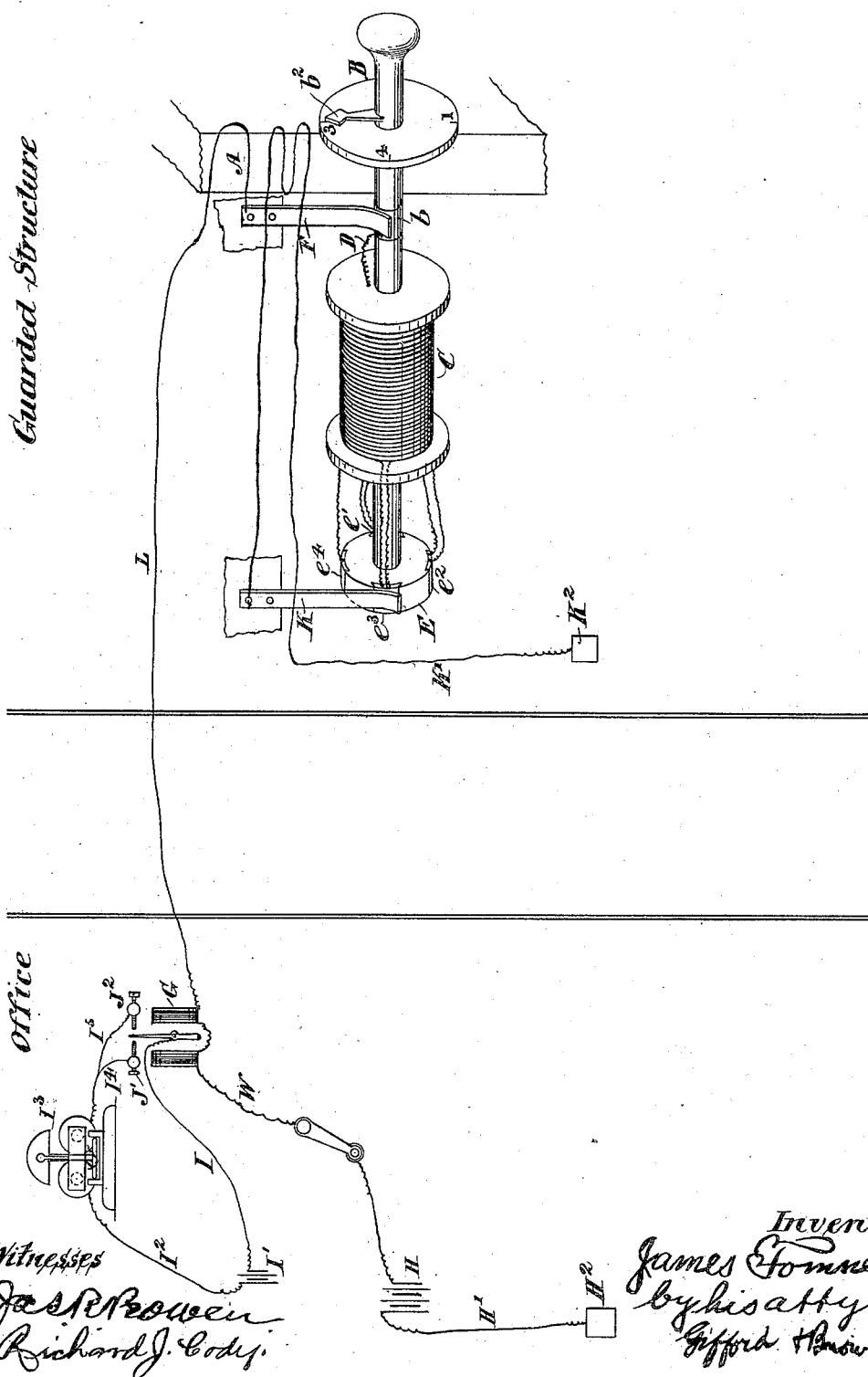


(No Model.)

