(No Model.)

# B. S. MILES.

## LOCK.

No. 497,588. Patented May 16, 1893.

Fig 1

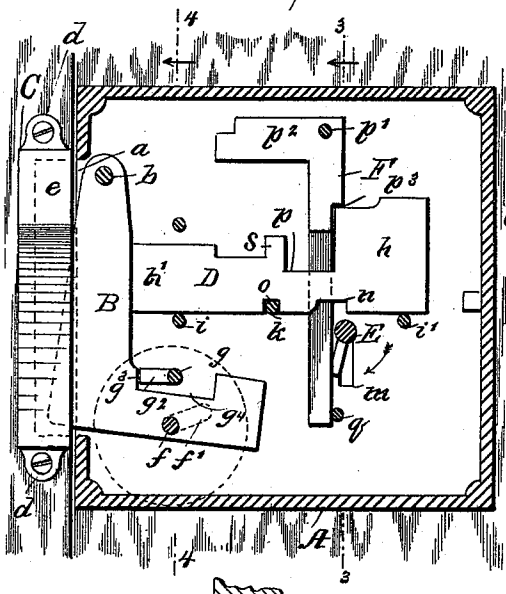


Fig 2

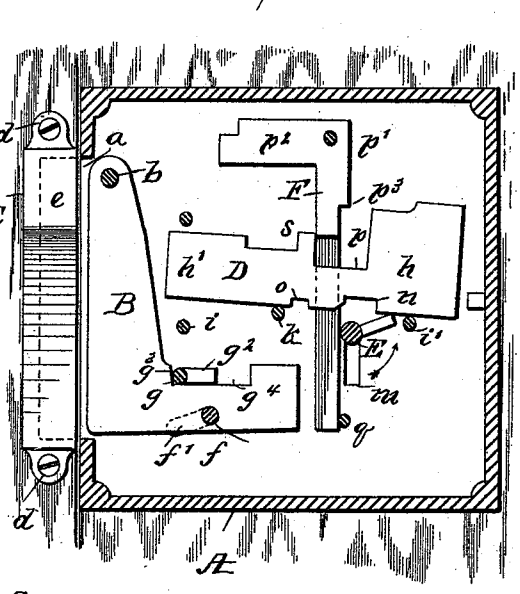


Fig 3

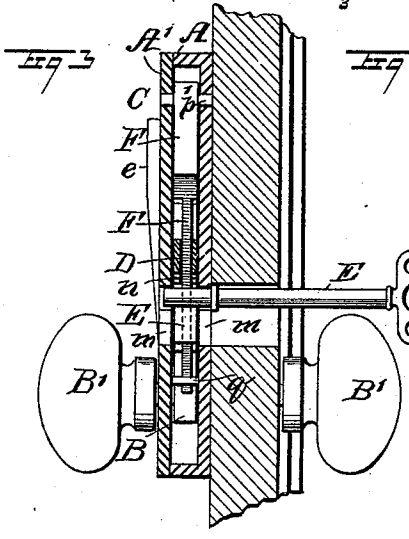


Fig 4

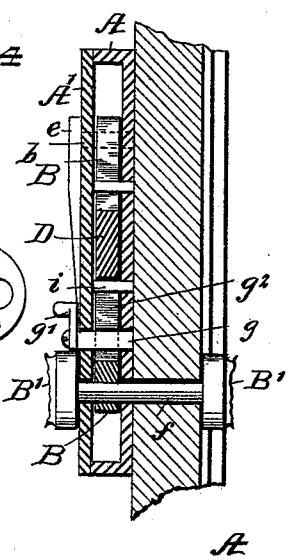


Fig 5

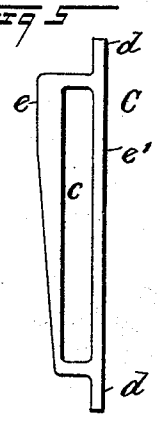


Fig 6

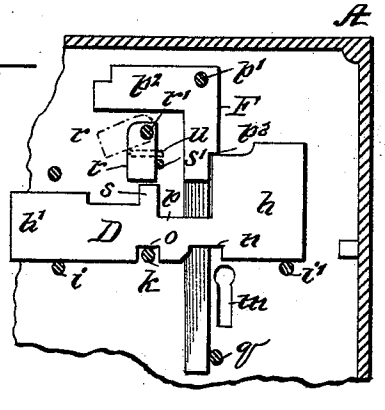
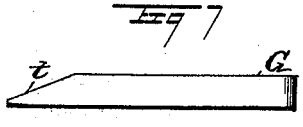


Fig 7



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# UNITED STATES PATENT OFFICE.

BRADFORD S. MILES, OF GRAY'S SUMMIT, MISSOURI.

## LOCK.

SPECIFICATION forming part of Letters Patent No. 497,588, dated May 16, 1893.

Application filed December 12, 1892. Serial No. 454,903. (No model.)

*To all whom it may concern:*

Be it known that I, BRADFORD S. MILES, of Gray's Summit, in the county of Franklin and State of Missouri, have invented a new and useful Improvement in Locks, of which the following is a full, clear, and exact description.

This invention relates to improvements in locks for doors, and has for its object to provide a novel, simple door lock and latch combined, which will be of cheap and durable construction and that will be reliable in operation either as a latch or lock.

To these ends my invention consists in the construction and combination of parts, as are hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front view, partly in vertical section, of the improvement in position on a door and its casement, showing the interior mechanism in locked condition and the latch bolt in engagement with a hasp plate on the casement. Fig. 2 is a similar view showing the interior mechanism in unlocked condition and the latch bolt out of engagement with the hasp plate. Fig. 3 is a transverse sectional view, on the line 3—3 in Fig. 1. Fig. 4 is a similar view on the line 4—4 in Fig. 1. Fig. 5 is an edge view of the improved hasp plate for the lock and latch. Fig. 6 is a partial vertical section of the lock case, showing a modified form of construction of the lock mechanism; and Fig. 7 is a side view of a special key employed with the modified construction of the lock mechanism.

