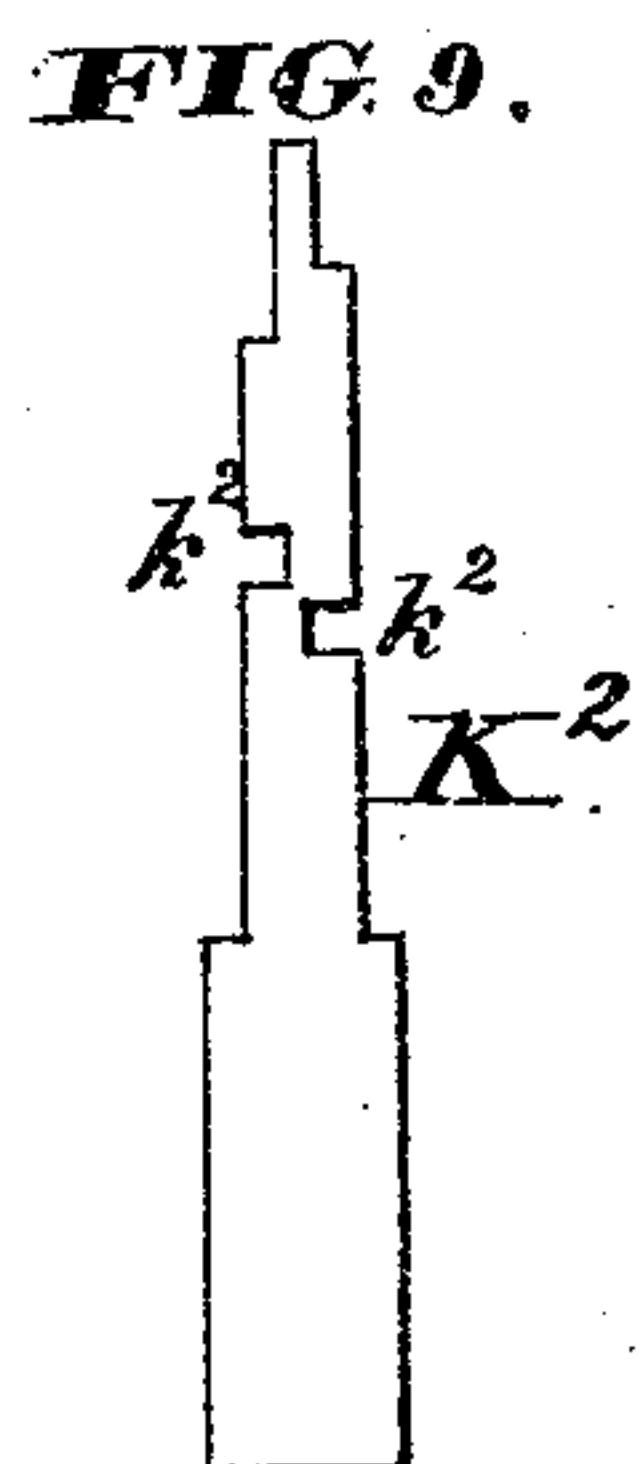
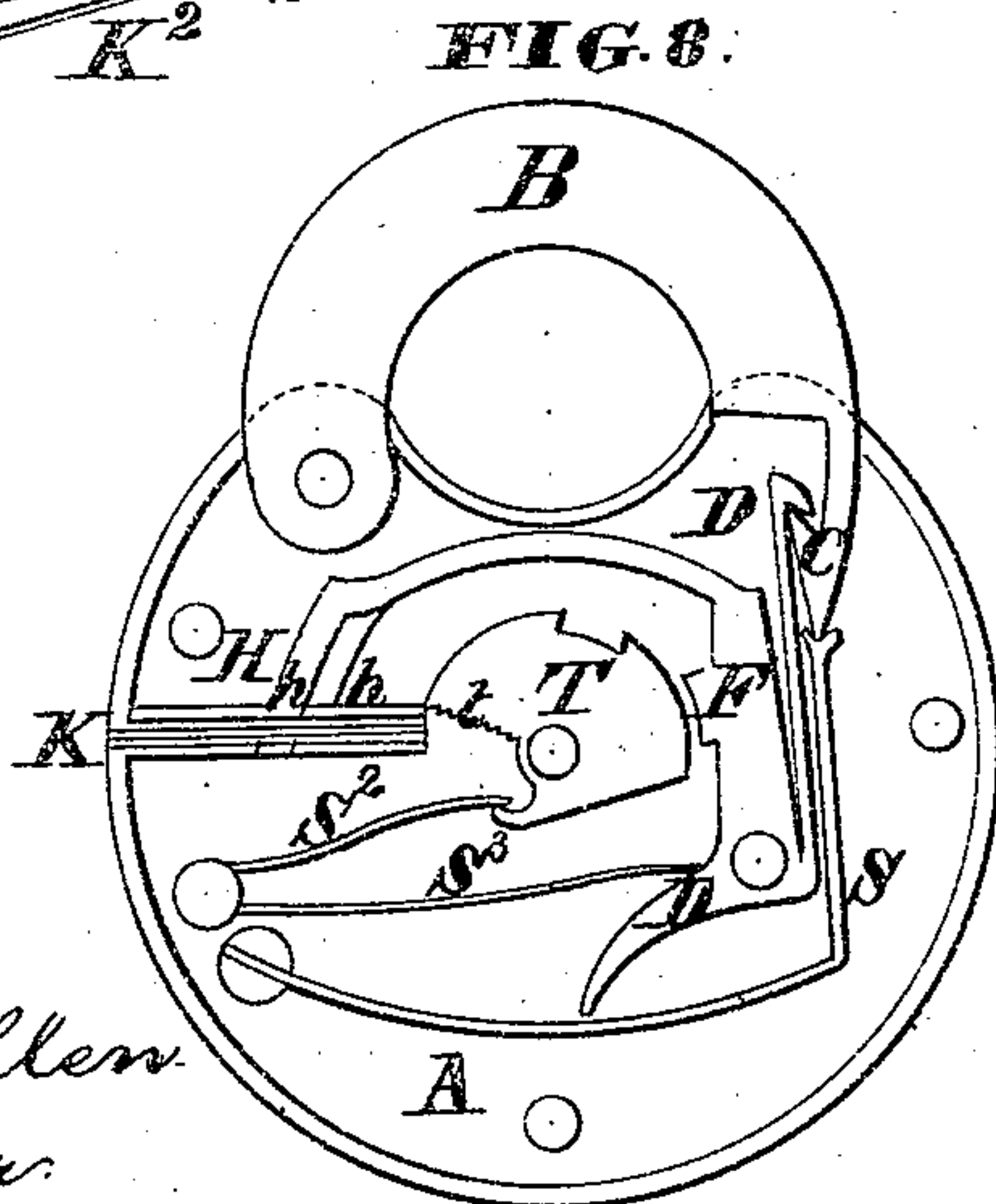
