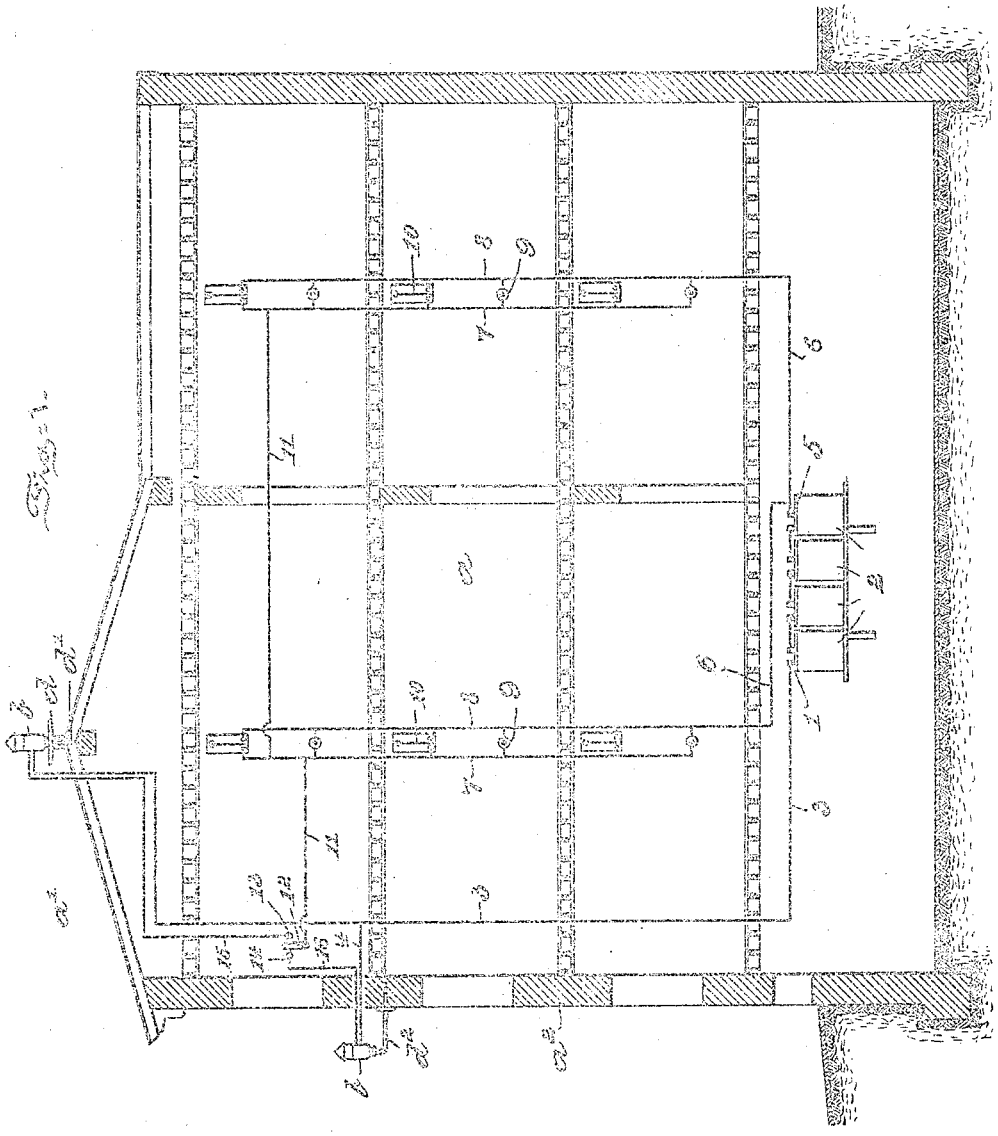
No. 649,612. Patented May 15, 1900.

J. C. MOORE.

PYROTECHNIC ALARM.

(Application filed Oct. 19, 1899.)

(No Model.) 2 Sheets—Sheet 1.



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(No Model.) 2 Sheets—Sheet 2.

Fig. 2.

