M. L. HUBERMAN.

TEMPERATURE INDICATOR OR ALARM.

APPLICATION FILED DEC. 17, 1908.

993,168. Patented May 23, 1911.

Fig. 1.

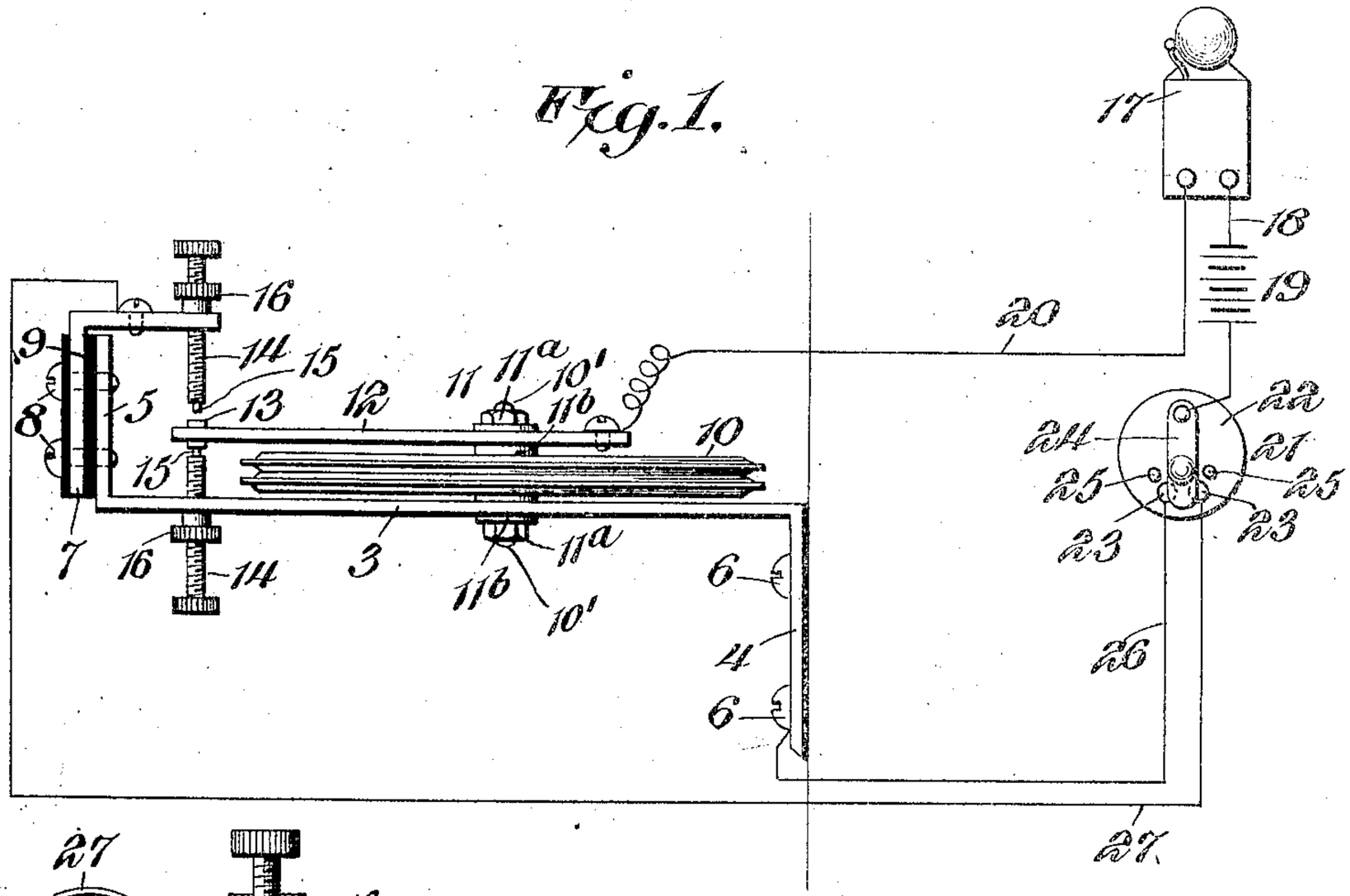
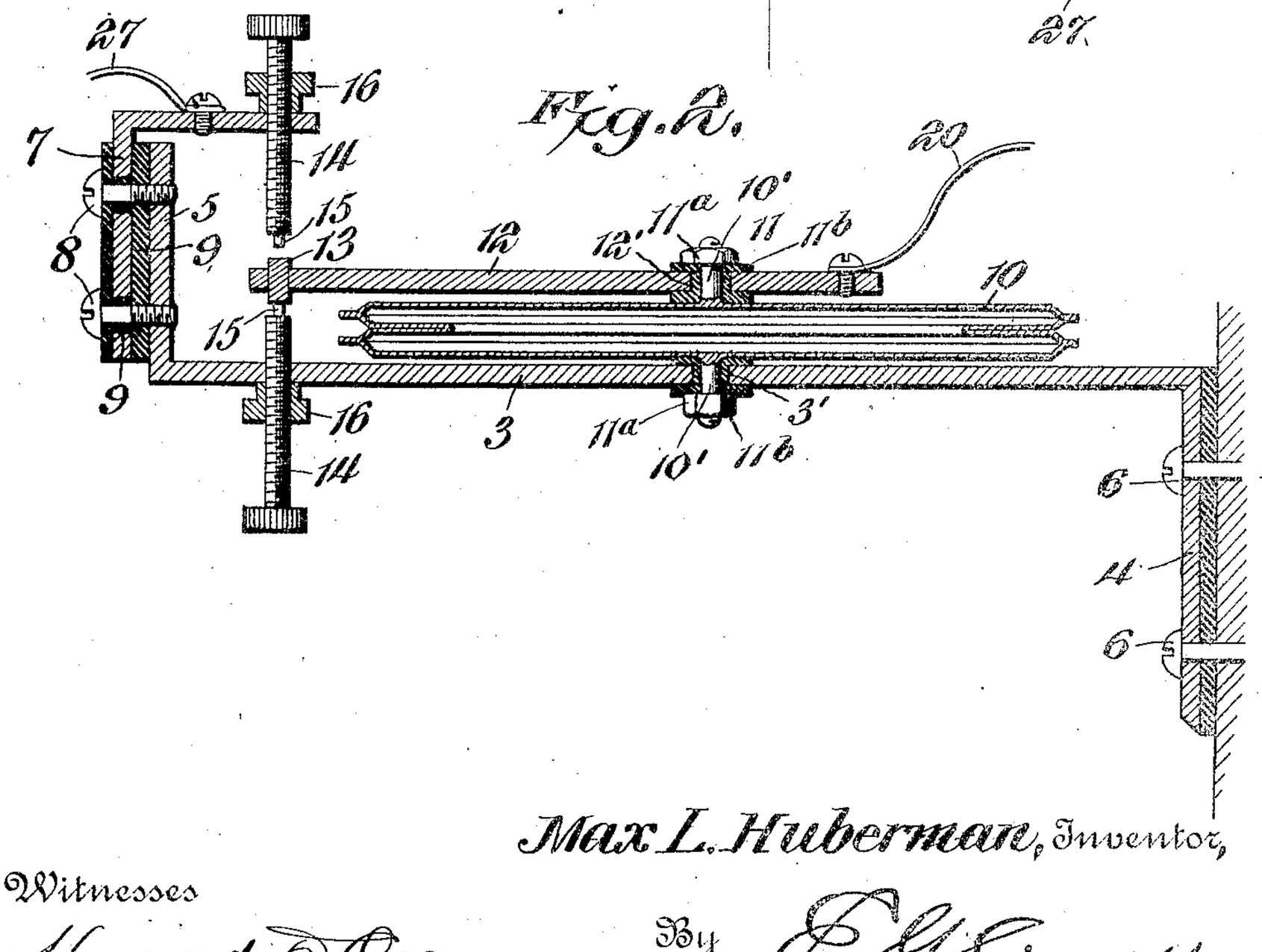


