

F. JAYNES.
THERMOSTATIC ALARM.
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1,066,731.

Patented July 8, 1913.

Fig. 1.

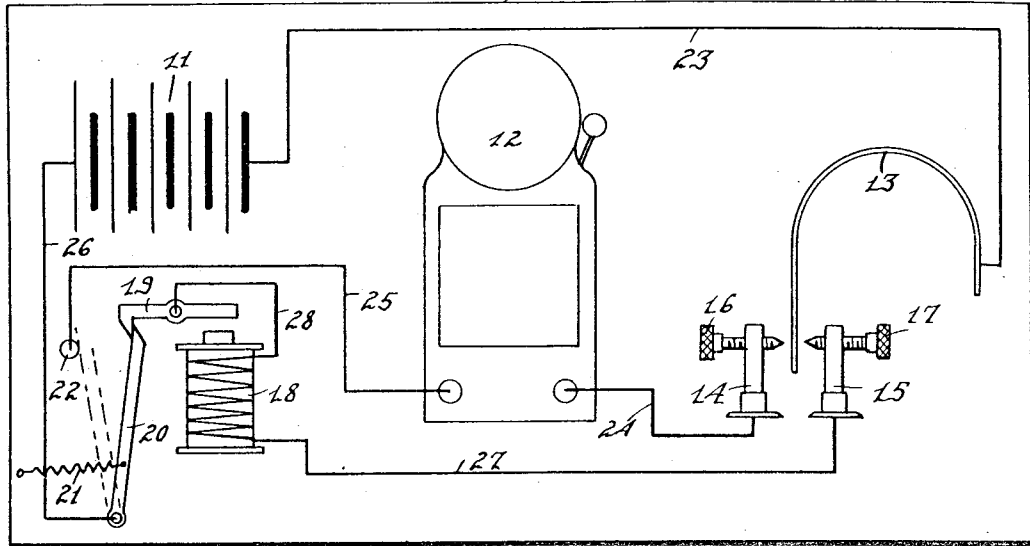
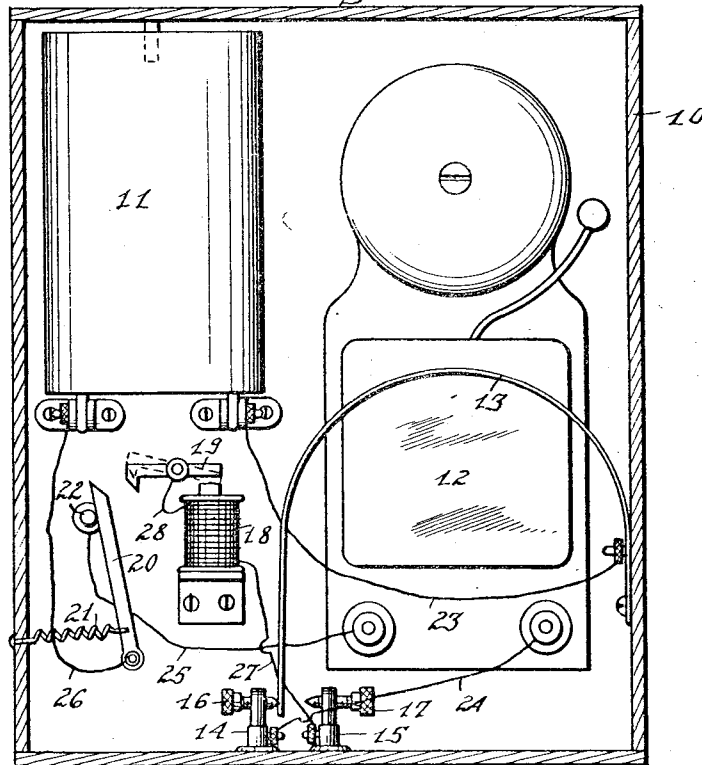


Fig. 2.



