

Reinhard Schade Imp^t in Locks

PATENTED

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Fig. 1.

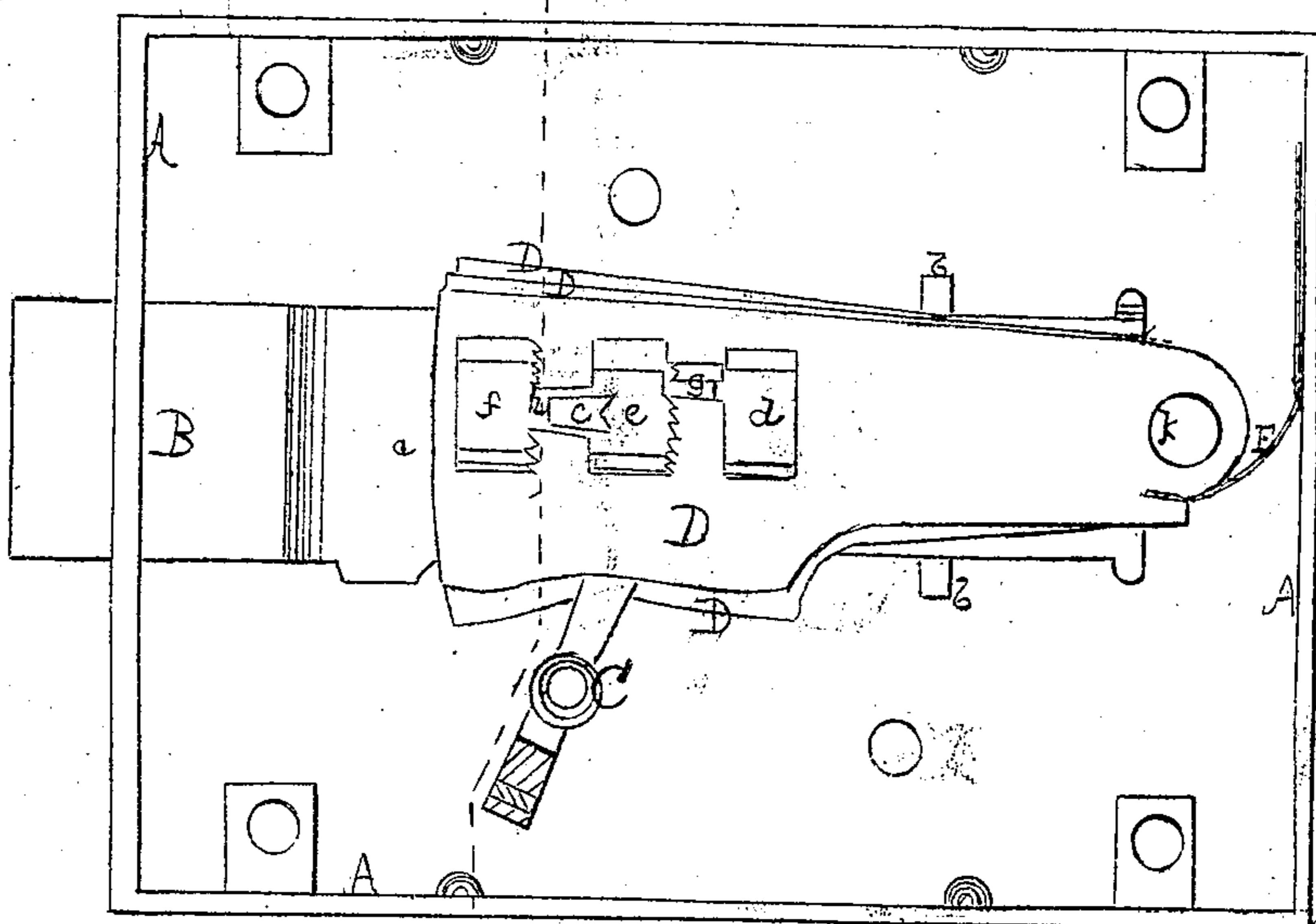
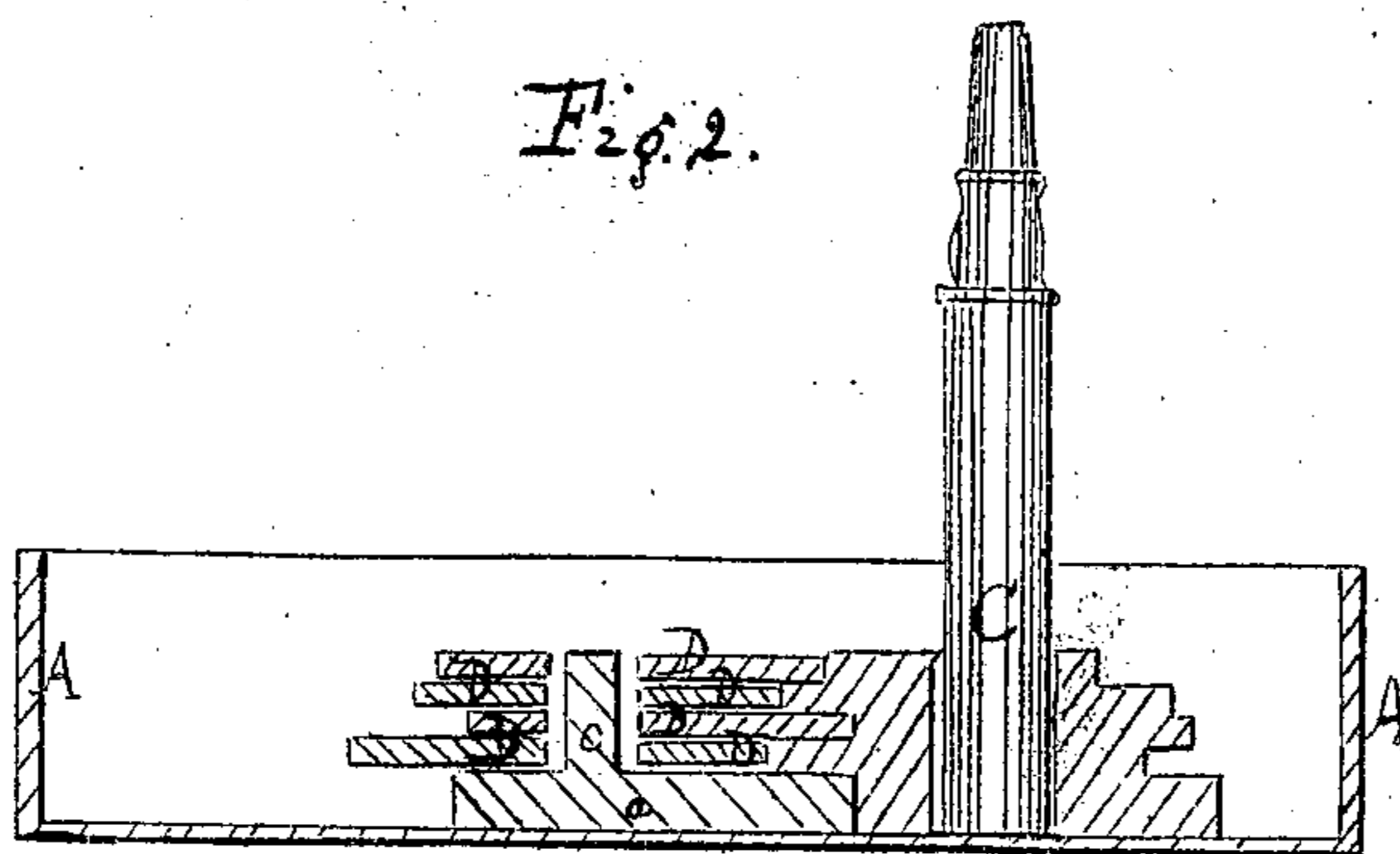


