

No. 749,858.

PATENTED JAN. 19, 1904.

G. HACKER.
INCUBATOR.

APPLICATION FILED JULY 6, 1903.

NO MODEL.

Fig. 1.

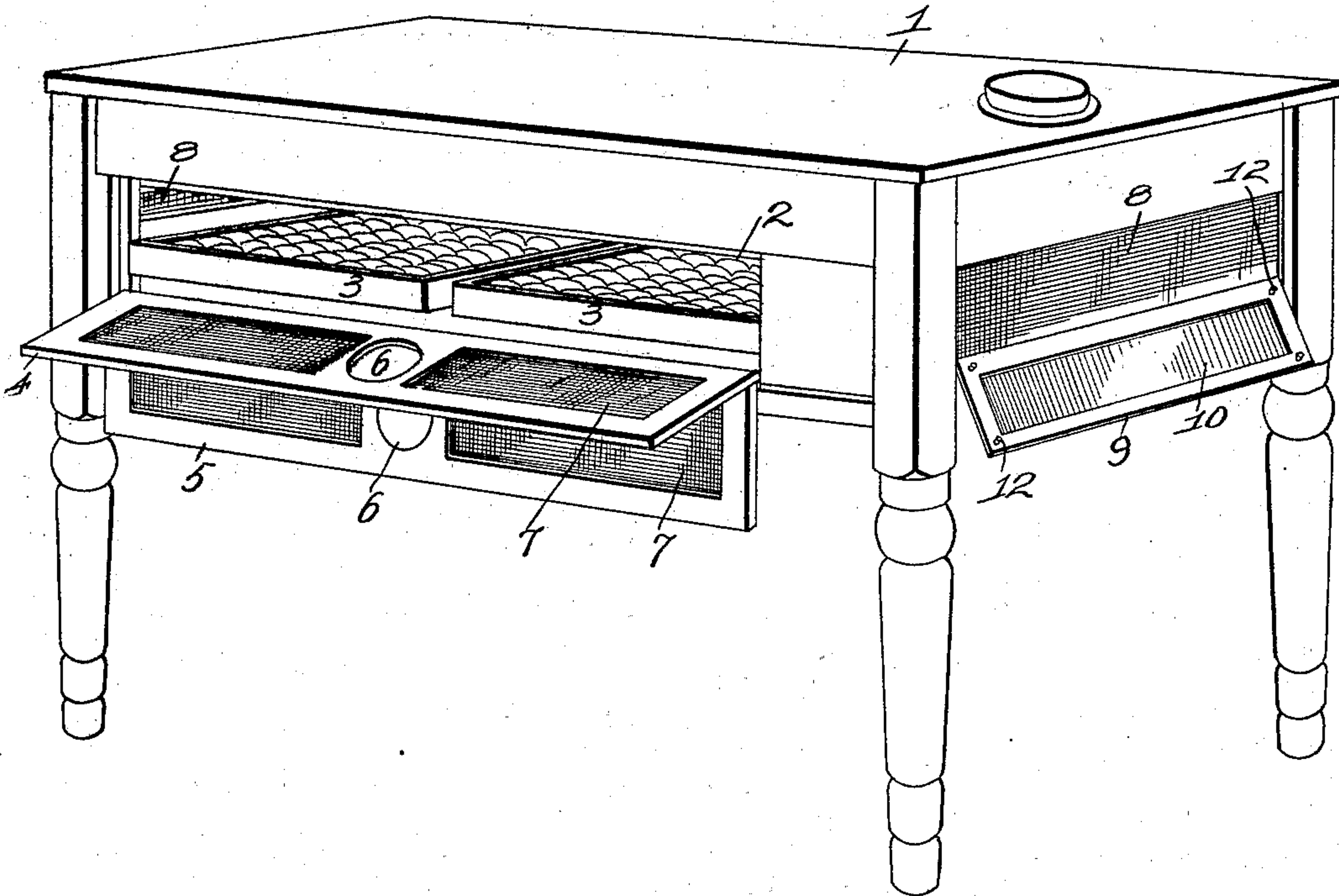
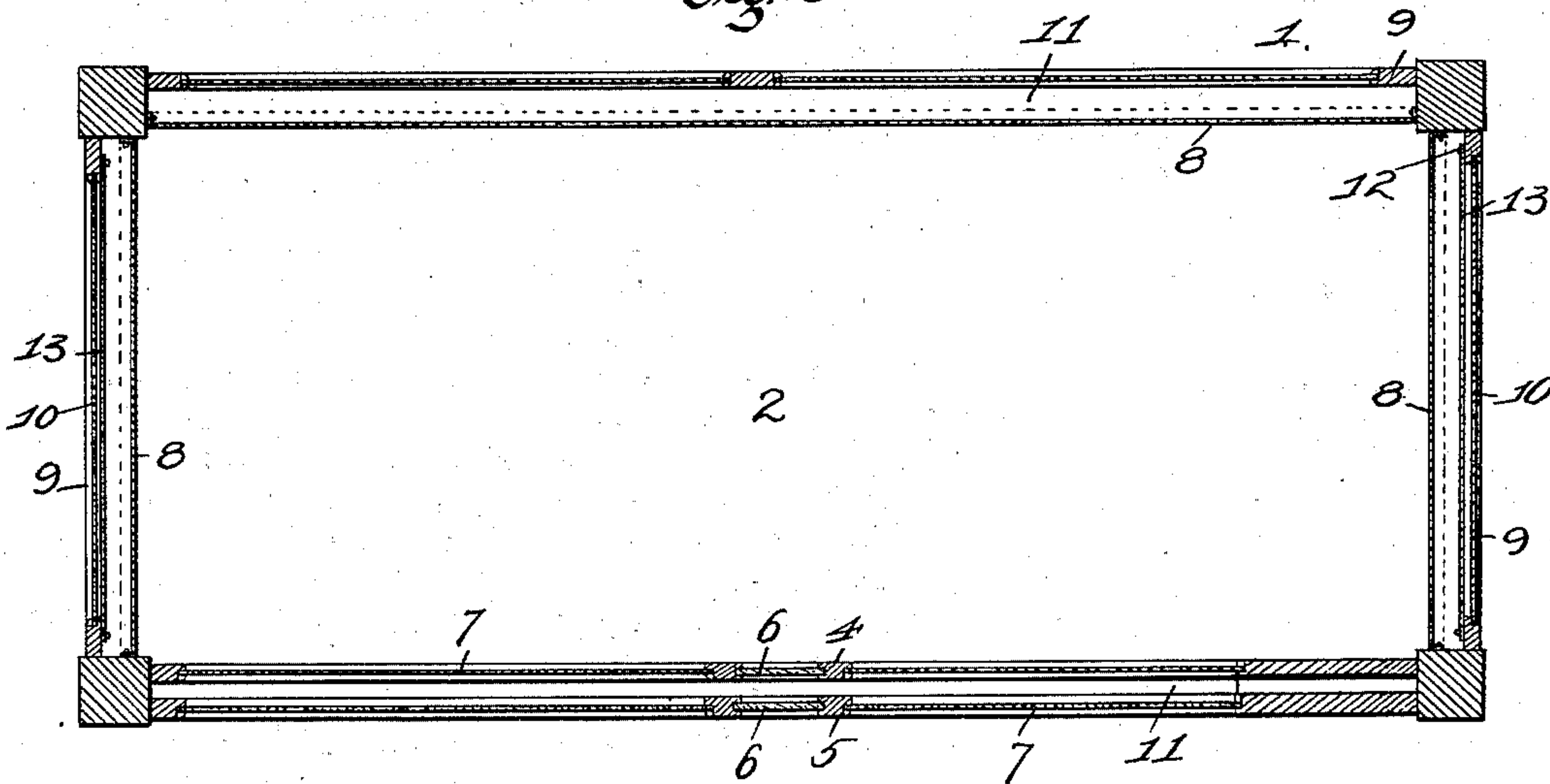


