

No. 617,361.

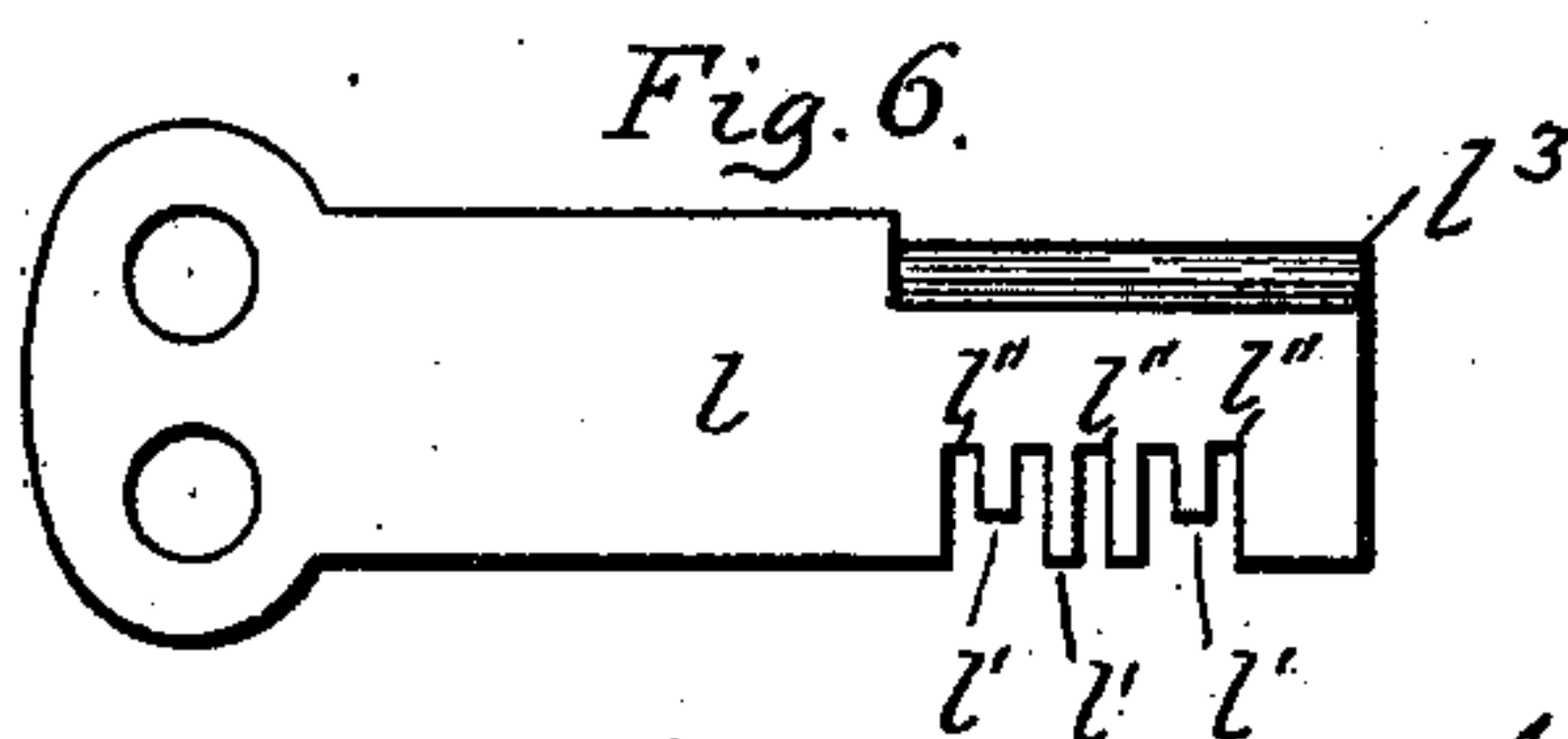
