C. V. HILL.

HEAT REGULATOR FOR BROODERS.

APPLICATION FILED DEC. 19, 1914.

1,152,814.

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FIG. 1.

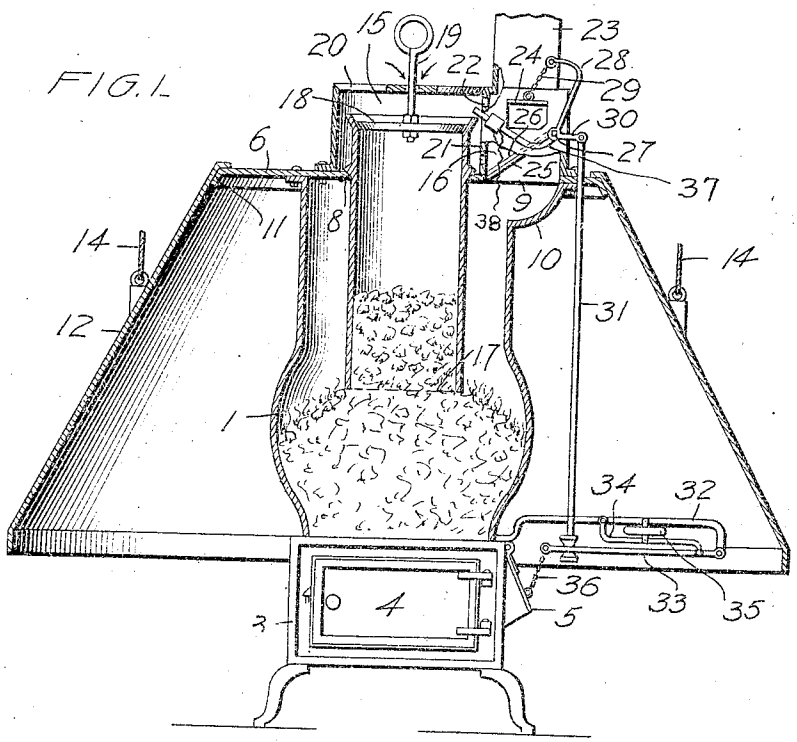
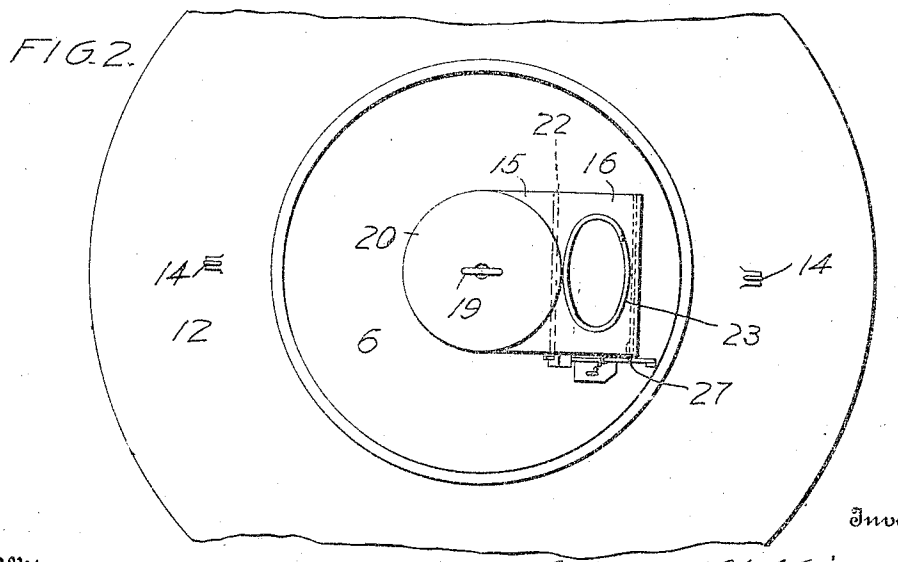


FIG. 2.



Witnesses

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HEAT-REGULATOR FOR BROODERS.

1,152,814. Specification of Letters Patent. Patented Sept. 7, 1915.

Application filed December 19, 1914. Serial No. 878,094

To all whom it may concern:

Be it known that I, CLEMENT V. HILL, a citizen of the United States of America, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Heat-Regulators for Brooders, of which the following is a specification.

In heating a brooder it has been found difficult to utilize the steady heat of the coal owing to the liability of the escape of coal gas which is deadly to chicks and it is for this reason that many other types of less desirable heat have been used.

The object of my invention is to provide a coal stove for heating brooders of such construction that the liability of the escape of coal gas is entirely eliminated.

A further object of my invention is to provide means for maintaining any predetermined temperature in the brooder automatically; and with these objects in view my invention consists of the parts and combination of parts as will be hereinafter more fully pointed out.

In the drawings: Figure 1 is a central vertical section through a stove and brooder embodying a heat regulating mechanism. Fig. 2 is a top plan view of the same, the brooder hood being partly broken away.

The reference numeral 1 designates the body of a stove having a fire box 2 and an ash pit or chamber 3, all of which may be of any approved construction. The ash pit or chamber is provided with an ash door 4 and an air door 5. The top 6 of the stove is of relatively large area and is provided with a fuel opening, central with the fire box, the walls of which are beveled as at 8, and an opening 9 also communicating with the fire box, the wall of the stove being deflected as at 10 under said opening 9. The periphery of the top 6 is provided with a depending annular flange 11 set at an angle less than a right angle.

12 is a hood open at the top and bottom, the side walls of which are formed on the same angle as the flange 11 so as to form therewith a tight joint.

