

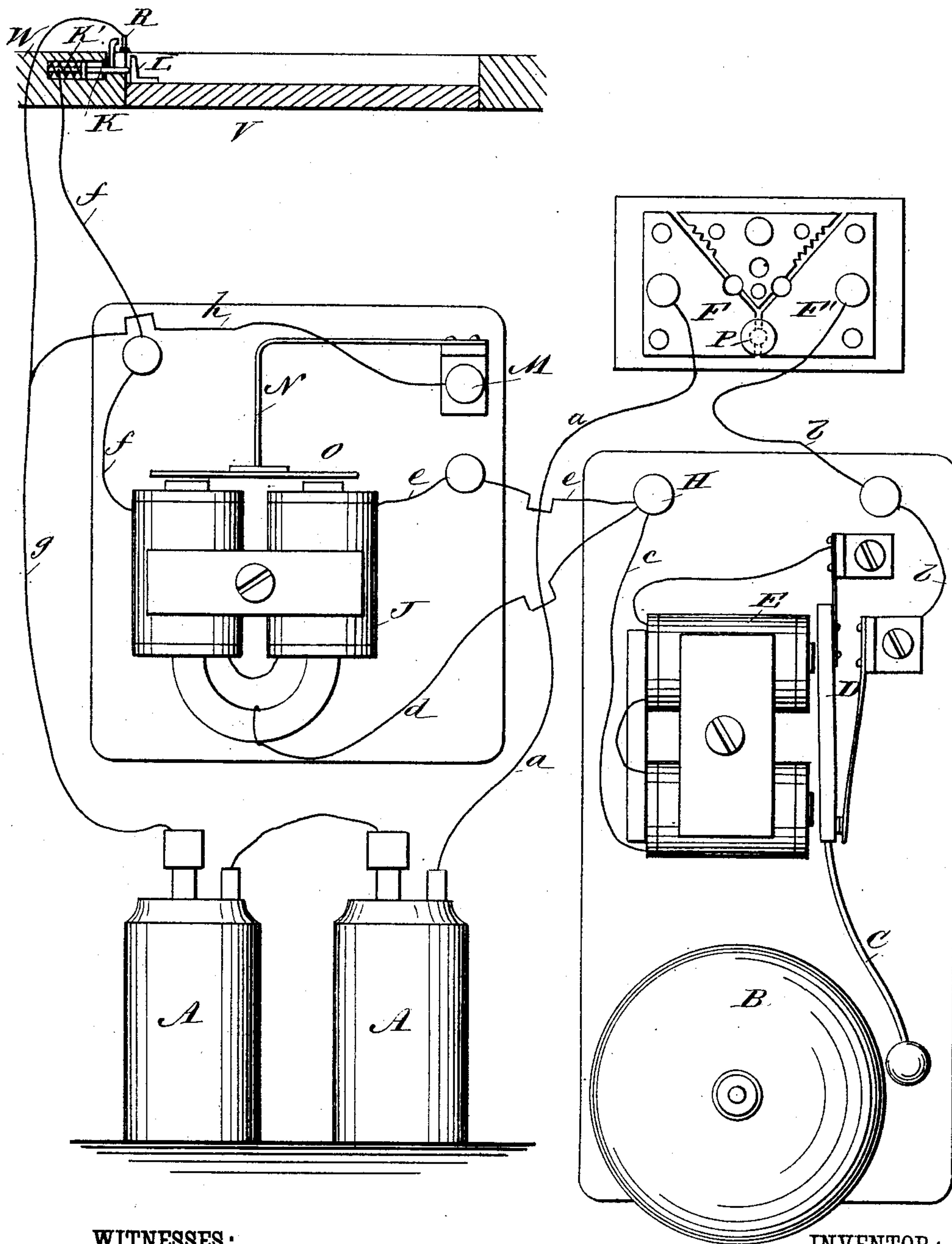
(No Model.)

J. H. HILL & J. E. BABCOCK.

ELECTRIC BURGLAR ALARM.

No. 316,621.

Patented Apr. 28, 1885.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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ELECTRIC BURGLAR-ALARM.

SPECIFICATION forming part of Letters Patent No. 316,621, dated April 28, 1885.

Application filed March 15, 1884. (No model.)

To all whom it may concern:

Be it known that we, JOHN H. HILL, of Long Island City, in the county of Queens and State of New York, and JOSEPH E. BABCOCK, of the city, county, and State of New York, have invented a new and Improved Electric Burglar-Alarm, of which the following is a full, clear, and exact description.