WITNESSES:

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FRANK JAYNES, OF DES MOINES, IOWA.

THERMOSTATIC ALARM.

1,066,731.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANK JAYNES, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented a certain new and useful Thermostatic Alarm, of which the following is a specification.

My invention relates to thermostatic alarms whereby certain changes in the temperature will be indicated by an electrically operated alarm.

My object is to provide a device of this class wherein the expansion of a metal band, when subjected to abnormal heat, will operate to close an electric circuit and thus produce an alarm.

More specifically it is my object to provide in connection with a device of this class simple means for manually shutting off the alarm before the temperature has subsided sufficiently to contract the metal band and of itself break the alarm circuit, said means being so arranged that the device will adjust itself to position for future operation without further attention on the part of the operator.

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 diagrammatic view of my device, and Fig. 2 shows a front elevation of my device inclosed within a casing.

My improved thermostatic alarm will preferably be located within a supporting casing 10 and may be employed within any building, room or locality where fires are liable to occur or where it is desired that certain predetermined degrees of temperature be indicated by an alarm.

Positioned within the casing 10 are a suitable battery 11 and an electrically operated bell 12. Secured at one end to the casing is an expansible metal band 13 and located adjacent to the free end of the band are binder posts 14 and 15 carrying thumb screws 16 and 17, the screw 16 being in position to be engaged by the free end of the band when said band is in its expanded position and the screw 17 being in position to be engaged by the end of the band when said band is in its contracted position. An electromagnet 18 is mounted within the cas-

ing and adjacent thereto is an escapement lever 19, the rear end of said escapement lever being in position adjacent to said electromagnet so that when the said magnet is energized the end of said escapement lever will be drawn downwardly to engagement with said electromagnet. Coacting with the escapement lever is an arm 20 pivoted to the casing and a contractible coil spring 21 is employed for drawing said arm away from the escapement lever when the end of said lever has released the arm. A binder post 22 which also forms an electrical contact with the arm 20 is secured to the casing and limits the movement of said arm away from the escapement lever.

The electrical connections of my device are as follows: One pole of the battery is connected to the metal band 13 by means of a wire 23. One post of the bell is connected to the binder post 14 by means of a wire 24 and the other post of said bell is connected to the binder post 22 by means of a wire 25. The other pole of said battery is connected to the battery arm 20 by means of a wire 26. The electromagnet 18 is connected to the binder post 15 by means of a wire 27 and to the escapement lever 19 by means of a wire 28.

In practical operation and assuming that the temperature is sufficient to expand the band 13, the parts of my device will be in the positions shown in Fig. 2 of the drawing. Current therefor from the battery 11 will pass through the wire 23 to the arm 13 and then to the binder post 14 through the thumb screw 16. From the binder post 14, the current is conducted through the wire 24 to the bell, thence through the bell outwardly through the opposite post and along the wire 25 to the binder post 22. The arm 20 being in contact with the post 22 current obviously will pass through the arm 20 and back to the battery through the wire 26, thus forming a closed circuit which will cause the bell to ring. The operator then having been warned by the sounding of the alarm, and desiring to shut off the alarm will move the arm 20 to engagement with the escapement lever 19. This obviously will break the ringing circuit and stop the operation of the alarm. Then as the temperature subsides the metal band 13 will be contracted and when it reaches its contracted position, its free end will form a contact with the thumb screw 17 and the following electrical

circuit will be completed: Current from the battery will be conducted through the wire 23 to the metal band 13 and through the thumb screw 17 to the binder post 15. From the binder post 15 a current will pass through the wire 27 to the electromagnet 18 and then from the electromagnet 18 through the wire 28 to the escapement lever 19. The arm 20 being in engagement with the escapement lever 19 the current will pass along the arm 20 and back to the battery 11 through the wire 26. The result of this current will be to energize the magnet and attract the rear end of the escapement lever 19 downwardly to engagement with the core of said electric magnet. The escapement lever having been attracted downwardly by the electromagnet will assume the position shown by dotted lines in Fig. 2 and thereby the arm 20 will be released and the coil spring 21 will draw said arm back to engagement with the binder post 22, thus putting the parts of my device in position for operation when the temperature again rises and the metal band 13 expands.

