

E. W. FOWLER.
Device for Operating Safe-Bolt Work.

No. 219,084.

Patented Sept. 2, 1879.

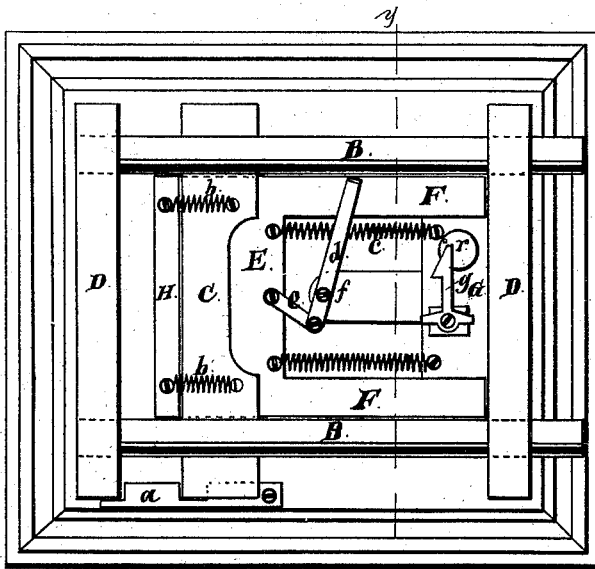


Fig. 1.

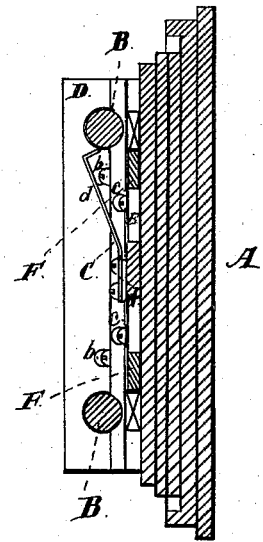


Fig. 4.

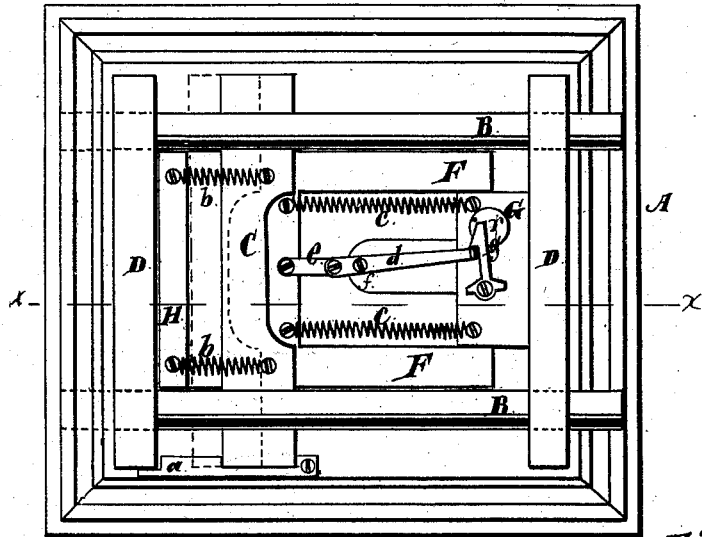


Fig. 2.

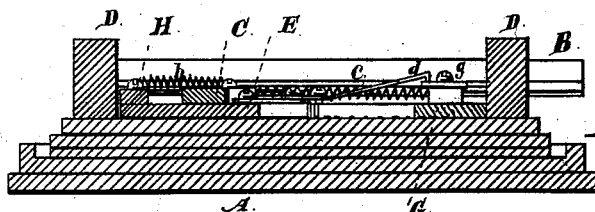


Fig. 3.

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IMPROVEMENT IN DEVICES FOR OPERATING SAFE BOLT-WORKS.

Specification forming part of Letters Patent No. **219,084**, dated September 2, 1879; application filed December 14, 1878.

To all whom it may concern:

Be it known that I, ELBERT W. FOWLER, of Chicago, Cook county, State of Illinois, have invented a new and useful Improvement in Burglar-Proof Safes, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of the inner face of a safe or vault door, showing the bolts thrown back and the other parts in the position which they occupy before they have been adjusted for operation. Fig. 2 is a front elevation of the inner face of the door, showing the bolts drawn back and the other parts in the position which they occupy after they have been adjusted for operation. Fig. 3 is a longitudinal section at *x* of Fig. 2. Fig. 4 is a vertical section at *y* of Fig. 1.