The lock case A is of sufficient size to receive working parts, and by preference is made rectangular, a removable cap plate A′ forming one side of the case, and when in place retaining the working parts in proper relation.

An opening *a* is produced in one side wall of the lock case by removing material, so as to permit the free action of a bolt B. As shown, the bolt B consists of an L-shaped bar of such proportionate size as will render it effective in service, and is held pendently within the case A by a pivot screw or rivet *b* that projects from the side of the case and passes through a lateral perforation in the end portion of one limb of the bolt B, so that the latter will be adapted to hang free with one of its upright edges projected through and beyond the slot or opening *a* in the case, to have a locking engagement with a hasp plate of novel construction which will presently be described.

The hasp plate C is laterally recessed at *c* to receive the bolt B, and has an ear *d* formed at each end of the recessed portion, these being perforated to permit the hasp to be secured with screws on the jamb of a door casement, as shown in Figs. 1 and 2. The outer wall *e* of the hasp C is thickened near its upper terminal and slopes or decreases in thickness toward the lower end, thereby producing an incline on the outer surface which extends downward and toward the other wall *e′* which is seated upon the jamb of the casement and thereto secured.

At a proper point, the L-shaped bolt B is engaged by a transverse shank *f*, that projects through opposite slots *f′* in the side wall and cap plate of the case A for an attachment thereto of the knobs B′, these latter affording convenient means for manipulating the bolt to release it from the hasp plate C. The weight of the knobs B′ which hang from the lower limb of the bolt B aids in the normal projection of the locking edge of the bolt beyond the wall of the case A.

