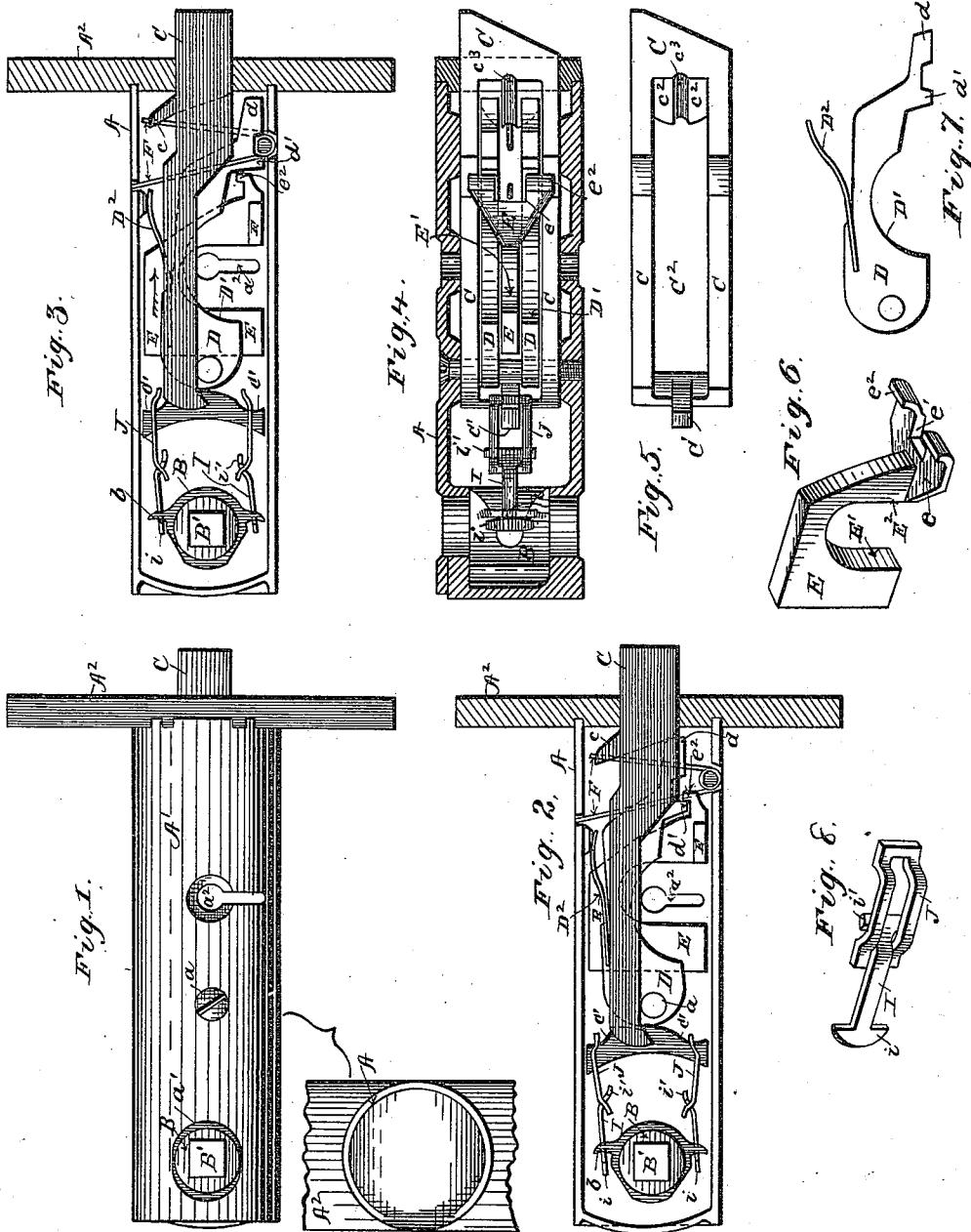


(Model.)

O. R. COOKE.  
LOCK.

No. 428,553.

Patented May 20, 1890.



