

*Home-Built*  
**ELECTRIC BROODERS**

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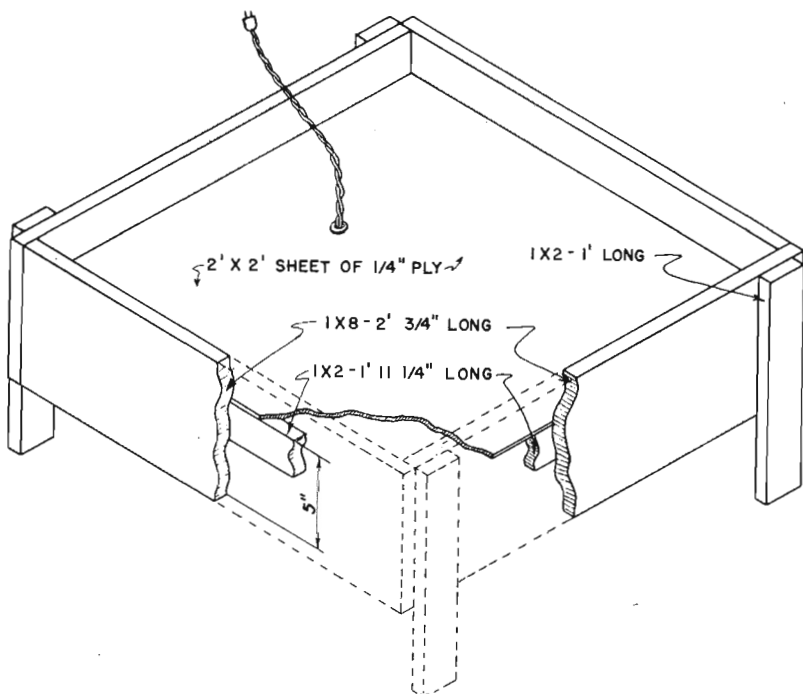


Figure 1. The 50-chick electric hover may be made either with or without a thermostat. Legs may be made adjustable as shown below.

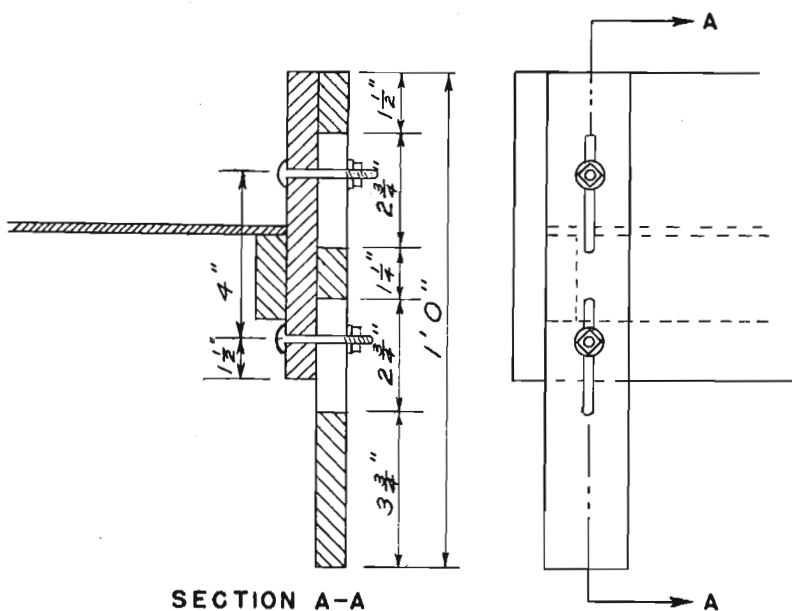


Figure 2. Section view of leg and hover construction when slotted legs are to be used for adjusting the height of the 50- and 200-chick brooders.

## *Home-Built*

# **ELECTRIC BROODERS**

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This bulletin presents construction plans for three types of home-built electric brooders. All these brooders use flat-top wood hovers, the material for which should be available in all parts of Oregon. Two of the three brooders have similar heating elements.

