

(No Model.)

2 Sheets—Sheet 1.

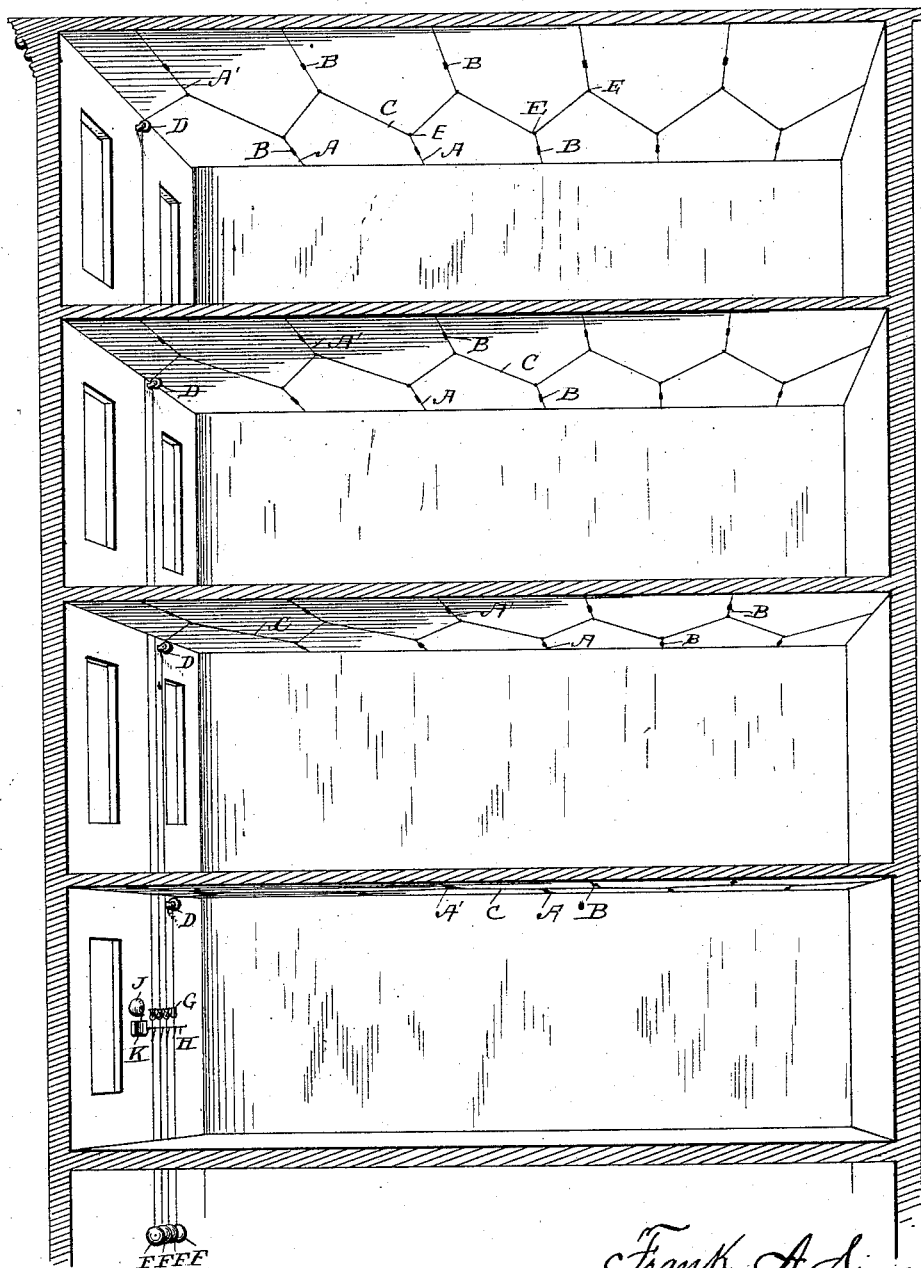
F. A. SIMONDS.

FIRE ALARM.

No. 304,964.

Patented Sept. 9, 1884.

Fig. 1.



WITNESSES

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2 Sheets—Sheet 2.

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Fig. 2.

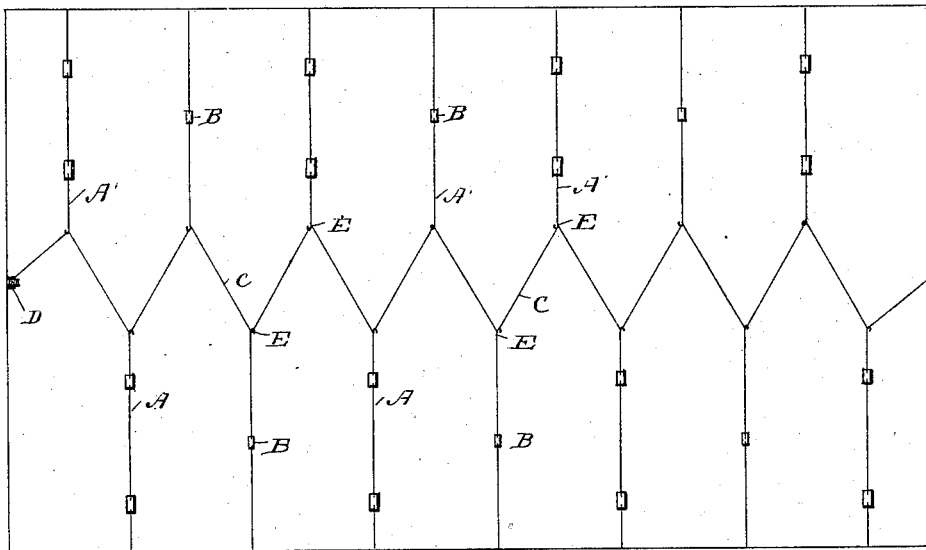


Fig. 3.

