(50.) 2 Sheets--Sheet 1.

C. C. ROWELL & W. DUNCAN.

Improvement in Method of Protecting Safes from Burglars.

No. 122,913. Patented Jan. 23, 1872.

Fig. 1.

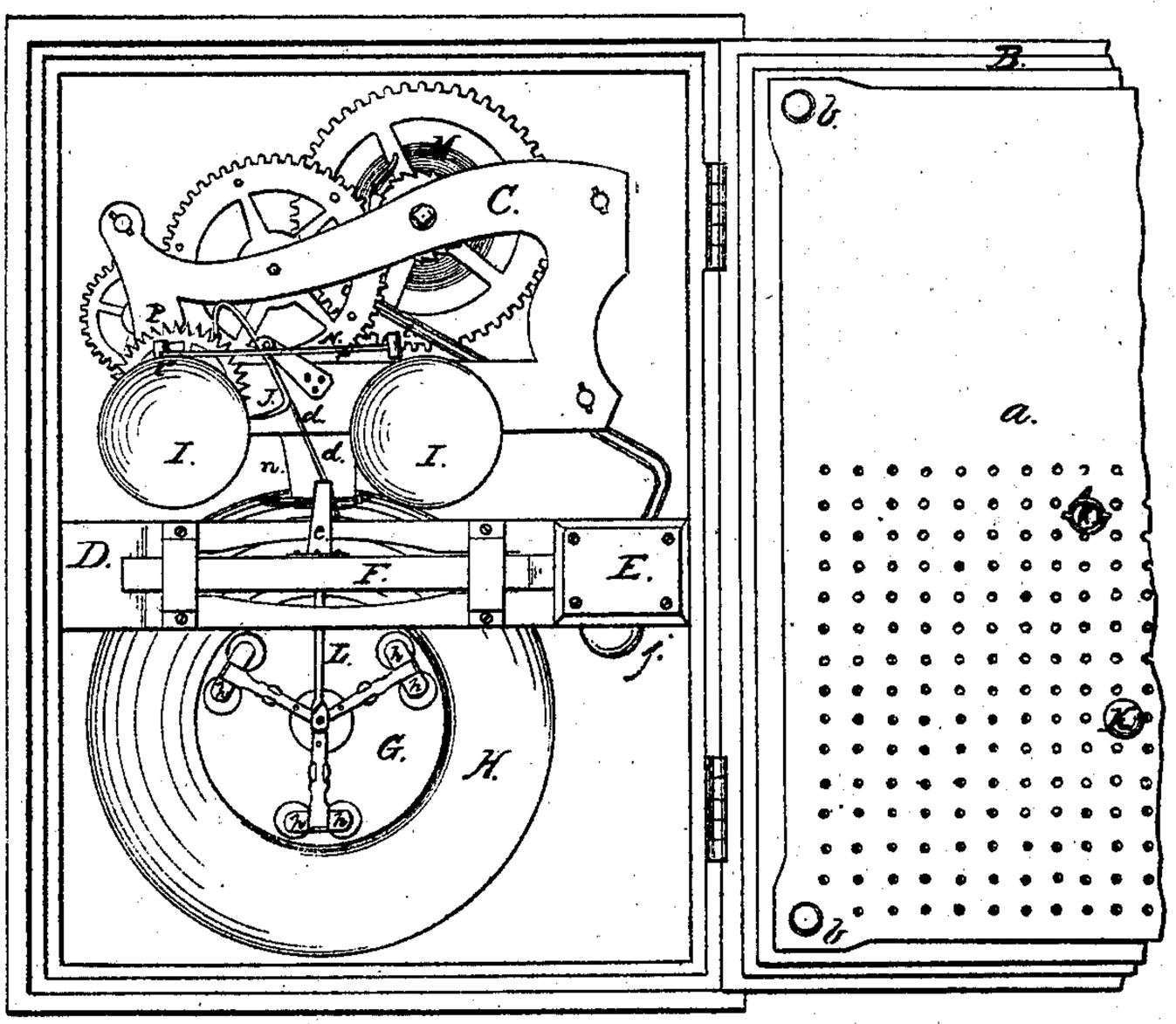


Fig. 5.

