

(No Model.)

O. SMITH.

KEY.

No. 360,738.

Patented Apr. 5, 1887.

Fig. 1.

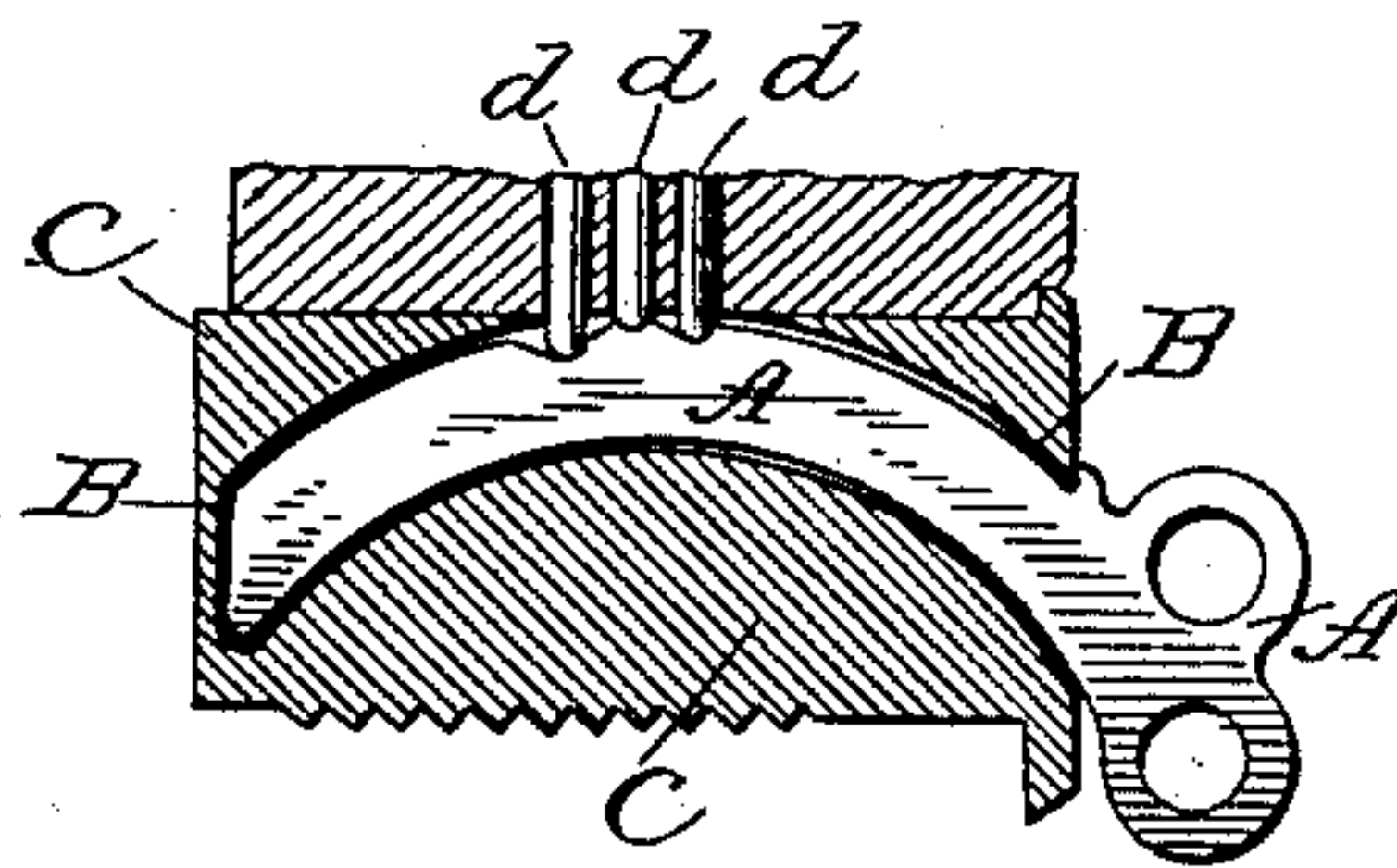


Fig. 2.

