

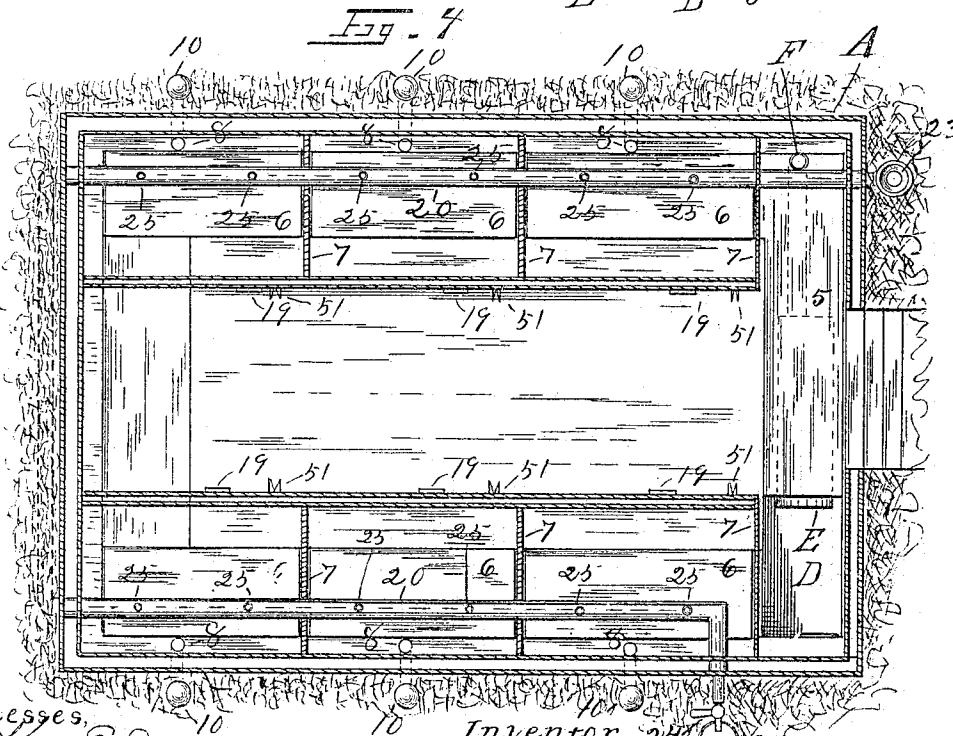
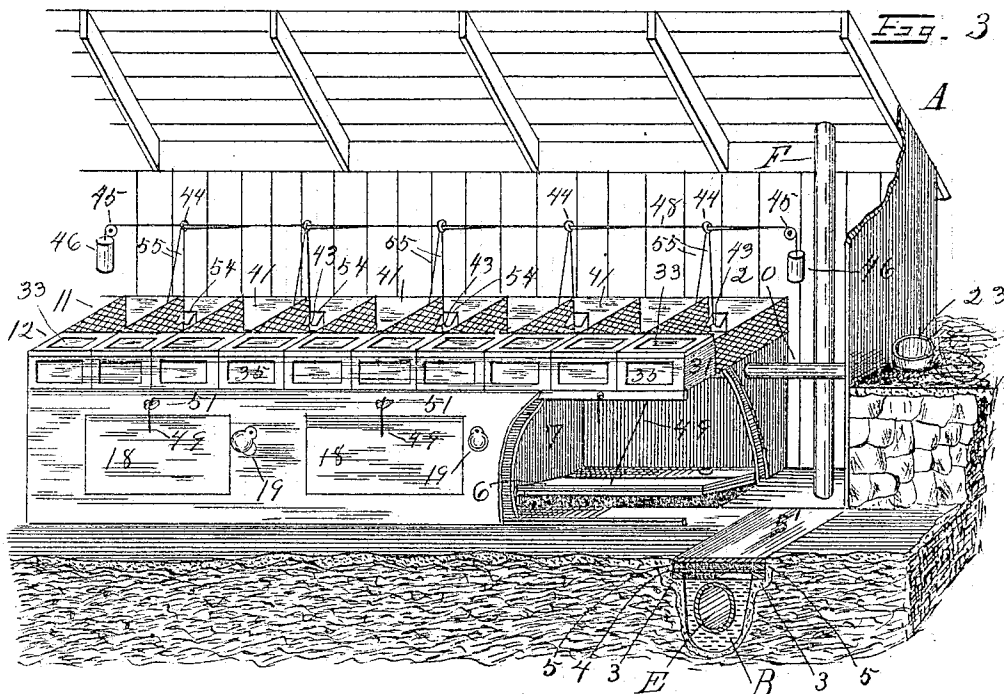
No. 809,631.