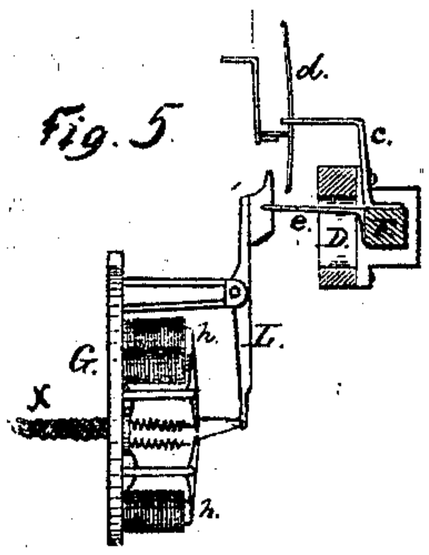


Fig. 3.

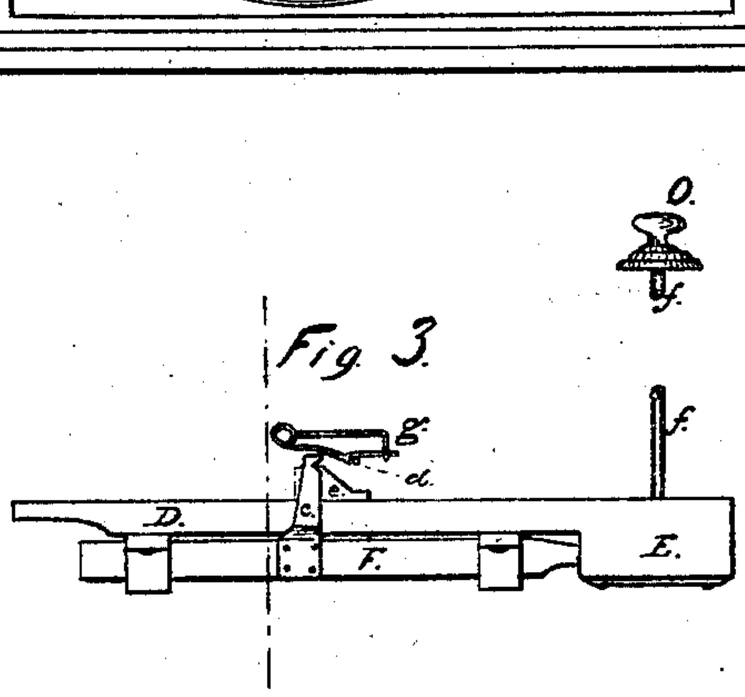


Fig. 4.

