

F. S. BARZEE.

INCUBATOR.

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934,652.

Patented Sept. 21, 1909.

2 SHEETS—SHEET 1.

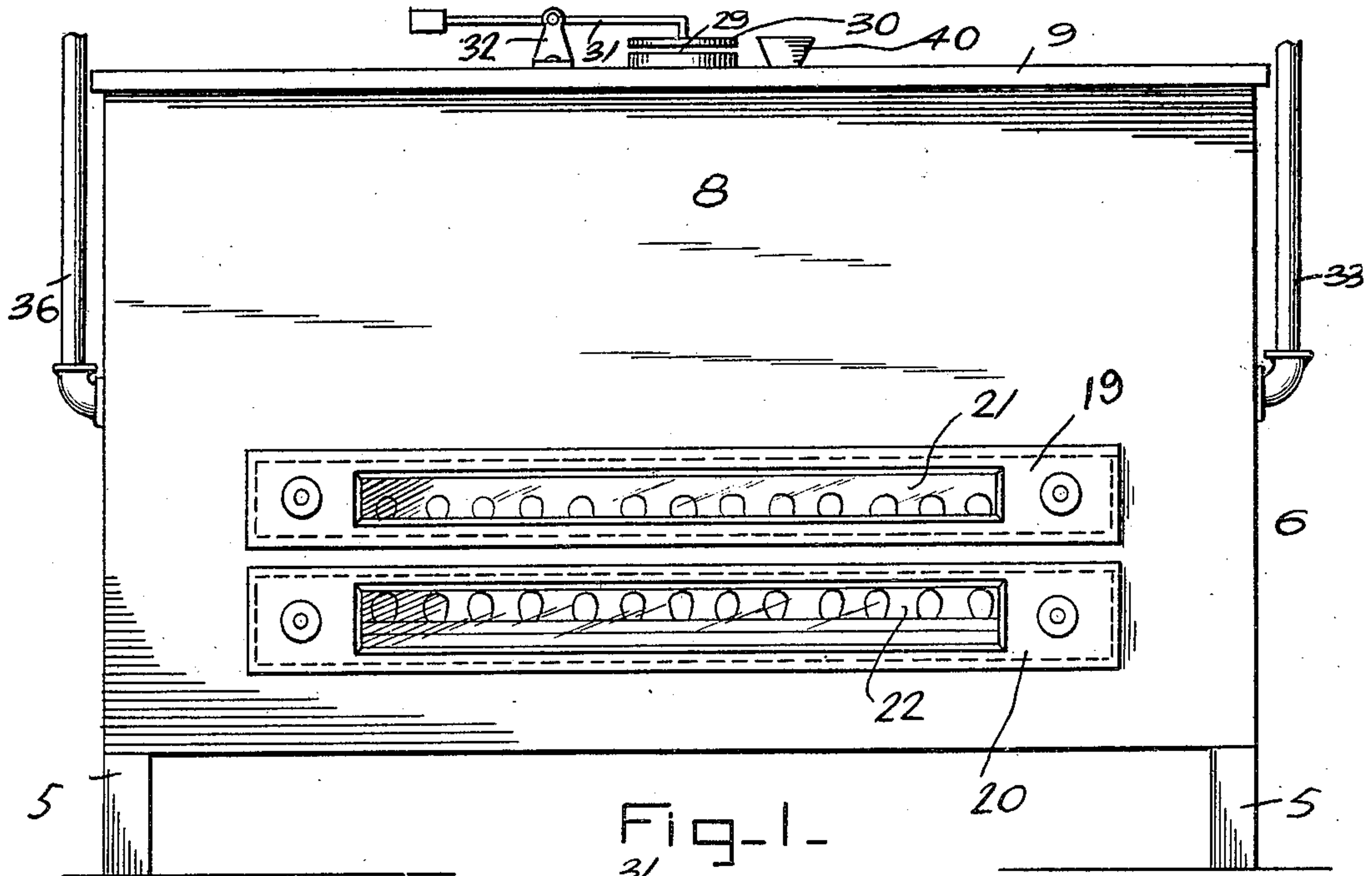


Fig. 1.

