March 21, 1950 A. C. BUSSEY 2,501,433

BROODER CONSTRUCTION

Filed Oct. 26, 1944 3 Sheets-Sheet 1

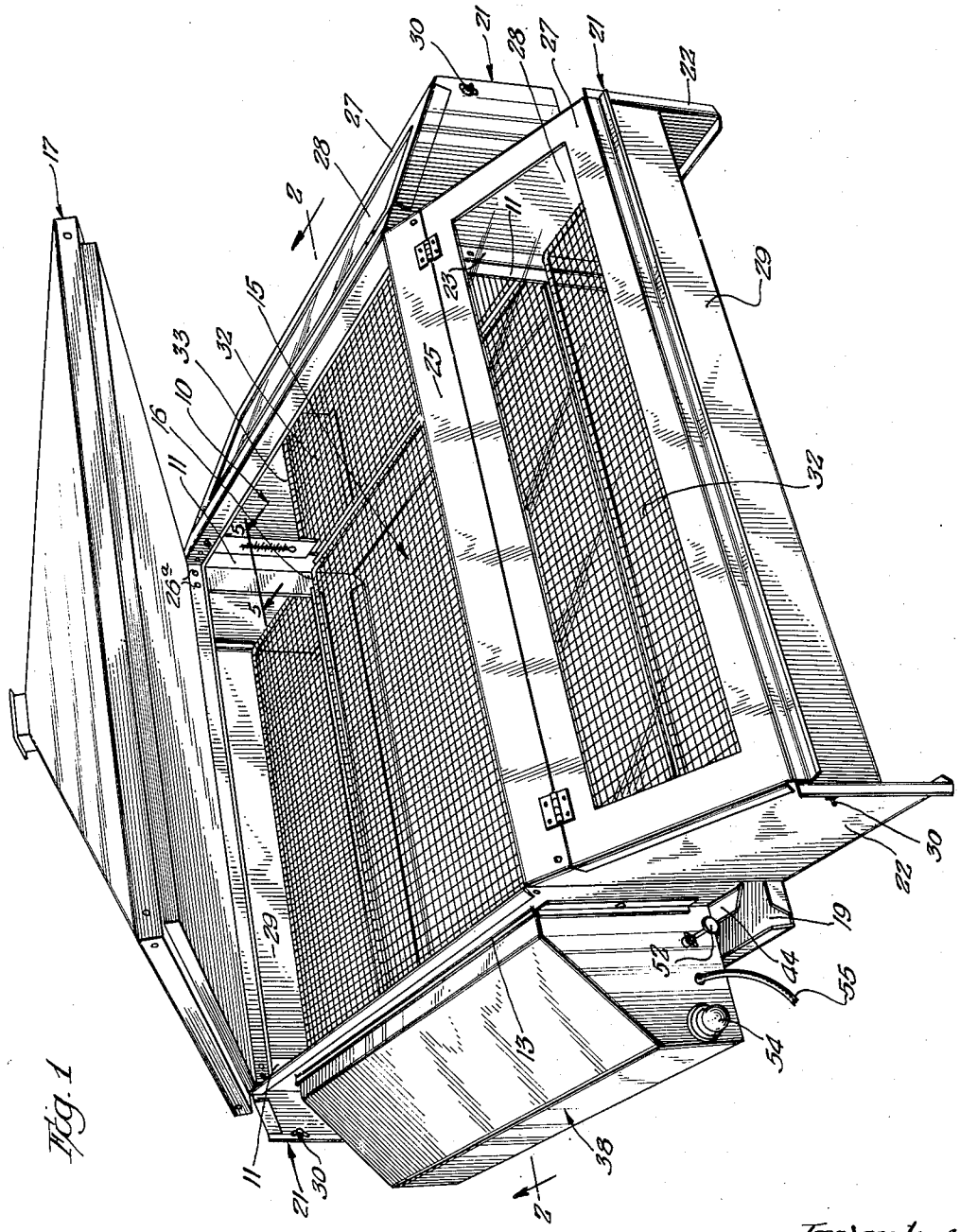