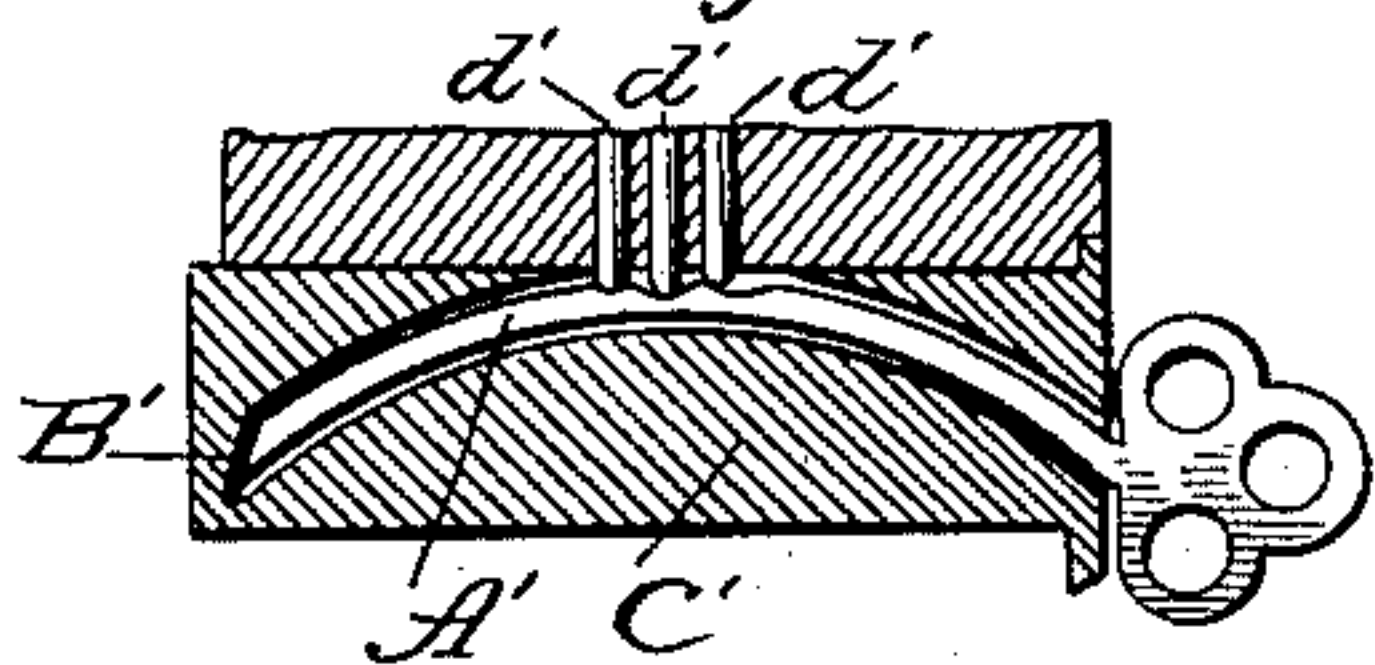


Fig. 3.

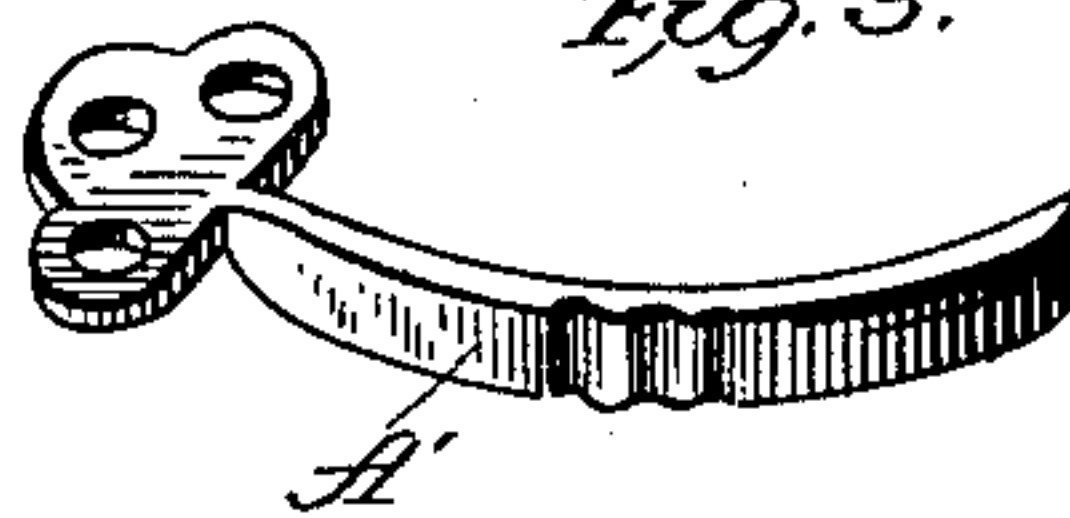


Fig. 4.