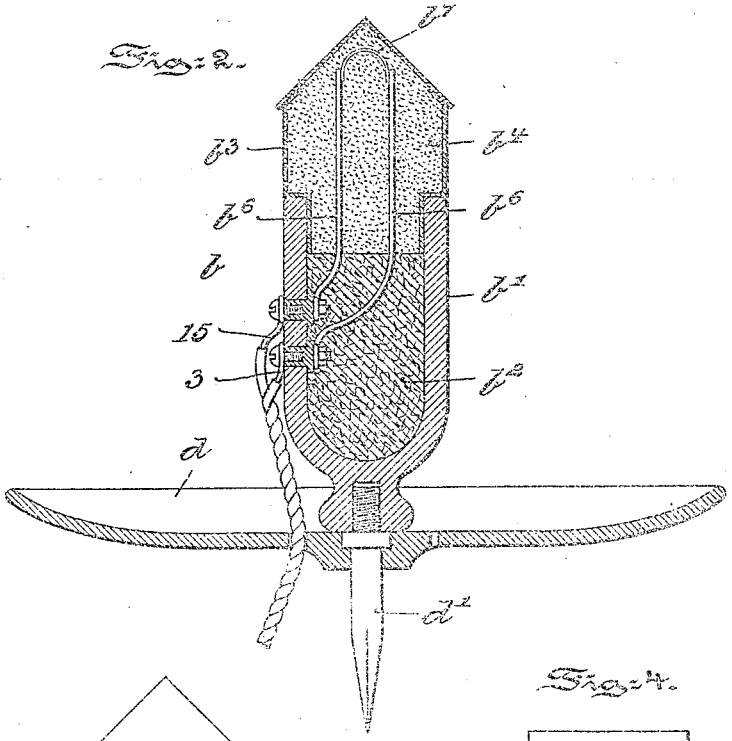


Fig. 3.

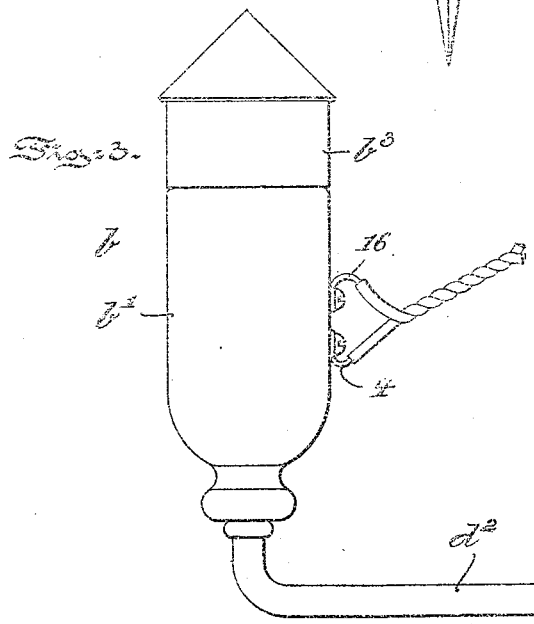
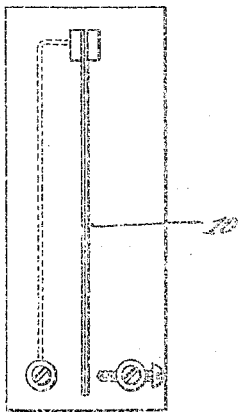


Fig. 4.



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UNITED STATES PATENT OFFICE.

JAMES C. MOORE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO SARAH G. ALTEMUS, OF SAME PLACE.

PYROTECHNIC ALARM.

SPECIFICATION forming part of Letters Patent No. 649,612, dated May 15, 1900.

Application filed October 19, 1899. Serial No. 734,096. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. MOORE, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Pyrotechnic Alarms, of which the following is a specification.

My invention has relation to a pyrotechnic alarm, and in such connection it relates more particularly to the construction and arrangement of such an alarm.

The principal object of my invention is to provide a pyrotechnic and slow-burning torch located on the exterior of a building and included in an electric circuit which when completed within the house either manually by means of suitable switches or push-buttons or automatically by means of suitable thermostats shall cause said torch to ignite to constitute an alarm or signal.

My invention, stated in general terms, consists of a pyrotechnic alarm constructed and arranged in substantially the manner hereinafter described and claimed.