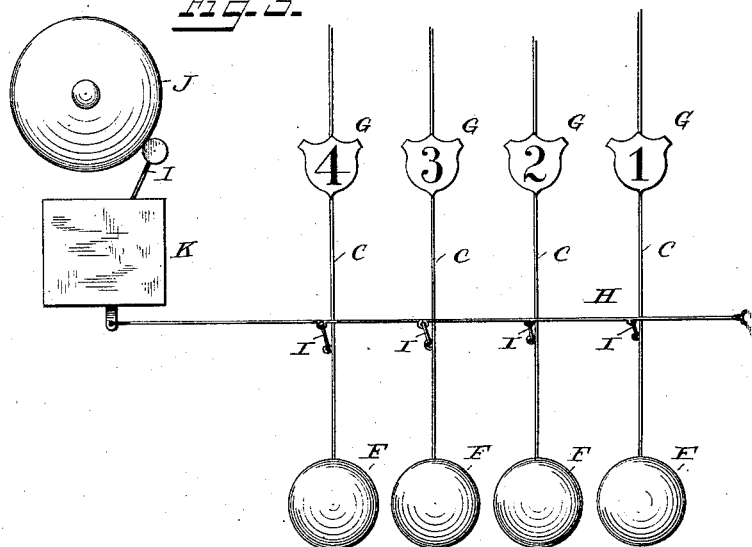
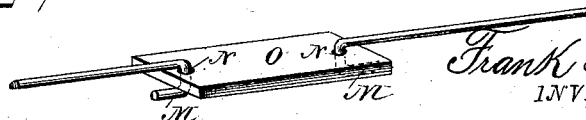


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANK ARTHUR SIMONDS, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR OF
ONE-HALF TO CHARLES MASON HOWARD, OF SAME PLACE.

FIRE-ALARM.

SPECIFICATION forming part of Letters Patent No. 304,964, dated September 9, 1884.

Application filed March 7, 1884. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. SIMONDS, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Automatic Fire Alarm and Indicator, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to automatic fire alarms and indicators; and it has for its object to provide simple, convenient, inexpensive, and efficient means for automatically sounding an alarm when a fire breaks out, and for indicating the number of the room or floor on which the fire has started; and to this end it consists in certain details of construction and combination of parts, as hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional view of a building, showing the attachment of my improved alarm and indicator. Fig. 2 is a plan view of the ceiling of one room, showing the arrangement of the wires or cords. Fig. 3 is a detail view of the alarm and indicating mechanism. Fig. 4 is a modification of the fusible joint.

Like letters of reference are used to indicate corresponding parts in the several figures.

Referring to the drawings, A A' designate a series of wires or cords arranged along the ceiling of each room of the building, one set, A, extending from one side of the room to about the center of the ceiling, and the other set, A', extending from the opposite side of the room to the center of the ceiling and immediately between the set A, and thus the ceiling of each room will have an alternate series of wires arranged upon the same. The sets of wires or cords A A' are constructed of suitable lengths, connected at their joints by solder or any metal which is fusible at a low degree of heat. The fusible joints are shown at B B, and the lengths composing the wires A A' may be arranged in such a manner that the joints B extend in alternate rows, as illustrated in Fig. 3.

C designates a wire or cord extending along the length of the room on the ceiling, the wires A A' being formed on their ends, near the center of the ceiling, with hooks E, arranged to engage with the wire or cord C, the

latter being thus arranged in a zigzag line on the ceiling by reason of connecting with the alternate series of wires or cords. One end of the wire or cord C is connected to the front wall of the room, then connects with the wires A A', as above described, and passes over a pulley or wheel, D, at the opposite wall, said wire or rope then extending down toward the cellar or basement, and having a weight, F, attached to its lower end. This weight tends to draw the wire or cord straight, so that when a fire breaks out in one of the rooms the heat melts the fusible solder or metal on one or more of the wires A A' and causes the wire C to slacken, the weight at the lower end taking up this slack and straightening the wire C, for the purpose to be hereinafter explained. Each of the rooms of the building, or, if it be a very large building, each of the floors, is provided with the aforesaid weighted wires or cords, connecting with the wires or cords of the ceiling, and preferably extending down to the cellar or basement, indicators G, in the form of shields, as shown, being fastened to the lower ends of the cords or wires C, within the cellar or basement, in plain sight, so that when the weight F draws the wire or cord downward the indicator G will show to the attendant in which room or floor the fire has started.