My invention relates to devices for automatically casting and retracting the bolt-work of a safe. These devices are not located in a time-lock, but are outside thereof. The devices for casting the bolt-work consist of one or more springs, combined with certain bars, and with the bolts and with a spring-catch, which devices are so constructed that they can be so adjusted that upon closing the door of the safe or vault the spring-catch will be released and the springs will cast the bolts, all as hereinafter more fully set forth.

The devices for retracting the bolts consist of springs, bars, levers, holding-catch, and device for releasing the catch, so constructed and combined with the bolts that the same can be so arranged and adjusted that when the holding-catch is released the springs will retract the bolts, all as hereinafter more fully set forth.

A time mechanism may be used in connection with the retracting mechanism for the purpose of releasing the holding-catch.

In the drawings, A represents the door of a safe or vault provided with tenon-grooves and rabbets, to shut into corresponding grooves and rabbets in the door-jamb. B B are door-bolts, connected by a bar, C, and moving in bearings in the carrying-bars D D. E is a sliding plate or bar, having arms or extensions F F. It is located upon the inner face of the door and under the bar C. G is a plate fixed to the inner face of the door and between the

arms F F, serving the purpose of a guide for such arms. H is a bar permanently secured to the plate E.

In manufacturing, E, F F, and H may be made together, forming a single piece.

a is a spring-catch, arranged to engage with the edge of the bar C when the bolts are retracted, and so arranged that when the door is closed this spring *a* will come in contact with a projection on the door-jamb and be forced back, releasing the bar C. *b b* are two coil-springs, one end of each of which is secured to the bar C, and the other to the part H. *c c* are two other coil-springs, one end of each of which is secured to the plate E, and the other end to G, or some other suitable fixed part.

d e together form a jointed lever, *d* being pivoted at *f* to a suitable projection or block on the inner face of the door, while the part *e* is pivoted at one end to *d* and at the other end to the plate E. *g* is a catch to engage with the outer end of the lever *d*. It is pivoted to G, as shown.

Any suitable clock-work is to be applied to the inside of the door, so arranged that at a predetermined time its mechanism will release the catch *g* from the lever *d*. *r* is a wheel rotated by such clock-work. The parts may be arranged in various ways, according to circumstances.

I have not shown the clock-work in full; but any one skilled in the art can easily apply the same to a safe in connection with my devices from the description herein given.

The operation is as follows: Suppose the safe-door to be open, the bolts retracted, all parts being in their normal position, as shown in Fig. 1, and the time-lock having been wound and set, as usual. Then, by means of the jointed lever *d e*, the plate E can be thrown forward, bringing it into the position shown in Fig. 2, where it can be held by engaging the catch *g* with the end of *d*, in which position the springs *b b* and *c c* will all be under tension, and the spring-catch *a*, being engaged with the bar C, to which the bolts are secured, will hold them retracted. When the door is closed this spring *a* will be pushed back by coming in contact with projection on the door-jamb above mentioned, and the bar C will be

released from the spring. Then the tension of the springs *b b* will cast the bolts, and they will remain in that position until the action of the proper mechanism in the clock-work throws the catch *g* away from the end of the lever *d*. Then the action of the springs *c c* will retract the bolts.

The two parts *d e* of the lever are not exactly in line one with the other when the mechanism is set ready for use.

I have shown two springs *b b* and two springs *c c*. A greater number may be used. In place of the two springs *b b*, a single spring might be used. So a single spring might be used in place of the two springs *c c*. I prefer to use a number of springs of greater aggregate power than is required, so that if any one should become unfit for use the remaining springs will do the work.

I do not use any spindle or other connection with the outside of the door to operate the bolts, the bolts being cast by the springs *b* and retracted by the springs *c*.

It will be observed that both sets of springs are made ready for operation by the movement of the lever *d e*, so that the safe cannot be locked without first setting the power which unlocks it.

My improvement is shown in connection with reciprocating bolt-work of the ordinary

kind; but its use is not limited to such simple bolt-work.

I do not limit myself to the arrangement of the lever *d e* and catch *g* shown, as various known means may be adopted to hold the plate *E* forward.

The arms *F* serve the purpose of guides. They might be slotted and move over a screw or headed pin.

The spring *a* can be located in any convenient place, and may be released from *C* by coming in contact with the door-jamb or a projection on the inside of the safe. Instead of a single spring, *a*, two may be used, one at each end of *C*.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. The combination of the sliding plate *C*, bar *H*, springs *b*, and spring-catch *a* with the bar *D* and bolt or bolts *B*, substantially as specified.

2. The combination of the sliding plate *C*, bar *H*, and springs *b* with the sliding plate *E*, springs *c*, lever *d e*, catch *g*, and disk *r*, substantially as and for the purpose specified.

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Witnesses:

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