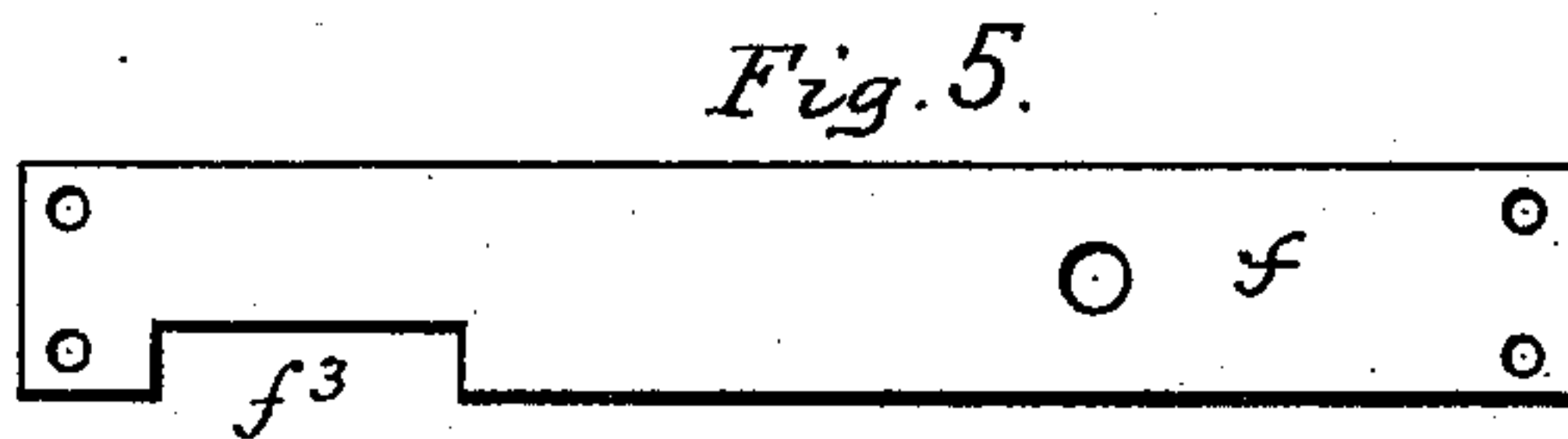
