

No. 636,695.

Patented Nov. 7, 1899.

H. J. PYLE.
BURGLAR ALARM.

(No Model.)

(Application filed June 27, 1899.)

2 Sheets—Sheet 1.

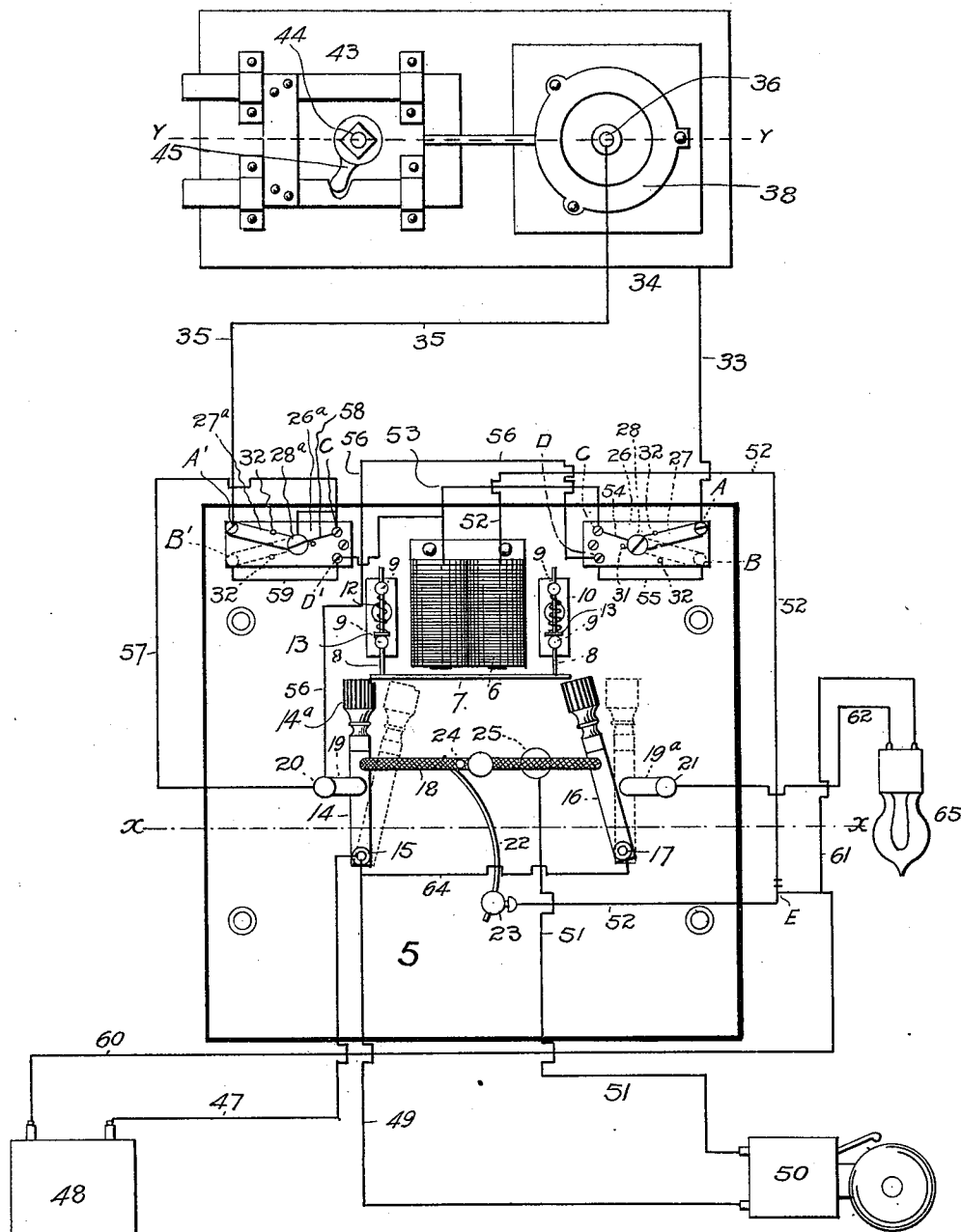


FIG. 1

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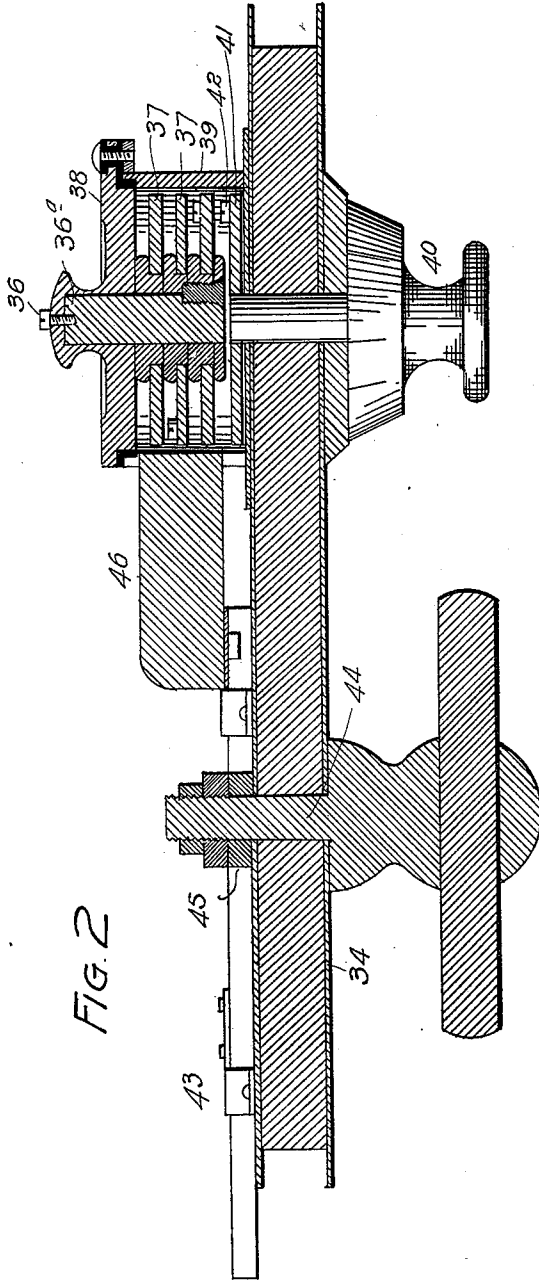


FIG. 2

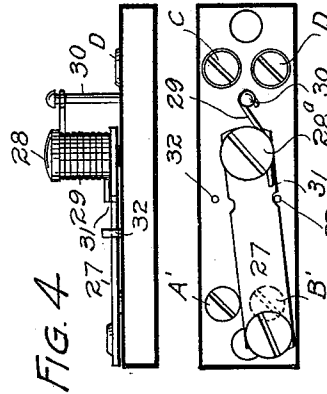


FIG. 4

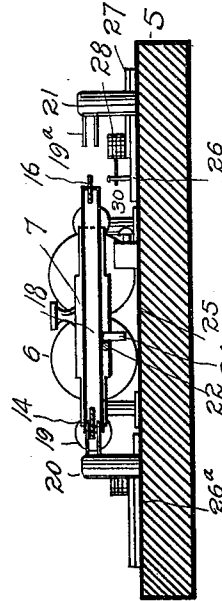


FIG. 5

Witnesses
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UNITED STATES PATENT OFFICE.

HARMAN J. PYLE, OF PUEBLO, COLORADO.

BURGLAR-ALARM.

SPECIFICATION forming part of Letters Patent No. 636,695, dated November 7, 1899.

Application filed June 27, 1899. Serial No. 722,053. (No model.)

To all whom it may concern:

Be it known that I, HARMAN J. PYLE, a citizen of the United States of America, residing at Pueblo, in the county of Pueblo and State of Colorado, have invented certain new and useful Improvements in Burglar-Alarms; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in burglar-alarms; and it consists of the features, arrangements, and combinations hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 illustrates my improved burglar-alarm applied to a safe, the inside of the door being shown. Fig. 2 is a section taken on the line Y Y, Fig. 1, the parts being shown on a larger scale. Fig. 3 is a section taken on the line X X, Fig. 1. Fig. 4 is a side elevation of an insulating-block upon which one of the spring-actuated switch-arms is mounted, the parts being shown on a larger scale than in Fig. 1. Fig. 5 is a top or plan view of the same.