H designates a transverse wire or cord arranged along the wall of the basement or cellar, and connecting with the wires or cords C by short branches I I, said wire or cord H being secured to or connected with the operating mechanism of the bell J, said operating mechanism being inclosed within the casing K and causing the operation of the hammer L when the wire H sets the mechanism free.

I have not shown the operating mechanism in detail, but arranged it within the casing K, as I do not wish to be limited to any particular mechanism, since it will be apparent that any suitable device may be used. Neither do I wish to be limited to the use of a bell, as a whistle or other suitable alarm may be employed in place of the same.

In Fig. 4 I have shown an improved method of connecting the wires A A' together by fusible joints. As seen, the wires are formed with hooks M, which engage with holes or

openings N in a plate, O, made of solder or other low fusible metal. Thus, as the plate melts by the action of the heat from the fire, the lengths of the wire A A' will separate, causing the slacking of the weighted wire or cord C, the latter being drawn downward by the action of the weight, as before explained.

The operation of my invention will be readily understood from the foregoing description taken in connection with the annexed drawings. When the fire breaks out in any one of the rooms, the heat will rise to the ceiling and melt the fusible joints, causing the lengths of the wires A A' to separate and the consequent slacking of the wire or cord C. When the latter slackens, the weight at the lower end will draw the same downward, causing the indicator G on said wire to move below the indicators of the other wires, and thus the attendant of the cellar or basement can readily tell by the number on the indicator on which floor or in what room the fire has started. As the weighted cord or wire drops down, it operates the mechanism of the bell to cause the sounding of the alarm, and thus, should the attendant be out of the room or neglecting his duty, the alarm will warn him that a fire has started, so that he may then ascertain the location of the fire and act accordingly.

It will be seen that by the above-described mechanism I provide an automatic sounding of the alarm when the fire breaks out in any of the rooms of the building, and for indicating the precise location of the fire, so that the extinguishment of the same may be proceeded with without unnecessary loss of time. By means of the alternate arrangement of the wires or cords on the ceiling, each wire made of lengths connected by fusible joints, the heat of the fire will act with certainty to disconnect the wires and cause the operation of the alarm and indicator. The fusible joint shown in Fig. 4 is a preferable form of connecting the wires.

My improved fire alarm and indicator is simple, convenient, inexpensive, and efficient, and will prove of utility in use.

I have shown the indicators in the form of shields attached to the weighted cord or wire; but it will be apparent that I may substitute any suitable indicating device—such as a hand, dial, or pointer—and attain the same end.

It will also be apparent that the zigzag longitudinal wire or cord need not necessarily be arranged in the center of the room, but may be placed on one side of the same, as may be found preferable.

Having described my invention, I claim as new—

1. In a fire alarm and indicator, the combination, with the building, of the alternate series of wires or cords arranged on the ceiling of each room or compartment of the same, said alternate cross-wires being of a length insufficient to reach a cord drawn in a straight line between their points, a zigzag longitudinal

wire or cord connecting with each of the alternate cross-wires or cords and extending downward to the basement, cellar, or other convenient place over suitable pulleys, a weight attached to the lower end of the longitudinal wire or cord, indicators fastened to the same, a transverse wire or cord connecting with the weighted wire or cord, and also connecting with the operating mechanism of a bell, whistle, or other suitable alarm, as set forth.

2. In a fire-alarm, the combination, with the building, of the alternate series of cross wires or cords arranged on the ceiling of each room or compartment, said alternate cross-wires being of a length insufficient to reach a cord drawn in a straight line between their points, a longitudinal wire or cord connecting with each cross wire or cord and extending down to the basement or cellar, a weight at the lower end of the longitudinal wire or cord, the latter connecting with the operating mechanism of a bell, whistle, or other alarm, as set forth.

3. In a fire-indicator, the combination, with the building, of the alternate series of cross wires or cords arranged on the ceiling of each room or compartment, said alternate cross-wires being of a length insufficient to reach a cord drawn in a straight line between their points, a longitudinal wire or cord connecting with the alternate cross-wires and extending to the basement or cellar, the longitudinal wire or cord having a zigzag course on the ceiling, a weight at the lower end of the said wire or cord, and indicators attached to the weighted wire or cord and suitably numbered or lettered, as and for the purpose set forth.

4. In a fire alarm and indicator, the combination, with the building, of the series of cross wires or cords arranged along the ceiling of each room or compartment, one set, A, extending from one side of the room to about the center of the ceiling, and the other set, A', extending from the opposite side in a similar manner intermediately between the set A, and thus forming an alternate series of wires or cords on the ceiling, each wire or cord being constructed of suitable lengths connected by fusible joints, a wire or cord, C, extending along the length of the room on the ceiling and engaging or connecting with hooks E on the wires A A', and thereby arranged in a zigzag line, said wire or cord C extending down to the basement, cellar, or other convenient place, and weighted at its lower end, an indicator arranged on the wire or cord C, and an alarm connecting with the said wire or cord, as set forth.

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

FRANK ARTHUR SIMONDS.

Witnesses:

FRANK HALL,
E. M. WILLEY.