PATENTED JAN. 9, 1906.

N. SALTONSTALL.
BROODER.

APPLICATION FILED MAR. 11, 1904.

4 SHEETS—SHEET 2.



Witnesses,
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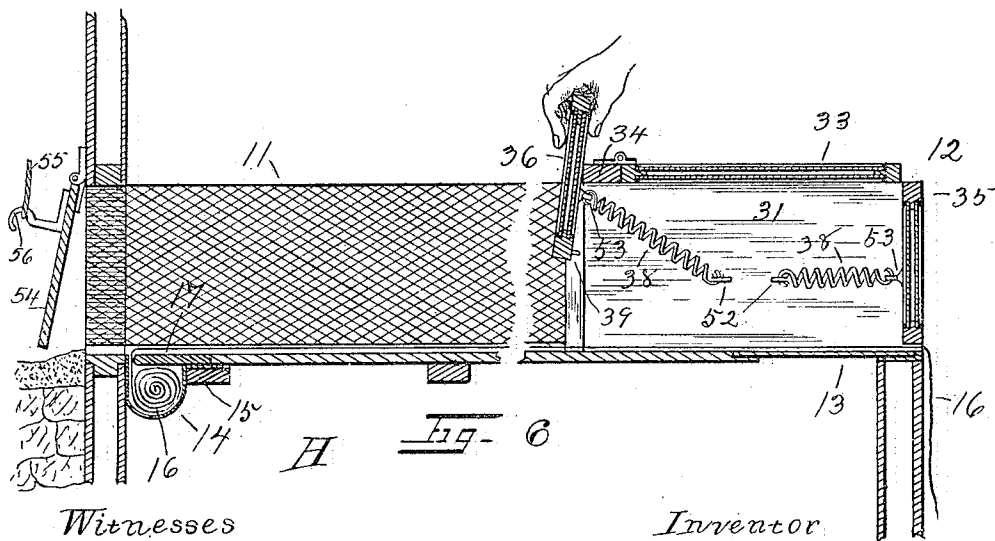
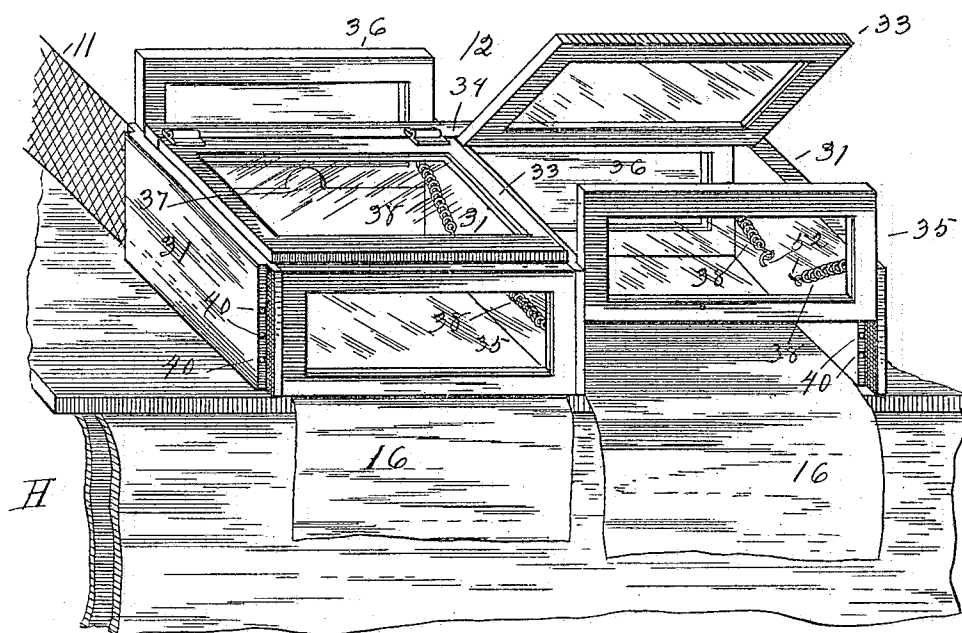
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4 SHEETS—SHEET 3.

