

(No Model.)

3 Sheets—Sheet 1.

L. A. & C. J. WERNER.

AUTOMATIC ELECTRIC FIRE ALARM AND SIGNAL.

No. 519,213.

Patented May 1, 1894.

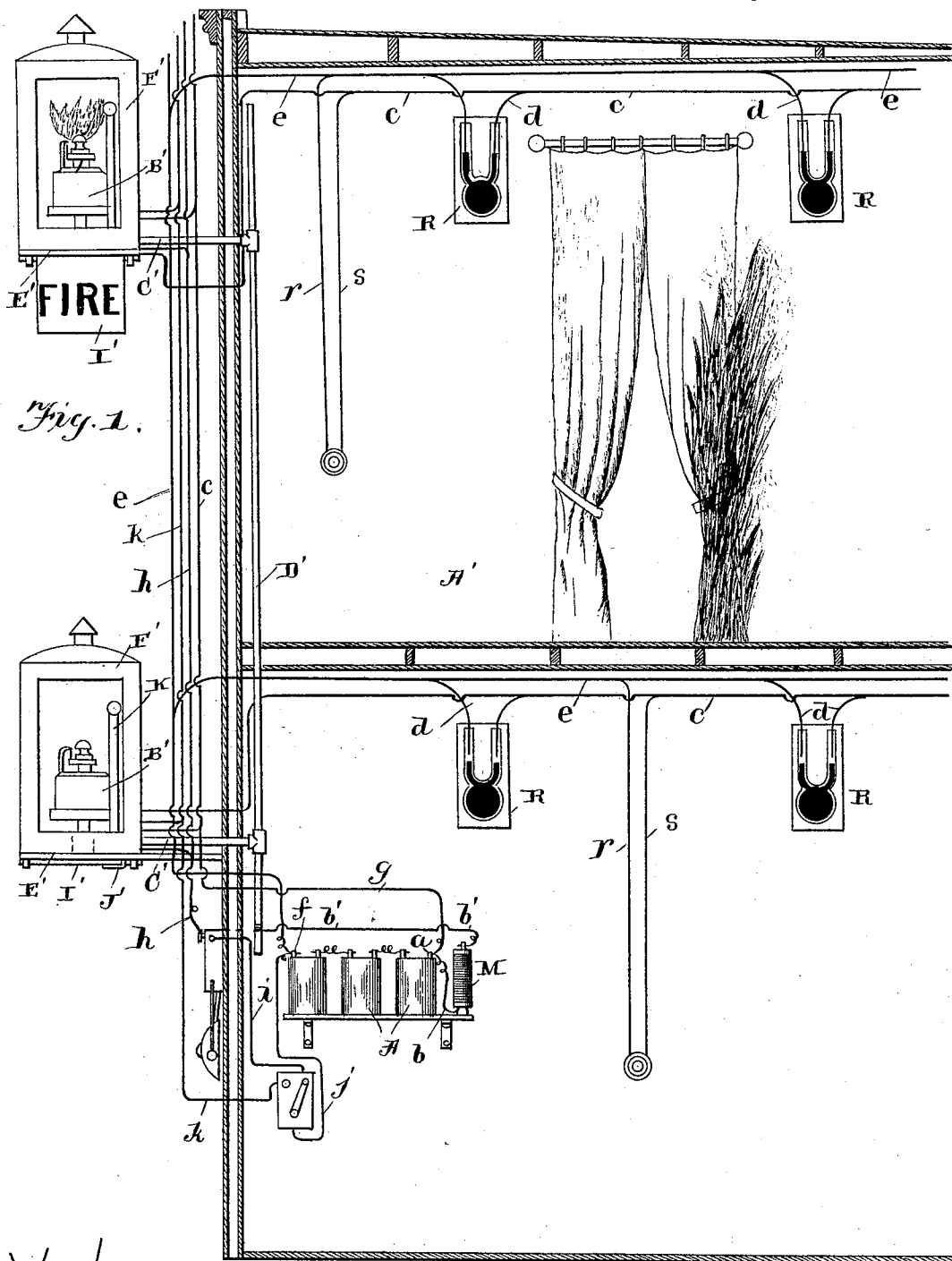


Fig. 1.