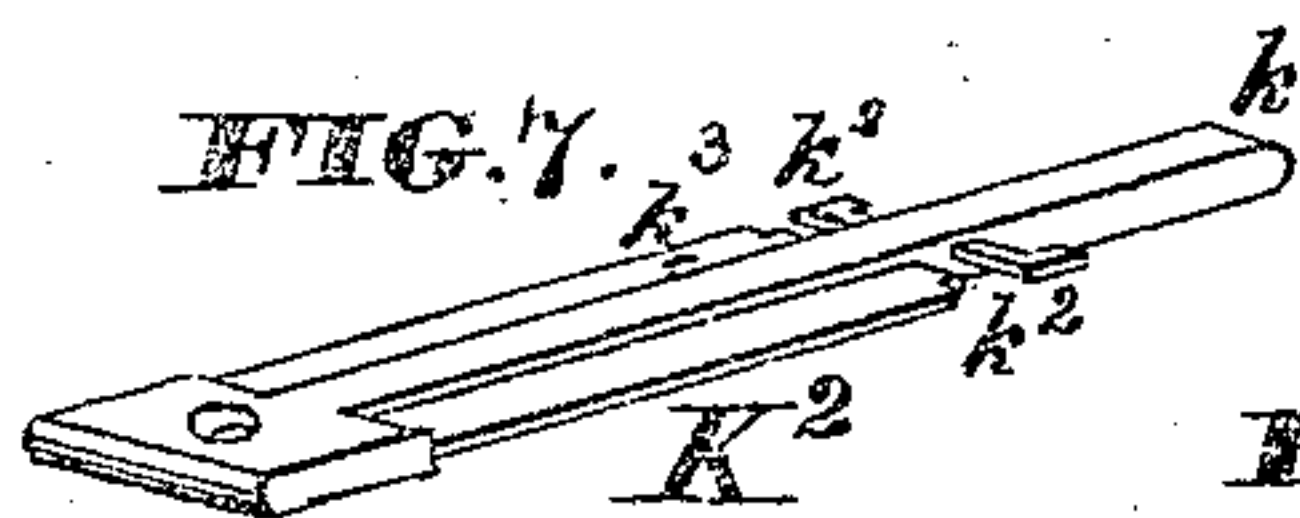
