(Model.)

2 Sheets—Sheet 1.

A. O'KEEFE.

LOCK.

No. 416,181. Patented Dec. 3, 1889.

Fig. 2.

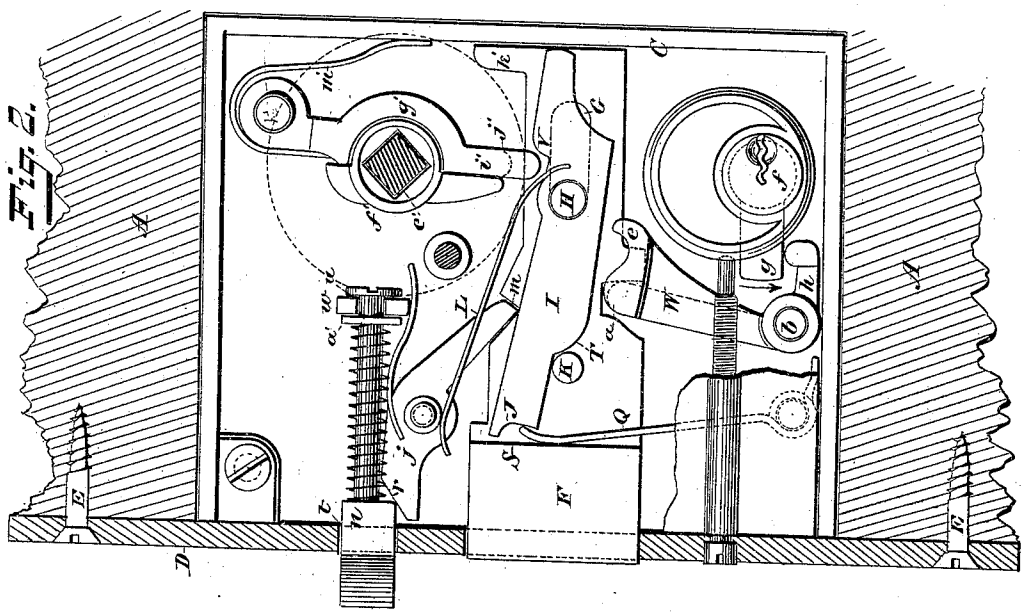
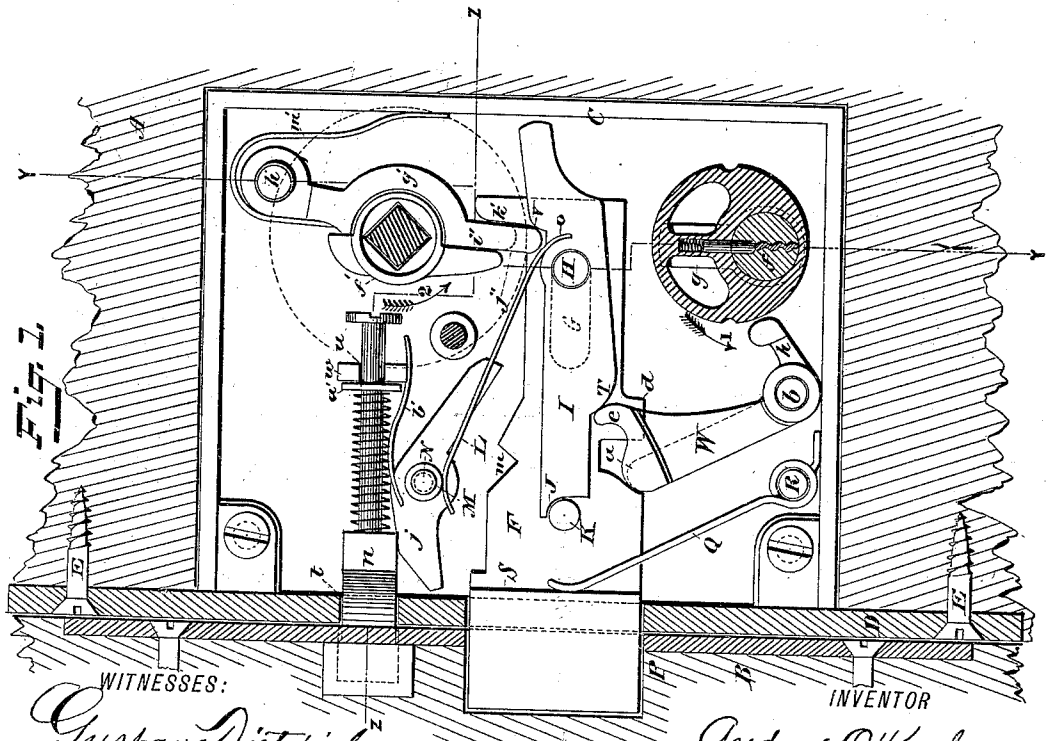


Fig. 1.



