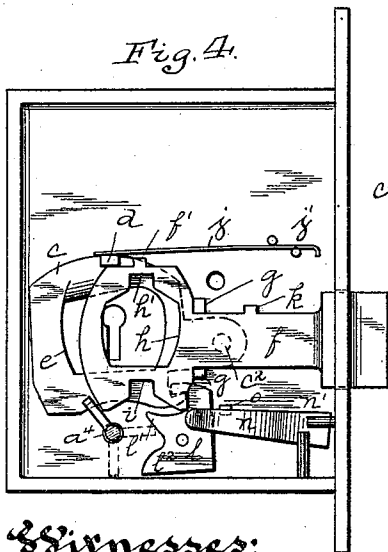
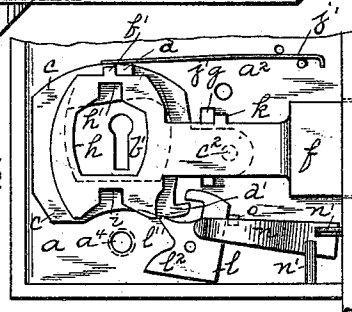


Fig. 3.



Witnesses:
Luella H. Knox.
Wm. H. Martin.

Inventor:
George T. Hetzel.
By Kay, Totten & Cooke,
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE T. HETZEL, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JOHN C. HETZEL AND CHARLES H. HETZEL, OF SAME PLACE.

LOCK.

SPECIFICATION forming part of Letters Patent No. 532,877, dated January 22, 1895.

Application filed February 6, 1894. Serial No. 499,270. (No model.)

To all whom it may concern:

Be it known that I, GEORGE T. HETZEL, a resident of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Locks; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to locks, and more particularly to that class of locks commonly known as tumbler locks, in that the tumbler must be raised by the key before the bolt can be moved.

The object of my invention is to provide a lock which is simple in construction and which has few parts, so that it is not liable to get out of order, while, at the same time, the locking mechanism is so protected as to prevent the picking of the lock.

To enable others skilled in the art to make and use my invention, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is an inside face view of my improved lock. Fig. 2 is an outside face view. Fig. 3 is a view of the interior of the lock showing the position of the locking mechanism when said lock is unlocked. Fig. 4 is a view showing the position of the locking mechanism when the lock is locked from the inside. Fig. 5 is a like view when the lock is locked from the outside. Fig. 6 is a view of the tumbler removed. Fig. 7 is a view of the bolt removed; and Fig. 8 is a view of the dog.

Like letters of reference indicate like parts in each of the figures of the drawings.

The box or shell *a* of my improved lock may be of the ordinary form, having the side plates *a'* *a''*, and the customary opening in the front face thereof for the passage of the bolt. One of said side plates *a'* is removable, being held in position by the screw *a''*. The inner plate *a'* is provided with the key-opening *b*, and the outer plate *a''* is provided with the key-opening *b'*. The inner face of the outer plate *a''* is provided with the recess *a'''* to receive the inner end of the key and act as a bearing therefor, and the inner plate *a'* is also provided with a like recess for the same purpose. These key openings *b* *b'* are

non-coincident, for the purposes hereinafter more fully set forth.

Within the box or shell *a* is the tumbler *c*, said tumbler being pivoted to one of the side plates, as at *c'*, by means of the pin *c''*. The tumbler *c* has formed on the upper portion thereof the lug *d*, and the lug *d'* at the lower portion thereof. The said tumbler *c* is further provided with the opening *e*, said opening being slightly beveled around the upper portion thereof, as at *e'*, to allow for the clearance of the key in the raising of said tumbler and the moving of the bolt when the key is turned within the key-opening *b'*. The lower portion of said tumbler is also slightly beveled, as at *e''*, for the same purpose when the key is turned within the key-opening *b*. The bolt *f* is held within suitable guides *g* in such position that the lug *f'* at the upper end of said bolt is normally held in engagement with the lug *d* on the upper portion of the tumbler *c*. The said bolt *f* is provided with the opening *h*, the periphery of said opening being of such shape and size as to allow for the turning of the key of any desired shape therein, and having the key-groove *h'* to receive the end of the key by which said bolt is moved. By having the tumbler *c* with the opening *e* and the bolt *f* with the opening *h* the key-opening *b'* is inclosed on the inside by a wall which prevents the picking of the key-opening *b* from the outside when the lock is locked from the inside, as will more fully appear. The lower end of said bolt *f* is provided with the key-groove *i*, which is engaged by the inner end of the key inserted in the inside key-opening *b* when said key is turned to move the bolt. A spring *j* secured within the box or shell *a* at *j'* is adapted, by means of its free end, to hold the tumbler *c* in such position that the lug *d* of said tumbler will be normally engaged by the lug *f'* of the bolt *f*. A stop *k* is formed on the bolt *f* adapted to regulate the distance to which said bolt can be withdrawn.

