H. A. NOURSE.

BROODER.

APPLICATION FILED OCT. 12, 1908.

955,473. **Patented Apr. 19, 1910.**

2 SHEETS—SHEET 1.

Fig. 2.

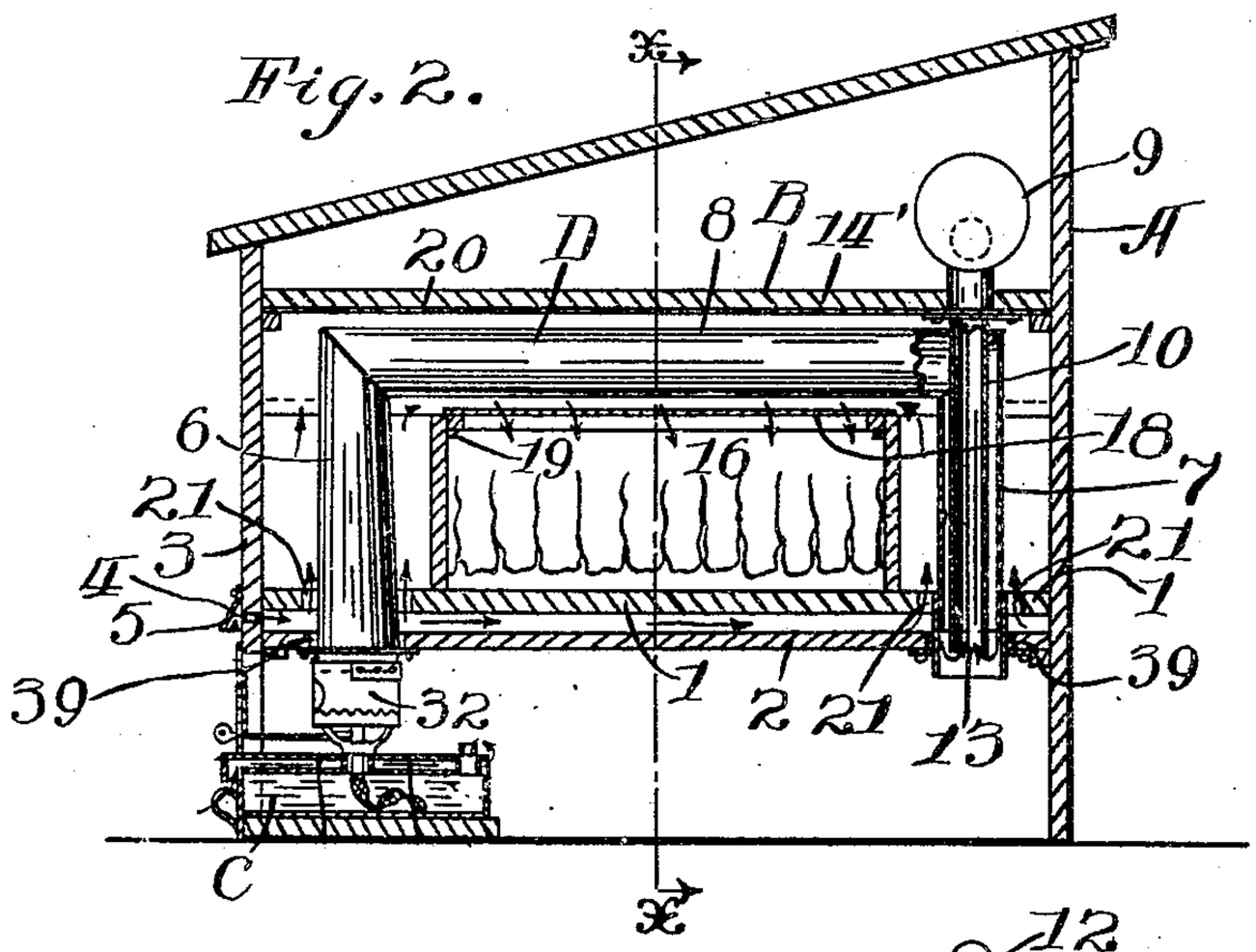
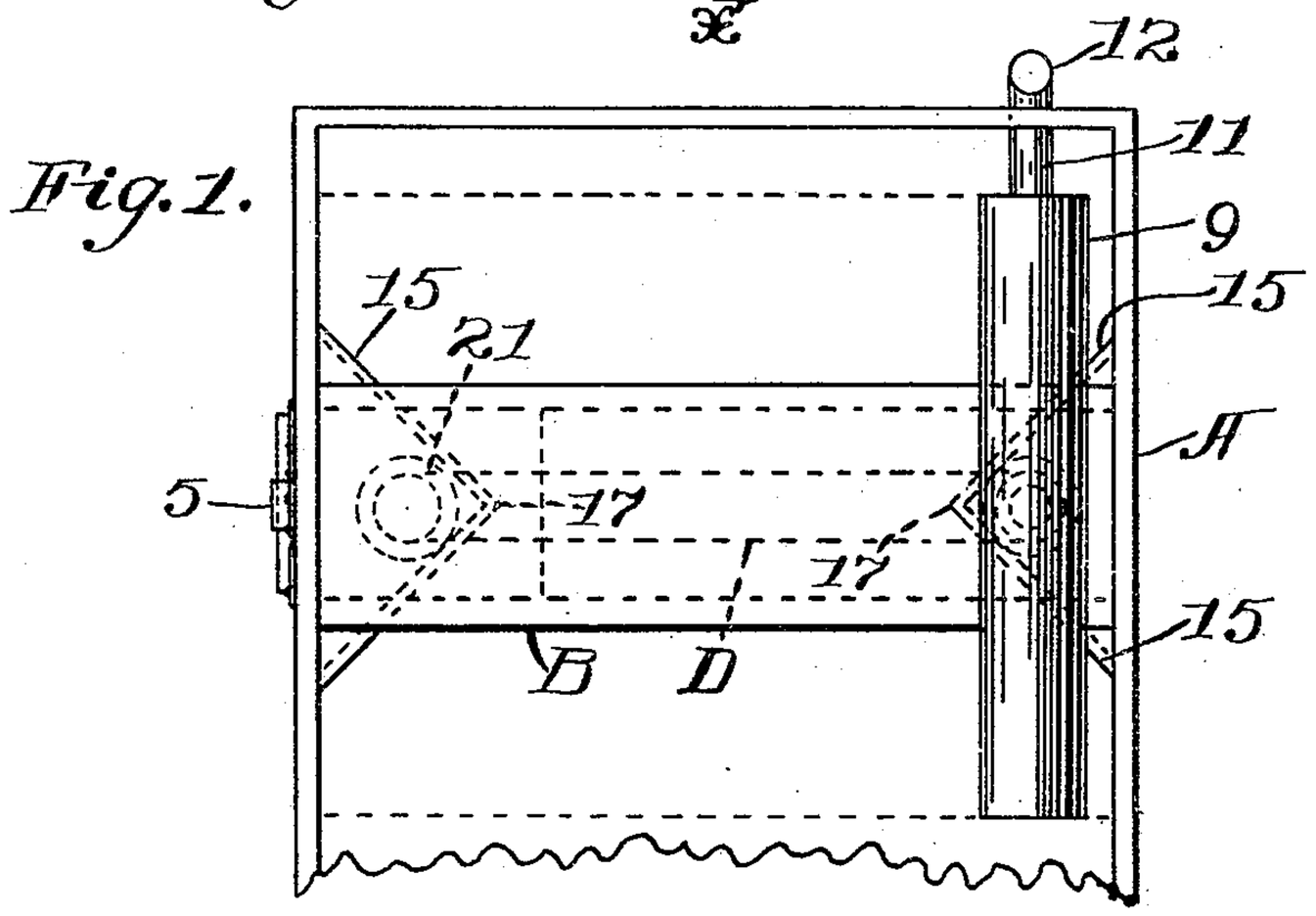


Fig. 1.



