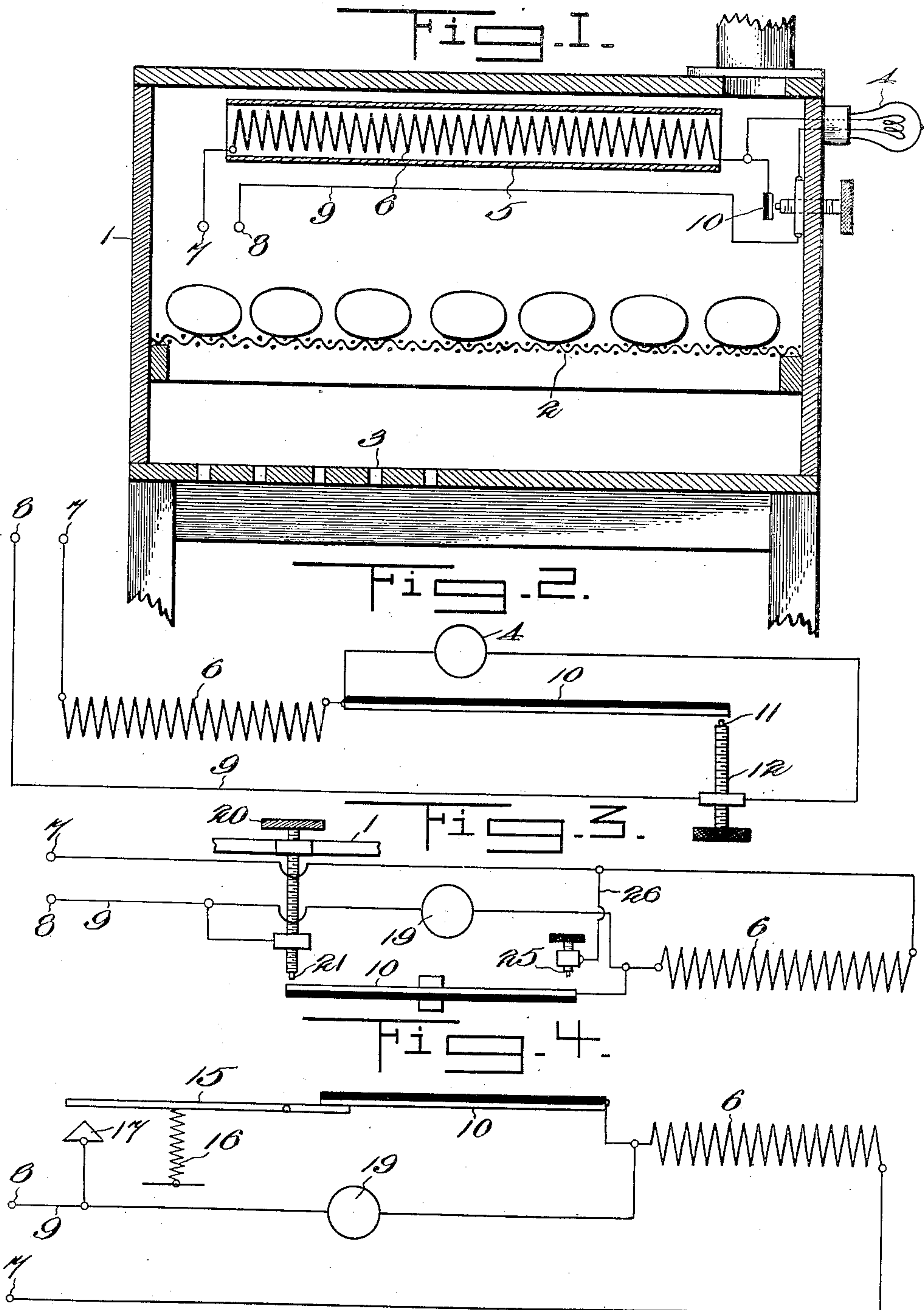


L. C. REED.
 SELF REGULATING INCUBATOR.
 APPLICATION FILED APR. 25, 1910.

965,837.

Patented July 26, 1910.



Witnesses

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UNITED STATES PATENT OFFICE.

LYMAN C. REED, OF NEW ORLEANS, LOUISIANA.

SELF-REGULATING INCUBATOR.

965,837.

Specification of Letters Patent.

Patented July 26, 1910.

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To all whom it may concern:

Be it known that I, LYMAN C. REED, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Self-Regulating Incubators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to incubators and has for its object to provide a heating means for an incubator which will insure against sudden changes of temperature, and therefore, against the chilling or overheating of the eggs.

To these ends, the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification in which like numerals refer to like parts in all the views: Figure 1 is a sectional view of an incubator with my invention applied thereto. Fig. 2 is a detailed diagrammatic view showing the arrangement of the circuits. Fig. 3 is a diagrammatic view illustrating a modified arrangement of circuits, and Fig. 4 is a diagrammatic view illustrating a still further modified arrangement of circuits.