WITNESSES—

Geo. E. Fuchs,
J. M. Copechaver

INVENTORS

L. A. Werner,
C. J. Werner,
Lehmann, Pattison & Nesbit attys

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Fig. 2.

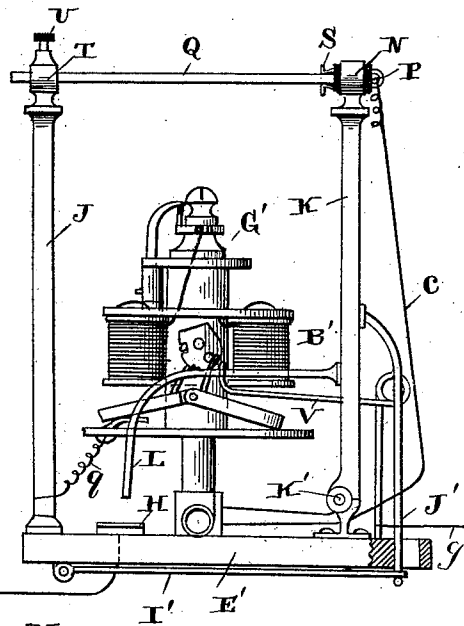


Fig. 3.

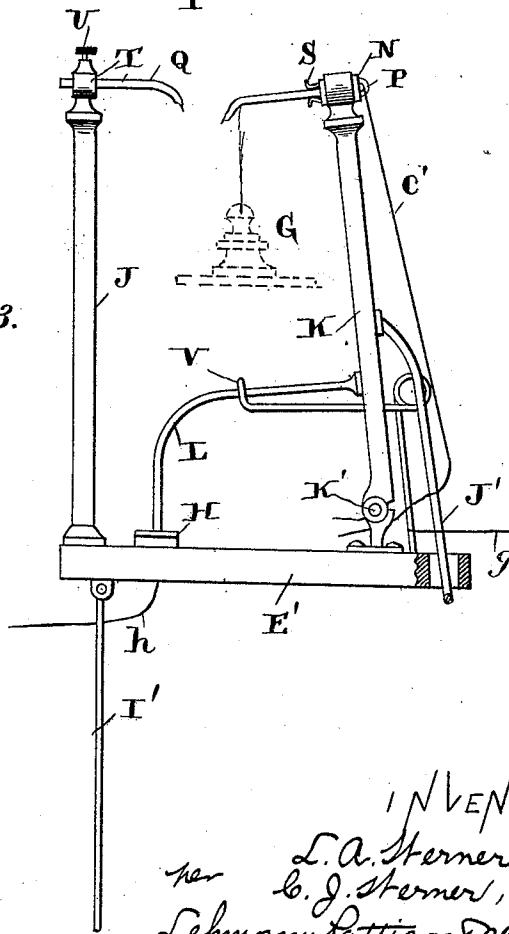
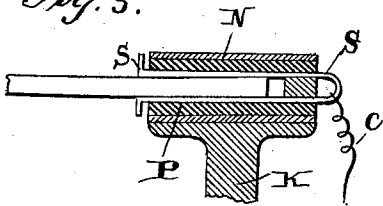


Fig. 5.



WITNESSES.

Geo. E. Truch,
J. M. Copenhaver.

