

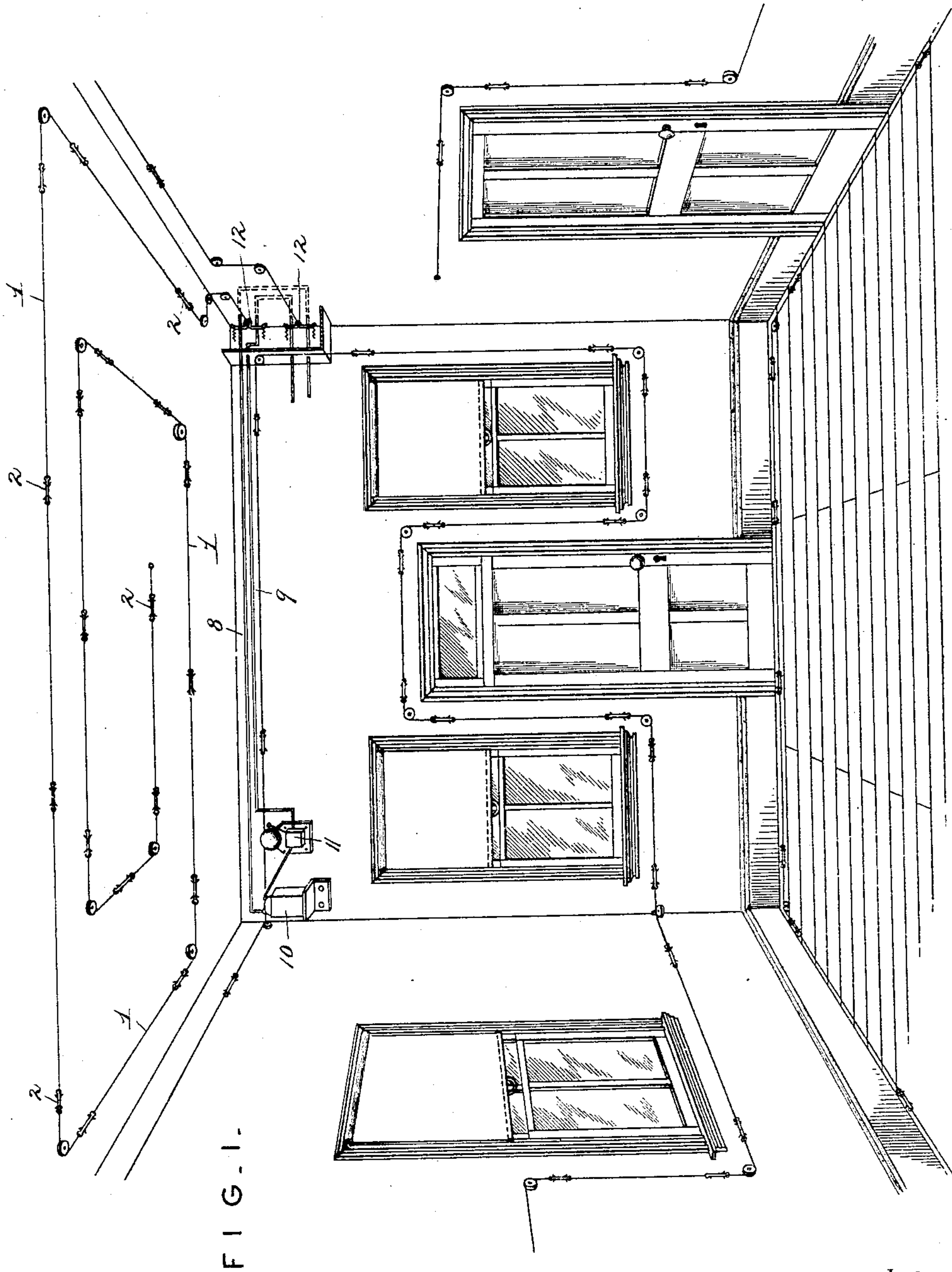
(No Model.)

2 Sheets—Sheet 1.

J. R. McCOY.  
FIRE ALARM.

No. 563,203.

Patented June 30, 1896.



Inventor

Josiah R. McCoy.

Witnesses

Harry L. Amer.

*[Signature]*

By His Attorneys.

*[Signature]*

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FIG. 3.

