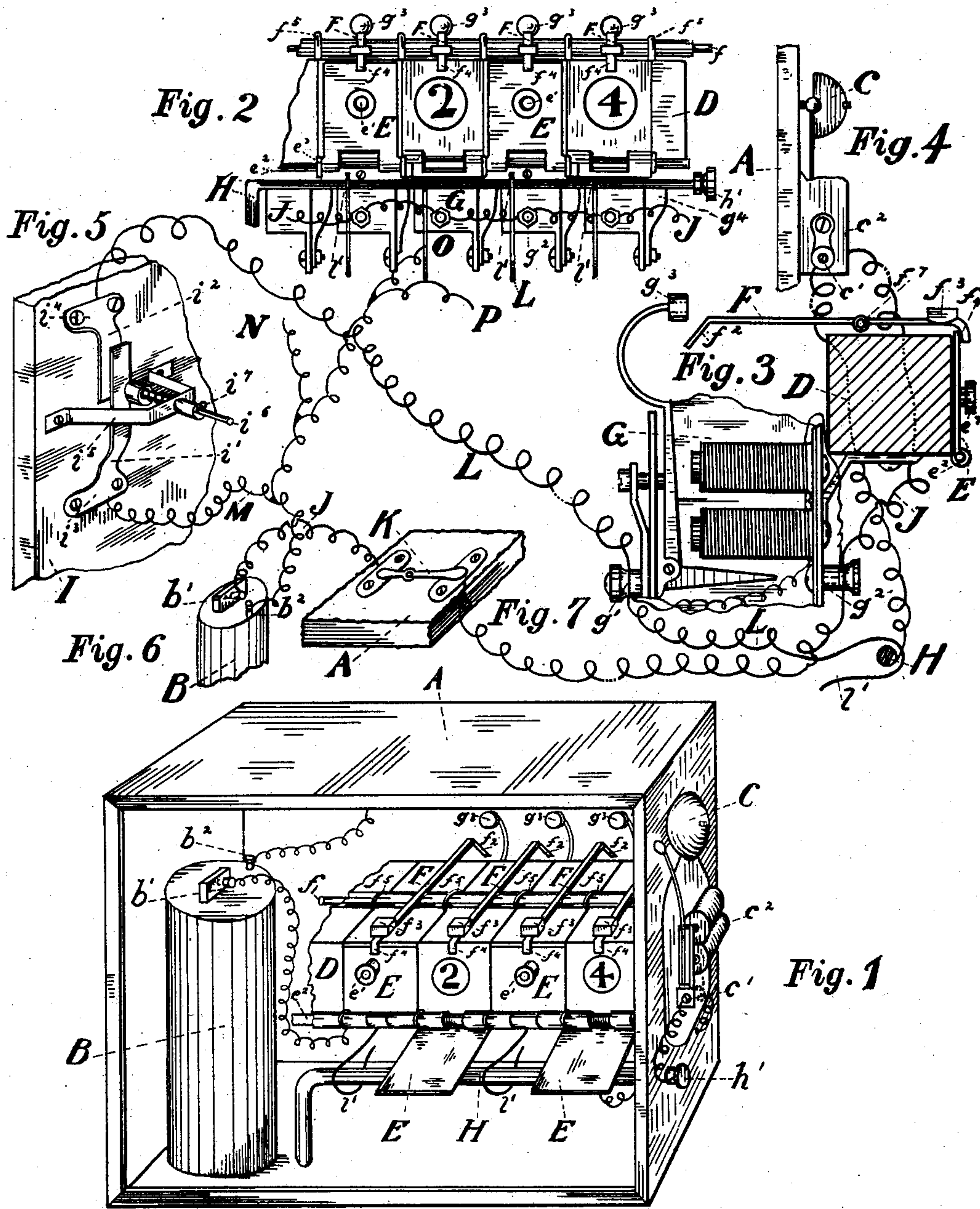


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A. LUECKERT.  
ELECTRIC FIRE ALARM.  
APPLICATION FILED DEC. 10, 1902.

NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

AUGUST LUECKERT, OF ST. LOUIS, MISSOURI.

## ELECTRIC FIRE-ALARM.

SPECIFICATION forming part of Letters Patent No. 755,783, dated March 29, 1904.