13 is an inwardly extending top marginal flange integral with the hood and adapted to rest upon the top 6 of the stove and assist in supporting the hook in the position shown.

14 are cords or chains adapted to run over pulleys for the purpose of raising the hood.

Mounted upon the top 6 are two chambers 15 and 16. The chamber 15 being a gas chamber over the fuel opening and the magazine 17, said magazine being removably suspended from the top 6 in the fire box, and provided with a flaring top in which is seated a valve 18 having an operating handle which passes through a relatively large opening in the cover 20 of the chamber 15.

The chamber 16 is positioned over the smoke opening or passage 9 and is separated from the chamber 15 by means of a partition 21 having perforations 22 to establish communication between the two chambers whereby said chambers are always in communication with the flue 23 whereby any gas that may escape from the stove into these chambers is drawn up the flue by a natural draft.

The smoke chamber is provided with an air door 24, and is also provided with a damper seat 26 on which the damper 25 is seated when in the closed position shown in Fig. 1. The damper is mounted on the shaft 27 which is journaled in openings in the walls of the chamber 16.

A substantially bell crank lever is keyed to the shaft 27, the upper portion of the arm 28 of which is deflected and flexibly connected with the door 24 of the smoke chamber by means of a chain 29. The arm 30 of said bell crank lever is pivotally connected with the upper end of the rod 31.

A frame 32 is supported from one side of the stove and a lever 33 is pivotally mounted on said frame, the free end of this lever being attached to the lower end of the rod 31. 34 is another lever pivotally secured at one end to the frame 31 while its other end is pivotally secured to the lever 33, the end portions of the lever 33 being deflected in opposite directions.

35 is a thermostat connected to the frame 32 and to the lever 34.

A chain 36 constitutes a flexible connection between the outer or free end of the lever 33 and the air door 5 of the ash pit or chamber.

Assuming that the parts are in the position shown in the drawings with all draft cut off, any predetermined drop in the temperature of the brooder or the room in which it is located will affect the thermostat which will operate the lever 34 and through it the lever 33 causing the lever 33 to move upward at its free end, thus opening the door 5 by means of the chain 36, and simultaneously

moving the rod 31 upward which motion communicated through the crank arm 30 to the shaft 27 which is thereby revolved toward the left and the damper 25 moved downward to open position. At the same time the crank arm 28 is swung toward the left to permit the air door 24 of the smoke chamber to move to closed position. As soon as the predetermined maximum temperature is reached the thermostat is again actuated and moves the parts to the position shown in the drawing, in which the damper 25 and air door 5 are closed while the air door 24 of the smoke chamber is open.

When the parts are in the position shown the pressure of the gas in the stove may cause some of it to leak around the fuel opening and the damper, in which case it will enter the chambers 15 and 16 from which it will readily escape to the flue 23. To facilitate the escape of gas into the flue, and thereby prevent it from entering the room, the air door 24 is held in open position as shown and the opening in the cover 20 is relatively larger than the handle 19 to permit air to enter the chambers thereby creating in effect a forced draft to carry the gases into the flue. The cover 20 may, if found necessary, be provided with additional air openings.

As shown in Fig. 1 I secure to the shaft 27 of the damper, an arm 37 on which is adjustably mounted a weight 38, whereby the weight of the parts is counterbalanced thereby facilitating the action of the thermostat.

What I claim is:

1. The combination with a stove having fuel and smoke openings in juxtaposition, a chamber over each opening, said chambers being in communication with each other and in constant communication with a flue, a flue damper between one of said chambers and the stove, an air door for one of said chambers and the stove, a bell crank lever on said damper one arm of which has an operative connection with said air door, a rod having an operative connection with the other arm of the bell crank lever, and means to operate said door and damper.

2. The combination with a stove having fuel and smoke openings in juxtaposition, a chamber for each opening, said chambers being in communication with each other and in constant communication with a flue, a flue damper between one of said dampers and the stove, an air door for one of said chambers and the stove, a bell crank lever on said damper one arm of which has an operative connection with said air door, a rod having an operative connection with the other arm of the bell crank lever, means connected with said rod to operate it, an air door for the ash pit of the stove and in operative connection between said ash pit air door and said means whereby both of said air doors and the damper are operated simultaneously as described.

3. The combination with a stove, of a frame suspended from said stove, a lever pivotally mounted on said frame, a second lever pivotally mounted on said frame, at one end and pivotally connected at its other end to the first named lever, operating means connected to said frame, and to the said second named lever, a flue damper for said stove, and two air doors for said stove, an operative connection between the first named lever and said air doors and damper whereby one of said doors is moved to open position while the other of said doors is being moved to open position and whereby said damper is moved to open position simultaneously with the movement of one of said doors to closed position.

4. The combination with a stove having fuel and smoke openings in juxtaposition, a chamber for each opening, said chambers being in communication with each other and in constant communication with a flue, a flue damper between one of said dampers and the stove, an air door for one of said chambers and the stove, a bell crank lever on said damper one arm of which has an operative connection with said air door, a rod having an operative connection with the other arm of the bell crank lever, means operatively connected with said rod to operate it, an air door for the ash pit of the stove and in operative connection between said ash pit air door and said means whereby both of said air doors and the damper are operated simultaneously as described, and a counterbalance weight for the parts moved by the said means.

In testimony whereof I affix my signature in presence of two witnesses.

CLEMENT V. HILL.

Witnesses:
WILLIAM U. ALE,
W. F. VOLT.