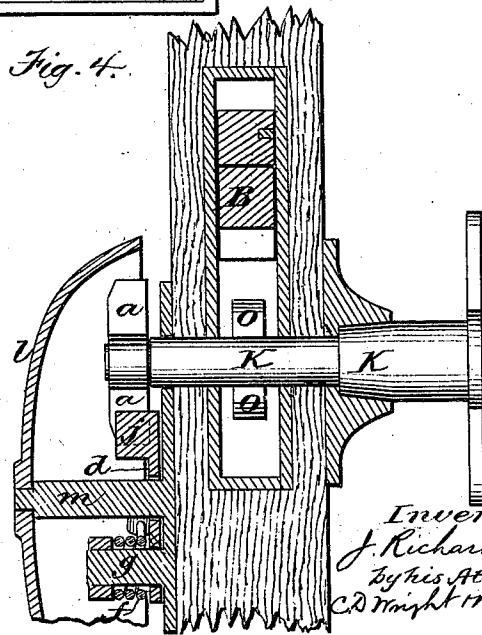
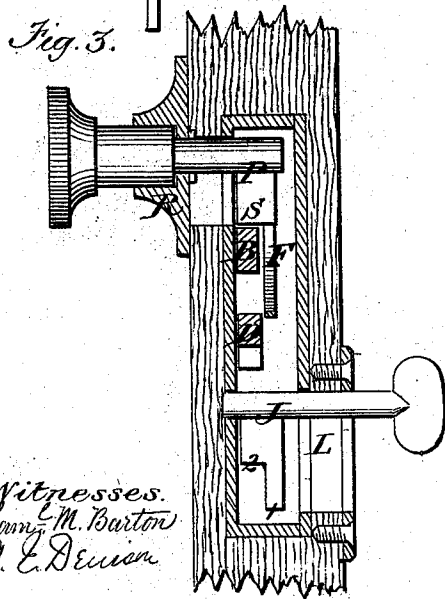
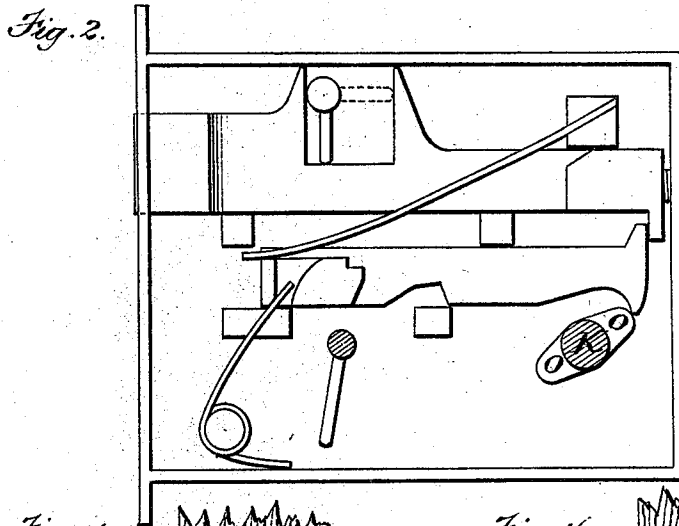
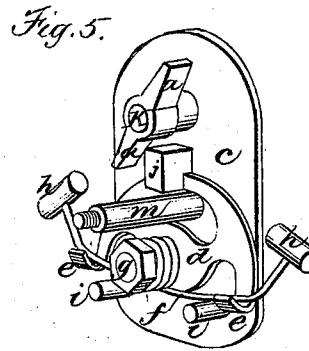
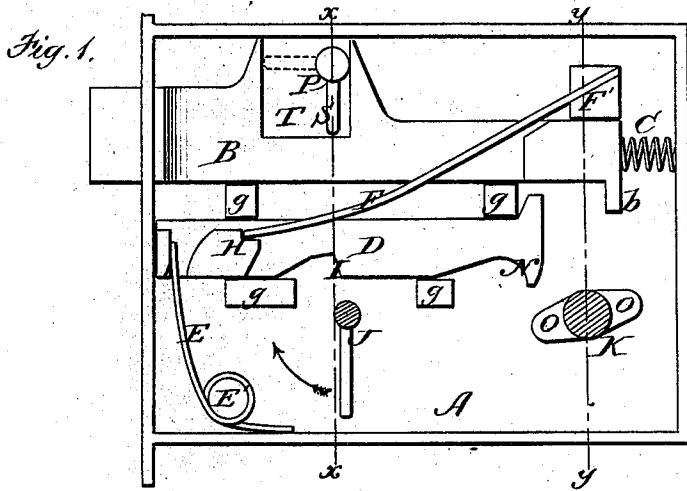


J. RICHARDSON.

COMBINED ALARM-LOCK AND DOOR-BELL.