Application filed December 10, 1902. Serial No. 134,713. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST LUECKERT, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain  
5 new and useful Improvements in Electric Fire-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  
10 same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in  
15 electric fire-alarms to be used in public and private houses and in all institutions where there are a number of separate and private apartments; and the object of my invention is to provide a fire-alarm system that locates  
20 a fire in any particular room and announces it in the office or any room or place designated, as that occupied by the proprietor, a system arranged with an electrical annunciator and a battery and an electrical bell in the  
25 proprietor's room or place and connected by wire to a fusible switch in each room represented on the annunciator. These objects I attain by the mechanism illustrated in the accompanying drawings, in which—

30 Figure 1 is a perspective view of the annunciator with its battery in a case and electric bell attached to the case outside. Fig. 2 is a front elevation view of a section of the annunciator representing the mechanism and  
35 numbers for four rooms. Fig. 3 is a side elevation sectional view of one room-section of the annunciator. Fig. 4 is an edge vertical view of a portion of the annunciator-case and the electric bell attached to it. Fig. 5 is a  
40 perspective view of a portion of the wood-work of a room with the fusible switch and its connecting-wire attached to it. Fig. 6 is an upper section view of an ordinary dry battery. Fig. 7 represents a perspective view  
45 of a switch on the main line from the battery attached to a portion of the case A.

In all of the views like letters refer to like parts.

Referring to the drawings, A represents a

case in which the parts of the annunciator 50 are arranged.

B represents an ordinary dry battery. (Shown in Figs. 1 and 6.)

C is an ordinary electric bell, with its positive and negative binding-posts  $c'$   $c^2$ . 55

D is a square strip of wood which may be long enough for any desired number of the room-sections. In this case it is shown to be long enough for four sections, to the sides of which are attached the various parts, as follows: To the front side is hinged a door E, which is provided at or near its center with a stud-bolt  $e'$ , having a nut that may be adjusted out or in from the door to make it drop quicker, if desired. The rod  $e^2$  and doors E E are secured to the strip D by staples  $e^3$   $e^3$ . To the top side of the strip D is pivoted a lever F and a rod  $f'$ , the rod  $f'$  being held to the strip D by staples  $f^5$   $f^5$ , the back end of which,  $f^2$ , turns down at an angle, and the front end 70 of it is provided with a weight enlargement  $f^3$  and a hook portion  $f^4$ , that turns down over the top of the door to hold it shut until tripped off by the stroke of the hammer  $g^3$  on the other end of the lever F, and behind each 75 door a number is inserted in the strip D, which represents the number of a room. To the back side or the under side of the strip D an electric-bell mechanism G is attached by means of a twisted plate  $g^4$  and screws to the 80 said strip, said bell-movement having its negative binding-post  $g'$  and positive binding-post  $g^2$  and its bell-hammer  $g^3$ , which strikes on the end  $f^2$  of the lever F and causes the other end, with its hook  $f^4$ , to rise and release the door 85 E, which door then drops down and exposes the numbers behind the door. In this application of this bell-movement the bell is removed and the arm to the hammer  $g^3$  is bent down in a proper position to strike the lever F 90 on the room-section. In front of the room-section and a little below the doors E E in Fig. 2 a switch-rod H extends along the line of sections G G and terminates in a binding-post on the outside of the case A near to the electric 95 bell C, to which it is connected by wire, and around this switch-rod H a conducting-wire from each room forms a loop  $l'$  in front of its



respective door, which is caused to make a connection to the bell when the door E falls on it and presses it against the rod H.

I is a broken section of the woodwork in one of the rooms, to which is attached the parts of a simple open switch, which consists of an over branch  $i'$ , with its binding-plate  $i^3$ , and an under branch  $i^2$ , with its binding-plate  $i^4$ , and over these branches  $i'$  and  $i^2$  a hanger  $i^5$  is secured, and in this hanger  $i^5$  is hung a plunger-shaft  $i^6$ , provided with an enlarged hammer-head and a coiled spring, which said spring forces the hammer's head down onto the over branch  $i'$  and springs it down onto the under branch  $i^2$  and makes a connection, remaining so until the plunger-shaft is raised, and when the plunger-shaft is raised and a fusible drop of metal  $i^7$  is soldered to it the open switch is formed and remains so until it is fused by a stated heat in the room of from  $160^\circ$  to  $180^\circ$ , caused by a fire breaking out therein. The strength of the spring will close the switch when the fusible drop of metal becomes the least bit softened by the heat, which may vary from  $160^\circ$  to  $180^\circ$ .

Fig. 7 represents a portion of case A, to which an ordinary turn out-switch K is attached to stop the ringing of the bell, if desired, after the alarm has been given and until the open room-switch is again secured by the fusible drop of metal.