Fig. 2.



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UNITED STATES PATENT OFFICE.

GEORGE HACKER, OF ST. LOUIS, MISSOURI.

INCUBATOR.

SPECIFICATION forming part of Letters Patent No. 749,858, dated January 19, 1904.

Application filed July 6, 1903. Serial No. 164,295. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HACKER, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Incubators, of which the following is a specification, containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in incubators, and has for its object to provide an incubator having wall-openings extending from the exterior of the incubator through the casing into the egg-chamber through which the exterior atmosphere shall have direct ingress through strips of perforate material, thus providing an ample supply of oxygen to the egg-chamber, as well as means for retaining the desired degree of heat therein.

Heretofore incubators have been constructed upon various systems of ascending and descending ventilation, such incubators being provided with imperforate walls, usually double walls, provided with a packing of paper, asbestos, or other non-conducting material. With the ventilators used in the prior art adequate ventilation, combined with a perfect distribution of fresh air in the egg-chamber, has not been obtained. The consequent deficiency of oxygen supply has resulted in imperfect incubation and the crippling or death of a large percentage of chicks in the shell.

The object of my present invention is, therefore, to secure the free admission of air laterally and directly to the egg-chamber and its proper and equal diffusion through the egg-chamber, while making due provision for the maintenance of the proper degree of heat within the egg-chamber.

In the drawings, Figure 1 is a perspective view of an incubator embodying my invention. Fig. 2 is a horizontal transverse mid-section of the same.

