

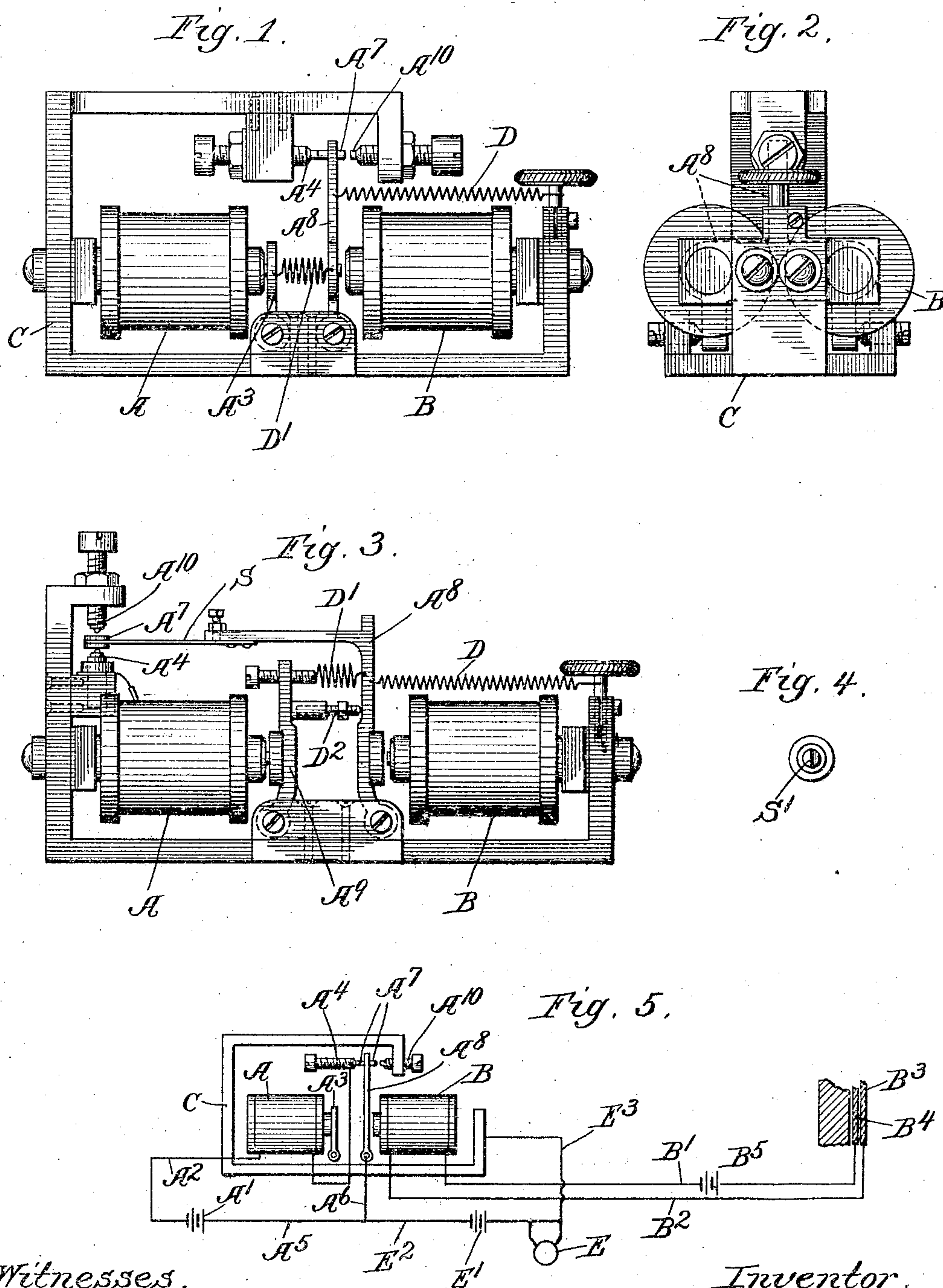
No. 765,435.

