

(No Model.)

A. O'KEEFE.
LOCK.

No. 525,615.

Patented Sept. 4, 1894.

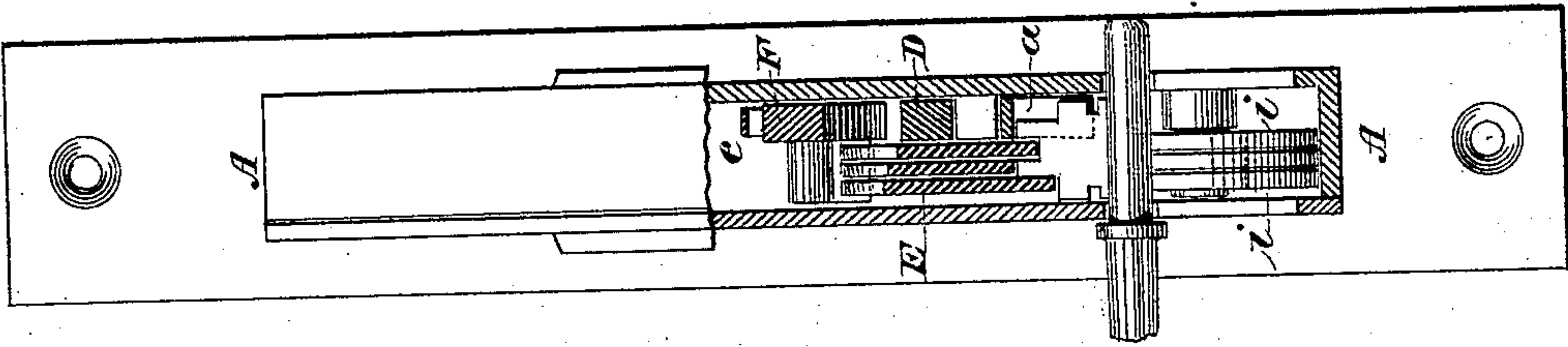


Fig. 3.

