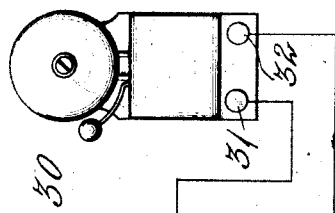


G. E. GLICK.  
 AUTOMATIC FIRE ALARM.  
 APPLICATION FILED JULY 8, 1909.

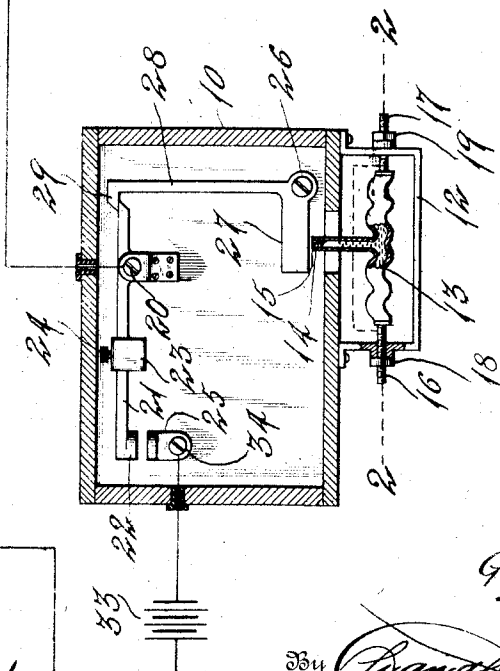
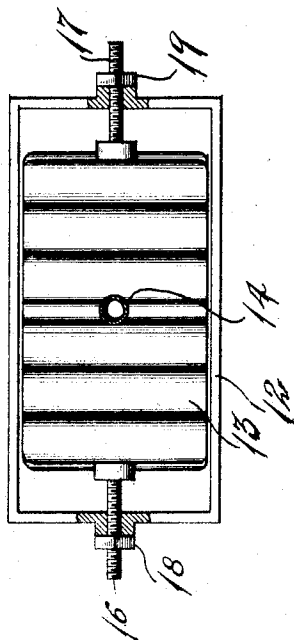
1,010,251.

Patented Nov. 28, 1911.



*Fig. 1.*

*Fig. 2.*



Witnesses  
 Jos Gregory  
 C. H. Woodward.

Inventor  
 George E. Glick

By *Charles Chandler*

Attorney &

# UNITED STATES PATENT OFFICE.

GEORGE E. GLICK, OF CARRINGTON, NORTH DAKOTA.

## AUTOMATIC FIRE-ALARM.

1,010,251.

Specification of Letters Patent.

Patented Nov. 28, 1911.

Application filed July 8, 1909. Serial No. 506,548.

*To all whom it may concern:*

Be it known that I, GEORGE E. GLICK, a citizen of the United States, residing at Carrington, in the county of Foster, State of North Dakota, have invented certain new and useful Improvements in Automatic Fire-Alarms; and I do hereby 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.

This invention relates to automatic fire alarms, of the class wherein the expansion of a body when subjected to abnormal heat causes the closing of an electric circuit and thus produces an alarm, and has for one of its objects to simplify and improve the construction and increase the efficiency and utility of devices of this character.

With this and other objects in view, the invention consists in certain novel features of construction, as hereafter shown and described and then specifically pointed out in the claim, and in the drawings illustrative of the preferred embodiment of the invention, Figure 1 is a diagrammatic view of the improved device, partly in section. Fig. 2 is a plan view, enlarged, of the adjustable expansion member and its attachments, detached, and with the vertical members in section on the line 2—2 of Fig. 1.

The improved device may be employed in any building or locality in which fire is liable to occur, and comprises in general three structures; a body adapted to be expanded under the influence of heat, a circuit closer adapted to be actuated by the expansion of the body, and an alarm adapted to be sounded by the closing of an electric circuit.

The improved device will preferably be located partly within and partly without a supporting casing 10. Depending from the casing 10 is an open frame 12, and located within this frame is the expansible member which comprises an expansible body 13 to hold mercury and preferably with corrugated or serpentine shaped walls. Rising from the body 13 is a tubular portion 14, the tubular portion having a screw plug 15 in the upper end. By removing the screw plug the body 13—14 may be supplied with mercury. Connected to the body 13 at its ends are threaded rods 16—17, the rods being arranged to extend through the ends of the frame 12 and supplied with adjusting

nuts 18—19, so that the body 13 with its tubular portion 14 may be adjusted longitudinally of the frame 12 and the casing 10. The tubular portion 14 extends upwardly through a slot in the bottom of the casing 10, and extends into the interior of the casing for a distance, as shown.

