No. 889,697. PATENTED JUNE 2, 1908.

G. H. LEE.

INCUBATOR.

APPLICATION FILED JUNE 25, 1907.

Fig. 1.

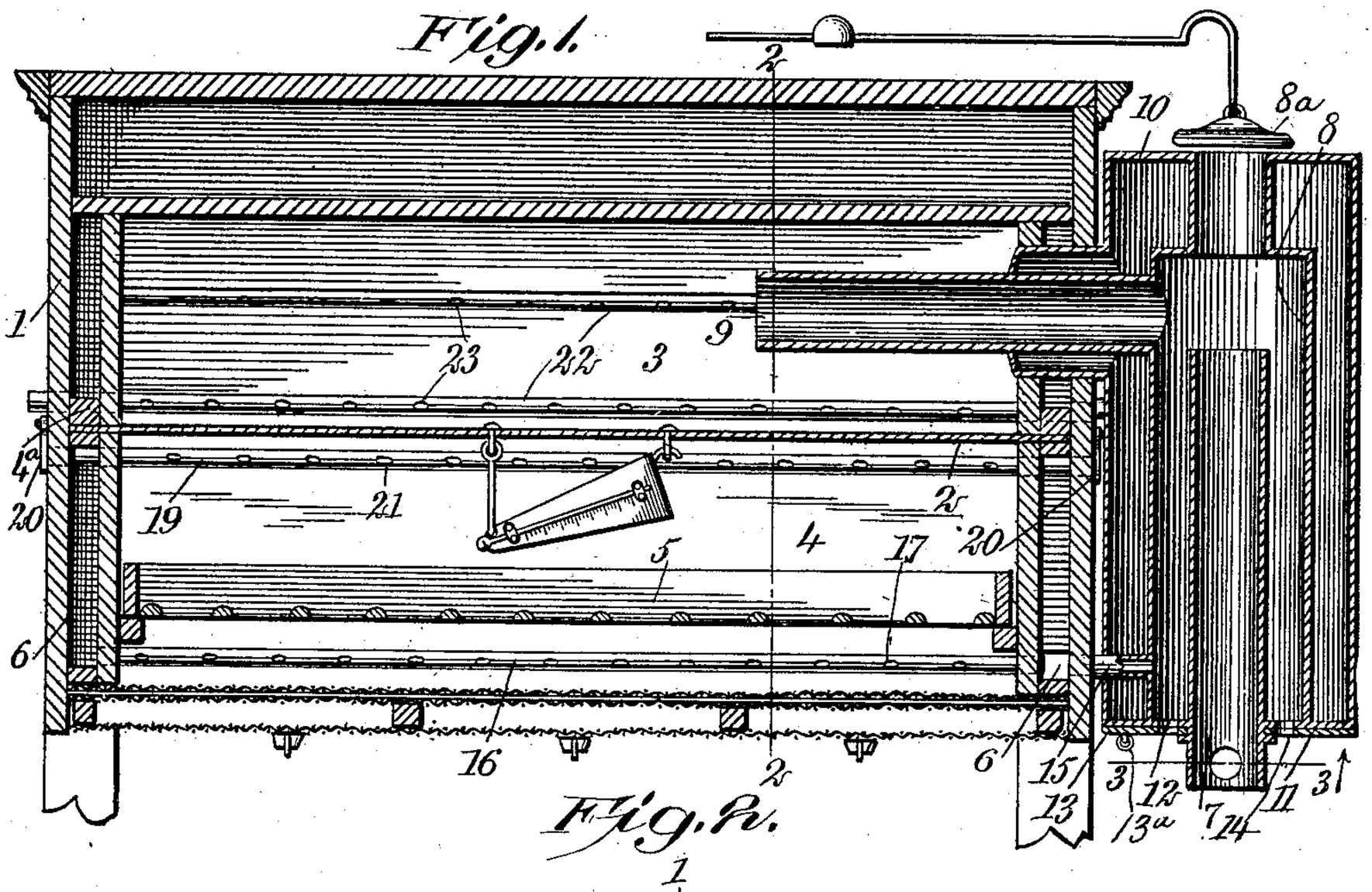


Fig. 2.