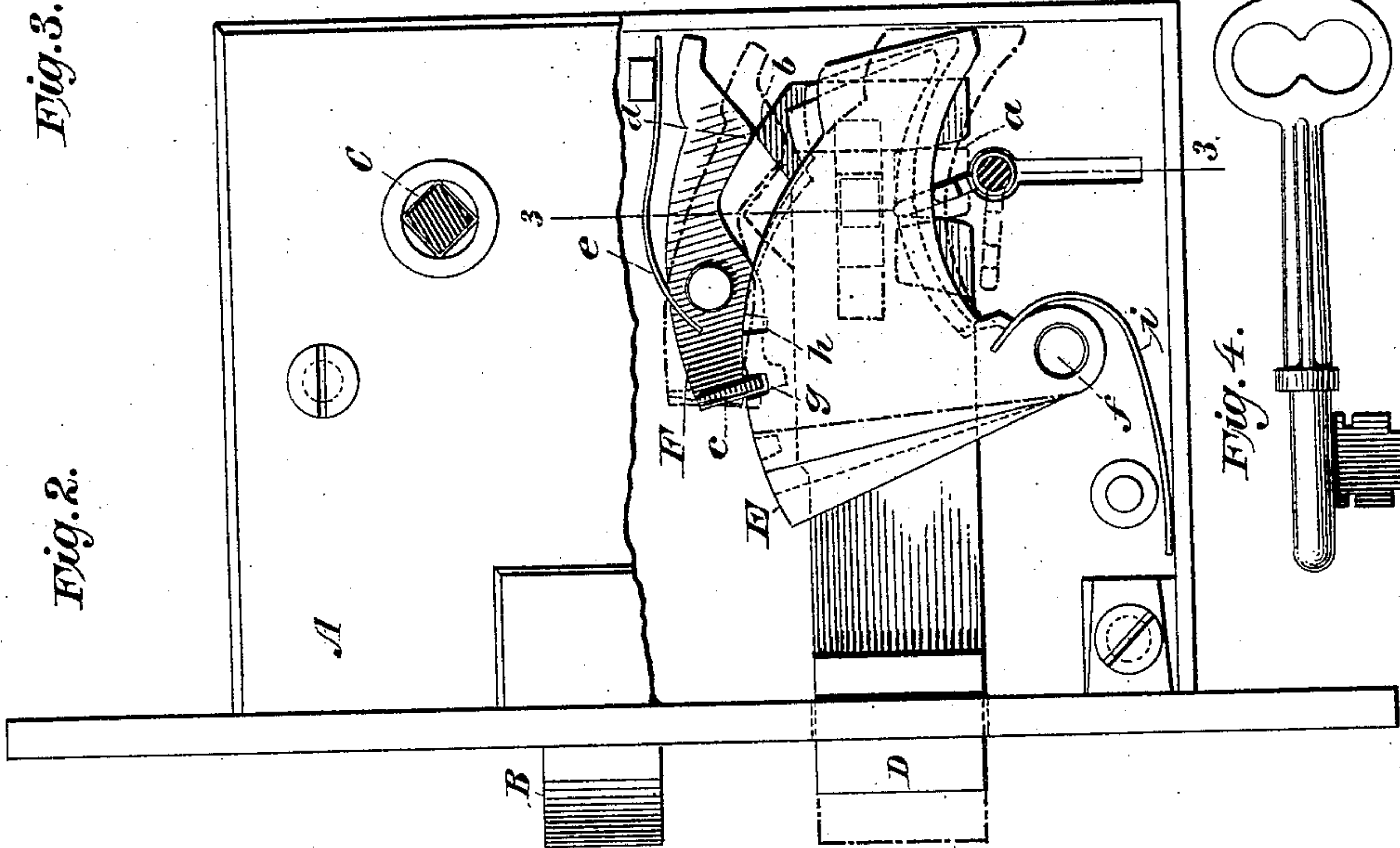


Fig. 2.