WITNESSES:

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William Goebel.

INVENTOR

Andrew O'Keefe,

BY

Chas. C. Gill

ATTORNEY

(Model.)

2 Sheets—Sheet 2.

A. O'KEEFE.

LOCK.

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Fig. 3.

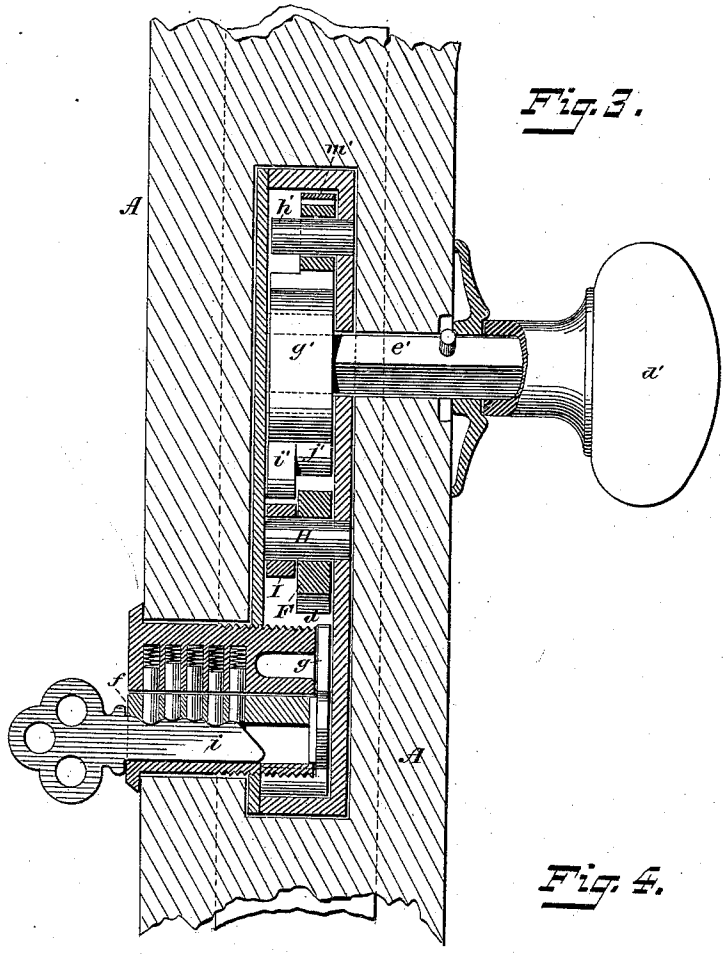
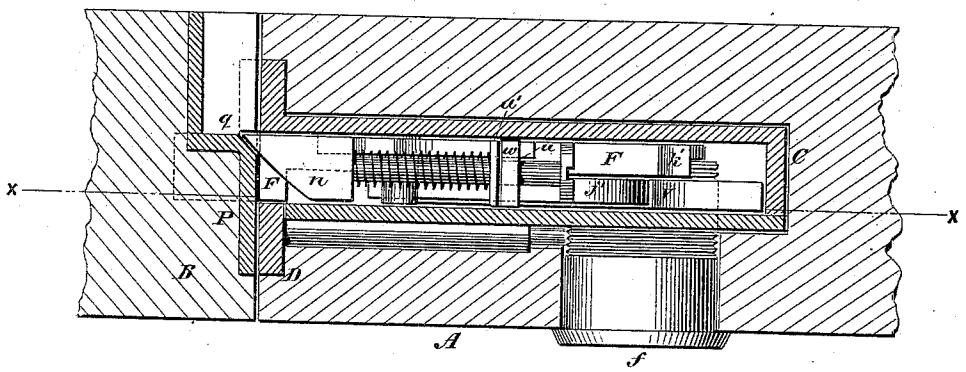


Fig. 4.



