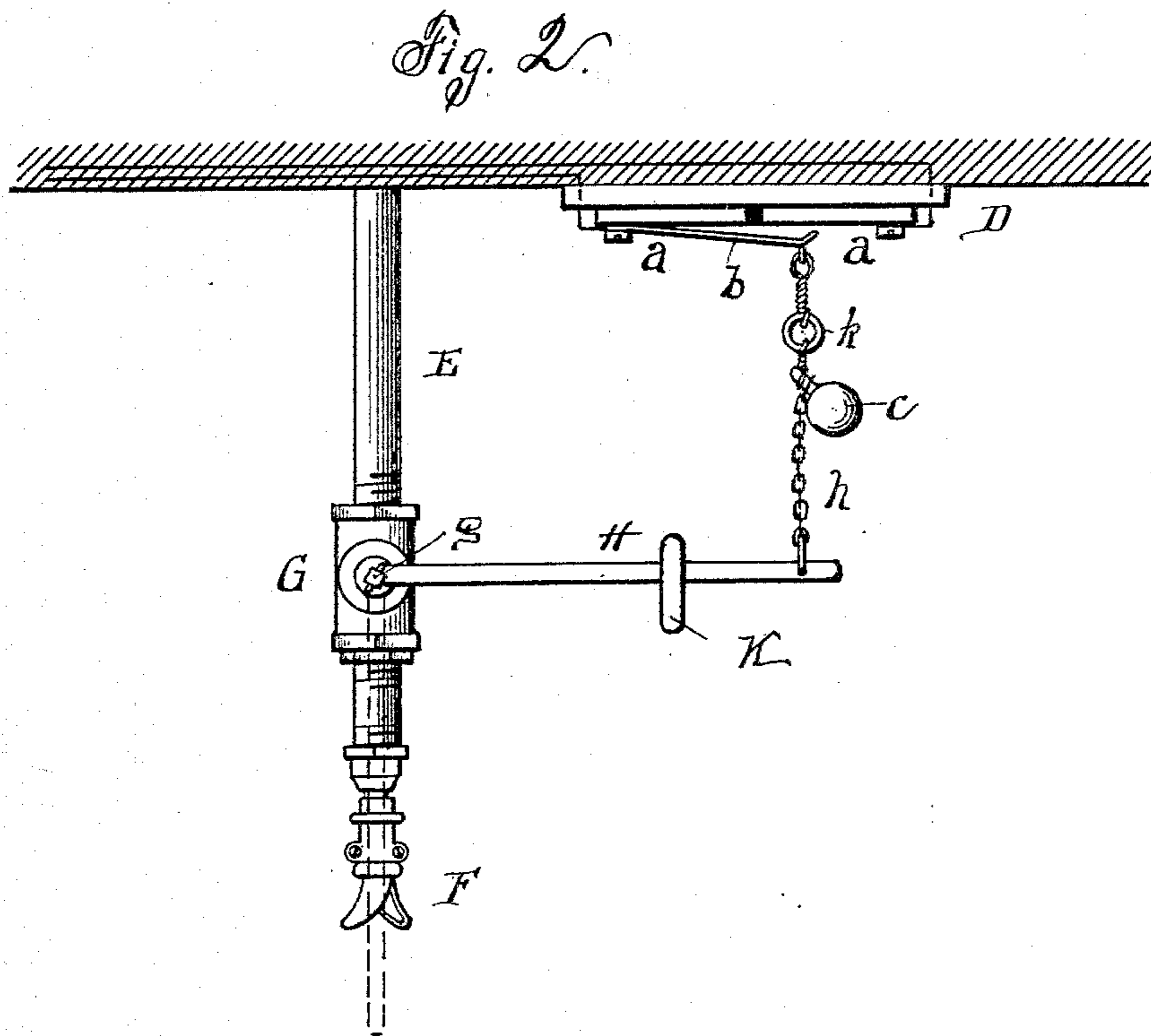
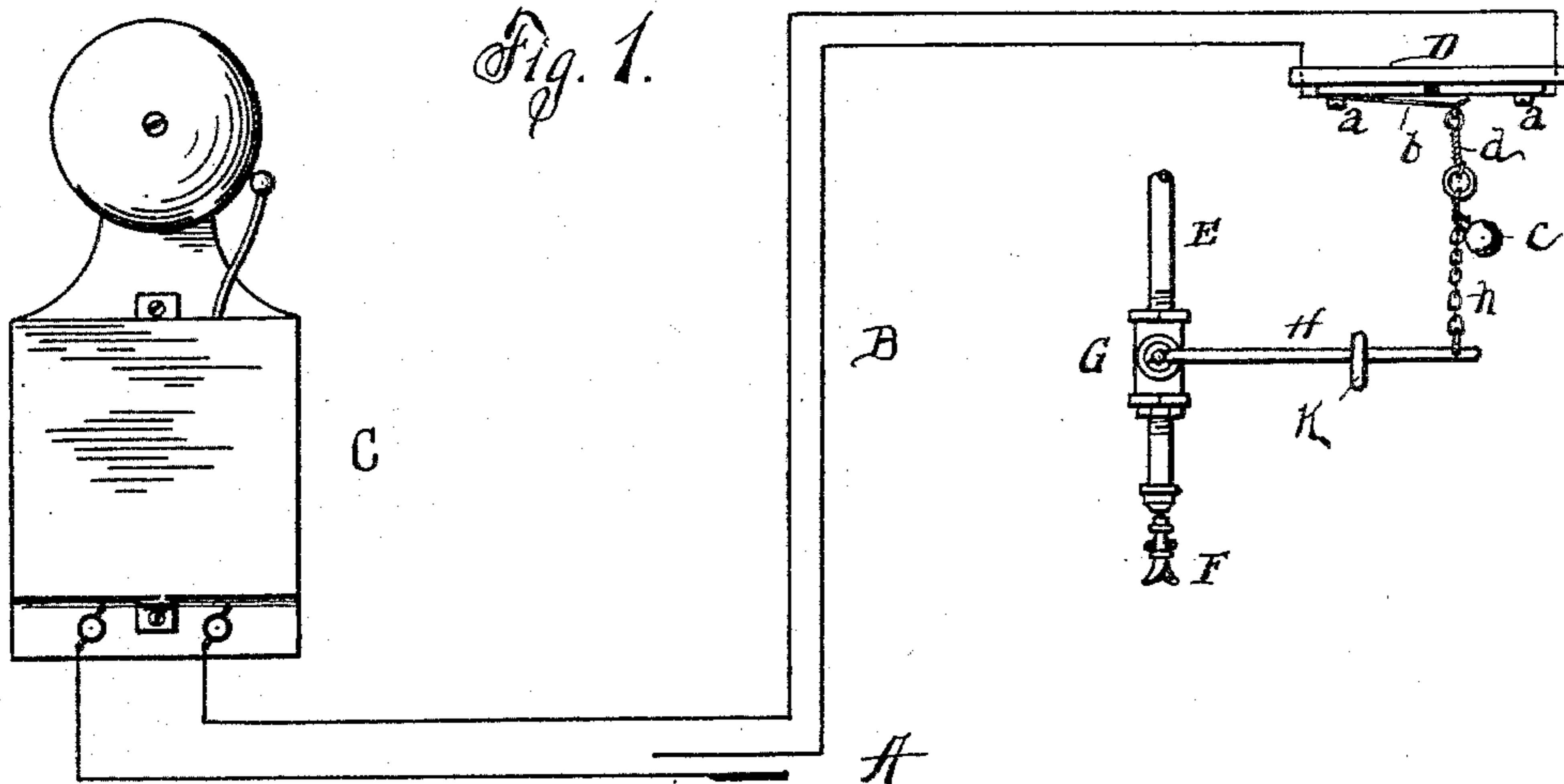


