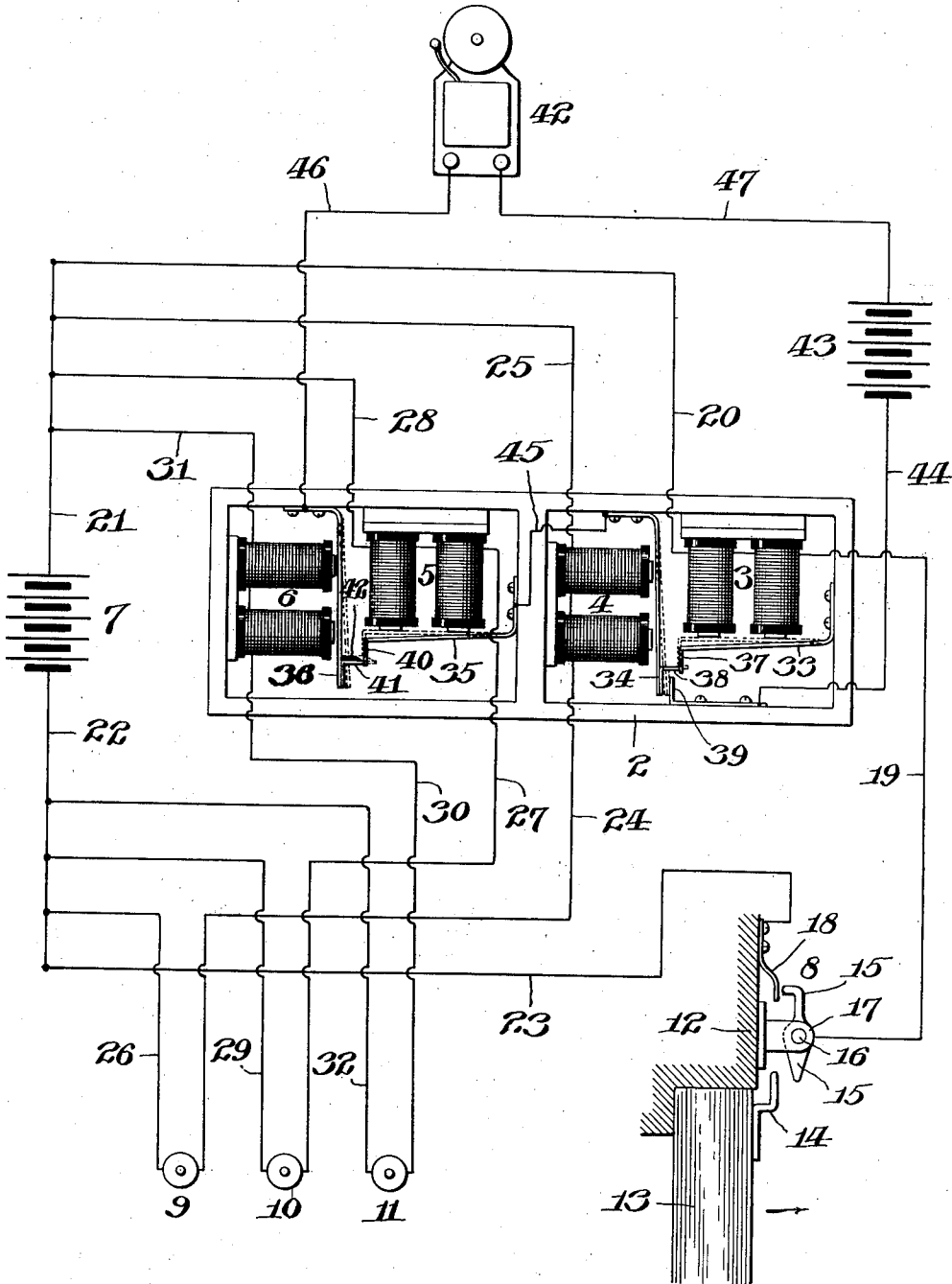


B. F. SHARP.
ELECTRICAL BURGLAR ALARM.
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Patented Apr. 15, 1913.



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ELECTRICAL BURGLAR-ALARM.

1,059,007.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, BENJAMIN F. SHARP, a citizen of the United States, residing at Ambler, in the county of Montgomery and State of Pennsylvania, have invented certain new and useful Improvements in Electrical Burglar-Alarms, of which the following is a specification.

