C. LIACI.

FIRE AND BURGLAR ALARM.

APPLICATION FILED SEPT. 11, 1911.

1,051,133.

Patented Jan. 21, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

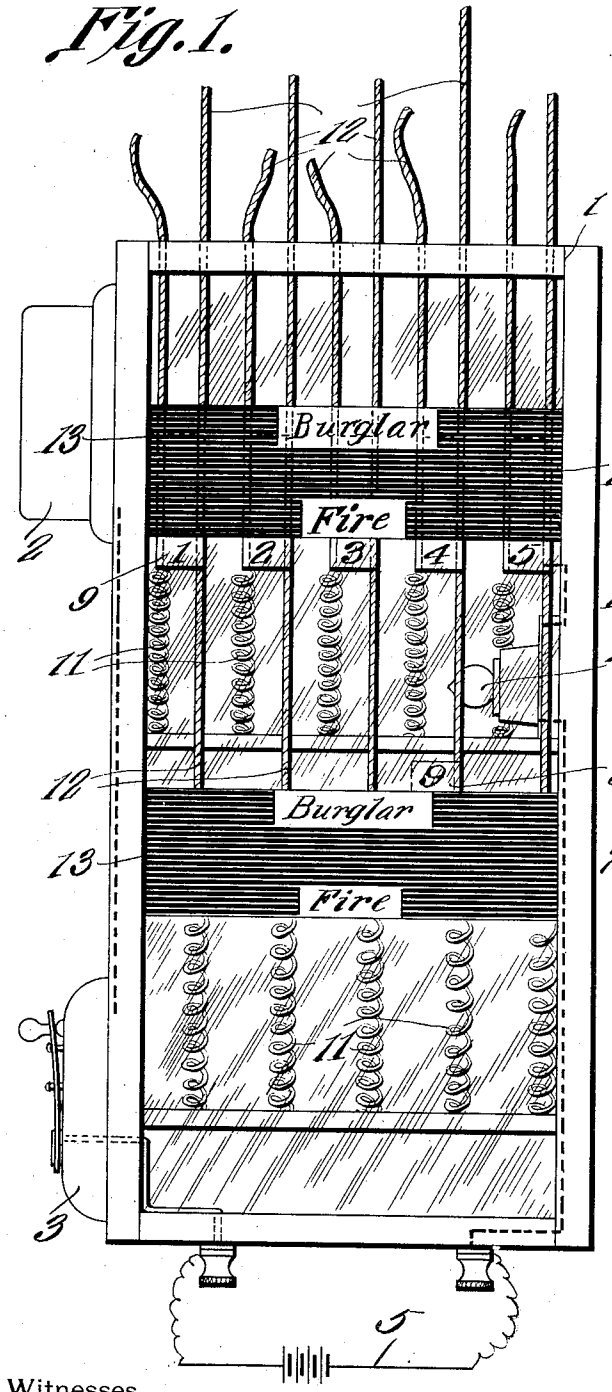
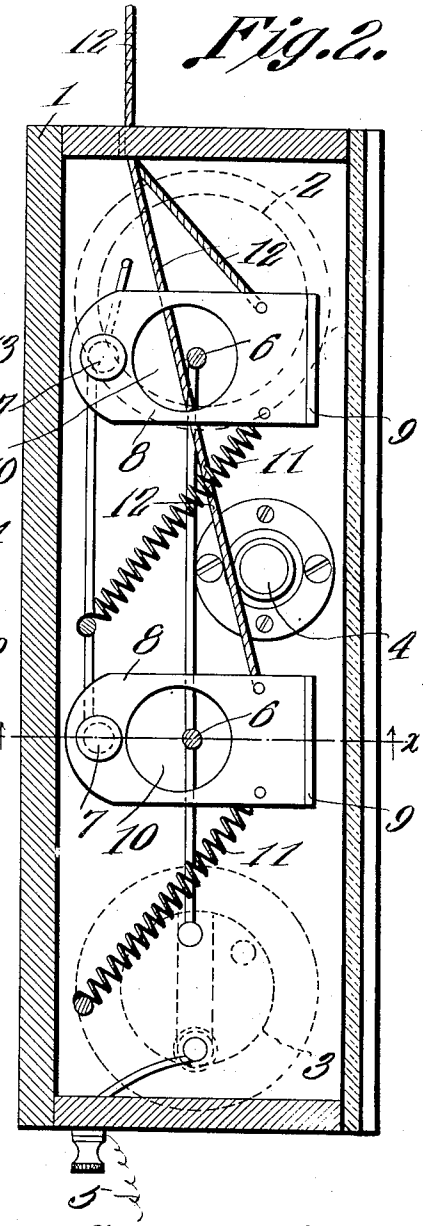