Fig. 1

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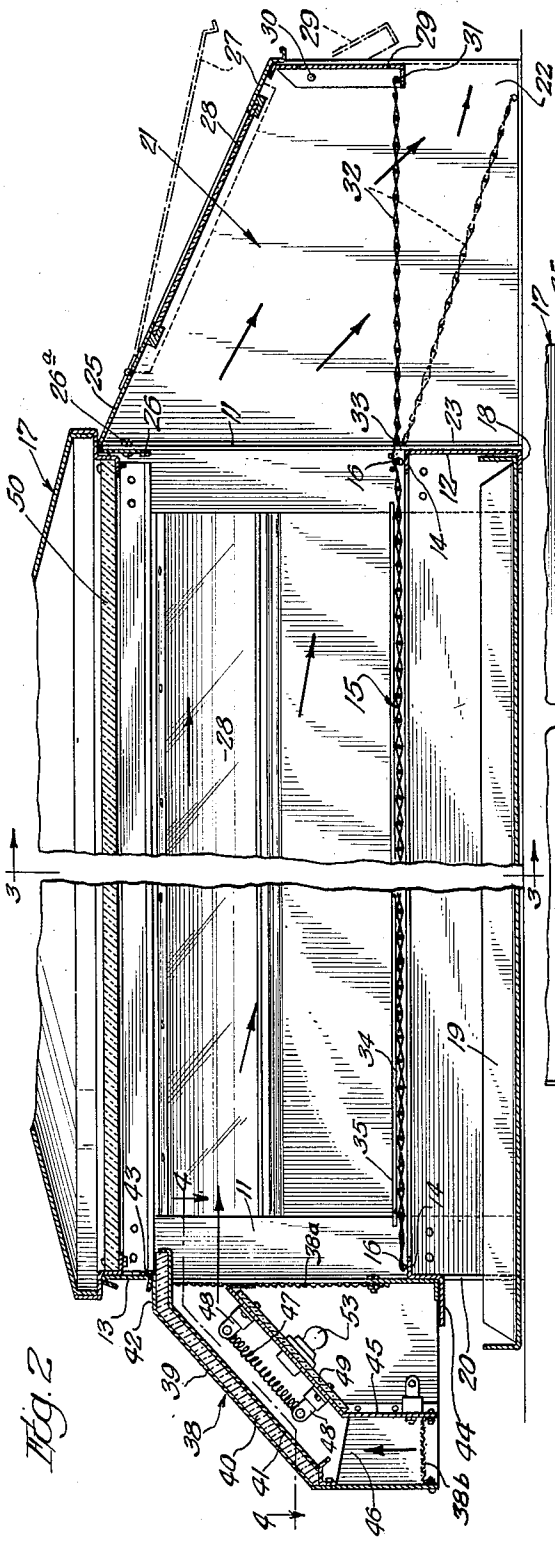