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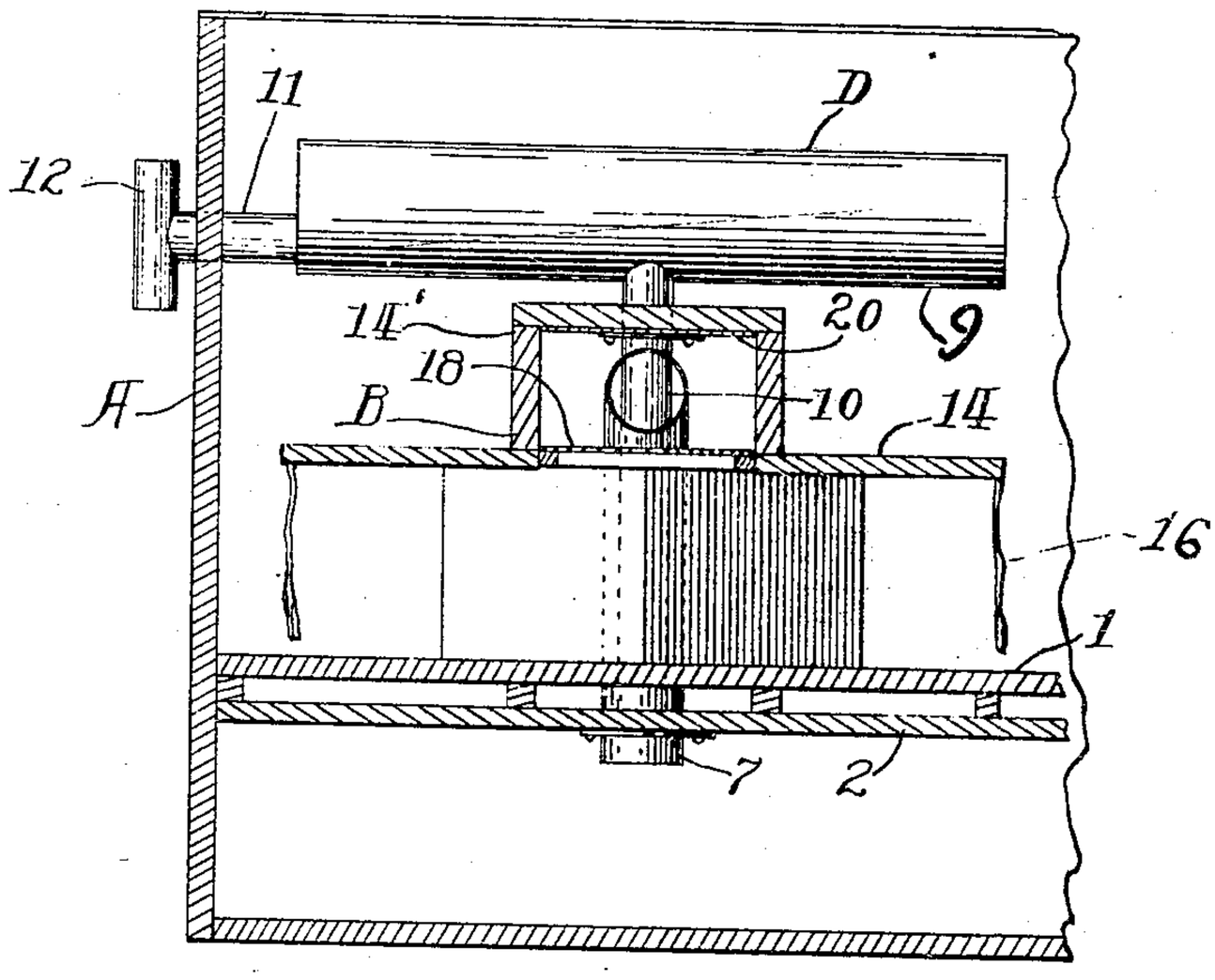
2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

HAROLD A. NOURSE, OF ST. PAUL, MINNESOTA.

BROODER.

955,473. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed October 12, 1908. Serial No. 457,263.