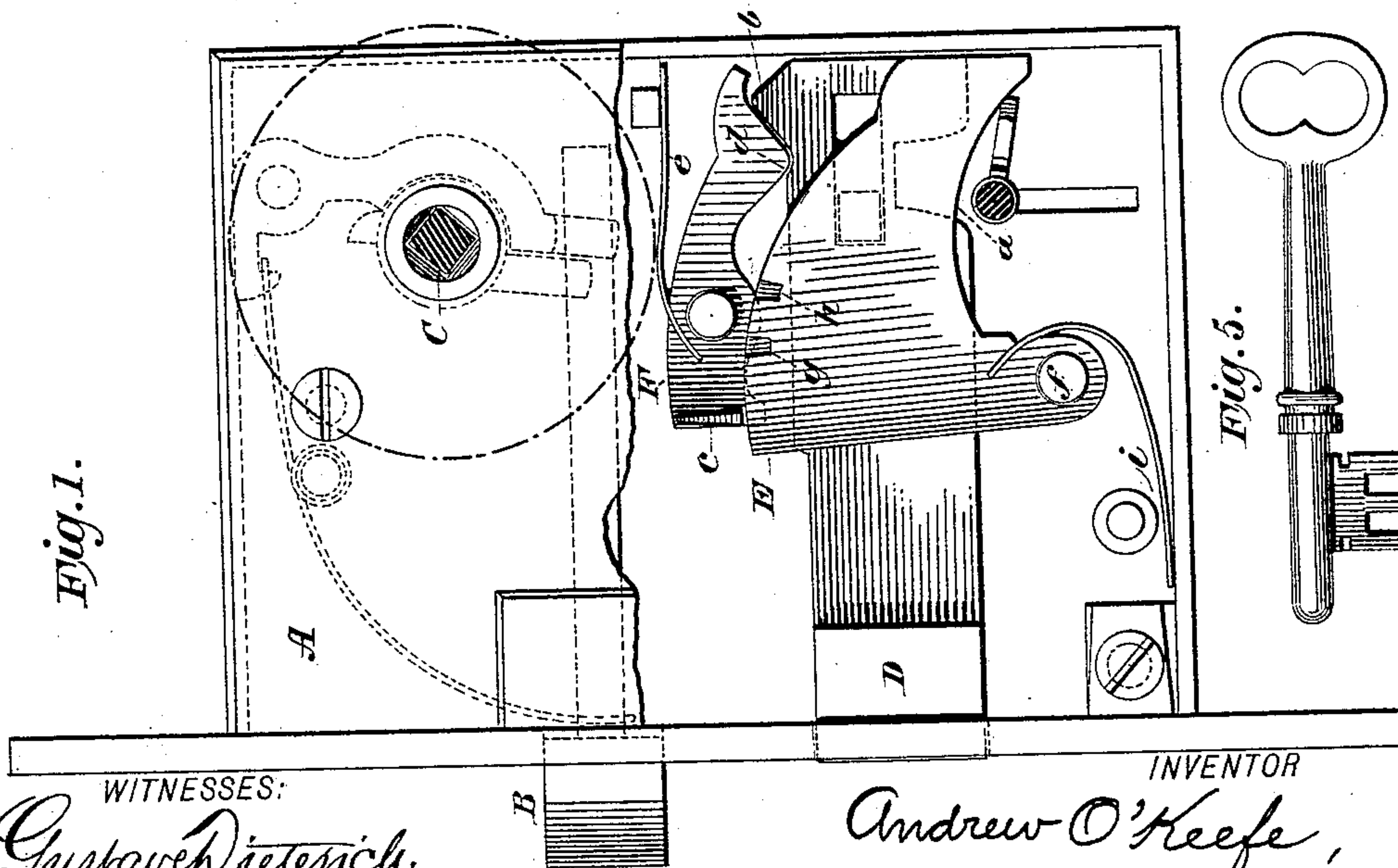


Fig. 1.

