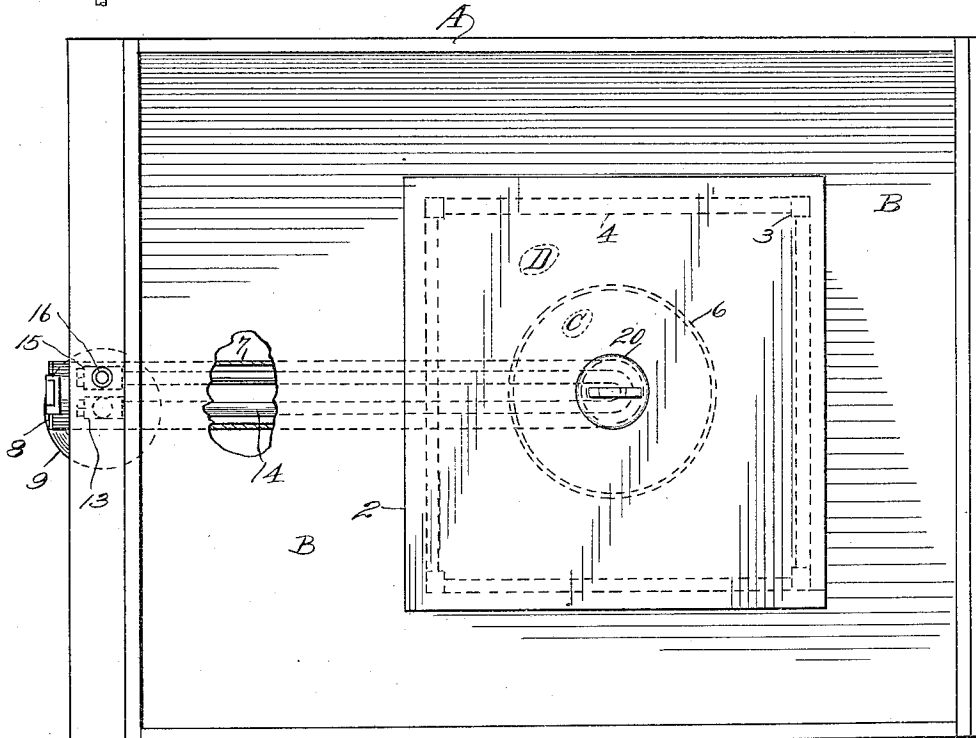
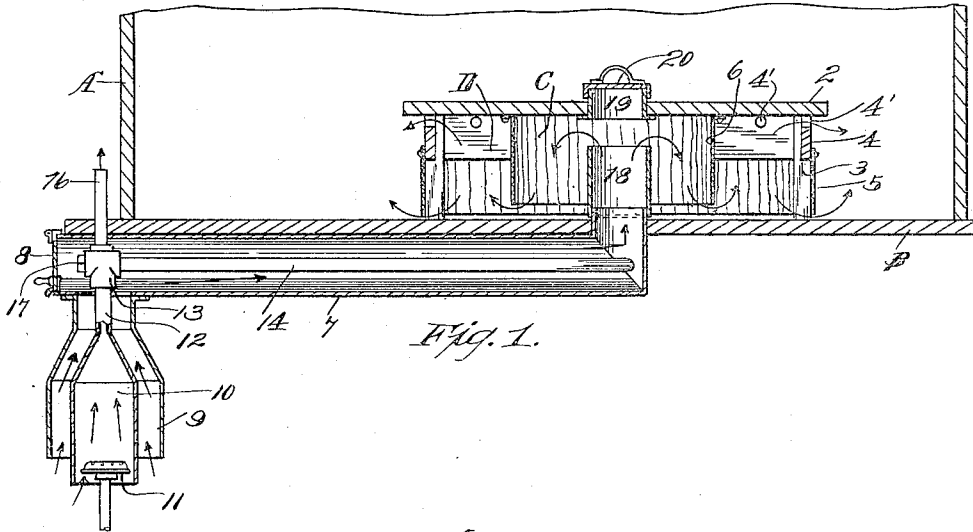


H. A. GEORGE.
BROODER HEATER.
APPLICATION FILED AUG. 6, 1913.

1,132,005.