One plan is for a small brooder for 50 chicks or less that uses electric lamps as a source of heat with or without a thermostat. The second plan calls for the use of electric lamps also, with a thermostat to control the heat. This brooder is planned for 200 chicks until 8 weeks old. A third type is a 300-chick brooder designed for use with a ready-made kit consisting of a forced ventilation and electric heating unit with thermostat to be installed in a home-built hover.

## **Brooder Construction**

### **Brooder for 50 chicks or less**

The brooder shown in Figure 1 has a 2' x 2' plywood top framed by 1 x 8 boards and uses ordinary lamp bulbs for the heating element. The 1 x 8's are nailed together so that the width of the board is the vertical dimension. Inside of this frame 1" x 2" cleats are nailed to form a support for the 2' x 2' sheet of plywood. The 1" x 2" cleats should be placed so that the top edge is 5 inches above the bottom of the frame. The plywood can then be dropped inside the frame from the top where it will rest on the cleats and can be held in place by light nailing. Legs should be placed on the four corners of the frame and should extend 3 inches below the frame of the hover to place the brooder at the proper height to start the brooding season. As brooding progresses, it will be necessary to raise the hover each week as the chicks grow. This can be done the following ways:

1. Block up the legs to the desired height.
2. Install adjustable legs as shown in Figure 2.
3. To the four corners of the brooder attach ropes that converge at one point over the brooder where they are attached to a single rope with pulley and counterweight. In this manner the brooder can be set at any desired height.

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This bulletin supersedes Oregon Experiment Station Circular 146, *Home-made Electric Brooders*, by F. E. Price, Dale E. Kirk, and H. E. Cosby, which is no longer in print.

In order to conserve heat, it is always desirable to provide insulation to prevent heat losses through the hover. In this brooder it is done by filling the top of the hover with straw or whatever litter is being used on the brooder floor. This will provide about 2 inches of good insulation on top of the hover and will also serve to keep the top clean. This litter can be changed from time to time as desired.

