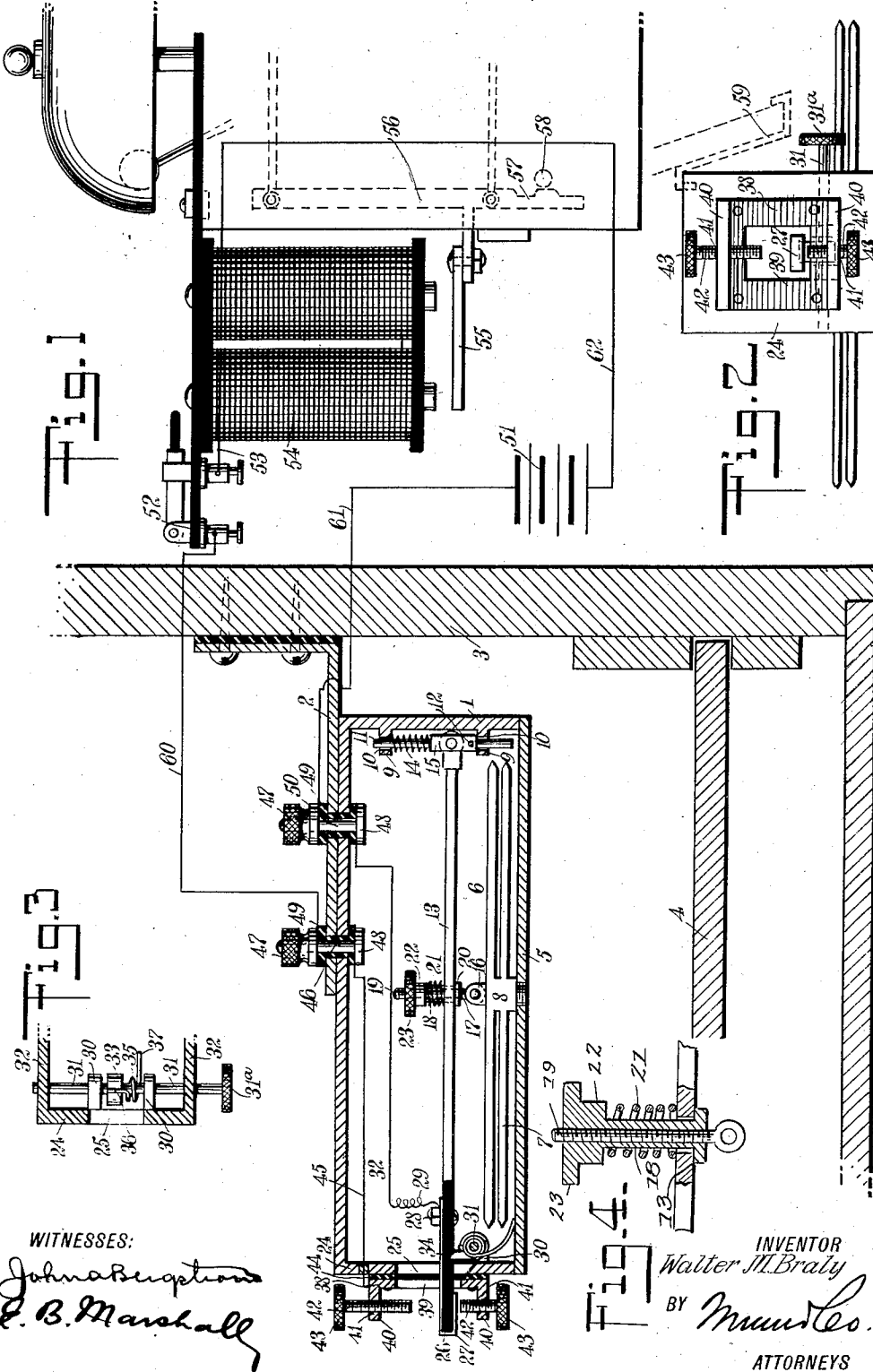


W. M. BRALY.
ALARM ACTUATING MECHANISM FOR INCUBATORS.
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WITNESSES:

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ALARM-ACTUATING MECHANISM FOR INCUBATORS.

1,006,824.

Specification of Letters Patent.

Patented Oct. 24, 1911.

Application filed April 2, 1910. Serial No. 552,942.