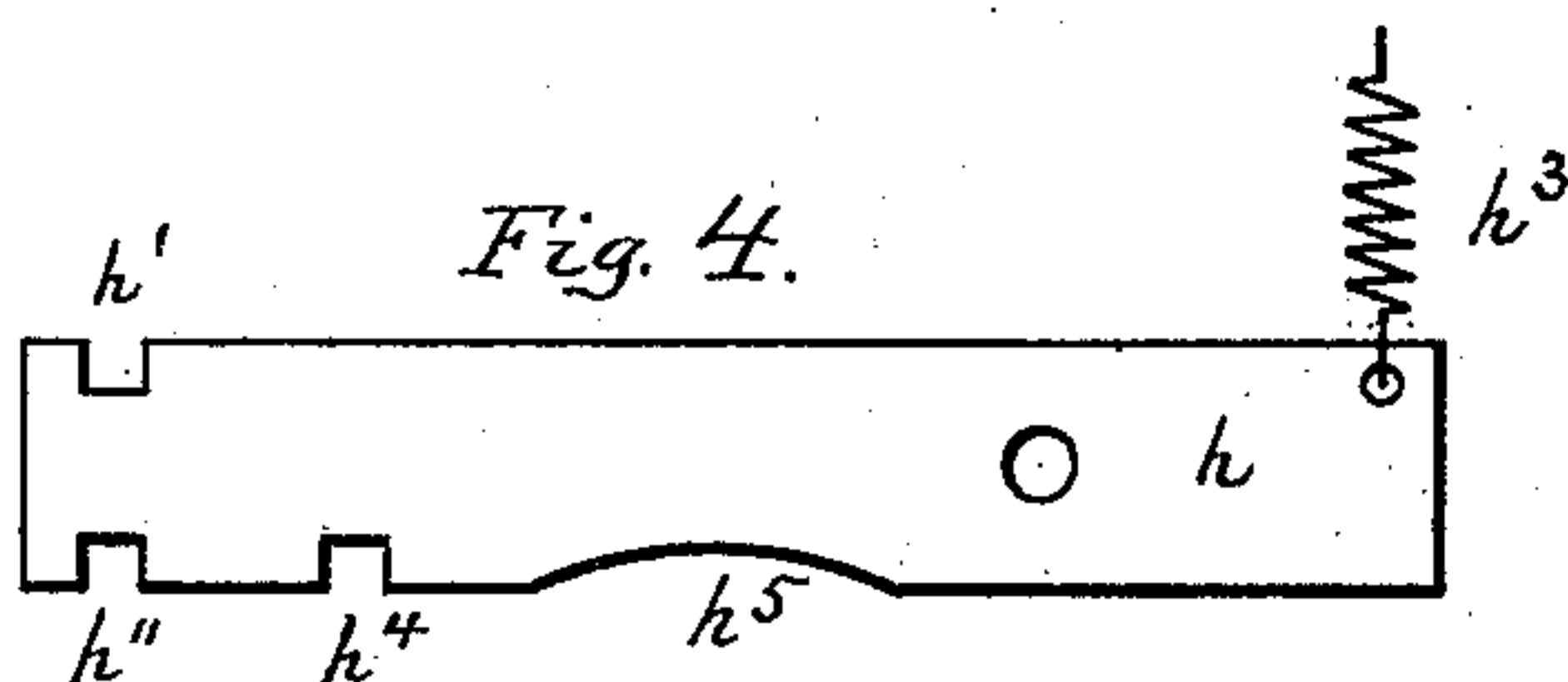
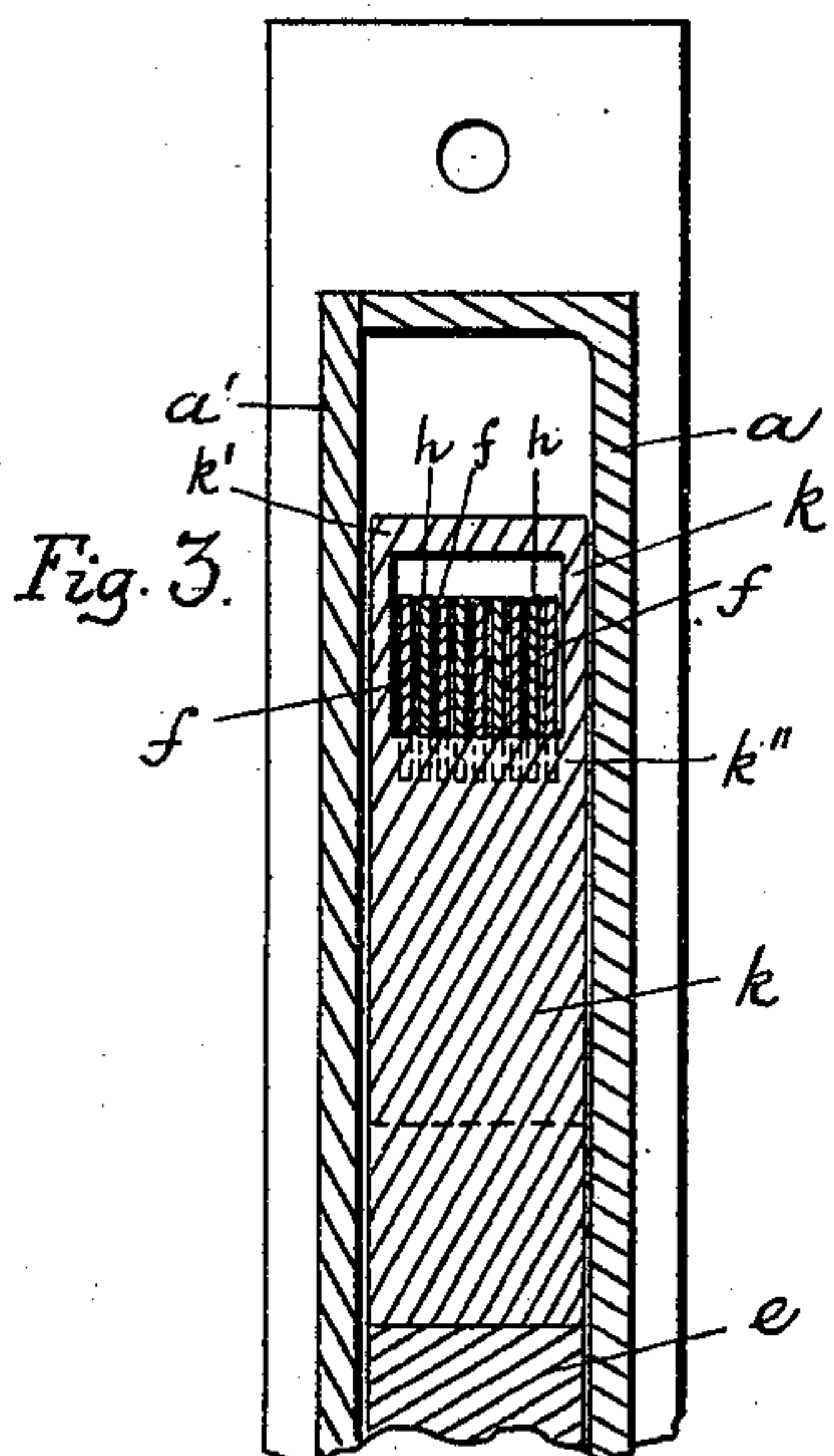