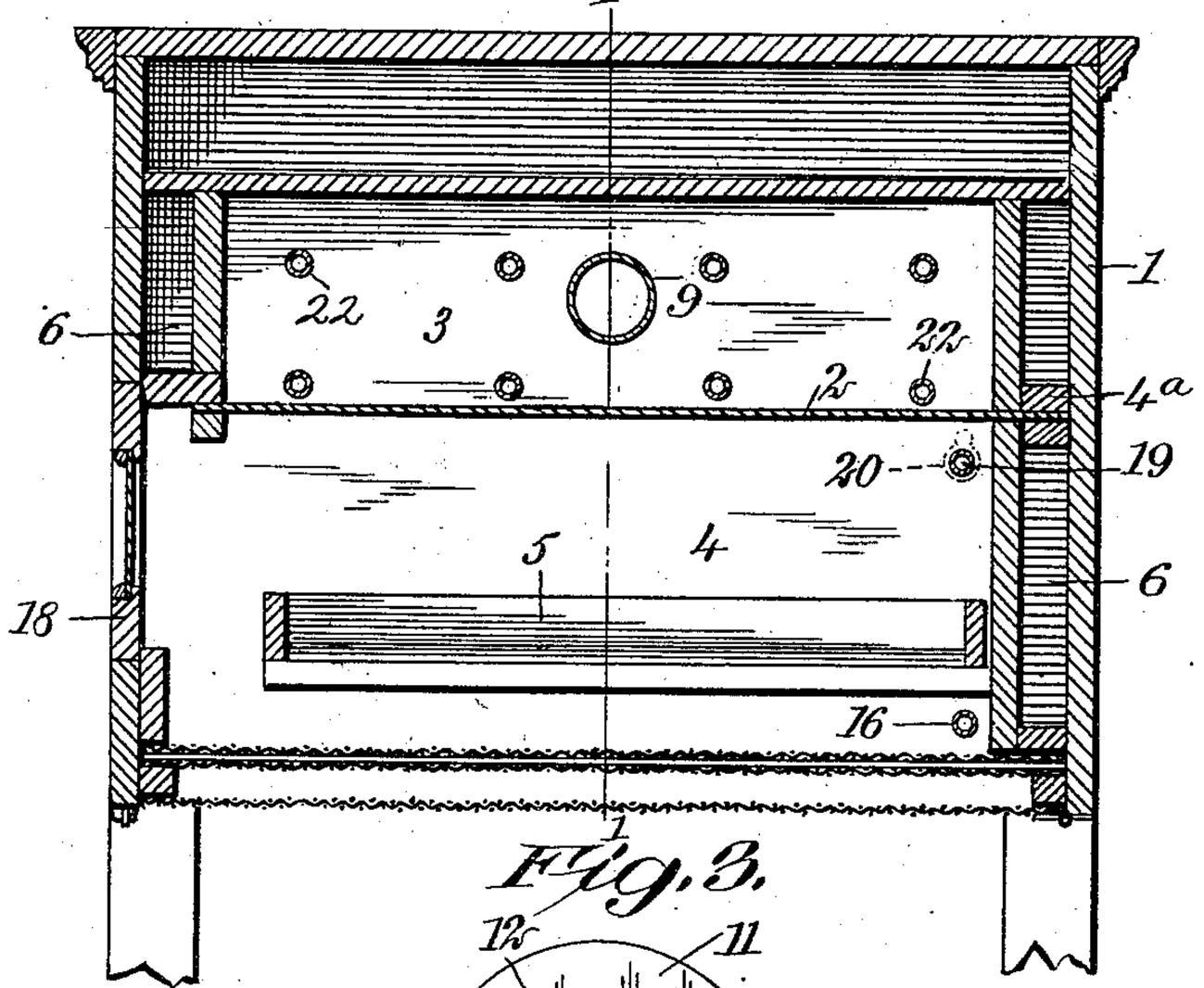
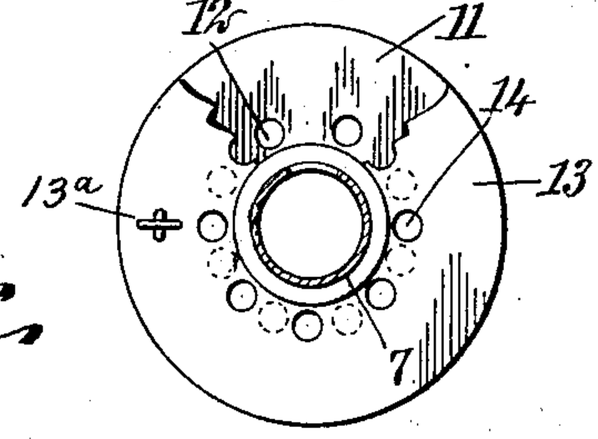


Fig. 3.



WITNESSES

Louis C. Starke

F. D. Cameron

INVENTOR

George H. Lee

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE HOWARD LEE, OF OMAHA, NEBRASKA.

INCUBATOR.

No. 889,697. Specification of Letters Patent. Patented June 2, 1908.

Application filed June 25, 1907. Serial No. 380,740.

To all whom it may concern:

Be it known that I, GEORGE HOWARD LEE, a citizen of the United States, and a resident of Omaha, in the county of Douglas and State of Nebraska, have invented a new and Improved Incubator, of which the following is a full, clear, and exact description.

This invention relates to incubators, and especially to means for ventilating the same.

The invention is especially applicable to the type of incubator patented to me October 2, 1906, Serial No. 832,395.

The object of the invention is to provide an improved construction of incubator which will insure a perfect air-tight joint between the egg-chamber and treating chamber, and further to provide improved means for ventilating the egg-chamber.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a vertical longitudinal section through an incubator provided with my invention; this view may be considered as a section on the line 1—1 of Fig. 2; Fig. 2 is a vertical cross section through the incubator, taken on the line 2—2 of Fig. 1; and Fig. 3 is a horizontal section on the line 3—3 of Fig. 1 and looking upwardly; this view illustrates one construction of a damper for regulating the ventilating means.