The object of my invention is to provide an electrical burglar alarm of novel, simple and efficient construction, employing an electric circuit including an alarm element and two opening and closing devices, and employing a plurality of additional electric circuits provided with means to open and close said devices, whereby the closing of one of said devices by a burglar entering a building will actuate the alarm element, whereby the opening of the device closed by the burglar will stop the actuation of the alarm element, and whereby the closing and opening of the other of said devices will set the entire alarm system into and out of operative position, all as will be hereinafter fully described and particularly claimed.

The accompanying drawing illustrates my improved alarm system diagrammatically.

Referring to the drawing, 2 designates a frame or casing of insulating material in which are mounted four electromagnets 3, 4, 5 and 6. This frame 2 may be of any suitable shape for its intended purpose. The electromagnets are included in four electric circuits supplied with current from a common source or battery 7. Included in the circuits with the four electromagnets 3, 4, 5 and 6 are four normally open contact making and breaking devices 8, 9, 10 and 11, respectively.

The devices 9, 10 and 11 are common, well known, normally open push buttons. The device 8 is adapted to rest normally open and to be closed by the opening of a door or window of the building to be protected by the alarm. The device 8 is shown in connection with a door, 12 designating a part of the frame, in section, in which the door 13 is mounted, the door 13 being movable into and from the frame 12. Secured to the upper portion of the door 13 is a bracket 14 having a projecting upper end adapted to engage and move the lower end

of an arm 15 when the door is opened. The arm 15 is pivoted, at 16; to a bracket 17 secured to the frame 12. The upper end of the arm 15 is adjacent and normally out of contact with a contact spring 18 secured to the frame 12. The bracket 14, arm 15 and spring 18 are so related to each other that when the door 13 is opened or moved in the direction of the arrow, the bracket 14 will engage and move the arm 15 and cause the upper end thereof to make contact with the spring 18. The arm 15 permits the door 13 to be readily opened and closed at all times, the bracket 14 moving the arm 15 until the bracket escapes the arm, and the arm assuming the position shown by gravity.

The circuits for the devices 8, 9, 10 and 11 and electromagnets 3, 4, 5 and 6, respectively, may be traced as follows: Leading from the bracket 17 and arm 15 to the electromagnet 3 is a wire 19; leading from the electromagnet 3 is a wire 20 which is connected to a battery wire 21 extending from one side of the battery 7; leading from the other side of the battery 7 is a battery wire 22 which is connected to a wire 23 leading to the contact spring 18 thus completing the circuit for the electromagnet 3. Leading from the push button 9 to the electromagnet 4 is a wire 24, leading from the electromagnet 4 to the battery wire 21 is a wire 25 and leading from the battery wire 22 to the push button 9 is a wire 26, thus completing the circuit for the electromagnet 4. Leading from the push button 10 to the electromagnet 5 is a wire 27, leading from the electromagnet 5 to the battery wire 21 is a wire 28 and leading from the battery wire 22 to the push button 10 is a wire 29, thus completing the circuit for the electromagnet 5. Leading from the push button 11 to the electromagnet 6 is a wire 30 leading from the electromagnet 6 to the battery wire 21 is a wire 31 and leading from the battery wire 22 to the push button 11 is a wire 32, thus completing the circuit for the electromagnet 6.

The electromagnets 3, 4, 5 and 6 are provided with spring armatures 33, 34 35 and 36, respectively, which are secured to and project from parts of the casing 2, as shown. The armatures 33 and 35 rest normally in

the full line positions shown, and these armatures may be sprung back to the dotted line positions shown under the influence of the electromagnets 3 and 5. The armatures 34 and 36 rest normally in the dotted line positions shown, and these armatures may be sprung back to the full line positions shown under the influence of the electromagnets 4 and 6.

The armatures 33 and 34 are provided with projecting arms 37 and 38, respectively, as shown. When the armature 33 is in the normal or full line position, its arm 37 engages the arm 38 of the armature 34 and holds it in the full line position away from its normal or dotted line position; and when the armature 34 is in its normal or dotted line position, its arm 38 engages the arm 37 of the armature 33 and holds it in the dotted line position away from its normal or full line position. When the armature 34 is in the normal or dotted line position it makes electrical contact with a contact plate 39 secured to the casing 2 for a purpose hereinafter explained.

