

J. CASS.
 ELECTRIC FIRE ALARM.
 APPLICATION FILED AUG. 28, 1909.

1,003,173.

Patented Sept. 12, 1911.

FIG. 1.

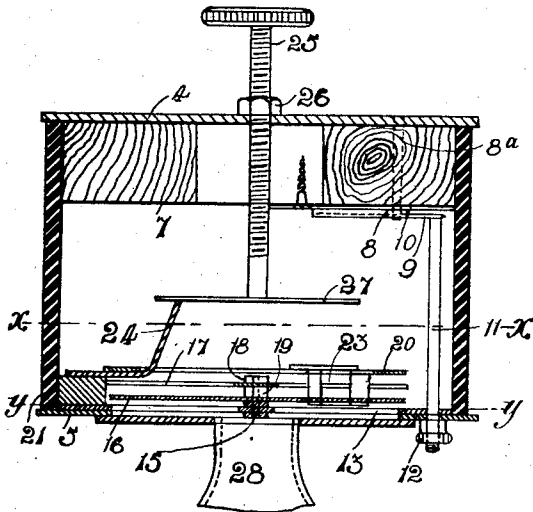


FIG. 2.

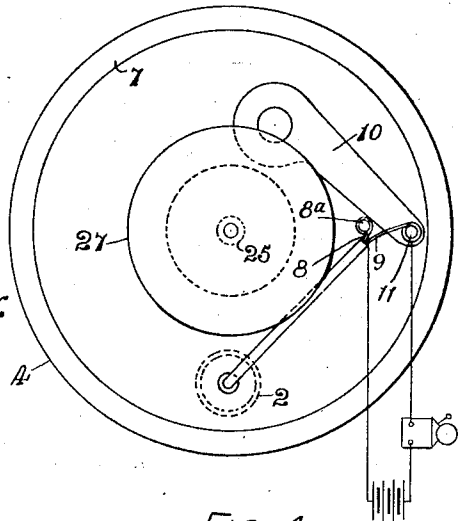


FIG. 3.

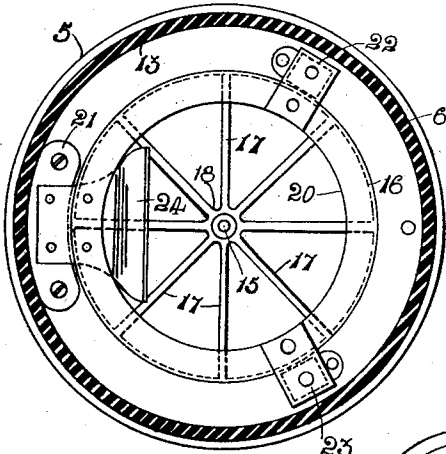


FIG. 4.

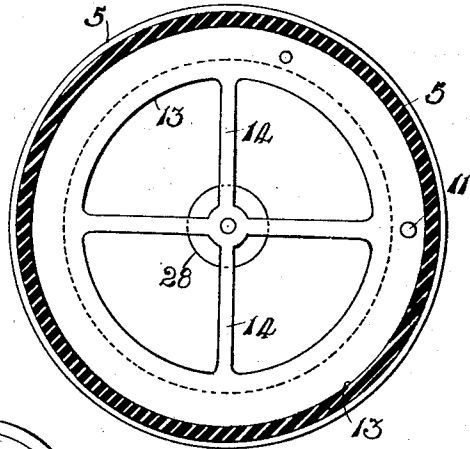
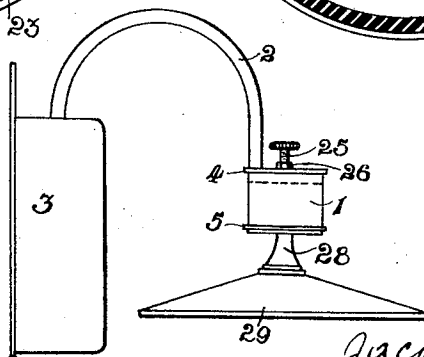


FIG. 5.



Witnesses:
 H. Hunsberger
 F. Stern

Inventor:
 Jacob Cass
 by P. M. [unclear]

UNITED STATES PATENT OFFICE.

JACOB CASS, OF MANCHESTER, ENGLAND.

ELECTRIC FIRE-ALARM.

1,003,173.

Specification of Letters Patent. Patented Sept. 12, 1911.

Application filed August 28, 1909. Serial No. 515,099.