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UNITED STATES PATENT OFFICE.

ANDREW O'KEEFE, OF NEW YORK, N. Y.

LOCK.

SPECIFICATION forming part of Letters Patent No. 416,181, dated December 3, 1889.

Application filed April 16, 1889. Serial No. 307,437. (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 it consists in the novel mechanism, hereinafter described and claimed, by which the objects of the invention are accomplished, said objects being the production of a lock in which, when the door is closed, the bolt will automatically be projected into the keeper and in that position dead-locked, and can only be freed and withdrawn into the lock-casing by turning the knob on the inside of the door or by the application of the proper key at the outside of the door, the turning of the key at the outside of the door serving to relieve the bolt from its locking devices and withdraw it into the lock-casing in position to at once permit the opening of the door.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a view of the interior of the lock on the dotted line X X of Fig. 4, the door and door-casing being shown in section and the outward position of the spring-latch, hereinafter described, being illustrated by dotted lines. Fig. 2 is an exterior view of the lock, the door being illustrated in section and a portion of the covering-plate of the lock being broken away for the purpose of illustrating the interior mechanism of the same, the position of said interior mechanism in Fig. 2 being that the parts are caused to assume when the door is open, while the reverse position of said parts is illustrated in Fig. 1, in which the door is shown closed. Fig. 3 is a vertical section of the lock and door on the dotted line Y Y of Fig. 1, and Fig. 4 is a transverse section of same on the dotted line Z Z of Fig. 1.

In the drawings, A designates the door, B the door-casing, and C the lock-casing, which is mortised into the door and there held by the facing-plate D, secured to the edge of the door by screws E.

The casing A is of usual form and construction and contains the reciprocating bolt F, which is provided with an elongated slot G, (illustrated more clearly by dotted lines in Figs. 1 and 2,) which moves on the post H, said slot and post serving as guides for directing the reciprocating movement of the bolt F. Upon the post H is placed the locking-tumbler I, which rests longitudinally upon the bolt F and is provided at its front end with the shoulder J, arranged to come into contact with the inner side of the post K, rigidly secured to the bolt F. A spring L is provided for preserving the tumbler I in the position illustrated in Fig. 1 in contact with the post K, except at such times as the force of said spring may be overcome by the levers, hereinafter described, brought into action during the operation of opening the door. One end of the spring L has a bearing against the sleeve M, which encircles the post N, while the other end of said spring fits within a groove O in said tumbler I at the inner side of the post H. The bolt F is given a tension outward toward the keeper P by means of the spring Q, which is secured upon the post R and has its free end in contact with the shoulder S, formed at the front part of the head of the bolt F. The tumbler I is provided also with the shoulders T and V, respectively, the shoulder T being in position to be impinged by the upper end of the bell-crank lever W. The upper end of the bell-crank lever W is provided also with the shoulder *e*, (shown by dotted lines in Figs. 1 and 2,) which, during the movement of said lever upon its post *b*, comes into contact with the shoulder *d* on the bolt F, and serves to move said bolt from the keeper P into the lock-casing C, the said end of the bell-crank lever, by means of the projecting point *e*, first coming into contact with the shoulder T and turning the tumbler I upon its post H, so as to free the shoulder J from contact with the post K. The bell-crank lever W is arranged to be rotated from the key-cylinder *f*, the arm *g* of which (see Fig.

2) being in position to be brought against the short arm h of said bell-crank lever W upon the rotation of said key-cylinder.

In Fig. 1 the bell-crank lever W, with the bolt F and tumbler I, is shown in its position while the door is closed and locked, while in Fig. 2 the said bell-crank lever W is shown turned upward by the application of the key to the key-cylinder f, by which the arm g has been turned downward against the short arm h of said lever, and had the effect of causing the upper end of said lever at the projecting point e and shoulder a to free the tumbler I from the post K and move the bolt F into the lock-casing C.