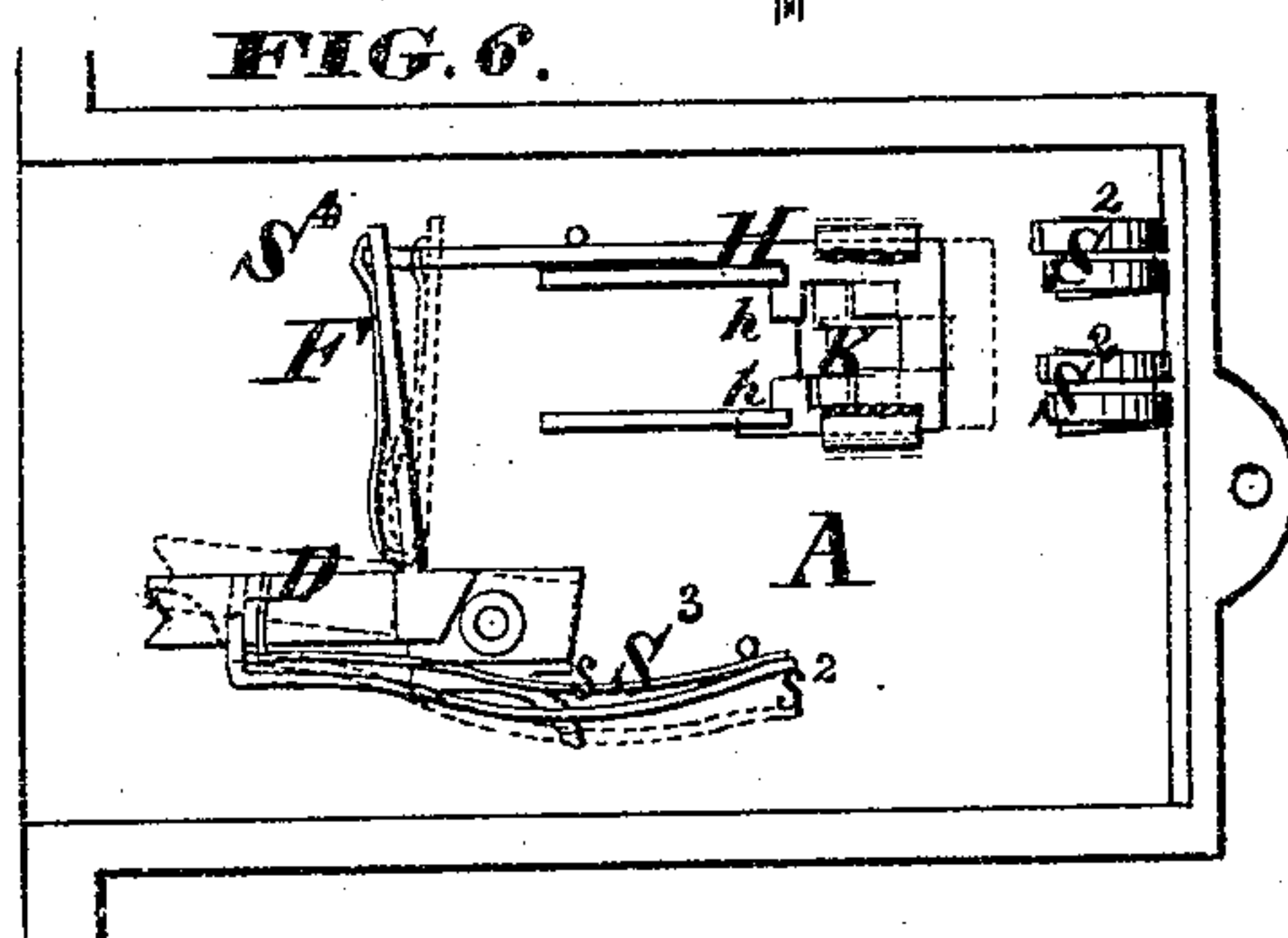
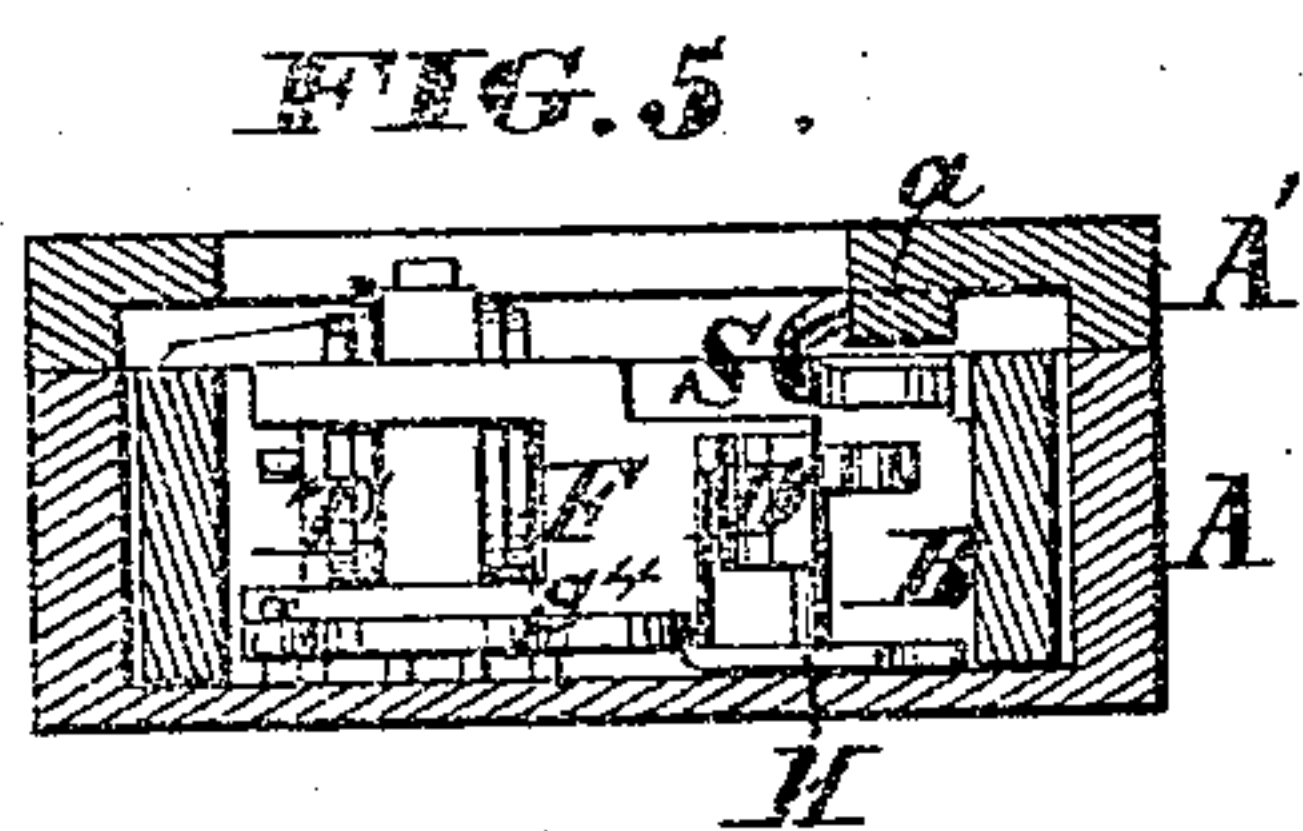