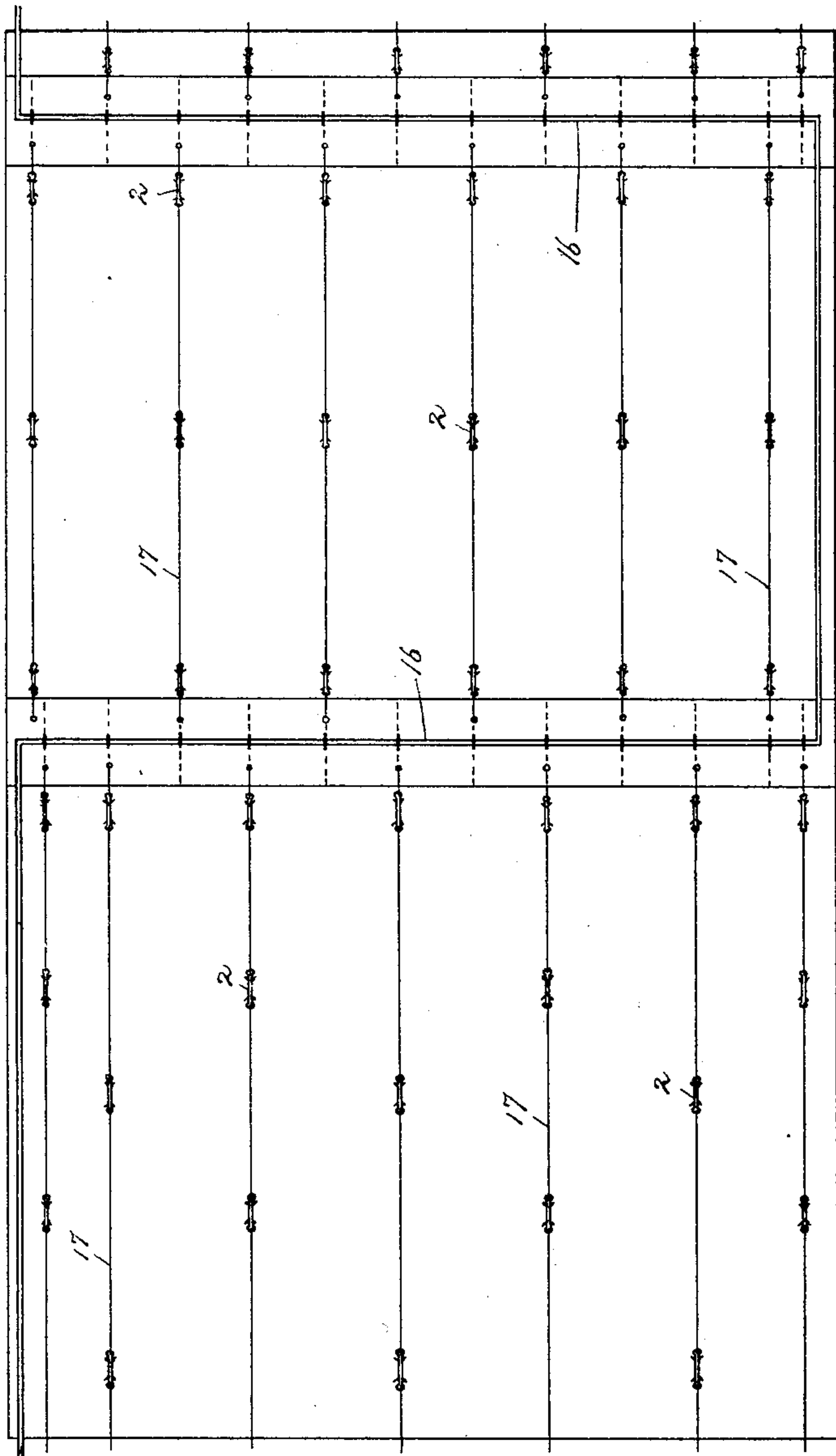


FIG. 5.