No. 176,685.

Patented April 25, 1876.



Witnesses.
Samuel M. Barton
A. E. Deussen

Inventor
J. Richardson
 By his Attys.
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UNITED STATES PATENT OFFICE.

JEFFERS RICHARDSON, OF STOCKBRIDGE, VERMONT.

IMPROVEMENT IN COMBINED ALARM-LOCKS AND DOOR-BELLS.

Specification forming part of Letters Patent No. **176,685**, dated April 25, 1876; application filed February 17, 1876.

To all whom it may concern:

Be it known that I, JEFFERS RICHARDSON, of Stockbridge, in the county of Windsor and State of Vermont, have invented an Improved Combined Lock and Door-Bell, of which the following is a specification:

In the accompanying drawings, forming a part of this specification, Figure 1 represents a side view of the lock with one side of its casing removed and its bolt projected. Fig. 2 represents a similar view, showing the bolt retracted. Figs. 3 and 4 represent sections on the planes of lines *xx* and *yy*, Fig. 1; and Fig. 5 represents a side view of the bell-striking mechanism.

My invention has for its object to combine a spring-lock with a door-bell in such manner that the bell shall be rung either by the operation of the lock as an alarm, or independently of the lock as a door-bell.

To this end my invention consists in the combination and arrangement of parts whereby a door-bell is rung either by the operation of retracting the bolt of a spring-lock or independently of said operation, as I will now proceed to describe, and point out in my claims.

In the drawings, A represents the casing of the lock, which, in the present instance, is of the mortise pattern; and B, the lock-bolt, which is projected by the spring C. D represents a slide-bar for operating the bolt. This bar is entirely inclosed in the casing A, and is adapted to be moved longitudinally between guides *g g*, as hereinafter described. The lock-bolt B is provided with a downwardly-projecting shoulder, *b*, at its rear end, against which the rear end of the operating bar abuts when moved backwardly by the means hereinafter described, the lock-bolt being operated without being touched by the key. The operating-bar is held in the position shown in Fig. 1 by two springs, E and F, which are suitably attached to the lock-casing at E' and F', the former holding the bar with a forward yielding pressure against the front plate of the lock-casing, while the latter exerts a downward yielding pressure, and engages at its free end with a shoulder, H, which projects laterally from the bar, the latter being thus locked or prevented from being moved backwardly.

J represents a key, and K a shaft, the two operating the lock-bolt B through the intermediate operating-bar D. The key J is re-

movable like an ordinary key, and is inserted and removed through a key-hole, L, while the shaft K is preferably a permanent attachment, and constitutes a part of the bell-ringing attachment hereafter described. This shaft K extends transversely through the lock, is provided on its outer end with a crank or handle whereby it may be operated from the outside of the door, and at its middle portion within the lock with one or more short arms, O O. The key J and shaft K are so located with reference to the operating-bar that they can only act on said bar successively, the action of the key J being necessary to bring the operating-bar into a position where it can be acted on by the shaft K, while both the key and shaft are required to give the operating-bar the motion necessary to enable it to retract the lock-bolt. The key J, when in position in the lock, is located under a shoulder, I, on the lower side of the operating-bar, and this shoulder is located under the outer end of the locking-spring F. The bit of the key J is provided with two operating faces or edges, 1 2, the former being farther from the axis of the key, and therefore having a longer radius than the latter. When the key is turned in the direction of the arrow, Fig. 1, the edge 1 strikes the locking-spring F and raises it above the shoulder H, thus leaving the operating-bar free to be moved backward by the pressure of the edge 2 against the shoulder I. The key J is adapted only to force the operating-bar backwardly until its rear end comes nearly or quite in contact with the shoulder *b* of the lock-bolt. When the operating-bar is in this position a shoulder, N, on its lower side is within the radius of the arms O O of the shaft K, either of which arms is adapted to engage with the shoulder N of the operating-bar and force said bar backward far enough to cause it to retract the lock-bolt and unlock the door when the shaft K is turned. P represents a device for operating the lock-bolt B from the inside of the door, and for fastening said bolt in a projected or a retracted position. This device is composed of a key, which is, preferably, permanently attached to the inside of the door and projects into the lock, terminating therein, as shown in Fig. 3, the shaft of the key being journaled in an escutcheon or plate, R, which is attached to the door.