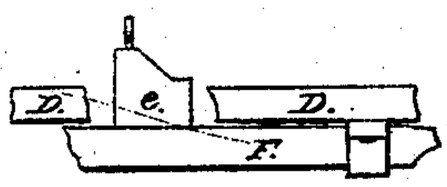
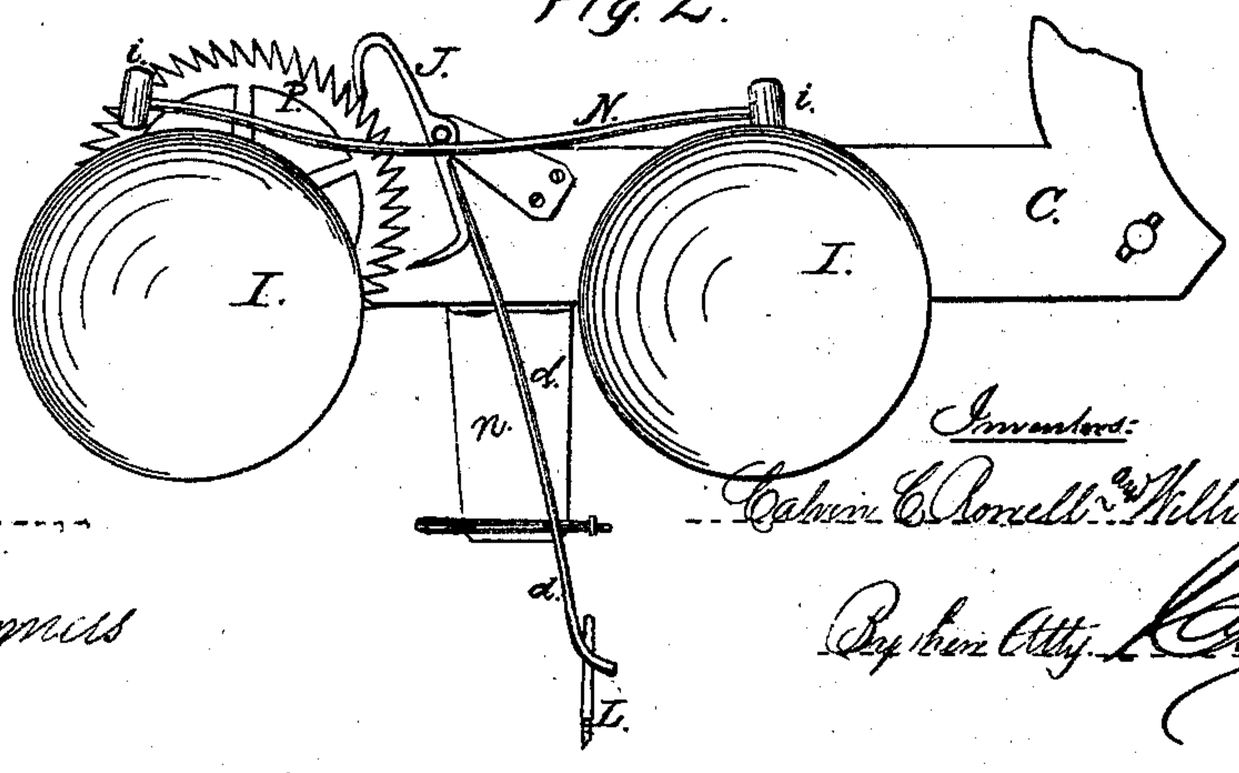


Fig. 2.



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C. C. ROWELL & W. DUNCAN.

2 Sheets--Sheet 2.

Improvement in Method of Protecting Safes from Burglars.

No. 122,913. Patented Jan. 23, 1872.

Fig. 6.