Fig. 5



Witnesses

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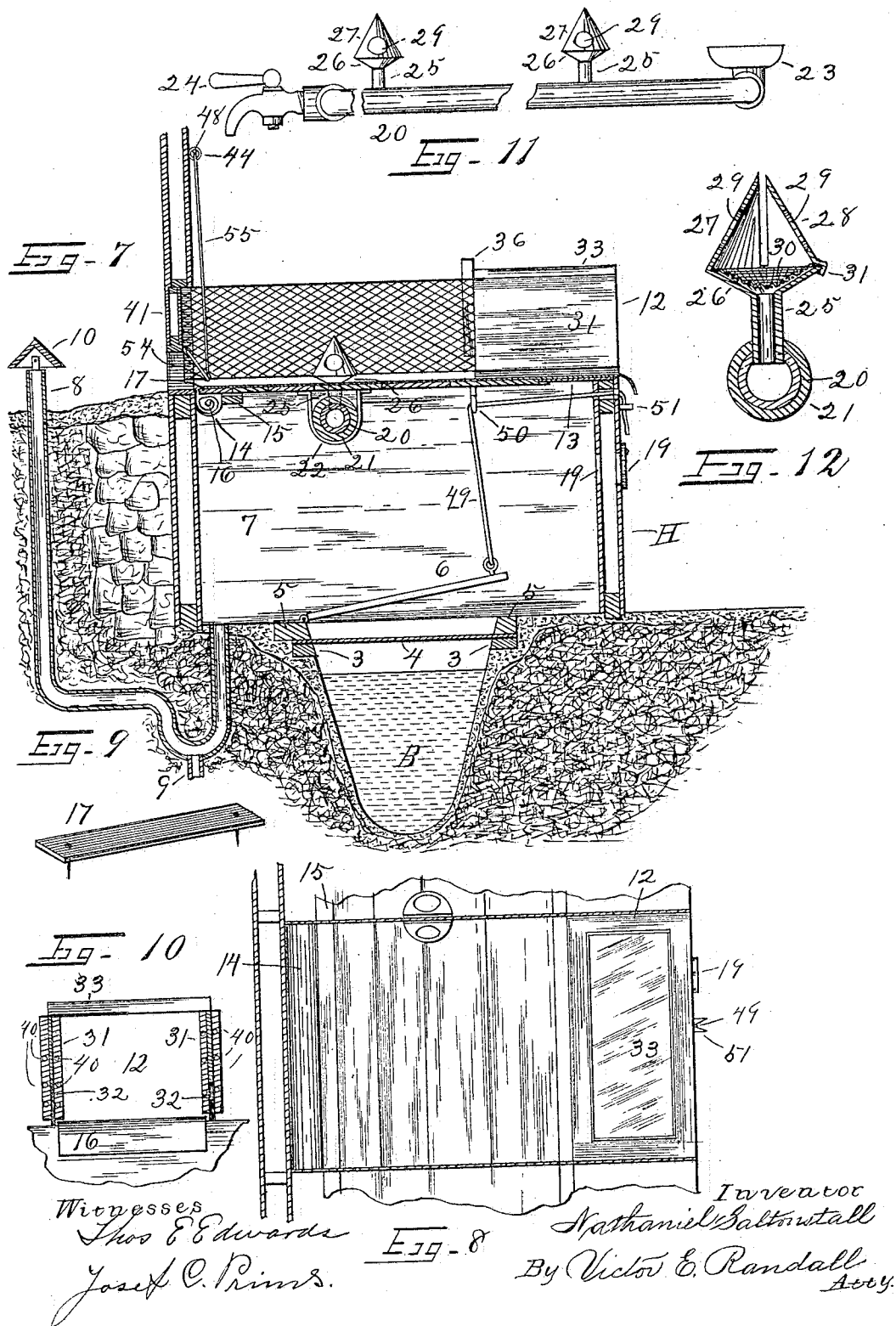
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UNITED STATES PATENT OFFICE.

NATHANIEL SALTONSTALL, OF BATTLECREEK, MICHIGAN.

BROODER.

No. 809,631.

Specification of Letters Patent.

Patented Jan. 9, 1906.

Application filed March 11, 1904. Serial No. 197,615.

To all whom it may concern:

Be it known that I, NATHANIEL SALTONSTALL, a citizen of the United States, residing at Battlecreek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Brooders, of which the following is a specification.

