

(No Model.)

D. M. MUNRO.
BURGLAR ALARM SYSTEM.

No. 580,552.

Patented Apr. 13, 1897.

Fig. 1.

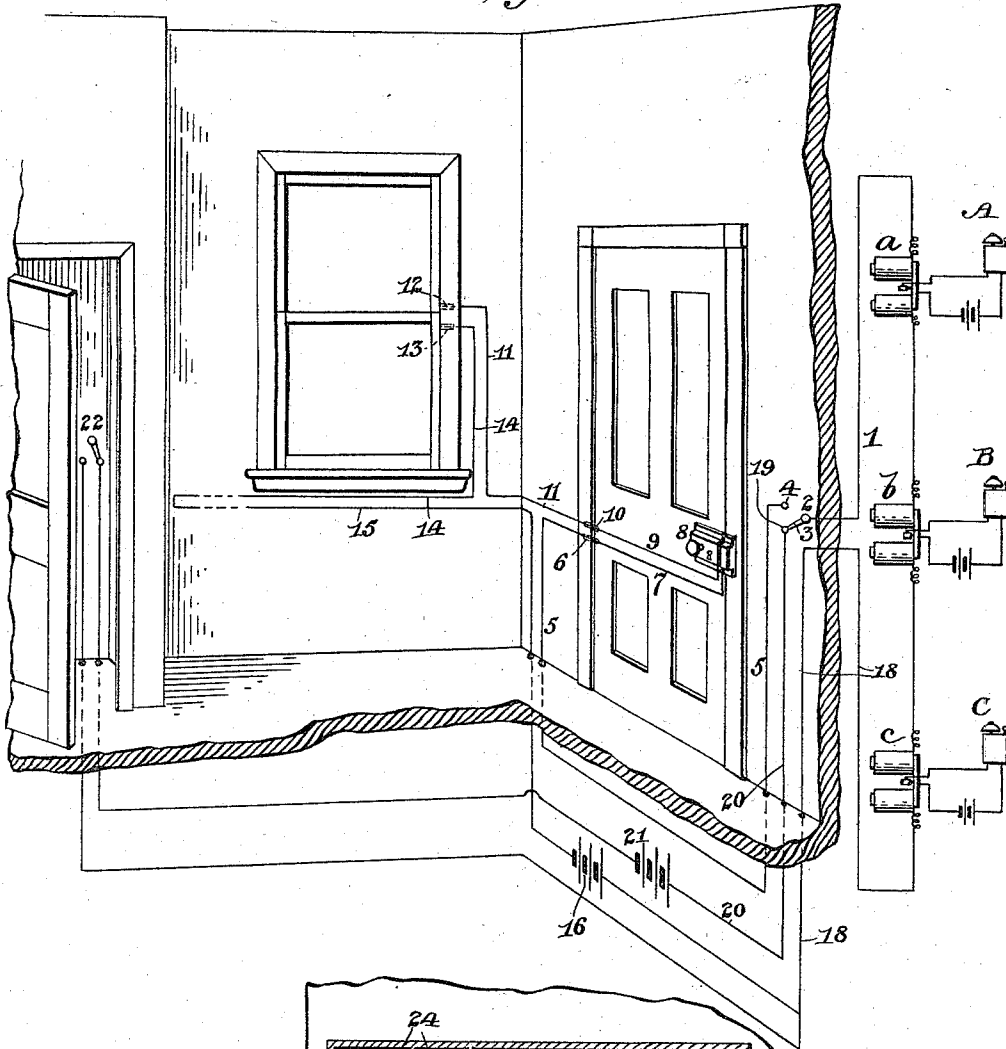
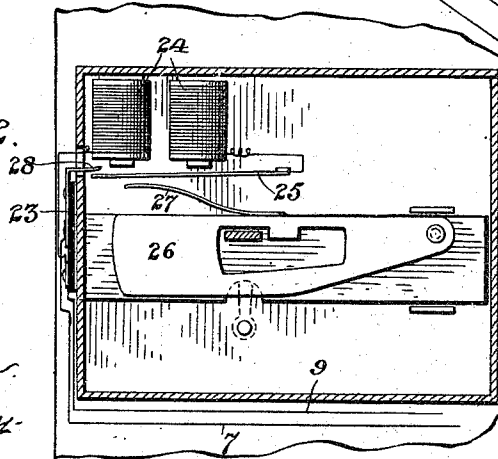


Fig. 2.