Patented Mar. 16, 1915.



WITNESSES:

F. E. Maynard,
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Fig. 2.

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HARMON A. GEORGE, OF PETALUMA, CALIFORNIA.

BROODER-HEATER.

1,132,005.

Specification of Letters Patent.

Patented Mar. 16, 1915.

Application filed August 6, 1913. Serial No. 783,325.

To all whom it may concern:

Be it known that I, HARMON A. GEORGE, a citizen of the United States, residing at Petaluma, in the county of Sonoma and State of California, have invented new and useful Improvements in Brooder-Heaters, of which the following is a specification.

This invention relates to a brooder heater.

The object of this invention is to provide a heater for brooders for young chicks in which the heating is obtained by the direct introduction of warmed pure air into the brooder as distinguished from direct radiation.

Another object is to so construct the heating elements of the brooder that the products of combustion will not be delivered thereto or mixed with the warmed fresh air admitted to the brooder chamber.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a view in vertical section of the invention. Fig. 2 is a plan view of same with parts broken away.

In the drawings A represents the side walls of a brooder house of any suitable construction having the usual floor B. Disposed at any convenient point in the house A is a brooder-box, consisting of a top 2, supported on legs 3, and having a continuous peripheral vertical side strip 4, the lower edge of which is spaced from the floor B to allow the ingress and egress of the chicks thereunder. The strip 4 has ventilating perforations 4' around the box beneath the top 2 for the purpose hereinafter stated. A curtain 5 depends from the lower edge of the strip 4, and a circular curtain 6 depends from the underside of the top 2 about midway between the outer edge and its center. The curtains 5 and 6 are of any suitable soft fabric and extend to a point adjacent the floor B, and divide the space in the brooder-box into two brooder compartments, indicated at C and D, respectively, in Fig. 1, and which compartments are designed in practice to be kept at different temperatures.

Disposed beneath the floor B is a fresh air supply pipe or conduit 7, which opens at its inner end to the central or inner compartment C through the floor B, and has its outer end terminating outside of the walls A of the brooder house, which outer end is

normally closed by a hinged door or gate 8 of any suitable description. Opening to the conduit 7 near its outer end is a downwardly extending drum 9, through which fresh air is admitted to the conduit 7, and placed within the drum 9 and spaced therefrom, is a second drum 10, the lower end of which extends below the lower end of the outer drum 9 and surrounds a burner 11, of any suitable construction. The upper end of the inner drum 10 connects with and opens into a pipe 12 extending into the conduit 7 and terminating in a T-joint 13. Leading from the T-joint 13 is a horizontal pipe 14 which extends approximately the length of the conduit 7 and returns to a point adjacent the outer end thereof, where it terminates in a T-joint 15, from which an upwardly extending pipe 16 leads outside of the walls A of the brooder house. The inner drum 10, pipes 12, 14, and 16, form a flue for the hot gases generated by the burner 11, which, on passing through the pipe 14 heat the latter so as to raise the temperature of the air in the pipe 7 by radiation. The outer ends of the T-joints 13—15 are closed by means of plugs 17, which are removed when it is desired to clean the pipe 14; the door 8 being provided as a means of access thereto. The inner end of the pipe 7, where it extends through the floor B, is designed to connect with a detachable extension or joint of pipe 18, which projects upward and terminates a short distance below the top 2 and opens to the inner compartment C. The pipe 18 is removed and the open inner end of the pipe 7 is closed by a suitable cap when it is desired to remove the brooder and after the chicks have attained such size as not to require it. Formed in the top 2, immediately over the open upper end of the pipe 18, is an opening 19 which is normally closed by means of a cap 20. When it is desired to heat the brooder house direct, or reduce the temperature of the brooder-box, the cap 20 is removed so that the hot air emitting from the pipe 18 will be discharged into the brooder house through the opening 19.