To all whom it may concern:

Be it known that I, WALTER M. BRALY, a citizen of the United States, and a resident of Blackwell, in the county of Kay and State of Oklahoma, have invented a new and Improved Alarm-Actuating Mechanism for Incubators, of which the following is a full, clear, and exact description.

My invention relates to alarm actuating mechanism for incubators, and it has been constructed to be used with the incubator alarm which is the subject-matter of my United States patent application filed August 24, 1909, Serial No. 514337, but it is of course understood that the alarm actuating mechanism which is described in the present application, may be connected directly with an electric bell to sound the alarm, without the necessity of using the incubator alarm which is the subject-matter of my said previous application.

The object of the present invention is to provide an alarm actuating mechanism which will be certain in its operation and, at the same time, will not be damaged by the increase or decrease of temperature beyond the points where it has been adjusted to operate. The contact lever is pivoted to a rod mounted to travel in guides, a spring being provided to hold the rod in a predetermined position, the contact rod being connected with a thermostat by which it is operated. As the lever is operated by the thermostat, it contacts with electrodes, to complete an electric circuit in which there is an electro-magnet.

Still other objects of the invention will appear in the following complete description.

In this specification I will describe the preferred form of my invention, it being understood that the scope of the invention is defined in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a sectional side elevation showing a portion of an incubator, in which my alarm actuating mechanism is installed; Fig. 2 is an end view showing the casing in which the thermostat and the contact lever are disposed; Fig. 3 is a sectional fragmentary plan view of the casing in which the thermostat and contact lever are dis-

posed, showing the means for holding the contact lever out of engagement with the alarm electrode and Fig. 4 is a fragmentary view showing the means for connecting the thermostat with the contact lever.

By referring to the drawings it will be seen that a frame 1 is provided which is secured to a bracket 2, the said bracket 2 being secured to a wall 3 of an incubator, a drawer 4 of the incubator being disposed below the said frame 1.

To the bottom 5 of the frame 1 is secured a thermostat 6, the thermostat preferably consisting of one or more hollow wafer members 7 which are in communication with each other through openings in the central, upright portion 8.

To one end of the frame 1 are secured lugs 9, having guideways 10, a rod 11 being disposed in the guideways 10, a pin 12 projecting through the rod 11 near its lower terminal, to limit the downward movement of the said rod 11 in the guideways 10, a contact lever 13 being pivoted to the rod 11, and a spring 14 being disposed around the rod 11, the upper terminal of the said spring 14 abutting against the lower portion of the upper lug 9, and the lower portion of the spring 14 pressing against a shoulder 15 on the rod 11. This construction is provided so that when the contact lever 13 is moved upwardly and engages the upper electrode 42, any further upward movement of the contact lever by the thermostat will cause the upward movement of the right end of the contact lever with the shoulder 15, and against the pressure of the spring 14. This will relieve the left end of the contact lever and the thermostat from any abnormal strain.

A bracket 16 is secured to the thermostat 6, the bracket 16 projecting upwardly, and to this bracket is pivoted a screw member 17, a sleeve 18 being mounted on the screw member 17, the sleeve 18 having an inner screw thread which meshes with the screw thread 19 on the said screw member 17. The sleeve 18 is disposed through an opening in the contact lever 13, there being a head 20 on the lower portion of the sleeve 18, the head 20 abutting against the under side of the contact lever 13, and a spring 21 being wound around the sleeve 18, the lower terminal of the spring 21 pressing against the upper surface of the contact lever 13, and the upper terminal of the spring 21 press-

ing against a head 22 on the upper portion of the sleeve 18. The upper portion 23 of the head 22 is extended and has a milled surface, so that the sleeve 18 may be readily turned relatively to the screw member 17.