(No Model.)

W. A. GUTHRIE.  
FIRE ALARM AND SPRINKLER.

No. 514,362.

Patented Feb. 6, 1894.



WITNESSES

*Geo. M. Anderson*  
*Phillemasi.*

INVENTOR

*Wm. A. Guthrie,*  
*by Geo. M. Anderson*  
*his Attorney*

# UNITED STATES PATENT OFFICE.

WILLIAM ANDERSON GUTHRIE, OF DURHAM, NORTH CAROLINA.

## FIRE-ALARM AND SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 514,362, dated February 6, 1894.

Application filed October 17, 1893. Serial No. 488,417. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM ANDERSON GUTHRIE, a citizen of the United States, and a resident of Durham, in the county of Durham and State of North Carolina, have invented certain new and useful Improvements in Fire-Alarms and Sprinklers; 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 letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a diagrammatic view showing the invention, and Fig. 2 is a view in elevation showing the invention applied.

This invention has relation to certain new and useful improvements in combined automatic fire alarms and extinguishers, and is designed to provide means of simple and reliable character, whereby in case of fire breaking out in a room or apartment the increase in temperature will act to not only sound an alarm, but also to set in operation a sprinkler discharging water, or, it may be, some chemical liquid or fluid.

With this object in view, the invention consists in the novel construction and combination of parts, all as hereinafter described and pointed out in the appended claims.

Referring to the accompanying drawings, illustrating the invention, the letter A indicates a battery (a single dry cell being usually sufficient), B an electric circuit, C an alarm, and D an automatic circuit-closing device, all substantially as shown and described in my pending application, Serial No. 483,500, filed August 19, 1893.

