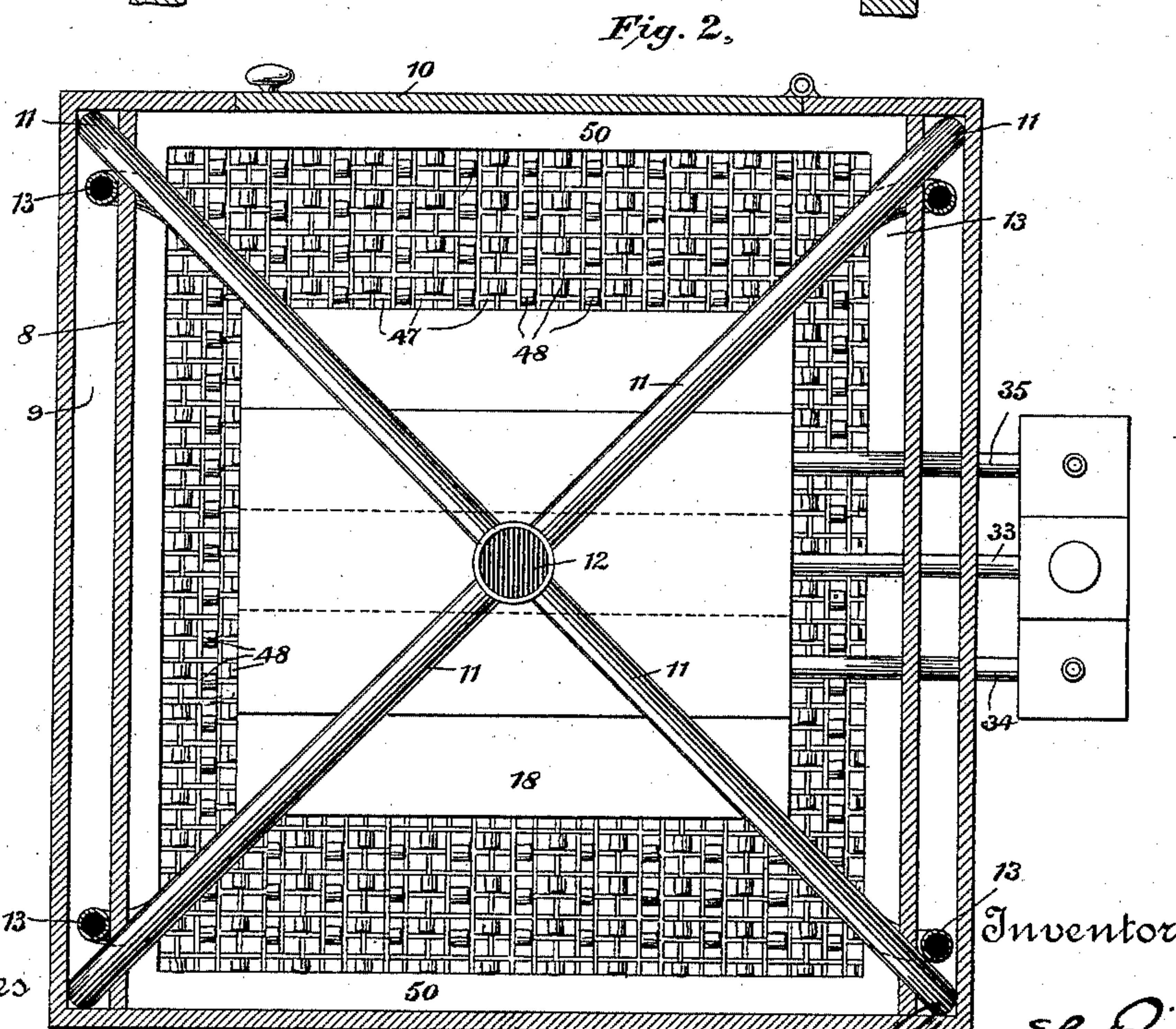
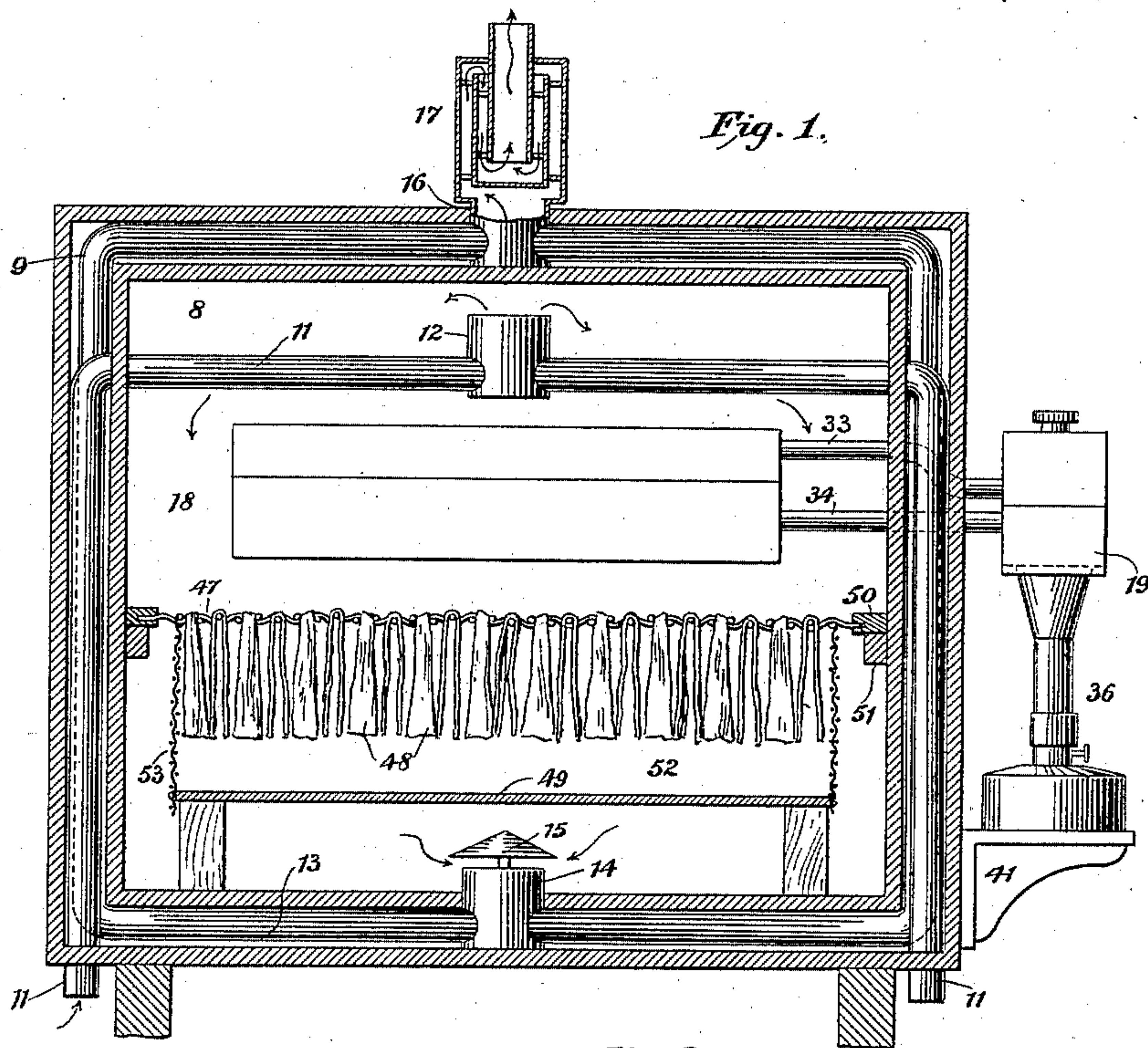


