P. S. MARTIN.

BROODER.

APPLICATION FILED AUG. 30, 1913.

1,160,186.

Patented Nov. 16, 1915.

2 SHEETS—SHEET 1.

FIG. I.

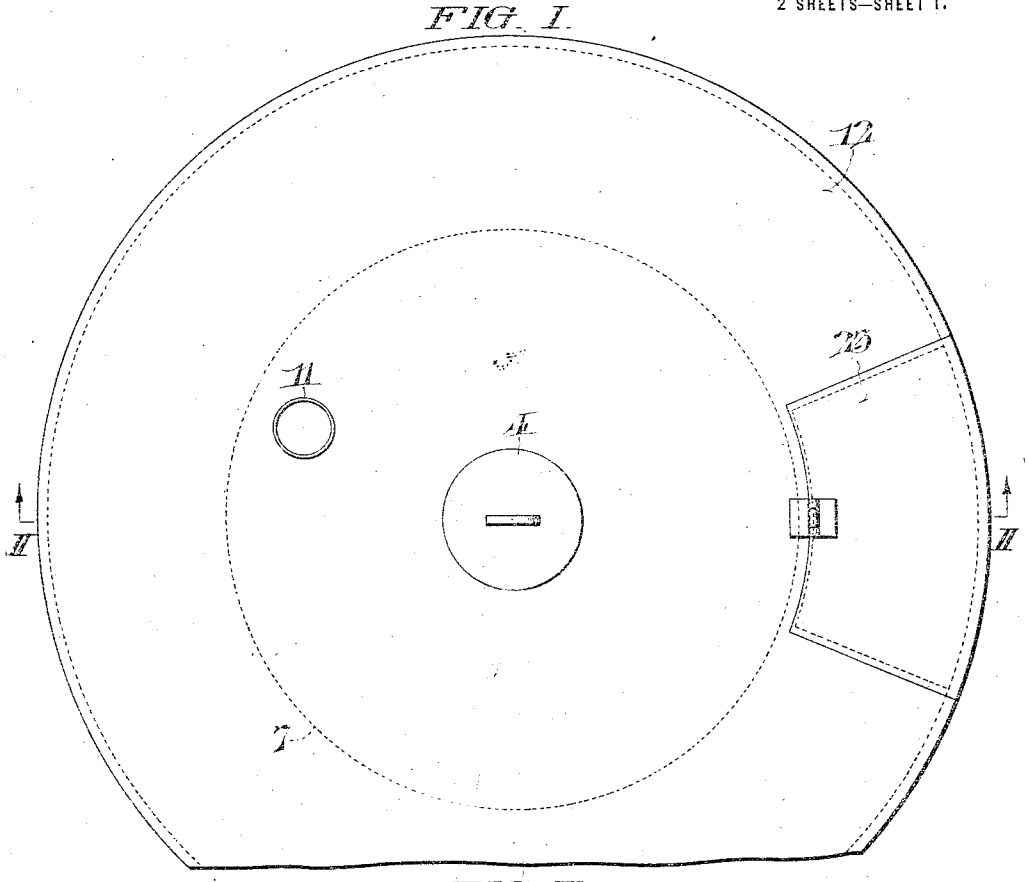
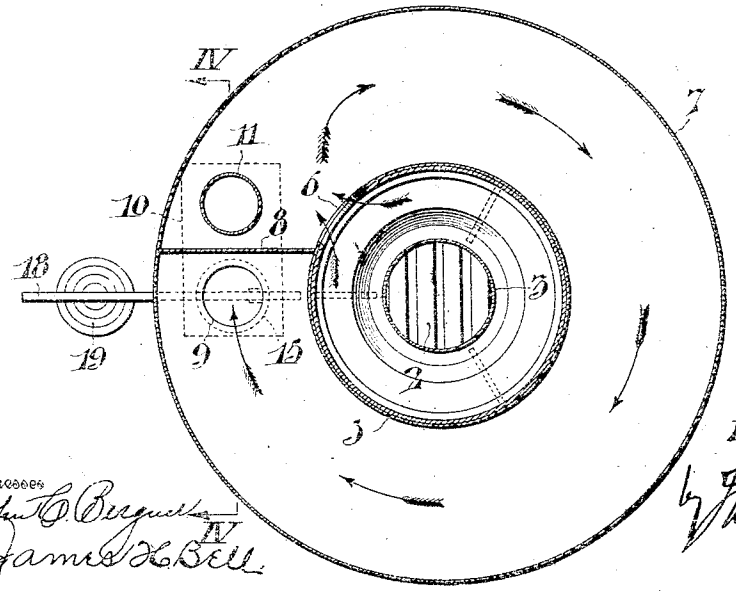


FIG. III.