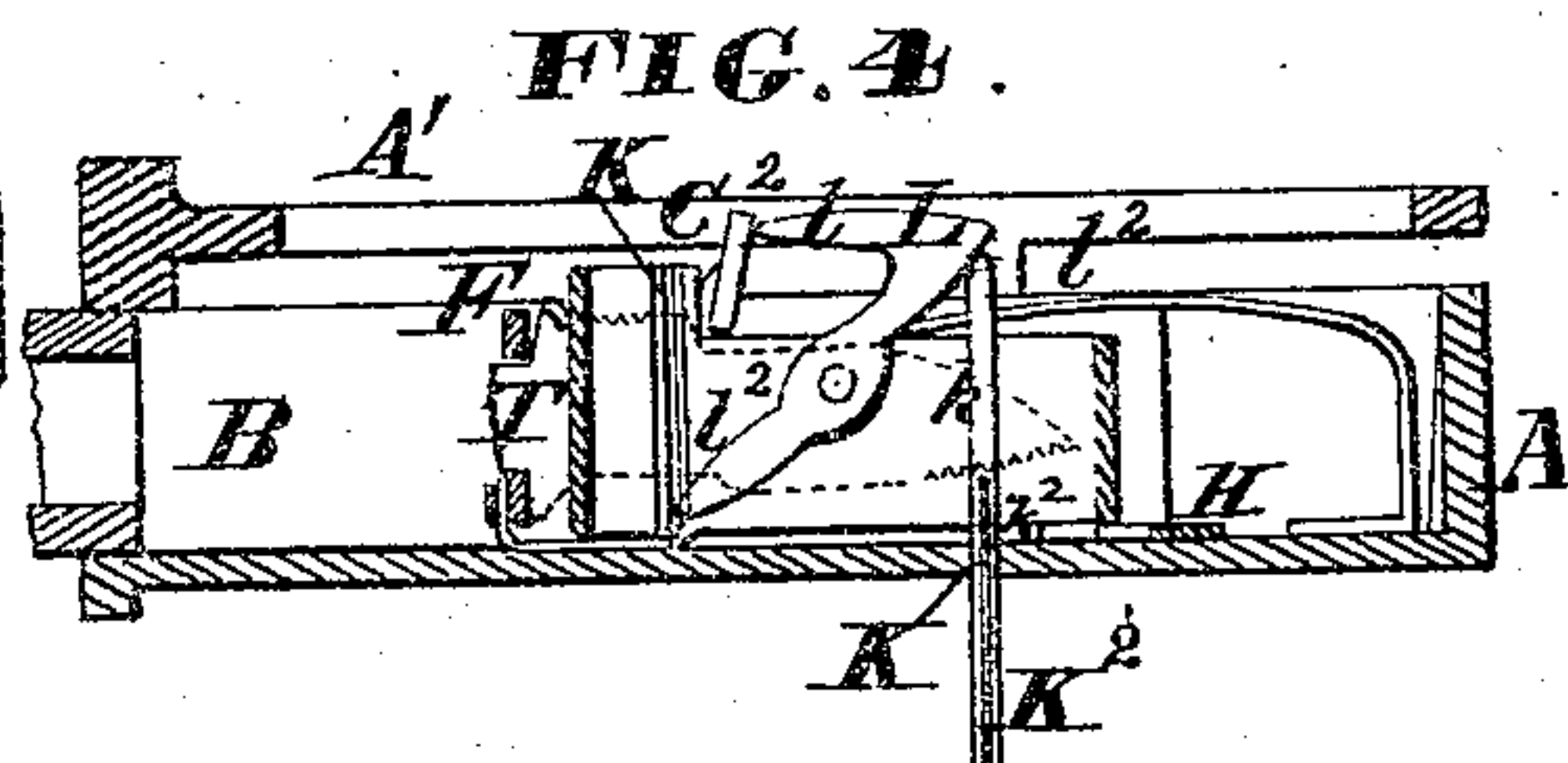