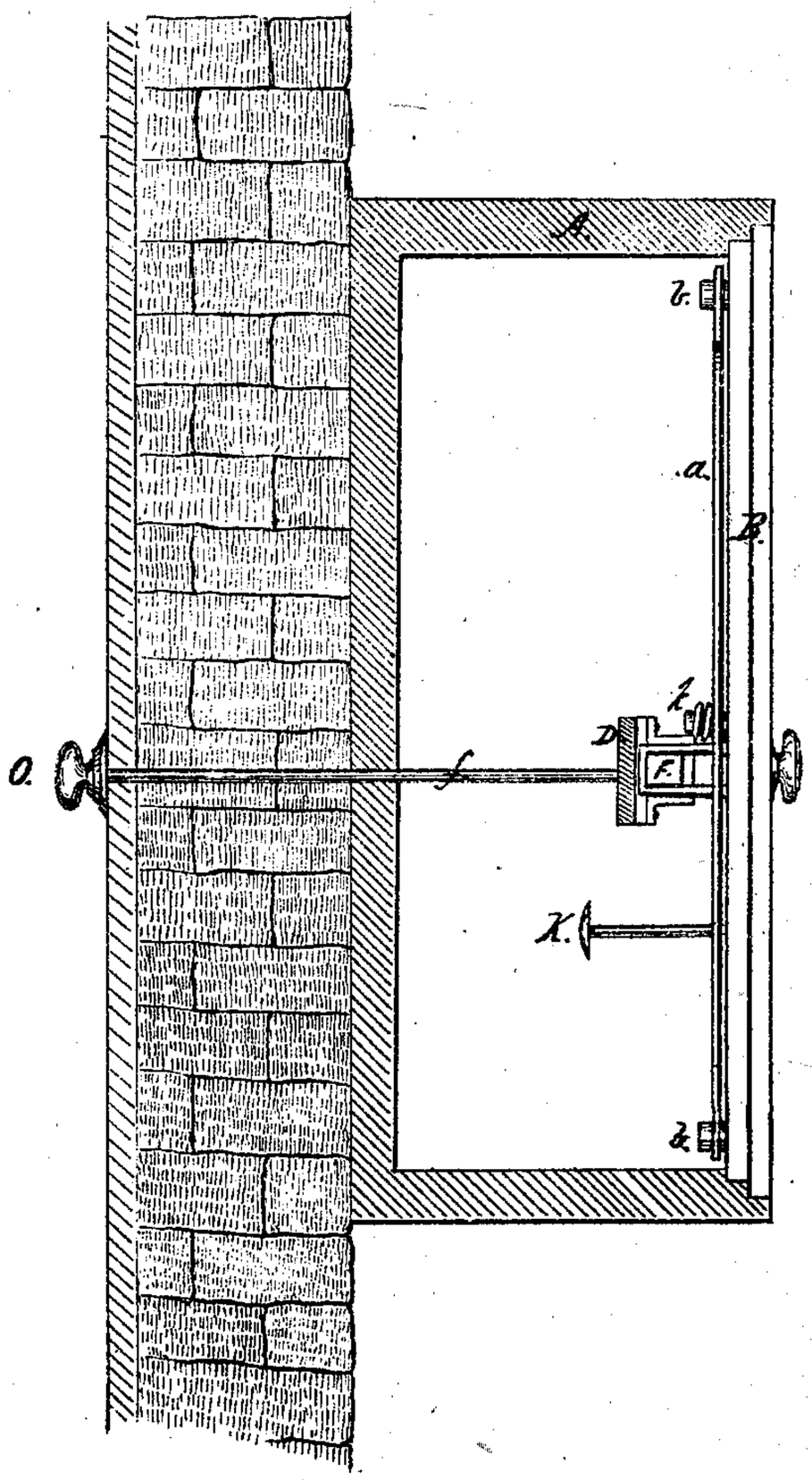


Fig. 7.

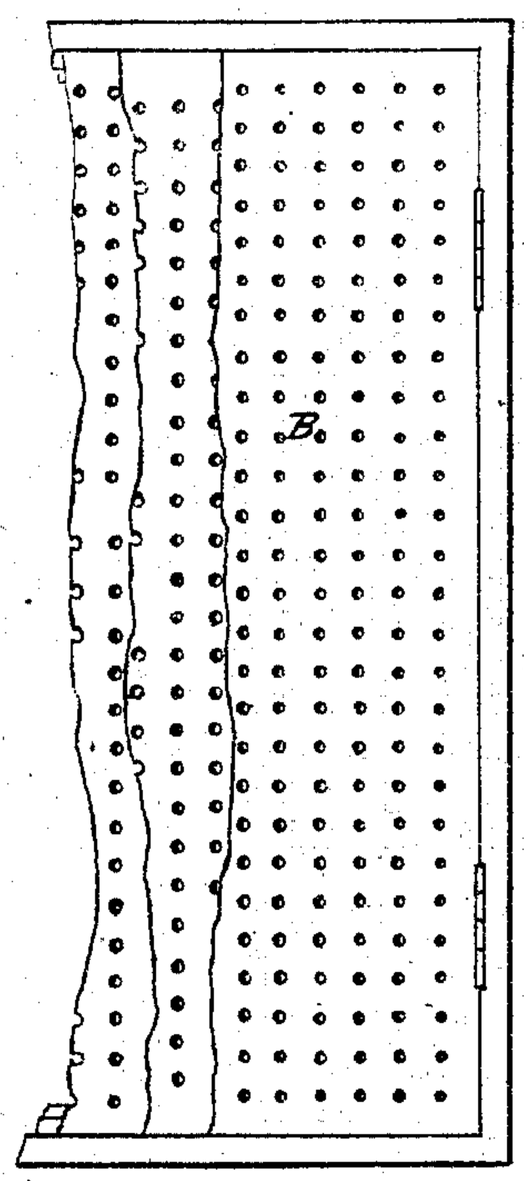
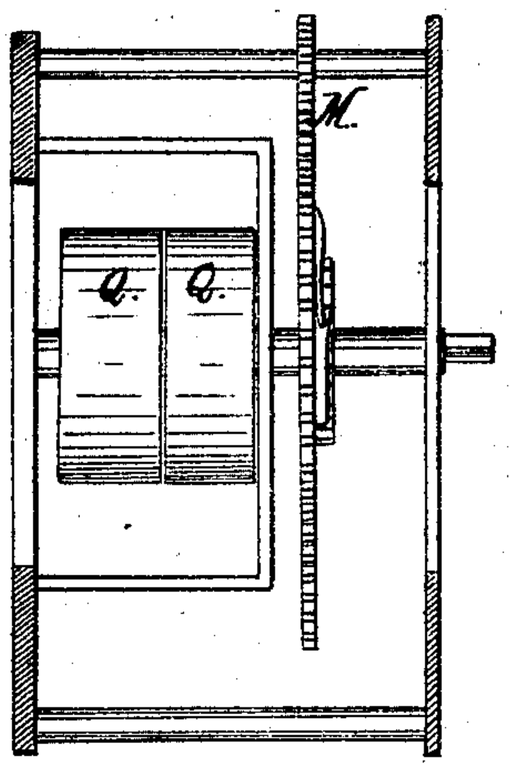


