No. 785,326. PATENTED MAR. 21, 1905.

C. C. PALMER.

THERMOSTATIC ALARM.

APPLICATION FILED APR. 4, 1904.

Fig. 3.

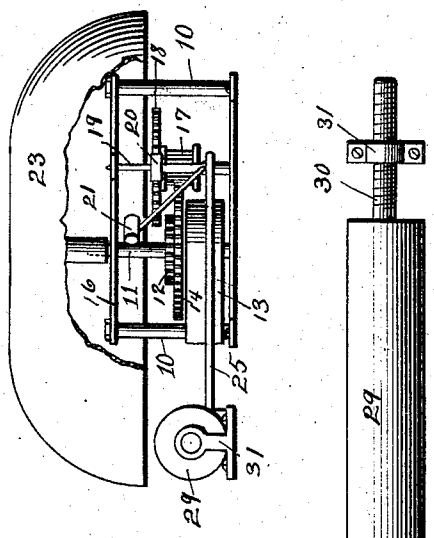


Fig. 1.

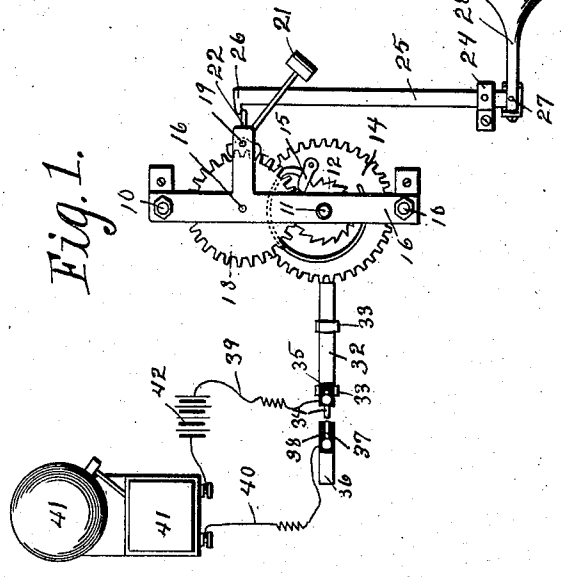
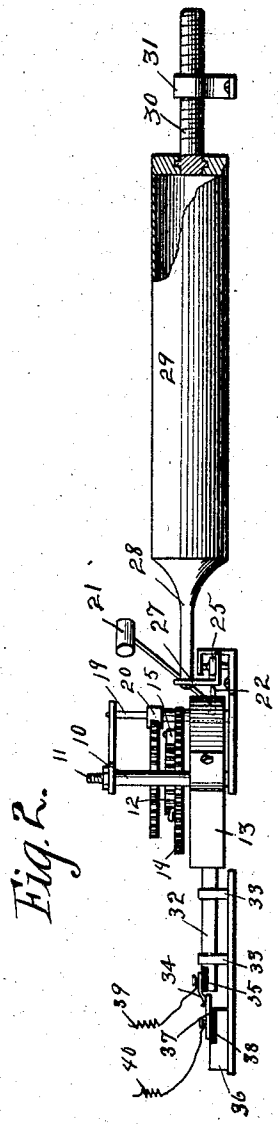


Fig. 2.



Witnesses.
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No. 785,326. Patented March 21, 1905.

UNITED STATES PATENT OFFICE.

CHARLIE C. PALMER, OF OSCEOLA, IOWA.

THERMOSTATIC ALARM.

SPECIFICATION forming part of Letters Patent No. 785,326, dated March 21, 1905.

Application filed April 4, 1904. Serial No. 201,613.

To all whom it may concern:

Be it known that I, CHARLIE C. PALMER, a citizen of the United States, residing at Osceola, in the county of Clark and State of Iowa, have invented certain new and useful Improvements in Thermostatic Alarms, of which the following is a specification.

The object of my invention is to provide a device of simple, durable, and inexpensive construction designed to automatically release a train of gear-wheels arranged to actuate a bell-clapper when the thermostatic bar of the device is subjected to a high temperature, and, further, to provide means whereby the operation of the bell-clapper will automatically close an electric circuit to ring an electric bell.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a top or plan view of the complete device with the bell removed. Fig. 2 shows a side elevation of same, the electric bell being also removed; and Fig. 3 shows a detail end view of the clockwork mechanism and the bell in position.

Referring to the accompanying drawings, the clockwork mechanism comprises a frame 10, having a central arbor 11, upon which is fixed a ratchet-wheel 12 and the convolute spring 13, one of said springs being fixed to a part of the frame 10. A pinion 14 is rotatably mounted on the same arbor 11 and is provided with a spring-actuated pawl 15, designed to engage the ratchet-wheel 12. A second arbor 16 is mounted in the frame 10 and is provided with a pinion 17, meshed with the pinion 14. It is also provided with an escapement-wheel 18 above the pinion 17. Another arbor, 19, is mounted in the frame adjacent to the arbor 16, and an escapement 20 is fixed to the arbor 19 to coact with the escapement-wheel 18. Fixed to the arbor 19 is a clapper 21, the lower end of which is projected outwardly at 22 to form a trigger, as hereinafter described.

