

E. LAMOUREUX.
FIRE ALARM.
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946,857.

Patented Jan. 18, 1910.

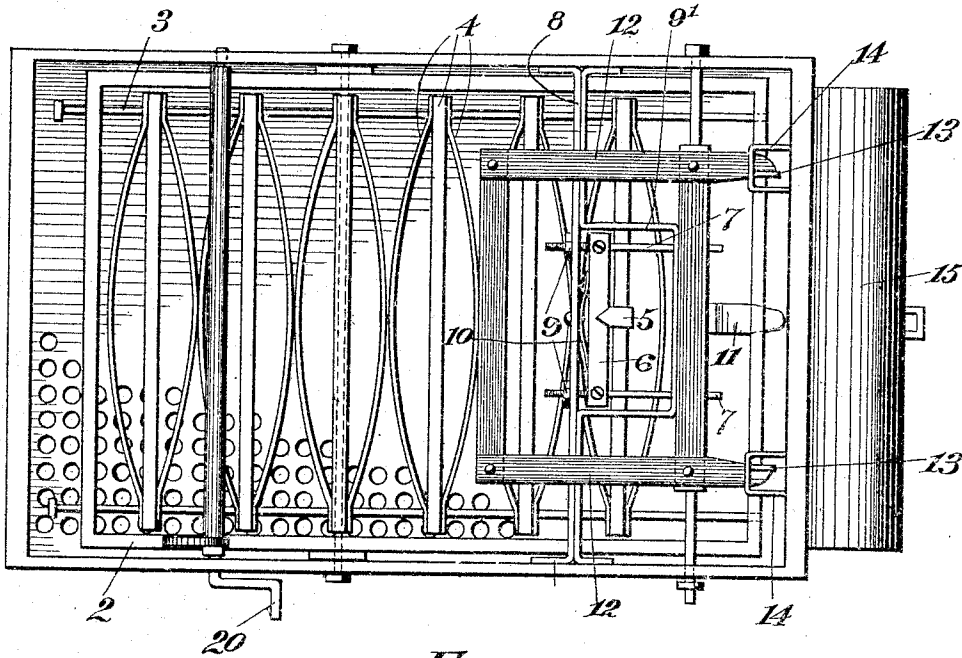


Fig. 1

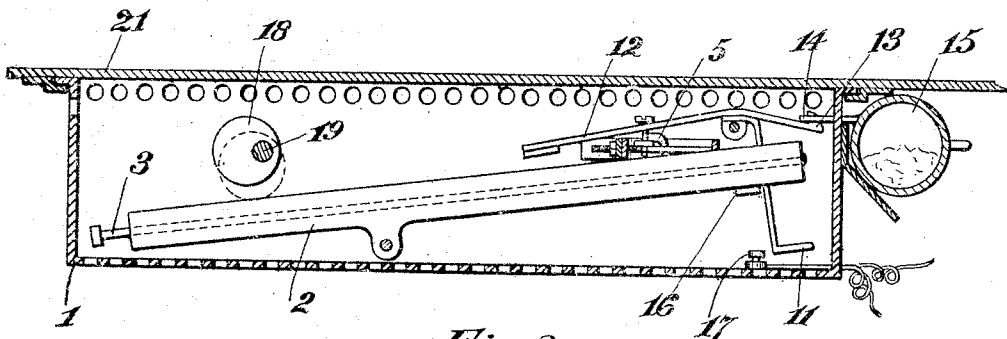


Fig. 2

Witnesses:

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UNITED STATES PATENT OFFICE.

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FIRE-ALARM.

946,857.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDMOND LAMOUREUX, a citizen of the United States of America, residing at the city and district of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Fire-Alarms; and I do hereby declare that the following is 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.

The invention to be hereinafter described relates to fire alarm apparatus, and particularly to automatic fire alarm apparatus.

Broadly speaking, it comprises a casing provided with a plurality of perforations or openings adapted to allow the entrance of heat and heated gases, a compound expansion bar pivotally mounted in the casing, a hook or trigger for holding one end of said expansion bar raised, means for automatically operating the trigger to allow the expansion bar to drop, an alarm operated by the dropping of the bar, and means for locking the expansion bar in inoperative position.

In order to more clearly disclose the construction, operation and use of the invention, reference should be had to the accompanying drawings forming part of the present application.

Throughout the several views of the drawings, like reference characters designate the same parts.

In the drawings: Figure 1 is a plan view of the invention; and, Fig. 2 is a vertical longitudinal section.

In the preferred form of the invention, a perforate box-like casing 1 may be used to contain the operative parts of the device. Pivotally mounted within the casing 1 is a hollow framework 2. Parallel rods 3 are passed longitudinally through this frame, and on them are slidably mounted a plurality of compound expansion bars 4, of well known construction. The rearmost expansion bar is provided with a hook or clip 5, which is adjustably mounted on rods 7, which extend rearwardly from the cross piece 8, which cross piece is rigidly secured to the sides of the casing 1. From the cross piece 8, a supporting yoke 9' extends rearwardly. This yoke acts as a brace for the

extreme ends of the rods 7, to prevent their bending under the weight of the frame suspended from the bar 6. The bar 6 is threaded into or otherwise connected to the rods 7. The rods 7 are provided with threaded ends, which are passed through holes in the cross piece 8, and adapted to receive nuts 9. By screwing these nuts down upon the ends of the rods 7, the rods may be drawn through the cross piece 8 so that the bar 6 is moved toward the cross piece 8. In order to hold the bar 6 in adjusted position, a leaf-spring 10 is provided. This leaf spring is secured to the cross piece 8, and its opposite ends bear against the face of the bar 6. Consequently, the bar will be adjusted against the pressure of the spring, and there will be no possibility of the rods 7 slipping through the cross piece 8. The reverse movement of the bar 6 is effected by simply unscrewing the nuts 9 and allowing the spring 10 to force the bar rearwardly. In this way, the hook or clip which acts as a trigger may be so adjusted as to operate for practically any desired amount of expansion.