Fig. 8.



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122,913

UNITED STATES PATENT OFFICE.

CALVIN C. ROWELL AND WILLIAM DUNCAN, OF LEBANON, N. H.

IMPROVEMENT IN METHODS OF PROTECTING SAFES, &c., FROM BURGLARS.

Specification forming part of Letters Patent No. 122,913, dated January 23, 1872.

Specification describing certain Improvements in Protecting Safes from Burglars, &c., invented by CALVIN C. ROWELL and WILLIAM DUNCAN, of Lebanon, in the county of Grafton and State of New Hampshire.

This invention relates to an improved method of protecting safes from burglars, thieves, &c., for which Letters Patent were granted to us dated November 15, 1870, No. 109,193, and August 1, 1871, No. 117,713; and it consists in the construction and arrangement of an alarm-box, having for its object to perfect the apparatus and facilitate the operation of the same.

Description of the Drawing.

Figure 1 is a front view of the alarm-box with the door open. Fig. 2 is an enlarged view of the escapement-wheel and pallets, and the alarm connected with and operated by them. Figs. 3 and 4 are top views of the locking-bar and the locking and setting apparatus connected with it. Fig. 5 is a sectional view through the line *x y*, Fig. 3. Fig. 6 is an end view of the box, partly in section, showing it as secured upon the outside of a building, and operated from the inside of the room or apartment. Fig. 7 is a front view of the door of the box, partly broken away to show its construction. Fig. 8 is a view of a portion of the train C, showing the arrangement of the driving-springs.

General Description.

A represents the casing, and B the door of the box that contains the alarm apparatus. C is a train of clock-work placed within the box and constituting the striking mechanism, or the means by which the hammers *i i j* are operated. D is a bar extending across the front of the box and provided with bearings for the sliding bolt F. One end of the bolt is connected with the lock E, secured upon the bar D, and the other end engages with the staple *m* on the door B, and holds it secure. G is a plate, upon which the electro-magnets and armatures connected with the cable *x* are placed; but as this part of the mechanism is clearly set forth in the above-named patents granted to us, a description in detail is considered unnecessary. H I I are the alarm-gongs, arranged, as plainly shown in Fig. 1, in position to be properly operated upon by the striking mechanism. J are the pallets, operated by the escapement-wheel P and controlled by the wire *d* secured to them. The pallets are provided, also, with the wire N, carrying the hammers *i i*, which strike rapidly upon the gongs I I as the pallets are vibrated by the escapement-wheel P, and sound a continuous alarm. The wire *d*, secured to the pallets, is held back by the spring-catch *g* upon the bracket *n*, and the motion of the train is thereby arrested and controlled. When in this position the lower end of the wire is immediately over the end of the armature-lever L, as shown in Figs. 2 and 5; but as soon as the electric circuit is broken the lever L raises the wire from the catch *g*, and the pallets are immediately vibrated by the escapement-wheel and the train is set in motion. The mechanism for setting and controlling the alarm, and for shutting it off when it is not required to have it operate, is arranged as follows: The locking-bolt F, connected with and operated by the combination lock E, carries an arm, *c*, and also a wedge-shape piece, *e*. The arm *c* has a notch in its end, which moves in the same plane as the wire *d* when the bolt F is operated, and the wedge *e* passes over the end of the armature-lever L and holds it down. The lock E is operated by the spindle *f*, which passes through the casing A of the box; and the bolt can be moved back or forward by turning the knob *o*.