The inner end of the key, within the lock,

is provided with a bit, S. The lock-bolt B is provided with a recess, T, into which the key P and its bit S project, the recess being of such width as to permit the key to be turned therein, so as to bring its bit S from a vertical to a horizontal position, the outer end of the bit bearing against one or the other of the sides of the recess when in the latter position, as shown in dotted lines in Figs. 1 and 2. When the lock-bolt is projected, and the key P is turned, so as to cause the end of its bit to bear against the side of the recess nearest the front of the lock, as in Fig. 1, the bolt is held firmly in its projected position, and cannot be retracted until the key P is turned, and as the latter can only be operated from the inside of the door it follows that a person on the outside cannot unlock the door so long as the key P locks the bolt. When the key P is turned in the opposite direction it bears against the side of the recess nearest the back of the lock and forces the lock-bolt backwardly in the same manner that the shaft K does, and when the bolt is entirely retracted the bit of the key P locks the bolt in this position, as shown in Fig. 2, unless it is turned by the operator, so as to release the bolt. The key P therefore performs the office of locking the lock-bolt in either of its two positions, as well as affording means for retracting the lock-bolt and unlocking the door from the inside. When occupying a vertical position the bit S does not interfere in any way with the action of the lock-bolt.

A cheap and simple spring-lock is thus produced which cannot be easily operated by one not familiar with its construction, and is particularly adapted to the combined lock-alarm and door-bell attachment, which will now be described.

The shaft K, which I have before alluded to as being preferably a part of the bell-ringing mechanism, extends entirely through the lock and projects beyond the inner side of the door, its inner end being provided with two short arms, *a a*, which radiate therefrom in opposite directions, these arms being preferably formed on a collar, which is suitably secured to the shaft K. *c* is a plate, which is rigidly secured to the inner side of the door, said plate preferably having an orifice through which the shaft K passes, although if desired it may be entirely separate from the shaft. *d* represents a rocking plate, which is pivoted to the plate *c*. The rocking plate is preferably semicircular in its outline, and is provided with lugs or hooks *e e* at points on opposite sides of its pivot, which form abutments for the ends of a wire, *f*, the middle of the latter being wound spirally around a post, *g*, projecting from the plate *c*, the spiral portion of the wire constituting a spring which holds the ends of the wire with a yielding pressure against the lugs *e e*. The ends of the wire *f* are provided with hammers or heads *h h*. *i i* represent stationary stops or abutments projecting from the plate *c*, and acting to hold

the ends of the wire and the rocking plate *d* in the position shown in Fig. 5. The rocking plate is provided on its periphery, at a point about midway between the lugs *e e*, with a projection, *j*, which is adapted to engage with one or the other of the arms *a a* of the shaft K. *l* represents a gong or bell secured to a post, *m*, which projects from the plate *c*. The bell is so located that either of the hammers *h h* will strike it when they are operated, as will now be explained. When the shaft K is revolved in either direction, one of its arms *a*, engaging with the projection *j* on the rocking plate *d*, tilts the plate on its pivot in one direction or the other, this motion of the plate raising one end of the wire *f*, with its hammer against the tension of the spring, and leaving the other end of the wire supported by one of the stationary abutments *i*. When the shaft K is turned so far as to cause its arms *a* to pass by the projection *j* and release the rocking plate, the wire *f* flies back, forcing the plate to its former position and striking the bell sharply with its hammer. This effect is produced by rotating the shaft K in either direction, as before intimated.

From the foregoing it will be readily seen that by my invention an efficient spring-lock is produced, and an alarm apparatus, which must be operated by the retraction of the lock-bolt, and is adapted to be operated as a door-bell, independently of the lock, the rotation of the shaft K being necessary to both operations.

My invention is applicable either to a mortise-lock, as shown in the drawings, or to an outside lock, in which case the bell and striking apparatus will be attached directly to the lock-casing.

I claim as my invention—

1. In a spring-lock, the combination of the lock-bolt B, having shoulder *b*, operating-bar D, having shoulders I N, key J, shaft K, having arms O O and *a a*, and a bell-ringing mechanism, adapted to be operated by the rotation of the shaft, all substantially as described.

2. In a spring-lock, the shaft K, having arms O O within the lock-casing, and arms *a a* on the outside of the lock-casing, combined with and adapted to operate the lock mechanism, and an external bell-ringing mechanism, substantially as described.

3. The shaft K, adapted to operate the mechanism inside of the lock, and provided with the arms *a a* on the outside of the lock, combined with the pivoted rocking plate *d*, adapted to operate the two hammers *h h*, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JEFFERS RICHARDSON.

Witnesses:

JOEL BLACKMER,
M. M. WOOD.