

(No Model.)

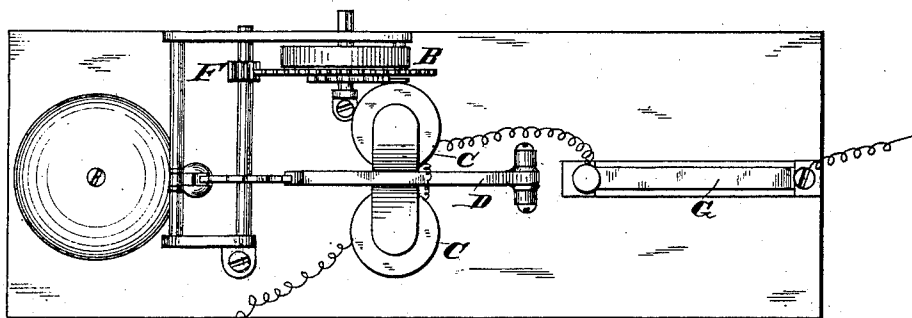
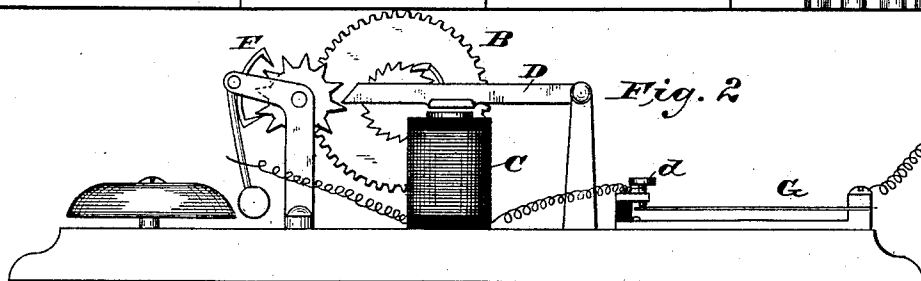
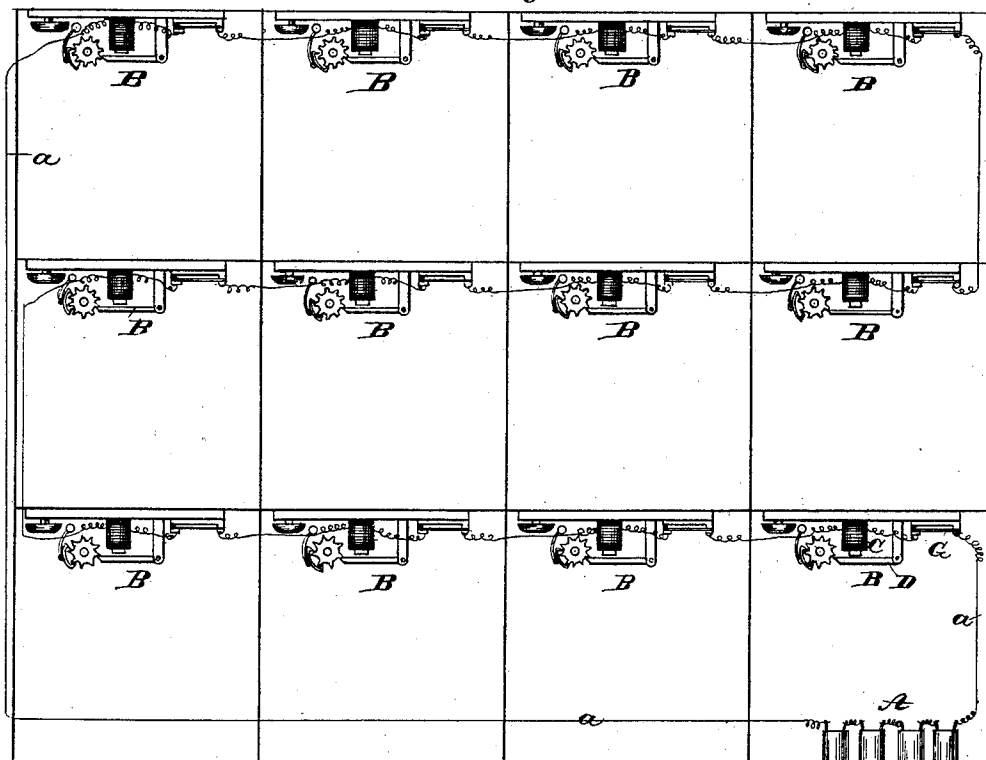
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W. L. HORNE.
ELECTRIC FIRE ALARM.