To all whom it may concern:

Be it known that I, HAROLD A. NOURSE, a citizen of the United States, residing in St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Brooders, of which the following is a specification.

My invention relates to improvements in brooders, and more particularly to that class of brooders heated by hot air.

It has for its object the production of an efficient brooder adequately heated and ventilated.

In the accompanying drawings forming part of this specification, Figure 1 is a plan of the hover end of my improved brooder. Fig. 2 is an elevation partly in section. Fig. 3 is a longitudinal section taken on the line X X of Fig. 2.

In the drawings A is the brooder house, B the hover, C the lamp, and D the heating drum. The bottom of the brooder is double, consisting of an upper floor 1 and a lower floor 2. The rear wall 3 is constructed with a slot 4 opening into a space between the floors. This slot is provided with a hood 5 to prevent unnecessary draft. Through this slot the air for the hereinafter described ventilating system is admitted.

The heating drum D comprises the vertical flues 6 and 7, the transverse flue 8 and the longitudinal flue 9. An inner tube 10 opens into the vertical flue 7 near the floor of the brooder and at its upper end into the flue 9. This flue 9 has a horizontal extension 11 which connects with the chimney 12 and thus opens into the outer air. The flues 6, 7, 8 and 9, with the tube 10 form a continuous passageway, the only openings into them being that at the base of the flue 6 for a suitable heater, that at the base of the flue 7 below the floor 2, and at 13 with the inner tube 10 which through the flue 9, its extension 11 and the chimney 12 carries away the products of combustion, none of which are permitted to enter the brooder.

The hover B runs across the brooder, being inclosed by the ceiling 14, flue box 14′, the angular end walls 15 and side curtain 16. The parts 14 and 14′ are permanently attached to each other and form a removable lid to the hover chamber. The walls 15 are rigidly connected with the brooder house. I have found these angular end walls particularly efficient, both because they conveniently insulate the flues 6 and 7 from the brood chamber, and because they make it impossible for chicks to crowd and smother each other at the point of greatest heat. It will be apparent to those skilled in the art that there is no place within my hover chamber at which an undue crowding of the chicks is possible. By the use of the system of flues above described the heating of the hover is as nearly uniform as it is possible to make it, but of course the temperature upon the floor will be slightly greater at the angles 17 of the walls 15. The natural tendency of the chicks, if cold, is to crowd to this point, but in the event of this occurring in my brooder, the chicks first approaching the points 17 cannot be overheated or crushed, because if any crowding occurs they will be pushed outward along the angular wall 15. Below the flue 8 a screen 18 is provided carried by the frame 19, and the flue box 14′ is protected by a metal or asbestos lining 20. The openings 21 through the floor 1 are considerably larger than the diameter of the flues 6 and 7 which pass through them, for the double purpose of insulating the floors from the heat of the flues and to furnish a passage for the ventilating current. The ventilating current enters the slot 4 and fills the space between the upper and lower floors 1 and 2 with fresh air; it is then drawn up about the flues 6 and 7 through the openings 21 into the triangular chambers formed between the walls 15 and the outer walls of the brooder, thence following the flues into the flue box 14′, whence it is free to circulate, through the screen 18, in the hover chamber.

A source of heat, such as the lamp C, is placed under the flue 6 and connected therewith by suitable means, such as the chimney 32.

The heating drum, as well as the hover, may be easily taken apart for purposes of inspection and cleaning. The flues 6 and 7 (with the flue 8 attached) may be lifted off from the collars 39 at their bases; the tube 10 is formed with telescopic joints where it passes through the top of the flue box 14′ and the flue 9 and chimney 12 are also separable. In other words, the longitudinal flue 9 is slidably connected with both the tube 10 and chimney 12, while the flues 6 and 7 are supported by, but not attached to,

the collars 39. Thus to separate the parts the section of the drum D above the hover is first removed; then the ceiling 14 with the attached flue box 14′ is lifted off, after which the attached flues 6, 7, and 8 may be taken out of the brooder.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In a brooder, the combination of a sectional and removable heating drum, and a hover chamber provided with stationary end walls projecting into said chamber and forming an air conduit between the drum and said chamber and a removable lid carrying a flue box for the drum.