The circuit-closing device D, as more fully described in the said application, comprises a pair of terminal plates *a*, *a* separated from each other by an insulated space, across which extends a spring *b* attached to one of the said plates, and normally held out of contact with the other by means of a weight *c* attached thereto through the medium of a wire *d* composed of an alloy possessing the property of fusion at a low temperature. This form of circuit-closing device is preferred as being simple in its construction

and arrangement, and reliable in its action, but I do not wish to limit myself to the particular form shown, as this may be modified without materially affecting the spirit and scope of the invention.

E designates a pipe which may have a connection with the water supply of the room or building in which the device is placed, or with a reservoir or tank containing either water or some chemical liquid or fluid designed to check or extinguish combustion. Said pipe is provided with a nozzle or discharge F, which preferably consists of some well-known form of sprinkler adapted to rotate when in action so that it may act over as large an area as possible.

The entrance from the pipe E to the nozzle or discharge is controlled by a rotary valve G, to whose stem *g* is rigidly secured an arm or lever H. To the extremity of this arm or lever is attached, by means of a chain *h*, or other suitable connection, the weight *c* which is suspended from the spring *b* of the circuit-closing device in the manner above described. The arrangement of the parts is such, that so long as the weight *c* remains suspended from the spring *b*, the arm or lever H is held by the chain *h* in horizontal position, and the valve G is in such relation to the nozzle or discharge as to close the entrance thereto. When, however, the fusible connection is destroyed by the rise of temperature, and the circuit is closed to sound the alarm, the weight, in falling, carries with it the said arm or lever to the position indicated by dotted lines in Fig. 2, thereby opening the valve and setting the sprinkler into operation.

Owing to the fact that the weight is attached to the arm or lever through the medium of a flexible chain, or similar device, it, in falling does not commence to act on said arm or lever until it has fallen a distance below it equal to the length of the connection, at which point its momentum is checked and a sudden jerk is given the arm or lever sufficient to overcome the friction of the valve on its seat and the pressure of the water thereon. In order, however, that the said arm or lever may be normally balanced against this friction and pressure, I provide it with a movable weight or poise K which may be adjusted to secure the desired equilibrium. This

poise, upon the release of the weight *c* also assists the latter in pulling down the arm or lever. The said weight *c* may therefore be made much lighter than would otherwise be necessary. In order to prevent any escape of the current when the spring *b* is in contact with both plates *a a* with the weight still suspended therefrom, as in testing to see that the circuit is in working condition, a link *k* of nonconducting material may be inserted between the said weight and the fusible wire, or at some other suitable point between the spring and the arm or lever.

The device is intended to be applied to the ceiling, and if placed near the center may be made to control an apartment of considerable size.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is the following:

1. The combination with an automatic fire alarm, comprising an electric circuit, source, alarm, a pair of terminal plates forming part of said circuit and insulated from each other, a contact piece, and a weight normally holding said contact piece away from one of said plates and attached thereto by an easily fused connection, of a nozzle or discharge, a supply leading thereto, a normally closed valve controlling said nozzle or discharge, an arm or lever secured to said valve and a connection between said arm or lever and said weight, substantially as specified.

2. The combination with a pair of contact plates forming part of an electric circuit and insulated one from the other, a spring contact arm attached to one of said plates and normally held away from the other, a discharging nozzle having connection with a sup-

ply of extinguishing fluid, a movable valve controlling said nozzle, a weighted arm attached to said valve, and an easily fused connection between said arm or lever and the said contact arm, substantially as specified.

3. The combination of the suspended weight, its suspending wire of easily fused alloy, the nozzle or sprinkler having a supply pipe connection, a rotary valve controlling the discharge, an arm or lever rigidly attached to said valve and adapted to actuate it, a flexible connection between said arm or lever and the said suspended weight, and a movable weight or poise on said arm or lever, substantially as specified.

4. The herein described combined automatic fire alarm and extinguisher, comprising a source, an electric circuit, an alarm included in said circuit, terminal plates forming part of said circuit and insulated from each other, a contact piece bridging said insulation, a weight suspended from said contact piece and normally holding it away from one of said plates, a wire of easily fused alloy forming the connection between said contact piece and weight, a discharging nozzle or sprinkler situated in proximity to said weight, and connected with a supply of extinguishing fluid, a valve controlling the discharge, an arm or lever connected at one end with said valve, a flexible connection between said arm or lever and the said weight, and a movable poise on said arm or lever, substantially as specified.

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

WM. ANDERSON GUTHRIE.

Witnesses:

HENRY A. LOUDER,  
JOHN A. WOMACK.