Referring to the drawings, the casing of the incubator is indicated by the numeral 1, the egg-chamber by the numeral 2, and the egg-trays by the numeral 3.

At the front of the casing 1 and egg-chamber 2 the door-frames 4 and 5 are hinged. Instead of these door-frames being glazed, as

in the incubators of the prior art, I have provided them with the circular windows 6, through which thermometric readings may be made.

Each of the door-frames 4 and 5 is provided with the strips 7, which are of cloth or similar perforate and pervious material.

The sides and back of the casing 1 are provided with openings extending through the casing 1 and into the egg-chamber 2, the inner sides of said openings being provided with the sheets 8, which are of like material as the sheets 7, and the outer sides of said openings are provided with the hinged door-frames 9, which are covered with sheets 10 of the same or similar material as the sheets 7 and 8. I have thus provided an egg-chamber to which the air has comparatively free access from all sides and at all times during the process of incubation.

When the incubator is operated in a room in which the outer temperature is from 60° to 70° Fahrenheit or over, the door-frames 5 and 9 are left open. When the outer temperature is below 60° or thereabout, the door-frames 5 and 9 are to be closed, forming the air-spaces 11, which serve to retain heat within the egg-chamber 2.

It is obvious that any or all of the doors 9 may be closed or left open to meet the varying degrees of temperature in which the incubator is operated.

By the described means I have provided an incubator in which the supply of oxygen is at all times equal to the demands of incubation, and in its use the embryo develops as quickly and vigorously as in natural incubation, and the air-space in the egg is at all times the same in size as in natural incubation. Furthermore, in the use of my incubator it is not necessary to remove the egg-trays 3 from the casing 1 or to leave the door 4 open for the purpose of cooling off or airing the eggs, as is done in the use of the incubators of the prior art in the attempts of the operator to overcome the deficiency of oxygen in the egg-chamber.

For the purpose of securing moisture supply when the incubator is operated in a dry situation or for adding moisture during the

latter days of the period of incubation I have provided the doors 9 at the ends of the incubator with buttons 12, upon which when desired a moistened strip 13 of cloth or similar
5 perforate and pervious material is stretched and buttoned.

Furthermore, the function, mode of operation, and result of my invention are all attained by the establishment in an egg-chamber
10 of an opening directly communicating with the outer atmosphere and a sheet of perforate and pervious material (such as cloth or paper) inserted in such opening to close the opening for the purpose of retaining heat
15 in the egg-chamber, but at the same time gradually and constantly admitting the fresh air directly to the egg-chamber.

Having thus described my invention, what I claim as new, and desire to have secured to
20 me by the grant of Letters Patent, is—

1. In an incubator, an egg-chamber provided with an opening extending directly from the egg-chamber to the exterior of the incubator, and a sheet of perforate and pervious
25 material whereby the opening is closed, substantially as described.

2. In an incubator, an egg-chamber provided with wall-openings extending directly from the egg-chamber to the exterior of the
30 incubator, and strips of cloth or other perforate substance whereby the wall-openings are covered, substantially as described.

3. In an incubator, a casing provided with an egg-chamber, wall-openings extending
35 through the casing and into the egg-chamber, door-frames mounted in the wall-openings and strips of cloth or other perforate material mounted on the door-frames, substantially as described.

4. In an incubator, a casing provided with an egg-chamber, wall-openings extending
40 through the casing and into the egg-chamber, an inner door-frame and an outer door-frame

mounted at the front of the egg-chamber, the openings in the door-frames being covered
45 with sheets of perforate and pervious material, substantially as described.

5. In an incubator, a casing provided with an egg-chamber, wall-openings extending
50 through the casing and into the egg-chamber, an inner door-frame and an outer door-frame mounted at the front of the egg-chamber, the openings in the door-frames being covered with sheets of perforate and pervious
55 material, the side and back wall-openings being provided upon their inner sides with sheets of perforate and pervious material, and door-frames mounted upon the outer sides of the last-named wall-openings and covered with
60 sheets of perforate and pervious material, substantially as described.

6. In an incubator, a casing provided with an egg-chamber, wall-openings extending
65 through the casing and into the egg-chamber, an inner door-frame and an outer door-frame mounted at the front of the egg-chamber, the openings in the door-frames being covered with sheets of perforate and pervious material, the side and back wall-openings being
70 provided upon their inner sides with sheets of perforate and pervious material, door-frames mounted upon the outer sides of the last-named wall-openings and covered with sheets of perforate and pervious material, the door-frames in the side and back wall-openings being
75 provided with buttons, and sheets of perforate and pervious material adapted to be moistened and buttoned over the said buttons, substantially as described.

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

GEORGE HACKER.

Witnesses:

ALFRED A. EICKS,
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