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P. S. MARTIN

COLONY BROODER

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Fig. 1.

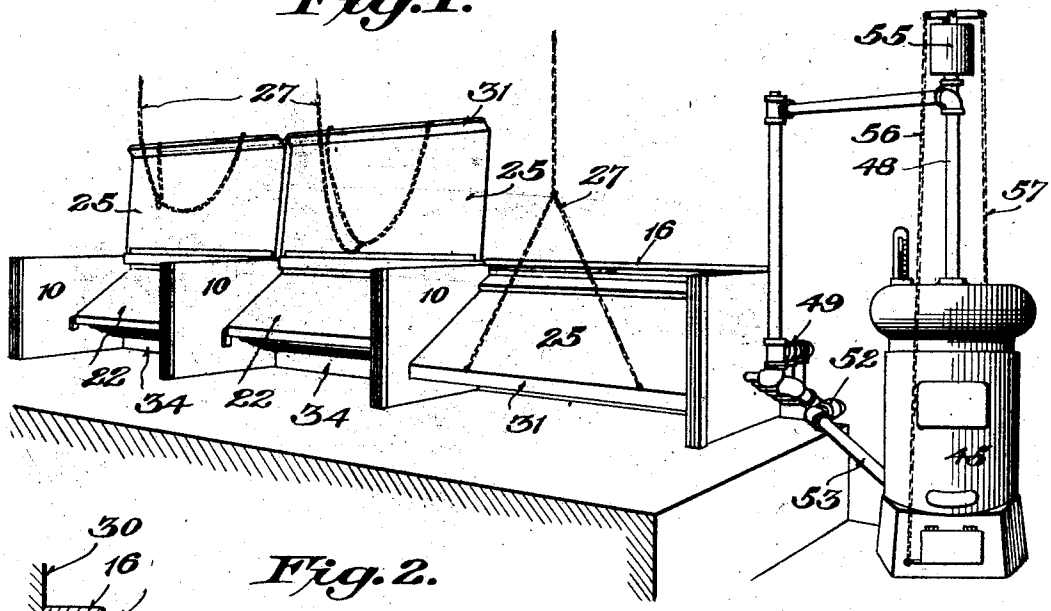
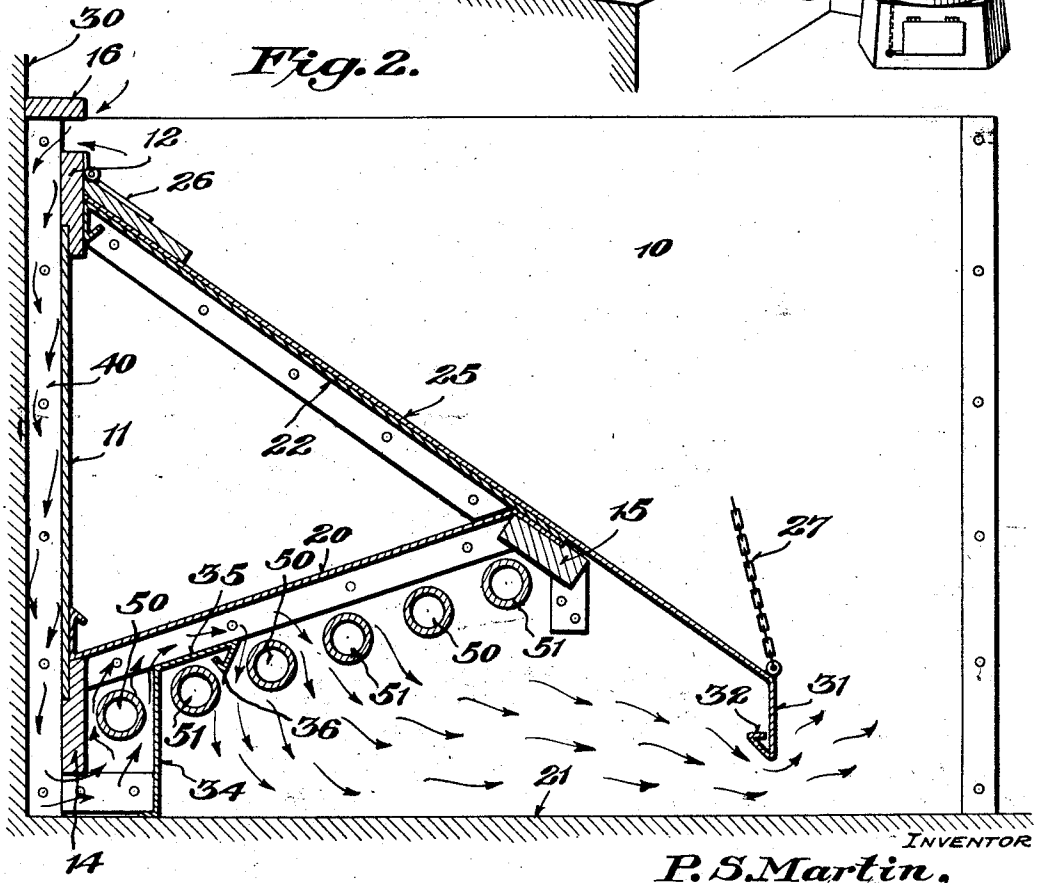


Fig. 2.



