

F. D. PATTEN.
AUTOMATIC GRAVITY LOCK.
APPLICATION FILED SEPT. 20, 1911.

1,030,848.

Patented June 25, 1912.

Fig. #1

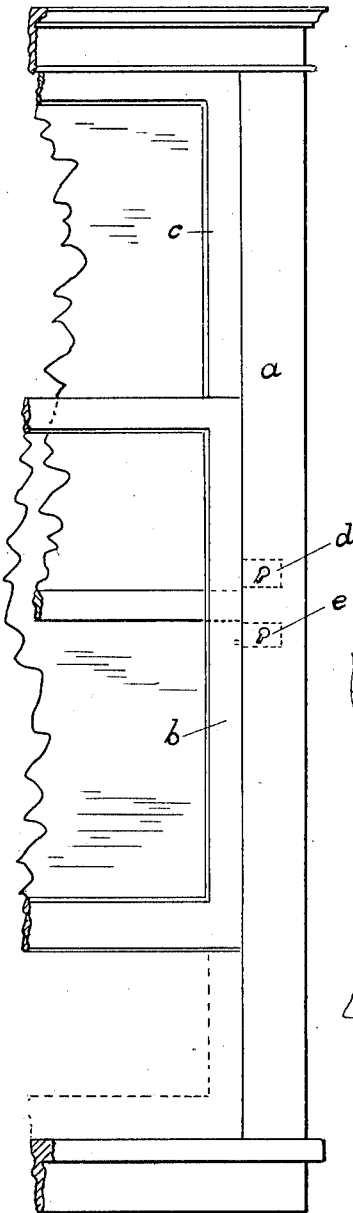
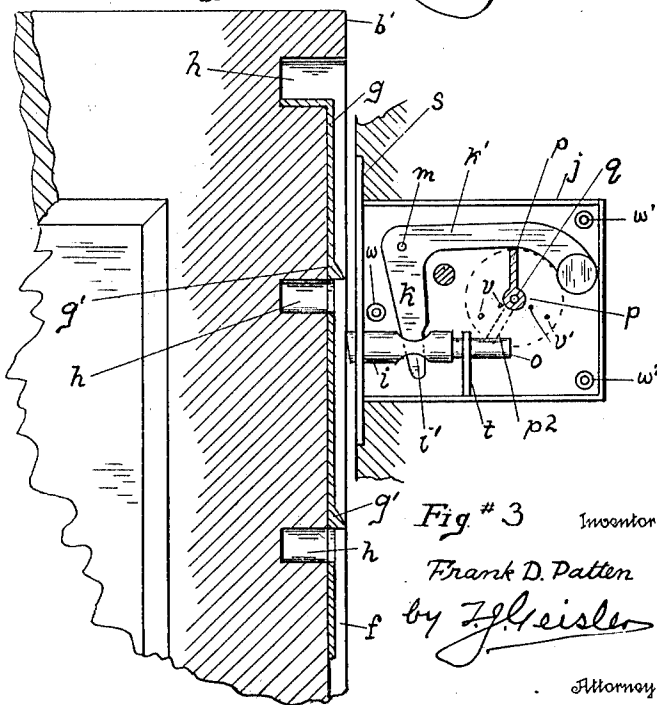
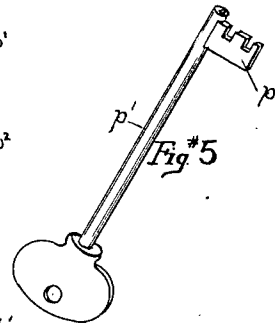
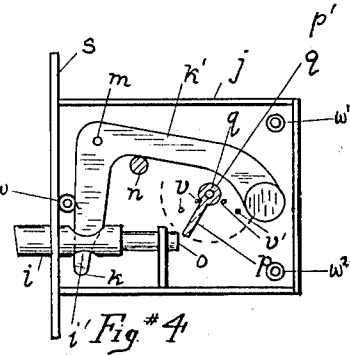
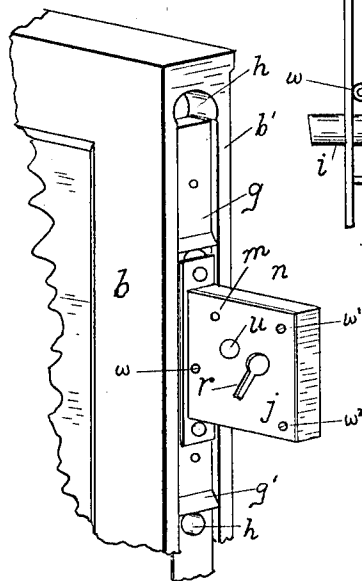


Fig. #2



Witnesses

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UNITED STATES PATENT OFFICE.

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AUTOMATIC GRAVITY-LOCK.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK DEVERE PATTEN, a citizen of the United States, and resident of Portland, Multnomah county, State of Oregon, have invented a new and useful Improvement in Automatic Gravity-Locks, of which the following is a specification.

The object of my invention is to obtain a lock, including a bolt, which is projected by a member operated by gravity instead of by a spring as in ordinary locks.