INVENTORS

L. A. Werner,
C. J. Werner,
Lehmann Pattison & Nesbit, attys.

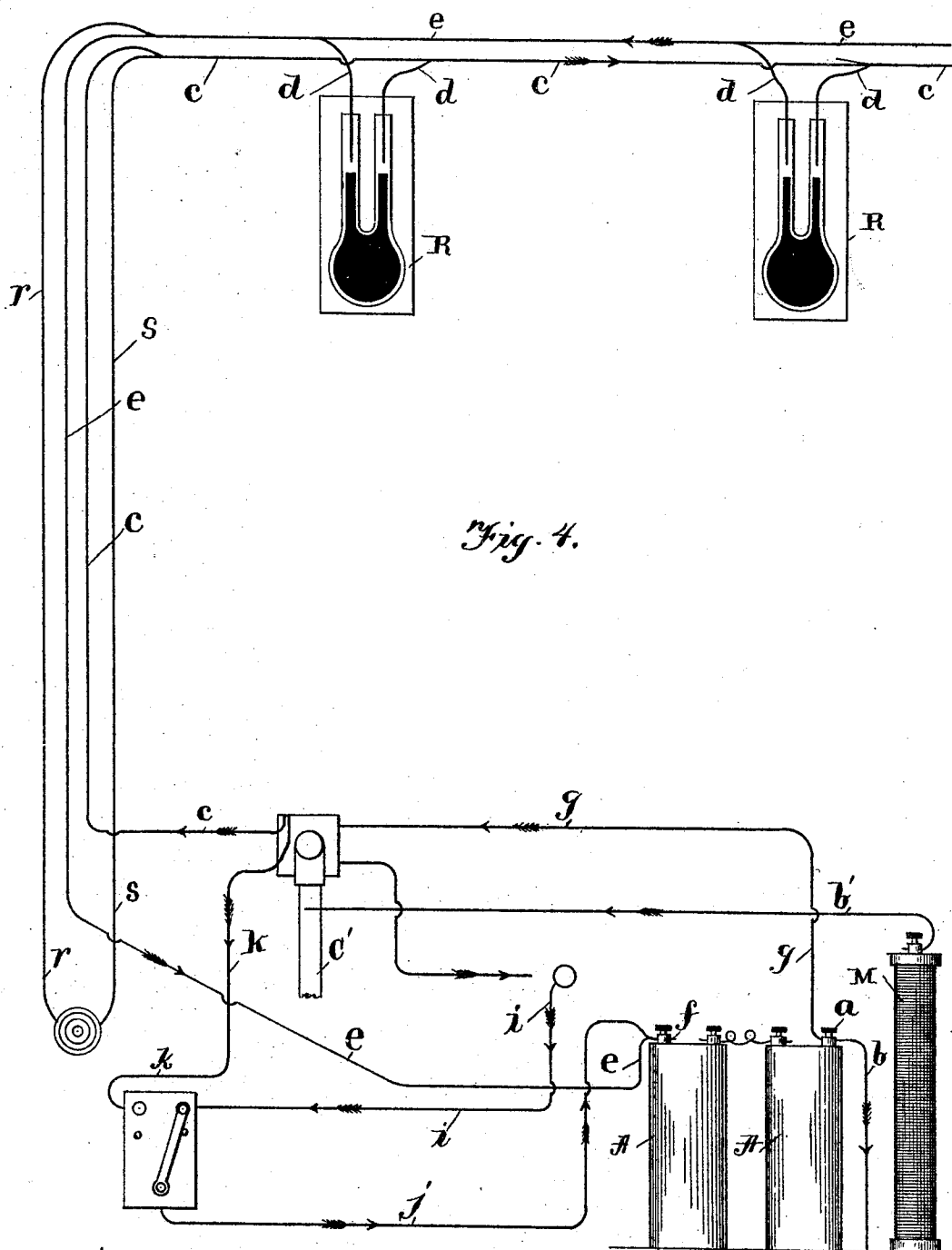
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3 Sheets—Sheet 3.

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WITNESSES.
Geo. C. Frick,
G. M. Copehaver.

INVENTORS
L. A. Werner,
C. J. Werner,
Lehmann, Pattison & Nesbit attys

UNITED STATES PATENT OFFICE.

LOUIS A. WERNER AND CLEMENT J. WERNER, OF BOSTON, MASSACHUSETTS.

AUTOMATIC ELECTRIC FIRE ALARM AND SIGNAL.

SPECIFICATION forming part of Letters Patent No. 519,213, dated May 1, 1894.

Application filed February 7, 1894. Serial No. 499,387. (No model.)

To all whom it may concern:

Be it known that we, LOUIS A. WERNER and CLEMENT J. WERNER, citizens of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Automatic Electric Fire Alarms and Signals; and we 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.

Our invention relates to improvements in automatic electric fire alarms and signals, and it consists in the construction and combination of parts and devices which will be fully described hereinafter and particularly referred to in the claims.

The object of our invention is to provide an alarm and signal outside of a building and at each floor or story thereof, the same constructed to be operated by electricity automatically when the temperature of any floor or room of the building has reached a predetermined degree.

