

C. E. MERRYMAN.
METALLIC THERMOMETER.
APPLICATION FILED OCT. 27, 1910.

1,020.045.

Patented Mar. 12, 1912.

Fig. 1

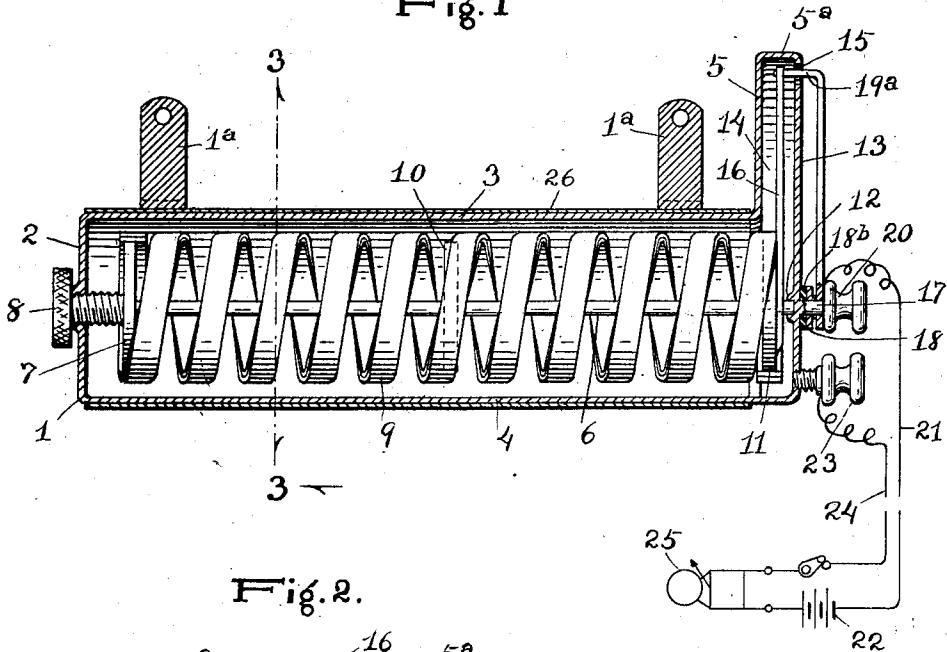


Fig. 2.

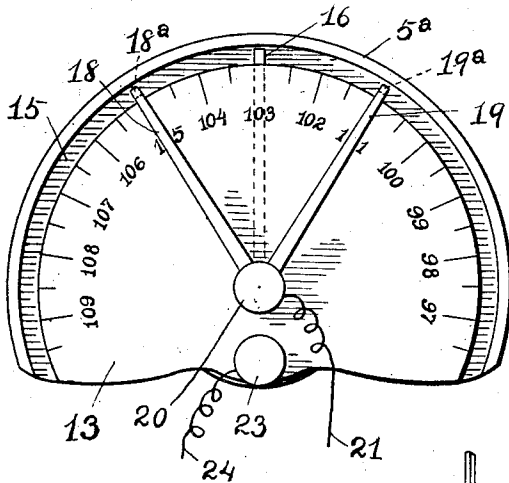


Fig. 3.

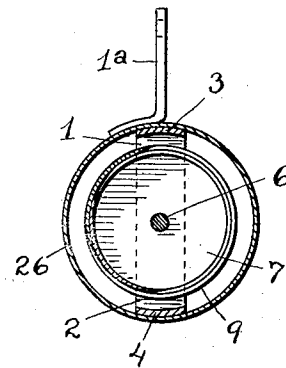
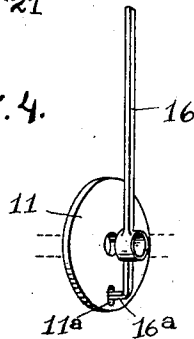


Fig. 4.



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UNITED STATES PATENT OFFICE.

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METALLIC THERMOMETER.

1,020,045.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed October 27, 1910. Serial No. 589,479.

To all whom it may concern:

Be it known that I, CLARENCE E. MERRYMAN, a citizen of the United States, resident of Anderson, in the county of Madison and State of Indiana, have made a certain new and useful Invention in Metallic Thermometers; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

The invention relates to metallic thermometers designed for use with alarm devices or signals, the invention being designed primarily for use with alarms for incubators but being capable of use with fire alarms, in schools or hospitals or in the rooms of invalids for giving notice when the air temperature needs correction.

The invention consists in the novel construction and combinations of parts as hereinafter set forth.