To all whom it may concern:

Be it known that I, JACOB CASS, a subject of the Emperor of Russia, and resident of Manchester, in the county of Lancaster, in the Kingdom of Great Britain, have invented certain new and useful Improvements in Electric Fire-Alarms, of which the following is a specification.

This invention relates to the kind of electric fire alarms for rooms in buildings, in which the circuit is closed by thermostatic means.

According to this invention I use the solid transparent substance containing gelatin and made in sheets commercially known as gelatin, as the means by which the rise in temperature effects the closing of the circuit.

On the drawing appended hereunto the improved fire alarm is represented in one form of construction as an example how the invention may be carried out.

Figure 1 represents a vertical section of the alarm, Fig. 2 a view of the top as seen from below, Fig. 3 a horizontal section along line $x x$ and Fig. 4 a section along line $y y$, Fig. 1, Fig. 5 represents a box containing the battery and bell with the alarm suspended from the same, on a reduced scale.

The alarm consists of a cylindrical case 1 suspended from above, for instance by means of a tube 2 attached to the box 3 containing the battery and bell, or from the wall or ceiling. The battery and the bell may of course be placed wherever convenient or desired in another room than the one alarm is fixed in. The case 1 has a metal top 4 and metal bottom 5 between which the cylinder 6 of vulcanite or other suitable non-conductive material is fixed. The wires are led through the tube 2 and through the top 4 to which a disk 7 of wood or other non-conductive material is fixed. The wire 8 from one pole is conductively connected to the top 4 by means of a pin 8^a, fixed therein as shown. The wire 9 from the other pole is connected to a metal plate 10 fixed to the disk 7. In this plate is fixed a wire or screw 11 passing through the bottom 5. A nut 12 on the screw serves to clamp the cylinder 6 between the top and bottom and to make a conductive connection between the wire 9 and the bottom 5. Additional means for screwing the cylinder to the ends may be provided. On the bottom 5 a ring 13 is formed or fixed having a central boss connected by arms 14 to the outer ring. In

this boss is fixed a stud 15 passing through a hole in a disk 16 of solid gelatin as commercially sold in sheets. Gelatin is a material which has a high co-efficient of expansion combined with a low co-efficient of heat conductivity. Above the disk a spider 17 of copper foil is held on the stud between collars 18 and 19. This spider is thus in conductive connection with the wire 9. Above the spider 17 at a short distance therefrom is arranged a ring 20 screwed to blocks 21, 22, 23, of leather, vulcanite or other con-conductive material, the blocks being fixed to the bottom 5 by screws and the ring to these blocks so as to be insulated from the bottom. On the broad block 21 a bent metal angle plate 24 is clamped underneath the ring 20. Through the top 4 a screw 25 is threaded, preferably provided with a locknut 26 and carrying at the bottom a metal disk 27. When this disk is pressed by the screw upon the edge of the angle plate 24 conductive connection is established between the ring 20 and the wire 8.

On the bottom 5 a tube 28 is arranged to which a shade or funnel 29 is attached for the purpose of conducting the heated air to the gelatin disk 16. The heat causes the central part of the gelatin disk 16, to expand, whereby it is rendered convex on its under side and the edge is raised and lifts the copper foil spider 17 or some of its legs against the underside of the ring 20, thereby closing the circuit and causing the alarm bell to be rung. A small rise of temperature suffices to produce this result and the alarm is more sensitive than those employing the expansion of metal for effecting the closure of the circuit. By fixing the ring 20 at different distances from the gelatin disk 16 and spider 17, the temperature at which the alarm bell is rung can be determined.

I claim as my invention:

1. In an electric fire alarm the combination with a battery and an electric bell of a cylindrical casing having a non-conductive wall, a metal top conductively connected to one pole of said battery, and a metal bottom with a central opening and conductively connected to the other pole of the battery, a tube and funnel attached to said bottom at the opening, a disk of sheet gelatin above said opening, a copper foil spider above said disk and in conductive connection with the bottom of the casing, a metal ring supported on supports of non-conductive material fixed

to said ring, and a screw threaded through the top of the casing and carrying a metal disk adapted to be screwed down upon said angle plate.

5 2. In an electric fire alarm the combination of a casing having a central opening in the bottom, a flat disk of gelatin of larger diameter than said opening centrally supported above the same, a metal ring above
13 the circumference of said disk forming one terminal of an alarm circuit, a flexible con-

ductor between said disk and ring forming the other terminal of said circuit and adapted to be engaged by the outer part of said disk to be lifted by the same into contact with the said ring. 15

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

JACOB CASS.

Witnesses:

CARL BOLLÉ,
WILLIAM JONES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."