Fig. 2.



Witnesses

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REINHARD SCHADE, OF NEW YORK, N. Y.

Letters Patent No. 71,534, dated November 26, 1867.

IMPROVEMENT IN DOOR-LOCKS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, REINHARD SCHADE, of the city, county, and State of New York, have invented a new and useful Improvement in Locks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a plan view of the inside of the lock, the cap having been removed.

Figure 2 is a transverse section taken on the plane of the line *x x*, fig. 1.

My invention consists in the combination of a number of tumblers, each provided with three slots, and a passage-way from one slot to the other, and each having differently-formed lower edges, a bolt provided with a lug, which works in the slots, a double-bit key, and springs for keeping the tumblers in the desired position, all constructed and arranged substantially as will be presently described.

A designates the case of the lock, the cap having been removed. B is the bolt, and *a* its shank, the latter of less thickness or depth than the former. This bolt B lies against the back of the lock, and it is arranged to slide between two guides, *b b*, which latter control the length of its shoot. The lower side of the shank of the bolt is provided with two recesses, which receive, respectively, the bits on each side of the key. *c* is a lug, rising from the face of the shank of the bolt. C is the key, and it is provided with a bit on each side, whose cells are varied and different. D D D D are the tumblers. In the present instance, they are four in number, but more or less may be used, if desired. These tumblers are arranged to lie upon the shank of the bolt, and are held in position by a stump, K, passing through an eye in the end of each, and secured to the back plate of the lock. E designates a number of flat springs, one being secured to the rear end of each tumbler in such manner that it will press against the end of the case, and tend to keep the tumbler to which it is attached thrown downward. Other styles of springs can be employed for the same purpose, if desirable.

Through each tumbler D there are made three slots, *d e f*, and each slot is connected with that next it by another slot or passage-way, *g h*, respectively. These slots are sufficiently large to hold the lug *c* within them. These passage-ways *g h* are cut at such points through the walls, between the slots, that no two are in the same place, and each tumbler is differently formed or cut on its lower edge. The bit of the key to be used for the first turn is so formed that it will raise the several tumblers in such manner as to bring all the passage-ways *g* in line, so as to leave a clear track for the lug *c* to pass through to the slot *e*, and so it is for the other bit for the second turn of the key to throw the lug *c* into the other slot *f*.

The lug *c* has its rear edge of a v-shape, and the several walls between the slots on the forward edge are serrated, so that if any one of the tumblers should not be in exactly the right position, the corners of the lug will catch in the tumblers, and not have the capacity of sliding up the tumbler, however hard the key be turned.

It will be observed that a nicety of construction of all the parts of the lock is necessary, yet the lock is very simple, and is no more likely to get out of order than the commonest style of lock.

The operation is as follows: The key is inserted so that its proper bit will first act on the tumblers, for raising them, in order to throw forward the bolt. To facilitate the proper insertion of the key, the key-hole may be made so that the key can be inserted in but one way; for instance, where the bits are not of the same length. The bit enters the first recess; the bolt and the tumblers rest in the corresponding cells in the bit. On turning the key, the tumblers are raised, and, at the time that the passage-way *g* is clear, the bit throws forward the bolt, the lug *c* passing through the passage-way *g* and into the slot *e*. The bit on the opposite side of the key operates upon the tumblers until a like result is produced, namely, that of throwing the lug *c* into the slot *f*.

In fig. 1 the lug is shown as passing through the passage-way *h* to enter the slot *f*, it having passed through the slot *g*, which, at such stage of the operation, is obstructed.

This lock is, therefore, "double-shoot," so called, and it is, practically, a lock which cannot be picked.

I am aware of locks in which the tumblers have been so arranged that the bit of the key lifts them so that a pin on the bolt will pass from one recess to another. I do not, therefore, claim broadly such construction of locks.

I am aware that a lock whose tumblers are operated by a double-bitted key, dissimilar on its two sides, is not new, and I do not claim such arrangement.

What I do claim as my invention, and desire to secure by Letters Patent, is—

The combination of the tumblers D, each provided with three slots, *d e f*, and passage-way *g h*, double-bit key C, bolt B *a*, lug *c*, and springs E, or equivalents therefor, the whole arranged and operating substantially as and for the purpose herein specified.

REINHARD SCHADE.

Witnesses:

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JOHN R. COOPER.