In the accompanying drawings, illustrating the invention, Figure 1 is a central vertical longitudinal section of my invention; Fig. 2 is a front view of the same; Fig. 3 is a section on the line 3—3, Fig. 1; and Fig. 4 is a detail perspective view of a modification wherein the indicator has an offset end engaging a slot of the loose end disk.

In these drawings the numeral 1 designates an incasement or supporting frame composed of an end bar 2, upper and lower parallel longitudinal bars 3 and 4 connected with said end bar and a partially circular end piece 5 also connected with the bars 3 and 4 to form a rigid frame, and provided with a forward arcuate or partially circular extension 5^a.

Located centrally between the upper and lower bars 3 and 4 is a longitudinal rod 6 having at its rear end a disk 7 fixed thereto, said disk being also fixedly secured to a set screw 8 engaging a threaded perforation in the end bar 2. A coiled spring 9 surrounds the central or axial rod 6, said spring being fixed at its rear end to the disk 7, an intermediate disk 10 and an end disk 11 being both rotatably or loosely mounted upon the rod 6 and serving in connection with the disk 7 to support the spring, the forward end of which is secured to the end disk 11, the forward end of the rod 6 having

a supporting bearing 12 in a dial plate 13 separated from the end piece 5 of the frame by an interval 14 and secured at its lower portion to the lower frame bar 4, which serves as a support therefor, an arcuate or partially circular slot or interval 15 separating the arcuate edge of the dial plate, which is located within the forward extension 5^a and about on a line with the forward edge of said extension from said extension. In this way a chamber 14 is formed between the frame end piece 5, which forms the back of said chamber, and the dial plate, which forms the front of said chamber.

The coiled spring is composed of an inner coiled portion of one metal, such as steel, and an outer coiled portion of another metal, such as brass, riveted or soldered together and having different coefficients of expansion or contraction, this spring being so disposed as to be out of contact with the longitudinal frame bars so that it may rotate or turn as the air temperature becomes greater or less, a radial indicator or hand 16 being revolvably mounted upon the forward end of the rod 6 and secured to the disk 11 to turn therewith, said indicator being located in the chamber between the dial plate and back.

17 is a stud upon the dial plate, upon which are revolvably mounted radial alarm indicators or hands 18 and 19, insulated from the dial plate at 18^b, said hands having intumed free ends, 18^a and 19^a respectively, extending through the arcuate slot 15 and with which the free end of the indicator 16 is adapted to make contact respectively when the air temperature is too low or too high.

Upon the stud 17 is screwed a nut forming with said stud a binding post for a wire connection 21 to an electric battery 22. Below and adjacent to this binding post is a second binding post 23, located upon the dial plate at the lower central portion thereof and adapted for connection of a wire 24 to said battery, the circuit being made through binding post 23, frame 1 and rod 6 to the indicator 16 and through binding post 17—20 to both of the hands or fingers 18 and 19, an alarm bell or device 25 being located in the circuit whereby when the hand 16 makes contact with either of the hands 18 or 19 the alarm will be sounded and notification given that the air temperature needs correction.

If desired the indicator 16 may have an

offset end 16^a in engagement with an eccentric slot or perforation 11^a of the disk 11 and turning therewith, as shown in Fig. 4 of the drawings.

5 A cylindrical tube 26 of tin or other suitable metal is slipped over the bars 2 and 3 and surrounds the spring, serving to protect the same. The frame 1 has supports 1^a for the attachment of the device to the
10 side wall of an incubator or other inclosure. The invention is of simple and durable nature, easily made and applied, and when placed close to a stove or furnace will give notice when the fire is too hot for safety or
15 too low for comfort or that it needs attention. The indicators are preferably tipped with platinum to insure a good electrical contact.

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

A metallic thermometer, comprising an incasement having at one end a graduated dial plate and an arcuate slot and at its op-

posite end a set-screw, a fixed disk upon said 25 set-screw, a rod in said incasement in line with said set-screw and having at one end fixed connection therewith and at its opposite end a supporting bearing in said dial plate, a loose end disk upon said rod, an 30 intermediate loose disk upon said rod, a thermostatic coil composed of inner and outer metal coils of different coefficients of expansion surrounding said rod and having at one end fixed connection with said fixed 35 disk and at its opposite end fixed connection with said loose disk, said coil resting upon said intermediate disk, and a radial indicator having at one end a fixed connection with said loose disk to turn therewith 40 and at its opposite end extending in register with said slot.

In testimony whereof I affix my signature, in presence of two witnesses.

CLARENCE E. MERRYMAN.

Witnesses:

JAMES F. FRY,

CHARLES E. HALE.