

T. O. EDMOND.

THERMOSTAT.

APPLICATION FILED JUNE 4, 1908.

950,042.

Patented Feb. 22, 1910.

2 SHEETS—SHEET 1.

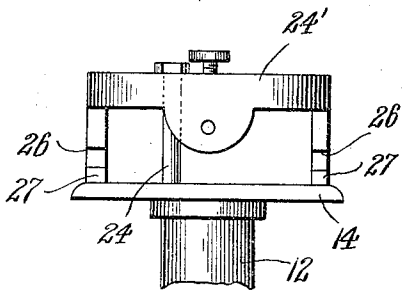
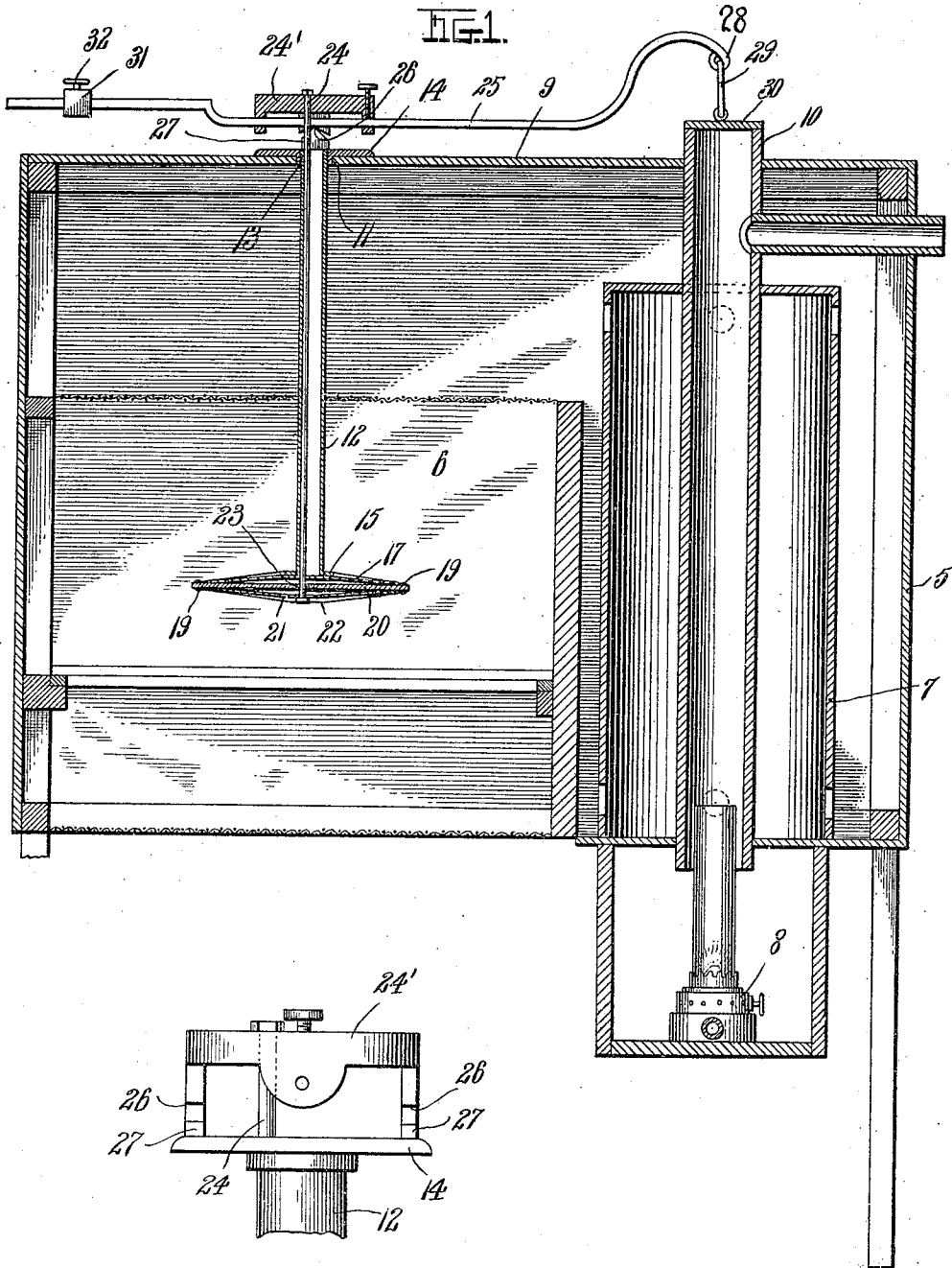


FIG. 4.