No. 357,960.

Patented Feb. 15, 1887.

Fig. 1.



Witnesses:
E. F. Walker
Wm. E. Dyer

Fig. 3.

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

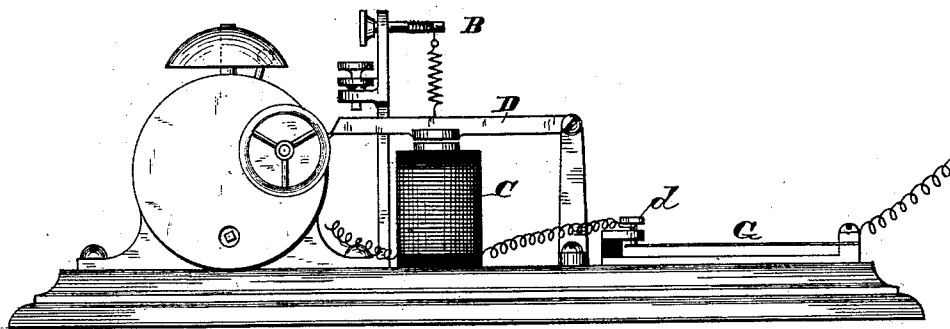
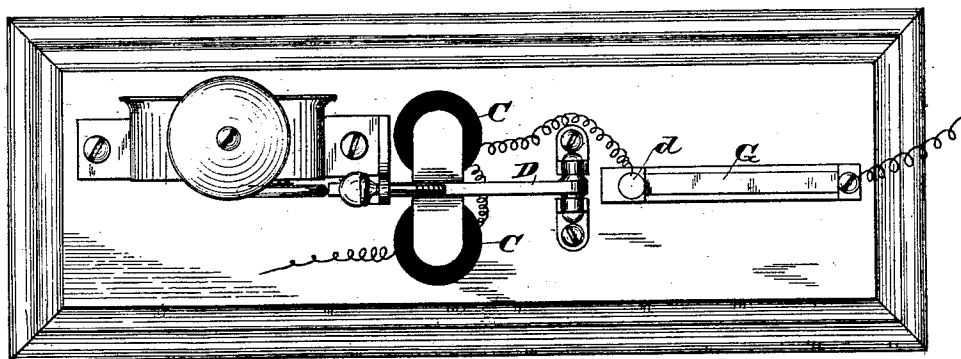


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM LEWIS HORNE, OF MERIDEN, CONNECTICUT.

ELECTRIC FIRE-ALARM.

SPECIFICATION forming part of Letters Patent No. 357,960, dated February 15, 1887.

Application filed July 12, 1886. Serial No. 207,797. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM LEWIS HORNE, a citizen of the United States, residing at Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Electric Fire-Alarms; and I do hereby 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.

My invention relates to electric fire-alarms for buildings in which it is desired to give a general alarm in case of a fire in any part thereof. Different modes of carrying the same into practice are shown in the accompanying drawings and are described herein, the invention being particularly pointed out in the claims.

One feature of my invention consists in certain details of construction whereby the cost of general-alarm systems is lessened, the construction of the same simplified, and the operation made more certain and effective.

Another feature of my invention consists in constructions whereby rooms or series of rooms are alarmed, not all at once, but in a certain order, with an interval between each successive alarm.

It is well known that in giving a general alarm in a crowded hotel, manufactory, school-house, or like building there is danger of crowding the avenues of escape, in which the weaker ones are pushed aside and crowded upon by those coming behind until many have been injured and even killed.

To avoid this is the object of the second part of my invention, and this is accomplished by alarming the room or a series of rooms most distant from the outlet upon the street first, then, after a sufficient time to permit the occupants of such room or series of rooms to arrive at a point where they are little likely to be overtaken, alarming the room or series of rooms next nearest the street-outlet, and so on until the whole building has been alarmed.

Referring to the drawings, Figure 1 is a diagrammatic view of one form of my invention applied to a group or series of apartments. Fig. 2 is a side view of the alarm mechanism and thermostatic circuit-breaker employed

therewith. Fig. 3 is a view from the under side of the same. Fig. 4 is a side elevation of the alarm mechanism and circuit-breaker employed in all the first rooms or series of rooms in the second form of my invention. Fig. 5 is a top view of the same.

