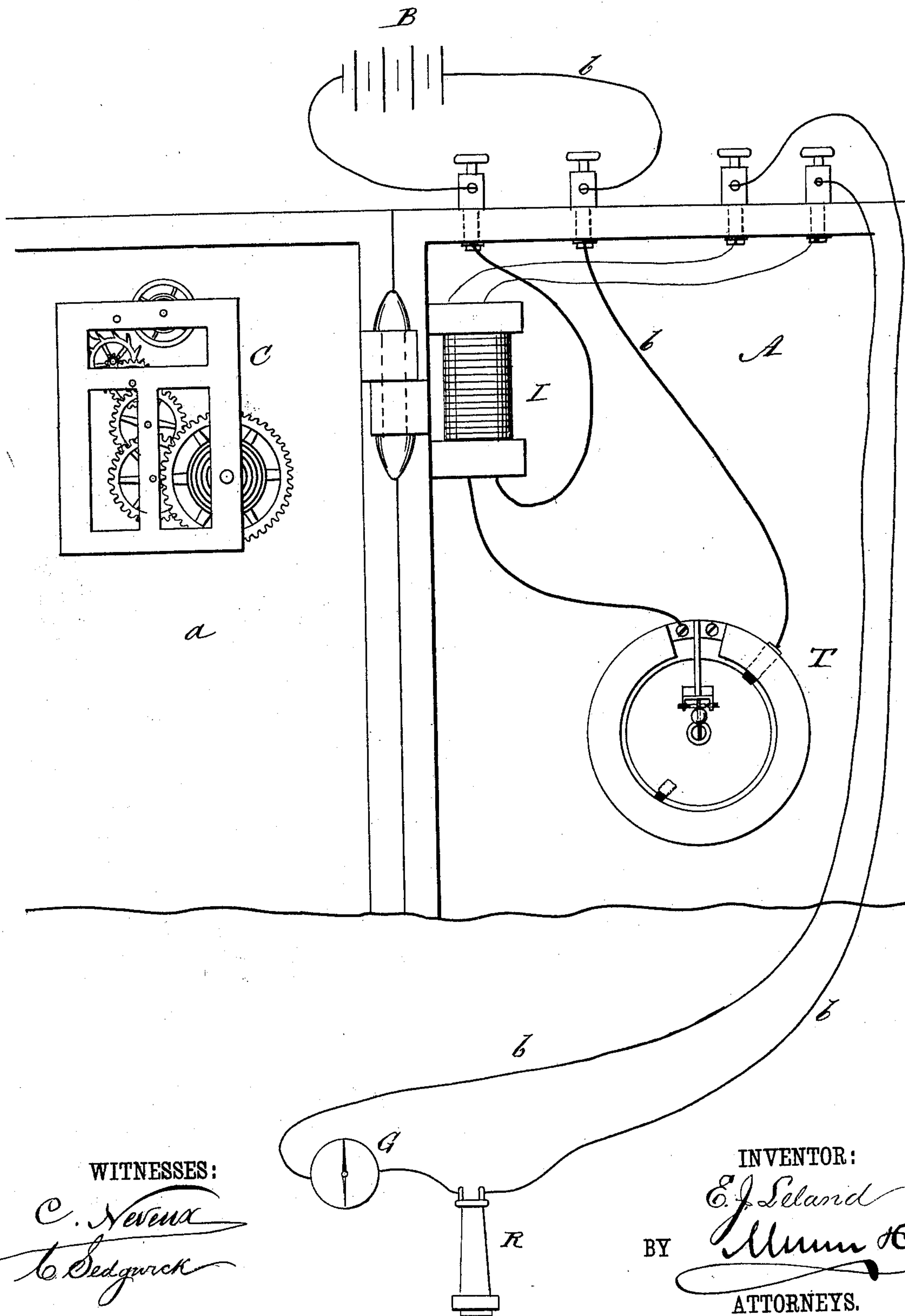


(No Model.)

E. J. LELAND.  
Electric Burglar Alarm for Safes.

No. 230,788.

Patented Aug. 3, 1880.



WITNESSES:

*C. Neveu*

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BY

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ATTORNEYS.

# UNITED STATES PATENT OFFICE.

EDWIN J. LELAND, OF WORCESTER, MASSACHUSETTS.

## ELECTRIC BURGLAR-ALARM FOR SAFES.

SPECIFICATION forming part of Letters Patent No. 230,788, dated August 3, 1880.

Application filed May 31, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN J. LELAND, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Burglar-Alarms for Safes and Vaults, of which the following is a specification.

My improvements relate to burglar-alarm telegraphs connected with safes, vaults, and similar places, and arranged to give a signal at a central office in case the circuit is broken or the wire tampered with. Such lines usually have combined with them a galvanometer, so that any change of resistance caused by an attempt to put a loop in the line, and thereby cut out a safe or vault without breaking circuit, or from any cause, shall be indicated by the galvanometer.

The object of my invention is to provide means for testing the line at any time and determining whether the safe or vault is in circuit, so that it will not be necessary to make a personal inspection of the vault or safe every time the indicator shows a change of resistance or the signal is operated, as such effects are often produced by crossed wires and electrical disturbances in the atmosphere.

My invention consists in the combination, with the safe or vault and of the closed circuit, of a microphone or other telephonic transmitter and mechanism, such as clock-work, to produce audible sounds, these being placed within or about the safe or at the locality to be protected and the transmitter connected in the line, so that the operator at the central station may, by the use of a receiver, hear the ticking of the clock so long as the circuit remains unbroken. The transmitter serves also to convey unusual sounds, so that drilling or other work on the safe may be detected.

In the accompanying drawing I have illustrated my invention by an elevation of a safe having the alarm apparatus applied thereto.

A is a safe or vault, of which *a* is the door. *b b* are the wires of an electrical circuit, which includes battery B, galvanometer G, and telephone-receiver R. These circuit-wires are extended within the safe or its protecting-doors

to the microphone T or other telephonic transmitter and induction-coil I. The circuit-wires will be arranged as usual, so that the circuit is broken by opening the door of the safe.

Within the safe or vault, upon the door or other place contiguous to the transmitter T, is placed a clock-movement, C, or other mechanism driven by spring or weight or by electricity, for giving an audible sound. This sound may be simply the ticking of the clock-movement, or other devices for giving an audible sound at intervals may be operated by the mechanism.

In operation the galvanometer indicates the normal resistance of the line and any variation therefrom, so that any attempts to put a loop in the line will be indicated by the change of resistance; also, in case of other wires crossing the line and of electrical disturbances of the atmosphere, the same indication is given; but so long as the safe remains in circuit the ticking of the clock may be heard by use of the receiver R, and thus the attendant may determine whether the disturbance occurs from cutting out of the safe or from other causes not requiring his attention.

Sounds caused by drilling or other work on the safe may also be detected, and warning thus obtained before the circuit is broken by opening the door.

By thus combining the transmitter with the burglar-alarm the greatest security is given, while much of the trouble arising from false alarms is saved.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

In combination with the circuit-wires of a vault or safe alarm apparatus, a telephonic transmitter connected in the circuit and clock-work or other mechanism for giving audible sounds, substantially as and for the purposes set forth.

EDWIN J. LELAND.

Witnesses:

GEORGE E. FRANCIS,  
E. G. MINARD.