

No. 681,127.

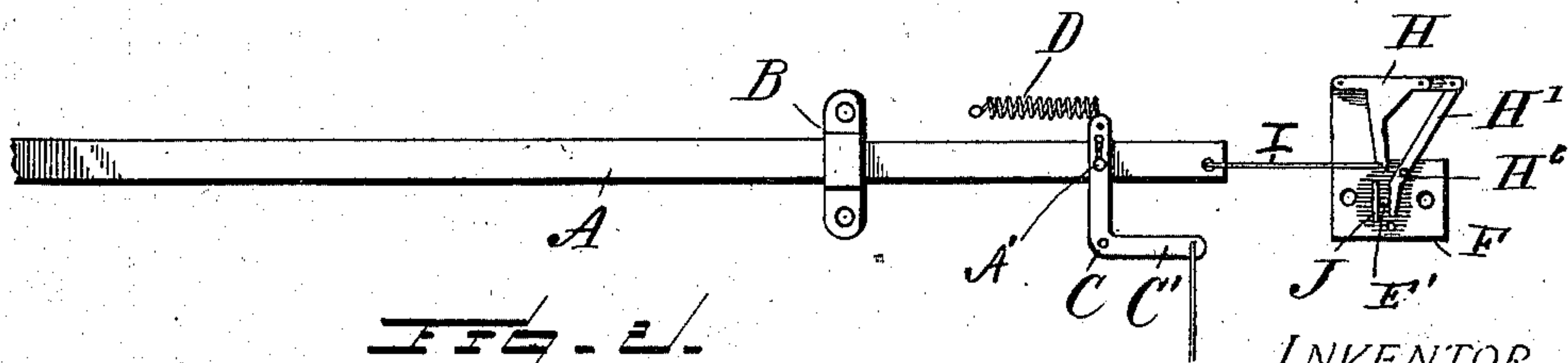
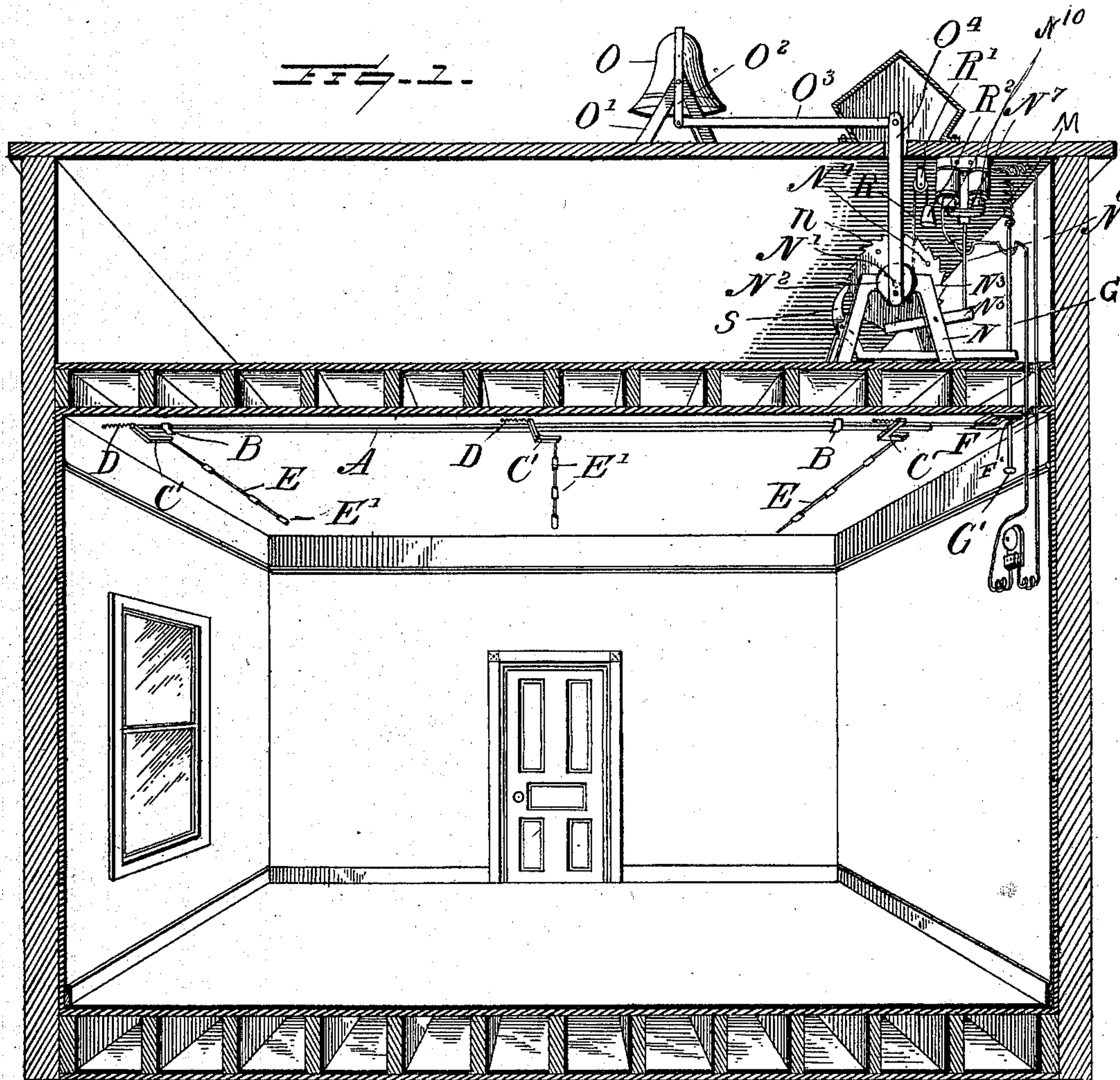
Patented Aug. 20, 1901.

