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BROODER AND HEATING MEANS THEREFOR

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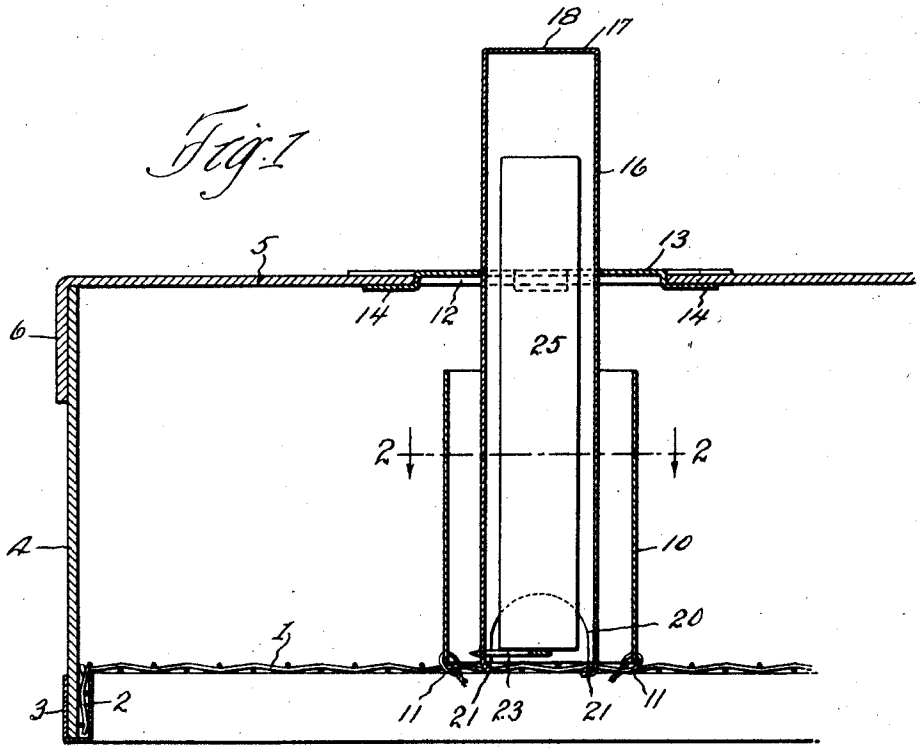


Fig. 1

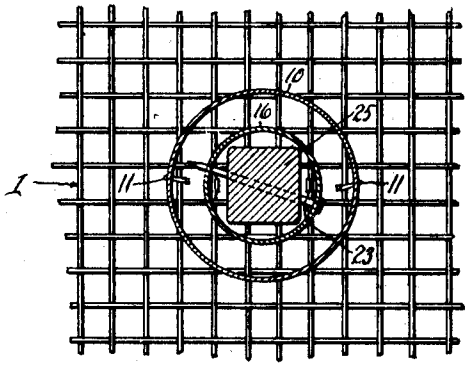


Fig. 2

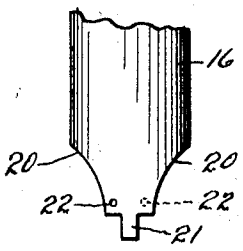


Fig. 3

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UNITED STATES PATENT OFFICE

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BROODER AND HEATING MEANS THEREFOR

Application filed January 26, 1927. Serial No. 163,695.

This invention pertains to brooders, and to means for heating the same.

The class of brooders to which my present invention more particularly relates are inexpensive contrivances that are made by converting the shipping boxes, wherein newly hatched baby chicks are transported, into brooders in which the chicks may be properly cared for during the brooding period. Such convertible shipping boxes are described and claimed in my reissue Letters Patent No. 16,518, dated January 4, 1927, and in my application No. 163,362 filed January 25, 1927.

Manifestly, cheapness is a prerequisite to devices of the above nature since they are used in the original instance simply as a shipping box, and thereafter for only a relatively short time as a brooder; and it follows from this that any means for heating such a brooder must be correspondingly inexpensive.

The primary purpose of my present invention, therefore, is the production of a cheap, yet thoroughly efficient stove that is especially suitable for use with brooders of the above mentioned class.

Other objects are to provide a brooder of the nature aforesaid that is equipped with a heating device, and to make such device of a so-called "knock-down" construction in order to facilitate packing for shipment.

Still further objects are the production of a thoroughly safe heating device of the aforesaid character; and one that is especially convenient of use, and requires the minimum of attention.

The foregoing objects, with others hereinafter appearing and including simplicity of construction, and ease and quickness of assembly, are attained in the embodiment of the invention illustrated in the accompanying drawing wherein Fig. 1 is a fragmentary sectional side elevation of a brooder incorporating my improvements, the heater being shown in central vertical section; Fig. 2 is a horizontal section on the line 2—2 of Fig. 1, and Fig. 3 is a detail of the combustion chamber casing of the heater.

The construction of the brooder in the present illustration is the same as that disclosed in the above mentioned application and it involves a wire screen bottom 1 whose edge is turned downwardly as shown at 2 and clamped, by a metallic channel member 3, to the lower edge of a vertical wall 4, the latter being constructed of suitable material, preferably corrugated cardboard. A cover 5 of similar material is formed with a peripheral flange 6 that telescopes over the upper end of the vertical wall 4.