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

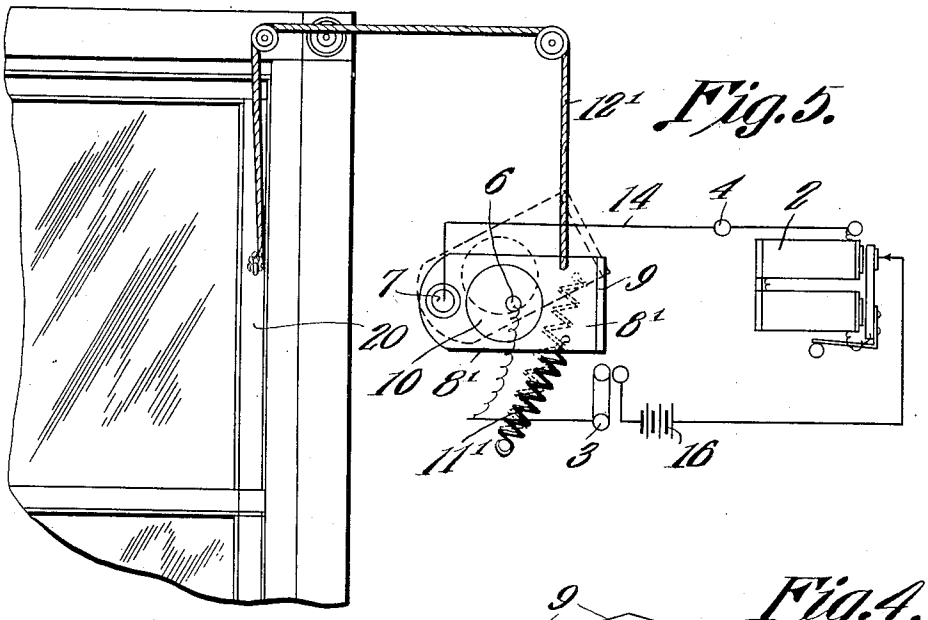

Fig. 5.

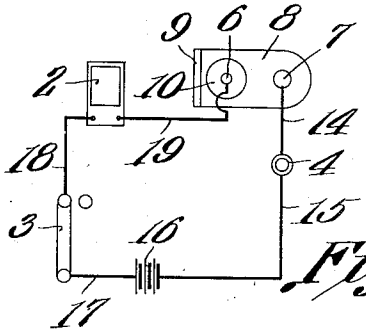

Fig. 6.

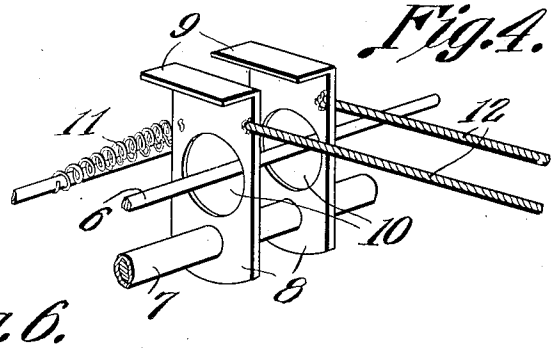

Fig. 4.