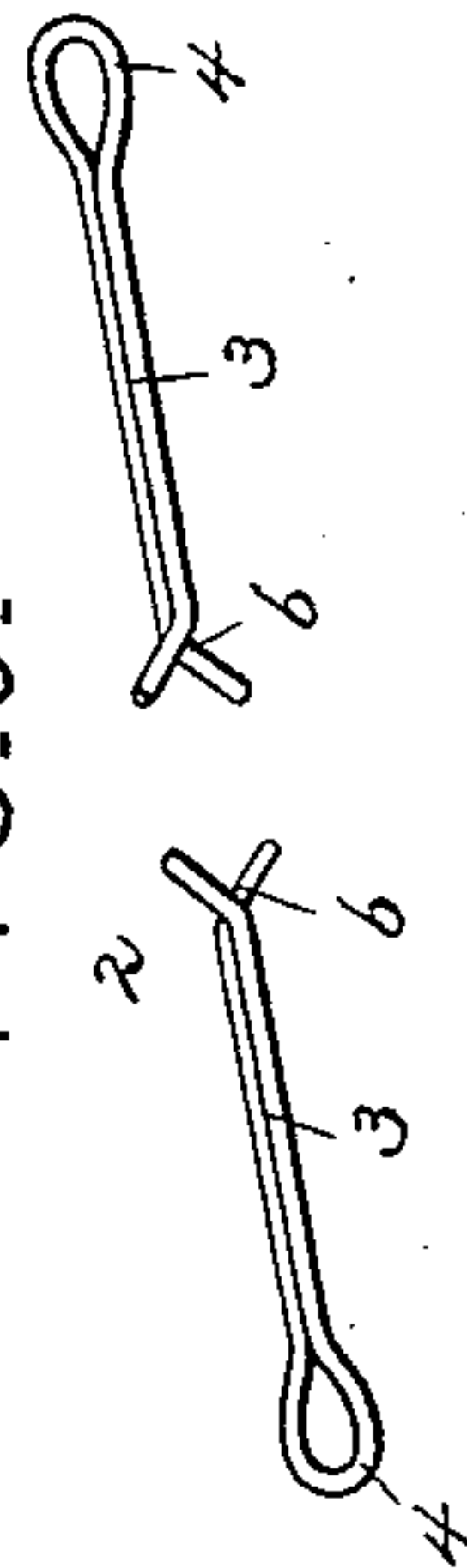


FIG. 4.

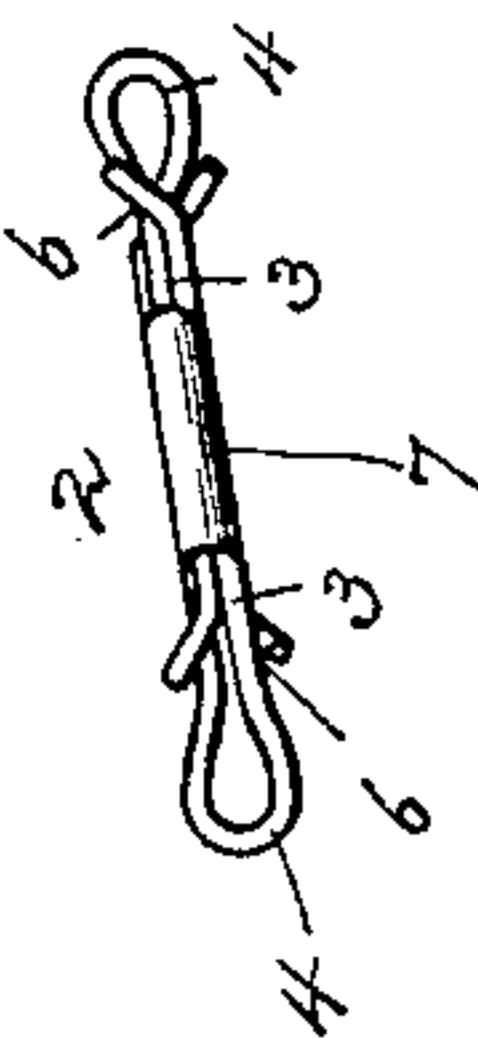


FIG. 2.