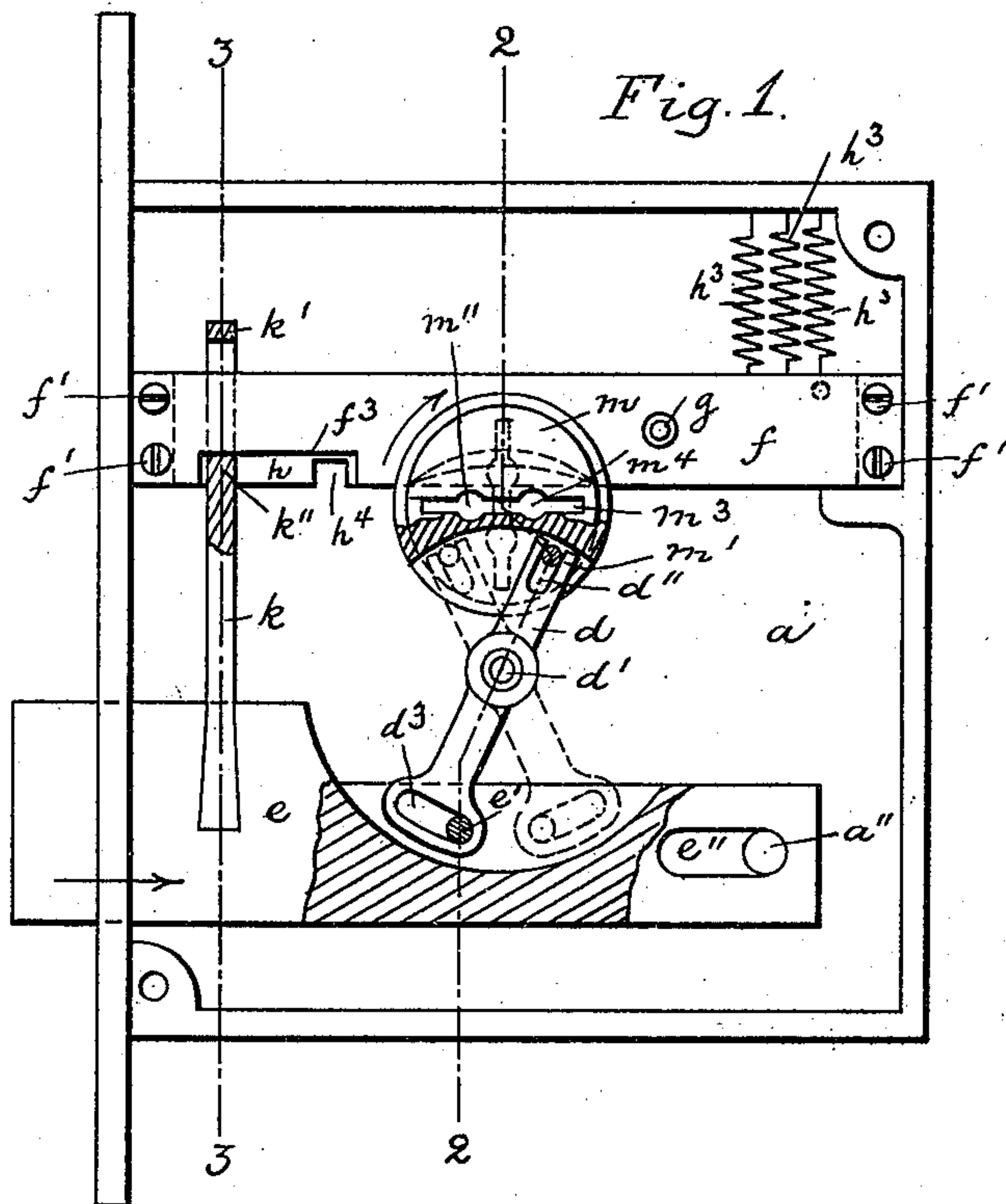