Similar reference characters indicating corresponding parts in the views, let the numeral 5 designate an insulating-base, upon which is mounted an electromagnet 6, whose armature 7 is connected with pins 8, supported by lugs 9, mounted on a block 10, detachably connected with the base 5. The pins 8 are arranged to slide in their supporting-lugs, and they are surrounded by coil-springs 12. One extremity of each spring 12 bears against a lug 9, while the other extremity engages a stop 13, fast on the pin. These springs normally—that is to say, when the magnet is inactive—hold the armature disengaged from the magnet and in engagement with the insulating extremity 14^a of an arm 14, pivotally mounted on a metal contact 15, secured to the base 5. This arm 14 is connected by an insulating-bar 18 with a similar arm 16, pivotally mounted on the base at 17. These arms 14 and 16 are adapted to alternately engage

two forked metal contacts 19 and 19^a, mounted on lugs 20 and 21, secured to the base 5. A metal leaf-spring 22 is attached at one extremity to a metal contact 23, secured to the base 5. The opposite extremity of this spring engages a depending metal pin 24, attached to the insulating-bar 18. When the armature 7 is disengaged from its magnet, it holds the switch-arm 14 in engagement with the forked contact 19, the spring 22 being under tension and having a tendency to disengage the arm 14 from the contact 19. When the magnet is energized, the armature 7 is actuated sufficiently to release the arm 14, in which event the spring 22 moves the arms 14 and 16 sufficiently to disengage the arm 14 from the contact 19 and to throw the arm 16 into engagement with the contact 19^a. At the same time the pin 24 is thrown to engagement with the metal contact 25, mounted on the base 5. The arms 14 and 16 are then in the position shown by dotted lines in Fig. 1. Upon the base 5 are mounted two insulating-blocks 26 and 26^a. On these blocks are mounted metal posts 28 and 28^a, respectively, upon which are pivoted switch-arms 27 and 27^a, respectively. Surrounding each post 28 and 28^a is a coil-spring 29, one extremity of which is attached to a stationary pin 30, while the other extremity is attached to the switch-arm at a point 31. The blocks 26 and 26^a are provided with contact-screws A B C D and A' B' C' D', respectively. Each block is also provided with two stop-pins 32, which limit the movement of the switch-arm in both directions.

The spring 29 has a tendency to hold each switch-arm in the position shown by dotted lines in Fig. 1 or in contact with the screw B or B', as the case may be.

In this specification I will describe my alarm mechanism as applied to a safe, though it must be understood that it may be employed to equal advantage in many other relations.

As shown in the drawings, (see Figs. 1 and 2,) a conducting-wire 33 leads from the switch-arm 27 to the body of the safe-door 34, and a wire 35 leads from the switch-arm 27 to a screw 36, connected with the shaft 36^a, upon which the movable tumblers 37 are mounted. The cap 38, in which the screw 36 is made fast, is insulated from the lock-casing 39, and consequently from the body of the safe-door.

Mounted on the door is the usual knob 40, provided with an interior disk 41, having a screw 42 adapted to engage smaller screws on the tumblers 37 for manipulating the latter.

5 When the burglar-alarm is set for use and the safe is left, the knob 40 is so arranged that its disk 41 is not in electrical contact with the movable tumblers 37. The sliding-bolt frame 43, mounted on the door and manipulated by the shaft 44 and the crank-arm 45, is also arranged so that its bar 46, which is adapted to enter the slides of the tumblers when the safe is unlocked, shall not touch the tumblers 37. Any movement of the knob 15 40 or the shaft 44 will bring these normally-insulated parts into electrical contact and close the circuit, as hereinafter explained.