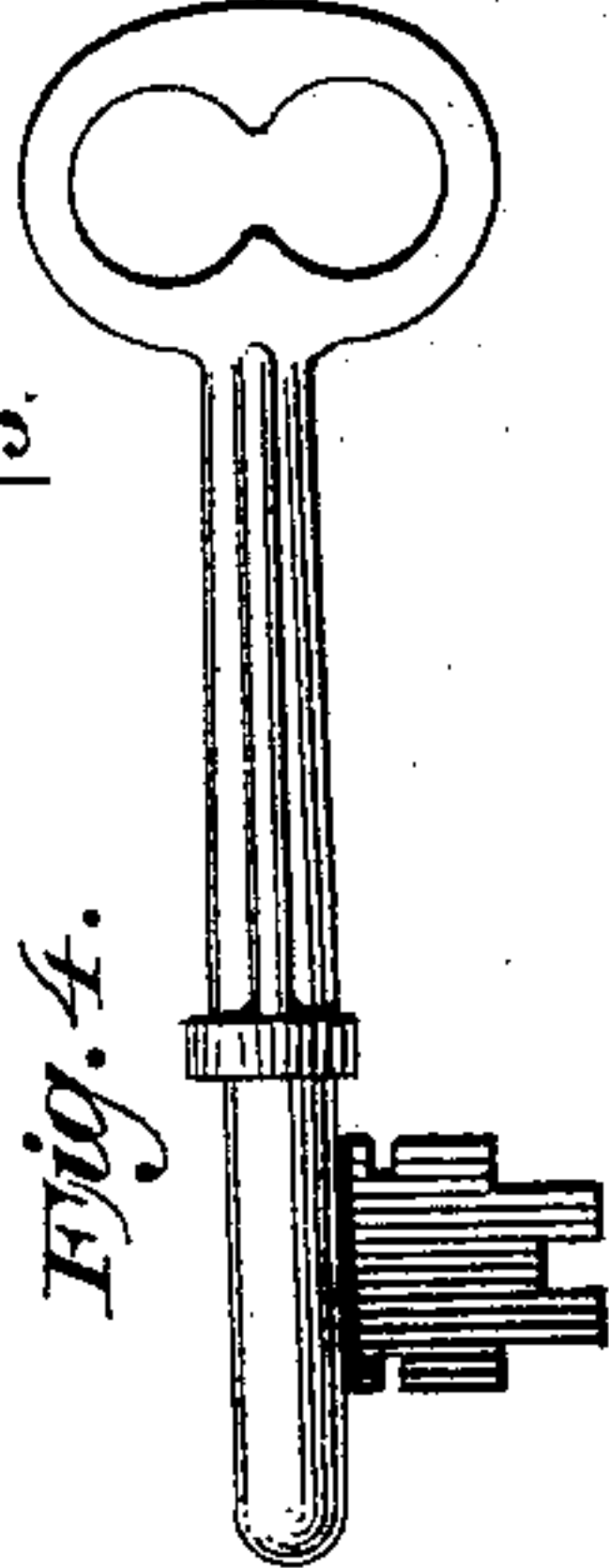


Fig. 4.

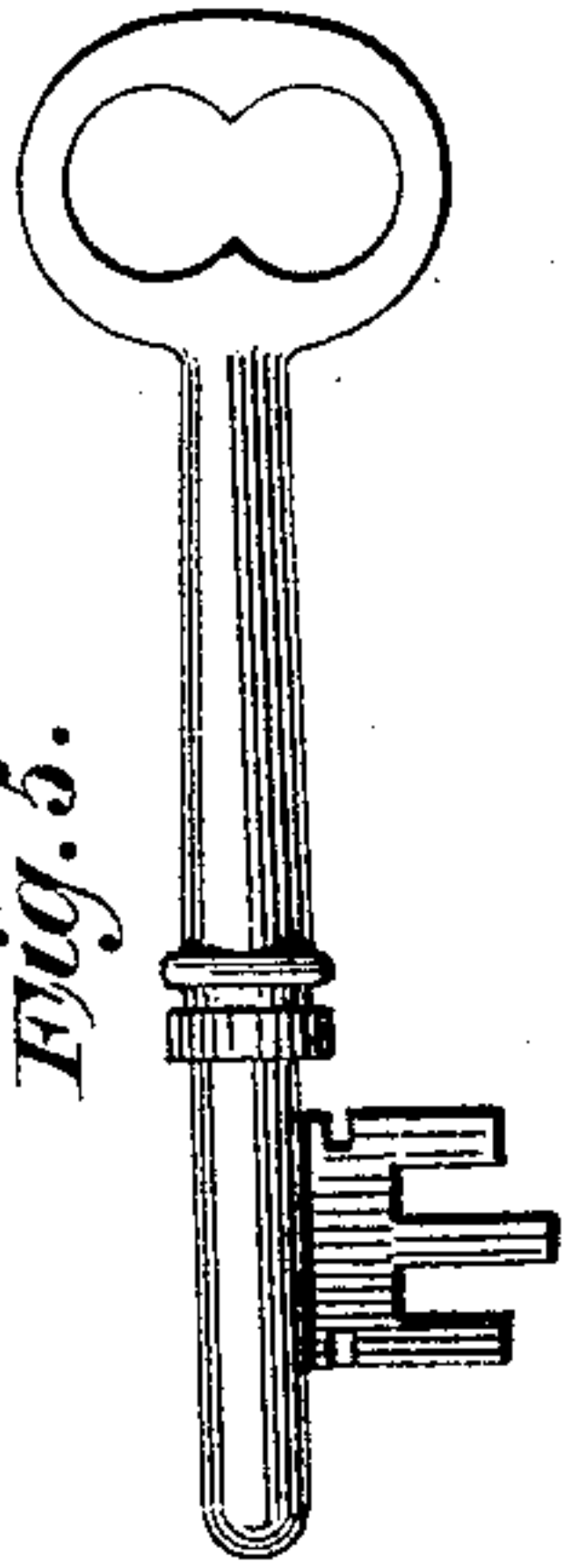


Fig. 5.