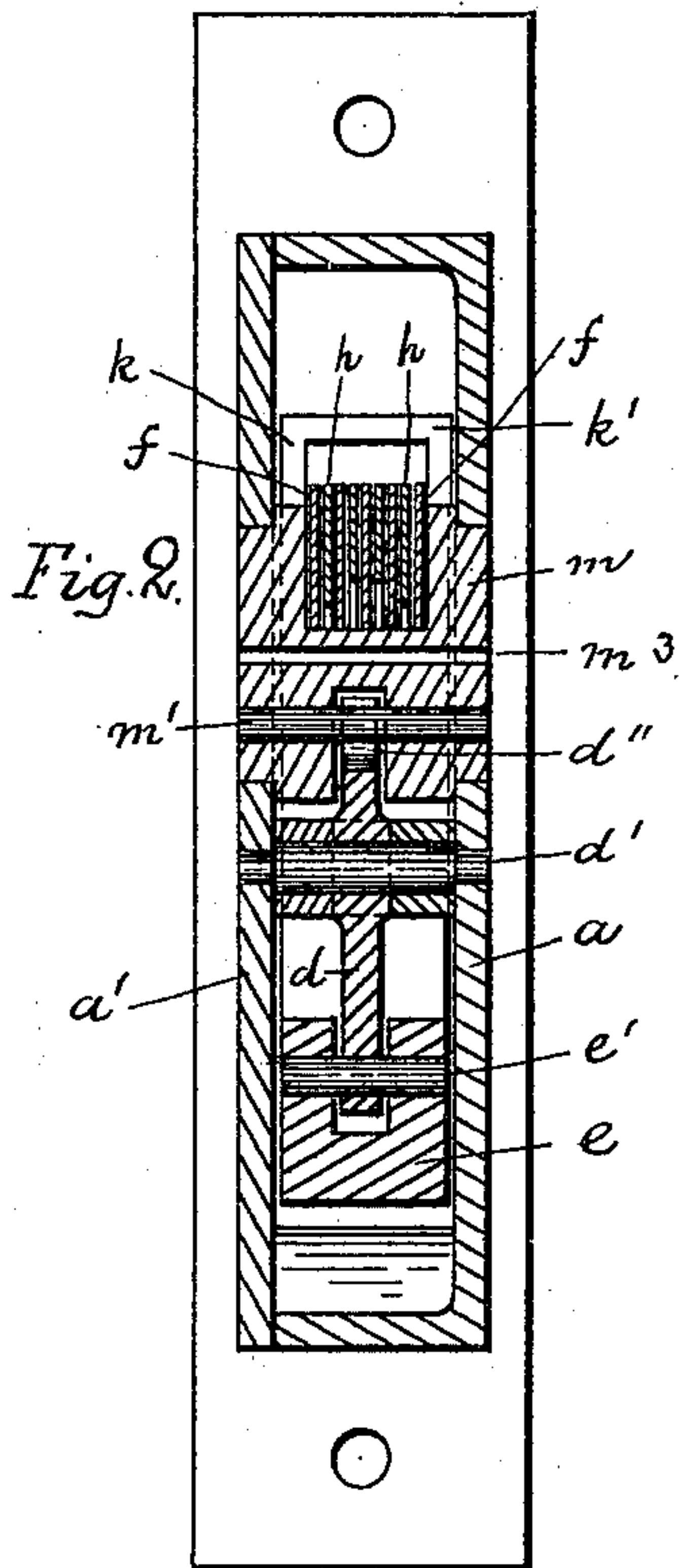
Patented Jan. 10, 1899.