The stove or heater comprises a drum 10 that rests upon and is adapted to be secured to the wire screen bottom 1 by fastening means 11 that are shown in the nature of wire loops. The drum 10 is preferably constructed of sheet metal and is shown as cylindrical in form and as having its upper end spaced a suitable distance below the top wall of the brooding chamber formed by the cover 5. Said top wall or cover has an opening 12 above the drum 10, and adapted to be disposed across this opening is a metal plate 13 having lugs 14 that are extended downwardly through the opening 12 and laterally beneath the wall or cover, the peripheral portion of said plate resting upon the cover about said opening. An aperture in the plate 13 accommodates a tubular casing 16 that encloses the combustion chamber. A wall 17 extends across the upper end of the casing 16 and is provided with a perforation 18. The lower end of the casing 16 is shown as provided on opposite sides with notches 20, and lugs 21 extend from diametrically opposite points of the lower end of the tube between said notches 20. In close proximity to its lower end the casing 16 is provided with holes 22 for the accommodation of a suitable fuel supporting device 23, which may consist of a nail or the like.

The heater is designed for use with fuel, preferably a carbon compound, that is furnished in stick form, and the same is designated 25. In charging the combustion chamber, the casing 16 may be inverted and the fuel dropped into it after which the fuel supporting device 23 may be inserted through the holes 22 and the casing 16, then reversed and placed within the drum 10. To hold the

casing 16 in place the lugs 21 are projected through openings in the screen bottom 1 and are desirably bent about adjacent wires thereof. The fuel 25 is preferably ignited before it is placed in the combustion chamber as by being held within the flame of a gas jet or applied to burning coals. After the casing 16 is in position, the cover 5, with the casing 16 extended through the aperture of the plate 13, is lowered onto the wall 4.

Air to promote combustion is supplied through the open lower end of the casing 16 and the products rise through said casing about the fuel and escape through the perforation 18 in the top wall 17, the size of said perforation being such as will cause the products to escape relatively slowly so that the greatest heat value may be procured therefrom. The casing 16 is thus heated, and this heat is radiated to the air that rises through the drum 10, the thermal action of the heat inducing an upward draft through the drum. The heated air, issuing from the top of the drum, spreads horizontally beneath the cover 5 and effects a substantially uniform temperature throughout the brooding chamber. It will be understood that the burning of the fuel is restricted to the lower end of the fuel body and as the body is consumed it will drop and rest at all times upon the supporting device 23.

Having thus described my invention, what I claim is:—

1. In a brooder, the combination of a bottom wall, a top wall spaced thereabove and having an opening, a substantially flat metallic plate disposed across said opening and located on one side of the top wall and having integral parts struck from its peripheral portion and extending through and contacting with the sides of the opening and engaged with the other side of said wall, said plate having an aperture, a drum supported on the bottom wall beneath the opening in the top wall, and a casing enclosing a combustion chamber situated inside of said drum and projecting upwardly through the aperture of said plate.

2. In a brooder, the combination of a wire screen bottom wall, a drum resting upon and connected to said wall, and a sheet metal casing enclosing a combustion chamber situated inside said drum and having projections at its lower end engaged through openings in said wall and bent over therebeneath to connect the casing to said wall and maintain it in properly spaced relation to the drum.

3. A heater of the character set forth comprising, in combination with a wire screen support, a cylindrical sheet metal drum resting upon the support, means connecting said drum to the support, a sheet metal tubular casing arranged inside the drum and having projections at its lower end for engagement through openings in the support, the casing having holes in its opposed walls adjacent its lower end, and a fuel support extending through said holes.

4. A heater of the character set forth comprising in combination with a wire screen support, a cylindrical sheet metal drum resting upon said support and connected thereto, a tubular sheet metal casing arranged inside the drum and connected to the support, said casing having air admitting notches in the lower ends of its opposed walls and having holes in its walls between said notches, and a fuel support extending through said holes.

5. A heater for brooders of the class described comprising, in combination with the top wall and the foraminous bottom wall of the brooder, a sheet metal drum secured to the bottom wall, the top wall having an opening substantially in alignment with the drum, and a sheet metal tubular combustion chamber adapted to be placed inside the drum in spaced relation thereto and having means for detachably fastening its lower end to the bottom wall, said combustion chamber being open at its lower end for the insertion of fuel prior to its placement within the drum, the upper portion of said combustion chamber being sustained within the opening in the top wall.

6. A heater for brooders of the class described comprising, in combination with the top wall and the foraminous bottom wall of the brooder, a sheet metal drum secured at its lower end to the bottom wall, a sheet metal tubular combustion chamber adapted to be placed within the drum in spaced relation to the wall thereof and extending above the plane of the top wall, said top wall having an opening for the accommodation of, and considerably larger than, the cross sectional area of the combustion chamber, a sheet metal member closing said opening and having a perforation within which the combustion chamber fits, the member being provided with fastening means integral with its body portion for attaching it to the top wall, the combustion chamber being open at its lower end for the insertion of fuel before its placement within the drum and having means for detachably connecting it to the bottom wall.

In testimony whereof, I hereunto affix my signature.

ROBERT A. GORSUCH.