This invention relates to brooders, and more particularly to an arrangement or system comprising a housing having a shallow cellar within and near the walls of which a water-tight compartment encircles the same and is heated from a submerged heating apparatus, in relation to a series of warm-air chambers arranged thereabove and upon which a system of compartments provided with hovers is arranged, watering-cups provided for each of said compartments communicatively united to said supply-pipe, renewable paper-litter carpets arranged within each of said compartments, all of said compartments opening outward into a common inclosure, and a series of doors connectively united by a cord or rope from a suspended balance opening from said inclosures within said outer inclosure.

This invention consists in the arrangement and construction of the several parts, which will be more fully set forth and hereinafter described and claimed.

In the drawings, Figure 1 is an end section of the brooder longitudinal with the submerged water-heating apparatus. Fig. 2 is a detail plan of the submerged water-heating apparatus uncovered. Fig. 3 is a sectional perspective view showing a series of brooders, the weighted balance I employ to adjust the doors to the individual brooders, and the water-heater within the water-tight compartment that encircles the cellar near the walls thereof. Fig. 4 is a plan view, in cross-section, at a point between the brooder-tops and the water-pipe communicating therewith and shows the partitions between the warm-air compartments and the lids covering the hot-water receptacle. Fig. 5 is a perspective detail of the hovers and shows the removable litter-paper carpets as they would appear in pulling them from the hovers. Fig. 6 is a detail side section through one of the hovers and shows the mode of securing the end doors to the same and a modification of the brooder-pen door. Fig. 7 is a detail side section of a brooder, showing the outer ventilator-duct and the hot-water compartment. Fig. 8 is a detail plan view of a

brooder with the paper-litter carpet removed and also shows the cover to the paper-receptacle removed. Fig. 9 is a perspective view of the paper-receptacle cover. Fig. 10 is a detail end view of a brooder in modified form from Fig. 5 with the doors removed. Fig. 11 is a detail view of the water-supply pipe and a series of watering-cups attached, together with a supply-funnel and a drainage-faucet; and Fig. 12 is a vertical section of a water-supply cup and a cross-section of its feed-pipe.

In the drawings like letters and numerals refer to corresponding parts throughout the several views.

A is a brooding house or inclosure, within which the heating apparatus and the several hovers and attendant appurtenances are located. The walls of this house may be composed of a single or double thickness, as may be found expedient, and it incloses a shallow cellar, the depth of which is about three (3) feet. Encompassed by the walls of the cellar is a secondary excavation B, forming a channel whose sides are made water-tight by plastering with water-lime, Portland cement, or equivalent and forms an annular water-compartment or cistern. Intersecting this channel at some point thereof, preferably at or near the corner of the cellar, dams C and C' are located, and between these dams a water-tight sheet-metal curbing or trap D is placed. This curbing has an aperture in one side thereof, within which the forward end of the heating apparatus E is fitted. The top of the curbing is left open, so that a person may enter the same to supply the heating apparatus E with fuel, and, as herein illustrated, said heating apparatus opens direct within said curbing, the former of which may be closed by a door in the usual manner or by simply placing a piece of sheet metal thereagainst to regulate the draft, as occasion may require. A smoke-pipe F leads from said apparatus, and a portion thereof by preference is also submerged, as shown, and forms a means also for heating the water surrounding the same. Brackets 1 and 2, located within the bottom of the channel B, form supports for said heating apparatus. In the drawings two dams are shown. However, the dam C' may be dispensed with.

Connectively uniting the channel B where the curbing D intersects the same a conduit G is provided and passes beneath said curbing. Within the upper edges of the water-channel B gaskets are formed, within which

wooden timbers 3 are placed, and hermetically attached upon the same thin metallic plates forming a covering 4 are placed at a point above the heating apparatus. This covering may also be attached to a secondary top covering 5' and form a trap-door, by which means water can be placed within the water-channel B. Resting upon the edges of the hermetically-sealed water-covering 4 a secondary set of wooden ledges 5 are placed. These ledges form seats to which thin wooden or other doors 6 are hinged.

In the distribution of heat derived from the water in the receptacle B the doors nearest the fire or heating apparatus may be supplied with asbestos, felt, or paper, or other non-heat-conducting coverings, gradually diminishing said coverings in thickness as the doors recede from said heating apparatus or, in other words, distributing said covering so that the heat will be uniformly and equally distributed to the several compartments located thereabove.

