

No. 751,383.

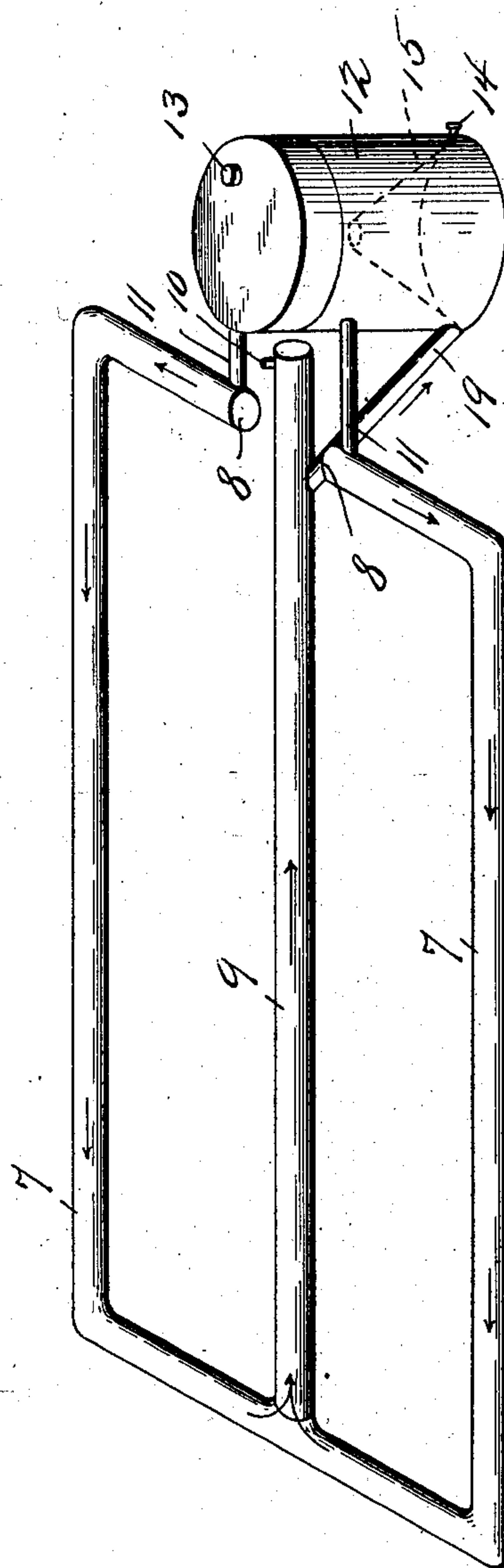
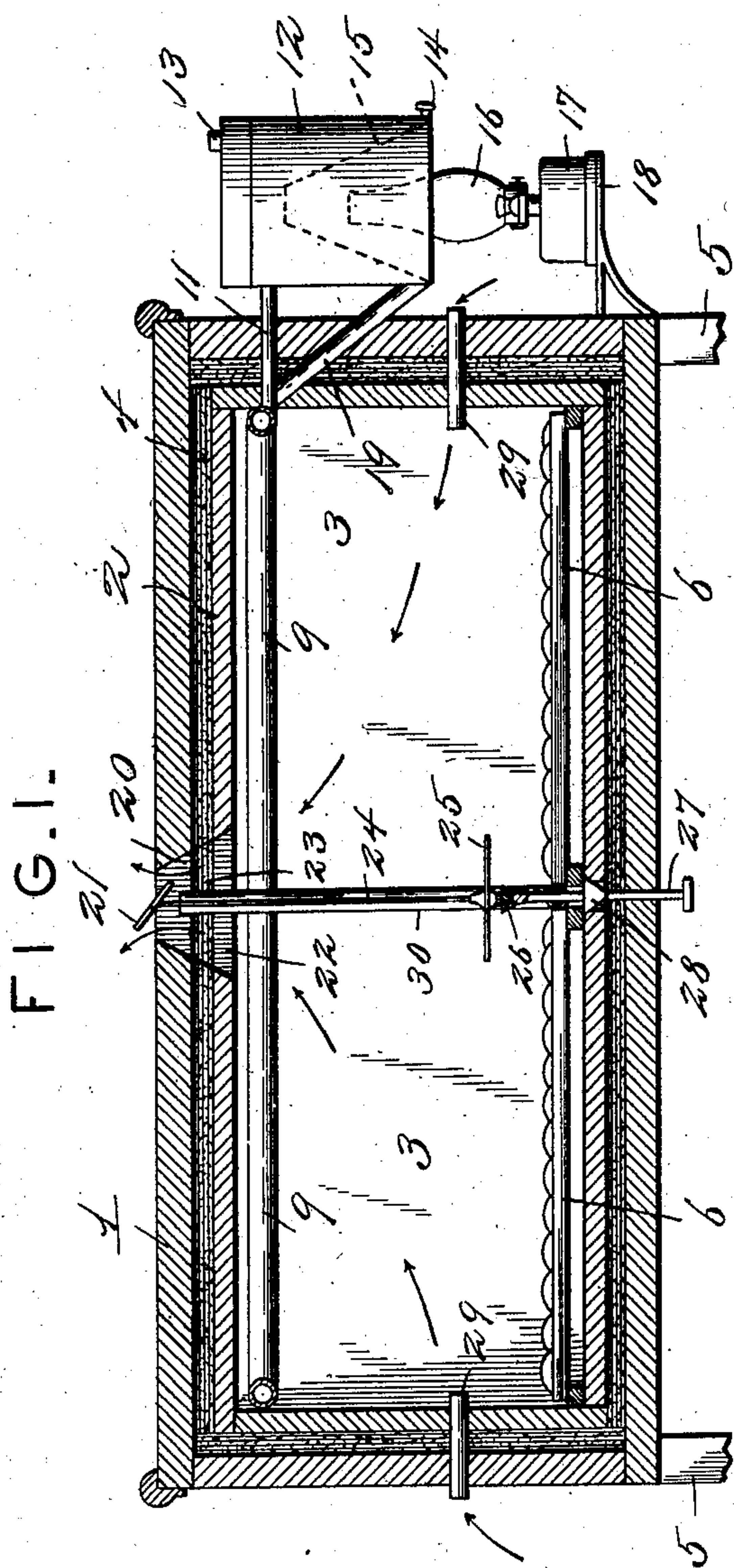
PATENTED FEB. 2, 1904.