PATENTED JULY 19, 1904.

G. M. MAYER.
ALARM DEVICE.

APPLICATION FILED DEC. 15, 1902.

NO MODEL.



UNITED STATES PATENT OFFICE.

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ALARM DEVICE.

SPECIFICATION forming part of Letters Patent No. 765,435, dated July 19, 1904.

Application filed December 15, 1902. Serial No. 135,248. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. MAYER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Alarm Devices, of which the following is a specification.

My invention relates to alarm devices, and has for its object to provide a new and improved device of this description.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation showing the device with the electric circuits omitted. Fig. 2 is an end view of Fig. 1. Fig. 3 is a side elevation showing a modified construction. Fig. 4 is an end view of one of the contacts. Fig. 5 is a diagrammatic view showing one means of connecting the device in circuit.

Like letters refer to like parts throughout the several figures.

My present invention is particularly adapted to be used in connection with alarm safety devices for banks, residences, and the like, although it may be used in other ways and in connection with other instrumentalities.

Referring now to the drawings, I have shown two electromagnets A and B, mounted upon a suitable frame C. The electromagnet A is located in a closed circuit with any suitable source of electric supply, as the battery A'. (See Fig. 5.) This source of electric supply is connected by conductor A² with the magnet A, said magnet being connected by conductor A³ with contact A⁴, the other terminal of the source of supply being connected by conductors A⁵ and A⁶ with the movable contact A⁷, connected with the movable arm A⁸, adapted to be controlled by said electromagnets, and also coöperating with the contact A¹⁰, attached to the frame C. As shown in the drawings, the arm A⁸ is connected to or forms part of the armature of magnet B. This arm A⁸ is provided with a retracting-spring D, connected with some stationary part. Said arm is also elastically connected with a movable part A⁹, associated with the magnet A and attached to or forming the armature thereof, there being interposed between said arm and said movable part the spring D'. It

will be seen that the springs D and D' are opposed to each other. An adjustable stop D² limits the movement of the arm A⁸.

An alarm device E is connected in circuit with a battery or other source of supply E', one terminal of said battery being connected by conductor E² with conductor A⁶, and hence arm A⁸, the other terminal of said battery being connected by conductor E³ with the frame C.

Leading from the magnet B are the conductors B¹ and B², which lead to the two opposed parts B³ and B⁴. These opposed parts may be any devices where it is desired under predetermined conditions to have the circuit completed—as, for example, the linings of a bank-vault, normally separated or insulated, but which are electrically connected in the event it is attempted to bore through the wall of the vault. A battery or other source of electric supply B⁵ is located in the circuit.

In Fig. 1 I have shown the two contacts A⁴ and A¹⁰ in one position, with the arm A⁸ straight, while in Fig. 3 I have shown said contacts in a different position, with the arm A⁸ bent. In the latter figure when in the normal position the contacts A⁴ and A¹⁰ are in a vertical plane and the contact A⁷ is connected to the arm A⁸ by a spring S. This forms a sliding contact between contact A⁷ and the opposed contacts for the purpose of wiping away the dust or other accumulated material and keeping the contacts in proper operative condition. The advantage of this wiping-contact will be seen when it is remembered that this device may be placed in a situation where it is operated only at long separated intervals. In order to insure the proper contact, I also prefer to make the contacts A⁴ and A¹⁰ knife-contacts, such knife-edge being shown at S', Fig. 4. The contact A⁴ is insulated from the frame in any desired manner.

I have described in detail a particular construction embodying my invention; but it is of course evident that the parts may be varied in form, construction, and arrangement without departing from the spirit of my invention. I therefore do not limit myself to the arrangement and construction shown.