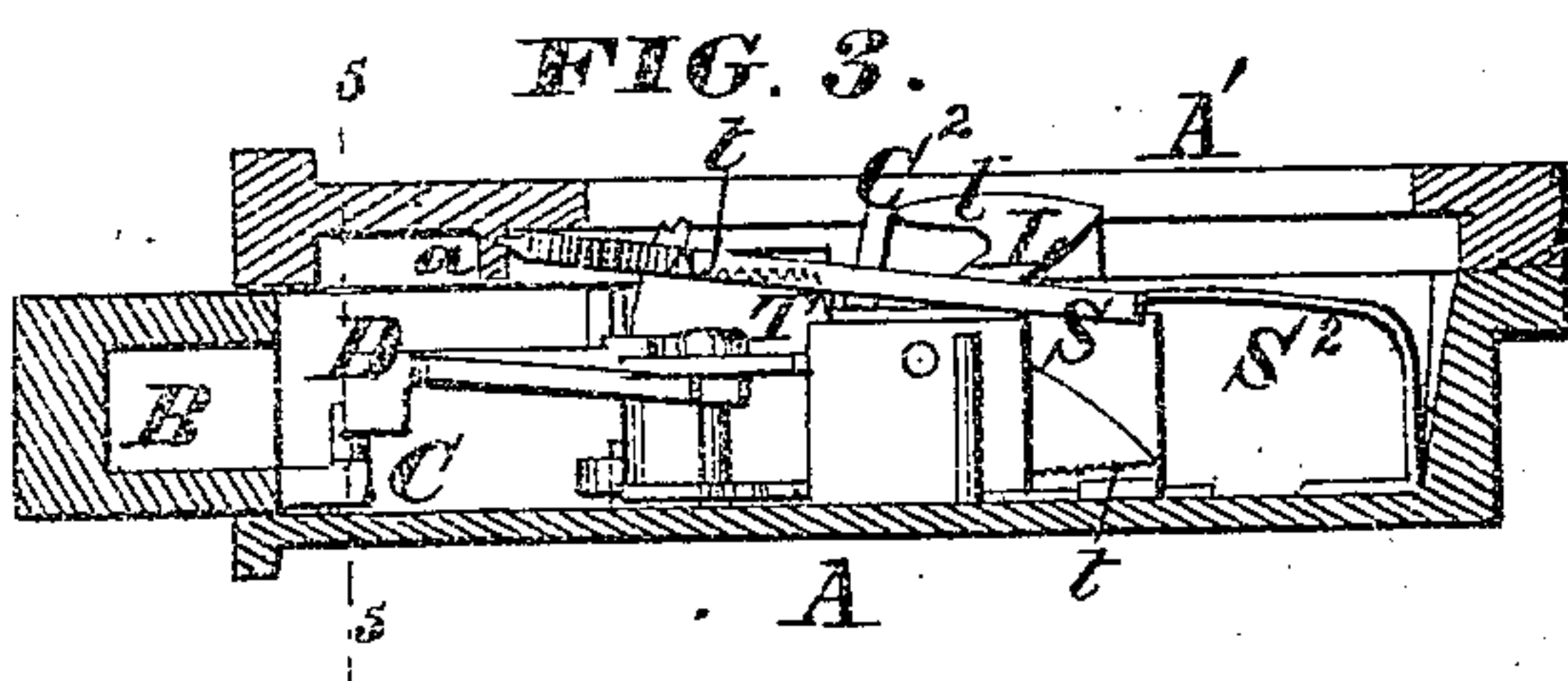
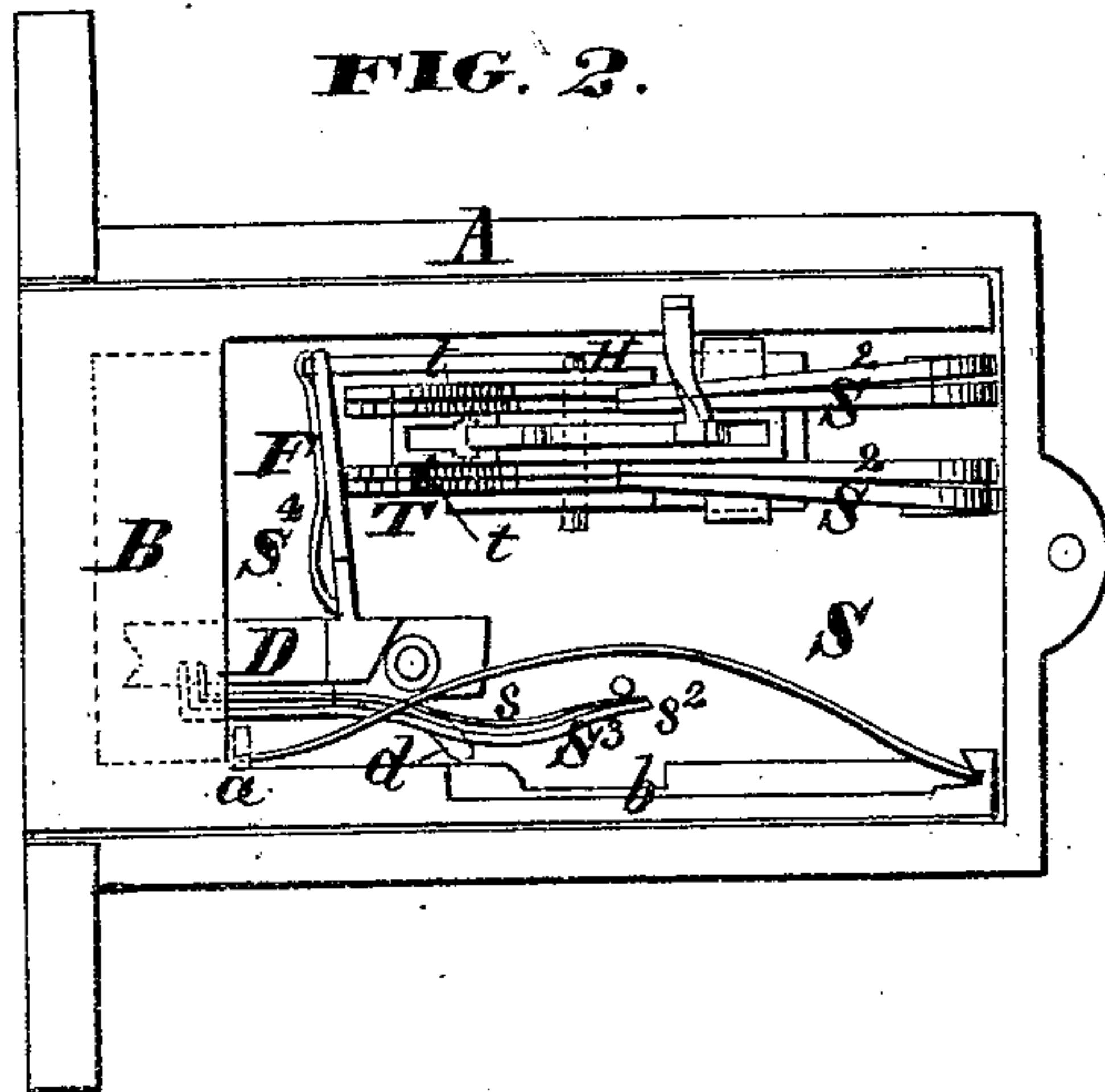