2. In a brooder, a hover extending transversely across it and having triangular chambers at its ends, in combination with a sectional separable heating drum, said drum including vertical flues passing through said triangular chambers and a removable lid for the hover chamber, said lid consisting of a flue box and drop ceiling.

3. In a brooder, the combination of a heating drum composed of vertical and horizontal flues, a hover chamber having angular end walls inclosing the vertical flues and extending into said chamber and an overhead horizontal flue box, open beneath, with a screen between it and the hover chamber.

4. In a brooder, a hover having chambers at its ends, a heating drum comprising vertical flues extending through said chambers, overhead horizontal flues, one above and at right angles to the other, an inner tube open at both ends and forming a conduit for the products of combustion between one of the vertical flues and the upper horizontal flue and a chimney connected with said last mentioned flue.

5. In a brooder, a removable hover extending transversely across it and having fixed chambers projecting into its ends, in combination with a sectional heating drum including vertical flues extending through said chambers, a horizontal flue uniting said vertical flues, a second horizontal flue and an inner tube open at both ends, connecting one of the vertical flues with the last mentioned horizontal flue.

6. In a brooder, the combination of an adjustable heating drum comprising vertical and horizontal flues and an inner tube, a lamp provided with a chimney connecting with one of said vertical flues and a hover chamber, provided with a screened overhead flue box for one of said horizontal flues and triangular boxes inclosing the vertical flues, each of said last mentioned boxes having an apex projecting centrally into said hover chamber.

7. In a brooder, the combination of a heating drum composed of vertical and horizontal flues and an inner tube, a hover chamber provided with a screened flue box for one of said horizontal flues, and triangular chambers, each having an apex projecting centrally into said hover chamber and inclosing the vertical flues.

8. In a brooder, the combination of a heating drum composed of vertical and horizontal flues and an inner tube opening at one end into one of the vertical flues and at the other end into one of the horizontal flues, a hover chamber provided with a screened flue box for the other horizontal flue, said box having horizontal side wings at its lower extremity, and vertical flue boxes each having an apex projecting centrally under and supporting said wings.

9. In a brooder, the combination of a heating drum composed of vertical and horizontal flues and an inner tube, connecting one of said horizontal flues with one of said vertical flues, a hover chamber provided with upper and lower floors spaced apart, triangular chambers open at the top, each having an apex projecting centrally into said hover chamber, inclosing the vertical flues and connecting with the space between the floors.

10. In a brooder, the combination of a separable heating drum composed of vertical and horizontal flues connected together, a transverse hover chamber, triangular chambers, inclosing the vertical flues, and each having an apex projecting centrally into said hover chamber, and a removable cover for the hover chamber, consisting of a flue box for a horizontal flue of the drum and a drop ceiling for said chamber.

11. In a brooder, the combination of a transverse hover chamber, vertical flue boxes, each having an angle projecting into said hover chamber, a hover cover consisting of a horizontal flue box and drop ceiling, and a heating drum comprising a plurality of flues, one of which extends through each of said boxes with means for permitting the products of combustion to pass through said drum and out of said brooder.

12. In a brooder, having double floors spaced apart to form an air passage, a heating drum composed of vertical and horizontal flues with means for connecting the same, a hover chamber provided with screened overhead flue box for one of said horizontal flues, vertical flue boxes each having an angle projecting centrally into said hover chamber, and means for permitting air to pass from outside the brooder into said space between the floors, thence into the vertical flue boxes, thence into the horizontal flue box, and finally into the hover chamber.

13. In a brooder, having double floors spaced apart to form an air passage, a hover chamber provided with an overhead air con-

duit opening at its base into said chamber, vertical air flues projecting into said hover chamber forming the ends walls thereof and connecting said air passage with said air conduit, and means for permitting air to pass from outside of the brooder into said air passage, all substantially as described.

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

HAROLD A. NOURSE.

Witnesses:

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W. H. WILLIAMS.