The armatures 35 and 36 are provided with projecting arms 40 and 41, respectively, as shown. When the armature 35 is in the normal or full line position, its arm 40 engages the arm 41 of the armature 36 and holds it in the full line position away from its normal or dotted line position; and when the armature 36 is in its normal or dotted line position, its arm 41 engages the arm 40 of the armature 35 and holds it in the dotted line position away from its normal or full line position. When the armatures 35 and 36 are in the full line position, electrical contact is made between the arms 40 and 41, electrically connecting the armatures 35 and 36; and when the armatures 35 and 36 are in the dotted line position, the arm 40 rests upon an insulating pad 48 on the arm 41, and the electrical connection between the armatures 35 and 36 is broken for a purpose hereinafter explained.

The alarm device, an ordinary electric bell 42 is included in an electric circuit supplied with current from a battery 43; and included in this circuit are the armatures 34, 35 and 36 and the contact plate 39. The bell circuit may be traced as follows: from battery 43, wire 44, contact plate 39 armature 34, wire 45, armature 35, armature 36, wire 46, bell 42 and wire 47 to battery 43.

The operation is as follows: The parts are in the position shown in the drawings when set to protect a building for the night against being entered without actuating the alarm bell 42. In this position of the parts the circuits for the electromagnets 3, 4, 5 and 6 are open at the closing devices 8, 9, 10 and 11, respectively, the circuit for the bell 42 is closed between the armatures 35 and 36. Now, should the door 13 be opened by a per-

son attempting to enter the building, the arm 15 will be moved into contact with the spring 18, closing the circuit for the electromagnet 3 and causing it to attract the armature 33 to the dotted line position. This operation raises the arm 37 from the end of the arm 38 and permits the armature 34 to move to its normal, dotted line position and into contact with the plate 39, thereby closing the circuit for the bell 42 and actuating the same. The arm 37 rests upon the arm 38 and the armature 34 rests against the plate 39 after the circuit of the electromagnet 3 is broken, and the bell 42 continues to ring until the push button 9 is operated to close the circuit for the electromagnet 4 causing it to attract the armature 34 to the full line position away from the plate 39, breaking the circuit for the bell 42 and freeing the armature 33 which returns to the full line position and holds the armature 34 out of contact with the plate 39.

When it is desired to set the parts in position so that the opening of the door 13 shall not actuate the bell 42, during the daytime for example, the push button 10 is depressed, thereby closing the circuit for the electromagnet 5, causing it to attract the armature 35 to the dotted line position and move the arm 40 up from engagement with the arm 41 and open the bell circuit. The raising of the arm 40 frees the armature 36 and permits it to move to the dotted line position and move the insulating pad 48 beneath the arm 40, so that when the button 10 is released, the pad 48 will maintain the armature 35 raised and the arm 40 out of contact with the arm 41.

When the armatures 35 and 36 are in the dotted line position, and it is desired to set the parts in the position shown, so that the opening of the door will actuate the bell 42, the push button 11 is depressed, thereby closing the circuit for the electromagnet 6, causing it to attract the armature 36 and move the pad 48 and arm 41 from beneath the arm 40 and permit the armature 35 to resume its normal or full line position; whereupon, after the button 11 is released, the arm 41 will engage the arm 40 and close the bell circuit between the armatures 35 and 36, and the parts will be again in the position shown.

I claim—

The combination of a normally open first electric circuit including an electromagnet, a normally open second electric circuit including an electromagnet, a normally open third electric circuit including an electromagnet, a normally open fourth electric circuit including an electromagnet, means operative to close the first circuit, means operative to close the second circuit, means operative to close the third circuit, means operative to close the fourth circuit, and a

fifth electric circuit including a translating
element and having two opening and closing
devices, one of said devices being closed by
the action of the electromagnet of the first
5 circuit and opened by the action of the elec-
tromagnet of the second circuit, and the
other of said devices being closed by the ac-
tion of the electromagnet of the third cir-

cuit and opened by the electromagnet of the
fourth circuit.

In testimony whereof I affix my signature
in presence of two witnesses.

BENJAMIN F. SHARP.

Witnesses:

WM. HARRISON SMITH,
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10