

(No Model.)

2 Sheets—Sheet 1.

H. BRUNS.
LOCK.

No. 483,298.

Patented Sept. 27, 1892.

Fig. 1.

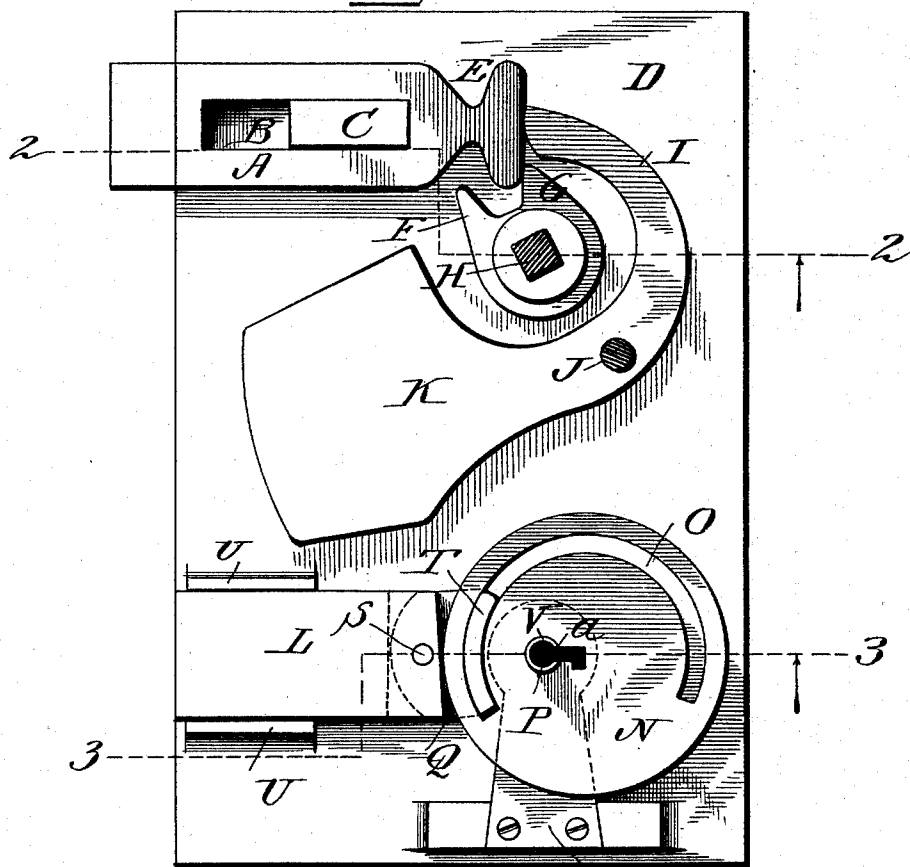


Fig. 2.

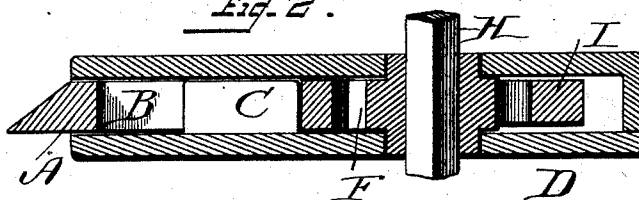
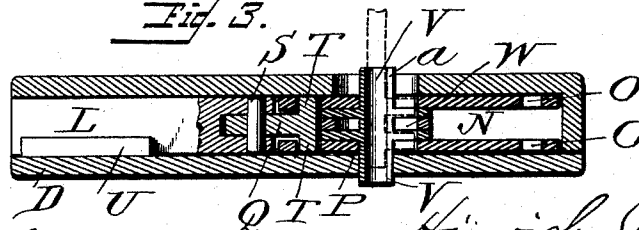


Fig. 3.



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2 Sheets—Sheet 2

No. 483,298.

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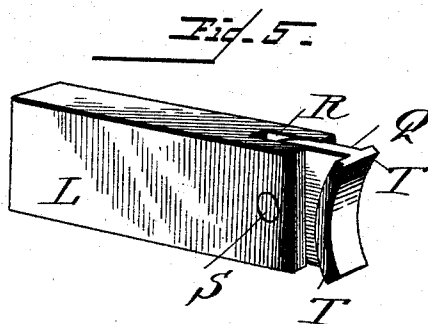
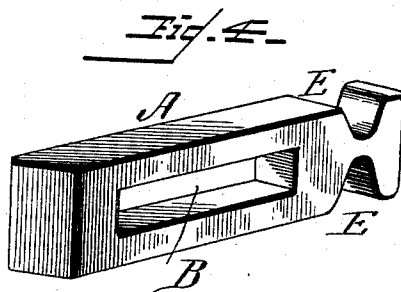


Fig. 6.

