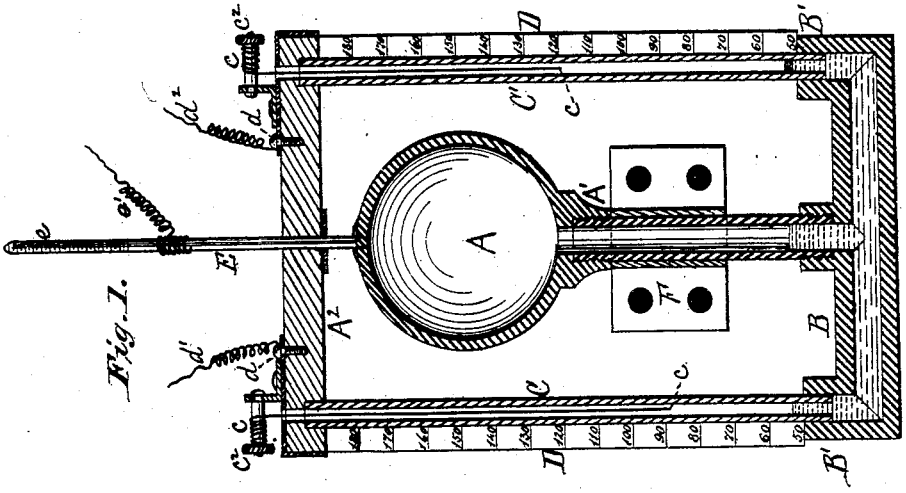
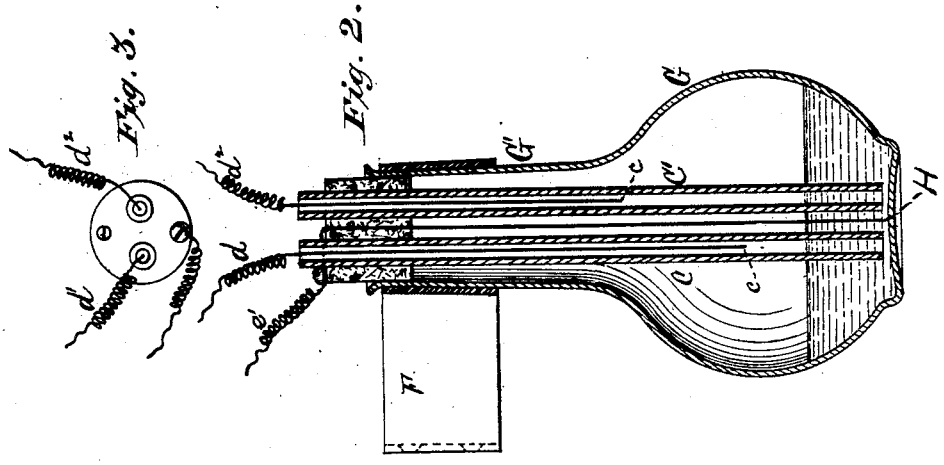
A. GERARD.

Thermoscopes for Fire-Alarm Indicators.

No. 205,538. Patented July 2, 1878.





Witnesses:

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UNITED STATES PATENT OFFICE

ARISTIDE GERARD, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN THERMOSCOPES FOR FIRE-ALARM INDICATORS.

Specification forming part of Letters Patent No. **205,538**, dated July 2, 1878; application filed January 28, 1878.

To all whom it may concern:

Be it known that I, ARISTIDE GERARD, of New Orleans, in the parish of Orleans and State of Louisiana, have invented certain Improvements in Thermoscopes for Fire-Alarm Indicators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, and the letters of reference marked thereon, making part of this specification, in which—

Figure 1 is a vertical sectional view. Fig. 2 is a vertical sectional view of a modification. Fig. 3 is a top-plan view of Fig. 2.

The nature of my invention consists in a peculiar and simple arrangement of mechanism by means of which the presence of fire or undue heat, or any change of temperature, will be indicated or recorded at any distance from the point at which that change takes place, as more fully hereinafter described.

The construction and operation of my invention are as follows:

A is a vessel, which contains confined air, and is constructed of copper or any other suitable material, and of any desirable form or shape. This vessel A is covered with lamp-black, or other pulverized substance which, like lamp-black, absorbs the radiant heat of obscure rays, thus increasing the sensitiveness of the vessel, which is important for the detection of the obscure rays emanating from spontaneous combustion or from any other cause. To this vessel is firmly secured a vertical metal tube, A^1, as shown in Fig. 1.

To the bottom of the tube A^1 is securely attached a horizontal metal tube, B, each end B′ of which is bent, as clearly shown in Fig. 1. This tube B is filled with mercury.

C C′ are tubes, constructed of glass or other suitable non-conducting material, which extend from the ends B′ B′ of the tube B to the cross-bar A^2, and are located on each side of the vessel A. Immediately in the rear of these tubes C C′ are secured graduated scales D D.

c c are needles, which extend down into the tubes C C′, being adjustable by means of the screws c^2 c^2.

d d are binding-posts, and d^1 d^2 are electric wires, the wire d^1 connecting with the annunciator in the house, and the wire d^2 connecting with that at the station.

E is a metal rod, which is connected with the top of the vessel A, and, through this vessel, connected with the mercury. *e* are screw-threads cut in the upper section of the rod E.

In Fig. 2 the vessel G and vertical tube G′ are constructed in a different shape from the vessel shown in Fig. 1, and the mercury rests upon the bottom of the vessel G. In this case the needle H extends down through the mercury to the bottom of the vessel G to complete the connection, and the tubes C C′, which contain the needles *c c*, are located inside of the vessel, being regulated by means similar to that shown in Fig. 1. The needle H in Fig. 2 is also adjustable for the indication or detection of low temperatures. In such cases the apparatus can be set to work on the close-circuit principle, the end of the adjustable needle being set below the top of the mercury at the proper height, so that when the mercury falls below that end of the needle the circuit is broken.

e′ is the connecting-wire between the rod E and the main binding-post of the annunciator.

F is a bracket, by means of which the instrument is secured to the wall or other portion of the room or building.

The operation is as follows: The needles *c c* in the tubes C C′ are first adjusted to meet any required degree of heat. As the room or building becomes heated from fire or other undue cause, the air in the vessel A expands, which forces the mercury up into the tubes C C′ until it reaches the respective needles *c c*. The connection is thus completed with the annunciator, and the alarm given first to the annunciator in the building, and then to that at the station—as, for instance, when the needle *c* is adjusted to give the alarm when the heat reaches 90°, when the mercury reaches that point the alarm will be given in the building, while the other needle having been adjusted to a greater degree of heat, say 120°, the alarm at the station will not be given until the mercury reaches that point.

When the tubes C C′ are made of glass, the instrument can be used both as a thermometer and a fire-alarm.

One advantage of my invention is, that the vessel A may be placed in the hold of a ship or boat, or in a distant room, and connected by an extensible flexible air-tight tube with the tube B, containing the mercury, which is connected with the indicator.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

In a thermoscope or fire-alarm indicator, the vessel A and tube A^1, containing confined air, tube B, containing mercury, rod E, tubes C C′, and adjustable needles *c c*, the whole combined and arranged to operate substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 28th day of January, 1878.

A. GERARD.

Witnesses:
J. S. LANPHIER,
J. W. HAMILTON JOHNSON.