N. CRUSER & J. W. CLEMENT.

INCUBATOR.

APPLICATION FILED JUNE 3, 1903.

NO MODEL.



Witnesses

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UNITED STATES PATENT OFFICE.

NEPHI CRUSER AND JESSE W. CLEMENT, OF FAIRVIEW, UTAH.

INCUBATOR.

SPECIFICATION forming part of Letters Patent No. 751,383, dated February 2, 1904.

Application filed June 3, 1903. Serial No. 159,953. (No model.)

To all whom it may concern:

Be it known that we, NEPHI CRUSER and JESSE W. CLEMENT, citizens of the United States, residing at Fairview, in the county of Sanpete and State of Utah, have invented new and useful Improvements in Incubators, of which the following is a specification.

This invention relates to incubators; and the primary object of the same is to provide heating means so arranged and operating as to economize in the use of fuel in arriving at the result sought.

A further object of the invention is to generally improve the structure of incubators and equip the same with devices for setting up a practical ventilation of an automatic nature in connection with heating means, whereby the egg-chamber of the incubator may be equably tempered and the heat of the liquid will be more evenly distributed.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a vertical longitudinal section of an incubator embodying the features of the invention. Fig. 2 is a detail perspective view of the heating apparatus.

Similar numerals of reference are employed to indicate corresponding parts in the views.

The numeral 1 designates an outer casing which is preferably formed of wood, as in ordinary incubator construction. At a suitable distance from the inner surface of the outer casing 1 an inclosing wall 2 is located and forms an egg-chamber 3, and between said wall 2 and the casing 1 a heat-non-conducting packing or filling 4 is interposed. It will be understood that the incubator-casing 1 will be provided with the usual means for gaining access to the egg-chamber, and said casing is held at a suitable elevation above the surface on which it rests by legs 5. The egg-trays 6 are arranged on the bottom of chamber 3, and the number of egg-trays employed will depend on the capacity of the incubator, it being obvious that the proportions and dimensions of the incubator may be varied at will.