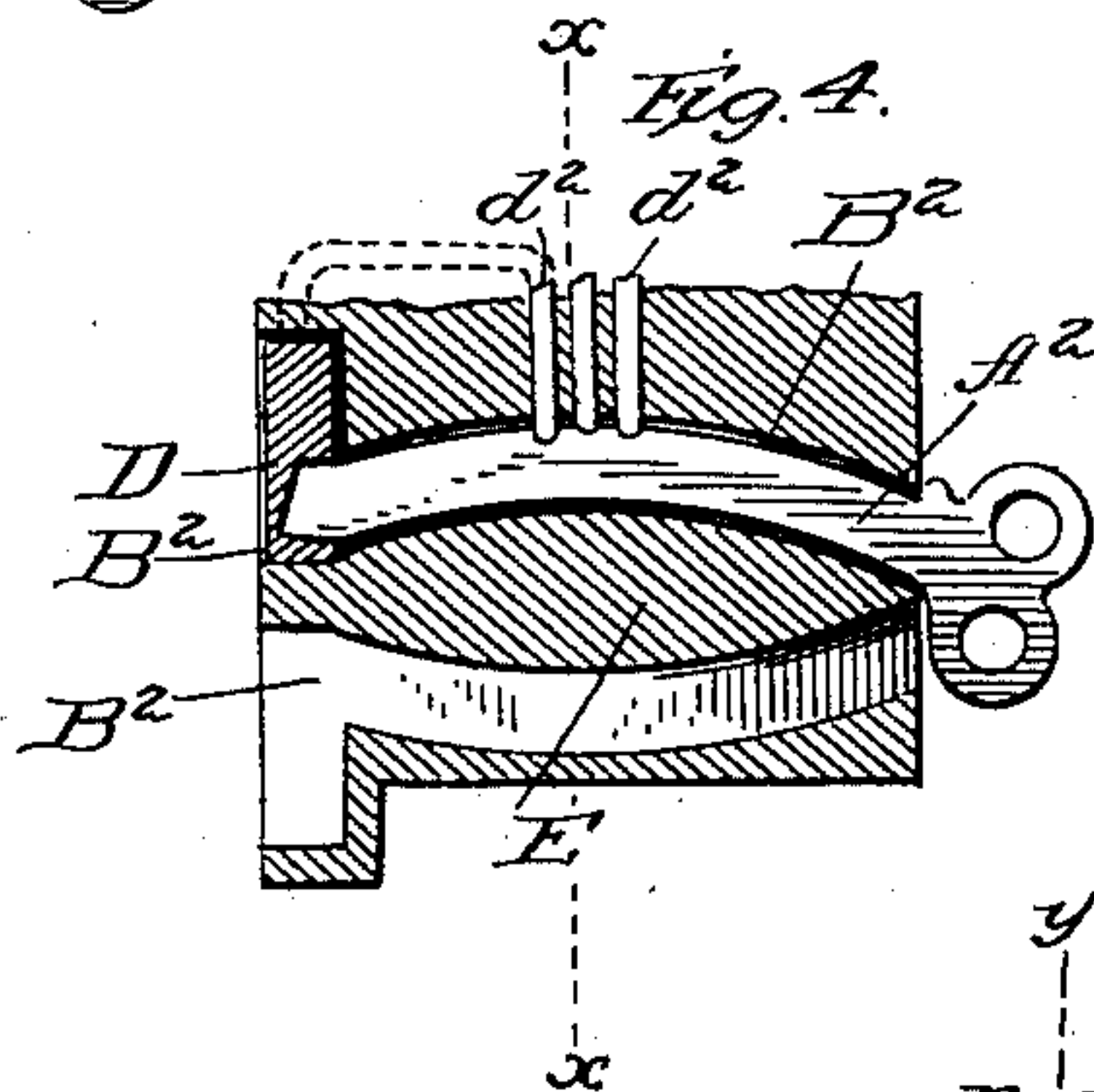


Fig. 5.