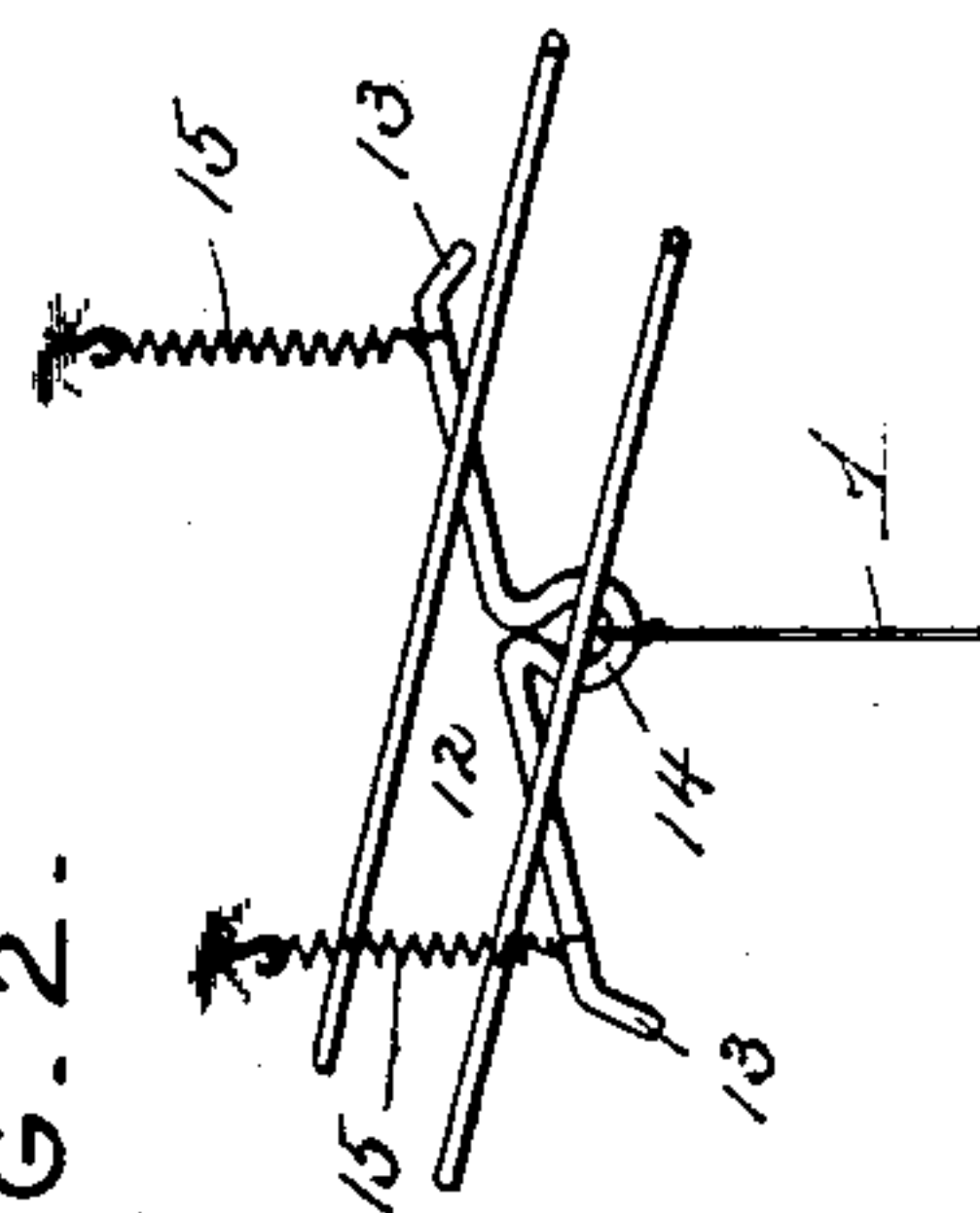


FIG. 6.

Witnesses

Harry L. Ames.

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By his Attorneys.

Josiah R. McCoy.

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# UNITED STATES PATENT OFFICE.

JOSIAH R. MCCOY, OF MARSHALLTOWN, IOWA.

## FIRE-ALARM.

SPECIFICATION forming part of Letters Patent No. 563,203, dated June 30, 1896.

Application filed July 10, 1895. Serial No. 555,571. (No model.)

*To all whom it may concern:*

Be it known that I, JOSIAH R. MCCOY, a citizen of the United States, residing at Marshalltown, in the county of Marshall and State of Iowa, have invented a new and useful Fire-Alarm, of which the following is a specification.

My invention relates to fire-alarm systems adapted for use in dwellings, warehouses, stores, office-buildings, &c., and the object in view is to provide a simple and efficient device embodying a lead consisting of a thread, cord, wire, or equivalent extending continuously throughout a room or building in positions liable to be first attacked by fire, and connected with an alarm mechanism, which is held in its inoperative position by the lead, and when released by the severance of the lead at any point announces the existence of fire, such alarm mechanism being placed either in the building supplied with the system, in an adjacent building, as that of the custodian of the protected building, or in a central alarm-station, or in any or all of the above, to announce the fact of the existence of fire at a number of points simultaneously.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of the interior of a room provided with a fire-alarm system constructed in accordance with my invention. Fig. 2 is a detail view in perspective of a circuit-closing mechanism forming a part of the improved alarm system, in which springs are employed to preserve the proper tension in the leads and upon the severance of a lead bring the circuit-closer into position to close the circuit. Fig. 3 is a plan view in diagram, showing the arrangement of parts when a plurality of leads is employed. Fig. 4 is a detail view in perspective of one of the fusible couplings. Fig. 5 is a similar view showing the members detached. Fig. 6 is a detail view of a modified form of coupling.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

In the construction illustrated in Fig. 1, a single lead 1 is employed, and it is preferably

arranged contiguous to any woodwork or any other part of the structure of the building which is liable to be attacked by fire. The lead is also arranged close to the floor or mopboard, and is designed to be so mounted as to provide for raising or removing it from the floor when the room is in use, or during the day, and folding it in some position out of the way of travel. The lead may be made of threads, silk, or similar combustible material, or of wire, and in the construction illustrated in the drawings it is provided at intervals with fusible couplings 2, adapted to be effected by heat rising above a certain degree and therefore adapted to sever or disconnect the lead, and thereby sound the alarm even without the lead itself being attacked by fire.