This invention relates to certain new and useful improvements in electric burglar-alarms working on a closed circuit.

The object of our invention is to reduce the resistance when the bell is being sounded, and also to keep the bell ringing, even if the circuit has been broken again by closing the door or window that has been opened and caused the sounding of the alarm.

The invention consists in the combination, with an electric generator, electric bell, and line-wires, of an electro-magnet connected with the line-wires, and its core connected by a short-circuiting wire with the bell, which additional electro-magnet has its armature held in a spring the tension of which is less than the force of the residual magnetism in the magnet.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which the system of our burglar-alarm is shown.

A represents the battery; B, the bell; C, the hammer; D, the armature to which the hammer is fastened; E, the electro-magnets for operating the hammer, and F F' the switch-plates, all of the usual construction. One terminal of the battery A is connected by a wire, *a*, with the switch-plate F. The switch-plate F' is connected by wires *b* with a spring resting on the armature D. The magnets E are connected by a wire, *c*, with the binding-post H.

An electro-magnet, J, has its core connected by a wire, *d*, with the binding-post H, and the coils of the said magnet J are connected by a wire, *e*, with the binding-post H, and by a wire, *f*, with the sliding contact pin or bolt K, acted on by a spring, K', and adapted to press it against a piece, R, connected with battery A by a wire, *g*. The pieces K and R are secured on the casing W, and a piece, L, adapted to keep the pieces K and R disconnected, is secured on the door or window V.

The wire *g* is connected by a wire, *h*, with

the binding-post M, with which a spring-arm, N, is connected, having fastened to its free end an armature, O, held above or adjoining the free ends of the cores of the electro-magnet J.

P represents the switch-pin for closing the circuit between the plates F F'.

The tension of the spring-arm N must be less than the force of the residual magnetism in the magnet J.

The operation is as follows: If the door V is opened, the circuit is closed and the current passes from the battery through the wires *g*, the pieces K and L, the wire *f*, the coils of the magnet J, the wires *e* and *c*, the coils of the magnet E, the wire *b*, the switch-plate F', the pin P, the switch-plate F, the wire *a*, and back to the battery. The bell B is sounded and the magnet J excited and its armature O attracted, whereby the current will be short-circuited, and will pass from the battery through the wire *g*, the wire *h*, the binding-post M, the spring N, the armature O, the core of the magnet J, the wire *d*, the post H, through the magnet E and the switch-plates back to the battery, as described. The current need not pass through the line-wires, but passes only through a very short circuit, connecting the battery-magnet J, magnet E, and the switch. Very much resistance is thus cut out automatically. If the circuit is opened or broken by closing the door, the bell does not cease ringing, as the armature O of the magnet J remains attracted on the magnets by the residual magnetism in the magnet J, thus keeping the short circuit closed independent of the long general circuit to the doors and windows.

The bell will only stop ringing when the armature O is torn off from the magnet J by hand or by a suitable mechanical device.

Our improved alarm rings as soon as a door or window, &c., is opened, and continues the ringing until the armature O is torn off, even if the door or window is closed immediately, thereby sounding a long and loud alarm if a window or door is opened but an instant.

If the line is to be tested to ascertain whether it is in working order or not, all that is necessary is to press the armature O on the cores of the magnet J. If the bell rings, the line is in order; if not, the circuits are out of order and must be adjusted.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. In a burglar-alarm, the combination, with
5 the electric generator, the electric bell, and the
circuit-wires leading to the doors and windows,
of an electro-magnet having its coils connected
with the bell and line-wire, and its core con-
10 nected with the bell and its armature with the
line-wire, substantially as herein shown and
described.

2. In a burglar-alarm, the combination, with
an electric generator, an electric bell, and line-
wires, of a magnet connected with the line-wire,
15 and a short circuit through the armature and
core of the said magnet when the magnet is en-
ergized, and an armature adapted to be held on
the cores of the said magnet by the residual

magnetism in the said magnet, and thus keep
the line short-circuited, substantially as herein 20
shown and described.

3. In a burglar-alarm, the combination, with
an electric generator, an electric bell, and line-
wires, of the magnet J, connected with the line-
wires and the bell, the armature O, and the 25
spring N, adjusted so as to close a short circuit
around said magnet when the latter is ener-
gized, the tension of which spring is less than
the power of the residual magnetism in the
magnet, substantially as herein shown and de- 30
scribed.

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Witnesses:

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