In the drawings I have illustrated the Yale-lock cylinder for corrugated keys as a means for rotating the bell-crank lever W to free the tumbler I and withdraw the bolt F into the lock-casing; but it must be understood that I lay no claim herein to said Yale-lock cylinder, nor do I confine myself to its use, it being presented in the present application as a convenience and a means of explaining the invention which is sought to be covered by the present application. The lock-cylinder will be exposed at the outer side of the door, as illustrated in Figs. 3 and 4, and by means of the usual key i it will be understood that the tumbler I may be freed from the post K and the bolt withdrawn into the casing, leaving the door in condition to be at once opened. When the bolt F is withdrawn into the casing C, the inner end of the dog j will enter the notch m and lock the bolt in its inner position, as illustrated in Fig. 2. Upon the closing of the door, however, the latch-bolt n will come into contact with the striking-plate q of the keeper P and be moved inward against the inclined surface r of said dog and operate to lift the inner end of the dog j from the notch m and permit the spring q to again project the bolt F into the keeper P, thereby relocking the door, the spring L at the same time moving the tumbler I into contact with the post K, as illustrated in Fig. 1, for the purpose of dead-locking said bolt F. The spring-bolt n is sustained at its front end in the aperture t, formed in the facing-plate D, and at its rear end in the groove u, formed in the standard w, a spring being provided between the washer a' and the head of the bolt n, by which said bolt is given a constant tension outward. The dog j is provided with the spring b', which creates a downward tension upon the rear end of the said dog.

At the inner side of the door will be provided the usual knob d' and knob-spindle e', which will enter the follower f', which is encompassed on one side by the lever g', whose upper end is pivoted on the post h', while the lower end of same forms an arm i', the extremity of which is in contact with the shoulder V on the tumbler I, as illustrated in Fig. 1. Upon the arm i' of the lever g' is also provided the shoulder j', (illustrated by dotted lines in Figs. 1 and 2,) which is in contact with the shoulder k', formed on the inner end of the bolt F. The lever g' is provided with a spring m', which operates to retain said lever in close contact with the follower f'. The turning of the knob d' and knob-spindle e' has the effect of rotating the follower f', which, when actuated, moves the lever g' on its pivot h' toward the inner end of the casing C, and during this movement the lower extremity of the arm i', forming a part of said lever, first comes into contact with the shoulder V on the tumbler I and freeing thereby said tumbler from contact with the post K, and then the shoulder j' of the lever g', coming into contact with the shoulder k', moves the bolt F into the casing C, unlocking the door. It will thus be seen that the tumbler I and bolt F may be actuated either through the bell-crank lever W from the key-cylinder or through the lever g' from the knob d'. In either instance the tumbler I is freed from the post K and the bolt F withdrawn into the casing, where it is held by the dog j, engaging the notch m in said bolt, as illustrated in Fig. 2, and upon the closing of the door the small spring-bolt n comes into contact with the striking-plate q, and by moving inward against the inclined surface r of said dog frees the latter from the bolt F, when the latter will be projected outward into the keeper P by means of the spring Q, and the tumbler I will be moved into contact with the post K by the spring L, again dead-locking the door. It will thus be seen that the door may be opened from the outside thereof by means of a key or from the inside by means of a knob, and that upon the closing of the door the bolt F will automatically lock the same and the locking be rendered secure and effectual by the tumbler I coming into line with the post K and preventing the bolt from being pushed into the lock-casing by pressure applied at its outer end.

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

1. In a lock, the bolt F, having notch m, the spring for moving the bolt outward, and the levers for withdrawing the bolt into the casing, combined with the pivotally-secured dog j, for engaging said notch m, and the spring-bolt n, for automatically freeing said dog from said notch upon the door being closed, substantially as and for the purposes set forth.

2. In a lock, the bolt F and the pivotally-secured dead-locking tumbler I, engaging the same, combined with the levers for freeing the said tumbler and withdrawing the bolt into the casing, the notch m in the bolt, the spring-dog j, for engaging notch m while the door is open, and mechanism, substantially as described, for freeing the dog j from notch m when the door is closed, substantially as and for the purposes set forth.

3. In a lock, the bolt F and the locking-

tumbler I, engaging the same, combined with the levers for freeing the said tumbler and withdrawing the bolt into the casing, the dog for retaining the bolt within the casing while the door is open, and the spring-bolt for disengaging said dog from said bolt F when the door is closed, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 13th day of April, A. D. 1889.

ANDREW O'KEEFE.

Witnesses:
CHAS. C. GILL,
W. A. C. MATTHIE.