In providing a large volume of water at low temperature as a means for affording heat to the brooders located thereabove sudden changes in the temperature of the weather do not materially affect the atmosphere of said brooders—a feature of special importance in the rearing of young chickens; nor will the chickens be subjected to extreme heat or cold, as is often the result where steam-coils or hot-air pipes are employed for the purpose, owing to the difficulty in keeping said coils and pipes uniformly heated.

That the doors may be readily lifted a cord 49 is secured to the free edge thereof and passes upward through an eyelet 50 and out through an aperture in the front of the chamber H and is secured to a pin or drawn taut through a V-shaped slot 51, as may be found expedient.

Along the sides of the cellar and inclosing the water-heating channel B chambers H H are provided, whose tops are at or slightly above the cellar-walls. These chambers by preference are provided with double walls, as shown in Figs. 3, 5, 6, 7, and 8, between which a dead-air space is formed for the purpose of affording non-heat-conducting properties and at intervals are partitioned, as at 7, 7, &c. The walls at the right hand of the chambers H are not shown as double in Fig. 4, as some may prefer to employ single walls at this portion of the brooder, owing to the close proximity of the heating apparatus E.

That the compartments may be readily entered doors 18 are arranged within their inner walls, as will be better comprehended in Fig. 3, and that the several compartments comprised within the chambers H may be ventilated with fresh air a ventilating-duct 8, having a drainage-trap 9, is provided, said duct opening within the bottom of said cham-

bers and terminating slightly above the surface of the ground outside the cellar and provided with the usual dust-caps 10, and that said chambers may not be superheated a secondary or inner set of ventilating-ducts 19 are provided, which pierce both walls of the dead-air space and better comprehended in Fig. 7. The covering to the chambers H H is separated off into compartments divided by wire-netting 11, secured at one end to the walls of the brooder and at the opposite end to hovers 12, located along the inner edge of said chambers.

The floor of the hovers occupying the side next to the wall of the chambers H H is preferably formed of sheet metal 13 (see Fig. 7) and occupies about one-half the area of said hovers, the object being to provide a flooring for a part of the hover that will be somewhat more susceptible to the heat derived from the heating-chambers beneath and upon which the chicks will the more readily congregate when in need of protection from cold.

At the end of the compartments opposite the hovers a portion of the covering to the chambers H H is left open and a metallic concave trough or pocket 14 is supplied, the rear edge of which is secured to the wall and its opposite edge made fast to a longitudinally-arranged ledge 15, forming the inner edge of said covering. These pockets are provided with rolls of paper 16, and to secure the same and to prevent them from rolling from said pockets a covering 17, slightly narrower than the opening formed between the floor and the wall opposite, is placed, leaving a slit through which the paper may be withdrawn, and it is secured by nails to the ledge 15, as will be better shown in Figs. 7, 8, and 9. It will be apparent that paper other than rolled in coils could be used to advantage for the purpose—as, for instance, the same might be folded or plaited and stored within a receptacle from which it might be withdrawn over the flooring of the brooder-pens. The object of this paper is to provide a means whereby the brooder-pens may be kept clean and free from litter, and this is quickly accomplished by drawing the paper from the roll over the brooder-bottom until the litter has been removed therefrom and then tearing off said littered strip, leaving a sweet clean carpet or covering for the chicks to feed upon.

Passing through the chambers H H just below its covering and midway of the wire lattice-work 11 a water-supply pipe 20 is arranged. This pipe in the preferred form is provided with a non-heat-conducting covering 21 and is supported by passing through the several partitions to the chambers H H, also by straps 22, secured to the chamber-covers. To one end of this pipe a filling or supply funnel 23 is provided, and at its opposite end a drainage-cock 24 is attached. At intervals of its length the pipe is perfor-

rated and supplied with vertically-arranged nipples 25, which protrude through the covering to the chambers H H and terminate in conical drinking - supply cups 26. These cups are arranged so that one will afford water to two compartments of the brooder and, as will be noticed in Figs. 7 and 8, are arranged beneath the wire lattice-work of the brooding-pens. That these cups may be kept as free from litter as possible I arrange a conical covering consisting of the pieces 27 and 28, separated in the middle, each of whose sections occupy a portion of the drinking-cup either side of the lattice-work 11. Within each of these sections an aperture 29 is provided, through which the chicks may reach their heads to drink. At least one of these sections should be removable for cleaning such litter as might accumulate therein, and for this purpose I supply a concave screen 30, securely fastened to the removable section 28 by soldering or otherwise. This section has a lip 31, which sits over the rim of the watering-cup and tends to hold the same in place. That the series of drinking-cups will not be liable to overflow the supply-funnel 23 and the several cups are arranged on a common level, and, if anything, the several cups may be raised slightly above said funnel, thus preventing their overflowing in the hands of a careless operative.