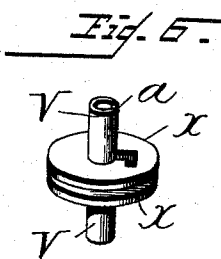


Fig. 7.

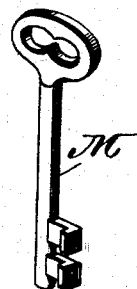
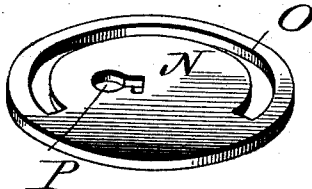


Fig. 8.



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UNITED STATES PATENT OFFICE.

HINRICH BRUNS, OF BREMERHAVEN, GERMANY.

LOCK.

SPECIFICATION forming part of Letters Patent No. 483,298, dated September 27, 1892.

Application filed August 15, 1891. Serial No. 402,728. (No model.)

To all whom it may concern:

Be it known that I, HINRICH BRUNS, a subject of the Emperor of Germany, residing at Bremerhaven, Germany, have invented certain new and useful Improvements in Locks; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in locks, and has for its object to construct a lock which will require no spring to move the latch of the bolt in either direction, by which improved manner of operating said parts will simplify the mechanism composing the lock and greatly add to the efficiency and positive action of the lock, lessen the liability of the lock to get out of working order, and increase its durability.

To the accomplishment of the foregoing objects and such others as may hereinafter appear the invention will be now particularly described, and then specifically defined by the claims, reference being had to the accompanying drawings, forming a part hereof.

Figure 1 is a side view of the lock with one side of its casing removed; Fig. 2, a cross-section on the line 2 2 of Fig. 1, both sides of the casing being in place. Fig. 3 is a cross-section similar to Fig. 2 on the line 3 3 of Fig. 1. Fig. 4 is a detail perspective of the latch; Fig. 5, a detail perspective of the bolt; Fig. 6, a perspective of the slotted thimble and its attached plates; Fig. 7, a perspective of the actuating-eccentric; Fig. 8, a perspective of the bracket, and Fig. 9 a perspective of one form of key.

In the drawings the letter A designates the latch, which is formed with a recess or slot B to receive a guide pin or stud C, which may be cast integral with the face-plate D or otherwise formed. This latch is formed near its rear end with a notch or recess E to receive the tooth or finger F, attached to or formed as a part of the sleeve or collar G, which receives the knob-spindle H, so that by turning the knob in one direction the latch can be drawn back to unlatch or unfasten the latch. Instead of having only one recess E, the latch

may be formed with a second one on the opposite side, as illustrated, so that the latch can be reversed and made to serve either a right or left hand lock. The latch is kept in the other position, that is—its projected position—by the pressure of a weighted lever or finger I, which bears against the end of the latch, so as to keep it normally projected, and at the same time yielding to pressure of the latch against it, whether caused by turning the knob-spindle so as to force the latch back or by pressure of the nose of the latch against its keeper, as in closing a door. The very moment, however, that the pressure is lessened, so that it is less than the weight of the lever, the latter will press the latch forward and cause it to be projected into its engaging position. This action is consequently accomplished without the employment of a spring of any form and insures a more positive action of the parts without liability of getting out of repair, besides reducing the number of parts employed and simplifying the general construction.

I prefer to attach the lever by mounting it loosely, so that it will turn upon a pivot J. The lever may be weighted by an increase of its metal, as illustrated at K, which may be of any desired shape and weight to suit the conditions under which it is to be used. It is preferred to so proportion the lever that it will at all times exert a constant pressure against the latch, thereby holding the latch in its locking or latching position by a constant and yet at the same time a yielding pressure. This is aided by having the guide stud or pin C so located that the latch will be stopped before the lever has exhausted its power. A proper proportion and arrangement of the parts for such action is illustrated in Fig. 1 of the drawings; but I do not mean to confine myself thereto.