Fig. 2

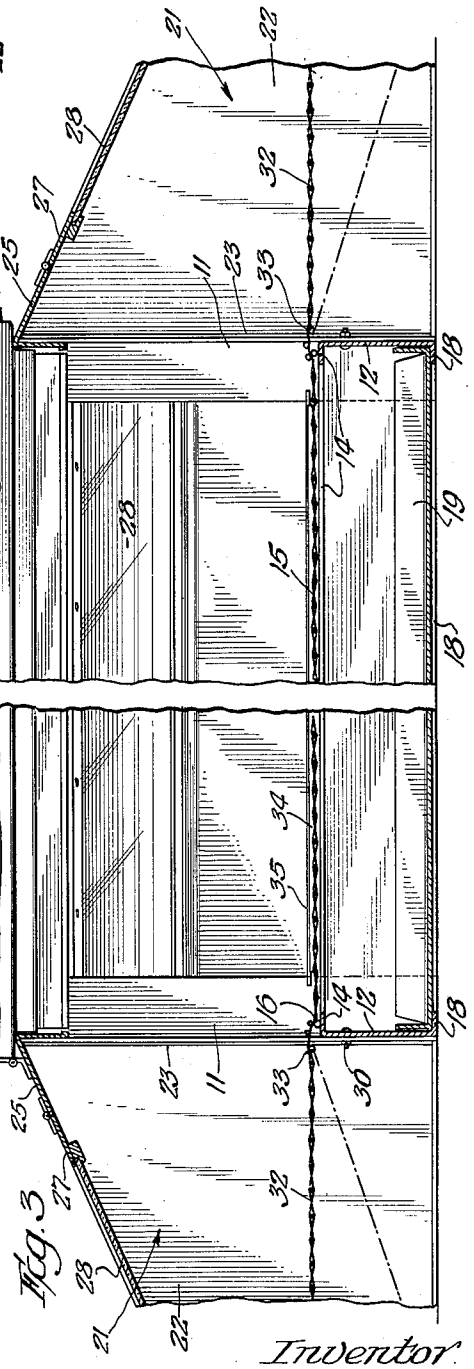


Fig. 3

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Fig. 4

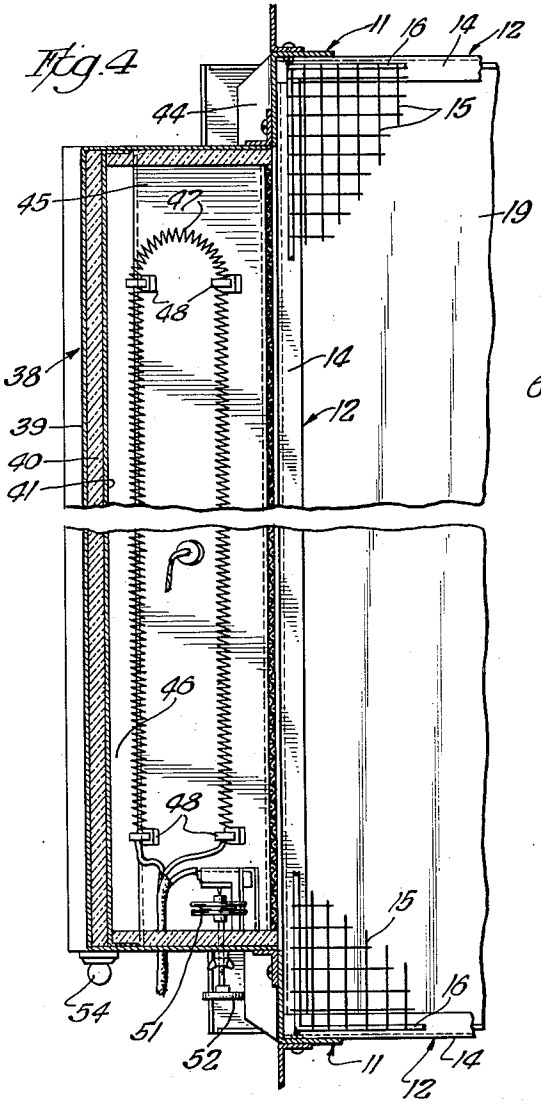


Fig. 5

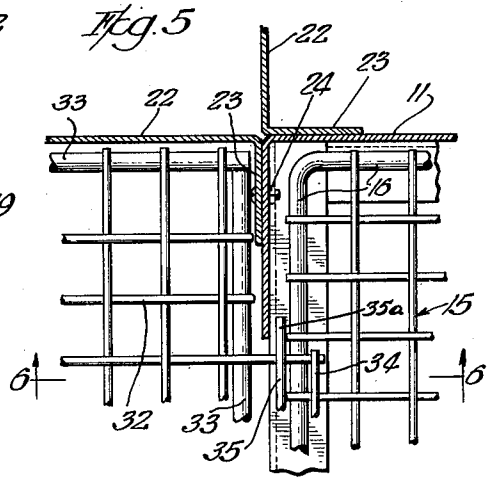


Fig. 6

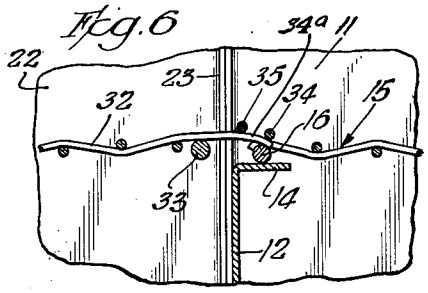
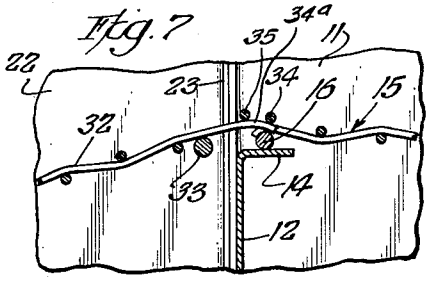


Fig. 7



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UNITED STATES PATENT OFFICE

2,501,433

BROODER CONSTRUCTION

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Application October 26, 1944, Serial No. 560,383

2 Claims. (Cl. 119—33)

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This invention relates to improvements in brooder construction.

One object of the invention is to provide an improved floor type brooder, that is, one adapted to be placed on the floor of a room or other enclosure and which at suitable times can be adjusted to give the brooded chickens or other fowl access to the floor of the surrounding enclosure.