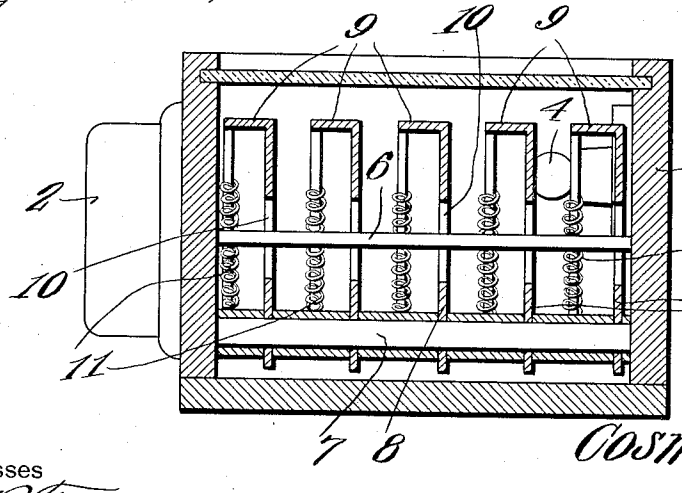

Fig. 3.

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UNITED STATES PATENT OFFICE.

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FIRE AND BURGLAR ALARM.

1,051,133. Specification of Letters Patent. Patented Jan. 21, 1913.

Application filed September 11, 1911. Serial No. 648,622.

To all whom it may concern:

Be it known that I, COSMO LIACI, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Fire and Burglar Alarm, of which the following is a specification.

This invention relates to an improvement in fire and burglar alarms, the primary object of the invention being the provision of a fire and burglar alarm, which dispenses with the electric wiring about a building, and which is provided with switch mechanism adapted to be operated one at a time or in series, but employing the same electric circuit and alarm.

A further object of the invention is the provision of a switch, which as it forms a contact, sets the alarm, simultaneously giving a visual indication as to the location of the fire or burglar.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:—Figure 1 is a front elevation of the casing containing the switches and alarm, the electrical circuit being shown in diagram. Fig. 2 is a vertical section thereof. Fig. 3 is a cross-section taken on line *x*—*x*, Fig. 2 looking in the direction of the arrow. Fig. 4 is a perspective view of two movable switches and their adjacent parts. Fig. 5 is a diagrammatic view showing the system as applied to a door. Fig. 6 is a diagrammatic view upon a reduced scale of the electrical circuit employed with this apparatus.

Referring to the drawings, 1 designates the casing, which is placed upon the wall in a conspicuous place, and carries the alarm 2, the cut-out switch 3, and the light 4, all of which are connected in the electrical circuit 5, shown in diagram, Fig. 1. Also connected in this circuit and mounted transversely of the casing, are the cylindrical rods 6, which will be arranged in any numbers according to the number of rooms to be protected. In this instance, two are shown.

Mounted in the casing in the rear and parallel to the rods 6, are rods 7, upon which are spaced and pivoted the switch plates 8, each one of which is provided with the right angled outer end 9, and the large circular opening 10. This opening 10, it will be noted, surrounds the rod 6, and is of sufficient diameter to permit the movement of the switch plate in two directions, and is normally disposed so that the rods 6 are not engaged by the metal of the switch plate surrounding the opening 10.

To normally hold the switch plates so that the rods 6 are central of the openings 10, the springs 11, are provided, their tension pulling the plates downwardly, while the taut strings or fusible cords 12, engage the plates from the other side and are tightened to hold the switch plates in the position as shown in Fig. 2.

In the front of the casing and disposed directly in front of the right-angled ends of the switch plates are opaque strips 13, on the lower edge of each of which is printed the word "Fire", and on the upper edge of which is printed the word "Burglar", and upon the outer faces of these right-angled ends are numbers or letters, to indicate the location of the trouble, these letters being so arranged that in case of fire and one of the cords is broken by burning, the spring will operate its switch plate, the cord thus relieving the plate, and the number projecting below the strip 13, as shown in Fig. 1 to indicate the location of the fire. On the other hand, should the cord be pulled upon, the switch plate connected therewith would be pulled up, closing the circuit, ringing the alarm and indicating the number of the room entered by the burglar, as shown in the lower strip 13 of Fig. 1. In both cases when the switch plate engages the rod 6, a circuit is closed, the alarm is rung, the light is on, and coincident therewith, the location of the fire or burglar is shown at the casing.

If the pull of the cord 12 is only momentary but of a sufficient distance to move the

switch so that the wall of its aperture 10 will be placed into contact with the rod 6, the size of the aperture 10 being made small enough so as to only require a slight movement of the switch to close the circuit, the alarm will be actuated at the same time giving a visual indication, any form of catch device being employed to hold the switch closed and exhibit the signal 19.