Pivoted below the tumbler *c* is the dog *l*, said dog being adapted to engage the lug *d'* on the lower end of said tumbler *c*, and so prevent the raising of said tumbler, as more fully hereinafter set forth. The dog *l* is pro-

vided with the projections l' l'' in the path of the end of the key when turned within the key-opening b , whereby said dog is thrown into or out of engagement with the tumbler c .

5 A spring n secured at n' within the box or shell a presses against said dog l and prevents the said dog from moving too freely. A stop o on the plate a^2 regulates the movement of said dog in that direction.

10 When it is desired to lock my improved lock from the inside the key is inserted in the key-opening b and turned, whereupon the said key turning in contact with the beveled portion e^2 said tumbler will be raised to re-

15 lease the lug d from engagement with the lug f' of the bolt, and upon the farther turning of the key, the said key entering the key-groove i , will move the bolt to the position shown in Fig. 4. Upon the farther turning

20 of the key said key will come in contact with the projection l^2 on the dog l and throw said dog into engagement with the lug d' on the lower corner of said tumbler c , while the spring j will hold the said tumbler down in its nor-

25 mal position. With the lock in the position shown in Fig. 4, to unlock the same from the inside it is only necessary to reverse the movement of the key, whereupon said key will come in contact with the projection l' of the dog l and

30 act to throw said dog l out of engagement with the lug d' of said tumbler, and upon the farther turning of said key the said tumbler will be raised and the bolt withdrawn. If, how-

35 ever, with the parts in the position shown in Fig. 4, the key is inserted in the key-opening b' in the outside plate a^2 and said key turned to raise the tumbler c , the dog l being in en-

40 gagement with the lug d' of said tumbler will prevent the raising of said tumbler to free the lug d from engagement with the lug f' , so that with the parts in the aforesaid position it is impossible to unlock the door from the

45 outside. On the contrary, if the key is inserted in the key-opening b' of the outer plate a^2 and the parts brought into the position shown in Fig. 5, the lock cannot be unlocked by inserting a key in the key-opening b in

50 the inner plate a' ; for if the key be inserted in said key-opening b in the inner plate a' the projection l^2 will prevent the turning of the key in one direction and the bolt itself

the turning in the opposite direction. The dog l will prevent the raising of the tumbler c and the consequent withdrawal of the bolt.

From the above construction it is appar- 55 ent that if the lock is locked from the inside any attempt to pick the lock from the outside would be futile from the fact that the key-openings are non-coincident, and from the fact that there is no open way for getting at 60 the inside key-hole from the outside key-hole, as the lower portions of the tumbler and bolt completely shut off the space about the outer key-hole and form a wall between said key-holes. 65

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

1. In a lock, the combination of the box or shell a , having key-openings b , b' , the bolt f , the tumbler c , the spring j , and the dog l , sub- 70 stantially as set forth.

2. In a lock, the combination with a box or shell having non-coincident key-openings, of a bolt having an opening therein coincident with one of said key-openings, a tumbler hav- 75 ing an opening therein coincident with said opening in said bolt, and mechanism adapted to retain said tumbler in a fixed position as to one of said key-openings when said bolt is shot, substantially as and for the purposes 80 set forth.

3. In a lock, the combination with a box or shell having key-openings on opposite sides thereof, the one above the other, of a bolt 85 having an opening therein coincident with the upper key-opening, and having a key-groove within said opening, a tumbler having an opening therein coincident with said opening in said bolt, said bolt having a sec- 90 ond key-groove in the outer edge thereof above the lower key-opening, and mechanism adapted to retain said tumbler in a fixed position as to one of said key-openings when said bolt is shot, substantially as and for the pur- 95 poses set forth.

In testimony whereof I, the said GEORGE T. HETZEL, have hereunto set my hand.

GEORGE T. HETZEL.

Witnesses:

ROBT. D. TOTTEN,
J. N. COOKE.