1 indicates any suitable incubator provided with any suitable means 2, for supporting the eggs, 3 a ventilating means, and 4 any suitable lamp or signal to indicate when the thermostat has acted.

Located in any desired relation to the eggs is a heating element 5, comprising a resistance coil 6, which is fed from the mains 7 and 8. In series with this resistance coil is a signal lamp 4, as indicated, and the current entering at the main 7 continuously passes through the coil 6, the lamp 4, and finally returns to the main 8 as by the wire 9. In shunt with the lamp 4, is a thermostat 10, which normally closes contact at 11 with the adjustable means 12, joined at the wire 9 as shown and thereby provides a path of much less resistance for its current than does the lamp 4.

The resistance of the coil 6 is so chosen that when the current is passing through the thermostat, the heat radiated into the egg chamber is sufficient to hatch the eggs;

and the resistance of the lamp 4 is so chosen that when the thermostat is out of the circuit the heat from the coil 6 is still sufficient to keep the eggs from being chilled. It follows from this arrangement of circuits that the eggs cannot be chilled so long as the lamp shows that the current is passing.

As is well known, it has been heretofore proposed to control the temperature in an incubator by employing a thermostat in series with the heating unit, and to depend upon it to cut off and turn on the current by making and breaking its usual contact. But it is equally well known that the movement of such a thermostat and therefore the air gap it produces is so small that in spite of the small current employed, the contacts soon become pitted, thereby causing a poor regulation and the final failure of the incubator. By shunting the air gap as above disclosed, however, it not only prevents the eggs from being chilled but also prevents any arcing and therefore any pitting of the thermostatic contacts. It further follows that since the thermostat does not have to act so quickly in my circuit as it would should the eggs be in danger of chilling, that I can increase or compound the movement of the thermostat to any desired degree and thereby provide for any refinements of adjustment that may be necessary. Such an arrangement is illustrated in Fig. 4 wherein the thermostat 10 operates the lever 15 against the tension of the spring 16, to break the circuit or the contact 17, while the current continually passes through the coil 6 and the coil or lamp resistance 19.

Should it be desired to adjust the air gap from the outside of the incubator, any suitable means such as the screw 20 Fig. 3 may be extended beyond the walls of the incubator 1 and the contact 21 readily adjusted. Further should it be desired to provide against any dangerous or abnormal rise of temperature in the egg chamber, the coil 6 can be readily automatically cut out of the thermostatic circuit, while the lamp or coil 19 remains in series with said coil 6 as shown for example in Fig. 3. That is to say, an additional thermostatically controlled contact 25 may be provided which is located so far from the thermostat that it can only be closed after the contact 21 is in circuit and after a dangerous temperature has been reached in the egg chamber. A connection 26 joins the contact 25 with the main 7 as

illustrated, and it is evident that while the lamp or coil 19 continuously receives current through its heating unit 6 upon a dangerous rise of temperature, yet the contact 25 will, after the contact 21 is closed, short circuit the coil 6, and thereby cause the dangerous temperature to immediately fall, whereupon the contact at 25 will be again broken.

It is evident that those skilled in the art may vary the details of construction and the arrangement of parts without departing from the spirit of my invention and therefore I do not wish to be limited to such features except as may be required by the claims. Further it is understood that the shunted air gap combined with a signal lamp in an incubator is an important feature of my invention, as is also the multiplied movement of the thermostat, no matter what the circuit may be. The adjustment of the contacts from the outside, I also consider important and said adjustment is also applicable to all the circuits.

It is evident that the heating element 6, as well as the other parts may be duplicated as desired in order to get the best results.

What I claim is:—

1. In an incubator, the combination of a chamber; a heating means comprising a resistance in said chamber; and a second resistance comprising a signal lamp in series with said first resistance; a thermostat in series with said first resistance but in a shunt

circuit with said second resistance; and an adjustable contact adapted to be closed by said thermostat whereby the current through said lamp may be varied but not cut off, substantially as described.

2. In an incubator the combination of an egg chamber; a heating resistance in said chamber; a signal lamp in series with said resistance; and a thermostat provided with a contact adapted to be adjusted from the outside of said chamber in a shunt circuit with said signal lamp whereby the current through said lamp may be varied but not cut off, substantially as described.

3. In an incubator the combination of an egg chamber; a heating resistance in said chamber; a second resistance in series with said heating resistance; a thermostat in series with said heating resistance and in a shunt circuit with said second resistance; a contact in said shunt circuit adapted to be closed by said thermostat when the temperature in said chamber is normal; and a contact adapted to be closed by said thermostat when said first contact is closed and said temperature is abnormal, substantially as described.

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

LYMAN C. REED.

Witnesses:

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