WITNESSES

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BURGLAR-ALARM SYSTEM.

SPECIFICATION forming part of Letters Patent No. 580,552, dated April 13, 1897.

Application filed May 25, 1896. Serial No. 593,072. (No model.)

To all whom it may concern:

Be it known that I, DAVID M. MUNRO, a citizen of the United States, residing at Gaithersburg, in the county of Montgomery and State of Maryland, have invented certain new and useful Improvements in Burglar-Alarm Systems, of which the following is a specification.

My invention relates to improvements in burglar-alarm systems.

In such systems when a normally closed circuit is used said circuit is carried through the doors and windows and is arranged to be broken by the opening of any one of them. The opening of this circuit operates a relay at a distant station and thus closes a local circuit at said station, causing an alarm to sound so long as said circuit is closed or the main circuit is open. For the protection of banks, offices, or the like it is customary to provide such alarms at two or more distant stations, so as to insure the alarm being attended to when an unauthorized attempt is made to enter the protected building. On opening the bank or other building in the morning these distant alarms will of course sound and will continue to do so until the distant circuits are opened. This is generally done by persons near the distant circuits opening switches therein. The objection to this is that such switches must again be closed in the evening when the bank is closed for the night, and there is extreme liability of this being neglected at one or all of the stations, in which case the system becomes worse than useless. Moreover, the person in charge of the bank has no means of knowing whether the distant alarms are attended to or not.

One object of my invention, therefore, has been to provide means whereby the necessity of the alarms and the switches therefor being attended to by persons at the distant stations is obviated, and said alarms can be controlled by the person opening and closing the bank. Inasmuch as the distant alarms are started by the opening of the main circuit and stopped by the closing thereof, said alarms will only sound for a very brief period, provided the entrance by a window, say, is effected rapidly and the window is closed immediately. Thus the alarm would probably fail to sufficiently arouse attention, especially if the entrance is made at the dead of night. A further object of my invention, therefore, has been to pro-

vide means whereby when an unauthorized entrance has been effected the alarms will ring continuously and cannot be stopped merely by closing the window or other opening through which entrance has been made.

In the accompanying drawings, Figure 1 is a perspective view of the inside of a portion of a building protected by my improved apparatus, the circuits at the distant stations being represented diagrammatically; and Fig. 2 is a sectional view of the improved lock which forms a part of my system of protection.

A B C represent alarms at the distant stations actuated by relays *a b c* in the main circuit. The course of the latter passes by the entering wire 1 into the building, point 2, switch-key 3, point 4, wire 5, into the door by the contact 6 to the lock by wire 7, through the lock 8 in a manner to be presently described, wire 9, contact 10, wire 11 to the contacts 12 13, wire 14, and so on through all the openings into the building, returning by wire 15 to the night-battery 16, wire 17, and wire 18 to the distant relays. Upon entering the building in the morning and thus starting the distant alarms the person in charge will move the key 3 from the point 4 to the point 19. This will cut out the circuit through the entrances. A wire 20 leads to the day-battery 21, and thence to a secret switch 22 and back to the relays. Thus the person in charge after switching out the night-circuit will next proceed to the secret switch and close the same, which will have the effect of closing the circuit containing the day-battery through the relays, thus stopping the ringing of the alarm-bells. So also in closing the bank or other building at night the person in charge will first open the secret switch in the day-battery circuit and then shift the other switch onto the night-battery circuit. However, by reason of the construction which I will now explain in detail, this night-battery circuit will not be closed until after the key is turned in the lock of the door.