WITNESSES:

Gustave Dietrich.
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LOCK.

SPECIFICATION forming part of Letters Patent No. 525,615, dated September 4, 1894.

Application filed July 29, 1893. Serial No. 481,908. (No model.)

To all whom it may concern:

Be it known that I, ANDREW O'KEEFE, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Locks, of which the following is a specification.

The invention relates to improvements in locks, and consists in a lock embracing the tumblers, locking dog and bolt constructed and arranged as hereinafter described, and particularly pointed out in the claims, and in which the bolt may be operated by either of two keys (one being the guest key and the other the master key) and dead-locked at each end of its movement. The changes for the different varieties of guest keys will be made in the tumblers and will not necessitate any alteration in either the bolt or locking dog. The nature of my invention and the method of embodying the same in an operative lock will appear in full from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a lock constructed in accordance with my invention, a part of the casing being broken away to disclose the bolt, tumblers and locking dog made the subject hereof, and the ordinary spring latch mechanism operable by the door knob being shown by dotted lines. Fig. 2 is a like view of same, the bolt, tumblers and locking dog being shown in two positions by full and dotted lines respectively, the full or solid lines showing the position of the parts when the bolt has moved outward about half its line of travel from the casing, and the dotted lines illustrating the position of the parts after the bolt has completed its outward movement. Fig. 3 is a vertical section through the lock on the dotted line 3—3 of Fig. 2; and Figs. 4 and 5 are plan views of the two keys either of which, though different from each other, will operate the lock.

In the drawings A designates the usual lock casing and B the customary spring latch bolt adapted to be withdrawn into the casing by the rotation of the usual knob spindle C.

The locking bolt is indicated by the letter D, the set of tumblers by the letter E, and the

locking dog by the letter F; and these features constitute the subject of the present application.

The bolt D is adapted to have the usual reciprocating movement, and is provided on one edge of its inner end with the recess *a* and on its opposite edge of said end with the shoulder *b*.

Above the bolt D is pivotally secured the dog F having at its front or outer end the blade *c*, and at its inner end the shoulder *d* having inclined edges which shoulder *d* corresponds in form with the shoulder *b* and is adapted to engage the front edge of same (as shown in Fig. 1) when the bolt D is at its inward position, and the rear or inner edge of same (as shown by dotted lines in Fig. 2) when the bolt D is at its outward position. The locking dog F at its inner end has a normal spring tension downward against the bolt by reason of the spring *e*.

The tumblers E are banked against each other, and consist of plates somewhat of the form of quadrants pivotally mounted on the post *f* and having in their upper edges the recesses *g, h*, which at the proper time momentarily receive the edge of the blade *c* formed on the dog F and extending laterally therefrom over the said tumblers. The tumblers E each have the recesses *g, h*, but the recesses of one tumbler are not in line with the like recesses of the adjacent tumbler or tumblers when the tumblers are in their normal position shown in Fig. 1, nor do the said recesses come into alignment except when the proper key is applied and the wards thereof elevate and set the tumblers in position to bring all of the recesses *g* or all of the recesses *h* directly beneath the blade *c* preparatory to permitting the latter to momentarily descend into and ascend from them while the point of the shoulder *b* on the bolt D is passing the point of the shoulder *d* on the dog F, as shown by solid lines in Fig. 2. The tumblers E are each provided with a spring *i* which acts to throw the tumbler normally inward, as shown in Fig. 1, the inner ends of the tumblers having straight edges adapted to meet the inner vertical end of the lock casing.

