2 Sheets--Sheet 1

E. M. HENDRICKSON.

Burglar-Alarms.

No. 140,134. Patented June 24, 1873.

Fig. 2.

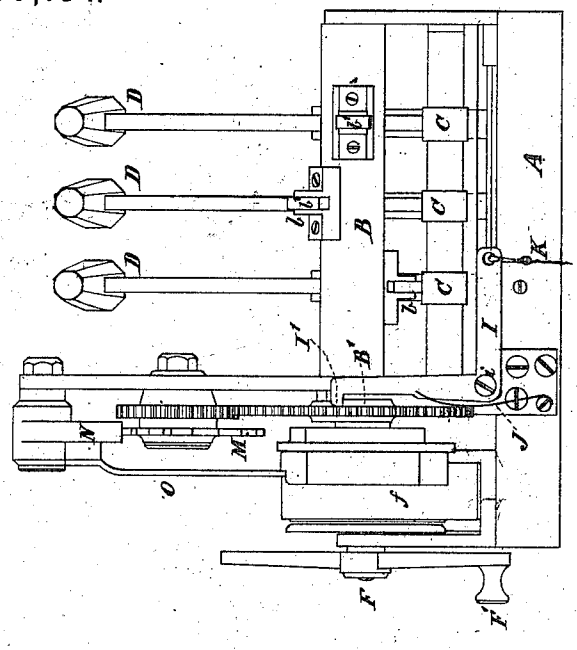
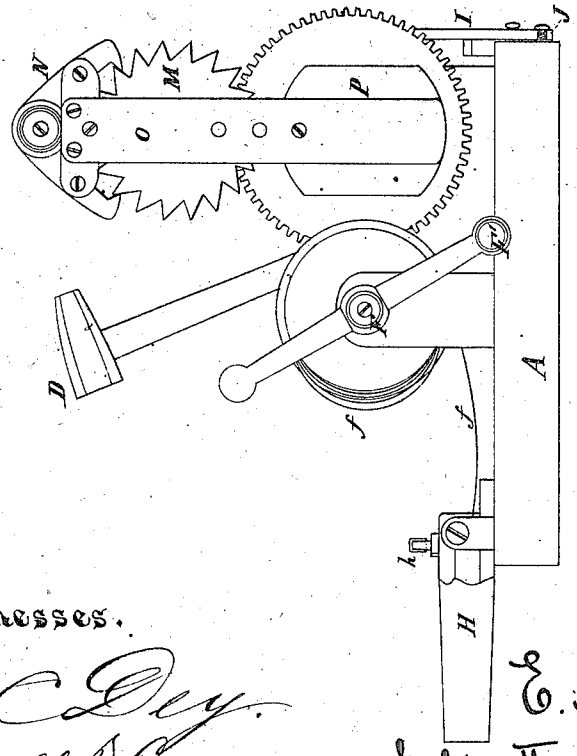


Fig. 1.



Witnesses.

Wm. C. Dey.

Arnold Hörnemann.

Inventor.

E. M. Hendrickson

by his attorney T. D. Nelson.

New York

2 Sheets--Sheet 2.

E. M. HENDRICKSON.

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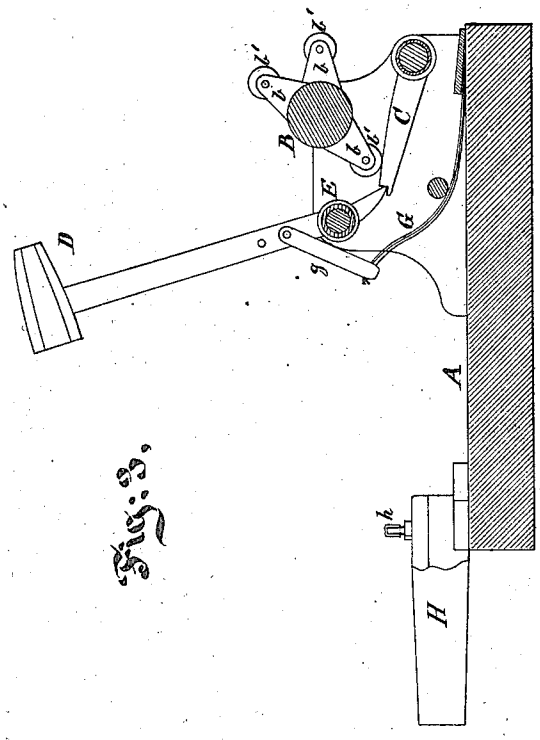

Fig. 3.

Witnesses.

Wm C Dey

Arnold Hörmann.

Inventor.

E. M. Hendrickson

by his attorney

T. D. Stetson

New York

UNITED STATES PATENT OFFICE.

EZEKIEL M. HENDRICKSON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN BURGLAR-ALARMS.

Specification forming part of Letters Patent No. 140,134, dated June 24, 1873; application filed December 26, 1872.

To all whom it may concern:

Be it known that I, EZEKIEL M. HENDRICKSON, of Brooklyn, Kings county, in the State of New York, have invented certain Improvements relating to Burglar-Alarms, of which the following is a specification:

My alarm operates without the necessity for magnetic batteries or analogous apparatus, and can induce a loud and repeated alarm either at the point where the burglarious entrance occurs or at a distant point, as in the sleeping-room of the janitor of the building.