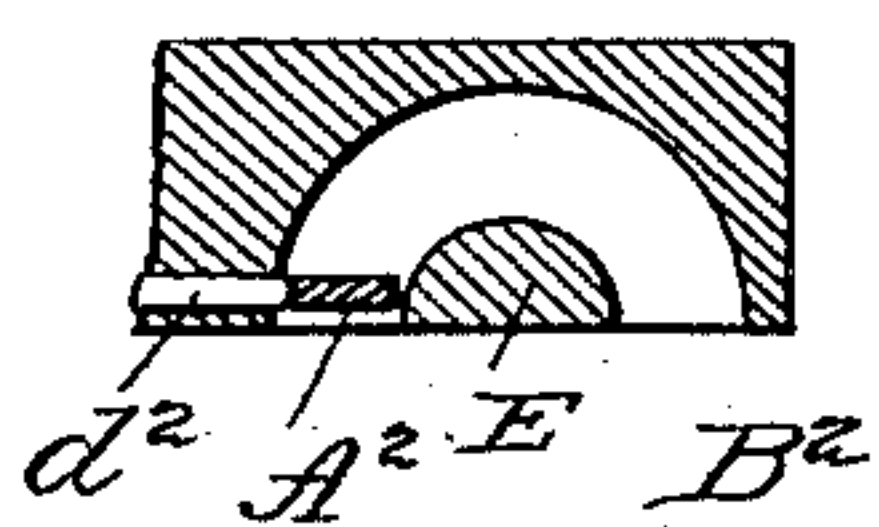


Fig. 7.

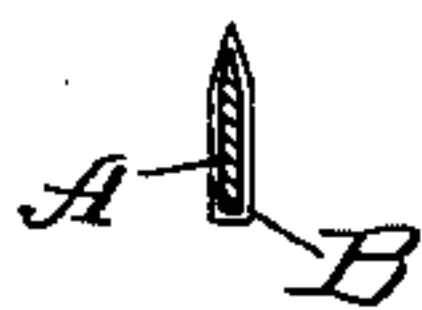
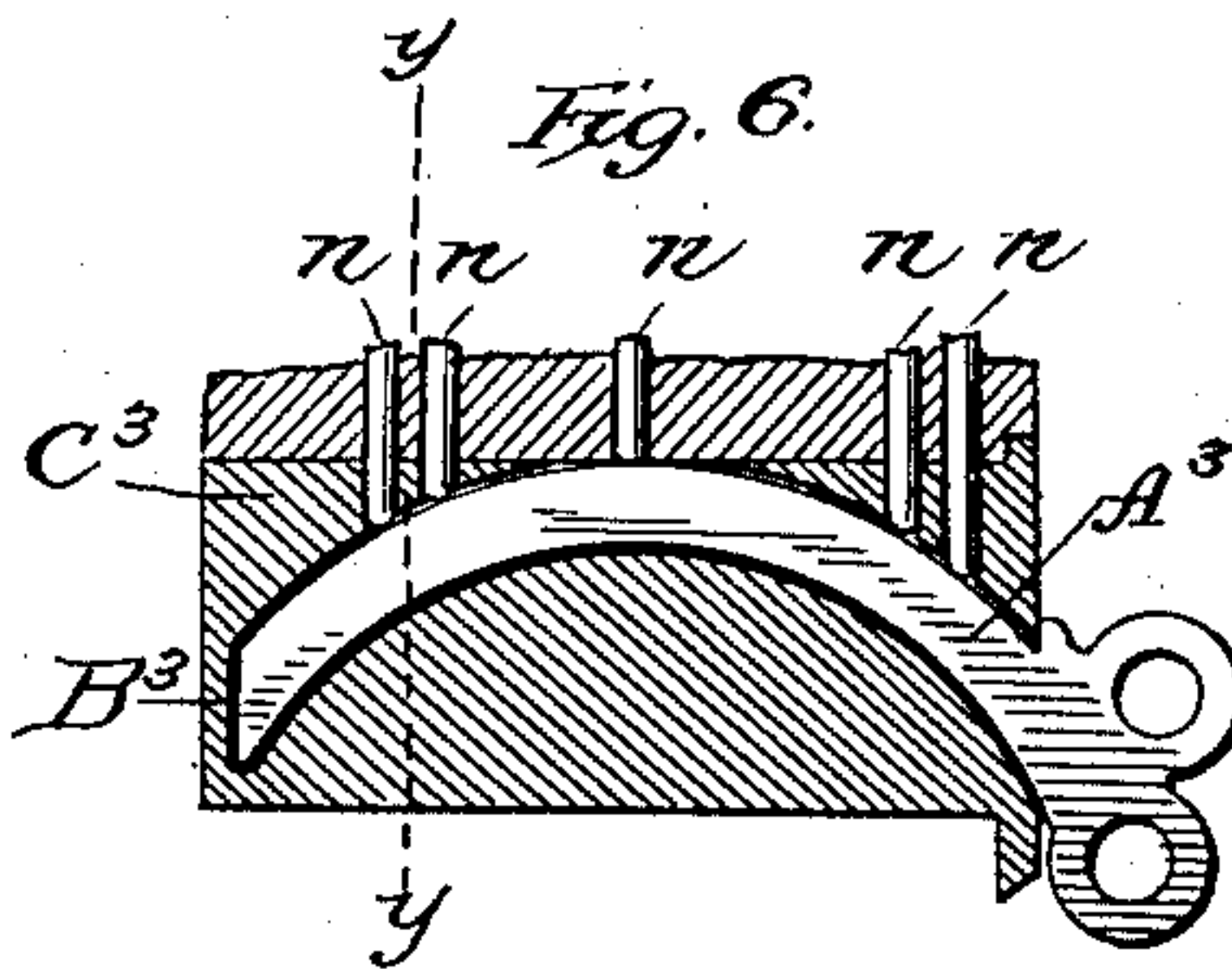


Fig. 6.



