

(No Model.)

W. G. DAY.
AUTOMATIC HEAT SIGNALING DEVICE.

No. 470,478.

Patented Mar. 8, 1892.

Fig 1.

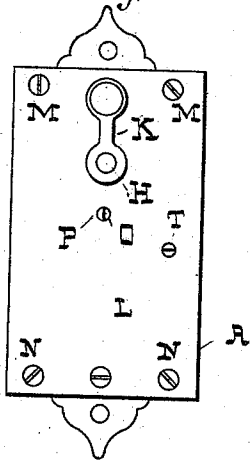


Fig 2

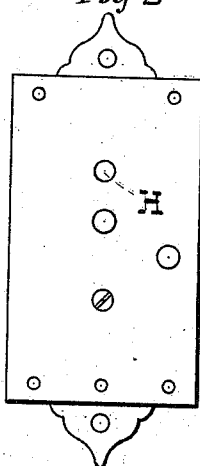


Fig 3.

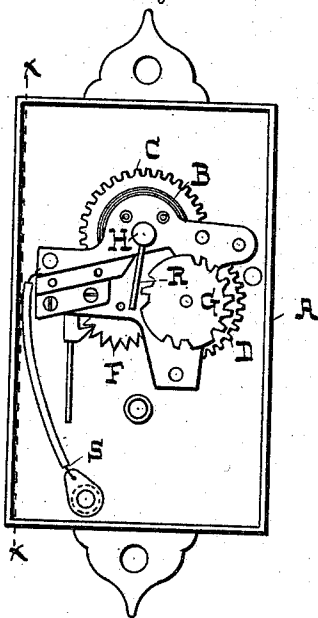


Fig 4.

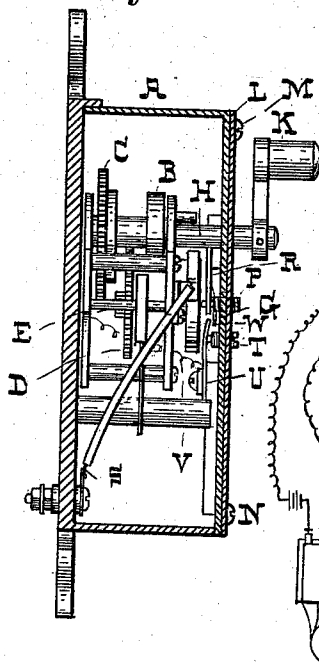
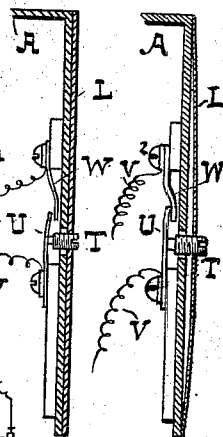


Fig 5. Fig.6



-WITNESSES-

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UNITED STATES PATENT OFFICE.

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AUTOMATIC HEAT-SIGNALING DEVICE.

SPECIFICATION forming part of Letters Patent No. 470,478, dated March 8, 1892.

Application filed March 18, 1891. Serial No. 385,450. (No model.)

To all whom it may concern:

Be it known that I, WILLARD G. DAY, of the city of Baltimore and State of Maryland, have invented certain Improvements in Automatic Heat-Signaling Devices, of which the following is a specification.

In the accompanying drawings, forming a part hereof, Figure 1 is an exterior front view of the invention, and Fig. 2 a similar view with a supplemental face which constitutes a thermostat removed. Fig. 3 is a front view of the invention with the thermostat and the outer portion of the box removed. Fig. 4 is a sectional side view of the invention, taken on the dotted line *xx*, Fig. 3. Fig. 5 is a sectional side view of a part of the box, together with some elements of the internal mechanism. Fig. 6 is a similar view showing the outer plate in a warped position.

The object of my invention is to provide an automatic call-box, which may serve a four-fold purpose: first, as a call-box to be rung by hand to summon a messenger from a central district office or other such service; second, as a thermostat to send a signal automatically to a central office when a predetermined high and dangerous degree of temperature is reached; third, as a thermostat to give automatically to persons on the premises an alarm or warning of a lower but still dangerous degree of temperature, and, fourth, as an instrument to be rung by hand in case the fire is discovered before the heat has greatly increased or had time to effect an automatic alarm.