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COLONY BROODER.

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This invention relates to brooding systems and particularly those systems in which a number of hovers are heated from a single heater. The principal object of the present invention is the provision of an efficient hot water heated brooder in which crowding of the chicks is eliminated and the brooding space is divided into zones of different temperatures making it possible for each chick to find a temperature suited to it.

A further object of the present invention lies in the provision of a brooder which can readily be assembled in any ordinary shelter and in which the heating means is so positioned as to secure the proper difference in temperature between the back and front of the hover.

A still further object of the invention is the provision of a hot water heated hover which may be adjusted so as to decrease the temperature and increase the brooding space as the chicks grow in size.

The great success of the coal burning colony brooder is due to the fact that with the centrally located stove the brooding space about it gradually decreases in temperature in accord with the distance away from the stove and in this way the chicks may each locate a place the temperature of which is exactly suited to his wishes. There has been considerably difficulty however, in applying this successful principle to hot water heated hovers largely due to the difficulty in obtaining proper ventilation and the elimination of dead air in the brooding space without at the same time having an objectionable cold air draft.

The most common cause of the tendency of chicks of large flocks to crowd is the presence of this cold draft which is usually formed in an endeavor to provide circulation of air. Another cause of crowding of the chicks into the corners of the room has been the desire of the chicks to get away from the light. In the present structure the chicks have no reason to indulge in crowding because of these two reasons for the entire back end of each brooding room is held at a single temperature with a consequent entire elimination of cold corners, since light is admitted only thru the front end of the hover resulting in the shading to the desired degree of the entire rear of the brooding chamber, this minimizing the likelihood of the stampeding of the chicks as occurs so frequently in open hovers when there is a sudden entry of light or a crash of sound. In the back end of the brooder with its slight shading and protection on all three sides the chicks feel safe and contented and show a most marked decrease in timidity and consequent increase in quietness.

In the drawings:—

Figure 1 is a perspective view of a complete brooding system, here shown as embodying three hovers.

Figure 2 is a central cross section thru one of the hovers.

The space allotted to use as a brooding room is divided into hovers by installing partitions 10 at suitable distances apart to accommodate the equipment purchased which is one of the standard sizes, six, eight or ten feet, the partitions themselves being preferably about thirty inches high and somewhat less than four feet long or deep, but obviously these dimensions, while found very satisfactory in practice, form no part of the invention and may be altered to suit.

The hover backs 11, which may be of heavy compoboard or other similar moisture and heat proof material, are secured to the top piece 12 and base beam 14 which reinforce the backs so they cannot warp or buckle. The supporting beams 15 also join adjacent partitions, and like the air hood 16 are preferably of wood.

Joining the top of the base beam 14 and the supporting beam 15 is a heat radiator 20 preferably of sheet metal such as galvanized iron and arranged so as to slope upwardly and outwardly, the supporting beam 15 being located at a greater distance from the floor 21 than is the base beam 14. The floor 21 is preferably of wood and is either level or slopes slightly toward the heater, which is conveniently a foot or so lower than the floor of the brooder and may be and preferably is, if possible, located in a small room attached to the end of the brooder house, in order to avoid the fire hazard. A stationary hover top 22 joins the top piece 12 to the supporting beam 15 and forms with the back 11 and the heat radiator 20 a dead air space of prism shape triangular in cross section.

The adjustable hover 25 at its top is

hinged as at 26 to the top piece 12 and is so positioned as to lie flat on the stationary hover top 22 when desired or by pulling on the chain 27 the adjustable hover may be raised to any desired angle or may be thrown back against the rear wall 30 of the brooding room, as shown at the left in Figure 1. The forward end of the hover 25 is downturned as at 31 and in order to strengthen the edge of the hover it is bent or folded into the angle formation 32 shown in Figure 2.

The baseboard or deflector 34, preferably of sheet metal, rises vertically from the floor, then extends forwardly parallel with the heat radiator as at 35 and finally is provided with the strengthening angled flange 36 to provide rigidity. It will be noted that a space 40 is provided between the hover back 11 and the wall 30 and that the base beam 14 is spaced above the floor an amount equal or slightly greater than the amount of space between the top piece 12 and the air hood 16, these spaces providing exit and entrance respectively to the air space or cold air duct behind the back 11.

The hover spaces are each heated from a single heater 45 of the fire-pot, circulating dome type. The hot water passes vertically upward thru the pipe 48 and to a manifold 49, leading to the pipes 50 each of which communicate at the far end with a return pipe 51, the latter in turn being connected to a manifold 52 discharging back to the heater thru a return pipe 53. Accurate control of the temperature in the water circulating system is maintained by means of a heater regulator 55 preferably of the simple expansion tank type operating both the main and the check drafts by means of the chains 56 and 57 respectively.