Witnesses  
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# UNITED STATES PATENT OFFICE.

OSBORNE R. COOKE, OF SALEM, OHIO.

## LOCK.

SPECIFICATION forming part of Letters Patent No. 428,553, dated May 20, 1890.

Application filed May 28, 1889. Serial No. 312,350. (Model.)

*To all whom it may concern:*

Be it known that I, OSBORNE R. COOKE, of Salem, in the county of Columbiana and State of Ohio, have invented certain new and useful Improvements in Mortise-Locks; and I do hereby 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 pertains to make and use the same.

My invention relates to improvements in mortise-locks of the variety known as "barrel-lock," the object being to provide a strong, simple, and durable lock of the variety aforesaid reduced to such small compass that the barrel or cylindrical portion thereof may be inserted in a hole bored in the edge of a door of moderate thickness.

With these objects in view my invention consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

Heretofore the cost of attaching mortise-locks was likely to be as much or more than the price of a lock. My improved lock is designed to overcome in the main the cost of attaching the lock to the door, the same requiring no skilled labor and involving but little trouble and expense.

In the accompanying drawings, Figure 1 is a side elevation. Figs. 2 and 3 are side elevations with the cap removed, the former showing the tumblers in position locking the bolt and the latter showing the tumblers retracted and the bolt free to be operated from the knob-spindle attachments. Fig. 4 is a plan showing the casing in section. Fig. 5 is a plan of the bolt detached. Fig. 6 is a perspective of tumbler stock or yoke. Fig. 7 is a side elevation of one of the tumblers detached. Fig. 8 is a view in perspective of one set of links detached.

The barrel or cylindrical section of the lock is substantially in halves, respectively A and A', the former being rigidly secured to and the latter being detachably connected with face-plate A<sup>2</sup>, the cap or section A' being secured to member A by means of a single screw or pin *a*. The casing is provided on opposite sides with holes *a'*, in which is journaled hub B of the knob-spindle B'. The casing has also key-hole *a*<sup>2</sup>.

C represents the bolt, D D the tumblers,

and E a sliding yoke or stop for blocking the tumblers in position for locking the bolt.

Edge views of the bolt are shown in Figs. 2 and 3, while the plan thereof is shown more clearly in Fig. 4, the central portion of the bolt being cored or slotted at C<sup>2</sup> to receive the two tumblers and yoke E, the tumblers embracing the central portion of the yoke. Hub B is provided in the usual manner with a square socket for receiving the knob-spindle. In place of the long cams usually attached to this hub for withdrawing the bolt I provide the following: Hub B is provided on approximately opposite sides with loops *b b* for receiving links I, the latter having T-heads *i i'*. Hub B is provided with a deep groove *b'*, extending under and within the span of each loop *b*, and by turning link I edgewise to the periphery of the hub head *i* of the link may be passed through under the respective loops *b*, after which, by turning the link flatwise to the periphery of the hub, head *i* prevents the link from withdrawing from its embracing-loop, the link, however, having an easy fit in the loop. Links J are of the variety shown more clearly in Fig. 8, the same somewhat resembling a flat chain-link. Links J embrace links I, and the former embrace cross-bar C' of the bolt near the extremes of the cross-bar, the latter being notched at *c'* for seating the link, and the cross-bar extending so close to the casing as to prevent the slack link from slipping off the cross-bar in manipulating the lock. With such construction the parts are reduced to small compass, and the necessary end movement for withdrawing the bolt is secured by winding the taut links, so to speak, around hub B, the slack links meantime trending inward and taking care of themselves, and of course the bolt may be withdrawn by turning the knob in either direction.