J. TOMNEY.  
BURGLAR ALARM.

No. 343,869.

Patented June 15, 1886.



# UNITED STATES PATENT OFFICE.

JAMES TOMNEY, OF NEW YORK, N. Y.

## BURGLAR-ALARM.

SPECIFICATION forming part of Letters Patent No. 343,869, dated June 15, 1886.

Application filed December 24, 1885. Serial No. 186,634. (No model.)

### *To all whom it may concern:*

Be it known that I, JAMES TOMNEY, of New York, in the county and State of New York, have invented a certain new and useful Improvement in Burglar-Alarms, of which the following is a specification.

My improvement relates to electric burglar-alarms which are employed to protect safes and vaults, and comprise electric protective coverings for the safes or vaults.

The object of my present improvement is to increase the security of such an electric burglar-alarm by providing a simple means whereby a different rheostat or resistance device may be introduced into the electric-circuit alarm from time to time. Additional security is offered in this way, because, even if a burglar should ascertain what particular amount of resistance happened to be in the circuit of an electric burglar-alarm at any particular time, he would not gain any advantage from the knowledge if the resistance were changed afterward and before he made any attempt at burglary.

I have already obtained Letters Patent for a mechanism whereby different resistances could be introduced into the circuit of an electric burglar-alarm from a distant point—as, for instance, an office connected with the electric circuit of the premises guarded and having watchmen stationed in it.

My present improvement consists of a simple combination of mechanical appliances, whereby the inmates or tenants of the guarded premises or structure can from time to time change the resistance in the circuit there.

The accompanying drawing is a diagrammatic view of an electric burglar-alarm embodying my improvement. It represents an alarm of the kind which has a circuit extending through a guarded structure—such, for instance, as a house or place of business—and thence to an office where watchmen are kept. I have marked the words “Guarded Structure” upon the drawing to indicate the portion which represents the house or place of business guarded. I have also marked the word “Office” upon that part of the drawing which illustrates the place where the watchmen are kept.

A designates a casing or envelope, such as is commonly used to inclose a safe.

B designates a rotary shaft or rod, which is supported in a portion of the casing or envelope, so as to extend through to the interior thereof, and also beyond the exterior. It may be made of any suitable material.

C designates a spool mounted upon the shaft B, and preferably affixed thereto, so as to move in unison therewith. This spool will preferably be made of insulating material.

The shaft B, or at least a section of it, *b*, will be made of metal. The insulated wire D is fastened at one end in electrical contact with the shaft B or its section *b*, and passing thence to the spool is wound in several layers or convolutions thereupon. Between the first layer or convolution and the second layer or convolution a loop of the wire is extended to a wheel, E, of insulating material that is affixed to the shaft B, and provided on its periphery with a number of metallic plates, *e' e'' e''' e''''*. As shown, the aforesaid loop is connected to the plate *e'* and is in electrical communication therewith. Between the second layer or convolution of the wire on the spool and the third layer or convolution a loop is formed and extended to the plate *e''* of the wheel E. This loop is in electrical contact with the plate *e''*. Between the third layer or convolution of the wire on the spool and the fourth layer or convolution of this wire a loop is extended to the plate *e'''* of the wheel E and fastened in electric contact to the said plate. The outer end of the wire on this spool is connected electrically with the plate *e''''* of the wheel E.

I have only shown a spool having four layers or convolutions of wire upon it combined with a wheel having a corresponding number of plates upon its periphery. The number of the layers or convolutions of wire and plates may, however, be increased or diminished at pleasure.

