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Patented Oct. 29, 1901.

M. M. JOHNSON.

HOT WATER OR HOT AIR HEATER FOR INCUBATORS OR BROODERS.

(Application filed Apr. 18, 1901.)

(No Model.)

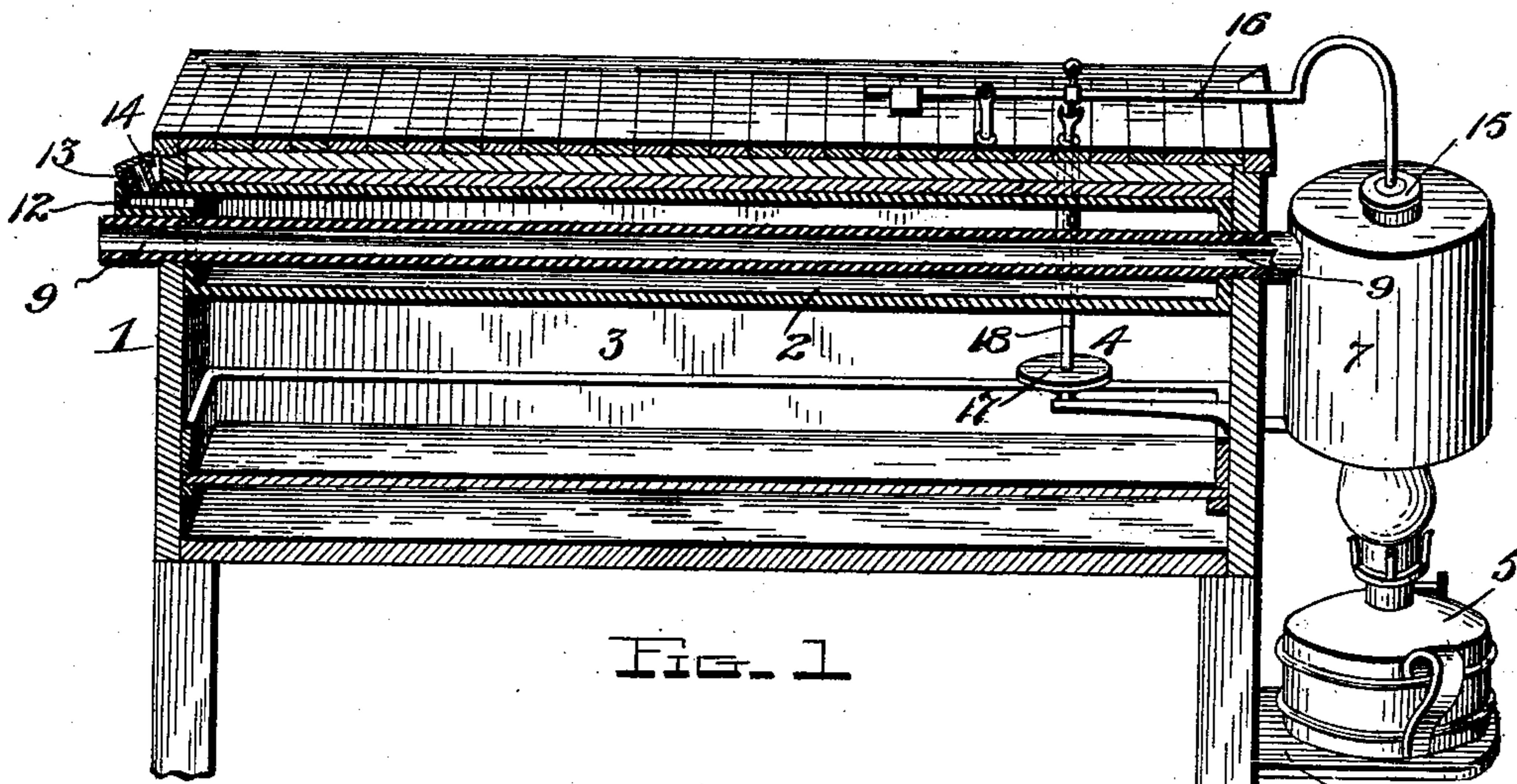


FIG. 1

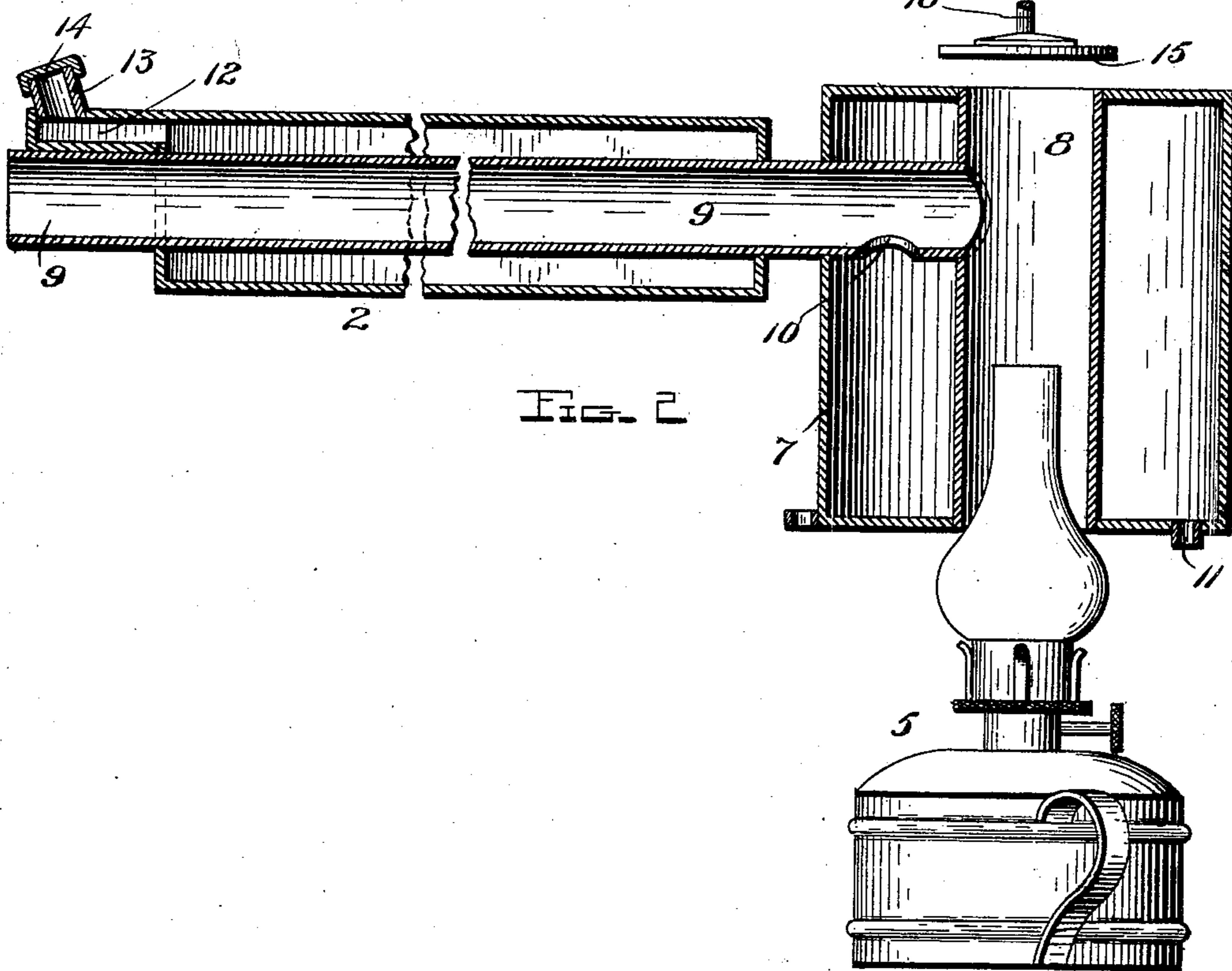


FIG. 2

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# UNITED STATES PATENT OFFICE.

MANANDER M. JOHNSON, OF CLAY CENTER, NEBRASKA.

HOT-WATER OR HOT-AIR HEATER FOR INCUBATORS OR BROODERS.

SPECIFICATION forming part of Letters Patent No. 685,334, dated October 29, 1901.