Of course more and shorter links could be employed, but with the construction shown the links will wrap around hub B far enough for the purpose, something less than a quarter-turn of the hub in either direction being all the movement that is necessary. The bolt along the central portion thereof is offset upward to clear the line of the key-holes and to clear screw *a*. The outer end wall *c*<sup>2</sup> of slot C<sup>2</sup> slopes upward and inward, consti-

tuting an incline for purposes hereinafter mentioned, and along the central portion of this incline is a groove  $c^3$  for receiving bolt-spring F when the bolt is withdrawn. The bolt is also provided with an upwardly-projecting lug  $c$  for engaging the bolt-spring, whereby a longer leg, and consequently longer sweep of the spring, is secured. Tumblers D are fulcrumed on screw  $a$  and are arranged next inside the side members of the bolt. The tumblers are approximately of the form shown, except that section D' thereof for engaging the key may of course be varied according to the wards of the key. Each tumbler is provided with spring D<sup>2</sup> for depressing the tumbler, the free end of the spring bearing against the casing. The forward end of each tumbler terminates in a finger  $d$  for engaging the inclined wall  $c^2$  aforesaid of the bolt, and the under edge of the finger, near the inner end thereof, is notched, as shown, leaving approximately a square shoulder  $d'$ . But two tumblers are shown; but the number may be increased by making these tumblers thinner.

Yoke E fits easily between the top and bottom walls of the casing and fits easily between the tumblers and has a limited end movement, screw  $a$  constituting a stop for the yoke in the one direction. The key engages alternately the walls E' and E<sup>2</sup> of the yoke, but the arch of the yoke is high enough to clear the ward of the key that operates the yoke. The forward or outer end of the yoke terminates in a foot  $e$  broad enough to receive the different tumblers, this foot being notched at  $e'$  to straddle spring F, and the extreme of the foot having upturned toes  $e^2$ .

With the position of parts shown in Fig. 3 the tumblers are disengaged from the bolt, leaving the latter free to be withdrawn by the action of the knob-spindle mechanism aforesaid.

If it is desired to lock the bolt, the key is inserted and turned in the direction of the arrow, the first engagement of the key being with the tumbler, elevating the latter, so that fingers  $d$  engage incline  $c^2$  of the bolt, and in case the bolt-spring has failed to shoot the bolt its full throw the engagement with these fingers of the tumbler with the incline of the bolt will thrust the bolt outward its full throw. Meantime, and with the tumblers held elevated by the key, the latter engages wall E<sup>2</sup>

of the yoke, thereby moving the yoke forward and bringing the foot of the yoke under the notched section of fingers  $d$ , causing the toes of the yoke to enter the notches in the tumblers, the toes and shoulders  $d'$  interlocking. As the key completes its revolution the tumblers are depressed by the action of springs D<sup>2</sup>, causing the tumblers to rest firmly on the foot of the yoke, the latter, however, blocking the tumbler in such elevated position that the fingers of the tumbler are opposite wall  $c^2$  of the bolt, and consequently locking the bolt. By turning the key in the reverse direction the tumblers are first elevated by the key, after which the key by engaging wall E<sup>2</sup> of the yoke reverses the latter, bringing the parts to the place of beginning—that is to say, with the bolt unfastened. The arrangement of parts whereby the tumblers are pivoted on the securing screw or pin of the casing simplifies the construction and reduces somewhat the initial cost.

What I claim is—

1. The combination, with a sectional casing, a spring-actuated bolt, and a knob-spindle for actuating the bolt, of vibrating tumblers actuated by direct engagement of the key and adapted to engage the bolt and hold the latter in locked position, and devices adapted to slide back and forth and actuated in both directions by the key, the said devices adapted to hold the tumblers in contact with the bolt, substantially as set forth.

2. In combination, a bolt having a shoulder, vibrating tumblers for engaging such shoulder, and a sliding yoke for blocking the tumblers in their elevated position, substantially as set forth.

3. The combination, with a bolt having an inclined wall, of vibrating tumblers for engaging said inclined wall, whereby the elevation of the tumblers locks the bolt and insures a full outward throw of the bolt, substantially as indicated, and a sliding yoke having a projection for engaging the tumblers for blocking them in their elevated positions, substantially as set forth.

In testimony whereof I sign this specification in the presence of two witnesses.

OSBORNE R. COOKE.

Witnesses:

W. R. MILLER,  
RICHARD POW.