Fig. 2.



Witnesses

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TEMPERATURE INDICATOR OR ALARM.

993,168. Specification of Letters Patent. Patented May 23, 1911.

Application filed December 17, 1908. Serial No. 468,001.

To all whom it may concern:

Be it known that I, MAX L. HUBERMAN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Temperature Indicator or Alarm, of which the following is a specification.

This invention relates to means for indicating or effecting the operation of an alarm in case the temperature at a particular place rises above or falls below predetermined degrees, and while the device is especially useful for incubators or the like, its use is by no means limited thereto.

The principal object of the present invention is to provide a simple compact structure, which can be cheaply produced and readily installed by an inexperienced person, yet is entirely accurate and is adjustable so that it may be easily altered to operate at different degrees of temperature.

Another and important object is to provide an electrical alarm, and means whereby when the alarm is sounded, the same can be cut off without, however, cutting the alarm entirely out from the system, so that if the rearrangement of parts is overlooked from any cause, the system will still be partly operative.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a view in elevation of the mechanism, the various electrical connections being diagrammatically shown. Fig. 2 is a longitudinal sectional view through the contact mechanism.

Similar reference numerals designate corresponding parts in all the figures of the drawings.

In the embodiment illustrated, a support is employed in the form of a bracket comprising sections. One of these sections consists of a main supporting bar 3 having oppositely offset terminal portions 4 and 5. The portion 4 is adapted to be placed against a suitable support to which it is secured by screws 6 or other fasteners. The other section comprises an angle bar, one arm 7 of which is located against the offset terminal portion 5, to which it is secured by screws 8. The two sections are, however, electrically insulated, as shown at 9.