Attest:
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OSGOOD SMITH, OF CAMBRIDGE, MASSACHUSETTS.

KEY.

SPECIFICATION forming part of Letters Patent No. 360,738, dated April 5, 1887.

Application filed February 23, 1887. Serial No. 228,534. (No model.)

To all whom it may concern:

Be it known that I, OSGOOD SMITH, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Keys; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to keys for locks. It is more especially adapted for what is known in the trade as the "Yale Lock," but is not limited to the special form covered by that designation.

The objects of my invention are, first, to make the pins, tumblers, and bolts of the lock more difficult of access to unauthorized persons, and, second, to keep dirt from the lock by presenting a downwardly-curved surface to the key-hole.

My invention consists, essentially, of a rigid curved key, substantially of the form, and with the details of construction, all as hereinafter explained.

In the accompanying drawings, Figure 1 represents the key in side elevation and the barrel of the lock in longitudinal section. Fig. 2 is a similar representation of a key curved in the plane of its smaller diameter. Fig. 3 shows the last-named key detached. Fig. 4 represents a key in a slot without a barrel. Fig. 5 is a cross-section of Fig. 4 on line $x x$. Fig. 6 represents a modified form of Fig. 1. Fig. 7 shows an enlarged cross section of the key and slot shown in Fig. 6.

Referring to the drawings, the primary form of the key made according to my invention is represented at A in place in the key-slot B in the barrel C of an ordinary Yale lock. The key thus represented is like an ordinary Yale key, excepting that it is curved, and the same peculiarity distinguishes the slot or cavity of the barrel, this being curved to conform exactly to the curvature of the key. In this form the key is curved edgewise, and the bittings which operate the pins d are of ordinary or any approved form. It will also be understood that the ordinary bolt of a Yale lock may be used, and may be operated in the ordinary manner. The curvature of slot and key may be varied in different locks, and the liability of unlocking by unauthorized persons

thereby diminished, the special curve of key being required, as well as the special form and number of bittings.

In Fig. 2 I have shown the same structure as in Fig. 1, except that the key marked A' is curved flatwise, and the slot B' of the barrel C' is made to correspond. The bittings in this form lifting the pins d' are on the side.

In Fig. 4 I have shown the key above described adapted to a lock without a barrel. In this the key A² works in a slot or cavity, B², in the solid part of the lock, instead of in a barrel, as in the Yale locks. In this modification the slot B² is circular or semicircular in cross-section, and in its contour approximately oval, having a solid fixed center, E. The end of the key engages with the bolt D and lifts the pins d^2 in the manner already explained.

The position of the pins, the key, and cross-section of the slot are shown in Fig. 5. In the form of key shown, since security is provided for by the curvature of the key, the bittings may be omitted, as shown in Fig. 6, in which A³ represents a plain curved key adapted to lift the pins by contact of its edge therewith, and to put them in proper position to release the bolt, which may be moved in the ordinary manner. The barrel in this figure is represented at C³, and is provided with a slot, B³, and with pins n . In order that the pins in this form may not be operated by the introduction of a flexible wire or pick into the slot strong enough to hold the pins or tumblers in position while the lock is operated, I form the edge of the curved slot in the manner shown in Fig. 7, in which the upper edge is represented as that contiguous to the pins. The edge of the key is also beveled to fit this form of the slot, and this edge acts upon the pins. In this form the pins are operated by simply pushing in the key. In the figures heretofore referred to the pins have been shown as the representatives of equivalent forms of mechanism.

I am aware that prior to my invention a flexible key has been devised adapted to a curved slot, and I do not claim, specifically, a curved slot for the admission of a key in a lock.

I claim as my invention—

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1. A rigid curved key adapted to a curved slot in the lock, substantially as described.

2. A rigid curved key adapted to a curved slot in the lock, and having ordinary or suitable bittings for engagement with the pins or tumblers, substantially as described.

In testimony whereof I have signed my name

to this specification in the presence of two subscribing witnesses.

OSGOOD SMITH.

Witnesses:

CHAS. L. STURTEVANT,
FRANK L. MIDDLETON.