Ordinarily an electric brooder is equipped with a thermostat for

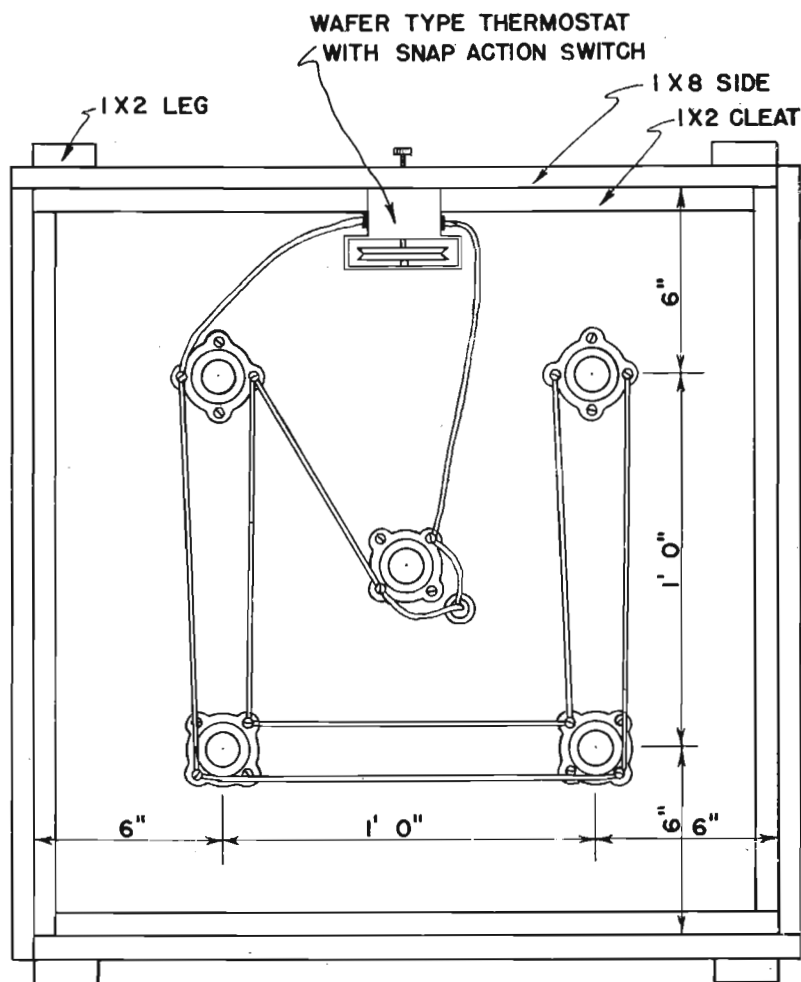


Figure 3. Underside of the 50-chick hover showing wiring layout with thermostat when lamps are used as heating elements.

automatic heat control. Figure 3 shows the location of the lamp receptacles and the necessary wiring when a thermostat is used. The inner receptacle holds the attraction light, which is on continuously. The four outer lights are controlled by the thermostat and go on and off as required to maintain the necessary heat under the hover. Sixty-watt lamps in all five receptacles should provide sufficient heat under ordinary conditions.

If this size brooder is to be constructed without a thermostat, Figure 4 indicates the location of the lamp receptacles and the method of wiring. The total output of heat may be varied by the use of different sizes of lamps, or by partly unscrewing some of the lamps as required.

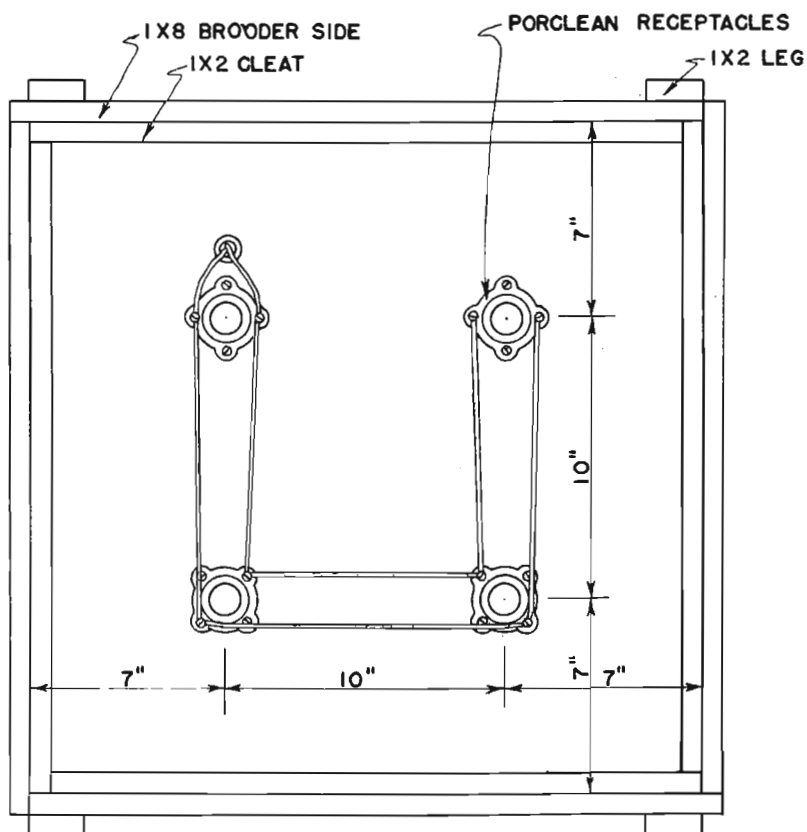


Figure 4. Underside of the 50-chick hover showing wiring layout without thermostat when lamps are used as heating elements.

### The 200-chick home-built electric brooder

The brooder illustrated in Figures 5 and 6 has been developed in answer to the demand for a larger easy-to-construct home-built electric brooder.