Thomas O. Edmond,

Inventor

Witnesses

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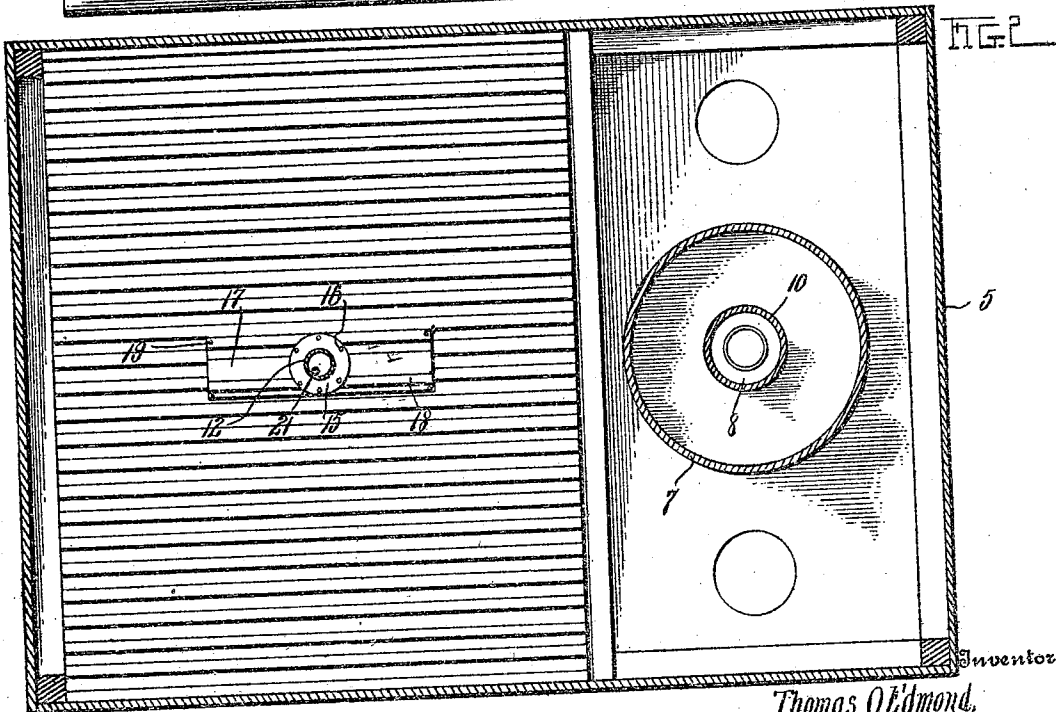
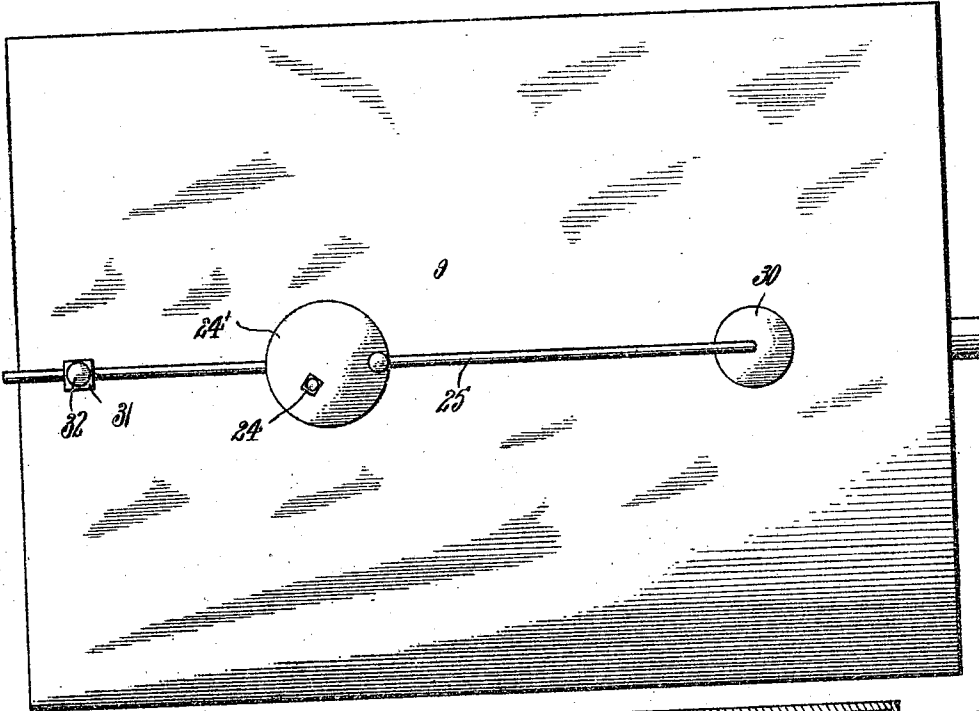
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FIG. 1

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UNITED STATES PATENT OFFICE.

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950,042.

Specification of Letters Patent.

Patented Feb. 22, 1910.

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To all whom it may concern:

Be it known that I, THOMAS OLIVER EDMOND, a citizen of the United States, residing at Cypress, in the county of Vanderburg, State of Indiana, have invented certain new and useful Improvements in Thermostats; and I do hereby declare the following of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to a thermostat for actuating a valve and is particularly adapted for use with incubators.