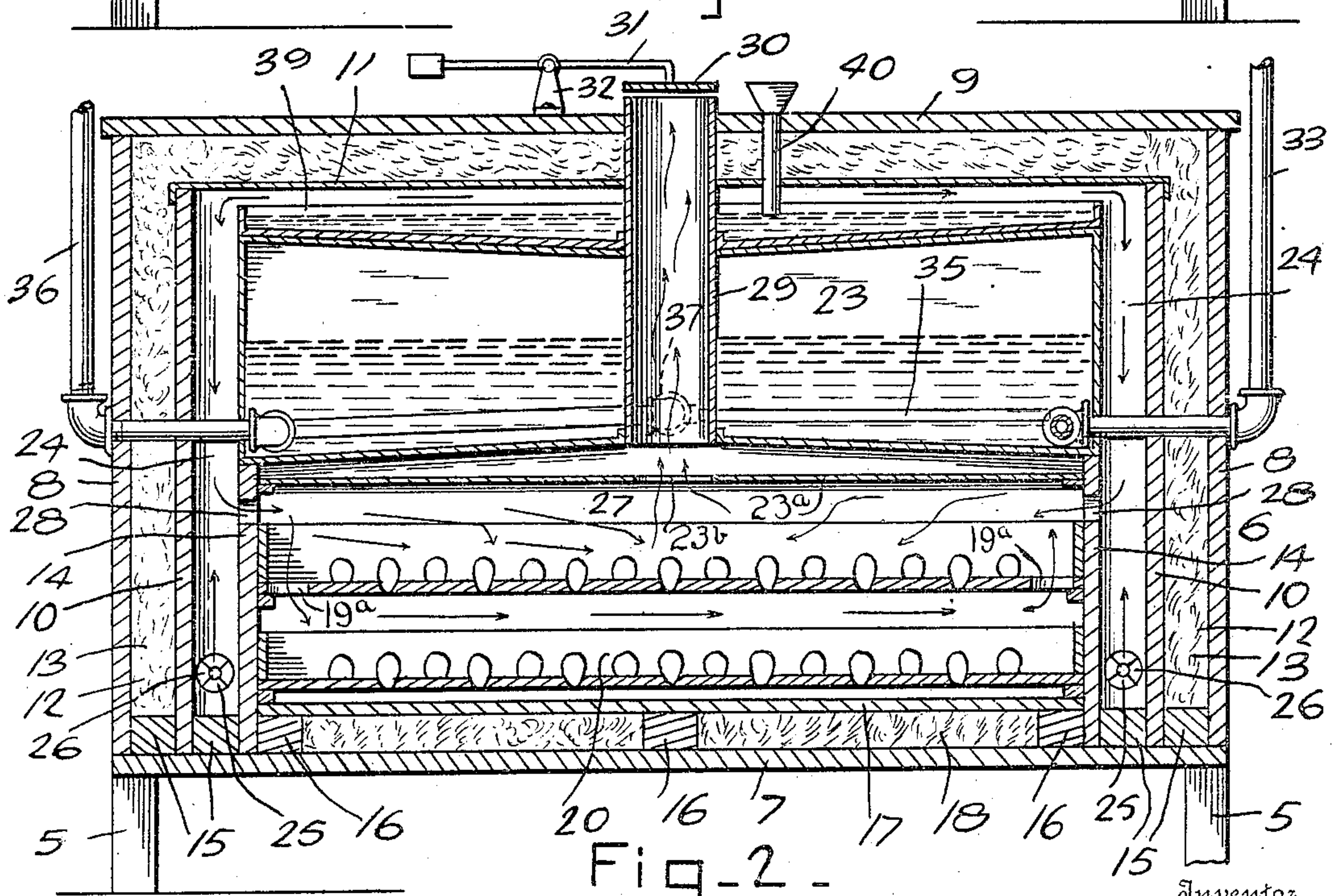


Fig. 2.

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# UNITED STATES PATENT OFFICE.

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INCUBATOR.

934,652.

Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed September 12, 1907. Serial No. 392,550.

*To all whom it may concern:*

Be it known that I, FRANCIS S. BARZEE, a citizen of the United States, residing at Everett, in the county of Snohomish, State of Washington, have invented certain new and useful Improvements in 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 new and useful improvements in incubators and in its broad conception, comprises a tank for circulating hot water and disposed in proximity to the egg tray and an air chamber surrounding the tank and opening into the interior of the brooder.

In connection with a brooder of the above general type the invention aims as a primary object to provide a novel ventilating system, automatic in its action whereby an adequate supply of warm fresh air and evenness of temperature is assured.

The invention aims as a further object to provide a novel construction, combination and arrangement of parts the details of which will appear in the course of the following description, in which reference is had to the accompanying drawings forming a part of this specification, like characters of reference designating similar parts throughout the several views wherein—

Figure 1 is a front elevation of an incubator constructed in accordance with the present invention. Fig. 2 is a central longitudinal vertical section thereof. Fig. 3 is a horizontal section thereof illustrating the construction of the water tank and the relation of the supply and drainage pipe. Fig. 4 is a vertical section taken centrally at right angles to Fig. 2.