F designates a finger of spring metal impinging against the shaft B or the section *b* thereof. It is therefore in electrical communication with the wire D on the spool. From this finger F a line-wire, L, extends to the office, where watchmen are kept, and there connects with a galvanometer, G. The wire L

is passed in and out through the case A, so as to form loops therein. I have shown but one of such loops, but any desired number may be used. The galvanometer G has two coils, 5 between which a needle is arranged so that it may freely vibrate. The wire L is connected with one of the coils, the two coils are connected together by an intermediate wire, and a wire, W, extends from the other coil to one pole of a 10 battery which has its other pole connected by a wire, H', with an earth-plate, H<sup>2</sup>. A wire, I, extends from the galvanometer-needle to a battery, I', a wire, I<sup>2</sup>, extends from the battery I' to the electro-magnet of an electro-magnetic 15 bell, I<sup>3</sup>, and wires I<sup>4</sup> I<sup>5</sup> extend from said electro-magnet to metallic contact-pieces J' J<sup>2</sup>, with either of which the needle of the galvanometer may make contact when vibrated.

K designates a finger, made of spring metal, 20 impinging upon the periphery of the wheel E. A wire, K', extends from the spring-finger K to and through the case A in a manner similar to the wire L, and thence to an earth-plate, K<sup>2</sup>. If the case A should be ruptured 25 and either of the wires L K' be broken or cut, the circuit will be broken and a signal at once transmitted to the central office.

The shaft B may be rotated to bring any one of the plates  $e'$   $e^2$   $e^3$   $e^4$  of the wheel E into contact 30 with the spring-finger K. The different portions of the wire D on the spool may be introduced into the electric circuit of the burglar-alarm at the guarded structure. For instance, if the shaft B be so turned as to bring 35 the plate  $e'$  of the wheel E into contact with the spring-finger K, then only the first or innermost layer or convolution of the wire D upon the spool will be introduced into the circuit. If the shaft B be so turned as to bring 40 the plate  $e^2$  into contact with the spring-finger K, then the first and second layers or convolutions of the wire D will be introduced into the circuit. If the shaft B be so turned as to bring the plate  $e^3$  into contact with the spring-finger K, then the first, second, and third layers 45 or convolutions of the wire D will be introduced into the circuit; and if the shaft B be so turned as to bring the plate  $e^4$  of the wheel E into contact with the spring-finger K, then 50 all of the wire D will be introduced into the circuit.

It will be advantageous to provide the shaft B with an index-finger,  $b^2$ , and to arrange up-

on the casing or envelope A a dial-plate marked with numbers corresponding to the numbers 55 of layers or convolutions of the wire D on the spool. Then the person turning the shaft B will know how many of the layers or convolutions of such wire he is introducing into the electric circuit. The contact-pieces J' J<sup>2</sup> will 60 need to be adjusted into different positions when the number of layers or convolutions of the wire D in the circuit is varied, so that they will not touch the needle of the galvanometer. Whenever a change in the resistance of the 65 electric circuit is made, the needle of the galvanometer will be vibrated so as to touch one of the contact-pieces J' J<sup>2</sup>, and thereupon the electro-magnetic bell I<sup>3</sup> will ring an alarm. It will be understood that the layers or convolu- 70 tions of the wires D are, in fact, a series of rheostats or resistance devices, any number of which may be introduced into the circuit. It will be seen that the wheel E and spring-finger K, in fact, constitute a hand-switch, whereby 75 the different rheostats or resistance devices may be introduced into the circuit.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an electric burglar-alarm, the combination of a main circuit, an electric protective 80 covering for a safe or vault, a number of rheostats or resistance devices, a hand-switch whereby any number of the latter may be introduced into said main circuit, and an indicator 85 for indicating the change in resistance, substantially as specified.

2. In an electric burglar-alarm, the combination of a main circuit, a number of rheostats or resistance devices, a rotary wheel hav- 90 ing metal plates insulated from each other and connected with the said rheostats or resistance devices, a spring-finger in contact with such wheel, and an indicator for indicating the change in resistance, substantially as specified. 95

3. In an electric burglar-alarm, the combination of a main circuit, a number of rheostats or resistance devices, a hand-switch whereby any number of the latter may be introduced 100 into said main circuit, and an indicator for indicating the change in resistance, substantially as specified.

JAS. TOMNEY.

Witnesses:

EDWIN H. BROWN,  
DANIEL H. DRISCOLL.