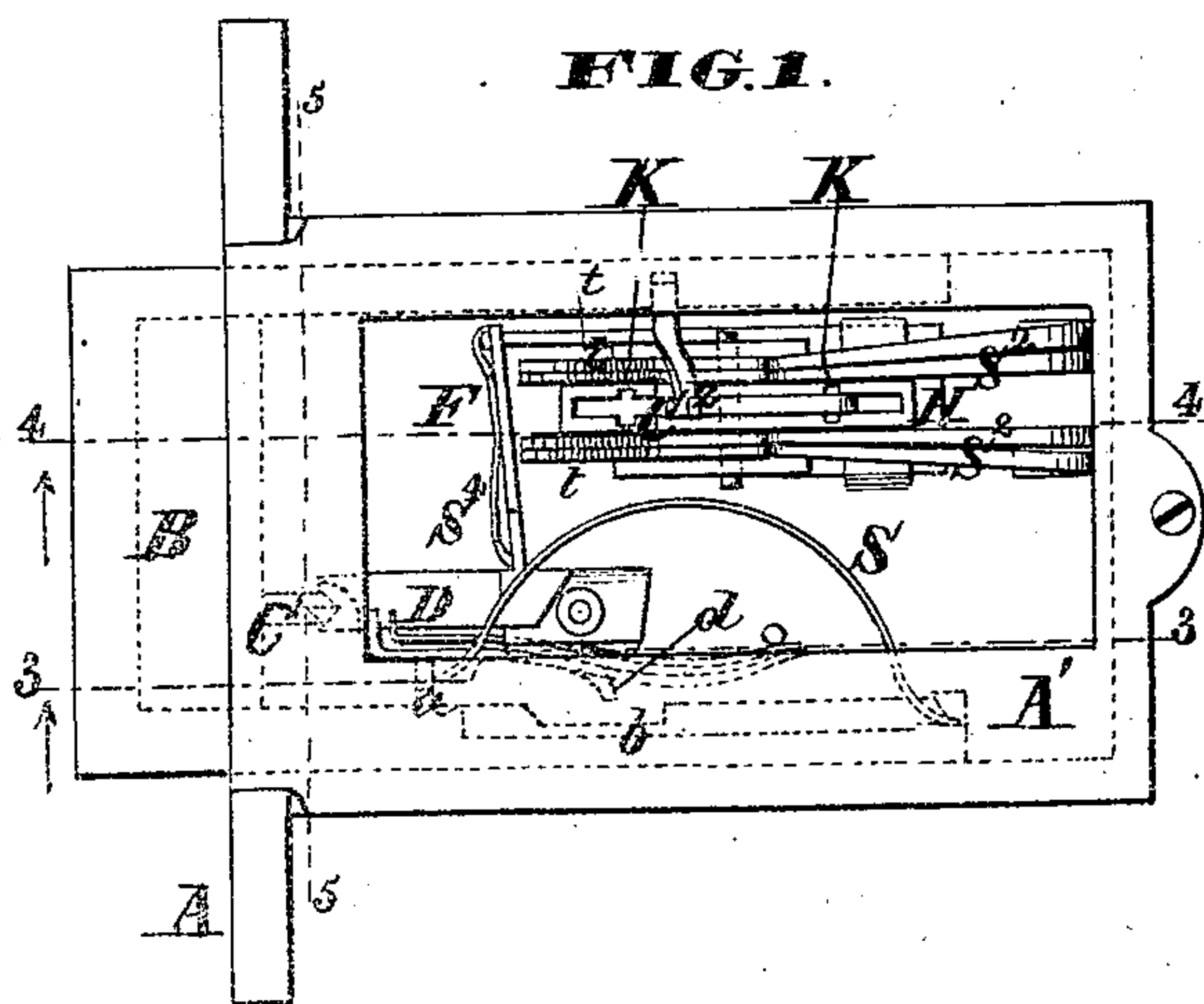