When the bolt D is at its inward position, shown in Fig. 1, the inner edge of the shoul-

der *d* of the dog F is in engagement with the outer edge of the shoulder *b* of the bolt D, and the lower edge of the blade *c* is against the upper edge of the set of tumblers E at a point where said edge contains no recesses; and when the bolt D is at its outward position, shown by dotted lines in Fig. 2, the tumblers E and blade *c* will be in exactly the position they have in Fig. 1 but the outer edge of the shoulder *d* of the dog F will be in contact with the inner edge of the shoulder *b* of the bolt D, as indicated by the dotted lines in Fig. 2.

When the tumblers E and dog F are in the position illustrated in Fig. 1, the said dog is incapable of movement since its inner end is held against the bolt and its outer end is in contact with the edge of the set of tumblers, and hence the bolt D, whether at its inward or outward position, is locked against movement. If under the conditions last above described the bolt D is at its inward position, shown in Fig. 1, the shoulder *d* on the dog F will prevent it from moving outward, and if the bolt D is at its outward position, shown by dotted lines in Fig. 2, the said shoulder *d* will prevent it from being moved inward. The keys must therefore operate to first elevate the tumblers so that the recesses *g* or *h* will line with the blade *c*, and then by pressing against the wall of the recess *a* move the bolt outward or inward as desired, the pressure on the bolt causing the shoulder *b* to ride against the corresponding shoulder or projection *d* and elevate the inner end of the dog F, sufficiently for the bolt to pass, the presence of the recesses *g* or *h* set in alignment below the blade *c* permitting the latter, as the projection *b* passes the projection *d* to dip into the said recesses, as shown by solid lines in Fig. 2. After the shoulder *b* has passed the shoulder *d* the spring returns the inner end of the dog F against the bolt, thus elevating the blade *c* from the recesses and permitting the springs *i* to return the tumblers E to their normal position, shown in Fig. 1, the key at such time having passed, either to the left or right, from the tumblers according as the bolt is being shot outward or moved inward.

The position of the recesses *g*, *h*, will vary to accord with the extent of movement to be imparted to the tumblers by the keys.

Either of the keys shown in Figs. 4 and 5 may be used from either side of the lock to effect the movement of the bolt.

Without limiting my application to the precise details of construction, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a lock, the bolt having the recess for the key and the engaging shoulder whose edges are inclined, combined with the recessed pivoted tumblers, and the pivoted locking dog having at one end a shoulder whose opposite edges are inclined to correspond with the shoulder on the bolt, and at the other end an edge which engages said tumblers and momentarily dips into and out of the recesses in the tumblers when the shoulder on the bolt is exerting its pressure upon and passing the shoulder on the dog; substantially as set forth.
2. In a lock, the bolt and the set of pivoted tumblers having recesses, combined with the pivoted locking dog in a single piece engaging both bolt and tumblers and having a spring tension against the bolt, said dog at one end being adapted to momentarily dip into and out of the recesses of the tumblers when the other end thereof is elevated by the pressure of the bolt thereon during its sliding movement; substantially as set forth.
3. In a lock the bolt having the shoulder whose sides are inclined, and the set of tumblers having recesses, combined with the pivoted locking dog having at one end the shoulder whose sides are inclined and engage said shoulder on the bolt and at the other end an edge which engages said tumblers, the said dog on the setting of the tumblers being adapted to be tilted and dip into said recesses by the pressure of the shoulder on the bolt against the shoulder on said dog; substantially as set forth.
4. In a lock, the bolt having the engaging shoulder, and the set of tumblers having the sets of recesses, combined with the locking dog in a single piece engaging both bolt and tumblers and adapted on the alignment of either set of said recesses to be tilted by the pressure of the shoulder on the bolt when the latter is moved in either direction to momentarily dip into and from said recesses; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 22d day of July, A. D. 1893.

ANDREW O'KEEFE.

Witnesses:

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HERMAN GUSTOW.