The hover for this brooder is shown in Figure 5. It is built with an outer frame of 1 x 8's with a quarter-inch plywood top in the same way that the 50-chick brooder is constructed. However, due to the longer span of the plywood, a 1 x 3 board should be placed on edge across the middle of the hover. The plywood can be nailed to this 1 x 3 board from the under side to help prevent warpage.

The 200-chick hover should have a heating unit capable of putting out about 900 watts. This heat can be supplied evenly by using fifteen 60-watt bulbs. The arrangement for the bulb receptacles can be seen in Figure 6. Note that three receptacles are wired in ahead of the thermostat so that these three bulbs are on all the time. These three bulbs serve as the attraction light and tend to provide a more uniform temperature under the hover between the on-and-off periods of the thermostat which controls the rest of the bulbs.

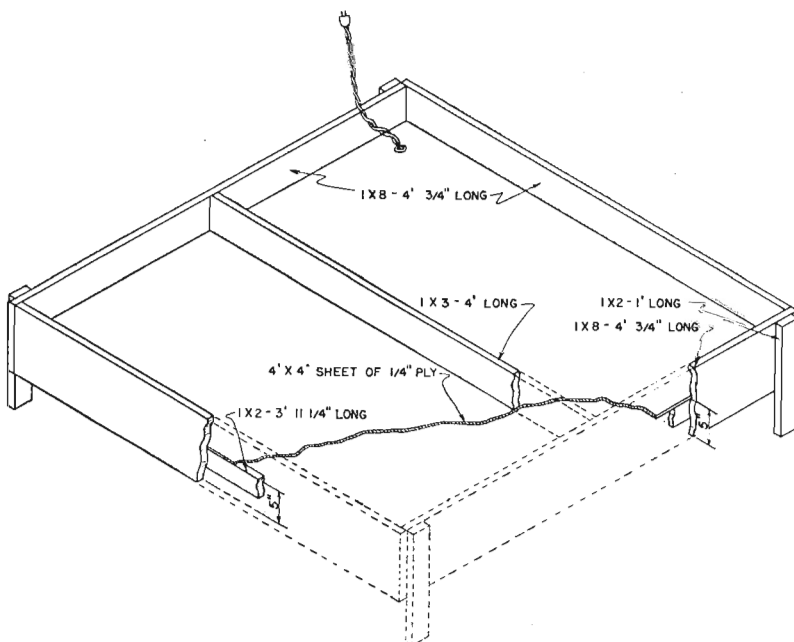


Figure 5. The 200-chick electric brooder hover. Note use of center brace.