Application filed April 18, 1901. Serial No. 56,402. (No model.)

*To all whom it may concern:*

Be it known that I, MANANDER M. JOHNSON, a citizen of the United States, residing at Clay Center, in the county of Clay and State of Nebraska, have invented certain new and useful Improvements in Hot-Water or Hot-Air Heaters for Incubators or Brooders; and I do 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.

The invention relates to hot-water or hot-air heaters for incubators or brooders.

The object of the invention is to provide a device of this character which shall be simple of construction, durable in use, and comparatively inexpensive of production and by means of which all the heat generated from the lamp may be conducted direct to the hot-water or hot-air tank of the brooder or incubator or be permitted to escape without entering said tank when the conditions are such as to render it undesirable to admit heat to the incubator or brooder tank.

With this and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, which will be hereinafter more fully described, and particularly pointed out in the appended claim.

In the accompanying drawings, Figure 1 is a perspective view, partly in section, of a fragment of an incubator, illustrating the application of my invention; and Fig. 2 is an enlarged vertical sectional view through my improved heater.

Referring to the drawings, the numeral 1 designates the frame of an incubator or brooder containing the hot-water or hot-air tank 2, the warm chamber 3, and the temperature-regulating device 4.

5 denotes the lamp or heater, supported upon the shoulder 6, secured to the frame of the incubator or brooder, and 7 denotes a heating-drum. This drum surrounds and incloses a vertical pipe 8, which extends from end to end of the drum and is provided with a horizontal branch pipe 9, which extends through the drum, through the hot-water or hot-air tank 2, and has its end open to the atmosphere. The pipe 9 is provided with an opening 10, communicating with the interior

of the drum 7, and the drum is provided with an inlet-opening 11. The tank has an extension 12 projecting through the end wall of the incubator or brooder and over the end of the pipe 9 to receive an inlet or filling pipe 13, closed by a cap 14.

15 designates the regulating-damper, adapted to open and close the upper end of the pipe 6 and to be operated by the heat within the warm-chamber 3 through the medium of the temperature-regulating device 4. The temperature-regulating device is of the ordinary construction, consisting of a pivoted lever 16, to one end of which the damper is secured, operated by the expansion and contraction of the disk 17, located within the warm chamber 3, through the means of a connecting-rod 18. By referring to Fig. 2 it will be observed that the chimney of the lamp projects up into the pipe 8.

The products of combustion and heat passing up through the pipe 8 will, when the damper 15 is closed, escape through the branch pipe 9, passing through the hot-water or hot-air tank 2, heating the same, and then pass out to the atmosphere through the open end of the pipe 9. Air entering the inlet-opening 11 in the heating-drum 7 will be heated by coming in contact with the pipe 8 and branch pipe 9, and will find its escape through the opening 10 in the pipe 9, and will also pass on through the pipe 9, heating the contents of the hot-water or hot-air tank 2, and then pass off to the atmosphere. When the temperature within the warm chamber 3 rises above a predetermined point, the expansion of the disk 17 will cause the damper 15 to be removed from the top of the pipe 8, as will be readily understood. When the damper is thus raised from the top of pipe 8, the heat ascending from the lamp-chimney will entrain fresh air through the end of the pipe 9, which is opened to the atmosphere, and pass directly out of the upper end of pipe 8, and the heated air in the drum will escape through the opening 10 in the branch pipe 9 and pass into the pipe 8 and out through its upper end. Thus it will be seen that the heat and products of combustion will not pass entirely through the pipe 9 to heat the tank 2, and hence the incubator or brooder will be allowed to cool.

From the foregoing description, taken in connection with the accompanying drawings, the construction, mode of operation, and advantages of my invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

15 A heater for the purpose described, comprising a vertical pipe open at each end and provided with a horizontally-extending branch pipe which communicates with the vertical

pipe and is provided with an opening in its side, a chamber arranged in operative relation to the branch pipe to be heated and cooled thereby, a drum surrounding the vertical pipe and a portion of the branch pipe and closed at each end, said drum having an inlet near its base and communicating with the horizontal pipe through the opening in latter pipe, and means for controlling the draft through said vertical pipe, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MANANDER M. JOHNSON.

Witnesses:

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