In the top portion of the egg-chamber 3

heating means is located and consists of a rectangularly-shaped pipe 7, having the free ends 8 closed and spaced apart from each other, the opposite end of said pipe being continuous and having a central branch 9 of the same diameter extending therefrom and continuing through the space between the ends 8 and provided with a steam vent or escape 10. Connecting-pipes 11 of much smaller diameter extend from the closed ends 8 to the upper portion of a water tank or cylinder 12, having an upper removable plug 13 for filling the apparatus and a lower draw-off plug or analogous device 14. As shown by dotted lines, the tank or cylinder has an interiorly-arranged conical chamber 15, which is open at the bottom to permit a lamp-chimney 16 to project upwardly thereinto, forming part of a lamp 17, supported on a bracket 18 below the position of the said tank or cylinder. A return-pipe 19 projects from the bottom portion of the tank or cylinder upwardly at an angle of inclination to the branch pipe 9 to establish a thorough circulation of water through the system of pipes. The pipes 11 and 19 are completely filled by the heated water passing up from the tank or cylinder 12 and return to the latter; but the pipe 7, including its branch 9, is only about half filled to obtain the best heating results, and the steam that may be generated escapes through the vent 10 into the chamber 3 with beneficial effects in preserving the requisite amount of moisture necessary to induce incubation.

In the top of the outer casing 1 a ventilating-opening 20 is formed and normally closed by a tilting damper 21, which is centrally pivoted, and below the opening 20 a continuation of the aperture is formed by openings 22 and 23 in the inner wall and packing. Extending upwardly through the chamber 3 and the openings 22, 23, and 20 is a rod or wire 24, which is eccentrically attached to the lower side of the damper 21 and at its lower end connects with a wafer 25, having a screw-threaded stem 26, adjustable in the upper end of an adjusting-rod 27, which projects downwardly through the bottom of an incubator and is exteriorly accessible, the said rod

having a conical enlargement 28 thereon which maintains the same in proper position in relation to the bottom of chamber 3. By adjusting the rod 27 in opposite directions the tension on the wire or rod 24 may be varied to render the operation of the damper 21 more or less sensitive, and when the heat within the chamber 3 reaches a normal degree in accordance with a predetermined adjustment the said damper 21 will be forced open and the interior of the egg-chamber will be properly tempered. To assist in this beneficial ventilation, ventilating-pipes 29 extend through the opposite ends of the incubator and have their opposite terminals communicating, respectively, with the exterior atmosphere and the interior of said egg-chamber. As soon as the damper 21 is opened the circulation is set up, as indicated by arrows in Fig. 1, and the excess of heated air is permitted to escape, such escape continuing until the desired adjustment of the thermostat, including the rod 24, wafer 25, and rod 27, has been automatically resumed, and by this means the degree of temperature within the egg-chamber can be uniformly maintained without injury to the eggs. To relieve the incubator of gases and other impurities, a vent-pipe 30 extends from the level of the egg-trays upwardly to the opening 20.

The improved incubator by the arrangement of a heating means, as set forth, is economical in use of fuel, and the location of said means at the top of the egg-chamber will encourage the propagation and development of the germs within the eggs without liability of injury thereto, particularly in view of the automatic tempering mechanism.

Having thus described the invention, what is claimed as new is—

1. In an incubator, the combination with a casing having an opening through the upper portion thereof, and egg-trays in the bottom, a damper normally closing the opening in the upper portion of the casing and centrally furnished, thermostatically-controlled means connected to the damper and extending through the bottom of the casing, the ends of the casing having air-inlet means above the plane of the egg-tray, and heating means in the upper part of the interior of the casing.

2. In an incubator, the combination with a casing having an egg-chamber therein, and a heating means for said chamber comprising a rectangular pipe disposed in the upper part of the said egg-chamber and having the ends thereof closed and spaced apart from each other and also including a longitudinal pipe extending centrally therethrough through the space between the closed ends, a water-heating tank having means in the lower portion thereof to receive a lamp-chimney or analogous device, horizontal pipes connecting the upper portion of the tank with the ends of the rectangular pipe, and an inclined return-pipe attached to the bottom of the tank and the said longitudinal pipe, the horizontal pipes and return-pipe being of smaller diameter than the rectangular and longitudinal pipes.

In testimony whereof we affix our signatures in presence of two witnesses.

NEPHI CRUSER.

JESSE W. CLEMENT.

Witnesses:

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