The arrangement of the parts of my device is obviously an advantageous one in that it permits the several parts comprising my alarm to be assembled compactly within a comparatively small casing and thus renders my device especially desirable for use in dwelling houses and the like for indicating certain degrees of temperature; the thumb screws 16 and 17 forming the contacts for the metal band 13 offer a simple and effective way of varying the amount of contraction or expansion which the said band must undergo before the alarm will be sounded, and in this manner the degrees of temperature at which the alarm will operate can be widely varied.

The arrangement for shutting off the alarm before the expansible metal band has contracted to thereby break the ringing circuit is obviously a highly advantageous one and is the important feature of my device.

It is understood that many minor changes may be made in the details of construction of my device without in any way departing from the spirit of my invention.

I claim as my invention:

1. In a device of the class described, the combination of a battery, an electrically operated alarm, an expansible metal band fixed at one end and having its opposite end free, said band being electrically connected with one pole of said battery, a contact point designed to be engaged by the free end of said band when in its expanded position, said contact point being electrically connected with one post of the alarm device, a binder post electrically connected with the other post on said alarm device, a spring actuated arm electrically connected with the

opposite pole of said battery, said arm when in one position of its movement being designed to engage the said binder post and form an electrical contact therewith, an escapement lever adjacent to said arm designed to engage the end of said arm and hold it in position away from said binder post, and means operated by said battery for releasing said arm from engagement with said escapement lever.

2. In a device of the class described, the combination of a battery, an electrically operated alarm, an expansible metal band fixed at one end and having its opposite end free, said band being electrically connected with one pole of said battery, a contact point designed to be engaged by the free end of said band when in its expanded position, said contact point being electrically connected with one post of the alarm device, a binder post electrically connected with the other post on said alarm device, a spring actuated arm electrically connected with the opposite pole of said battery, said arm when in one position of its movement being designed to engage the said binder post and form an electrical contact therewith, an escapement lever adjacent to said arm designed to engage the end of said arm and hold it in position away from said binder post, and means operated by said battery for releasing said arm from engagement with said escapement lever, said means comprising an electromagnet adjacent to said escapement lever and electrically connected therewith, a contact point adjacent to the free end of said metal band and designed to be engaged by the end of said band when in its contacted position, said contact point being electrically connected with the electromagnet.

3. In a device of the class described, the combination of a casing, a battery mounted within said casing, an electrically operated alarm within said casing, an expansible metal band fixed at one end to the interior of said casing and electrically connected with one pole of said battery, binder posts adjacent to the free end of said metal band, thumb screws carried by said binder posts, one of said thumb screws forming an electrical contact with said metal band when in its expanded position and the other one of said thumb screws forming an electrical contact with said band when in its contacted position, the first mentioned one of said binder posts being electrically connected with one post of said alarm device, an electromagnet fixed within said casing and electrically connected with the second mentioned one of said binder posts, an escapement lever adjacent to said electromagnet and electrically connected therewith, said escapement lever being designed to be moved downwardly at one end by the attraction

of said magnet when energized, a spring actuated arm pivoted within said casing adjacent to said escapement lever and designed to coact therewith, said arm being electrically connected with the opposite pole of said battery, and a binder post fixed within said casing and electrically connected with the remaining post on said alarm device, said last mentioned binder post being in position to be engaged by said pivoted arm

and form an electrical contact therewith when said arm is in position out of engagement with the escapement lever, as and for the purposes stated.

Des Moines, Iowa, March 20, 1913.

FRANK JAYNES.

Witnesses:

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L. ROBINSON.