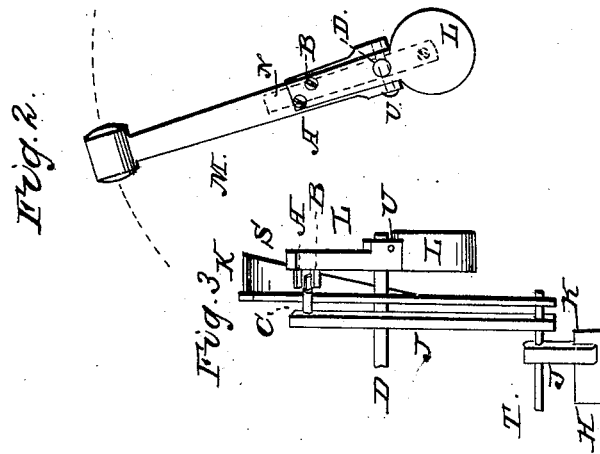
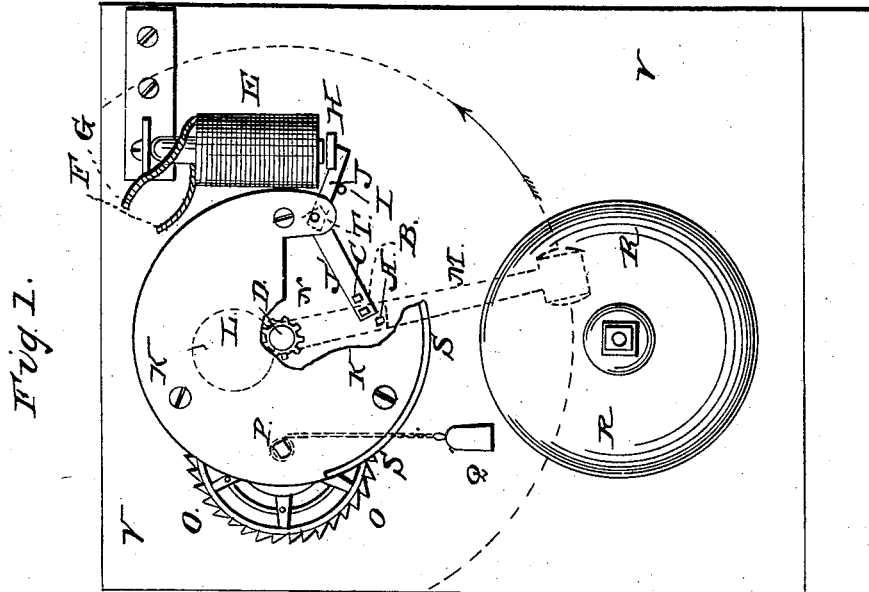


C. WILLIAMS, Jr., & J. REDDING.

Electro-Magnetic Alarm.

No. 111,707.

Patented Feb 7, 1871.



Witnesses
John M. Batchelder
Henry C. Rowe

Inventors
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United States Patent Office.

CHARLES WILLIAMS, JR., OF SOMERVILLE, AND JEROME REDDING, OF
CHARLESTOWN, MASSACHUSETTS.

Letters Patent No. 111,707, dated February 7, 1871.

IMPROVEMENT IN ELECTRO-MAGNETIC ALARM-BELLS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, CHARLES WILLIAMS, JR., of Somerville, and JEROME REDDING, of Charlestown, both of the county of Middlesex and State of Massachusetts, have invented an Improvement in Electric Alarm-Gongs, which we believe to be new and useful; and we hereby declare that the following is a full and exact description of the construction and mode of use of the same, reference being had to the accompanying drawing making a part of this specification.

Figure I is a front view of the apparatus.

Figure II is a front view of the hammer and hammer-holder.

Figure III is a side view of the hammer-holder, the cam, the locking-pins, the armature, and armature-lever.

Our present improvement is, in many of its features, the same as the apparatus for which Letters Patent of the United States were granted to us on the 25th day of October, A. D. 1870, and numbered 108,743, to wit: a revolving bell-hammer, making an entire revolution at each stroke, the same being put in operation or stopped by the action of an electro-magnet.

The present improvement relates mainly to the pins, studs, or detents, and the manner of their action when the revolving hammer is started or stopped by the electro-magnet and its attached mechanism.

The terminal wires F and G of the magnet E lead to a battery and circuit-key, with which they are connected in the usual manner.

The back-board V supports the magnet, the frame K of the mechanism, and the alarm-bell R.

A string from the weight Q is wound upon the barrel P, and turns the gear-wheel O and the pinion N, that is made fast to the shaft D.

The hammer-holder L is also secured to the same shaft D, and when it revolves the attached hammer describes a full circle.

The hammer M is secured to the holder L by a pin, U, so that it may move forward about one-quarter of an inch, the extent and force of this motion being controlled by the cam S and the spring W.

The hammer revolves in a plane parallel with the plane of the frame K until the arm strikes the cam or wiper S, by which it is thrown forward against the

inner edge of the bell R. As the arm leaves the cam it is carried back to place by the spring W.

The armature H of the magnet E is affixed to the bent lever J J', and turns on the shaft or pin T.

Near the end of the lever J' there is a fixed pin or detent, C.

When the magnet is not charged the armature H rests in the position shown in Fig. I, the pin B, that is fixed in the hammer-holder L, remains in contact with the detent C; but when the current passes through the coil of the magnet the armature is lifted. The end J' falls, the pin B escapes over the detent C, and the hammer arm M begins its revolution in the direction of the arrow in Fig. I.

If the circuit remains closed the hammer moves but a short distance, as the pin A comes in contact with the detent C and prevents its further motion.

When the circuit is broken the armature falls against the stop I, the detent C rises and allows the pin A to pass, thus liberating the hammer, which then completes its revolution and strikes one blow upon the bell, any further motion or repetition of the stroke being prevented by the arrest of the pin B as it comes in contact with the detent C.

To strike a second blow, the circuit must again be closed, when the same movement above described will be repeated.

What we claim, and desire to secure by Letters Patent, is—

1. An electro-magnetic striking apparatus, provided with a revolving hammer driven by a weight or other motor, and an electro-magnet which controls the action of the pins, studs, stops, detents, or their equivalents, substantially as herein described.

2. In combination with the revolving hammer and electro-magnet, the pin A, which prevents the revolution of the hammer while the magnet remains charged and the circuit closed, substantially as herein described.

CHARLES WILLIAMS, JR. [L. S.]
JEROME REDDING. [L. S.]

Witnesses:

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JOHN M. BATCHELDER.