In the construction illustrated, the fusible couplings consist of oppositely-disposed engaging members which are approximately of hair-pin or looped construction with parallel arms 3, adapted to engage when the members are fitted together in positions at right angles to each other, or with the planes of their arms perpendicular to each other. The looped portions of these coupling members are enlarged, as shown at 4, to form eyes, and the extremities of the arms are deflected, as shown at 6, to facilitate engagement of the members. These members are normally secured in the above-described position by means of fusible solder or cement, as shown at 7, and with a tension upon the lead, it is obvious that the melting of the solder or cement will allow the members to be drawn apart or disengaged, and thus sever and relieve the tension of the lead.

8 and 9 represent the circuit wires or conductors connected with a battery 10 and an alarm mechanism 11, and said wires or conductors are arranged in parallel lines in suitable parts of the room, and are adapted to be connected or bridged by circuit-closers 12, to which are connected the leads.

In the construction illustrated, a circuit-closer consists of a rod provided with deflected extremities 13 and a central eye 14, to which is connected the lead, and attached to the oppositely-extending arms of the circuit-closer, near their outer extremities, are the tension-springs 15, adapted to draw the circuit-closer into contact, simultaneously, with both wires of conductors when the tension upon the lead



is relieved. It is obvious that said tension-springs maintain the leads under tension.

From the above description, it will be seen that the lead or leads should be placed in such positions as to be exposed to fire or heat occurring at any point either in the floor or other woodwork, and that whether the lead is constructed of combustible material or not the fusible couplings arranged at intervals provide for the relaxing of the tension and the consequent release of the circuit-closer sufficiently to allow it to be brought into contact with the circuit wires or conductors, and thus complete the circuit with the battery and alarm.

The drawings show the alarm system applied to the interior of a dwelling or similar house, but it is obvious that it may be applied to factories, school-buildings, stores, warehouses, hotels, ships, boats, &c., and that the arrangement of the leads must be adapted to the particular use and construction of the building to which it is applied.

In Fig. 3 I have shown in diagram the plan of leads and connections adapted especially for use in connection with large buildings, such as concert-halls, large factories, &c., where it is desirable, by reason of the expanse of ceiling and walls, to employ a plurality of leads and arrange the circuit wires or conductors at such intervals as to insure the proper operation of the mechanism. Referring to said figure, 16 represents the contiguous circuit wires or conductors, which extend across the ceiling, then follow the side wall for a distance, and finally return across the ceiling, and 17 represents the leads connected, respectively, to circuit-closers and provided at intervals with couplings, as hereinbefore explained.

The modified form of coupling shown in Fig. 6 consists of a coiled spring adapted to exert a tensile strain upon the leads and constructed of such material that when exposed to heat the coils yield to the strain exerted by the springs connected to the circuit-closer and stretch sufficiently to allow the circuit-closer to come in contact with the circuit-wires.

Various changes in the form, proportion, and the minor details of construction may

be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. In a fire-alarm system, the combination with an electrical conductor in circuit with a battery and an alarm mechanism, the legs of the conductor extending in parallel lines and being disconnected, of circuit-closers consisting of rods spanning and arranged contiguous to the legs of the conductor in a position transverse to the same, tension-springs connected to the extremities of the circuit-closer and adapted to bring the latter into contact with the conductor when released, and leads adapted to be severed by fire, a lead being connected to the center of each closer and being held at the desired tension by the springs of said circuit-closer, substantially as specified.

2. In a fire-alarm system, the combination with an alarm mechanism and leads in connection therewith, the leads being under tension, of fusible couplings arranged at intervals in the leads and comprising detachable members connected respectively to the contiguous ends of adjoining sections of a lead, and each member being provided with parallel arms, the parallel arms of one member having a sliding connection with the arms of the interlocking member, and fusible solder or cement for securing the arms in their normal positions, substantially as specified.

3. In a fire-alarm system, the combination with alarm mechanism and leads under tension connected with the alarm mechanism, of fusible couplings arranged at intervals in the leads and consisting of looped or hair-pin members having parallel arms arranged, respectively, in perpendicular planes, and fusible solder or cement connecting said arms to prevent relative displacement of the members, substantially as specified.

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

JOSIAH R. McCOY.

Witnesses:

JOHN D. VAIL,  
B. F. CUMMINGS.