Another object of the invention is to provide an improved brooder having heating means therefor which provides a forced distribution of air within and through the brooder for ventilation purposes.

Additional objects of the invention relate to various features of construction and arrangement of parts which will be apparent from a consideration of the accompanying drawings wherein,

Figure 1 is a perspective view of a brooder which is illustrative of the present improvements, the brooder top or canopy being shown in upwardly tilted position;

Fig. 2 is a vertical sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a broken vertical sectional view taken on line 3—3 of Fig. 2;

Fig. 4 is a broken horizontal sectional view taken on line 4—4 of Fig. 2;

Fig. 5 is an enlarged broken horizontal sectional view taken on line 5—5 of Fig. 1 showing a corner of a brooder construction;

Fig. 6 is a sectional view taken on line 6—6 of Fig. 5;

Fig. 7 is a view similar to Fig. 6 but showing an auxiliary floor section in inclined position to provide a ramp.

In the accompanying drawings the brooder illustrated is provided with a main brooder compartment of rectangular shape and indicated generally by the numeral 10. The structure defining the compartment 10 comprises angular corner members 11 attached to the lower ends of which are channel members 12 as shown in Figs. 2 and 3. Three of such channel members are employed, one on each of three sides of the main compartment on which is positioned the auxiliary compartments hereinafter mentioned. A frame-like sheet metal wall 13 connects the adjacent corner members 11 on the fourth side of the compartment 10. The upper horizontal flanges 14 of the channel members 12 provide a support for a mesh floor 15 having an area corresponding substantially to the area of the main compartment

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10. The compartment 10 is thus substantially open at its four vertical sides.

The floor 15, as shown in the drawings has a perimetrical reinforcing rod 16 to which the mesh or hardware cloth of the floor is secured as by welding, for example. The floor 15 may be removed from the compartment 10 or placed therein through the top of the compartment when the canopy, indicated generally by the numeral 17, has been removed. The lower horizontal flanges 18 of the channel members 12 provide a support track for a droppings pan 19 which normally is disposed beneath the floor 15, but which may be withdrawn from the brooder through the space 20 provided in the lower portion of the wall 13 as shown in Fig. 1.

Three sides of the compartment are open and communicate directly with three auxiliary compartments each indicated generally by the numeral 21. These auxiliary compartments are of identical construction and hence one only will be described in detail. Each compartment 21 is provided with end walls 22, the lower edges of which are arranged in the horizontal plane of the bottom edge of the brooder and hence rest upon a floor of a room or other enclosure when the brooder is in use. The walls 22 have inwardly turned vertical flanges 23 which are adapted to be bolted to the adjacent flanges of the corner members 11 as indicated at 24 for attaching the auxiliary compartment to the main structure. Each auxiliary compartment is provided also with a top plate 25. The plate 25 as shown in Fig. 2 has a downwardly turned flange 26 adapted to extend downwardly to the rear of the adjacent flange of the respective corner members 11 and to be bolted thereto as indicated at 26^a in Fig. 2. The top plate 25 is inclined from the main brooder compartment at any suitable angle or slope such as will discourage chicks from attempting to climb on the brooder. Hinged to the plate 25 is a cover or lid 27, preferably formed of sheet metal, and having a glazed opening 28 which not only permits of natural illumination of the brooder interior during the daytime, but provides for ready examination of the condition of chicks by an attendant. The lid 27 may be raised readily to provide access to the brooder interior.

The front wall of each auxiliary compartment 21 is formed by a plate 29 which is pivotally attached to the end walls 22 by means of bolts 30 or the like. The bolts are shown as provided with wing-nuts at their outer ends whereby the plate can be tilted from the normal vertical position

to an inclined position such as is suggested by dotted lines in Fig. 2, and retained by the nuts in such adjusted position.

The bottom edge of the plate 29 is turned inwardly to form a flange 31 as shown in Fig. 2 and while the plate 29 is in the vertical position the said flange 31 constitutes a support for the outer edge of a mesh floor section 32 of the auxiliary compartment. The floor section 32 is shown formed of wire mesh or hardware cloth and is provided with a perimetrical supporting rim 33. Along the inner edge of the floor section 32 the wire mesh thereof extends beyond the adjacent rim 33 as indicated at 34. The projecting intermediate portion 34 projects over onto the adjacent edge of the main floor section 15 thereby cooperating with the flange 31 of the adjustable plate 29 in supporting the auxiliary floor section 32 in horizontal position. A longitudinally arranged rod 35 is attached to the extending portion 34, as by welding, and is of such length that the ends thereof overlap slightly, as at 35a the adjacent vertical edges of the respective corner members 11. (See Fig. 5.)