(No Model.)

G. H. BISHOP.
BROODER.

No. 442,007.

Patented Dec. 2, 1890.



Witnesses
Geo. W. Oreck
Saml F Macpeak

By his Attorney

George H. Bishop
Charles H. Judson

UNITED STATES PATENT OFFICE.

GEORGE H. BISHOP, OF NORTHPORT, NEW YORK.

BROODER.

SPECIFICATION forming part of Letters Patent No. 442,007, dated December 2, 1890.

Original application filed July 13, 1889, Serial No. 317,481. Divided and this application filed June 30, 1890, Serial No. 357,301.
(No model.)

To all whom it may concern:

Be it known that I, GEORGE H. BISHOP, a citizen of the United States, residing at Northport, in the county of Suffolk and State of New York, have invented certain new and useful Improvements in Brooders, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This application is a division of my original application, Serial No. 317,481, filed July 13, 1889, for improvements in incubators.

My invention relates to improvements in brooders, or so-called "artificial mothers," for rearing young fowls or chicks; and the objects of the invention are to provide a brooder of a simple construction, wherein the air may be continually circulated and maintained at or about a uniform temperature.

In the accompanying drawings, illustrating an embodiment of my invention, Figure 1 is a sectional view of my improved brooder, taken on a vertical plane through the center of the apparatus; and Fig. 2 is a horizontal sectional view of the same.

Referring to the drawings, in which like numbers of reference designate like parts, 8 designates the brooding-chamber, the walls of which are double, with a considerable space 9 between them. This space 9 may be packed with a suitable non-conductor of heat, or may be left as an air-space to act as a heat-retaining jacket for the chamber to prevent the rapid radiation of heat therefrom. One side of the chamber is provided with a door 10, through which access may be gained to any part of the interior of the chamber.