The frame is not pivoted at its center. Consequently, the portion on one side of the pivot is heavier than the portion on the other side. The heavier portion is provided with the clip 5, which holds this heavier portion normally raised. Of course, as soon as the clip 5 is disengaged from the cross piece 8, this heavier end of the frame will fall by gravity. As it falls, the rear end of the frame will strike a foot 11 projecting from a bar connecting the lower ends of the arms of bell crank levers 12, which are provided with hooks 13 adapted to engage staples 14 connected to a weighted cylinder 15 and projecting through slots in the rear wall of the casing. As the bell crank levers are moved, the hooks 13 will be drawn down and out of the staples 14, and the weighted cylinder will be free to drop. In lieu of this bell crank lever and weight device for giving an alarm, a cross bar 16 and push button 17 may be used. The push button 17 will be of the usual kind, adapted to close the circuit of an alarm bell, and the cross bar 16 will be secured across the rear of the frame 2 in such position as to strike the push button when the frame has dropped to operative position.

At times it may be desired to lock the

frame 2 in inoperative position. For this purpose, an eccentric 18 has been provided. This eccentric is secured to the shaft 19, which extends across the casing and is provided with a crank handle 20, which may be operated from the outside of the casing. The eccentric 18 lies directly above one of the longitudinal edges of the frame 2. When rotated to one position, it will engage the frame and force it down to inoperative position, and when rotated to the opposite position, it will permit free movement of the frame.

In order to render the working parts of the device readily accessible, the casing is provided with flanges adapted to cooperate with similar flanges depending from the cover 21. In this way, the cover may be readily slid on or off, as may be desired.

In using the device, the amount of movement caused by expansion of the compound bars 4 at a definite temperature should first be determined. Suppose that it is desired to have the device operate to give an alarm when the temperature rises beyond one hundred and seventy-five degrees (Fahrenheit), for instance. The eccentric 18 will be turned to force the short end of the frame 2 down, and the bar 6 will be adjusted so that it will be engaged by the hook or trigger 5. The casing will now be heated to a temperature of one hundred and seventy-five degrees. If the combined expansion of all of the compound bars 4 moves the clip 5 rearwardly sufficiently far to free it from the bar 6, as the temperature reaches one hundred and seventy-five degrees, the device will be properly set to operate at that temperature. If the hook or trigger 5 is moved from the bar 6 before the temperature of one hundred and seventy-five degrees is reached, then the bar should be adjusted rearwardly until the clip remains in engagement with it at a temperature of one hundred and seventy-five degrees. If one hundred and seventy-five degrees does not expand the compound bars sufficiently, to free the hook or trigger 5 from the bar 6, then the bar should be moved forward toward the cross piece 8 until the clip will be freed at a temperature of one hundred and seventy-five degrees only. This device may be adjusted and set for any desired temperature in a similar manner. When the apparatus has been set so that it will operate at the predetermined temperature, it is placed in a building or room where it is desired to detect a temperature in excess of that predetermined. When the temperature rises be-

yond the predetermined point, the combined expansion of all of the compound bars 4 will move the hook or trigger 5 rearwardly from engagement with the bar 6, thus freeing the frame 2 so that it will drop and strike the foot 11. As the frame strikes the foot 11, it will swing the bell crank levers 12, so that the hooks 13 will be withdrawn from the staples 14. As the hooks 13 are withdrawn, the weighted cylinder 15 will fall by gravity. As previously pointed out, the dropping of the frame 2 may be used to close an electric alarm circuit by engagement between the cross bar 16 and the push button 17.

Changes may be made in the construction, arrangement and disposition of the several parts of the invention, without in any way departing from the field and scope of the same, and it is meant to include all such with this application, wherein only a preferred form has been disclosed.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is:—

1. An alarm of the character described, comprising a casing, a framework pivotally mounted therein, the pivot of the framework being arranged at one side of the center of gravity of the framework, expansion bars movably mounted within said framework, a cross piece mounted above said framework, a bar adjustably supported from said cross piece, a trigger carried by one of the aforesaid expansion bars and adapted under normal conditions to engage said last-named bar to hold the aforesaid frame in inoperative position, and an alarm automatically operated by dropping of the aforesaid framework.

2. A fire alarm of the character described, comprising a casing, a pivotally mounted framework therein, the pivot of the framework being arranged at one side of the center of gravity of the framework; means for holding said framework in inoperative position until a predetermined temperature has been reached, means for forcing said frame to operative position after it has been dropped, and alarm mechanism automatically operated by dropping of said pivotally mounted frame.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

EDMOND LAMOUREUX.

Witnesses:

W. S. BABCOCK,
L. A. GAUVIN.