S. SHAW.

LOCK.

(Application filed May 18, 1898.)

(No Model.)



Witnesses.

Karl A. Andrién.
Charles A. Harris.

Inventor:

Sumner Shaw.
by Alban Andrién his atty.

UNITED STATES PATENT OFFICE.

SUMNER SHAW, OF BOSTON, MASSACHUSETTS.

LOCK.

SPECIFICATION forming part of Letters Patent No. 617,361, dated January 10, 1899.

Application filed May 18, 1898. Serial No. 681,015. (No model.)

To all whom it may concern:

Be it known that I, SUMNER SHAW, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Locks, of which the following is a specification.

This invention relates to improvements on the patent for locks granted to me February 9, 1886, No. 335,965, and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a side view of the improved lock, showing the cover removed and portions of the interior mechanism in section for the better illustration of said mechanism. Fig. 2 represents a vertical section on the line 2 2, shown in Fig. 1. Fig. 3 represents a vertical section on the line 3 3, also shown in Fig. 1. Fig. 4 represents a side elevation of one of the tumblers. Fig. 5 represents a side elevation of one of the stationary partitions between the tumblers, and Fig. 6 represents a side view of the key.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

a is the case with its detachable cover a' , as usual.

e represents the bolt, which is guided in its rear end by having the stationary pin a' projecting through a slotted perforation e' in said bolt, as is common in locks of this kind.

Within the upper portion of the case a are secured a number of stationary plates or partitions $f f f$ preferably by means of fastening-screws $f' f'$, and between such partitions f are arranged the tumblers $h h$, which are loosely pivoted on a pin g , so as to swing thereon when raised by the key in a manner like that shown and described in my above-mentioned patent.

h^3 represents a spring secured to the rear end of each tumbler and to the case a , as shown in Fig. 1, for the purpose of returning the tumblers to their normal positions after the bolt e is fully opened or closed.

To the bolt e is firmly secured the upwardly-projecting yoke k , having upper and lower locking-ribs k' and k'' for the tumblers $h h$, the latter having corresponding locking-recesses h' and h'' , like those shown and de-

scribed in my patent above referred to. On the under side of each tumbler h , back of the recess h'' , is made another recess h^4 , which serves to hold the bolt e in an unlocked position by interlocking with the lower locking-rib k'' on the yoke k in a manner as fully shown and described in my aforesaid patent.

f^3 is an elongated notch on the under side of each partition-plate f for the purpose of allowing the yoke k and its lower locking-rib k'' to be moved forward and back without interfering with the said plates $f f$.

Each tumbler h has on its under side a curved recess h^5 , (shown in Fig. 4 and in dotted lines in Fig. 1,) each such recess being different from the others in the series and corresponding in depth to the different teeth l' on the key l , said key having recesses $l'' l''$ between said teeth to enable the key to be turned without interfering with the stationary partitions in a manner as fully described in my aforesaid patent.

m is the tumbler-cylinder, having its ends journaled in bearings in the case a and cover a' , as shown in Figs. 1 and 2.

m^3 is a longitudinal slit through the tumbler-cylinder m for receiving the body of the key l , and $m'' m^4$ are cylindrical perforations through said tumbler-cylinder, which form a continuation of the slit m^3 , such cylindrical perforations serving to receive the cylindrical back portion l^3 of the key l , as shown in Figs. 1 and 6.