Referring more particularly to the parts, 1 represents the incubator body, which is of the usual box form. It is divided by a horizontal diaphragm 2 into a heating chamber 3 above the diaphragm, and an egg chamber 4 below the same. In the egg chamber 4 the usual egg tray 5 is provided. Except at the front this diaphragm extends completely through the inner wall A with its edges against the outer wall B and is secured between cleats 4ª in the double wall as shown.

The walls of the incubator body are made double so that an air space 6 is provided on all sides. Except on the end wall near the heater, this space is filled with cotton or similar material. Heat is supplied to the heating chamber 3 by means of a lamp not shown, the flame of which is disposed under the chimney 7. This chimney is surrounded by a hood 8 of enlarged diameter, and from this hood there extends a horizontal flue 9 which projects into the interior of the heating chamber as shown. The entire hood and a portion of the flue 9 are incased in a jacket 10, which jacket is provided with a lower head 11. Immediately around the chimney this head 11 is provided with a plurality of draft openings 12, and on the under side of the head there is attached a disk or damper plate 13, which is similarly provided with openings 14 which may aline with the openings 12, as will be readily understood. When in alinement as suggested, the entrance of air into the hood from the outside is permitted, but when they are closed, the entrance of air at this point is cut off. The damper is provided with a knob or ring 13ª as indicated. Near its lower portion, the interior of the hood 8 is in communication with the air space 6 through the medium of a short pipe or nipple 15. The upper end of the hood is open and is partially closed by a damper 8ª as shown.

In the lower portion of the egg chamber, I provide a horizontally disposed ventilating outlet tube 16. This tube extends from end to end of the incubator, and one of its ends is in communication with the air space at the end of the body. Thus, it will be seen that this tube has no connection with the outer air; it is simply for the purpose of opening communication between the egg chamber and the nipple 15, and for this purpose it is provided throughout its length with a plurality of small openings or perforations 17. This tube 16 is disposed near the rear wall of the incubator as shown in Fig. 2; that is, it is adjacent to the wall which is opposite to the door 18.

In the upper portion of the egg chamber and above the tube 16, I provide a ventilating inlet tube 19. This tube extends completely through the incubator and through the outer walls thereof, the ends of the tube being normally closed by caps 20 pivotally attached to the outer side of the end walls of the body as described in the patent referred to above. Throughout its length within the egg chamber, this tube is provided with a plurality of openings or perforations 21, through which air may pass when flowing into the egg chamber.

In the upper and lower portion of the heating chamber a plurality of outlet tubes 22 are provided, which extend completely through

the body of the incubator, so that their ends project beyond the walls thereof, as indicated most clearly at the left of Fig. 1. The ends of these tubes are open, and throughout their length within the heating chamber, they are provided with openings or perforations 23.

In the operation of the incubator, the heated gases from the lamp pass up the chimney 7 and through the flue 9 into the heating chamber. In this way an upward draft is created in the hood surrounding the chimney. This creates a suction in the tube 15, so that the air in the air space 6 is drawn into the hood. In this way an inlet draft is produced in the openings 17 in the ventilating tube 16, so that the air from the interior of the egg chamber is drawn off. The damper plate 13 admits of a nice regulation of the degree of draft produced, for if this damper is closed, the draft will be increased through the openings 17, and vice versa. When the caps 20 are opened, a copious supply of fresh air is admitted through the tube 19 and the openings 21 into the upper portion of the egg chamber. In this way the cool air from the room is admitted near the diaphragm of the egg chamber, which is the highest heated point of the chamber. The cool air near the bottom of the egg chamber is being constantly drawn off through the tube 16. In this way the even temperature of the egg chamber is maintained and nicely controlled.

Arranging the diaphragm 2 so that its edges pass through the inner wall is a valuable feature, as it renders the joint at the diaphragm absolutely air-tight. It is difficult to make an air-tight joint at this point where the edges of the diaphragm are clamped between cleats on the inner face of the inner wall. In addition to this, the construction is neater and dispenses with cleats or moldings in the upper portion of the egg chamber.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. An incubator body having an egg chamber with a ventilating tube passing therefrom, a flue leading into said body, a hood having an opening below and communicating with said flue, a chimney from which heated gases escape in an upward direction into the interior of said hood, whereby an upward air current is induced within said hood, and entering through the said opening of said hood, and a damper regulating said opening, said ventilating tube being connected with said hood to withdraw foul air from said egg chamber.

2. An incubator body having a double wall, a diaphragm dividing said body into an egg chamber and a heating chamber, and passing into said double wall, and cleats within said double wall securing the edges of said diaphragm.

3. An incubator having a chimney at the side thereof to receive a lamp, a hood surrounding said chimney with openings at the base thereof and having a laterally extending tube projecting into the incubator, said chimney being open above and delivering an upward current of gases into said hood, inducing an upward draft of air through said hood and through said opening, and an annular damper at the base of said hood, regulating the degree of opening of said openings, said incubator having an egg chamber communicating with said hood, whereby the upward draft in said hood withdraws the foul air from said egg chamber.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE HOWARD LEE.

Witnesses:
F. E. COATSWORTH,
R. A. JOHNSTON.