P. M. WICKSTRUM.

INCUBATOR HEATER.

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906,843.

Patented Dec. 15, 1908

Fig. 1.

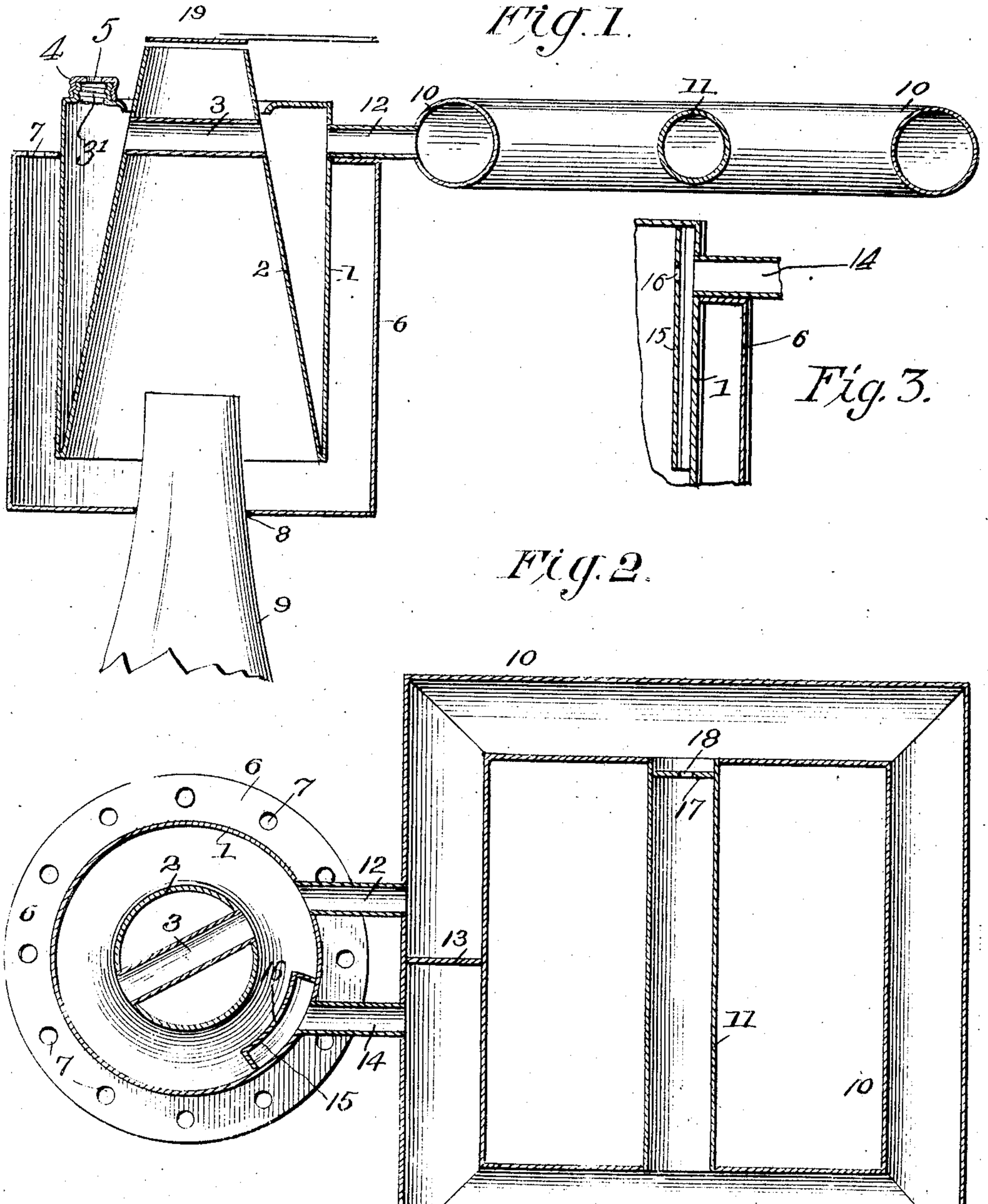

Fig. 3.

Fig. 2.

WITNESSES:

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PETER M. WICKSTRUM, OF LINCOLN, NEBRASKA.

INCUBATOR-HEATER.

No. 906,843. Specification of Letters Patent. Patented Dec. 15, 1908.

Application filed January 11, 1907. Serial No. 351,885.

To all whom it may concern:

Be it known that I, PETER M. WICKSTRUM, a citizen of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented a new and useful Incubator-Heater, of which the following is a specification.

This invention has relation to incubator heaters and it consists in the novel construction and arrangement of its parts as hereinafter described.

The object of the invention is to provide a hot water heater for incubators and brooders which consists primarily of a heating tank surrounded by a heat retaining drum. The said tank is of special construction and is connected with a radiator which is located within the incubator or brooder. The heating medium may be a lamp or its equivalent and the device coöperates with a damper for regulating the intensity of the heat.