The nature and scope of my invention will be more fully understood from the following description taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a longitudinal sectional view of a building upon which the pyrotechnic alarm is located, the alarm and preferred electrical connections therefor being illustrated in diagram. Fig. 2 is an enlarged vertical sectional view of the pyrotechnic and slow-burning torch with its accessories. Fig. 3 is a side elevational view, enlarged, of the torch, illustrating a modified form of connecting the torch to the building; and Fig. 4 is a front elevational view, enlarged, of one of the thermostats.

Referring to the drawings, *a* represents the building to the roof *a'* and front *a²*, of which the alarm-torch *b*, embodying features of my invention, is adapted to be applied. Referring to Fig. 2, the torch *b* consists of a shell *b'*, preferably of non-combustible material, wherein a slow-burning suitable material b^2 is packed. The shell *b'* supports a cap b^3, of waterproof but combustible material, in which is packed an easily-ignited pyrotechnic material b^4, which rests directly upon the slow-burning material b^2. Within the shell *b'* and cap b^3 extends a fuse which consists, preferably, of two metallic strips b^5, forming the terminals of an electric circuit and united at their free ends by a wire b^7, of metal, adapted to become highly heated when the current passes through it.

Referring now to Fig. 1, the electric connections for the torches *b* are as follows: From a pole 1 of a battery or series of batteries 2, located, preferably, in the cellar of the building, extends a wire 3 and its branch 4 to one terminal b^6 within the torch. From the other pole 5 of the said battery one or more wires 6 lead to the various rooms in the building. In these rooms the wire 6 is divided into two branches 7 and 8, in which are interposed suitable switches or push-buttons 9, as well as thermostats 10, the arrangement being such that the push-buttons or thermostats normally break the connections between said branches 7 and 8. One branch wire 7 is connected by means of a wire 11 to a terminal of a certain switch-lever 12, adapted, when shifted to either pole 13 or 14, to connect the branch 7 and wire 11 to either wire 15 or wire 16, leading, respectively, to the second terminal of the torch *b*, located on the roof or at the front of the house—that is to say, when the switch-lever 12 assumes the position illustrated in Fig. 1 midway between the poles 13 and 14 both torches are cut out of the circuit; but when the lever is shifted to the right or the left to thereby rest on either pole 13 or pole 14 either the upper torch or the front torch will be brought into the circuit, or the torches may be maintained always in circuit by dispensing with the switch 12 and equally good results be obtained. When thus brought in and the circuit is made by a push-button 9 or thermostat 10, the current will pass through the wire b^7 and heat the same to redness. The pyrotechnic material b^4 will be ignited and exploded to force the cap b^3 off of the shell *b'* and to ignite the slow-burning material b^2 within the shell. When the torch is to be placed above the roof or other horizontal portion of the building, as in Fig. 2, the shell *b'* is preferably supported upon a cup *d*, having a spike

or nail d' projecting from its base. The cup d will receive the sparks from the torch and prevent the same from falling onto the roof or other woodwork of the building. When, however, the torch is arranged parallel to the walls of the building, as in Fig. 3, the cup d may be dispensed with and the torch directly secured to the spike d^2, which is bent at right angles.

Having thus described the nature and object of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A pyrotechnic alarm, comprising a shell of non-combustible material, a slow-burning material packed in said shell, a cap of combustible material supported on said shell, a pyrotechnic material packed in said cap and resting directly upon the slow-burning material within the shell, and a fuse consisting of two metallic strips forming the terminals of an electric circuit and a wire uniting said strips and adapted to become highly heated by the passage of the current, said fuse being embedded in the pyrotechnic material of the cap, substantially as and for the purposes described.

2. A pyrotechnic alarm, comprising a shell of non-combustible material, a slow-burning material packed in said shell, a cap of combustible material supported on said shell, a pyrotechnic material packed in said cap and resting directly upon the slow-burning material within the shell, and a fuse consisting of two metallic strips forming the terminals of an electric circuit and a wire uniting said strips and adapted to become highly heated by the passage of the current, said fuse being embedded in the pyrotechnic material of the cap in combination with a series of devices located within the circuit and adapted to be manually operated to complete the circuit through the fuse, and a series of thermostats located in said circuit and adapted automatically to complete said circuit independently of said devices, substantially as and for the purposes described.

In testimony whereof I have hereunto set my signature in the presence of two subscribing witnesses.

JAMES C. MOORE.

Witnesses:
J. WALTER DOUGLASS,
RICHARD C. MAXWELL.