Mounted on the main bar 3, is a thermostatic device preferably in the form of a diaphragm 10, and secured as shown at 11 to the upper side of said diaphragm, is a contact bar 12 that is insulated from the diaphragm, but is supported solely thereby. The diaphragm 10 has upwardly and downwardly extending lugs 10′ passing through apertures 3′ and 12′ of the bracket 3 and bar 12, and on the lugs are nuts 11ª for fastening the parts together, there being bushings 11ᵇ of insulation around the lugs for preventing a short circuit through the diaphragm. The bar 12 can be swung around on the upper lug as a pivot in throwing the bar out of alinement with the fixed contacts of the device when the apparatus is not in use, to thus prevent waste of current by engagement of the bar 12 with either of said contacts. The free end of the bar 12 has a plug 13 of suitable contact material. Threaded through the different bracket sections, are contact screws 14 having platinum or other suitable points 15 disposed on opposite sides of and in the path of movement of the plug 13, and consequently of the bar. Lock nuts 16, threaded on the screws, serve to hold them in their adjusted relation. With this arrangement, it will be evident that if the thermostatic device expands under the influence of heat, the bar will be elevated so that the plug will engage the upper contact screw, and on the other hand if said device contracts sufficiently, the plug will then engage the lower screw. The degrees of heat at which the contacts take place can be altered by varying the positions of the inner ends of said screws.

An alarm or indicator of any suitable type may be employed. Thus in the present embodiment, an electric bell 17 is disclosed, which has an electrical connection 18 with a suitable source of electrical energy, shown diagrammatically at 19. This bell also has an electrical connection 20 with the contact bar 12. An electric switch 21 is employed, comprising a suitable base 22 provided with spaced contact points 23, and a swinging arm 24 that is movable to a position to simultaneously engage both of the contact points 23 as shown in Fig. 1, or that can be swung to a position to engage either independently of the other. Stop pins 25, carried by the base, limit the swinging movement of the arm so that said arm must always be in engagement with at least one of the contact points. It will be observed by reference to Fig. 1 that one of said contact points 23 is electrically connected, as

shown at 26 with the main bracket section 3, and consequently with the lower contact screw, while the other contact point 23 is electrically connected as illustrated at 27 to the other bracket section 7 and consequently to the upper contact screw.

The operation of the structure is substantially as follows. The contact mechanism is secured at the place where it is desired to know of any material change in the temperature. For instance it can be readily secured at any desired point within an incubator. The screws 14 are adjusted to the points desired, and the switch arm 24 is placed in its central position in engagement with both of the contact points 23. As long as the temperature remains at the desired degree, the bar 12 is out of engagement with both of the screws 14, but if the temperature rises above or falls below the desired degree, it will be evident that said bar 12 will electrically engage one of the screws, thereby closing the circuit through the signal or alarm 17 and effecting its operation. The person whose attention is called to the matter moves the switch in the proper direction to break the circuit, and of course makes the necessary alteration in the heating means. He should then return the switch arm 24 to its central position, but if through oversight, or for any other reason, it should be overlooked, it will be evident that inasmuch as the switch arm is still in engagement with one of the contact points, the system will be partly operative. Moreover, it will be in engagement with the point that is electrically connected to the screw that is the most apt to be engaged by the contact bar. For instance, if the temperature rises above the desired degree, the bar 12 will consequently be raised so as to close the circuit through the upper screw. The operator therefore switches the arm 24 to the contact point 23 that is connected to the lower arm, and if the device is in an incubator, lowers the flame of the heater. The probabilities are therefore that it will be turned too low, in which case if the switch arm 24 is forgotten when the temperature falls below the desired degree, the circuit will be closed through the lower screw 14, and the alarm will again be operated. It will be evident that this structure is very simple, that it can be cheaply manufactured, and readily installed by a person not thoroughly acquainted with electricity. Moreover it can be placed in incubators already in use, as well as in new structures.

From the foregoing, it is thought that the construction, operation and many advantages of the herein described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion and minor details of construction, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

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

1. In an alarm mechanism of the character set forth, the combination of a supporting bracket having an aperture, a contact bar spaced from the supporting bracket and having an aperture, a diaphragm disposed between the bracket and bar, oppositely-disposed threaded lugs on the diaphragm extending through the apertures for fastening the said parts together, separately-adjustable contacts carried by the bracket, the contacts being insulated from each other, said bar being movable laterally on the diaphragm to a position out of alinement with the contacts, and circuit wires separately connected with the contacts and said bar for completing a circuit by engagement of the bar with either contact.

2. In alarm mechanism of the character set forth, the combination with a supporting bracket comprising a main bar having angular offset ends, of an angle bar secured to one of the offset ends and insulated therefrom, said bars having alined openings, a thermostatic diaphragm mounted on the main bar and insulated therefrom, a contact bar connected to the thermostatic diaphragm and insulated therefrom and movable bodily therewith, and contact screws threaded in the said openings of the main bar and angle bar and disposed in the path of movement of opposite sides of the contact bar, said contact bar being also movable to a position out of alinement with the screws.

3. The combination of a support, a thermostatic diaphragm secured on said support and provided on its upper side with an upstanding lug, a contact bar fitted over the said lug and adapted to move laterally thereon, means for securing the said bar rigidly on the said lug, a contact arranged in the path of movement of the free end of the bar, and an electrical alarm circuit including the said bar and the said contact.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

MAX LOUIS HUBERMAN.

Witnesses:
THOS. A. STIRLING,
ANNA SCHAFFER.