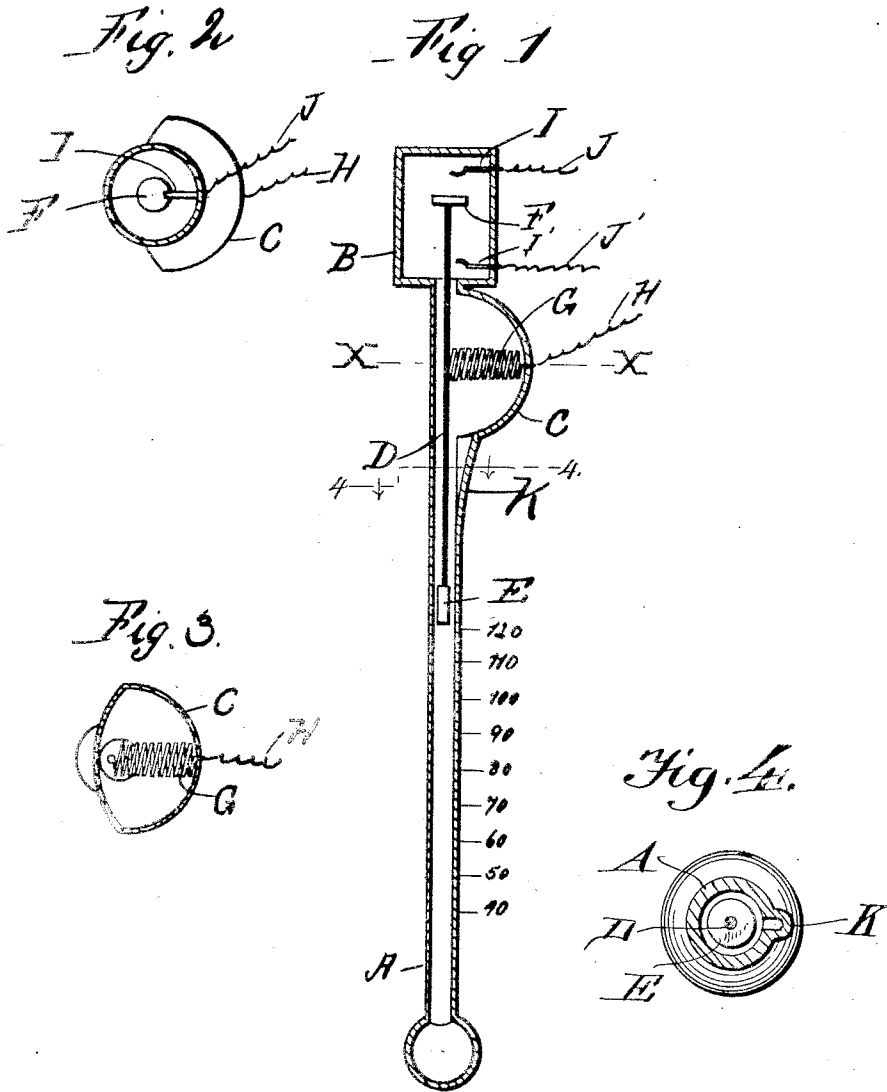


J. HARTLEY.
ALARM.

APPLICATION FILED JULY 30, 1908.

1,040,197.

Patented Oct. 1, 1912.



WITNESSES

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ALARM.

1,040,197.

Specification of Letters Patent.

Patented Oct. 1, 1912.

Application filed July 30, 1908. Serial No. 446,035.

To all whom it may concern:

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

My invention relates to a new and useful improvement in alarms, and has for its object to provide an exceedingly simple and effective arrangement in which the rising and falling of the mercury in the thermometer tube will give an alarm at a predetermined high or predetermined low point.

With these ends in view, this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claim.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe its construction in detail, referring by letter to the accompanying drawing forming a part of this specification, in which—

Figure is a central vertical section of my improvement. Fig. 2, a top view thereof. Fig. 3, a section at the line X—X of Fig. 1. Fig. 4 is a sectional view taken on line 4—4 of Fig. 1.

In carrying out my invention as here embodied, A represents a thermometer tube graduated and having mercury therein and on the top of this tube is located a cylindrical head B which may be either formed with the tube or secured thereto in any convenient manner, and the tube also has formed therewith a semispherical off-set C for the purpose hereinafter set forth.

D represents a rod of any suitable material to the lower end of which is attached the float E while the upper end carries a contact disk F. To this rod is attached a coil spring G the opposite end of which is fused in the glass of the off-set C and has attached thereto the circuit wire H here designated in the drawing as the positive.

I and I' are contact strips which are fused in the head B and have connected therewith the circuit wires J and J' indicated on the drawing as being negative, and these contact strips are so arranged that when the contact disk F moves upward to a sufficient extent it will come in contact with the strip I and when this disk is lowered to the other limit of its movement it will come in contact with

the strip I' thus closing the circuit through the wire H and one or other of the wires I or I'. The circuit has included therein a battery or other source of electricity and may have included therein an annunciator and bell or other alarm located at any suitable point.

From the foregoing description it will be seen that with the rising of the temperature the float E which rests upon the mercury in the tube will also rise and when the danger point has been reached the disk F will come in contact with the strip I thus sounding the alarm and indicating that the temperature has reached the danger point. Or when the temperature falls the disk F will follow the downward movement of the mercury until coming in contact with the strip I' thereby giving the alarm and indicating the low danger point.

My invention is adapted for fire alarms, refrigerator plants and for use in storehouses where it is desirable to have the temperature indicated at a predetermined high or low point.

When the float reaches its upward limit should the mercury continue to rise the tendency would be to burst the tube, and this I overcome by forming a groove K in the side of the tube leading to the off-set C, thus permitting the mercury to continue to rise and finally flow into the off-set, if the temperature continues to increase this will prevent any injury to the tube or other parts of the apparatus. The effect of this groove K will be more readily appreciated when it is realized that the mere floating of the contact-carrying piston upon the mercury produces an insecure contact. To be more specific, it must be understood that I have utilized the expansive pressure of the mercury as well as specific gravity to maintain the contacts in operative relation. This is accomplished by continually maintaining the piston in the constricted area of the body portion proper of the tube A, whereas the mercury is permitted to pass on above the piston and into the enlargement C to prevent damage to the device.

Of course I do not wish to be limited to the exact details of construction here shown as these may be varied without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful, is—

As an article of manufacture, a thermomet-

ric capillary tube, a bulb at the lower end thereof adapted to contain a quantity of mercury, a head formed integral with said tube at the upper end thereof, an offset portion formed in one wall of said tube adjacent the upper end thereof, a portion of the front wall of said tube beneath the offset portion diverging upwardly whereby a groove is formed leading from the lower portion of the tube to the offset portion, contact strips fused in said head, a float in said tube, a rod connected to said float, a contact disk on the upper end of said rod operating in said head

and adapted to engage the contact strips, a coil spring, one terminal of which being fused in said offset portion, the other terminal being connected to said rod, and circuit wires connected to the spring and contact strips.

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

JAMES HARTLEY.

Witnesses:

LEMUEL WILMOT,
RICHARD SMITH.