In the accompanying drawing:—Figure 1 is a vertical sectional view of the heater, and Fig. 2 is a horizontal sectional view of the upper portion thereof. Fig. 3 is a detail view in vertical section showing the location of the hood and the pipe connecting it with the radiator.

The tank 1 is provided with the concentrically positioned vertically disposed conical tube 2 which is provided in its upper portion with a transversely extending connection or pipe 3. The top of the said tank 1 is provided with a water inlet nozzle 3′ which is closed by a cap 4 said cap having a vent 5. Through said opening water may be introduced into the tank 1 while the vent in the cap permits air and steam to escape therefrom. The drum 6 surrounds the major portion of the tank 1 and is provided at its top with a series of openings 7. The bottom of the said drum 6 is provided with an opening 8 which is adapted to receive the lamp chimney 9. The said opening 8 is of such diameter as to space the upper end of the chimney 9 from the inner side of the tube 2. The radiator 10 is preferably rectangular in plan and is made of metallic piping of copper or other material. The by-pass 11 connects the opposite sides of the said radiator together. The pipe 12 connects with the said radiator upon one side of the partition 13. The opposite end of the said pipe connects with the tank 1 at a point opposite one of the ends of the cross-connection 3. The pipe 14 connects with the radiator 10 upon the opposite side of the partition 13 from the pipe 12. The other end of the pipe 14 connects with the tank 1 under the hood 15 which is located within the said tank and which is provided with an opening near the lower end of the tank. The upper end of the hood 15 is provided with a vent 16 in its side which permits the escape of steam and air from the said hood. The by-pass 11 is provided with a partition 17 which in turn is provided with a minute opening 18. The damper 19 is arranged to operate over the upper end of the tube 2 in the usual manner.

The operation of the device is as follows:—The tank 1, having been filled with water and the lamp chimney 9 inserted in the tube 2, the heat from the said chimney passes up through the tube 2 heating the same and the cross connection 3. Thus the water in the tank 1 is heated and the hot water will rise to the surface of the tank from whence it will pass through the pipe 12 into the radiator 10. By reason of the fact that the partition 13 is located in the radiator 10 between the pipes 12 and 14 the heated water is compelled to make the circuit of the said radiator before it can pass out through the pipe 14. As the said radiator is located in the incubator or brooder the latter is heated by the hot water circulation above described. When the water passes from the pipe 14 back into the tank 1 it is introduced under the hood 15 and must descend to the lower portion of the tank 1 before it can again commingle with the water of the tank. Thus the water of lower temperature is returned from the radiator and introduced into the tank at the lower portion thereof where it is again heated and circulated as above described. The cross-connection 3 has one of its ends disposed opposite the end of the pipe 12 which connects with the tank 1 thus the heated water is short circuited or led directly across from one side of the tank to the said pipe 12 without having to pass entirely around the tube 2. This prevents water of higher temperature from being retained in the tank while water of lower temperature is circulated through the said radiator. In the radiator 10 it will be understood that the heated water will enter the by-pass 11; but in order to prevent a circulation of the full capacity of the by-pass 11 the partition 17 is provided and said partition is provided with

the opening 18 through which a small quantity of heated water may pass in order to prevent the water within the said by-pass 11 from becoming stagnant and lowering in temperature. In other words the water that passes through the opening 18 is just enough to keep the water within the by-pass 11 in motion.

When the temperature of the atmosphere falls the damper 19 will approach or close down upon the upper end of the tube 2. Consequently, the direct passage of the heat from the chimney 9 through the said tube is obstructed or checked entirely. Consequently the said heat will pass from the upper end of the chimney 9 down under the lower edge of the tank 1 and up along the outer side of the same and within the drum 6 and out of the said drum through the openings 7. Thus the heating surface of the tank 1 is automatically increased. At the same time the said drum holds the lamp chimney 9 in proper place and when the heat is passing directly from the said chimney through the tube 2 the said drum protects the tank 1 from external atmospheric conditions.

Having described my invention what I claim as new and desire to secure by Letters-Patent is:—

An incubator heater consisting of a hot air drum having an opening in its bottom for the supply of hot air, and a series of openings in its top for the escape of hot air; a water tank suspended in said drum, and having a water inlet nozzle in its top with a cap, and vent in the cap; a hood mounted on the inner side of the tank with an open lower end near the lower end of the tank, said hood extending to the top of the tank and having a vent near its upper end; a conical tube located in the tank and having the edge of its open lower end joined to the lower edge of the tank, and its upper end projecting through the upper end of the tank, and having a cross tube with its ends opening into the tank; a damper at the upper end of the conical tube; a radiator formed of piping with a by-pass connecting opposite pipes of the radiator and having a partition at one end with a restricted opening, and a second partition in the radiator pipe adjacent to the heater; a pipe connecting the tank with the radiator on one side of the second partition to conduct water to the radiator; and a pipe connecting the radiator on the other side of the second partition with the upper end of the hood to return water from the radiator to the water tank.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

PETER M. WICKSTRUM.

Witnesses:
C. M. WICKSTRUM,
B. FRANK.