A wire 47, leading from one pole of the battery 48, is connected with the contact 15. 20 A wire 49 leads from this last-named contact to one pole of an alarm-bell 50. A wire 51 leads from the other pole of this bell to the contact 25. A wire 52 leads from the contact 23 to one pole of the electromagnet 6. From 25 the other pole of this magnet a wire 53 leads to the contact C of the switch-block 26. A wire 54 connects this contact-screw C with the part 28. The contacts B and D are connected by a wire 55. A wire 56 forms an electrical connection between the screw D and 30 the lug 20, which is also connected with the contact-screw C' by a wire 57, the last-named screw being connected with the part 28^a by a wire 58. The contact-screws B' and D' are 35 connected by a conducting-wire 59. A wire 60 leads from the other pole of the battery to the wire 52 at a point E. From the wire 60 a wire 61 leads to one pole of an incandescent lamp 65, from whose other pole leads a 40 wire 62 to the contact 21. The contacts 15 and 17 are connected by a wire 64.

The wires 33 and 35, which respectively connect the switch-arms 27 and 27^a with the parts 34 and 36 of the safe, as heretofore explained, are drawn taut, in order to hold the 45 said switch-arms in the full-line position against the tendency of the springs 39, which are then under tension. When the switch-arms are in this position, if the knob 40 or 50 the shaft 44 is turned to connect the normally-insulated parts, as heretofore explained, the circuit will be completed through the electromagnet 6, which, being energized, will attract the armature 7 and move it sufficiently to release the switch apparatus composed of the arms 14 and 16 and the insulating-bar 18, allowing the spring 22 to throw the said switch apparatus to the dotted-line position in Fig. 1. In this case the arm 16 60 will engage the contact 19^a and the pin 24 will engage the contact 25. The electromagnet will then be cut out of the circuit, and the circuit will be closed through the bell 50 and the lamp 65. Now in case the burglar 65 before beginning operations discovers the wires 33 and 35 and cuts either or both of them the switch-arms 27 and 27^a, actuated

by their springs 29, will assume the dotted-line position, engaging the contacts B and B', and the circuit is then completed by another route through the magnet 6 and subsequently through the bell and lamp, as heretofore explained. 70

Having thus described my invention, what I claim is—

1. In an alarm, the combination with a suitable alarm device, and a safe or other structure having two parts normally insulated from each other, one part having a movable device arranged, when properly manipulated, to close 80 the circuit, and an electric circuit whose poles are respectively connected with the said parts of the structure, of an electromagnet located in the circuit and arranged to be energized when the circuit is closed, a spring- 85 actuated switch which in one position closes the circuit-path through the magnet, and which in the other position closes the circuit-path through the alarm device, a spring-held armature which, when the magnet is inactive, 90 holds the said switch in position to close the magnet-circuit, but which, when actuated by the energized magnet, releases the switch when the latter moves to a position closing the circuit through the alarm device. 95

2. In an alarm, the combination with a suitable alarm device and a safe or other structure having two parts normally insulated from each other, one part having a movable device arranged, when properly manipulated, to close 100 the circuit, and an electric circuit whose poles are respectively connected with the said parts of the structure, of an electromagnet located in the circuit and arranged to be energized when the circuit is closed, a spring- 105 actuated switch which in one position closes the circuit-path through the magnet, and which, in the other position, closes the circuit-path through the alarm device, a spring-held armature, which, when the magnet is inactive, 110 holds the said switch in position to close the magnet-circuit, but which, when actuated by the energized magnet, releases the switch, when the latter moves to a position closing the circuit through the alarm device, spring- 115 actuated switch-arms, interposed in the circuit and arranged to occupy two positions, in one of which the magnet-circuit is closed through the two parts of the structure, while in the other position the magnet-circuit is 120 closed independently of the said parts, and conductors connecting the said switch-arms with the respective parts of the structure, and arranged, when intact, to hold the switch-arms in one of the said positions, but which, 125 when cut or broken allow the said switch-arms to assume the other of said positions.

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

HARMAN J. PYLE.

Witnesses:

J. S. GREENE,
Jos. D. FLOSS.