There is an opening 25, in the end 24 of the frame 1, through which is disposed the free terminal 26 of the contact lever 13. This free terminal 26 of the lever 13 is provided with a contact member 27 which is disposed upon the upper and lower surfaces of the said free terminal 26, the contact member 27 being insulated from the said terminal 26. This contact member 27 is continued along the upper surface of the contact lever 13 to a binding post 28, to which a wire 29 is secured. Two lugs 30 extend inwardly from the end 24 of the frame 1, one of these lugs 30 being disposed on each side of the opening 25 near its bottom. A stud 31 having a milled head 31^a, is journaled in bearings in the lugs 30, the stud 31 being extended through openings in the sides 32 of the frame, the said openings serving as bearings. To this stud 31 is secured a finger 33 which is adapted to be disposed upwardly in a recess 34 in the lower surface of the contact lever 13. A spring 35 is wound around the stud 31, one terminal 36 of the spring 35 being secured to the finger 33, the other terminal 37 pressing against the bottom 5 of the frame. When the eggs in the incubator are being cooled the stud 31 is turned against the pressure of the spring 35, until the finger 33 is disposed in the recess 34, in the contact lever 13. This will prevent the sounding of the alarm by the engagement of the contact lever with the lower electrode 42. When the temperature is sufficient to raise the contact lever by means of the thermostat and the members described, the spring 35 causes the stud to rotate to move the finger to the right and out of the way of the contact lever 13, should the said contact lever again descend because of a subsequent fall in the temperature.

A bracket 38 is secured to the outer side of the end 24 of the frame 1, this bracket 38 having an opening 39 which registers with the opening 25 in the said end 24 of the frame 1. The bracket 38 also has two flanges 40, one disposed above and the other below the opening 39, there being threaded orifices 41 in each of the flanges 40, in which are disposed screw electrodes 42, the screw electrodes 42 having thumb pieces 43 by which they may be readily adjusted relatively to the flanges 40. These screw electrodes 42 are disposed one above the free terminal 26 of the contact lever 13 and the other below the said terminal. The bracket 38 is insulated from the frame 1 by means of insulating material 44. A wire 45 is secured in electrical contact with the bracket 38, this wire 45 being led through an insu-

lated opening in the end 24 of the frame 1 to a binding post 46, extended through an opening in the bracket 2 and an opening in the top of the frame 1, so that the wire 45 may be secured to the binding posts within the frame 1, and the binding post may be secured to the said wire by turning a thumb nut 47 which engages a thread on the binding post and draws the head 48 of the binding post against a terminal of the wire 45, said terminal being held between the said head 48 and insulating material 49. In the same way the wire 29 is secured to a binding post 50. Wires 61, and 60 are led, one to a battery 51, and the other to a switch 52, the latter having a wire 53 leading to an electro-magnet 54 which commands an armature 55, secured to a member 56 having an indenture 57 with which engages a roller 58 mounted on an operating lever, as fully explained in my earlier application hereinbefore mentioned, bearing Serial No. 514,337. A wire 62 connects the battery 51 with the electro-magnet in the customary manner.

To the side of the frame 1 may be secured a bracket holder 59, in which may be disposed a thermometer.

In using the invention, the operator obtains the desired balance between the spring 21 and the thermostat 6, by turning the sleeve 18, thereby adjusting the relative position of the arm 13 with relation to the thermostat 6. When the desired adjustment has been made, any increase in the temperature in the incubator beyond a certain degree, will cause the thermostat 6 to expand sufficiently to raise the free terminal 26 of the contact lever 13, until the said free terminal is in engagement with the upper screw electrode 42, while any decrease in the temperature in the incubator beyond a certain point, will cause the thermostat 6 to contract, thereby drawing downwardly the contact lever 13 until its free terminal 26 contacts with the lower screw electrode 42. To assist in the adjustment, these screw electrodes may be turned so that they may be positioned as may be desired relatively to the flanges 40. On the contact of the member 27 of the free terminal 26 of the lever 13, with either of these screw electrodes, the circuit is closed and the current flows from the battery through the wires and energizes the electro-magnet 54, which draws the armature and thereby operates the member 56, which causes the roller 58 to be moved relatively to the indenture 57, thereby operating the lever to which the said roller 58 is secured, in the manner fully set forth in my previous application, referred to by Serial No. 514,337.

As I have fully explained, if desired, the wire 60 which connects the binding post 46 with the switch 52, may be connected directly with a bell, the wire 61 connecting

the binding post 50 with the battery 51, and the wires 53 and 62 being connected directly with an electric bell.

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

1. In an alarm actuating mechanism for incubators, a frame, a thermostat secured to the frame, a screw secured to the thermostat, a sleeve having an inner thread which meshes with the screw, a contact member adapted to be moved relatively to the frame, means for holding the contact member yieldingly in a predetermined position relatively to the sleeve, and an electrode disposed in the path of the contact member.