The hovers 12 are arranged side by side along the forward edge of the top covering to the warm-air chambers H H and form housings for the chicks inclosed by the wire lattice dividing the individual hovers. The hovers are inclosed at the sides by partitions 31, and in the preferred form the partitions comprise double walls elevated slightly above the top covering to the chambers H H, between which a thin metallic strip 32 is inserted at their lower edges and rests upon said chamber-cover. By thus slightly elevating the edges of the partitions a provision is made to allow the removable paper-litter carpeting 16 to underlie said partitions, so that the area between the walls of said partitions will be fully covered at all times and as will be better comprehended in Fig. 10. Between the rear ends also of these double partitions the wire lattice may be also secured. That these hovers may be light I prefer that both ends 35 and 36 and the tops thereof shall be provided with double glass-filled sash, and, as shown in said Fig. 6, the covering 33 is hinged to a cross-tie 34, secured at the rear edges of the walls comprising the individual hovers. This, however, is not essential, as the covering may loosely rest thereon without being attached.

The forward or end sash 35 is a plain sash, while the rear or inner sash 36 is provided with a recess 37, cut from its bottom edge, through which a chick could pass should the same be lowered. This sash, however, is

usually slightly elevated, as shown in Fig. 5 at the left. To provide a means for holding said sash in position, either in a normal or elevated position, I attach coil-springs 38 at one end to the walls of the individual hovers by eyelets 52 and make their opposite ends fast to an eyelet or hook 53 at either end of said sash, and, as shown, each sash is provided with two springs. However, it would be evident that by lengthening the springs both sash could be secured by one set of springs, connectively uniting the same. In the preferred form of retaining these sash in an elevated position they are provided with spurs or stops 39, Fig. 6, which are adapted to fit within holes 40 along the edges of the partition ends.

At the entrance of the brooder-compartments from the exterior of the brooder-house a system of double-glass sash 41 is provided along either side of the house.

Within one corner of the sash of each brooder-compartment a small glass door 54 is hung. These doors swing from their tops inwardly and are passable to the chicks returning to the brooder, the chicks being thus gathered and retained within the brooder at any time by their own volition. The bottom edges of the doors by preference are provided with notches 43 to assist the chicks in finding an entrance to the individual brooders should said doors be lowered. (See Fig. 3.) By preference the doors of two compartments are immediately adjacent—*i. e.*, one at either side of the wire lattice 11—and immediately above each set of doors screw-eyelets 44 are secured. At either end of a row of hovers friction-rollers 45 are secured to the walls of the building. Passing over said rollers and through the eyelets 44 a cord 48 is passed, and at either end thereof a weight or balance 46 is suspended. To the bottom or lower edge of the doors 54 a cord 55 is secured. The cords of two doors directly adjacent are united at their opposite ends, and the loop thus formed is passed through an eyelet 44, located immediately above said set of doors and its ends secured to the weighted cord 48 a slight distance beyond said eyelet, as shown in Fig. 3. The cords of each set of doors being thus identically arranged, when the weight at one end of the cord 48 is elevated it will cause its opposite weight to recede, by which movement the doors attached thereto will all either raise or lower, as the occasion may demand.

In a modified form shown in Fig. 6 I have shown a door 54 secured to the exterior of the brooder-house and hinged at its upper edge and made to raise and lower by means of a cord 55, secured to the arm 56. This door or a series of doors may be made to raise or lower individually or collectively, very like the doors 22, as may be found expedient. It is sometimes found convenient to darken the

brooder-compartments to quiet the chicks for the same purpose that the hen hovers her brood. This door being hung upon the exterior of the brooder-house acts as a preventive to the elements entering the brooder-house when lowered.