The following is a description of what I consider the best means of carrying out the invention.

A series of hammers actuated by a spring or weight causes the explosion successively of a number of small fire-arms, by exploding powder successively in each of a series of barrels provided with percussion-caps.

The accompanying drawings form a part of this specification.

Figure 1 is a side view, and Fig. 2 is a back view, of the mechanism. Fig. 3 is a longitudinal section.

Similar letters of reference indicate like parts in all the figures.

A is a flooring or foundation of plank. B is a barrel mounted on suitable bearings and carrying projections *b*, having each a roller adapted to act successively on levers C, a series of which hold up hammers D mounted loosely on the shaft or axis E, and actuated by springs G through the medium of links *g*, so that on being liberated from the stop-levers C the several hammers will fall not only by the force of gravity, but also by the action of the spring G. In the path of each hammer D is the percussion-cap *h*, on a suitable nipple on a barrel, H, which may be charged with powder and an appropriate wad, so as by the explosion of the powder to cause a loud report when each hammer falls. The barrel or cylinder B is provided with a gear-wheel, which meshes into another on a neighboring shaft, F, which is actuated by a strong volute spring, *f*, arranged as indicated in Fig. 1. A suitable ratchet being provided the spring *f* is wound up by means of the hand-crank F′, and a sufficient force being thus provided for giving the barrel B a complete revolution, the apparatus is ready to act so soon as the burglar shall disturb the stop, which under ordinary conditions prevents its action. This stop, which retains the parts in the inert condition under ordinary circumstances, is in the form of a bell-crank lever, I, turning on a fixed center, *i*, and having a hook or shoulder, I′, on one arm, which engages with the corresponding projection B′ on the gear-wheel of the barrel B. The parts I′ and B′ are held engaged or locked together by the force of a gentle spring, J, until a pull is received on the wire K, which may be connected to a door, window-sash, or other part which it is desired to guard.

The several hammers being set so that they are held up by their respective levers C, and the spring *f* being wound up, when the door is operated or the window-sash raised it communicates, by means not represented, but which will involve no difficulty, a pulling-force on the wire K, sufficient to overcome the tension of the spring J and turn the bell-crank lever I sufficiently to separate the parts I′ B′, under which conditions the spring *f* and its connections induce a rotary motion of the barrel B, with the effect of successively dropping the several hammers D and exploding the several charges of powder.

I insure a moderate and tolerably steady motion of the barrel B when in operation, by means of an escapement analogous to that employed in clocks and watches. The gear-wheel on the barrel B gears into another of smaller diameter, which carries a toothed escapement-wheel, M, which acts on the two pallets of what is known in clock-work as a verge, marked N in the figures, and, by giving a rapidly oscillating motion to the verge, communicates a corresponding motion to the long lever O, which carries an adjustable weight or pendulum, T. By adjusting this latter the time of the oscillations of the verge may be varied, and consequently the rapidity of the rotation of the barrel B.

I esteem it preferable to arrange the parts and rollers *b′* on the drum B, so that the hammers shall fall and the explosions of the powder be induced rather at irregular intervals. An irregular succession of explosions is more likely to attract the attention of people in the

streets, and to arouse all the people in the building.

Some of the details of the apparatus may be varied within wide limits. Thus, gravity instead of a spring, J, may be employed to hold the parts I′ B′ in contact, or the apparatus may serve with success without either. It may depend simply on the friction of those parts on each other when properly formed to hold them in contact until a pull is felt on the connection K, which may be a cord instead of wire. The projections *b* may serve without rollers. The hammers may serve by gravity alone, or by a spring-force alone. The barrel B may be actuated by a spring applied directly instead of through gearing, or by the force of a weight applied through a cord or wire rope.

The above construction supposes the important shoulders I′ B′ to be square, so that there is no tendency to separate or to remain engaged, except by the slight force due to friction. It may be necessary in some situations to provide against a possibility of a burglar cutting the wire before operating the door or window. To guard against this I propose to arrange the lever I, or its equivalent stop, so that there shall be a constant tendency to let go of the wheel and to restrain this tendency by the wire or other connection K. Under such conditions the operating of the door or window should slacken the wire instead of pulling it, and the cutting of the wire would have the same effect in liberating the alarm. The wire can be connected to a slightly-yielding board in the floor, so that it will be operated when that part of the floor is stepped on. I esteem all such parts the equivalents of the door or window specified.

I claim as my invention—

The escapement M N and adjustable pendulum O P or their equivalents, the motive power *f* or its equivalent, in combination with the series of discharging means *b*, *c*, D, and G, arranged relatively to a corresponding series of barrels, H, and connection I K to a door, window, or the like, so that a series of reports may be induced at long or short intervals of time, as preferred, when the whole is set in operation by the act of opening the door or window, all constructed and arranged substantially as specified.

In testimony whereof I have hereunto set my hand this 24th day of December, 1872, in the presence of two subscribing witnesses.

E. M. HENDRICKSON.

Witnesses:

WM. C. DEY,

ARNOLD HÖRMANN.