Witnesses

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2 SHEETS—SHEET 2.

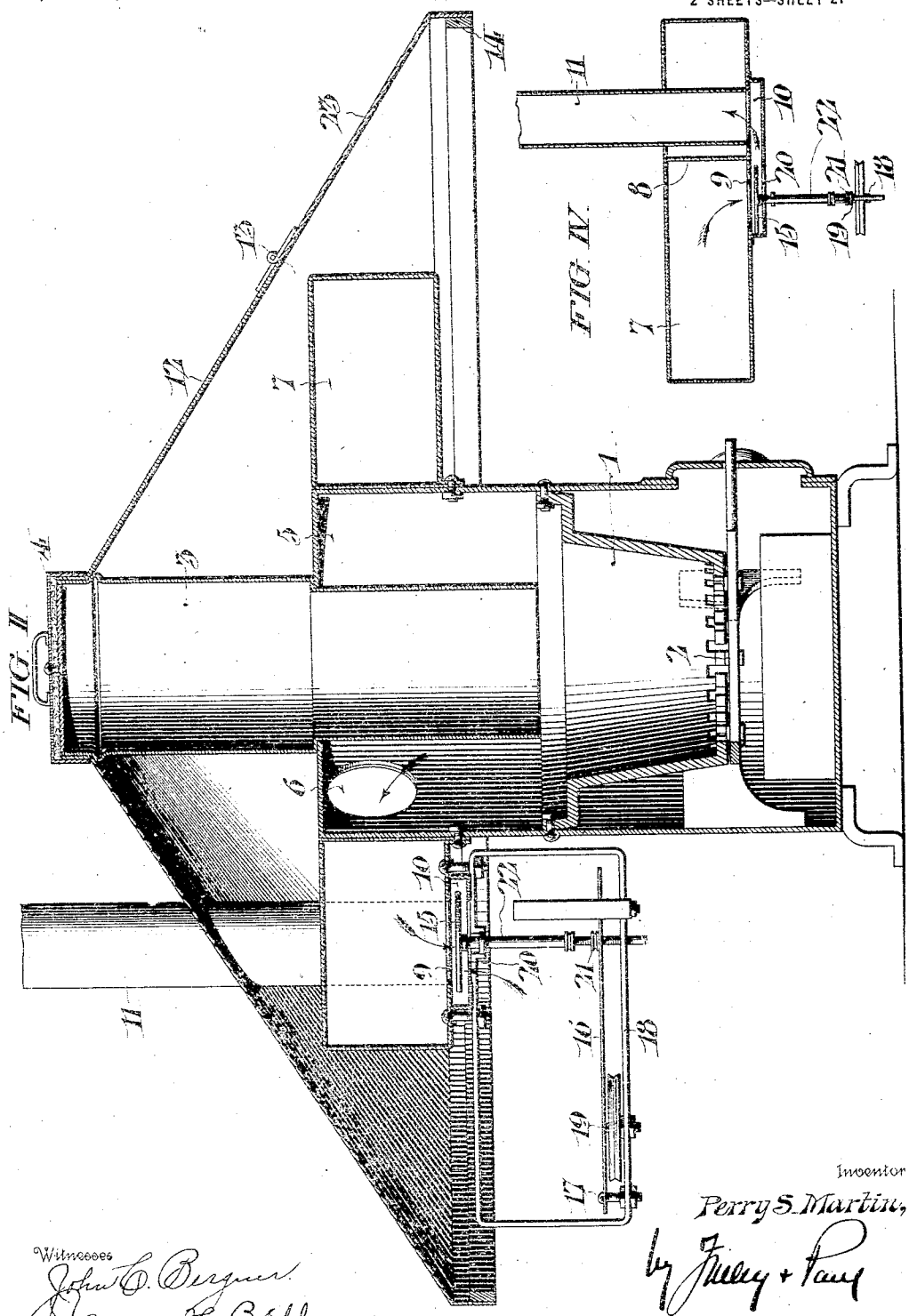


FIG. II

FIG. IV

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UNITED STATES PATENT OFFICE.