The electrical circuit closed by the movement of the switch plate 8, in either direction is clearly shown in diagram in Fig. 6. When the metal about the opening 10 of the plate 8, engages the metallic rod 6, a circuit is closed through the wire 14, the incandescent light 4, wire 15, batteries 16, wire 17, manually operated switch 3, wire 18, the alarm 2, wire 19, the rod 7, and switch plate 8. Thus the alarm is given, and a lamp is lighted simultaneously, in order that the indicator carried upon the plates 8, or operated thereby may be seen, and the trouble located.

In Fig. 5, the apparatus is illustrated as a simple burglar alarm, the cord or string 12′, being connected to a door, or other closure, 20, the switch plate 8′, being made similar to those just described, and so mounted that a release of the cord 12′, will permit the spring 11′, to close the switch, or that a pull upon the cord 12′, will pull the spring and bring the switch into circuit closing position. Should the cord 12′ be cut or broken, the spring 11′, will actuate the switch plate 8′, to close the circuit and thus ring the alarm 2.

From the foregoing description, it is evident that I provide a combined fire and burglar alarm system, in which a novel form of switch is employed, to be either operated by a pulling action upwardly or a pulling action downwardly, and a system by the means of which the usual circuit wiring to the various parts of a building, is entirely eliminated, fusible or breakable cords, being used in lieu thereof, thus permitting the electrical circuit, containing a manually operated switch, an incandescent light, an alarm, and either one, or series, of indicating switches, to be bodily carried by the casing at the desired point of vantage in the building.

By means of the manually operated switch 3, the electrical circuit may be cut out at any time, as for instance during the day time, the apparatus, being placed in operable condition, simply by closing this switch.

What is claimed, is:—

1. In a fire and burglar alarm system, the combination of an electrical circuit, a single rod in said circuit, one or more switches in said circuit and in operative relation to said rod, each one of said switches being provided with an opening of larger diameter than the rod through which the rod passes, and two co-acting means normally holding said switches so that the rod is substantially in the center of the opening and out of contact with the switches, as and for the purpose set forth.

2. In a fire and burglar alarm system, the combination of a casing, a series of rods mounted therein, another series of rods also mounted therein and insulated from the first series, a series of plates pivotally mounted upon the last mentioned rods and provided with an opening in each of a larger diameter than the first mentioned rods, said first mentioned rods passing through said openings and being normally out of engagement with the plates, two oppositely tensioned means engaging each plate and normally holding the plate out of engagement with said first mentioned rods, and an electrical circuit including an alarm containing the two series of rods and the plates, for the purpose set forth.

3. In a fire and burglar alarm system, the combination with an electrical circuit containing an alarm, of a pivoted switch in said circuit and provided with an aperture therein, a rod also in said circuit and adapted to pass through the aperture of the switch without engaging the switch, a spring for normally pulling the switch toward the rod, and a flexible connection exerting a pull upon the opposite side of the switch to normally hold the switch out of contact with the rod.

4. In a fire and burglar alarm system, the combination with an electrical circuit containing an alarm, of a pivoted switch in said circuit and provided with an aperture through the body thereof, a rod also in said circuit and of a smaller size than the aperture of the switch, said aperture fitting over the rod, a spring engaging the switch, and flexible connection also connected to the switch upon the opposite side to the spring, said spring and connection normally holding the switch out of contact with the rod.

5. In a fire and burglar alarm system, the combination with an electrical circuit containing an alarm, of a pivoted plate in said circuit provided with an aperture in the body thereof, a co-acting circuit closing means disposed in the aperture of the plate and normally out of contact with the plate, and two oppositely pulling means engaging the plate and holding said plate out of contact with said co-acting circuit closing means.

6. A circuit closing means for a fire and burglar alarm system, comprising a plate having pivotal connection at one end, said plate being provided with an aperture intermediate of its ends, a rod mounted fixedly and passing through but out of contact with the walls of the aperture of the plate, a

spring for normally pulling the plate upon the rod, and a flexible connection engaging the plate for normally pulling the plate from the opposite direction to the spring and upon the rod, the spring and flexible connection normally holding the plate out of contact with the rod.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

COSMO LIACI.

Witnesses:

SALVATORE GORGIULE,

DOMANICO PISANI.