

No. 664,245.

Patented Dec. 18, 1900.

J. A. EASTMAN.  
LOCK.

(Application filed Mar. 28, 1900.)

(No Model.)

Fig. 1.

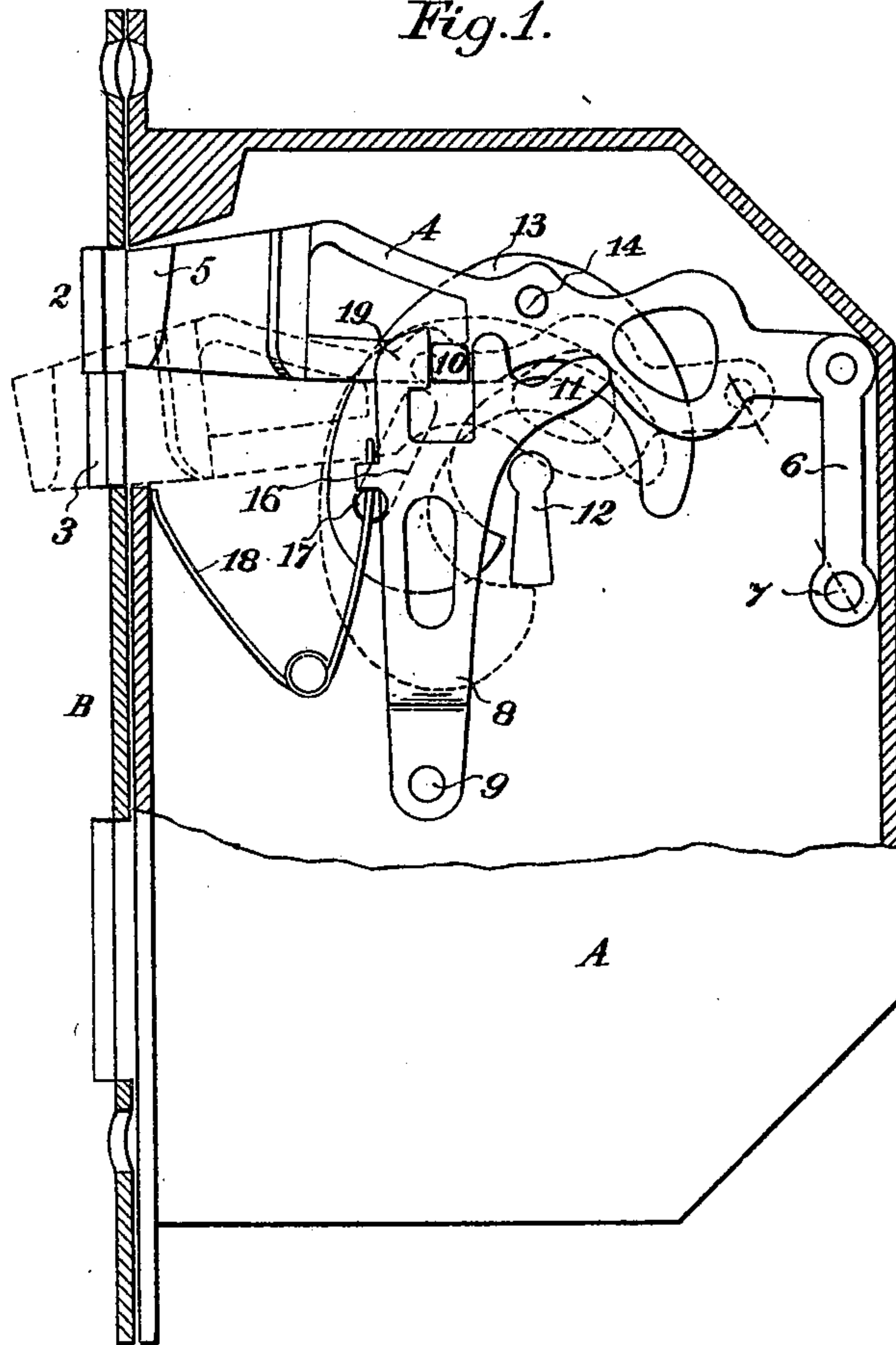
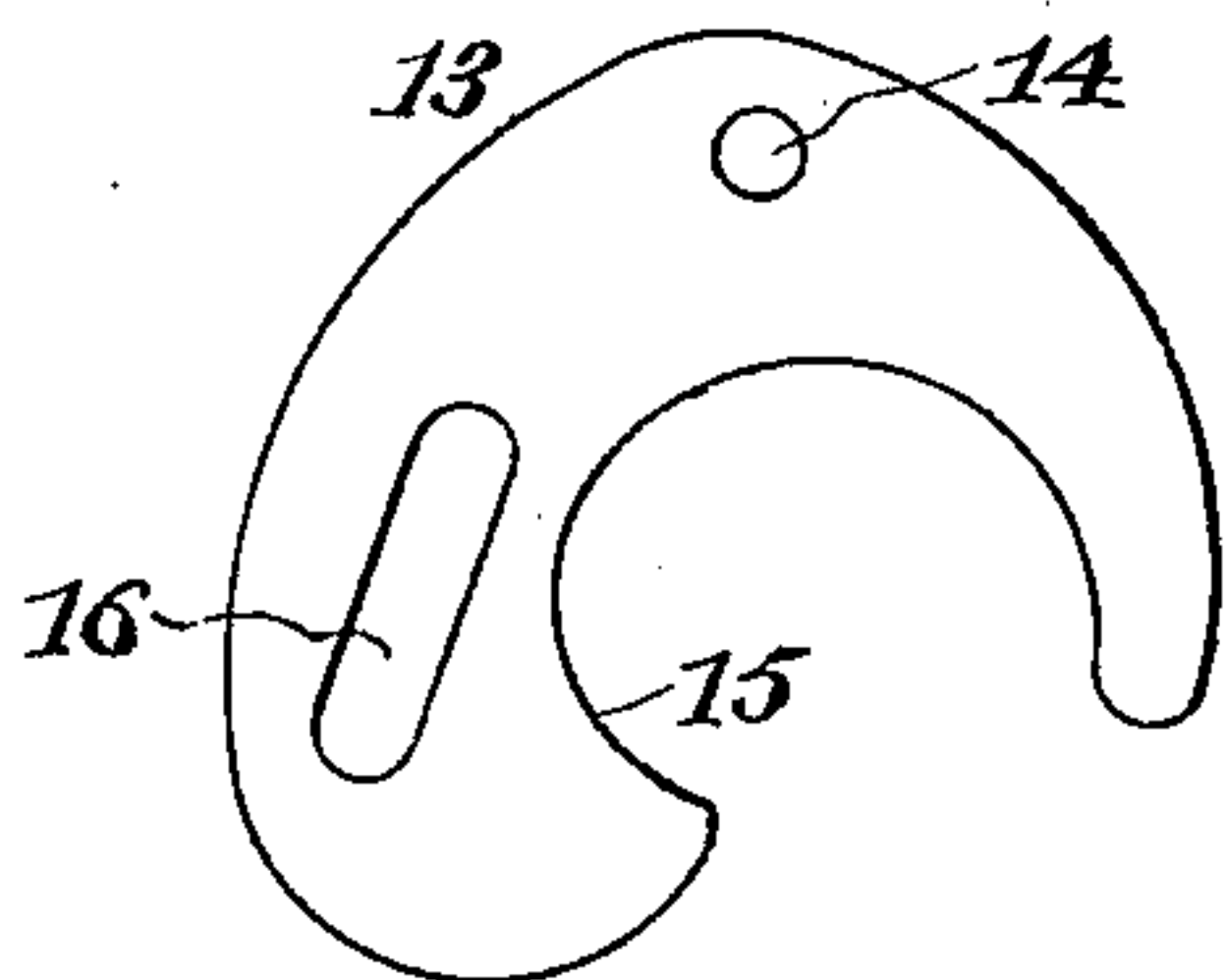