PERRY S. MARTIN, OF BROADWAY, VIRGINIA.

BROODER.

1,160,186. Specification of Letters Patent. Patented Nov. 16, 1915.

Application filed August 30, 1913. Serial No. 787,416.

To all whom it may concern:

Be it known that I, PERRY S. MARTIN, of Broadway, in the county of Rockingham and State of Virginia, have invented certain new and useful Improvements in Brooders, whereof the following is a specification, reference being had to the accompanying drawings.

The invention relates more particularly to that type of brooders wherein the heat is deflected downwardly onto the floor or surface where the chicks are hovered. To this end the heater is provided with a cylindrical magazine which forms an upward extension thereof of appropriate height and to the top of this upward extension an annular deflector is attached surrounding the feed opening at the top of the magazine.

A further object of the invention is to provide a brooder of the above type wherein the heated combustion gases may be passed in and about the radiator and the heat therefrom deflected downwardly onto the hover floor.

A further object of the invention is to provide a device of the above character with a thermostatically controlled device for regulating the draft of the heater.

These and other objects will in part be obvious, and will in part be hereinafter more fully described.

In the drawings which show by way of illustration, one embodiment of the invention, Figure I, is a plan view of a brooder embodying my improvements. Fig. II, is a vertical sectional view on the line II, II, of Fig. I. Fig. III, is a horizontal sectional view through the radiator, also showing the thermostat for controlling the draft. Fig. IV, is a detail on the section line IV, IV, of Fig. III.

The invention consists broadly in providing a heater which is preferably of the coal burning type, which is so constructed that the combustion gases may be caused to pass in and about a radiating chamber before being passed to the chimney flue. A damper is located so as to control the draft of said flue and this damper is connected to a thermostat so that it may be automatically positioned to maintain a uniform temperature underneath the brooder. In order to the better maintain circulation of air beneath the deflector, the chamber is so located that the draft for the flue is derived altogether from within the deflector. This deflector is a conical annulus. The heater is provided with a magazine which forms a cylindrical upward extension to or near the top of which the deflector is attached. It is preferably formed of galvanized iron so as to more efficiently deflect the heat from the radiator downwardly upon the hover floor.

Referring more in detail to the drawings, I have shown a heater which is provided with a fuel chamber 1, having a grate 2, of the usual character. Coal or other fuel is supplied to this chamber 1, by a magazine 3, which is closed at the top by a detachable cover 4. This magazine is cylindrical in shape with feed opening at the top, and in addition to extending downwardly within the combustion chamber 5, to proper proximity to the fuel chamber, extends upwardly above the combustion chamber a considerable distance. The combustion chamber 5, above the fuel chamber, is connected by an opening 6, to a radiating chamber 7. The radiating chamber 7, is formed with a cross partition 8, so that the fuel gases leading through the opening 6, into the radiating chamber are caused to pass about said chamber in the direction of the arrows in Fig. III, and pass out of said chamber through an opening 9. This opening 9, leads to a flue 10, which is connected to the main chimney flue 11. The magazine 3 also supports a cone-shaped deflector 12, which finds attachment at or near the top of the magazine, which may be provided with an annular corrugation near its upper end, as shown in Fig. II, for the purpose of the better supporting the deflector. This deflector 12, is larger than the radiator so as to form a passage 13, between the deflector and the radiator. The lower end of the deflector is provided with a strengthening rib 14. The flue 11, passes up through the deflector, as is clearly shown in Fig. II.

The opening 9, leading from the radiator chamber to the flue 10, is controlled by a damper 15. This damper 15, is adjustably attached to a lever 16, fulcrumed at 17, to a supporting frame 18. The lever 16, is connected at 19, to a diaphragm thermostat. The frame 18, is supported by the radiator, which, in turn, is attached to the heater. The lower wall of the flue 10, is provided

an opening 20, so as to permit fresh air to enter the flue 11, when said opening is uncovered by the damper. A collar 21, is threaded onto the damper rod 22, and by adjusting this collar the position of the damper relative to the thermostat lever may be varied.