W. BALDWIN.

Locks.

No. 153,213.

Patented July 21, 1874.



WITNESSES

Walter Allen
H. P. Tanner.

INVENTOR

William Baldwin
By Knight Bros. Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM BALDWIN, OF TIOGA, PENNSYLVANIA.

IMPROVEMENT IN LOCKS.

Specification forming part of Letters Patent No. **153,213**, dated July 21, 1874; application filed February 6, 1874.

To all whom it may concern:

Be it known that I, WILLIAM BALDWIN, of the town and county of Tioga, in the State of Pennsylvania, have invented an Improved Lock, of which the following is a specification:

The object of this invention is to make a common lock, which shall be simple, easily constructed, and at the same time absolutely proof against picking. The invention consists, first, in notching the tumblers, or those parts of them which the key rubs against, so that the contact of the key therewith shall produce a clattering sound and disguise the contact of their ends with the fence. The invention consists, secondly, in the combination of a bolt retracted by spring, a fence-lever with notched head to secure the bolt in projected position, and a transmitting-lever, operated by a projection on the key, to throw the bolt in locking and to reproject the bolt, so as to release the fence-lever simultaneously with the arrangement of the tumblers, in unlocking. The invention consists, thirdly, in a peculiar combination of springs to provide for operating a guard-slide by means of the fence-lever, to close, or partially close, the key-hole as soon as the fence begins to fall, and to prevent lifting the fence by means of the guard-slide, as hereinafter set forth. The invention consists, fourthly, in the employment of a key which operates in one position to arrange the tumblers so as to release the bolt, and in another position operates to destroy the impression on the tumblers as it projects the bolt.

Figure 1 is a face view of a mortise-lock illustrating this invention, the bolt being shown in projected position. Fig. 2 is a face view of the same, with cap-plate removed and bolt retracted. Fig. 3 is a longitudinal section on the line 3 3, Fig. 1. Fig. 4 is a longitudinal section, with portions broken away and removed, on the line 4 4, Fig. 1. Fig. 5 is a transverse section on the line 5 5, Fig. 3. Fig. 6 is a face view of the lock with cap-plate and portions of the works removed and other portions partly in section. Fig. 7 is a perspective view of the key. Fig. 8 is an elevation of a padlock with cap-plate removed, illustrating the application of the invention to this

form of locks. Fig. 9 is an elevation of a key for the padlock shown in Fig. 8.

This improved lock may be of any ordinary or approved form, and its case A, with cap-plate A', may be cast of proper shape. The bolt B is held in its locked position by a stump, C, which engages in an angular notch in the head of a fence-lever, D. The main spring S is attached at one end to the bolt B, and at its other end to a projection, *a*, on the case or cap-plate. This spring serves two purposes: First, it throws the bolt back in unlocking; second, it presses the stump C against the fence-lever D, and so raises and holds the forked arms or fence F of the latter from the ends of the tumblers T. By operating endwise, and straightening as it moves, it pushes hardest when the bolt is withdrawn, and this is found to be advantageous. Independent springs S² are applied to the tumblers. A steel slide, H, operated by one of the arms of the fence-lever, serves to partially cover or close the key-hole, so as to mask the tumblers. When the fence F rests on the ends of the tumblers so as to rub them, inner projections *h* of the slide H partially cover the key-hole, but when the fence F passes over the tumbler ends in unlocking, then the projections *h* occupy the positions illustrated by dotted lines in Fig. 6, leaving the key-hole open, so that the key can be withdrawn. The tumblers T are pivoted and arranged so as to be operated from either side of the lock, a key-hole, K, being provided in each face, if necessary. A double-armed lever, L, is mounted on the same pin as the tumblers, and is operated by a projection, *k*, on the key K². It is thus operated at the same time and through the same key-holes as the tumblers. This lever moves the bolt in locking by the pressure of its point *l* against a stump, C², attached to the bolt B. The tumblers T have notches *t* where the key-bit rubs them, so as to produce a clattering noise, for the purpose of disguising the contact of their ends with the fence when they rub it. A double spring, S³, is applied to the fence D, and consists of a light inner spring, *s*, and a heavy outer spring, *s*². The object of the former is to press the fence upon the tumblers. The heavy spring operates to prevent the fence-

lever from being thrown back from the tumblers beyond the stump by means of the guard-slide H. If this is attempted, another light spring, S^4 , which holds the end of the slide H fast to the fence, yields to the pressure as soon as the double spring comes into play, and the fence-lever remains in its place. The key-holes K, for admitting the key-bit to the tumblers, are very small and narrow, and when the guard-slide is over them the picking-tool can move only about one-sixteenth of an inch to try the tumblers. The key K^2 , Fig. 7, operates by being pushed lengthwise. The bit of the key engages first, by a long central projection, k , the lever L, and, after turning it, exposes slots k^3 , which admit the projections h of the guard-slide H, these slots being of different lengths to correspond with the unequal projections on the slide.