The air is introduced into the upper part of the chamber 8 through means of pipes 11 11, shown, preferably, as four in number, and located one near each corner and running from the outside of the bottom of the chamber vertically through space 9 to near the top, thence extending horizontally into the center of the chamber, where they open into a common discharge-pipe 12. The induction-pipe 12 is arranged vertically, and has a closed

bottom and an open top or mouth, which empties almost directly against the upper side of the chamber. The air is led from the chamber 8 by means of a set of outflow-pipes 13 13, that run radially from the centrally-disposed eduction-pipe 14, provided with deflector 15, and set down through the inner wall of the chamber. The outflow-pipes 13 13 are arranged within the space 9 and extend horizontally from the eduction-pipe 14—one to each corner of the chamber—thence upwardly to the top of the chamber and horizontally inwardly to the center of the top side thereof, where they open into a flue 16, that is set down through the outer wall of the chamber, and is provided with a deflector 17 for checking the outflow of the air, in order to produce a sluggish movement thereof through the chamber and avoid strong drafts. The air is heated to the desired degree as it is introduced into the chamber by means of a hot-water tank 18, which is disposed horizontally in the upper part of the chamber, so that the air, almost immediately upon entering the chamber, may be passed over the radiating-surface of the tank, and thus warmed before passing down to the lower part of the chamber to the brooder-cage.

The tank 18 is made of a suitable metal, and is connected by the circulating-pipes 33 34 35 with the water-heater 19, which supplies the water thereto, and is heated by a lamp 36, set on a bracket 41.

No claim is here made to the hot-water tank 18, the heater 19, and the lamp 36, though the same are my inventions.

Near the bottom of the chamber 8 is located the brooder-cage 52, having the sides and top thereof formed of suitable open-work. In the construction shown the cage consists in a floor 49, suitably elevated and supported above the bottom of the chamber with side walls 53, made, for instance, of gauze-work. The top of this cage is covered by an open-work screen, comprising the gauze 47 set in a frame 50, which is supported loosely on blocks 51. From the gauze 47 are hung the brooder-strips 48, which may be placed as close together as desirable, so as to present a suitably dense mass. These strips are pref-

erably made of flannel, though any suitable material may be used, and are designed to take the place of the feathers of the natural mother hen. The brooder is so situated that
 5 the warm air in passing from the heater 18 to the discharge-flue 14 will circulate freely through and about the brooder-cage, so as to supply in a uniform manner the heated fresh air to the chicks. If desired, evaporation-
 10 pans may be used with the brooder for the purpose of moistening the air.

The discharge-pipe 12 and the inner ends of the air-pipes 11, being located near the top of the chamber immediately above the heating device 18, these parts will be heated to
 15 such a degree as to cause the lower ends of the pipe 11 to suck in the fresh air and empty it in the upper part of the chamber, thereby insuring a good circulation of the air.

20 Having thus described my improvements in brooders, what I claim as my invention, and desire to secure by Letters Patent, is—

1. A brooder-cage consisting in the combination, with the floor 49 and the side walls of
 25 the cage, of a gauze top 47, the strips 48, made of fabric or like material doubled upon itself and hung over the strands of the gauze 47, with the free ends thereof depending into the cage, substantially as and for the purpose
 30 set forth.

2. In a brooder, the combination, with a chamber 8, provided with a heating device for warming the air therein, of a brooder-cage 52,
 35 located near the bottom of the chamber and having its floor 49 elevated above the floor thereof, and a space between the sides of the cage and the sides of the chamber, the said cage being provided with a perforated or open-
 40 work top 47, having strips of fabric 48 or like material hung therefrom, a system of inflow air-pipes 11, extending from the exterior of the bottom of the said chamber and vertically to near

the top thereof, then horizontally inwardly to near the center of the top of the chamber, where they empty, a set of outflow-pipes 13,
 45 extending from about the center of the bottom of said chamber at a point between the floor of the same and the brooder-cage to the exterior of said chamber at the top thereof, substantially as and for the purpose set forth. 50

3. In a brooder, the combination, with a chamber 8, having a heating device for warming the air therein, of a brooder-cage 52, located near the bottom of the said chamber,
 55 with its floor 49 elevated above the bottom thereof, and having a space between its sides and the sides of said chamber, the said cage provided with a perforated or gauze top 47, having brooder-strips 48 hung therefrom, a
 60 set of inflow air-pipes 11, one arranged at or near each corner of the chamber, and extending from the outside thereof at the bottom of the chamber vertically to a point near the top
 65 of the chamber, then extending horizontally inwardly to the interior of the chamber near the top thereof, a vertical discharge-pipe 12, into which the several inflow air-pipes 11
 70 empty, the eduction-pipes 14 and 16, located, respectively, at the bottom and top of said chamber, the one opening into the chamber and the other opening to the exterior thereof,
 75 a set of inflow air-pipes 13, extending around the sides of the chamber and connecting the said pipes 14 and 16, for discharging the air from the chamber, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand, this 19th day of June, 1890, in the presence of the two subscribing witnesses.

G. H. BISHOP.

Witnesses:

ROWLAND MILES,
 ISRAEL CARLL.