From the above construction it will be apparent that the heated combustion gases from the fuel chamber will pass through the opening 6, entirely around the radiator and out through the opening 9. From thence the fuel gasses pass through the flue 10, to the chimney flue 11. The damper 15, therefore, directly controls the draft of the heater, as it controls the passage 9. This damper is controlled by the thermostat, which is positioned well down toward the floor of the hover, and, therefore, said thermostat will automatically shift the damper so as to control the draft and keep the temperature of the air underneath the deflector substantially uniform. By adjusting the collar 21, the temperature maintained underneath the deflector may be varied.

By my improved construction, wherein a coal burning heater is used, very little care is necessary, as the supply of fuel located in the magazine will gradually feed the fire, thus producing for a long period an even heat. The deflector is provided with a door 23, which may be raised to facilitate access to the heater for operating the grate when desired. The deflector 12, is preferably formed of galvanized iron, or some other suitable metal wherein the inner surface thereof may be of light color so as to more efficiently deflect the heat downwardly onto the hover floor.

It is customary to attach a curtain to the periphery of a deflector or hood such as is employed with my heater, but in my construction this may be to a considerable extent, if not entirely, done away with owing to the downward radiation of heat from the radiating chamber 7, which renders the space beneath the deflector sufficiently warm. At the same time, the position of the opening 20, through which air is drawn into the flue 11, is such as to insure the proper amount of fresh air beneath the deflector.

It is obvious that minor changes in the details of construction and the arrangement of parts may be made without departing from the spirit of the invention, as set forth in the appended claims.

Having thus described my invention, I claim:

1. In a brooder, the combination of a heater provided with a grate, combustion chamber and magazine which extends above the heater, an annular radiating chamber surrounding the upper part of said combustion chamber and communicating therewith, and a conical annular deflector attached to said magazine near the top thereof, obtaining support therefrom, and extending beyond the outward limit of the radiating chamber.

2. In a brooder, the combination of a heater having a combustion chamber; a radiating chamber mounted upon and surrounding the heater, having an opening whereby the heated gases are permitted to pass from the combustion chamber into the radiating chamber; a flue for receiving said gases after circulating in the radiating chamber; a deflector supported by the heater and overhanging the radiator; said radiating chamber also having an opening which communicates with the space below it in proximity to the opening which communicates with the flue, and a damper alternately controlling both said openings.

3. A brooder, including in combination a heater having a combustion chamber, a magazine for feeding fuel to said combustion chamber, a radiator attached to said heater and extending about the same, said combustion chamber having an opening leading to the radiator, a partition for dividing said radiator at a point adjacent said opening, a flue connected to said radiator, also adjacent the partition, but on the side remote from the opening, a damper for controlling the passage leading from the radiator to the flue, a thermostat for controlling the position of said damper, and a cone-shaped deflector mounted on said heater above said radiator and extending outwardly beyond said radiator for deflecting the heat downwardly.

4. In a brooder, the combination of a heater, a conical deflector supported by and surrounding the heater, a radiating chamber also supported by and surrounding the heater beneath the deflector, a flue connected therewith, said radiating chamber having openings communicating respectively with the combustion chamber, and with the flue and arranged to accomplish a circulation of the heated products of combustion throughout the radiating chamber, and through the flue; said radiating chamber having an opening communicating with the space beneath the deflector for satisfying the draft of the flue with air derived from beneath the deflector, and a thermostatically controlled valve controlling said opening.

5. In a brooder, the combination of a cylindrical combustion chamber, with a grate therein for burning solid fuel, a cylindrical magazine having a feed opening at the top and mounted on top of the combustion chamber and extending both above and below the same, whereby solid fuel is supplied to said grate, a conical deflector attached to the top of said magazine without interference with the feed opening, an annular radiating

chamber surrounding the combustion chamber and communicating with the combustion chamber, means for circulating the heated products of combustion throughout the entire radiating chamber, a flue by means of which the heated products of combustion are drawn off after circulating in the radiating chamber; a valve whereby passage of the heated products of combustion into the flue is controlled, and a thermostat for controlling said valve.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this 27th day of August 1913.

PERRY S. MARTIN.

Witnesses:
JAMES H. BELL,
E. L. FULLERTON.