In the accompanying drawings:—Figure 1 is a vertical sectional view of a two story building with our invention applied thereto, the signal for the upper story being in an operative condition, and the one for the lower floor not operating. Fig. 2 is a detached view of lamp or light with the co-operating devices, and the bell, the same being set ready for an alarm. Fig. 3 is a similar view, the parts being shown in position for exhibiting a signal and sounding an alarm. Fig. 4 is a diagram of the circuits. Fig. 5 is a detached horizontal sectional view through the socket N.

A indicates batteries which are placed upon suitable supports in one floor of a building A', and B' the lamps which are supported outside of the building upon outwardly extending gas pipes C'.

R represents thermostatic electric alarms which are placed upon the walls and ceiling of the different floors and rooms of the building to be protected by the signal and alarm, and which in the present instance consist of

a U-shaped glass with a bulb at the lower end, and which is partially filled with mercury, and have the main wires of the main circuit passed thereinto within a short distance of the mercury, so that a rise in temperature in the room or floor will cause the mercury to rise and the circuit to be closed therethrough, as will be readily understood, and more fully specified hereinafter. While we here show and prefer to use this particular style of thermostatic circuit closer or alarm, we do not wish to limit ourselves to the use thereof, for other forms of thermostatic circuit closers may be used without departing from the spirit of our invention.

Referring to Fig. 1, D' is a gas pipe which preferably extends up the front wall of the building, and from which the short outwardly extending gas pipes C' have communication as before stated, and which support the signaling devices B', also previously referred to.

E' (Fig. 2) is a suitable base which is clamped or otherwise suitably attached to the pipes C', over which the casing F' having colored glass is placed, and which also serves to support the devices to be now specified. A standard K is supported upon the said base at one side of the burner G', by means of a hinged joint F' which will not permit it to be pressed outward beyond a vertical position as shown in Fig. 2. The upper end of this standard carries a socket N, in which is placed an electric non-conductor P, and placed within this non-conductor is the spring S, the opposite looped end of which is connected with a wire c. At the opposite side of this burner G', is another vertical standard J, which is stationary, and carries at its upper end a socket T having a thumb screw U, and in this socket T one end of a fusible bar Q is placed, the opposite end of said bar resting between the said springs S, whereby the standard K is prevented from leaning toward the standard J, under the pressure of a spring V which normally bears down upon an arm L extending inwardly and curved downward from the standard K. When however this bar Q is broken by heat from the burner as shown in Fig. 3, the standard K is instantly drawn toward the standard J, for a purpose to be set forth pres-

ently. A plate H is attached to the base E', and a wire h, connects this plate and the electric bell H'.

Hinged to the under sides of the bases E', are what we term day signal plates I', and rods J', project down through the bases and have their lower ends engage the free ends of the plates when the said standards are in a vertical position, as shown in Fig. 2, but when the standards are permitted to move inward as shown in Fig. 3, the free ends of the plates I' are released and the plates drop to the position shown by the top signal in Fig. 1, and exhibit the word "Fire."

The burner G' is provided with an ordinary automatic lighting and cut off electric device, the construction of which is so well known to those skilled in the art, that it need not be specifically described here.

When a fire occurs in any room or floor of a building provided with this apparatus, the mercury in one or more of the circuit closers R rises, and the circuit thereby closed, the same being formed from the pole a (Fig. 4) through the wire b, the sparking coil M, the wire b', the gas pipe C', the sparking device of the burner, the magnets for operating the sparking device, and through the wire g, (Fig. 2) to the standard J; through the fusible bar Q to the spring S connected to the wire, c, to and through the wires d, and the circuit closer R to the wire e, to the opposite pole of the battery f. As soon as this circuit is closed the sparking device of the burner turns on the gas and lights the same. The flame from the burner G', severs the fusible bar Q as shown in Fig. 3 letting the standard K be tilted toward the standard J. The severing of the bar Q breaks the circuit just described, but a circuit is instantly formed through the bell from the pole a, of the battery, the wire g, the spring V to which it is attached (or the wire may be attached directly to the arm L) through the arm L to the plate H, through the wire h, to the bell, through the bell to the wire i, through the switch to the wire j, thence to the opposite pole f, of the battery. From this it will be seen that the severing of the fusible bar Q by the flame of the gas burner, breaks the circuit that turns on and lights the gas, and instantly sounds an alarm; and the moving in of the standard simultaneously with the lighting of the gas and the sounding of an alarm releases the free end of the signal plate I, through the medium of the arm J', and the plate drops down and exhibits the word "Fire," as previously stated. The plate I', is especially provided for day use, but at night a red or other color light will be exhibited by the colored glass in the casing, and the alarm sounded by the bell.

