

W. G. PIERCE.
HIGH TEMPERATURE ALARM.
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968,406.

Patented Aug. 23, 1910.

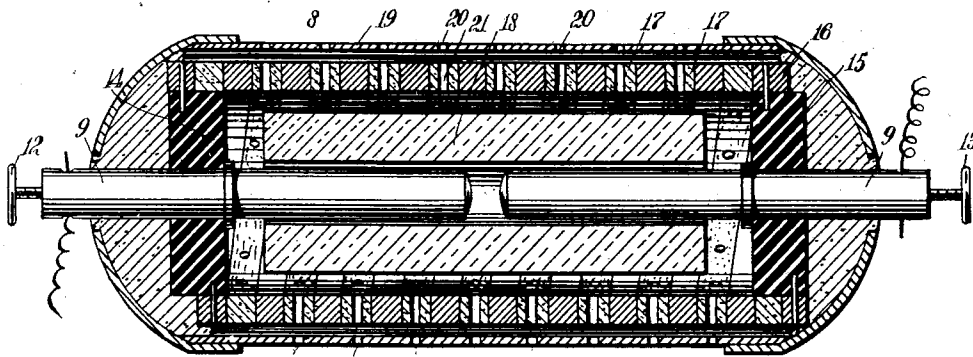


Fig. 1

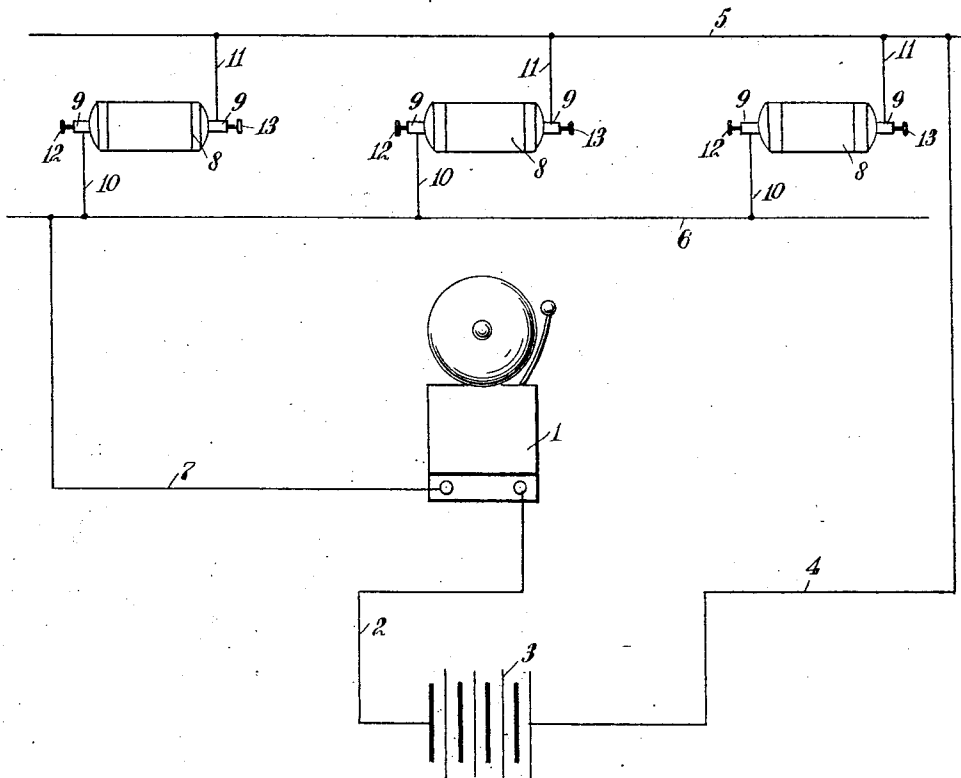


Fig. 2

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WILLIAM GEORGE PIERCE, OF KIRKWOOD, MISSOURI.

HIGH-TEMPERATURE ALARM.

968,406.

Specification of Letters Patent.

Patented Aug. 23, 1910.

Application filed November 4, 1909. Serial No. 526,219.

To all whom it may concern:

Be it known that I, WILLIAM GEORGE PIERCE, a citizen of the United States, and a resident of Kirkwood, in the county of St. Louis and State of Missouri, have invented a new and Improved High-Temperature Alarm, of which the following is a full, clear, and exact description.

This invention relates to an alarm or annunciator of the type in which a circuit is completed through an annunciating device when the temperature surrounding the device has been raised above a predetermined point.

This device is especially useful as a fire alarm in vessels, houses, stores or the like, or to be used on journal bearings to prevent a hot box.

An object of this invention is to provide a device which will be simple in construction, positive in its operation, inexpensive to manufacture, and not easily deranged.

A further object of this invention is to provide an annunciator having a circuit maker therein comprising two members normally held out of contact by means of a fusible substance which holds a spring, that is adapted to bring said members together, under tension.

These and further objects, together with the construction and combination of parts, will be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views, and in which—

Figure 1 is a longitudinal section through one of the circuit makers; and Fig. 2 is a diagrammatic view illustrating the connection of a plurality of circuit makers with an annunciator and a source of electricity.