The wires 7 and 9 to the lock are carried to an insulating-plate 23, and one of them is then continued around the electromagnets 24 to the hinged armature 25. One of the tumblers 26 of the lock is provided with a light spring 27, adapted when the key is turned to contact against and raise the armature, so that the free end of the latter contacts with

a conducting projection 28, connected with the other wire of the pair 7 and 9. Thus when the key is turned in the lock, so that the armature 25 contacts with the projection 28, then if the remainder of the night-circuit has previously been closed the magnets 24 will be energized and will hold up the armature, maintaining the closure of the circuit. Should now an unauthorized entrance be made, the main circuit will be opened and the armature will drop from the magnets, thus opening said circuit at the lock in addition to the other break in the circuit, and the closing of the window or other entrance will not itself close the main circuit and stop the alarms ringing, but this can only be done by turning the key in the door.

It will readily be seen that the lock which I have herein disclosed may also be used with advantage in a normally open circuit instead of in a normally closed one, in which case the turning of the key will close said normally open circuit and actuate the alarm therein. In this case the bell will ring only so long as the tumbler is held up by the key, as after the tumbler is released the armature will drop at the first break made in the circuit by the vibrator.

By providing separate batteries in the day and night circuits I allow a period of rest to each battery, which is desirable, and also allow of either battery being examined or repaired without interfering with the system.

Having thus fully described my invention, what I claim is—

1. In a burglar-alarm system for the protection of buildings, the combination of a normally closed night-circuit through the entrances, a day-circuit around the entrances, a relay, and lines thereto, a normally open local circuit adapted to be closed by said relay, a switch in the night-circuit, and an independent switch in the day-circuit, substantially as described.

2. In a burglar-alarm system for the protection of buildings, the combination of a normally closed night-circuit through the entrances, and a night-battery therein, a day-circuit around the entrances, and an independent day-battery therein, a relay, and lines thereto, a normally open local circuit adapted to be closed by said relay, and a switch for connecting one or the other of the main circuits with the lines to the relay, substantially as described.

3. In a burglar-alarm system for the protection of buildings, the combination of a normally closed night-circuit through the entrances and a night-battery therein, a day-circuit around the entrances and an independent day-battery therein, a relay, and lines thereto, a normally open local circuit adapted to be closed by said relay, a switch for connecting one or the other of the main circuits with the lines to the relay, and a switch in the day-circuit, substantially as described.

4. In a burglar-alarm system for the protection of buildings, the combination of a normally closed night-circuit through the entrances and a night-battery therein, a day-circuit around the entrances and an independent battery therein, a relay, and lines thereto, a normally open local circuit adapted to be closed by said relay, a switch in the night-circuit, and an independent switch in the day-circuit, substantially as described.

5. A lock provided with an electromagnet and an armature, said armature being arranged to be moved toward the electromagnet by the turning of the key in the lock, said armature when so moved closing the circuit through the electromagnet, whereby the armature is held to the magnet when the key is withdrawn, substantially as described.

6. A lock provided with an electromagnet and an armature, a tumbler, or an extension thereof, being arranged to lift said armature when the key is turned, whereby said armature is moved toward the electromagnet, said armature at the same time closing the circuit through the electromagnet, and energizing the same, substantially as described.

7. A lock provided with an electromagnet and an armature, one of the tumblers of said lock having a spring thereon which contacts with said armature when the key is turned, whereby said armature is moved toward the electromagnet, said armature at the same time closing the circuit through the electromagnet and energizing the same, substantially as described.

8. In a burglar-alarm system for the protection of buildings, the combination of a normally closed circuit through the entrances, a relay in said circuit, a normally open local circuit adapted to be closed by said relay, and a lock, comprising an electromagnet through which the main circuit passes, an armature movable toward the magnet, thereby closing the primary circuit and energizing the magnet, and means whereby the turning of the key so moves said armature, substantially as described.

9. In a burglar-alarm system for the protection of buildings, the combination of a normally closed night-circuit through the entrances, a day-circuit around the entrances, a relay, and lines thereto, a normally open local circuit adapted to be closed by said relay, an electromagnet energized by the night-circuit, an armature, movable toward said magnet, and arranged by said motion to close said night-circuit, and a switch in the day-circuit, substantially as described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

DAVID M. MUNRO.

Witnesses:

UPTON DARLEY,
R. B. MOORE.