Fig. 2



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# UNITED STATES PATENT OFFICE.

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## LOCK.

SPECIFICATION forming part of Letters Patent No. 664,245, dated December 18, 1900.

Application filed March 28, 1900. Serial No. 10,482. (No model.)

*To all whom it may concern:*

Be it known that I, JOEL A. EASTMAN, a citizen of Canada, residing at Fruitvale, county of Alameda, State of California, have invented an Improvement in Door and Sash Locks; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a lock for doors, sashes, and other meeting parts which it is desired to secure and lock together. It is especially designed for locking sliding doors and like structures.

It consists of a locking bolt or latch having its rear end connected with a swinging link, whereby the outer end or head of the latch may be projected through the contiguous slots in the lock and the keeper, and mechanism by which the bolt is afterward depressed, so that its enlarged head will be engaged with the keeper by a positive movement, while a reverse movement of the parts will lift the bolt and carry it backward into the lock-case, which is fixed to one of the doors.

My invention comprises details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side view of the lock. Fig. 2 is a view of the crescent-shaped element in the lock mechanism.

This lock is especially designed to be used in conjunction with sliding doors or like structures the edges of which are brought together when the doors are closed and which are separated by moving them apart. Such doors are usually provided with a hook-latch or locking-bolt carried by a lock-case, which is fixed to one section of the door, while the other has a keeper with corresponding slots made in it into which the locking-bolt is moved by the action of the key.

It is the object of my invention to provide for such movements of the locking-bolt as will compensate for any settling or getting out of line of the doors and the lock-openings and the means for projecting the bolt forward through the two contiguous locking-openings and then depressing it, so that its enlarged head will engage with the narrower portion of the slot in the keeper, and to produce this action by positive movement independent of springs or like devices, the bolt

also acting when in engagement to draw the two doors together in case they are inclined to separate. A reverse movement of the bolt disengages it and lifts it and finally retracts it into the lock-case.

A is the part of the lock containing the operative mechanism, which is fixed to the edge of one of the door-sections, and B is the keeper, which is fixed to the other section, so that when the doors are closed the contiguous faces of these two sections are brought together. The keeper has a slot the upper part 2 of which is of sufficient size to allow the head of the locking-bolt to pass through it, and a continuation of this slot (shown at 3) is made of narrower diameter, corresponding approximately with the thickness of the shank of the bolt, so that when the bolt has been depressed the shank will fall into this part of the slot 3, and the head will be drawn back against the inner face of the keeper opposite the narrow slot, so as to draw and hold the doors together. The bolt comprises the shank 4 and the head 5, which is, as before described, of greater thickness than the diameter of the slot 3 of the keeper. The rear end of the bolt is pivoted to a link 6, which is fulcrumed within the lock-case, as shown at 7, so that it will swing sufficiently to allow the bolt to be advanced or retracted.

8 is a forked lever fulcrumed to the case A, as shown at 9, so that the upper forked end is in line with the bolt.

10 is a pin projecting from the side of the bolt-shank into the slot in the upper end of the lever 8. The rear side of this lever has a concaved curvature, as shown at 11, so that the bits of a key inserted through the key-hole 12 will engage this side of the lever and following the curvature 11 will cause the lever to swing about its fulcrum-point 9 and by reason of its engagement with the lug 10 will push the bolt forward, the swinging link 6 allowing the bolt to move so that the head 5 will be projected through the slot in line with it in the edge of the lock-case A and into the other slot 2 of the keeper, secured to the opposing door.

13 is a crescent-shaped piece pivoted to the bolt-shank, as shown at 14, and so curved that as the key is turned to advance the bolt the bits of the key in addition to engaging



with the lever 8 will also engage with the interior curvature of this crescent-shaped piece 13, and after the bolt has been moved forward by the action of the two, as previously described, the bits of the key following the interior curvature 15 of this link 13 will act by direct pressure to pull it and the head of the bolt down after the latter has been entered into the keeper of the opposite door.