C. E. LOMBARD.  
FIRE ALARM SYSTEM.

(Application filed Mar. 14, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

Wm. F. Doyle.  
A. L. Stong

INVENTOR

C. E. Lombard,

BY Franklin A. Stong  
Attorney



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WITNESSES:  
*Wm<sup>th</sup> F. Doyle.*  
*A. L. Hough.*



# UNITED STATES PATENT OFFICE.

CHARLES E. LOMBARD, OF EAST WILTON, MAINE, ASSIGNOR OF ONE-HALF TO JAMES WALKER, OF SAME PLACE.

## FIRE-ALARM SYSTEM.

SPECIFICATION forming part of Letters Patent No. 681,127, dated August 20, 1901.

Application filed March 14, 1901. Serial No. 51,164. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. LOMBARD, a citizen of the United States, residing at East Wilton, in the county of Franklin and State of Maine, have invented certain new and useful Improvements in Fire-Alarm Systems; 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 same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in automatic fire-alarms; and it consists in the provision of means whereby when the temperature of a room becomes above a certain degree a sounding-alarm will be actuated and an electrical switch thrown to close a circuit, whereby an annunciator may indicate the location of the fire or cause an electric signal to be operated at any desired location.

More specifically the invention consists of a fire-alarm system in which a series of wires having communication with the alarm-actuating apparatus are connected together with fusible unions, which under a high temperature melt and allow the actuating mechanism to give the alarm.

The invention will be hereinafter more fully described and then specifically defined in the appended claims and is illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this application, and in which drawings similar letters of reference indicate like parts throughout the several views, in which—

Figure 1 is a sectional perspective view showing a room equipped with the improved system of fire-alarm. Fig. 2 is a side elevation of the alarm-actuating apparatus. Fig. 3 is a detail view of one of the bar-actuating levers. Fig. 4 is a detail view showing the clamping members. Fig. 5 is a detail view of the ends of wires and fusible collar or union.

Reference now being had to the details of the drawings by letter, A designates a longitudinally-movable bar which is provided with

lugs A' at different locations and is held to the ceiling of a room by means of staples B. Pivoted on pins C are the angle-levers C', one end of each lever being slotted to receive one of said lugs. A spring D is secured to each lever at one end and at its other end is fastened to the ceiling.

E E designate sections of wire which have their ends interlocked in the manner shown in the drawings, and said ends are held together by means of the fusible unions E'.

Secured to the ceiling is a plate F, which is apertured, as at F', through which a cable G passes. Pivoted at one end of said plate F is a lever H, to one end of which lever is connected a cable I, which latter is fastened at its other end to the end of a longitudinally-movable bar A.

H' is a lever pivoted at H<sup>2</sup> to the plate F, said lever H' serving as a clamp to hold the cable G against the stationary block J.