Pivoted at 20 in the casing 10 is a primary lever arm 21. This lever arm having an electric contact 22 at one end and an adjustable weight 23, the latter provided with a set screw 24 to enable the weight to be adjusted upon the lever arm. A stationary contact 25 is located within the casing 10 in position to be engaged by the contact 22 when the lever arm 21 is depressed.

Pivoted at 26 in the casing 10 is a secondary lever arm preferably in bell crank form or with two legs 27—28 preferably arranged at right angles to each other, the leg 28 having a laterally directed lip 29 bearing over the shorter end of the primary lever arm 21, as shown. The bell crank lever 27—28 together with its projection 29 forms a trip element operating to maintain the primary lever 21 in its poised or inoperative position as shown in Fig. 1, with the contacts 22—25 disengaged. The arm 28 extends over the vertical tubular portion 14 of the body 13, and so long as the heat remains normal, and the body 13 unexpanded, the trip lever 27—28 will maintain the primary lever 21 locked in its inoperative position, and with the circuit open, as hereafter explained.

An electrically operated alarm device forms a part of the invention, and may be located at any desired point relative to the circuit closing and expansible body portions of the device. Any suitable alarm device may be employed, but for the purpose of illustration a conventional device of this character is represented as a whole at 30 and provided with the usual binder posts 31—32 by which the electrical conductors are connected. Any suitable source of electric energy may be employed, but for the purpose of illustration a conventional battery is shown at 33, one pole of the battery being connected at 34 to the contact 25, while the other pole of the battery is connected as shown at 35 to the binder post 31 of the alarm. The contact 22 is connected through the primary lever 21 by a conductor 36 to the other binding post 32 of the alarm. By this arrangement it will be obvious that so long as the expansible body 13 remains in

normal condition the trip element 29 will maintain the contacts 22—25 in separated position with the circuit broken through the alarm.

5 In event of a fire of sufficient intensity to cause the expansion of the body 13 beyond the normal, the tubular portion 14 is elevated which causes it to trip the bell crank lever 27—28 and release the primary lever 21 and  
10 thus permit the weight 23 to drop the lever and close the circuit through the contacts 22—25 and thus sound the alarm.

The longitudinal adjustment of the body 13 by the screws 16—17 is an important feature of the invention, and enables the device to be very delicately adjusted to cause the sounding of the alarm at a relatively slight increase of temperature, or to cause the alarm to be sounded only at a relatively  
20 great increase of temperature, as may be preferred. For instance if it is desired to sound the alarm in event of a slight increase in temperature, the adjusting screws 16—17 are actuated to move the body 13 to a point  
25 nearer the pivot pin 26, in which event a relatively slight upward movement of the portion 14 will actuate the bell crank lever, and on the other hand if it is desired to sound the alarm only when a relatively high  
30 temperature is obtained, the body is adjusted toward the opposite end of the frame 12 to bring the portion 14 nearer the free end of the arm 27, so that a greater degree of expansion of the body 13 will be necessary to cause the operation of the trip device. It  
35 will thus be obvious that the device may be adjusted to cause the sounding of the alarm when the body 13 is subjected to any predetermined temperature.

40 The improved device is simple in construction, can be employed for the protec-

tion of property, and located wherever desired.

What is claimed is:—

An automatic fire alarm comprising a casing having a slot in its bottom, a fixed contact and a movable contact mounted in said casing, said movable contact comprising a pivoted member constantly tending to move into engagement with the fixed contact, a two-arm lever pivoted in said casing having one arm provided with a detent for engaging and holding the pivoted member out of engagement with the fixed contact and its other arm extending across the slot in the bottom of the casing, a frame supported on the bottom of the casing over said slot, a receptacle containing an expansible element and provided with an extension projecting through the slot adapted to engage and move the arm of the two-arm lever disposed across the slot when said receptacle is expanded under the influence of a predetermined rise in temperature to release said two-arm lever from engagement with the pivoted member, bolts secured to opposite sides of said receptacle respectively and extending through the adjacent respective sides of said frame, a nut on each of said bolts exteriorly of the frame, whereby the receptacle may be adjusted so as to move the extension thereof toward and away from the pivot of the two-arm lever, an electric circuit having one terminal secured to the fixed contact and the other terminal secured to the movable contact, and an alarm in said circuit.

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

GEORGE E. GLICK.

Witnesses:

N. E. LANDEENE,  
B. T. KINDSCH.