Intermediate between the tumbler-cylinder m and the bolt e is located a lever d , which is pivoted on a stationary pin d' , as shown. The upper end of the lever d is slotted or forked, as shown at d'' in Fig. 1, and through said slotted or forked portion is inserted a pin m' , attached to the tumbler-cylinder m , as shown. The lower end of the lever d is provided with a curved slot d^3 , adapted to receive a pin e' , secured to the bolt e , as shown in Figs. 1 and 2.

In the drawings the bolt e is shown in a locked position. To unlock the bolt, it is only necessary to insert the key l in the slit m^3 in the tumbler-cylinder m with its back l^3 inserted in the cylindrical recess m'' in said tumbler-cylinder. If now the key and tumbler-cylinder are turned in the direction of the arrow shown in Fig. 1, it causes first the

tumblers h h to be raised out of engagement with the lower rib k'' on the yoke k , and at the same time causes the lever d to be turned around its fulcrum without imparting motion to the bolt e by reason of the curved slot d^3 on said lever d . During the subsequent continuous motion of the tumbler-cylinder the lever d causes the end of the slot d^3 in the lever d to actuate the pin e' , attached to the bolt e , by which the latter is moved inward in the direction of the arrow shown on said bolt in Fig. 1, thus causing said bolt to be unlocked.

To lock the bolt, I prefer to insert the back b^3 of the key in the cylindrical recess m^4 in the tumbler-cylinder m and the body l of the key in the slit m^3 . If now the key and tumbler-cylinder are turned in an opposite direction to that shown by the arrow in Fig. 1, the tumblers h h are first raised out of engagement with the lower rib k'' of the yoke k , and at the same time the lever d is caused to be rocked without imparting motion to the bolt e by reason of the curved slot d^3 in said lever. During the subsequent continuous motion of the tumbler-cylinder the lever d causes the end of the slot d^3 in the lever d to actuate the pin e' , attached to the bolt e , by which the latter is moved outward in a direction opposite to that shown by the arrow in Fig. 1, thus causing said bolt to be locked. The notches h'' on the tumblers h are held interlocked with the rib k'' on the yoke k when the bolt e is locked, and the notches h^4 on said tumblers are likewise held interlocked with said rib k'' on the yoke k when the bolt e is unlocked, so as to prevent the opening and closing of the bolt except by the turning of the tumbler-cylinder m by means of a specially-constructed key in a manner as fully shown and described in my above-mentioned patent.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

1. In a tumbler-lock the movable notched tumblers h , h and intermediate stationary, recessed division-plates f , f , combined with the bolt e having a yoke k adapted to interlock with said tumblers, a rotary key-receiving tumbler-cylinder and a lever d pivoted intermediate between the tumbler-cylinder and bolt and pivotally connected to said parts, substantially as and for the purpose set forth.

2. In a tumbler-lock, in combination, a series of yielding pivoted notched tumblers, a series of intermediate stationary division-plates, a key-receiving tumbler-cylinder, a locking-bolt having a yoke adapted to interlock with the notched tumblers and a lever pivoted intermediate between the tumbler-cylinder and locking-bolt and having its ends pivotally connected to said bolt and tumbler-cylinder, substantially as and for the purpose set forth.

3. In a tumbler-lock, a series of pivoted tumblers and intermediate stationary division-plates, combined with a locking-bolt having means for interlocking it with the tumblers, a key-receiving tumbler-cylinder and a lever pivoted intermediate between said tumbler-cylinder and bolt, and having slotted or forked portions at its ends and means for connecting the ends of said lever to the tumbler-cylinder and bolt, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SUMNER SHAW.

Witnesses:

ALBAN ANDRÉN,
KARL A. ANDRÉN.