The primary object of the invention is the provision of a thermostat composed of a single piece of non-expansive material having connected thereto at opposite sides strips of expansive material, the same preferably formed of zinc, one of the strips being movable while the opposite strip is held immovable and the movable strip having connection with a rod adapted to actuate a regulator arm carrying a valve controlling the exhaust flue or pipe leading from the heated egg chamber of an incubator.

Another object of the invention is the provision of a thermostat arranged within the heating chamber of an incubator and composed of a plurality of strips of material one strip being of a material that is unaffected by heat while the other strips of material are subject to expansion due to the variation of temperature in the heated chamber of the incubator and which expansible strips are adapted to bulge in opposite directions with respect to the non-expansible strip and upon such movements actuate a rod for moving a regulator arm controlling a valve which will automatically open or close an exhaust pipe leading from the heating chamber of the incubator.

With these and other objects in view the invention consists in a construction, combination and arrangement of parts as will be hereinafter more fully described and as illustrated in the accompanying drawings which disclose the preferred embodiment however, changes variations and modifications may be made such as come properly within the scope of the claim hereunto appended, without departing from the spirit of the invention.

In the drawings:—Figure 1 is a vertical longitudinal sectional view through an incubator showing the invention applied

thereto. Fig. 2 is a top plan view thereof. Fig. 3 is a horizontal sectional view. Fig. 4 is a front view showing the rocking plate and the casting.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

In the drawings the numeral 5 designates an incubator of the ordinary construction having the usual heating chamber 6 for receiving eggs and which has communication with a heat supply drum or pipe 7 which directs the heat from a lamp or heater 8 to the said heating chamber. Projecting through the top 9 of the incubator 5 is an exhaust pipe 10 leading from the interior of said heating drum 7.

In the top 9 of the incubator is an opening 11 through which passes a vertically disposed tube 12 having an upper threaded extremity 13 engaging a casting 14 circumscribing said extremity and secured to the outer face of the top 9 to hold the tube in a rigid position and depending within the heated chamber 6 of the incubator. The opposite end of the tube 12 is in threaded engagement with a collar 15 secured by fasteners 16 to a zinc strip 17 having a plurality of corrugations 18 formed therein which latter extend longitudinally of the strip. To the opposite extremities of the said strip 17 is secured by rivets 19 a strip of wood 20 of non-expansible qualities and which extends throughout the area of the said zinc strip. On the face of the non-expansible wood strip 20 opposite the zinc strip 17 is a zinc strip 21 having its opposite ends supported and engaged by the rivets 19 so as to hold the same assembled with said wood strip and opposed zinc strip. This zinc strip 21 has corresponding corrugations 22 with respect to the corrugations 18 in the opposed zinc strip 17. In the wood strip 20 is an opening 23 through which passes a connecting rod 24, the lower end of which is fixed to the zinc strip 21 and which rod 24 passes upwardly through the tube 12 and has its opposite end connected to a rocking plate 24' carrying a regulator arm 25 which latter is adjustably supported in said plate, the same adapted for rocking movement upon knife edge terminals 26 of standards 27 projecting upwardly from opposite sides of the casting 14, secured to the top 9 of the incubator.

Flexibly connected as at 28 to one end of

the regulator arm 25 is a valve stem 29 carrying a valve disk 30 forming the valve for closing the outer open end of the exhaust pipe 10 leading from the heating drum 7 of the incubator. On the opposite end of the regulator arm is a slidable weight 31 having a set screw 32 and which forms a balance weight for said regulator arm.

In operation, when the temperature in the heating chamber 6 of the incubator reaches a certain degree so as to affect the zinc plates 17 and 21 respectively by causing the same to expand in opposite directions outwardly from the non-expansile wood strip 20 and in this bulging action of such plates the connecting rod 24 is lowered in the tube 12 thereby causing the rocking of the plate carrying the regulator arm 25 on the knife edges 26 of the standards 27 so as to unseat the valve 30 from the exhaust pipe 10 which will permit the excessive heat contained in the heating chamber 6 to be exhausted through the said exhaust pipe. Upon the decreasing of the temperature in the heated chamber 6 to a normal degree the zinc strips 17 and 21 will resume a flat condition so as to contact and lie against the non-expansile wood strip 20 thereby effecting a closing of the valve 30 to shut off the exhaust pipe 10 whereby the heat in

the heating chamber 6 is prevented from being exhausted therefrom.

What is claimed is—

A thermostat comprising a casting forming a base plate having rising therefrom a knife edge bearing, a tube having one end secured to the casting, a non-expansile strip, expansile strips secured at opposite ends of first named strip and arranged at opposite sides thereof, one of the expansile strips being secured to the opposite end of the tube, a rocking plate supported by said bearing, a regulator arm horizontally adjustable in said rocking plate, a rod slidably mounted in the tube and having its lower end connected to one of the expansile strips and its opposite end connected to the rocking plate to one side of its axis of movement, a valve loosely supported at one end of the regulator arm and adapted to control an exhaust port and an adjustable balance weight slidably mounted on the opposite extremity of the regulator arm.

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

THOMAS O. EDMOND.

Witnesses:

O. H. TIEMANN,
JOHN F. EDMOND.