When the knob is turned so as to throw the bolt F forward into the position shown in Fig. 1, the arm *c* is moved into place immediately behind the wire *d*, and the wedge *e* is brought over the end of the armature-lever L, so that the wire *d* is held forward and prevented from being thrown clear of the catch *g*, and the armature-lever L cannot be thrown up against the wire *d* if, from any cause, the circuit is broken. The alarm is thus always under control, and can be shut off whenever it is necessary. By throwing the bolt F back the arm *c* will be withdrawn from the wire *d* and the wedge *e* moved back from the armature-lever L, and the mechanism is ready to be operated by the breaking of the circuit.

The alarm may be stopped and reset at any time, when it is sprung, by throwing the bolt F forward, so that the notch in the arm *c* en-

gages with the wire *d* and throws it forward into the spring-catch *g*, and then moving the bolt back again.

The door of the box is constructed of a series of perforated plates, as shown in Fig. 7, the perforations of which are placed in alternate rows, or the perforations in one plate between those in the others, so that, although the interior of the box or case is in communication with the air outside surrounding it, no access can be had to the inside of box or case through the plates. This permits the sound of the alarm to be heard more distinctly than it would if the case were constructed of plain plates without the perforations. The door B is arranged with a movable shield, *a*, having perforations in the lower part and provided with the stud K. The plate *a* is held back by the coil-spring around the pin *k*, and is supported upon the studs *b b*, secured to the door B. When in this position the head of the stud K is immediately over the end *l* of the armature-lever L. If from any cause the shield or movable plate *a* is pressed against from the outside, when the door is closed, the stud K will be moved against the end of the lever L, and the opposite end of the lever will be raised and the wire *d* sprung from the catch *g*. As thus arranged, the mechanism in the box cannot be tampered with from the outside, for any attempt to break in through the door B or introduce any instrument will cause the plate *a* to be pressed in and sound the alarm. The train of clock-work is driven by the springs Q Q, arranged, as shown in Fig. 8, in place of the single spring usually employed. The object of this arrangement is to prevent the mechanism becoming deranged by the accidental breaking of the spring, which would happen if only one were employed; but by using two or more springs to drive the train this liability is entirely removed.

Having thus fully described our invention, what we claim therein is—

1. The combination, with an electric circuit and clock-work operated by the same, of the double alarm-gongs I I, constructed, arranged, and operated substantially in the manner described.

2. The combination, with an electric circuit and clock-work operated by the same, of the alarm-gongs I I and gong H, constructed, arranged, and operated substantially in the manner described.

3. An alarm-box, the door or other part of which is made up of a series of perforated plates, the perforations of which "break joints" to prevent ingress to the clock-work, while free air communication is retained with the interior of the box to emit the sound of the alarm, constructed substantially as described and specified.

4. Attaching to the door of an alarm-box a movable perforated plate, *a*, and stud *k*, constructed and operated substantially in the manner described, and for the purpose specified.

5. The combination, with an electric circuit and alarm apparatus, of a lock so arranged as to lock the alarm-box, connect and disconnect the armature-lever L, and control the movement of the clock-work, substantially in the manner described and specified.

6. The alarm-box as a whole, constructed and operated substantially as described, used in connection with an insulated safe and electric circuit.

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