It will be apparent to those skilled in the art to which it appertains that various details in the construction could be employed to carry out my invention without departing from the spirit or scope or sacrificing any of the advantages thereof, and I would be understood as entitled to such modifications as would fall within the spirit of my improvements.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of a continuous series of brooders having warm-air compartments formed beneath them, a heating-chamber located beneath said compartments and hermetically sealed therefrom, timbers arranged upon said hermetically-sealed compartments to form an inclosing framework, doors hinged to said timbers above said hermetically-sealed compartments to form a separate dead-air chamber, means for adjusting said doors, and doors opening into said compartments, substantially as set forth.

2. The combination of a continuous series of brooders having warm-air compartments formed beneath them, said brooders comprising an inclosure within an outer housing, ventilators leading from the exterior and communicating with said compartments, traps provided for said ventilators, and ventilators communicating between said warm-air compartments and the surrounding housing, and a heating-chamber located beneath said compartments and hermetically sealed therefrom, substantially as, and for the purpose set forth.

3. The combination of a continuous series of brooders having warm-air compartments formed beneath them, said brooders comprising an inclosure within an outer housing, the forward end thereof forming a hover connectively united at its sides with said housing by wire lattice, doors opening from said housing into said inclosures and means for opening and closing said doors, substantially as set forth.

4. A hover mounted upon a warm-air compartment, the flooring of said hover comprising in part a thin metallic heat-radiating surface, the top and ends of said hover being transparent, said top being detachable and its ends capable of vertical adjustment, for the purpose set forth.

5. A hover mounted upon a warm-air compartment, a removable transparent top covering, and vertically-adjustable end doors, coil-springs attached at one end thereof to the inner walls of said hover, their opposite

ends being attached to said doors, spurs at either inner end of said doors, and apertures alined therewith in the ends of said side walls adapted to engage said spurs and prevent said doors from sliding on their bearings, substantially as set forth.

6. The combination with a brooder, of side walls having their bottoms rabbeted to form grooves along either side of the flooring thereof, a pocket arranged at one end of the brooder beneath the flooring thereof, a paper coil operative within said pocket, a covering to said pocket arranged to permit the placing of said coil within said pocket and also arranged to permit the unwinding of said coil over said flooring from the opposite end of the brooder through said grooves of the side walls, substantially as, and for the purpose set forth.

7. The combination with heating-chambers, of brooders continuously alined on the covering to said chambers, longitudinal pockets alined along the rear edge of said covering within said brooders, paper coils operative within said pockets, coverings to said pockets arranged to permit the unwinding of said paper coils from the forward end of said brooders, all arranged to work substantially as, and for the purpose set forth and described.

8. The combination with a housing, of brooders located within said housing, means for heating said brooders, said brooders comprising inclosures one end of which comprises a sash formed within said housing and provided with double transparent glass, openings within said sash, transparent doors hinged at their upper edges within said openings and adapted to open inwardly, said doors having notches at their lower edges, wire lattice at either side of said sash, a hover united at either side to said inclosure, for the purpose set forth.

9. The combination with a housing, of brooders located within said housing, means for heating said brooders, said brooders comprising inclosures one end of which comprises a sash formed within said housing and provided with double transparent glass, openings within said sash, transparent doors hinged at their upper edges within said openings and adapted to open inwardly, said doors having notches at their lower edges, wire lattice at either side of said sash, a hover united at either side to said inclosure, said hovers comprising opaque sides a removable transparent top and vertically-adjustable ends, substantially as, and for the purpose set forth.

10. The combination with heating-chambers, of brooders alined on the coverings to said chambers, said brooders comprising rearward inclosures encompassed at the rear ends by sash having transparent glass provided with openings having overhung doors provided with notches in their lower edges,

adapted to swing inwardly; at the sides by wire lattice; at their forward ends by hovers comprising opaque sides, removable transparent tops and vertically-adjustable transparent end doors, substantially as, and for the purpose set forth.

11. The combination with heating-chambers of brooders alined on the covering to said chambers, said brooders comprising a rearward inclosure encompassed at one end by a transparent double-glass sash having an inwardly-opening door with a notch at its lower side; at the side by wire lattice-work and at the forward end by a hover compris-

ing opaque sides, a removable transparent top and vertically-adjustable ends, the forward part of the flooring to said hovers consisting of a thin metallic plate, a pocket in rear end of said brooder, a coil of paper in said pocket adapted to be unwound from the front end of said hover, and means for retaining said paper coil in said pocket, substantially as, and for the purpose set forth.

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