2. In an alarm actuating mechanism for incubators, a thermostat, a screw secured thereto, a sleeve having a head and an inner thread which meshes with the screw, a contact member adapted to be moved, a spring on the sleeve, one terminal of which presses against the head of the sleeve and the other terminal against the contact member, and an electrode disposed in the path of the contact member.

3. In an alarm actuating mechanism for incubators, a thermostat, a screw secured thereto, a sleeve having an inner thread which meshes with the screw, a contact lever having an opening through which the sleeve is disposed, a member to which the contact member is pivoted, two heads on the sleeve, one above the contact lever and the other below, and a spring disposed between the contact lever and one of the heads on the sleeve.

4. In an alarm actuating mechanism for incubators, a vertically disposed rod, guides therefor in which the rod is adapted to travel, a contact member secured to the rod, an electrode with which the contact member is adapted to contact, a thermostat, and means at a distance from the rod by which the thermostat is adapted for lifting the contact member.

5. In an alarm actuating mechanism for incubators, a rod, guides therefor, in which the rod is adapted to travel, a contact member secured to the rod, an electrode with which the contact member is adapted to contact, a thermostat, means by which the thermostat is adapted for lifting the contact member, and a spring for holding the rod yieldingly in a predetermined position relatively to the guides.

6. In an alarm actuating mechanism for incubators, a thermostat, a screw secured thereto, a sleeve having an inner thread which meshes with the screw, a contact member adapted to be moved, means for holding the sleeve yieldingly in a predetermined position relatively to the contact member, an electrode disposed in the path of the contact member, a rod, and guides

therefor in which the rod is adapted to travel, the contact member being secured to the rod.

7. In an alarm actuating mechanism for incubators, guideways, a rod for traveling therein, a contact lever pivoted to the rod, a spring for holding the rod yieldingly in a predetermined position relatively to the guideways, a thermostat, a screw secured thereto, a sleeve having an inner thread which meshes with the screw, means for holding the contact lever yieldingly relatively to the sleeve, and an electrode disposed in the path of the contact member.

8. In an alarm actuating mechanism for incubators, a thermostat, a screw secured thereto, a sleeve having an inner thread which meshes with the screw, a contact lever having an opening through which the sleeve is disposed, a member to which the contact lever is pivoted, two heads on the sleeve, one above the contact lever and the other below, a spring disposed between the contact lever and one of the heads on the sleeve, and guideways in which the member is adapted to travel.

9. In an alarm actuating mechanism for incubators, a rod, guideways therefor in which the rod is adapted to travel, a contact member secured to the rod, two electrodes spaced apart, between which a terminal of the contact member is disposed, a thermostat, means by which the thermostat is adapted for moving the contact member, and a pivoted member adapted for supporting the contact member out of engagement with one of the electrodes.

10. In an alarm actuating mechanism for incubators, a rod, guideways therefor in which the rod is adapted to travel, a contact member having an insulated contact plate secured to the rod, a thermostat, means by which the thermostat is adapted for moving the contact member, an insulated bracket having two flanges with threaded orifices disposed at opposite sides of the contact member, and screw electrodes disposed in the threaded orifices.

11. In an alarm actuating mechanism for incubators, a frame, a thermostat secured thereto, a screw secured to the thermostat, a sleeve having an inner thread which meshes with the screw, a contact member adapted to be moved relatively to the frame, means for holding the contact member yieldingly in a predetermined position relatively to the sleeve, an insulated plate on the contact member, an insulated bracket having two flanges with threaded orifices, disposed at opposite sides of the contact plate on the contact member, and screw electrodes disposed in the threaded orifices.

12. In an alarm actuating mechanism for incubators a contact member, means for holding the contact member at one end yield-

ingly in a predetermined position, an electrode with which the other end of the contact member is adapted to contact, a thermostat, and means engaging the contact member between the ends thereof by which the thermostat is adapted for moving the contact member.

13. In an alarm actuating mechanism for incubators, a thermostat, a sleeve having a head, means for connecting the sleeve with the thermostat, a contact lever, and spring means mounted on the sleeve adapted to abut against the head and to engage the contact lever.

14. In an alarm actuating mechanism for incubators a contact lever, a thermostat,

means connecting the thermostat with the contact lever, for operating the latter, an electrode adapted to be engaged by the contact lever, a pivoted member adapted for supporting the contact lever out of engagement with the electrode, and a spring for holding the pivoted member normally out of the path of the contact lever.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER MARTIN BRALY.

Witnesses:

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