The construction just mentioned provides a pivotal support for the auxiliary floor section, and prevents the extension 34 from sliding outwardly from engagement with the main floor section when the auxiliary floor section 32 has been lowered at the outer edge thereof to the dotted line position shown in Fig. 2 to form a ramp.

When the lid 27 has been raised and tilted back against the canopy 17 the respective auxiliary floor section 32, by first elevating one end thereof, can be released from engagement with the respective corner members 11 and removed from the auxiliary compartment for cleaning. When the auxiliary floor section 32 is in the normal horizontal position, it is disposed preferably in the plane of the main floor section 15, but when lowered to the dotted line position of Fig. 2 it constitutes a ramp along which the chicks can pass to and from the brooder to the floor of the surrounding enclosure, not shown. The inwardly projecting portion 34 of the auxiliary floor is shown slightly curved in Figs. 2, 3, 6 and 7 (indicated by numeral 34a, Figures 6 and 7), to avoid forming an obstruction to the chicks when the auxiliary floor is in inclined position.

The wall panel 13 which is secured to the adjacent corner members 11 is in effect but a rectangular frame having a rectangular opening which registers with a heating compartment indicated generally by the numeral 38. The compartment 38 preferably has exterior sheet metal walls of the shape shown in Fig. 1. The top wall 39 of the heating compartment has an insulating liner 40 which is shown faced on the interior, preferably by a metal sheet 41. The upper edge of the wall 39 is horizontally disposed as shown at 42 and has an upwardly directed flange 43 which, with the compartment held in inclined relation with respect to the wall 13, may be inserted beneath the upper portion of the wall 13, whereupon the bottom edge of the compartment can be swung into supported position upon the bottom flange 44 which is formed by turning the metal of the wall 13 outwardly as shown in Fig. 1. The heating compartment thus can readily be placed in position on the brooder or removed therefrom. In removing the heating compartment, the bottom edge thereof is first swung outwardly and then lowered to release the flange 43 from engagement with the upper portion of wall 13 and is then withdrawn horizontally.

Extending between the end walls of the casing 38 is a partition 45 of sheet metal. The wall 45 is spaced suitably from the wall 39 to provide a heating passage 46 within which is positioned an electrical heating element 47. The heating element is carried on suitable insulators 48 supported on an insulating panel 49, which is secured to the panel or wall 45. When current is flowing through the heating element a current of air is induced upwardly through the passage 46 into the upper portion of the main compartment 10. Air within the brooder circulates to the auxiliary compartments and passes downwardly and outwardly through the respective reticulated floors 32. The heater thus not only supplies fresh air to the brooder, but heats such air and maintains a mild but effective circulation of air within the brooder during such times as the heating element is in operation.

A reticulated member 38a is provided over the open portion of the inner face of the casing 38 for preventing egress of chicks from the main compartment into the heating compartment and to enable light from a lamp in the heating compartment to be visible to an attendant through any of the glazed openings of the auxiliary compartments. A second reticulated member 38b closes the end of the air passage 46 against entrance of chicks from the exterior of the brooder as well as for the purpose of excluding rodents.

To prevent excessive loss of heat from the main brooder compartment, the lower surface of the canopy 17 is shown as provided with a heat insulator 50. When the canopy is in normal closed position, the main compartment 10 is closed, and the warmer air is thus not permitted to escape from the brooder. The air as it cools and descends is forced outwardly from the main compartment to the auxiliary compartments whence it passes as above stated through the floors 32 of the latter. The general course of the circulation of air is shown by arrows in Fig. 2.

The heater 38 is provided with a thermostat 51 having an exterior adjusting knob 52 extending from one end of the heater as shown in Fig. 1. The thermostat is, of course, connected in the circuit of the heating element 47 and may be adjusted for controlling the maximum temperature of the air delivered to the brooder. Likewise connected in the circuit of the heating element 47 is a pilot light 53 which provides mild illumination within the heater which is visible to an attendant through any one of the glazed covers 27. The pilot light 53 thus indicates to the attendant whether the heating element is being energized at a given time. The reticulated member 38a enables light from the lamp to enter the main brooder compartment for the purpose stated above.