The use and operation of my invention are

as follows: When the device is in its normal condition, the circuit through the magnet A and battery A' is closed and the armature of magnet A is attracted, moving contact A⁷ into contact with contact A⁴, as shown in Figs. 1, 3, and 5. The spring D being weaker than the spring D', it will be seen that when no current flows through magnet B the movement of the movable part A⁹ moves the arm A⁸ to the position shown in Figs. 1, 3, and 5. Under these conditions the circuit containing the alarm device E is open. Both of these springs are provided with adjusting-screws, so that their relative strength may be properly adjusted. If now the circuit through magnet B is completed—as, for example, by boring through the linings B³ and B⁴ of the vault or by an attempt to cut the two wires—said magnet is energized and attracts its armature, and hence the arm A⁸, attached thereto, thus breaking the contact between A⁷ and A⁴ and making contact between A⁷ and A¹⁰. When the contact between A⁴ and A⁷ is broken, the magnet A becomes deenergized, as the circuit therethrough is broken, and its armature is pulled away by the spring D'. When the contacts A⁷ and A¹⁰ are brought together, the circuit is completed through the alarm device E, which may be traced as follows: from battery E' through alarm E, thence by conductor E³ to frame C, thence by contact A¹⁰ to contact A⁷, and thence through arm A⁸, conductor A⁶, and conductor A² back to the battery. The alarm is now sounded. If the circuit at the points B³ and B⁴ is again broken or if the circuit through magnet B is broken at any point, the alarm still continues to sound until the parts are restored to their normal position. If the circuit through magnet B is open and it is desired to restore the parts to their normal position, the armature of magnet A is moved into contact with its core. This breaks the circuit between contacts A⁷ and A¹⁰ and completes the circuit through contacts A⁷ and A⁴, and hence through magnet A, and it will then continue to hold its armature after said armature is released. It will thus be seen that by this arrangement the condition which sounds the alarm insures the continuance of the alarm even though attempt is made to remedy it and that when the alarm is once sounded it will continue to sound regardless of the course pursued by the party who set off the alarm.

I claim—

1. An alarm device, comprising two electromagnets, one in a closed circuit and the other

in a normally open circuit, an alarm device in a third circuit, and a circuit-controlling device controlled by said magnets, adapted when the normally open circuit is closed to open the closed circuit and close the alarm-circuit.

2. An alarm device, comprising a circuit-varying arm, an electromagnet for controlling said arm, a retracting device acting in conjunction with said electromagnet, a second electromagnet, an armature therefor, an elastic connection between said armature and said arm, whereby said arm is responsive to said latter magnet when the first magnet is deenergized and is independent of said latter magnet when the first magnet is energized.

3. An alarm device, comprising a circuit-controlling arm, two springs connected therewith and acting in opposite directions, one stronger than the other, an electromagnet in a normally open circuit acting upon said arm in conjunction with the weaker spring, and an electromagnet in a normally closed circuit acting upon said arm in opposition to the stronger spring.

4. An alarm device, comprising a circuit-controlling arm, two springs connected therewith and acting in opposite directions, one stronger than the other, an electromagnet in a normally open circuit acting upon said arm in conjunction with the weaker spring, an electromagnet in a normally closed circuit acting upon said arm in opposition to the stronger spring, and an alarm device in a circuit adapted to be closed when the open-circuit magnet is energized.

5. An alarm device, comprising two electromagnets, two movable parts interposed between them, one directly responsive to each magnet, an elastic connection between the two movable parts, a series of circuits controlled by one of said parts, and a spring connected to said latter part so as to act in opposition to the spring connecting the two parts.

6. An alarm device, comprising two electromagnets, two movable parts interposed between them, one directly responsive to each magnet, an elastic connection between the two movable parts, a series of circuits controlled by one of said parts, a spring connected to said latter part so as to act in opposition to the spring connecting the two parts, and an alarm device in one of the circuits controlled by said movable part.

GEORGE M. MAYER.

Witnesses:

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HOMER L. KRAFT.