It is further my object to so arrange the parts that the key of the lock cannot be withdrawn, when once inserted, until after the projection of the bolt, so that the act of removing the key may be made the basis of determining whether the lock has been locked or not.

My invention also embodies the specific features hereinafter fully set forth; and in connection with my improvement it is also my special purpose to so construct my lock that it can be inexpensively made without sacrificing durability.

In the drawings my lock is shown as applied to the window sashes of a building, but, as apparent, it may be used with equal advantage on doors and all types of windows, including those of railway cars.

In the accompanying drawings: Figure 1 shows a partial interior elevation of a window frame, window sashes vertically movable therein and my improved lock in place for locking, independently, the upper and lower sashes; Fig. 2 is a perspective detail showing a corner of the lower window sash, one stile of which is provided with a locking plate adapted to cooperate with the bolt of my lock, which is mortised in the window frame, as also shown in this view; Fig. 3 is a sectional detail of the same parts shown in Fig. 1, also showing the lock, the front plate of which has been removed in order to show the arrangement and operation of the locking mechanism; this view illustrating the position of the parts while the sash is being moved from one locking point to another; Fig. 4 is a side elevation of my lock with the front plate removed, and shows the manner in which the bolt is projected by the gravity member; it also illustrates that the key, by which the gravity member is operated to retract the bolt, cannot be withdrawn without the bolt first having been projected to its locking position; and

Fig. 5 shows a perspective view of the key suitable for operating my lock.

a represents a portion of the window frame, b the lower sash and c the upper sash. At d and e the window frame is provided with my locks by which the lower and upper window sashes are independently locked in place as desired. In order to adapt the window sashes to be locked in place as mentioned, each thereof is provided, on the side face of the stile b' , with a longitudinal cavity f , in which is fastened a plate g , made with a plurality of ratchet teeth g' , and the stile face b' also having bored therein holes h to receive the bolt i of the lock when projected. The lock comprises a case j , a reciprocable bolt i , provided with a slot at i' to receive the tongue k , of the gravity member k' , pivoted at m . Normally the gravity member will operate to project the bolt i in the manner illustrated in Fig. 4. A stop pin n limits the downward movement of the long arm of the gravity member k' . The bolt i is formed with a stud o , which is engaged by the bit p of the key p' . The key is placed on a pin, q , therefor provided in the case. The front plate of the lock is provided with the usual key hole r , but the slot thereof is arranged at an oblique angle for the purpose of preventing the withdrawal of the key until it has been turned to the position which would project the bolt i , as illustrated in Fig. 4. The operation of turning the key so as to lift the long arm of the gravity member k' and thus retract the bolt is illustrated in Fig. 3.

In Figs. 3 and 4 p represents the key, and in Fig. 3 the dotted outline p^2 illustrates the fact that the key could not be withdrawn, that is to say, it could not be brought into the position required for withdrawing it from the slot of the case without first having moved the bolt i' into its locking position. In order to move a sash up or down, the key is first used to lift the long arm of the gravity member k' , so as to retract the bolt i ; the sash is then arranged so as to bring one of the holes h , in the stile of the window sash, opposite the bolt i , which is thereupon automatically projected by the gravity member k' ; and after having been so projected the key may be withdrawn. Should the bolt i of the lock for any reason stick in the hole h of the stile, it would be forced into its projected

or locking position by the turning of the key in the lock in the act of withdrawing the former.

s represents the end-plate of the lock, and *t*, a bearing for the stud end *o*, of the bolt *i*. The lock is mortised into the window case and is secured in place as usual. Parts not specifically described are understood to be a common arrangement and construction; and it is likewise to be understood that I do not confine myself in the construction of my lock to the particular details shown. In the lock case are provided pins *v* and *v'*, which the bit of the key is required to pass, and thus the lock can only be unlocked by the proper key.

The internally threaded studs *w*, *w'*, *w''* are for receiving screws for fastening the front plate of the lock.

I claim:

1. In a lock, the combination of a case, a bolt reciprocable in the case, adapted to be projected; a gravity member pivoted in the case having engagement with said bolt and adapted to normally project it; means in the case adapted for restraining the rotation of the key of the lock, when inserted, to a fixed axis; the parts being arranged to cause the long arm of the gravity member to be lifted by the bit of the key inserted in the lock by the turning of the key, whereby the bolt is retracted; and the case of the lock being adapted to prevent the withdrawal of the key from the lock until the bolt of the latter has been projected, so that the act of withdrawing the key assures that the bolt of the lock has been projected.

2. In a lock, the combination of a case, a bolt reciprocable in the case, adapted to be projected; a gravity member pivoted in the case having engagement with said bolt and adapted to normally project it; means in the case adapted for restraining the rotation of the key of the lock, when inserted, to a fixed axis; the parts being arranged to cause the long arm of the gravity member to be lifted by the bit of the key inserted in the lock by the turning of the key, whereby the bolt is retracted; and a projection on the bolt adapted for being engaged by the bit of the key when turned in the lock, said projection being adapted to prevent the complete turning of the key on its axis to the extent required to bring it to its withdrawing position unless turned in the direction causing the projection of the bolt, so that the act of withdrawing the key assures that the bolt of the lock has been projected.