A second pilot light 54 is shown in Fig. 1 mounted on the exterior of the heating compartment and is connected in parallel with the heating element 47 and is constantly illuminated whenever the conductor 55 is connected to a source of electrical energy. The pilot light 54 will be extinguished should the conductor plug become detached inadvertently from an outlet, or should a circuit protecting fuse be blown, and will thus indicate to an attendant that the supply of current to the brooder has been cut off, whether or not the pilot light 53 is lighted.

The lower edges of the front walls 29 of each auxiliary compartment 21 are disposed substantially in the same horizontal plane as the main floor 15, and hence prevent outward flow of

heated air. It is thus only the cooler air within the brooder at floor level that exhausts through the reticulated floors 32, the arrangement maintaining a relatively large volume or blanket of substantially uniformly heated air above the floor, although, as stated, a mild circulation of the air and constant exhaustion of the same from the brooder occurs during the operation of the heating element.

The present improvements provide not only a brooder which renders easy access to the chickens or to food and water receptacles within the brooder by an attendant by elevating any one of the three covers 27 or by elevating the canopy 17, but the construction also, by reason of the arrangement whereby the normally horizontal floor sections 32 can be lowered at the outer ends to form ramps, enables the chicks to pass into and out of the brooder freely. As the chicks increase in size, additional head space above the lowered edge of the ramp can be provided for accommodating passage of the chicks into and out of the brooder by tilting the pivotally mounted walls 29 toward horizontal position and retaining them in such position by tightening the wing nut 33 on the respective bolts. In Fig. 2, dotted lines indicate one of the outwardly tilted positions of the end wall 29. When the wall is in any of such outwardly tilted positions, the vertical space between the lower edge of the wall and the ramp is greater than where the wall is in normal vertical position. Hence, as the chicks increase in size, the walls 29 can be titlted outwardly to afford freer passage for the chicks up and down the respective ramps when the latter are in the lowered positions.

In use the improved device supplies fresh air to the brooder compartment due to the ventilating action effected by the heater, and stale air is expelled through the mesh floors of the auxiliary compartments. Such ventilation is calculated to reduce loss from air-borne respiratory diseases and to increase the number of chicks or poults that can be kept safely within a given brooding space as compared with known brooders heretofore employed. Not only is fresh air of proper temperature supplied to the brooding compartment but, as the chicks or poults increase in size the main compartment in effect can be arlarged or its holding capacity increased by utilizing but one of the auxiliary floors as means of ingress and egress from the main brooder compartment and retaining the other auxiliary floors in raised position to provide extensions of the brooder space.

The brooder shown is designed to be shipped in knocked-down relation, the sheet metal parts, including the portions of the main and auxiliary compartments being adapted to be secured together by bolts or like convenient fastening means, but such arrangement is not essential to the utilization of the improvements described.

While I have shown and described various features of my improvements for the purpose of illustrating the invention, it will be apparent that various changes in the details of construction may be resorted to without departing from the

spirit of the invention defined by the following claims.

I claim:

1. A brooder comprising a structure providing a main brooder compartment having an open side, a floor in said compartment above the level of the bottom of the structure, means for heating air and directing it into the brooder, an auxiliary compartment secured to the brooder and comprising a top wall, end walls, and an open side communicating with said open side of said main compartment, and a side wall opposite from said open side of said auxiliary compartment terminating at the lower edge thereof substantially in horizontal alignment with the plane of the floor of said main compartment to provide an air exhaust opening beneath said lower edge and a reticulated floor in said auxiliary compartment coplanar with said main floor and providing an exit for the lower stratum of air in the auxiliary compartment that exhausts from beneath said floor through said exhaust opening.

2. A brooder comprising a structure providing a main brooder compartment having a floor at an elevation above the bottom of the brooder structure, said compartment having an open side, an auxiliary compartment having a top wall, end walls, an open side registering with the open side of said main compartment and a side wall opposite said open side terminating at the lower edge in the plane of said floor, a floor in said auxiliary compartment pivotally supported along the inner edge thereof on said main compartment floor, means adjacent the lower edge of said side wall of the auxiliary compartment for releasably supporting said auxiliary compartment floor at the outer edge thereof, and means pivotally connecting said side wall of the auxiliary compartment to the adjacent end walls thereof whereby said side wall is swingable to release said floor of the auxiliary compartment for movement to an inclined position providing a ramp affording means of egress from and ingress to the main compartment to and from the exterior of said brooder.

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