This direct pressure serves to pull the bolt down, so that its shank lies in the narrow slot 3 of the keeper, and thus insures the locking of the two doors together, and by this device I am enabled to dispense with springs which would otherwise be necessary to press the bolt down and to pull it down by such direct pressure that it will insure its being locked before the key can be turned sufficiently to remove it from the keyhole. In order to insure the turning of the lower part 13 in unison with the forward movement of the upper part which follows the bolt, I have shown a slot 16, made in the lower part of the link, and a pin or lug 17, which is fixed in the lock-case, projects into this slot. The position is such that with the first movement of turning the key when the bits pass through the upper part of their arc of motion they engage the inner curvature 15 of the link 13 and move it and the bolt, the head of which stands in line with the slots of the lock-case and the keeper. The continued movement of the key, acting against the curvature 11 of the lever 8, causes the bolt to swing forward on its supporting-link 6, and by the forward movement of the lever 8 until the head 5 has passed through the larger portion of the slot of the keeper. As the key continues to turn the bits following the lower part of the curvature 15 of the link 13 will press the link downward, sliding upon its pin 17, and this will pull the head of the bolt 5 down, the shank falling into the narrower part 3 of the slot of the keeper, with the head 5 in line with this narrower portion. As the key finishes its revolution, so that the bits come in line with that portion of the keyhole which allows the key to be withdrawn, a spring 18, pressing against the front side of the lever 8, forces it back. The slotted upper end of the lever 8 has the front portion in the form of a hook, as shown at 19, and this hook overlaps or passes over the lug 10 of the bolt after the latter has been depressed into its locking position, thus holding it down and preventing its being lifted until it has been again advanced and raised by the turning of the key in the reverse direction. When the door is to be unlocked, the reverse movement of the key, following the curve 15 of the link 13, first presses the bolt forward and then lifts it until the head 5 is in line with the openings through which it may be retracted, and the pressure on the spring 18, together with the action of the key upon the link 13, withdraws the bolt into the locked case.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In a lock and in combination with its case, a locking-bolt and means whereby it has a combined longitudinal and vertical movement, means acting on the bolt for holding the latter in position within the case, a keeper having an opening into which the end of the bolt is projected at one movement, said opening having a reduced extension into which the shank of the bolt is moved in its other movement, said bolt having a head wider than its shank whereby it is prevented from being withdrawn endwise from said extension, and an attachment actuated by the turning of the key whereby the bolt is drawn downward into its locking position by direct pressure.

2. In a lock, a bolt, a swinging link to which the rear end is connected, a link pivoted to the bolt having a slot engaging a guide-pin in the case, said link having a concaved interior curvature with which the bits of the key engage, to raise, advance and depress the bolt.

3. In a lock, a bolt, a link having one end connected with the bolt and the other pivoted within the case whereby the bolt may be advanced and retracted with relation to said fulcrum-point, a second link having a slot movable upon a fixed guide-pin within the case, said link being pivoted to the bolt and having an interior curvature with which the bits of the key engage, whereby the bolt is advanced to engage the keeper and afterward depressed by direct action of the key upon the link.

4. In a lock, a bolt, a swinging pivoted link to which the rear end of the bolt is connected, a crescent-shaped link having one end slotted and movable upon a fixed guide-pin within the case, the other end connected with the bolt, said link having an interior crescent-shaped curvature which is engaged by the bits of the key when the latter is turned, whereby the head of the bolt is advanced into the keeper and afterward drawn down to interlock therewith, a forked lever having one end slotted, a lug upon the lock-bolt with which said slotted end engages, and a spring acting upon said lever to force it back and lock the bolt in position after it has engaged with the keeper.

5. In a lock, a casing upon one of the parts to be locked and a keeper upon the other, each having opposing contiguous openings with narrow extensions at the bottom, a bolt, the shank of which is of less thickness than said slotted extensions, having a head adapted to move through the upper and larger portions of the slots, and to lock against the narrower portions of the keeper-slot, a pivoted link with which the rear end of the bolt is connected, a link pivoted to the bolt having a concaved surface and a slot movable upon a fixed guide-pin, the concavity of said link lying in the path traversed by the bits of the key whereby the bolt is advanced and the head projected through the larger portion of the keeper-slot, then drawn downward into



line with the narrower portion, and a pivoted swinging lever having an overhanging hook at the upper end, a pin upon the bolt with which said hook engages when the latter has  
5 been depressed to its locking position, and a spring acting upon the link to force the hook into engagement with the pin on the bolt and to simultaneously draw the doors together.

6. The combination in a lock of a reciprocating bolt, having a head of greater diameter than the shank, a fulcrumed link to the free end of which the rear end of the bolt is connected, a second link pivoted to and turnable upon the bolt, a guide-slot in said link  
10 and a fixed pin entering the slot, said link having a crescent-shaped interior concavity in the line of travel of the bits of the key, whereby the head of the bolt is projected into

the keeper-slot and drawn down into line with its narrower portion, a spring - pressed lever 20 and a fixed pin about which it is turnable, the lever having an open slot in its upper end, and a hook which engages a pin upon the bolt when the latter has been depressed, said lever having a concave curvature of the rear upper 25 portion in the line of movement of the key-bits whereby the first movement to unlock disengages it from the pin on the bolt to allow the latter to be subsequently raised and retracted.

In witness whereof I have hereunto set my hand. 30

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Witnesses:

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