3. In a lock, the combination of a case, a bolt reciprocable in the case, adapted to be projected; a gravity member pivoted in the case; said gravity member consisting of a long arm and a short pendent arm

terminating in a tongue, said tongue engaged with the bolt; means in the case adapted for restraining the rotation of the key of the lock, when inserted, to a fixed axis; the parts being arranged to cause the long arm of the gravity member to be lifted by the bit of the key inserted in the lock by the turning of the key, whereby the bolt is retracted; and the case of the lock being adapted to prevent the withdrawal of the key from the lock until the bolt of the latter has been projected.

4. In a lock, the combination of a case, a bolt reciprocable in the case, adapted to be projected, said bolt provided with a longitudinal slot; a gravity member pivoted in the case; said gravity member consisting of a long arm and a short pendent arm terminating in a tongue inserted in said slot of the bolt; means in the case adapted for restraining the rotation of the key of the lock, when inserted, to a fixed axis; the parts being arranged to cause the long arm of the gravity member to be lifted by the bit of the key inserted in the lock by the turning of the key, whereby the bolt is retracted; and a projection on the bolt adapted for being engaged by the bit of the key when turned in the lock, said projection being adapted to prevent the complete turning of the key on its axis to the extent required to bring it to its withdrawing position unless turned in the direction causing the projection of the bolt, so that the act of withdrawing the key assures that the bolt of the lock has been projected.

5. In a lock, the combination of a case, a bolt reciprocable in the case, adapted to be projected; a gravity member pivoted in the case having engagement with said bolt and adapted to normally project it; means in the case adapted for restraining the rotation of the key of the lock, when inserted, to a fixed axis; the parts being arranged to cause the long arm of the gravity member to be lifted by the bit of the key inserted in the lock by the turning of the key, whereby the bolt is retracted; and a longitudinally projecting stud on the inner end of the bolt adapted for being engaged by the bit of the key when turned in the lock, said projecting stud being adapted to prevent the complete turning of the key on its axis to the extent required to bring it to its withdrawing position unless turned in the direction causing the projection of the bolt, so that the act of withdrawing the key assures that the bolt of the lock has been projected.

6. In a lock, the combination of a case, a bolt reciprocable in the case, adapted to be projected; a gravity member pivoted in the case; said gravity member consisting of a long arm and a short pendent arm terminating in a tongue, said tongue engaged with the bolt; means in the case adapted

for restraining the rotation of the key of the lock, when inserted, to a fixed axis; the parts being arranged to cause the long arm of the gravity member to be lifted by the bit of the key inserted in the lock by the turning of the key, whereby the bolt is retracted; and a longitudinally projecting stud on the inner end of the bolt adapted for being engaged by the bit of the key when turned in the lock, said projecting stud being adapted to prevent the complete turning of the key on its axis to the extent required to bring it to its withdrawing position unless turned in the direction causing the projection of the bolt, so that the act of withdrawing the key assures that the bolt of the lock has been projected.

7. In a lock, the combination of a case, a bolt reciprocable in the case, adapted to be projected, said bolt provided with a longitudinal slot; a gravity member pivoted in the case; said gravity member consisting of a long arm and a short pendent arm terminating in a tongue inserted in said slot of the bolt; means in the case adapted for restraining the rotation of the key of the lock, when inserted, to a fixed axis; the parts being arranged to cause the long arm of the gravity member to be lifted by the bit of the key inserted in the lock by the turning of the key, whereby the bolt is retracted; and a longitudinally projecting stud on the inner end of the bolt adapted for being engaged by the bit of the key when turned in the lock, said projecting stud being adapted to prevent the complete turning of the key on its axis to the extent required to bring it to its withdrawing position unless turned

in the direction causing the projection of the bolt, so that the act of withdrawing the key assures that the bolt of the lock has been projected.

8. In a lock, the combination of a case, a bolt reciprocable in the case, adapted to be projected, said bolt provided with a longitudinal slot; a gravity member pivoted in the case; said gravity member consisting of a long arm and a short pendent arm terminating in a tongue inserted in said slot of the bolt; means in the case adapted for restraining the rotation of the key of the lock, when inserted, to a fixed axis; the parts being arranged to cause the long arm of the gravity member to be lifted by the bit of the key inserted in the lock by the turning of the key, whereby the bolt is retracted; a longitudinally projecting stud on the inner end of the bolt adapted for being engaged by the bit of the key when turned in the lock, said projecting stud being adapted to prevent the complete turning of the key on its axis to the extent required to bring it to its withdrawing position unless turned in the direction causing the projection of the bolt; and the case of the lock being provided with a key hole the slot of which is arranged to prevent the withdrawal of the key from the lock without first having been turned in the lock to such extent as to cause the bit to project the bolt, so that the act of withdrawing the key assures that the bolt of the lock has been projected.

FRANK DEVERE PATTEN.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."