In order to turn off the gas and break the circuit through the bell, after the fire is out, or for any other purpose, it is only necessary to move the switch arm over to the contact at the opposite side thereof from that shown in Fig. 4, and the circuit through the bell will

be broken, but a circuit formed through the cut out magnets of the burner from the pole a, of the battery, the wire b, the sparking coil, the wire b', the gas pipe to the cut out magnets, through the coil of said magnets to the wire k, thence through the switch to the wire j, connected with the other pole of the battery.

While we have hereshown but a two story building, it will be understood of course that there may be as many stories as desired, and a single battery made to operate them all.

Placed within the building is a watchman's push button, and preferably one in each floor as shown in Fig. 1. The wires r, and s, respectively are connected with the wires e and c respectively, so that by closing the circuit through the push button a circuit is formed through the sparking device, and the same operation of the parts in the signaling apparatus takes place as when the circuit is formed through one of the circuit closers R, and need not therefore be described, as it is readily understood by those skilled in the art.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. An electric signaling device comprising a burner outside of the building protected, and carrying an electric lighting device, an electric circuit for said lighting device inclosing a fusible bar adjacent the burner to be severed by the flame thereof, a signal plate, and a trip for said signal plate held by the said fusible bar, the parts operating as described.

2. An electric signaling device comprising a burner carrying an electric lighting device, a circuit for said lighting device, a fusible bar, a signal plate, and a trip for holding the said plate which is itself held by the said fusible bar, whereby when the bar is severed the plate is released.

3. An electric signaling device comprising a burner carrying an electric lighting device, an electric circuit for said lighting device, a bell circuit, a circuit closer within the bell circuit, and a fusible bar within the lighting device circuit and near the burner to be severed by the flame, the said bar holding the bell circuit closer open, whereby the closing of the lighting circuit lights the gas which severs the fusible bar thus closing the bell circuit to sound an alarm, substantially as described.

4. An electric signaling apparatus comprising a burner carrying an electric lighting and a cut-off device, a circuit for the lighting device, a fusible bar within said circuit and adjacent the burner to be severed by the flame thereof, a bell circuit, a circuit closer within the bell circuit held open by said fusible bar, a cut off circuit for the cut off device of the burner, and a switch within the cut off and bell circuits; whereby when the lighting device circuit is closed the same is broken by the severing of the fusible bar and the bell circuit closed, and the bell circuit broken and

the cut off circuit closed by said switch, substantially as set forth.

5. An electric signaling apparatus comprising a burner carrying an electric lighting device, an electric circuit for the same, a thermostatic circuit closer with said lighting circuit, a bell circuit, a fusible bar within the lighting circuit, a circuit closer within the bell circuit held open by said fusible bar, and a push button circuit closer having its wires connected respectively with opposite poles of the thermostatic and signaling circuit, whereby the closing of the circuit by said button will cause the closing of the signaling circuit, the fusing of the said fusible bar, and the closing of the bell circuit, substantially as specified.

6. An electric signaling device comprising a burner carrying an electric lighting device, a circuit for said lighting device, a thermostatic circuit closer within said circuit, two standards within said circuit, one being hinged, a fusible bar extending from one standard to the other and within the circuit

also, the said bar holding the hinged standard, a bell circuit, a circuit closer within the bell circuit and operated by the swinging of the said hinged standard, the parts operated as described.

7. An electric signaling apparatus comprising a burner carrying a lighting device, an electric circuit for said lighting device, a hinged standard within said circuit, a fusible bar adjacent the burner for the purpose described and within the circuit, the said bar holding the hinged standard against movement, a signaling plate, and a holding device for said plate carried by the said hinged standard, the parts operating substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

LOUIS A. WERNER.
CLEMENT J. WERNER.

Witnesses:

E. C. RAMSDELL,
T. M. CARTER.