When a door having the improved latching device is vibrated toward the jamb whereon the hasp plate C is secured, so as to cause the edge of the bolt B which normally projects beyond the lock case, to impinge on the downward and rearward sloping edge of the hasp plate, such a contact of parts will cause the bolt to swing away from the hasp plate sufficiently to permit the door to be completely closed; the gravity of the bolt then causing it to assume its normal position, as indicated by full and dotted lines in Fig. 1, and thus latch fast to the hasp plate.

A simple and reliable means to secure the bolt B from release when latched in the hasp plate, without using a key, so as to afford an unpickable night-latch, is provided, and consists of a small shaft *g*, transversely journaled by its ends in opposite perforations of the lock case and its cap-plate, at a point which

will locate the shaft above the upper edge of the horizontal member of the "L" shaped bolt B.

A small crank handle $g'$, is formed on or secured to the end of the shaft $g$, that is in the lock case side wall which is within the house.

On the part of the shaft $g$ that is between the case sides, a lip $g^2$, is formed or secured, that is of a width which will permit it to move freely, and of such a length as will cause its free end to engage a shoulder $g^3$, formed on the bolt B, where its limbs join, and on the upper side of the horizontal limb.

To produce the locking shoulder $g^3$, there is an elongated notch $g^4$ formed in the upper edge of the horizontal limb of the bolt B, that will permit the shaft $g$, to be rocked so as to lock or release the bolt, the locking adjustment being effected when the bolt has been latched within the hasp plate C. It will be evident that if the lip $g^2$ is thrown so as to bear again the shoulder $g^3$, it will be impossible for the bolt B, to swing away from the hasp plate, and the door having the improvement will be secured against attempts to open it from the outer side unless a hole is made in the door to allow the intruder to reach the tripping handle $g'$.

The additional parts that constitute the preferred locking mechanism of the improvement, consist essentially of a tumbler bar D, which is parallel on the sides and of a suitable length, having one end $h$ made of greater width than the other end $h'$, which latter is located near the upright member of the L-shaped bolt B. The edge portion of the tumbler bar D that is lowermost, is straight for a part of its length, near each end, these straight parts resting upon two studs $i$, $i'$, or equivalent projections from the side wall of the case A, and at a proper distance from these studs another stud $k$ is projected from the case, between them and nearly in the same horizontal plane.

Opposite keyholes $m$ are formed in the case A and cap plate A' at such a point as will permit the ordinary key E to be inserted below and near the tumbler bar D, so that a rotatable movement of the key will cause its lip to have contact with the lower edge of the tumbler bar, raise it slightly and project it toward the upright limb of the bolt B, a notch formed at $n$ in the bar D, affording a shoulder for an engagement of the key therewith.

A locking notch $o$ is produced in the lower edge of the tumbler bar D at a proper point, which will represent the extreme movement of said bar toward the depending limb of the bolt B when actuated by the key E, so that when the tumbler bar is released from the key by a further rotatable movement of the latter, it will drop and the side edges of the notch $o$ will be caused to loosely embrace the stud $k$, thereby securely locking the projected edge portion of the bolt B within the hasp plate C, as shown in Fig. 1.

On the top edge of the tumbler bar D, a notch $p$ is cut, of a sufficient width to allow a proper vibration of the pendent check bar F that is loosely inserted through a slot in the bar, which slot extends through the latter directly below the notch $p$, the upper end of the check bar being pivoted to the case A at $p'$ so as to permit its main portion to hang pendent. An arm $p^2$ extends from the upper end of the check bar toward the bolt B, and by its weight causes the pendent portion of said bar to rest its rear edge against a stud $q$, and near the keyhole $m$. The function of the check bar is to prevent an accidental or designed displacement of the tumbler bar D, when the parts are in locked condition by the engagement of a locking shoulder $p^3$ on the check bar F with the upper edge of the part $h$ of the tumbler bar D.