In the operation of the invention, the hot gases generated by the burner 11 pass upward through the drum 10 and pipe 12, thence through the pipe 14 and are discharged from the pipe 16 outside of the brooder house. The hot gases act to heat the pipe 14 which will then perform the function of a heating coil and heat the air surround-

ing it in the conduit 7. It is manifest that any number of pipes 14 may be disposed in the conduit 7 as may be desired.

The air in the conduit becoming heated, rises and passes out the pipe 18 into the inner compartment C, thence under and between the curtain 6 into the outer compartment D from whence it passes into the brooder house beneath and between the curtains 3; fresh air entering the conduit 7 through the drum 9 as the heated air passes therefrom. From this it will be seen that a constant supply of heated fresh air will be delivered to the brooder, the incoming fresh air crowding out the impure air breathed by the chicks, through the perforations 4' formed in the side strips 4 adjacent to the underside of the top 2.

The pipes 14 and conduit 7 are of such length that the heat generated by the burner 11 will be fully utilized in heating the air in the conduit 7. The temperature of the heated air can be regulated by adjusting the flame of the burner 11 in any desired manner as required.

The chief feature of the invention is the long heating chamber or trunk 7 with one or more heat-conducting pipes 14 whereby in this long air trunk extending a substantial distance under the brooder-box practically all the heat generated by the burner is extracted and fresh hot air is delivered into the brooder; the brooder hood 10 extending a little below and spaced from the walls of the outer hood 9 so that a sufficient draft is created for the fresh air. This construction insures a large volume of fresh warm air to the brooder and none of the products of combustion entering the brooder.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. A heating system for brooders, comprising in combination with the brooder-box, a horizontal air conduit beneath and adjacent to the bottom of the brooder and projecting beyond on one side, said conduit having an upright discharge portion within the brooder-box, the latter comprising a central covered hover with concentric chambers, into the inner of which said upright portion of the conduit discharges and above the floor of the brooder, a downwardly extending, open-end air inlet drum for and on the opposite end of said conduit and external to the brooder, a valve plate on the conduit adjacent to said drum, and a heater below

and within the drum and having a stack extending vertically through the drum with a horizontal return branch running the length of the conduit for heating the air traversing the same and having a discharge external to the conduit and to the brooder, the air for the brooder normally entering through the space between the drum and stack, and said valve plate constituting a supplemental air control.

2. A heating system for brooders comprising in combination with a brooder box, a horizontal air conduit beneath and adjacent to the floor of the brooder and projecting to one side, said conduit having an upright portion within the brooder box, the latter comprising a cover hover with concentric brooder chambers, into the inner of which said upright portion of the conduit discharges at a point above the floor and below the cover of the hover, said conduit having at its outer end and external to the brooder a downwardly extended open end air inlet drum through which fresh air from the outside end of the conduit is admitted, a vertical drum within and spaced from the air inlet drum, and a horizontal U-shaped heating coil within said conduit and having connection with said vertical drum, said heating coil having a vertical stack extending through the conduit and discharging at a point external to the conduit and brooder adjacent the vertical drum.

3. A heating system for brooders comprising a brooder box, an external cylindrical conduit adjacent the bottom of said box, and extending to one side thereof, said conduit opening at its inner end to the brooder box, a vertical intake drum communicating with the other end of said conduit, a heating drum concentrically arranged within said intake drum and extending within the conduit, a U-shaped heating coil connected with the heating drum and located within and extending the entire length of the conduit, and a vertical discharge pipe for said heating coil located adjacent the heating drum and discharging outside the air conduit.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HARMON A. GEORGE.

Witnesses:

MARTIN H. POSTLOOM,
W. T. SPRIDGEN.