The bolt L of the lock is actuated by an eccentric, which is moved in both directions through the instrumentality of a key M. This eccentric may be of any desired shape or construction that will serve the purpose; but the preferred construction is that illustrated, which consists of a plate or disk N, having a curved groove or slot O, which is eccentric to the axis P of rotation of the plate or disk. Into this groove or slot fits a projection on the rear or heel end of the bolt,

so that as the eccentric is turned in one direction or the other the bolt is thrown out or in to lock or unlock, as desired. I prefer to have the heel of the bolt formed of a pivoted member Q, which fits into a slot or kerf R, formed in the body of the bolt, and pivotally secured therein by a pin S. This pivoted member or block is formed with the projection referred to, which may be in the form of a flange or rib T, corresponding to the shape of the slot in the eccentric plate or disk. When the parts are so constructed and applied, the pivoted member or block will conform to the throw of the eccentric and the bolt will be shot out and in with ease without binding at any point, the bolt being guided in its movements by the guide lugs or flanges U, which may be cast integral with the lock-case or otherwise formed.

I have illustrated two eccentric plates or disks N, one placed above the other and both constructed alike, the pivoted member of the bolt having a projection or flange for the slot of each. This arrangement is preferred, as the power is then applied on both sides of the bolt; but I do not confine myself thereto, as one of them may be omitted.

The eccentrics are held in place by means of a hollow thimble V, which is formed with a longitudinal slot α , so that the key M may pass down through the thimble and engage the eccentric to turn the same. The key will be constructed to engage with each eccentric employed, so as to turn all of them, and the key for each lock may be constructed different from every other lock, so that each lock can be operated only by its own key. I have illustrated only one form; but it is to be understood that the forms may be numerous.

A bracket W extends from a stud or bearing-block, which may be cast integral with the lock-casing or be otherwise formed and have the bracket secured by screws or otherwise thereto. This bracket serves as a brace and guide for the thimble V and for the washers, plates, or disks X, secured to turn with the thimble and the eccentrics. The bracket W is cut at points where the bolt will be in its locked and unlocked positions to correspond to the shape of the web of the key, so that the key may be inserted and withdrawn at those points, but not at other points, the webs of the key at such other points fitting above and below the bracket, so that it cannot be withdrawn. I have described with some degree of minuteness such details; but I do not wish to be understood as confining myself thereto.

Under the construction described it will be seen that the bolt is operated by means of an eccentric which pushes the bolt forward and draws it backward, and the action is direct and positive, insuring directness of action with the smallest number of parts.

The construction and arrangements of parts illustrated are considered to be the best for the objects in view; but they may be varied

in details, as is obvious, without departing from the spirit of my invention.

The several parts will be held in place by the two sides of the lock-casing, which may be of any approved construction to serve the purpose.

By permitting the thimble V to turn and carry the plates or disks X the register between the openings in the plates and the bracket may be destroyed by simply turning one of said parts so as to take the openings out of register, and in that way a key is prevented from being inserted and the lock cannot be picked. The thimble can be turned by partially inserting or withdrawing the key and causing the web thereof to press laterally against the thimble sufficiently to turn it.

Having described my invention and set forth its merits, what I claim is—

1. A lock having a reversible latch formed on its top and bottom faces with a notch E, a gravity-lever having one end bearing directly against the rear end of the latch to thrust it forward and formed with a recess to receive a knob-spindle and collar thereon, and the knob-spindle fitting in said recess and provided with a collar having a finger to fit in the notch of the latch and bear against the latch, said spindle and collar being located below said latch, substantially as and for the purposes described.

2. A lock having a bolt, a pivoted member secured thereto, and an eccentric to which the pivoted member is connected, whereby the bolt is thrust forward and drawn backward by the movement of said eccentric, substantially as set forth.

3. A lock having a bolt formed with a projection on opposite sides thereof and an eccentric lying on each side of the bolt, having a way into which the projection on each side of the bolt fits, whereby said bolt is moved in opposite directions by said eccentric, substantially as set forth.

4. In a lock, the combination of the bolt having a projection thereon, an eccentric having a way to receive said projection, whereby the bolt and eccentric are moved together, a bracket, a slotted thimble passing through said bracket, and a key to pass through said thimble and engage the eccentric to turn the same to shift the bolt, substantially as set forth.

5. A lock having plates or disks formed with openings for the passage of a key and a movable sleeve connected with some of said plates or disks to turn the same and destroy the register to prevent the passage of a key, whereby the lock is prevented from being picked, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

HINRICH BRUNS.

Witnesses:

EWELL A. DICK,
WM. G. HENDERSON.