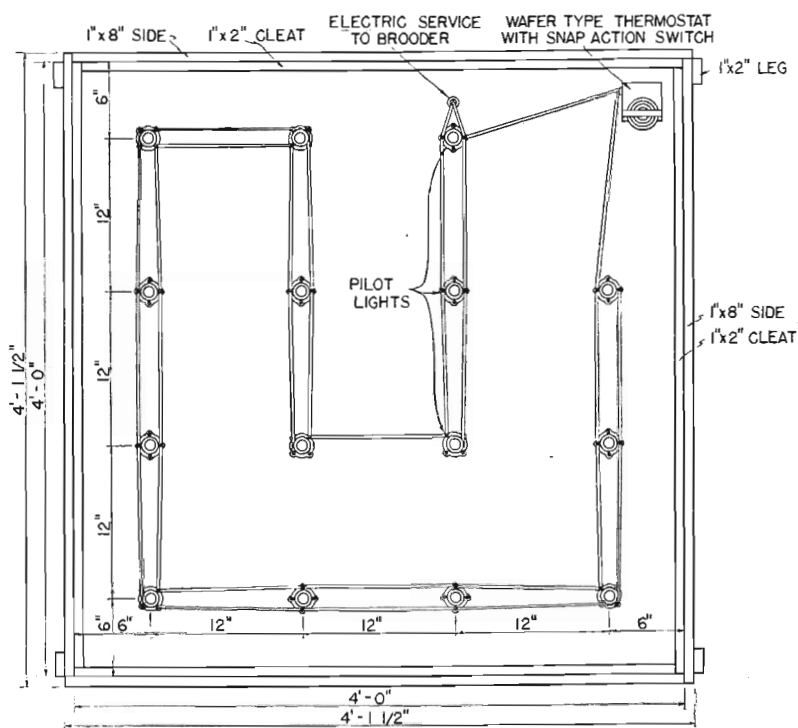


Figure 6. Underside of 200-chick brooder showing thermostat, wiring, and proper placement of receptacles. Burned-out bulbs will not interrupt circuits.

### Home-built hover for 300-chick, fan-type electric brooder

During recent years the fan-type forced-ventilation electric brooder has become quite popular throughout the Pacific Northwest area. These brooders include a very small electric fan that draws fresh air in through the center and top of the hover and discharges it downward against a baffle, which deflects the air horizontally in all directions under the hover. As the air leaves the fan it passes across an electric heating element and this warm air then moves to all parts of the brooder and is discharged under the curtain surrounding the hover. Some manufacturers offer the electric fan, heating element, and thermostat in a compact, completely assembled unit, which can be mounted in a home-built hover.

A hover of the type shown for the 200-chick brooder, Figure 5, could be used with a forced-ventilation kit by moving the 1 x 3 that

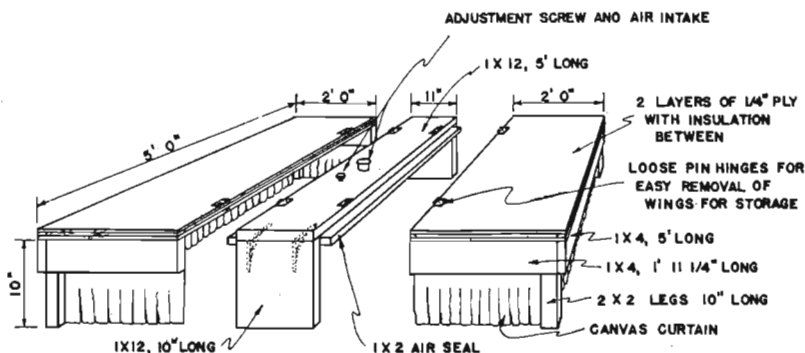


Figure 7. The 300-chick forced ventilation electric brooder with hinged wings extended to show method of construction. This brooder requires a special electric kit including a fan, heating unit, and thermostat.

is installed on the top of the plywood so as to permit the installation of the ventilator and fan in the center of the hover. If this type of hover is used as a force-ventilated brooder a curtain should be used.

The plans presented in Figure 7 show a method of building a 5' x 5' hover for a force-ventilated brooder in which the center section is stationary and the two side sections are hinged so that each can be easily raised for inspection of the chicks under the hover. The center section is made of a 1 x 12 with the top piece 5 feet long, supported by two end pieces 10 inches in length. The intake for the fan is usually a round pipe about  $2\frac{1}{2}$  or 3 inches in diameter that would require a hole of the same size through the center of the 1 x 12 board.

To the center section are hinged the two side wings. The wings are usually made of two layers of  $\frac{1}{4}$ -inch plywood with corrugated cardboard or  $\frac{1}{2}$ -inch insulation board between for insulation. The plywood is supported on three sides by a 1 x 4 frame. The 2 x 2 legs and canvas curtain complete the hover.

## Operation

Any of these home-built brooders should be provided with a thermometer which will indicate the temperature  $2\frac{1}{2}$  inches above the floor under the hover during the first part of the brooding period. By cutting a two-inch diameter hole in the top of the hover a short brooder thermometer can be suspended from a cap used to cover the hole. If a bare, long glass-stem thermometer is used, it can be thrust through a cork or rubber stopper and placed in the hole drilled in the hover the right size to receive the stopper.