K is a link which connects the lever H with the end of the clamping-lever H' and forms with said lever H a toggle-joint between the pivotal points L and L'. Said cable G has a stop G' thereon and is connected at its upper end to one end of the spring M, which latter is fastened to any stationary object. At any suitable location is a frame N, in which is journaled a shaft N', on which is mounted a drum, to which a ratchet-wheel N<sup>3</sup> is secured, the latter being provided with ratchet-teeth *n* about its periphery. Mounted in an aperture in the ratchet-wheel is a pin N<sup>4</sup>, which as the ratchet-wheel rotates is designed to strike against and tilt the lever N<sup>5</sup>. This lever N<sup>5</sup> is connected by means of a wire N<sup>6</sup> with a switch-arm N<sup>7</sup>, which may be connected to an electric apparatus for closing a circuit (not shown) for the purpose of giving an alarm at any desired location.

A bell O is mounted on the supports O' and has a crank-arm O<sup>2</sup>, to which one end of the rod O<sup>3</sup> is connected, which latter in turn is pivoted, the other end of rod O<sup>3</sup> being pivoted to the upper end of the pitman O<sup>4</sup>, which passes through an aperture in the ceiling. The lower end of pitman O<sup>4</sup> is pivoted to a pin carried by a disk N<sup>2</sup>, mounted on the end of the drum-carrying shaft, whereby as said



disk rotates the pitman will cause the rod  $O^3$  to reciprocate and ring the bell. Winding about said drum is a rope  $R$ , which passes over a pulley  $R'$  and has a weight  $R^2$  secured to its end. A pawl  $S$  is pivoted to the frame  $N$ , one end of said pawl being disposed in engagement with the teeth of the ratchet-wheel and the other end of the pawl in the path of the stop  $G'$  on the cable  $G$ , so that when the spring  $M$  causes the cable  $G$  to be drawn up the pawl will be tilted and the drum be allowed to rotate under the influence of the weighted rope, which unwinds from the drum.

In operation when the temperature in a room rises to a danger-point sufficiently to melt the unions which connect the wires  $E$  the latter will be disconnected and the bar  $A$ , under the influence of the springs connected thereto, will be drawn longitudinally and the cable  $I$  will be drawn with the bar, and the lever  $H$  being tilted will cause the clamping end of the lever  $H'$  to be released from the cable  $G$ , and the spring  $M$  will draw up said cable  $G$ , and as the stop  $G'$  contacts with the end of the lever or pawl  $S$  the latter will be drawn away from the ratchet-teeth of the wheel  $N^3$ , allowing the weight  $R^2$  to rotate the drum by means of the rope unwinding from said drum. As the drum rotates the bell will be rung through its connection with the pitman and rod  $O^3$ , and as said pin comes in contact with the end of the lever  $N^5$  the switch  $N^7$  will be thrown for the purpose of closing a circuit, the poles of which circuit are designated by letter  $N^{10}$  in Fig. 1.

What I claim is—

1. An automatic fire-alarm, consisting of a longitudinally-movable bar held to the ceiling of a room, spring-actuated levers engaging said bar, wires with fusible connections designed to hold said levers normally under tension, a spring-actuated cable, and signal-operating mechanism actuated thereby, a fixed clamping-block and a pivoted clamping-jaw, and connections between the latter and said spring-actuated bar for holding said

cable normally under tension, and between said clamping-jaws, as set forth.

2. An automatic fire-alarm system, comprising in combination with the spring-actuated bar, the wires with fusible couplings designed to hold said bar under tension of its springs, a spring-actuated cable and signal-operating mechanism actuated thereby, a fixed clamping-jaw, a movable clamping-jaw pivoted near one end, a lever  $H$  pivoted to a stationary pin, a link having pivotal connections with said lever, and movable clamping-jaw, and cable connections between said spring-actuated bar and lever, as set forth.

3. In combination with the spring-actuated cable, the clamping-jaws and means for holding the same normally under tension of its springs, a drum, a weighted rope winding about the latter, a ratchet-wheel rotating with said drum, a pivoted pawl engaging at one end the teeth of said ratchet-wheel, its other end apertured to receive said cable, a stop on the cable adapted to contact with the apertured end of said pawl, to tilt the same, and alarm-operating mechanism which is actuated as the drum rotates, as set forth.

4. In combination with the spring-actuated cable, and means for holding the same under tension of its spring, and for releasing same, a drum, a weighted rope winding about the latter, a ratchet-wheel rotating with said drum, a pivoted pawl, one end of which engages the teeth of said ratchet-wheel, its other end apertured to receive said cable, a knot on the cable designed to trip against said pawl, a series of pins held to the face of said ratchet-wheel, a pivoted lever, one end of which is disposed in the path of said pins, and a circuit-closer actuated by said lever as it tilts upon its pivot, as set forth.

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

CHARLES E. LOMBARD.

Witnesses:

JAMES WALKER,

THOMAS J. WALKER.