In the drawings, A represents the battery, and *a* the conductor forming the line or circuit. This passes through all the rooms included in the system in any manner desired. The circuit is a closed circuit, and has interposed in it in each room one or more thermostatic circuit-breakers and alarms. These two devices I make in one instrument, although this is not necessary. They may be placed as far apart or in such relation to each other as may be deemed most desirable. This mechanism, which is designated by the letter B, may be of any preferred form.

I have shown a thermostatic spring-bar forming part of the circuit, an alarm bell or gong operated by a clock-work mechanism, F, and an electro-magnet, C, in the circuit, the armature D of which serves as a detent to hold the clock-work from sounding the bell or gong so long as the magnet remains charged. In the drawings the armature of the magnet is shown so constructed that on its being released from the magnet it falls by gravity and permits the clock-work to act. This may obviously be changed, and the armature may be moved by a spring. This construction is shown in Figs. 4 and 5.

In the form of alarm shown in these latter figures, instead of operating the bell by a clock-work which will act the moment it is released, I employ an alarm mechanism which will sound an alarm a certain determined period of time after its release by the armature of the magnet. This mechanism may be the ordinary time mechanism for this purpose, such as alarm-clocks which can be set to run a certain period after its release by the magnet before sounding the alarm.

The thermostatic circuit-breaker G shown in the drawings consists of a thermostatic spring-bar made of two metallic strips of unequal expansion in the usual way, having one end rigidly supported and permanently connected to the wire, while the other end normally bears against an adjustable contact-point, *d*. The construction is such that on the temperature

of the room rising above the safety limit the spring, by reason of its unequal expansion, bends in the usual manner and the circuit is broken.

5 While I have shown and described a thermostatic circuit-breaker of this character, I do not desire to limit myself to such construction, as I propose to use any other form of thermostatic device which will accomplish the
10 same result. Neither do I desire to limit myself to the form of alarm mechanism shown and described, as any other mechanism for this purpose may be substituted therefor in my system.

15 In the application of my system to manufacturing or other buildings where the rooms are larger I may place as many alarms and circuit-breakers as may be desired in each room, and I may include more than a single building
20 in a single system. The operation of my system in its simplest form will be clearly understood. On a fire breaking out in any apartment the circuit is opened by the circuit-breaker and an alarm immediately sounded in
25 every apartment in the building or buildings included in the system.

The operation of the second feature of my invention will be best understood by describing an instance of its use. If applied to a
30 three-story building, the line or circuit is put up through the same in any usual manner, passing through all the rooms or apartments therein. If it is proposed to alarm the upper floor first, which would most likely be the case,
35 the alarm shown in Figs. 2 and 3 would be placed in the circuit in each room upon that floor, and the alarm shown in Figs. 4 and 5 in all the other rooms of the building. All the alarms upon the second floor would be set to
40 sound an alarm within a short period after release by the magnet, and those upon the first floor would be set to sound an alarm a corresponding period after those on the second floor. Upon the occurrence of a fire in any part of
45 the building or within the limits of the system an alarm would be immediately sounded upon the third floor, after a short period those

upon the second floor would be sounded, and, lastly, those upon the first or ground floor, thereby securing the result attained. The exact
50 period to intervene between the alarms may be determined and proportioned according to the size of the building and the capacity of the avenues of escape.

Of course it will be understood that in some
55 instances, in mills and school-houses, the whole of a floor will not necessarily be included in each alarm, but that the alarm may be first sounded in one room on a floor, and then another on the same floor, in any order desired. 60

It will also be understood that the second feature of my invention may be used in connection with an open circuit with thermostatic circuit-controlling devices.

What I claim, and desire to secure by Letters Patent, is— 65

1. A single circuit connecting two or more rooms or apartments and an alarm and a thermostatic circuit-controller in series in each
70 room, substantially as described.

2. A single closed circuit connecting two or more rooms or apartments, and an alarm and thermostatic circuit-breaker in each room or
75 apartment, substantially as described.

3. A circuit connecting two or more apartments and an alarm and a thermostatic circuit-controlling device in each apartment, said
80 alarms being differently adjusted in the different apartments, so as to sound at different intervals after the operation of the circuit-controlling device, substantially as described.

4. A closed circuit connecting two or more apartments and an alarm and thermostatic circuit-breaker in each apartment, said alarms
85 being differently adjusted in the different apartments so as to sound at different intervals after the breaking of the circuit, substantially as described.

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

WM. LEWIS HORNE.

Witnesses:

E. T. WALKER,
O. H. WHITAKER.