To release the bolt B, the key E is inserted in the keyhole $m$ and turned in the direction of the curved arrow in Fig. 1, which will swing the check bar F so as to release the tumbler bar D, the check bar resuming its vertical position after the key releases it. The further rotation of the key raises the tumbler bar, removes it from the stud $k$ and slides it until it assumes the position shown in Fig. 2. The bolt B being now released a manipulation of either of the knobs B' will enable the operator to open the door. By closing the door and rotating the key in the direction of the curved arrow in Fig. 2, the reverse of the movements above described takes place, whereby the parts assume the position shown in Fig. 1, and the bolt B is locked in place in the hasp plate C, and can be further secured by rocking the shaft $g$, as before explained.

Should it be desired to render the improved lock more secure, a detent block $r$ may be employed in connection with the parts already described, which block is shown in position in Fig. 6, and consists of a comparatively small piece of metal nearly rectangular in contour and flat sidewise, that is pivoted to the side wall of the case A, near the lower edge of the arm $p^2$ on the check bar F.

The pivot $r'$ that loosely secures the detent block $r$ upon the case wall, is inserted through a transverse hole in said block near its upper edge, so that when the parts of the lock are in locked adjustment, the lower end of the detent block will hang above and close to the projection $s$ on the top edge of the tumbler bar, which projection forms a division wall between notches on the top edge of the bar named. A stud $s'$ that projects from the case side wall at a proper point, forms an abutment for the pendent detent block and limits the swinging movement of the latter toward the pendent part of the check bar F. It will be seen that if the detent block $r$ hangs in the position indicated in Fig. 6, a rotatable movement of the main key E will be prevented.

In order to release the block $r$ from a locking engagement with the tumbler bar D, a

special key G is required, see Fig. 7, said key comprising a straight bar of proper length, width and thickness, and having one of its ends *t* beveled from one edge toward the other edge, so as to produce a slope thereon.

The keyhole *u* for the special key G is formed as a slot in the side wall of the case A, so that it is nearly opposite the pendent body of the block *r*, and has its side edges at a right angle with and near a straight edge of the block *r*, which is nearest to the pendent body of the check bar F.

In use, the beveled end of the special key G is introduced within the keyhole *u*, a sufficient degree to rock the pendent block *r* away from the projection *s* on the tumbler bar D, so that the main key E may be manipulated to unlock the lock, as before explained.

The improved lock and latch herein described can be manufactured rapidly and at a low cost, and in use is as reliable as others that are much more expensive and complicated. It is further evident that from the construction of parts and their arrangement, no springs are needed to secure efficient action, and that durability is thus afforded to the working mechanism of the improved device.

The parts of the lock falling into their places by gravity alone, is an important feature of excellence which will conduce to their effective action, and avoid the friction of springs that in some forms of locks are required to move parts into place, when they are actuated by a key to lock or unlock the device.

I am aware that it is not new to arrange a pivoted swinging latch bolt so that it normally projects from a lock case to engage a beveled hasp or hasp plate, also that it is not broadly new to combine with such latch bolt rotatable operating devices and pivoted locking devices. But my invention involves peculiarities, or essential novelty, in the construction, arrangement, and combination of parts, which confer superiority and constitute an improvement in the art.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a door lock, the combination, with a rectangular case apertured at one side, an L-shaped pendent latch bolt within the case and normally projected by its gravity through the aperture in the case, and a latch plate sloped on its face and adapted thereby to vibrate the pendent latch bolt, of a sliding tumbler bar D, arranged horizontally notched to receive a key, and also notched to interlock with a stud projected from the side of the case, a pendent check bar F, pivoted at its upper end and loosely engaging a slot in the tumbler bar, and a rotatable key, substantially as described.

2. In a door lock, the combination with a case, a cap-plate therefor, a pendent L-shaped latch bolt within the case, and a hasp plate sloped on its face and adapted to rock the latch bolt, of a tumbler bar free to slide and adapted to lock on a stud projected from the case, a pendent check-bar passing through a slot in the tumbler bar, a rotatable key therefor, a pendent detent block adapted to lock the tumbler bar on the stud, and a vibratable key therefor, substantially as described.

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Witnesses:
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A. L. WILLIAMS.