I accomplish my object by making a call-box A, having clock-work, which consists of a mainspring B, gears C D E F, and a wheel G, with notches to indicate numbers, the whole being wound by a winding-stem H, on which is a fixed crank K, which appears on the front face of the box A. On the face of this box A, I place another or supplemental face L, preferably of hard rubber, and secure it by two or more screws M N or other fastenings. In the central point O in this outer face I place a regulating-screw P, which projects through an opening in the inner face to the inside of the box. This screw P, when properly adjusted, serves as a detent to engage with a pin R, fixed in the winding-stem H and extending therefrom about an inch. When the

outer face L of the box is parallel with the inner face A and lying closely against the latter, the regulating-screw P engages with the pin R, fixed in the winding-stem H, and prevents the clock-work from running down. In this condition the call-box is used simply as a messenger-call or for other similar service and the screw P serves as a stop to limit the movement of the stem to a part of a revolution; but when the surface of the outer face L is heated, as occurs when fire breaks out in a room, or when the heat becomes dangerous, the outer face of the box warps and bows outward, thereby withdrawing the point of the screw P from contact with the pin R and allowing the clock-work to run entirely down. When, therefore, the winding-stem H makes a single or partial revolution, it is known that the alarm or signal is given by hand and that its motion is arrested by the screw P; but when the winding-stem H makes several continuous revolutions and the alarm is repeated, as is the case when the clock-work runs down, it is evident that the screw P is withdrawn and the signal automatically given by a dangerous degree of heat or by a person intending to send in a fire-alarm. The degree of heat at which the signal is given is regulated by the amount of inward projection of the regulating-screw P.

In order to guard against the danger of a false or needless alarm, the screw P is set so as to disengage itself from the pin R only at a comparatively high and very dangerous degree of temperature.

The thermostat call-box is connected by a circuit-wire S with an alarm and registering or other heat-signaling apparatus at a district office, or the wire may connect with the fire department, as may be desired. In this way the second purpose of the thermostat call-box is accomplished.

The third use or purpose alluded to is accomplished by the following additional feature of the apparatus: In the outer face L of the box there is situated a second regulating-screw T, the point of which pushes against a metal spring U, placed on the inner face of the box, but insulated from electric connection with the box. One wire V of an open circuit is attached to this insulated spring U and the other wire V' to another metal strip

W, insulated from the box A. When the outer face of the box A warps from the effect of dangerous heat, as already described, the points or ends of the springs U and W are brought together and an electric circuit completed, which is arranged so as to ring an alarm, free an annunciator-drop, or effect such other signaling devices as may be desired. It is intended that this low degree of warning alarm shall be placed on the premises to be protected, and that it should be set to ring at a lower degree of temperature than the alarm situated at the main office or the fire department, thus giving those on the premises the first alarm or warning and the opportunity of making an escape from the premises imperiled or, when it is possible, of putting out the fire without the fire department being summoned. If, however, a fire is discovered and at once seen to be dangerous, a decided pull on the outer face L of the box releases the regulating-screw P from the pin R on the winding-stem H and sends in the fire-alarm without waiting for it to be given automatically by the heat. Thus the thermostat call-box accomplishes its fourth purpose.

What I claim as my invention is—

1. In an automatic fire-alarm apparatus, the combination of a windable call mechanism controlled manually and by a warping thermostat having a pin, which in the normal position of the thermostat engages with some part of the windable call mechanism, and thereby prevents its operation, but which upon the warping of the said thermostat is withdrawn from the said mechanism and allows the same to run down and give an alarm, substantially as specified.

2. In a fire-alarm apparatus, a windable call mechanism controlled manually and by a warping thermostat, combined with a series

of signaling mechanisms, one of which is connected with the windable call mechanism, whereby a signal may be transmitted automatically or manually, and the others of said series are independent of the windable call mechanism and operated by the thermostat, substantially as specified.

3. In a fire-alarm apparatus, a windable call mechanism adapted to be controlled manually and a warping thermostat adjacent thereto, combined with a series of signaling mechanisms, one of which is connected to the windable call mechanism, whereby a signal may be transmitted manually, adjustable connections between the others of said series and the thermostat and between the thermostat and the windable call mechanism, whereby signals may be automatically transmitted through all of the series of signaling mechanisms, the said connections being so arranged that a signal may be transmitted through one signaling mechanism in advance of the other, substantially as specified.

4. In combination with a windable call mechanism and an independent electric circuit comprising an alarm, a warping plate or face secured exteriorly of the said windable call mechanism, with a pin, which in the normal state of the said warping-plate comes in contact with some part of the said call mechanism, and thereby prevents the operation of the same, and a circuit breaker or closer operated from the said warping-plate, which in the distortion of the same by the application of heat thereto opens or closes the circuit and produces an alarm, substantially as specified.

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Witnesses:

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