The feed-wire J is connected with the positive binding-post of the battery B and passes through the switch K and connects to the positive binding-posts  $g^2$   $g^2$  on each of the room-sections of the annunciator and then continues on and connects to the bell C on its positive binding-post  $c^2$ . Also an intermediate branch feed-wire connects with the binding-post  $g^2$  and extends to the upper positive arm of the magnet G.

It is necessary at this point to more fully explain the construction and working of the loop  $l'$  and the switch-rod H in connection with the action of the door E. The loop  $l'$  has no insulation, but is simply a naked and uncovered wire, which, as it stands intact, does not touch the switch-rod H or anything else. The switch-rod H is not insulated, but it is connected by wire at  $h'$  to the bell at  $c'$ . The action of the hammer  $g^3$  striking the end of the lever F raises the other end and releases the door, and it falls by gravitation on the wire of the loop  $l'$  and presses it firmly against the switch-rod H and makes the circuit complete from the room through the annunciator to the bell; but first when the open room-switch is closed the circuit through the line L and into the electromagnet of G is shorter until after the hammer  $g^3$  vibrates and strikes the lever F and releases the door E, which drops and presses the loop  $l'$  onto the switch-rod H. Then the current takes the longer circuit to the bell.

A wire L passes from each room's open switch to each room's section G of the annun-

ciator, being attached to its negative binding-post  $g'$  and passes forward and forms a switch-loop  $l'$  around the switch-rod H, and when the door E drops on it it makes a connection through the said switch-rod H to the negative binding-post  $c'$  on the bell and causes it to ring when the metal drop  $i^7$  is fused. Thus each room-switch has its connection with its section of the annunciator and through its switch-loop  $l'$  and its open door E connects with the bell C by its negative binding-post and rings it, the current in the wire first causing the hammer  $g^3$  to strike the lever F and raising the other end drops the door E. Also an intermediate branch wire connects with the negative binding-post  $g'$  and extends to the lower negative arm of the magnet G and completes the short circuit through the magnet G, which causes the hammers  $g^3$  to strike the lever F and causes the dropping of the door and the closing of the switch at H and rings the bell C, which is on the long or extended circuit.

M N O P represent the return-wires to the battery B from each of the four rooms shown in the annunciator, each connecting-wire being connected into the main return-wire, and in the same manner any number of rooms may be provided with switches set by a fusible drop and may have a section in the annunciator with its hammer and lever to drop the door and expose its number in the front when the door is down and ring the bell when the metal drop is fused and the open switch is closed by a fire, causing a certain degree of heat in the said room from  $160^\circ$  to  $180^\circ$ , the group of views Figs. 3, 4, 5, 6, and 7 being connected by the wires, so as to show the complete arrangement and action for a single room, and the views Figs. 1 and 2 show how any number of room-sections desired may be represented in the annunciator and be made to operate the same as a single one by operating the magnet G through its short circuit and then the bell through its extended circuit, as shown and described.

Having described the various parts of my invention and their working relation to each other, so that any one skilled in the arts could make and operate the same, what I claim as new, and desire to secure by Letters Patent, is—

1. An electric alarm system, comprising circuits and a source of electric energy therefor, a series of annunciator-sections representing a series of rooms, an electric magnet G, a foundation-strip D on which said electromagnet is mounted, an armature for said electromagnet, a hammer  $g^3$  on said armature, a lever F pivoted on one of said annunciator-sections, and adapted to be tilted by the hammer  $g^3$ , a door E, pivoted to said section and held in normal position by the lever F, a switch-rod H, a switch-loop  $l'$  adjacent thereto, said switch-rod H and switch-loop  $l'$  being in the path of



said door E, an electric bell, and circuit connections so arranged that when the electric magnet G is energized the door E is caused to be released to fall on the switch thus closing a circuit through said bell, substantially as shown and described.

2. An automatic electric alarm system, comprising circuits and a source of electric energy therefor, a series of annunciator-sections representing a series of rooms by number, an electromagnet G, a foundation-strip D on which said electromagnet is mounted, an armature for said electromagnet, a hammer  $g^3$  on said armature, a lever F pivoted on said foundation-strip and adapted to be tilted by said hammer, a door E hinged to a section and held in normal position by the lever F, a switch-

rod H, a switch-loop  $l'$  adjacent thereto, said switch-rod H and switch-loop  $l'$  being in the path of said door E, an electric bell, a thermostat for each annunciator-section, and circuit connections such that when a thermostat is operated its corresponding electromagnet G is energized to cause the release of the door E which falling on the switch short-circuits said electromagnet G and closes a circuit through said electric bell, substantially as shown and described.

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

AUGUST LUECKERT.

Witnesses:

C. L. WEBER,

F. M. FOSEGATE.