The axes of the pipes 50 and 51 are parallel to the heat radiator, the angle and spacing being such as to give correct brooding temperature from the back to the front of the hover. The manifolds are so constructed that all three of the flow pipes draw water of the same temperature and as will be seen the flow and return pipe alternate. The improved ventilation secured by means of the design described is an important feature of the present invention. A continuous and forced circulation of fresh warm air from back to front of the hover insures proper ventilation under any and all circumstances and entirely eliminates the cold draft found near the floor under the usual brooder stove. Air is drawn in at the top between the transverse top piece or beam 12 and the air hood 16, passes downwardly between the wall and the hover back and then passes upwardly between the base beam 14 and the baseboard 34 in the space between which is located the lowest of the flow pipes. The forward extension 35 of the baseboard 34 causes the warmed air to impinge upon the second flow pipe 50 avoiding the lowest return pipe 51. The arrows indicate the general current of air. The direct radiation from the lowest return pipe 51 is sufficient to insure the absence of a cold corner at the extreme rear.

As shown in Figure 2 the adjustable hover is in its lowest position, that is, in initial brooding position and by the constricted space between the angled edge 32 of the hover and the floor maintains the temperature in the brooding chamber at a maximum. As the chicks increase in age and size the adjustable hover 25 is gradually raised to decrease the temperature and to increase the brooding space and the regulator 55 may be adjusted to give a lower temperature to the water system. When not in use the hover 25 may be thrown back against the wall and in order to avoid loss of heat in such hovers as are not in use, the circulation of air thru the non-used hovers is stopped by means of a chock placed between the top piece 12 and the air hood 16, or in any similar manner.

What I claim is:—

1. In a brooder, a heat radiator sloping upwardly outwardly, an adjustable hover adapted to extend downwardly and outwardly from the edge of the radiator, and a plurality of hot water pipes having their axes in a plane proximate to and parallel to said heat radiator.

2. In a brooder structure, a partition of heat conducting material rising from the floor to form the rear of the brooding chamber, a member spaced above said partition and extending forwardly thereof to form the ceiling of the brooding chamber, and also extending rearwardly behind said partition, and a pair of heating pipes spaced below said member, one on either side of said partition.

3. In a brooder, a hover back spaced from a wall and from the floor to provide an air duct, a slanting heat radiator extending from the lower portion of said back, means at the free end of said radiator for restricting the flow of air thru said duct, and a plurality of hot water pipes spaced from said radiator.

4. In a brooder, a hover back spaced from a wall and from the floor to provide an air duct, a slanting heat radiator extending from the lower portion of said back, means at the free end of said radiator for adjustably restricting the flow of air thru said duct, and a plurality of hot water pipes spaced from said radiator.

5. In a brooder structure, a partition rising from the floor to form the rear of the brooding chamber, a member spaced above said partition and extending forwardly thereof to form the ceiling of the brooding chamber, and also extending rearwardly be-

hind said partition, and a plurality of hot water pipes below said member and having their axes in a single sloping plane, one of said pipes being positioned parallel to and behind the partition.

6. In a brooder a wall, a floor, means providing a dead air space adjacent said wall, a series of hot water pipes adjacent said means, and each at a successively higher elevation, means for deflecting air descending between said wall and dead air space upwardly so as to be heated by said pipes, and means for adjusting the volume of flow of air from said pipes.

7. In a brooder, a hover adapted to be hinged adjacent a vertical wall, means for raising and lowering said hover about its hinge to alter the distance between the free edge of the hover and the floor, a slanting member terminating short of the wall, a plurality of hot water pipes adjacent to and parallel to said member, and means for closing the space between the hinged edge of the hover and the lower edge of said member to provide a dead air space.

8. In a brooder, a pair of partitions, a back joining said partitions and adapted to be spaced from a wall and from the floor to provide a cold air duct, member slanting forwardly and upward from the bottom of the back, a deflector spaced from the back and from said member to provide a passage in which the air from said duct may pass upwardly against said member, heating means in said passage, and a hover hinged to said back and adapted to rest upon the free end of said member.

9. In a brooding system, a plurality of hovers arranged side by side against a wall with an air space between the several hovers and the wall, a hot water heater, a regulator therefor, a flow manifold, a return manifold, a plurality of horizontal pipes having their axes in a slanting plane passing thru all of the hovers, and connecting said manifolds, partitions separating said hovers, slanting heat radiators connecting adjacent partitions, and means for deflecting air from said air space upwardly against said radiators.

10. A brooder characterized by the provision of a hover top mounted for movement so that as the area for the escape of heated air is increased the floor space beneath the hover will also be increased.

11. A brooder characterized by the provision of a hover hinged about a horizontal axis so that when the free end of said hover is raised to decrease the temperature beneath the hover the amount of floor space beneath the hover will be increased.

12. In a brooder, a hover back spaced from a wall and from the floor to provide an air duct, a slanting heat radiator extending from the lower portion of said back, a plurality of hot water pipes spaced beneath said radiator, and a vertical partition located between two adjacent pipes.

In testimony whereof I affix my signature.

PERRY S. MARTIN.