Referring more particularly to the separate parts of the device, 1 indicates a suitable annunciator or alarm, which may be in the form of an electro-magnetic bell. Connected to one of the terminals of the annunciator 1 by a circuit 2, there is provided a suitable source of electricity 3, which may be in the form of an electric battery. The latter is connected by means of a wire 4, to one reach 5 of a parallel circuit, the other reach of which is shown at 6. The reach 6 is connected by a wire 7 to the other terminal of the annunciator 1.

Arranged in parallel on the reaches 5 and 6, there are provided a plurality of circuit makers 8. Each of the circuit makers 8 has a pair of terminals or contact members 9, which are connected to the reaches 5 and 6 by wires 10 and 11, which are secured thereto in any well known manner, as by means of set screws 12 and 13.

When the device is set for operation, the contact members 9 are secured in alinement in spaced relation by means of a pair of insulating blocks 14 and 15, which are each secured to the ends of a spiral spring 16. The spiral spring 16 is held in an extended position under tension by means of a filling, indicated at 17, which is composed of any suitable fusible material, such as a bismuth alloy, wax, rosin or the like. The contact members 9 are held in alinement and insulated from the spring 16 by means of a non-conducting hollow cylinder 18, which may be of any suitable material, such as glass. The whole is inclosed by a suitable casing 19, which protects the same from dust and dirt. In order that the heat outside of the casing may pass into the center of the device, so as to act on all sides of the fusible material, which normally holds the springs in an extended or strained condition, there are provided a plurality of perforations 20 in the casing 19, which extend in alinement with similar perforations 21, in the fusible material 17. Thus any high temperature which exists outside of the casing 19 will be communicated to the interior and act on the fusible filling on all sides.

The operation of the device will be readily understood when taken in connection with the above description.

In order to set the device, the spring 16 is stretched or pulled out abnormally, so as to force the contact members 19 away from each other in spaced relation. The spaces between the coils of the spring 16 are then filled by fusible material 17, which is suitably perforated, as described above. One or more of the circuit makers are then connected with the annunciator 1 and the source of electricity 3 by suitable wires. When the temperature around one of the circuit makers reaches a point above that at which the fusible material 17 is adapted to melt. If the heat is comparatively low, the material 17 will become plastic and ooze out from between the coils of the spring 16, sufficient space being provided on each side

of the springs, thereby permitting the spring to contract together, thereby drawing the contact members 9 into contact, completing the circuit and exciting the annunciator 1, 5 thereby showing that one or more of the circuit makers is heated above the danger point. If the heat is comparatively high, the material 17 may become fluid and possibly some of it run out through the openings 20.

Any number of annunciators connected to circuit makers in different rooms, may be put in the circuit, so that the exact location of the danger may be quickly ascertained. 15 This is essentially applicable in the case of hotels or other buildings where an electric annunciator system is used. The circuit makers can be connected into the annunciator circuit, thus denoting the particular 20 room in which the danger exists, by the continuous ringing of the annunciator bell.

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

25 1. A circuit maker, comprising a plurality of contact members, a distended contractile coil spring adapted to normally urge said contact members into engagement, and a fusible material located between the coils of 30 said spring, adapted to prevent the contraction of said spring and thereby hold said contact members out of engagement.

2. A circuit maker, comprising a plurality of contact members, and a cylinder secured 35 to said contact members and adapted to normally hold said contact members out of engagement and being composed of alternate spiral layers of springy material held under tension and fusible material, said fusible material having a plurality of openings there- 40 through whereby the heat without the cylinder may be communicated into the interior of the cylinder.

3. A circuit maker, comprising a pair of 45 contact members extending in alinement, a cylinder secured to said contact members and adapted for normally holding said members out of engagement and being composed of a plurality of alternate spiral 50 layers of a spring held under tension and a fusible material, said fusible material having a plurality of openings therein forming communicating channels between the exterior of said cylinder and the interior 55 thereof, and a hollow non-conducting cylinder protecting the juxtaposed ends of said contact members.

4. In a circuit maker, the combination with a pair of contact members extending in alinement, an insulating block secured to 60 each of said members, a spiral spring secured at its ends to said insulating blocks, and a filling of fusible material located between the coils of said spring and adapted 65 to hold said spring under tension and also adapted to hold said contact members out of engagement with each other.

5. In a circuit maker, the combination with a pair of contact members extending in alinement with each other in spaced rela- 70 tion, an insulating hollow sleeve for protecting said contact members and holding them in alinement, an insulating block secured to each of said contact members, a spiral spring secured at its ends to said in- 75 sulating blocks, and a fusible foraminated material located between the coils of said spring and adapted to hold said spring in a distended condition.

6. A circuit maker, comprising a hollow 80 tube formed of a spiral spring, a fusible material for separating the coils of said spring and holding them under tension, and a pair of contact members extending within said tube and normally held out of contact with 85 each other by said tube, means for insulating said contact members from each other, said spring being adapted to contract and bring said contact members into engagement with each other when said fusible material has 90 been exposed to a high temperature.

7. A circuit maker, comprising a hollow cylinder and a pair of contact members secured to the heads of said cylinder and normally held out of contact with each other, 95 said cylinder being composed of a spiral spring under tension having its coils separated by a fusible material.

8. In a circuit maker, the combination with a pair of contact members, of a tube 100 for holding said contact members out of engagement, said tube comprising a spiral spring under tension and a foraminated filling of a fusible material located between the coils of said spring, and a foraminated cas- 105 ing for inclosing said tube in said contact.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM GEORGE PIERCE.

Witnesses:

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