In unlocking, the key is introduced in a given position, one edge having a mark, k^3 , to facilitate this. When the key is pushed home, the projections in the slide corresponding with the slots in the key pass through the same, and the key engages with the tumblers and releases the bolt, which is retracted by means of the mainspring S.

In locking, the key is introduced in reversed position, and the longer projection on the slide coming opposite the short slot in the key it is stopped. In locking, also, the key being inserted in inverted position, the slots in the key are not only disarranged, with regard to the projections on the slide, but a false position is given to the tumblers, so as to prevent the fence from passing over them, and thus unlocking again, instead of locking.

The operation of the lock in locking and unlocking, more fully stated, is as follows: In locking, as the key K^2 is pushed in, its long central projection k presses against the end of the double-armed lever L at l^2 , and elevates the same, and thus reprojects the bolt B and releases the stump C from the fence-lever D. At the same time the key-bit lifts the tumblers T to their proper places, and the fence F falls over the ends of the tumblers, carrying the guard-slide H with it, and the projections h of the slide pass through the slots k^2 in the key. The key is then withdrawn, and the bolt B is simultaneously retracted by the spring S, being free by reason of the fence-lever D having passed in its fall to one side of the stump C, and so clear of it. When the bolt is about one-half withdrawn, the end of a recess, b , in the bolt comes in contact with a projection, d , on the fence-lever, and throws the fence back from the tumblers, which are instantly disarranged by their springs S^2 .

In locking, the key K^2 is reversed, as before stated, so that when the bolt B is shot by the pressure of the long projection k of the key against the surface l^2 of the lever L, the tumblers T are thrown into false positions, so as to prevent the fence from falling.

The latter forced movement of the tumblers has the effect to rub out and thus hide the impressions made upon them in releasing the bolt, thus preventing the picking of the lock by what is called the impression process.

The padlock shown in Fig. 8 differs from the mortise-lock before described chiefly in the form and arrangement of the parts, to which this invention is not limited. The same letters of reference indicate corresponding parts in said figure, and the description of the operation already given applies thereto.

A pivoted shackle, B, takes the place of the bolt in this case, and the stump C is represented by a hook at the free extremity of the shackle. The mainspring S operates as a lifting-spring for throwing out the shackle when it is released. The notched head of the fence-lever D is in the form of a spring-catch, so as to lock the shackle automatically, and, in connection with the lifting-spring S, (which serves to push the hook of the hasp against and into the angular notch of the head or catch,) it holds the fence F clear of the tumblers. The key K^2 , adapted to the modified arrangement of the parts, is constructed as represented in Fig. 9.

In unlocking this padlock, the key is pressed home to arrange the tumblers, and the shackle is pushed in to release the fence-lever from the retaining-notch of the hook, so that the fence can fall into the slots in the tumblers.

The guard-slide H may, in some forms of the lock, be omitted, and the construction of the lock thus greatly simplified, the notched tumblers alone being a sufficient protection against ordinary attempts to pick locks. It is obvious, also, that the fence-lever D might be dispensed with, and the tumblers be made to enter an aperture in the bolt itself corresponding with the fence. This would still further simplify the construction of the lock, but would render it somewhat less secure. So, also, the tumblers T may be made to work without springs, and be held wherever placed by friction.

In this case the guard-slide might be so constructed as to cover the entire key-hole when the force touches the tumblers, and it would be necessary to take out the key altogether after placing the tumblers in unlocking. In such a form of the lock the bolt would have to be operated by a knob or handle separate from the key.

I am aware that tumbler-locks with sliding keys have been made with bolts retracted by springs, and projected through the medium of levers; but the projection has been by means of stronger springs, which I have dispensed with. I am also aware that locks have been made with sliding and other keys introduced for different purposes in reversed positions; but these have not been so constructed as to forcibly disarrange the tumblers in the act of locking, which is the object of this part of my invention.

The following is claimed as new:

1. The tumblers T, having notches *t* in those portions with which the key rubs in order to produce a clattering sound, as set forth.

2. The transmitting-lever L, in combination with a bolt, B C, retracted by spring and held in projected position by a fence-lever, D, with notched head, for throwing and reprojecting the bolt by the impact of the key in locking and unlocking, substantially as herein set forth.

3. The combination of the double spring S³ and the light spring S⁴, for supporting the

fence-lever and guard-plate, in the manner set forth.

4. The improved sliding key K², having a central projection to throw and release the bolt, and lateral bits to engage with the tumblers, and operating in reversed positions to unlock the bolt, and to lock the bolt and destroy the impressions on the tumblers, as herein specified, for the purpose set forth.

WM. BALDWIN.

Witnesses:

PHILO FULLER,
CHAS. A. URELL.