In the accompanying drawings the numeral 5 designates the supporting legs and the numeral 6 designates generally the brooder supported thereon. The latter comprises a box formed with a bottom 7 and vertical outer wall sections 8, upon which is supported the top wall or lid 9. Imposed upon the bottom 7 are central wall sections 10 of less depth than the outer sections and disposed in similar arrangement but in spaced parallel relation. The sections 10 support at their upper ends a metallic top plate 11 and a dead air chamber 12, packed with heat insulating material 13 occurs con-

jointly between the several wall sections 8 and 10 and the top plate 11 and the top or lid 9. A third inner series of wall sections 14 are supported upon the bottom 7 within the confines of the sections 10. The sections 14 are of less depth than the sections 10 and are arranged similarly thereto in spaced parallel relation. The spaced relation between the various sections 8, 10 and 14 is maintained by cleats 15 imposed upon the bottom 7 and arranged between the several series of wall sections. Within the confines of the sections 14 are parallel cleats 16 which support a floor 17 spaced away from the bottom 10, heat insulating packing 18 being interposed between the bottom 17 and the floor 7.

The front wall sections of the various series above described are suitably constructed with registering openings to permit of the insertion and replacement of an upper egg tray 19 and a lower nursery drawer 20 having front panels 21 and 22 of glass. The side sections 14 are of course constructed to support the tray 19 and drawer 20. The tray 19 is formed in its bottom with openings 19<sup>a</sup> through which air circulates to the nursery drawer 20. Said tray 19 is arranged below the upper edges of the sections 14, in order that the latter may support in spaced relation to said tray, a water tank 23, the vertical walls of which form substantial continuations of the sections 14 and in such relation, together with said sections, coact with the sections 10 and the top plate 11 to afford a continuous warm air circulating chamber 24 provided with draft openings 25, equipped with suitable ventilating closures 26, the openings 25 being formed in the rear wall sections 8 and 10. The sections 14 likewise support slightly below the tank 23 and spaced therefrom, a distributing plate 23<sup>a</sup> having a central draft opening 23<sup>b</sup>. The chamber 24 communicates with the space 27 occurring between the tray 19 and the tank 23 by means of openings 28 formed in the sections 14. An open ended ventilator pipe 29 passes centrally through the tank 23, the top plate 11 and the top or lid 9, the pipe registering with the opening 23<sup>b</sup> and communicating by means of said opening with the chamber 27. The projecting upper end of the pipe 29 is closed by a damper plate 30 carried by the thermostatic arm 31, the latter being mounted upon a bracket 32, supported on the top or lid 9.



Water is fed into the tank 23 from a pump or elevated source of supply by means of a pipe 33 projected centrally through one of the walls of said tank adjacent the bottom thereof and connected by means of a T union 34 to laterally extending horizontal pipes 35 which discharge adjacent the respective front and rear walls of the tank 23 as shown more particularly in Fig. 3. A similarly arranged water drainage pipe 36 leads from the tank at a point directly opposite to the pipe 35, the pipe 36 having connection by means of a T union 37 with laterally extending pipes 38 similar in arrangement to the pipes 35. A moisture pan 39, surrounding the pipe 29 is imposed upon the top of the tank 23 and a feed tube or pipe 40 leads into the said pan. The latter is designed to contain water for the purpose of supplying moisture to the heated circulating air.

In use, when the temperature rises above a predetermined limit the plate 30 rises and air entering through the openings 25, circulates through the chamber 24, passing through the openings 28 and chamber 27, out, together with poisonous gases, through the pipe 29. The ventilation is thus automatic and the hot water, continuously circulating through the tank 23 assures of the evenness of the temperature. Inasmuch as the water enters adjacent the bottom at one side of the tank 23 and discharges from points adjacent the bottom at the opposite side of said tank, the discharging water being cooler than the entering water, the heat will rise and hence the air in the upper part of the chamber 24 is warmer than the

air in the chamber 27, the air descending and passing into said chamber being modified by the cool air entering through the openings 25.

The invention is simple in its structure and details, inexpensive to manufacture and practical and efficient in use.

From the foregoing description it will be seen that simple and efficient means are provided for accomplishing the advantages of the invention but, while the achievements herein shown and described are well adapted to serve the functions set forth it is obvious that any minor changes may be made in the proportion, shape and arrangement of the several parts without departing from the scope of the invention as designated in the appended claim.

What is claimed is:—

In an incubator, a casing, vertical walls rising from bottom of said casing and removed a distance from the sides of the latter, and containing opposed openings, a water tank mounted upon said vertical walls, and forming a hatching chamber below the same with the vertical walls, a water pan mounted upon the water tank, inlet water pipes communicating with said tank, and an exhaust pipe leading from said tank, and a ventilation pipe leading centrally from said hatching chamber, through the water tank and pan to the exterior of the casing.

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

FRANCIS S. BARZEE.

Witnesses:

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