The numeral 23 indicates a bell secured to the top of arbor 11.

The spring 13 may be wound up by grasping and rotating the bell 23, and when the escapement is freed the said spring will obviously rotate the arbor 11, and through the pinions 14 and 17 the arbor 16 will be rotated, thus reciprocating the escapement 20 and cause the clapper 21 to strike the bell and sound the alarm.

Mounted adjacent to the frame 10 is a bracket 24, having a trip-lever 25 pivoted thereto near one end, said trip-lever 25 provided with a shoulder 26 adjacent to the trigger 22. Pivotally attached to the short end of the trip-lever 25 is a bracket 27, and a thermostatic bar is attached to said bracket. This bar comprises a relatively narrow end portion 28 and a hollow cylindrical body portion 29 and a screw-threaded extension 30 at the end opposite from the shank 28. This screw-threaded extension passes through a screw-threaded bracket 31. The connection between the bracket 27 and the end 28 is such that a free rotary movement of the thermostatic bar is permitted, and obviously by turning the body portion of the thermostatic bar it may be adjusted longitudinally. By providing a thermostatic bar of relatively great diameter and hollow and provided with thin walls it is obvious that it will expand when subjected to heat more rapidly than would a solid bar of the same thickness.

I have also provided for closing an electric circuit for the purpose of sounding an alarm on an electric bell at a point distant to the clockwork mechanism, when the clockwork mechanism is actuated as follows:. The numeral 32 indicates a slide-bar supported in guides 33 adjacent to the spring 13. This bar 32 carries an electrode 34, insulated from the bar proper by the block 35. Adjacent to the electrode 34 is a stationary block 36, carrying an electrode 37, insulated from the bar 36 by the bar 38, said electrodes arranged to contact when the bar 32 is moved toward the bar 36. The opposite end of the said bar 32 is so arranged with relation to the spring 13 that when the clockwork mechanism is re-

leased and said spring expands it will strike the adjacent end of the bar 32 and force it outwardly, thus connecting the electrodes 34 and 37. The wires 39 and 40 are attached to the electrodes 34 and 37, and an electric bell 41 and a battery 42 are included in the circuit, so that when said electrodes are in engagement an alarm will be sounded on the electric bell 41.

In practical use and assuming that the device is to be placed in a room for the purpose of sounding an alarm when the temperature of the room passes above a certain predetermined degree—say, for instance, 125° Fahrenheit—I preferably attach the device to the ceiling of the room, so that if a fire is burning in any part of the room the heat will thus rise and expand the thermostatic bar. I so arrange the thermostatic bar with relation to the trip-lever 25 that when the said thermostatic bar is subjected to a temperature of about 80° Fahrenheit it will be of such length that the shoulder 26 of the trip-lever 25 will engage the adjacent end of the trigger 22. Then when the thermostatic bar is expanded by a temperature of about 125° it will be of such length that the shoulder 26 of the trip-lever 25 will swing outwardly from engagement with the trigger 22. Obviously the temperature at which the thermostatic bar will release the trigger may be regulated by a rotation of the thermostatic bar. Assuming the clockwork mechanism to be wound up and assuming further that the thermostatic bar has expanded enough to release the trigger 22, then the spring expanding from the pinions will cause the escapement-shaft 19 to be oscillated rapidly, thus causing the clapper 21 to strike the bell 23, thus sounding an alarm. If it is desired to sound an alarm simultaneously at some distant point, then the electric-bell attachment is used, and when the spring 13 has expanded sufficiently to push the bar 32 outwardly, so that the electrodes 34 and 37 are in contact, then the electric bell will be actuated and an alarm sounded at a distant point.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. In a device of the class described, the combination of a spring-rotated escapement-wheel and escapement therefor, a bell-clapper connected with the escapement, a bell to be engaged by the clapper, a trigger connected with the escapement, a trip-lever coacting with the trigger, a thermostatic bar having at one end a screw-threaded extension and at its other end a tapered projection, a screw-threaded bracket supporting the screw-threaded extension and means for rotatably connecting the tapered end of the thermostatic bar to the said trip-lever, whereby the device may be readily and quickly adjusted by rotation of the thermostatic bar.

2. In a device of the class described, the combination of a clockwork mechanism including a convolute spring, an escapement-wheel actuated by the spring, an escapement coacting with the escapement-wheel, a bell-clapper actuated by the escapement, a trigger connected with the escapement, a bell to be engaged by the clapper, a trip-lever coacting with the trigger, a thermostatic bar rotatably connected with the trip-lever, a screw-threaded extension on the thermostatic bar, a screw-threaded bracket to receive the screw-threaded extension, a sliding bar adjacent to the convolute spring moved outwardly when the spring is expanded, an electrode carried by the sliding bar, a second electrode in position to be engaged by the first when the bar is moved away from the clockwork mechanism, a battery, an electric bell and wires connecting the battery, bell and said electrodes.

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