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COLONY BROODER HOUSES

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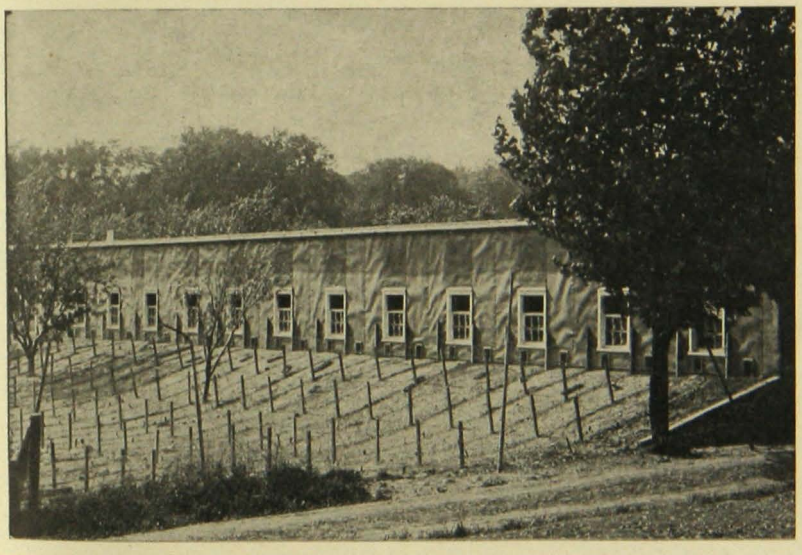

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Special Brooder Houses Are Needed

While poultry keepers often use all sorts of makeshift buildings in which to brood their young chicks, a building especially designed and constructed would be economically advantageous.

The makeshifts are usually so lightly constructed that they are cold unless an amount of fuel is provided that would be unnecessary in properly constructed buildings. This adds greatly to the expense and generally, also, to the losses by death because of uneven heat and poor ventilation. Vacant rooms, attics, and basements are frequently used without heated brooding devices. Any such plans must result in disaster. There is too little sunlight to develop healthy, strong bodies; the rooms are too large to be evenly and adequately heated with the equipment used; ventilation is lacking or uncontrolled; and an outdoor run can not be or is not supplied.

A section of the laying house is sometimes used, and under certain attainable conditions, is to be preferred to the places mentioned. It has, however, its objections, principally because of the neglect of strict sanitary measures in the poultry houses, and of the vermin that are usually present. If there is no objection on these grounds, the hens will still be crowded into too small space. If full advantage is taken of the capacity of the laying house for ten or twelve months in the year, there really is no room in it for chicks in the spring. On the other hand, there is a financial loss from restricting the number of winter layers in order that a part of the laying house may be used for the chicks in the spring. This alone is a sufficiently good reason for a building especially adapted to the brooding and rearing of chicks; and all other reasons are included in this one—it is better for the chicks and therefore better for the keeper, financially and otherwise.

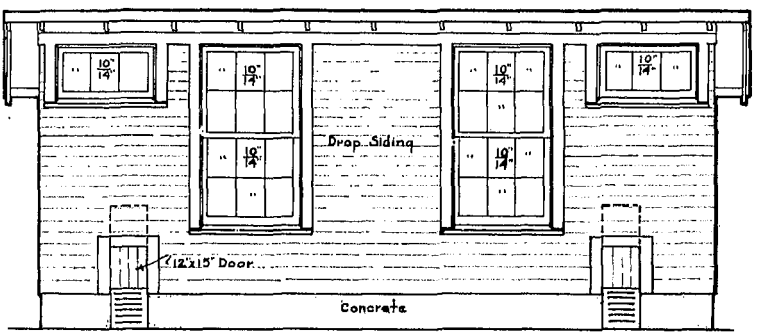
There are several different devices for keeping chicks comfortably warm—the multiple hover system; the portable lamp-heated or the electrically heated hovers; and the large canopy style hover, heated by either electricity, oil, or coal.

The large increase in the number of oil and coal-burning canopy hovers used in recent years has created a demand for a brooding house of a style and size adapted to these and similar equipment. Fortunately, any building which is suitable for these brooding devices will serve well for any of the other devices mentioned except the continuous, multiple-unit hover. When di-

mensions, insulation, ventilation, yarding systems, and other matters are considered, certain options may be exercised within certain limits.

House Must Face the South

Location should be the first consideration when one is contemplating the building of a brooder house. In order to get as long exposure to the sun's rays as possible, the house must face the south. The desirability of constructing a run on soil so dry that the chicks may be out most of the time is recognized by all. To this end, a gentle southern slope is especially favorable and so is soil that is light enough that water will leach through it readily. Heavy, cold soils that hold the moisture for a considerable length of time are unfavorable, for young chickens must not get wet.



SOUTH ELEVATION

Fig. 1. Minnesota Model Two-pen, Stationary Brooder House

South elevation, showing ventilation and light obtained through two double hung windows with weights and two small windows hung as transoms. By this arrangement ventilation may be regulated for either very cold or very warm weather. Dimensions 16 × 20 feet.

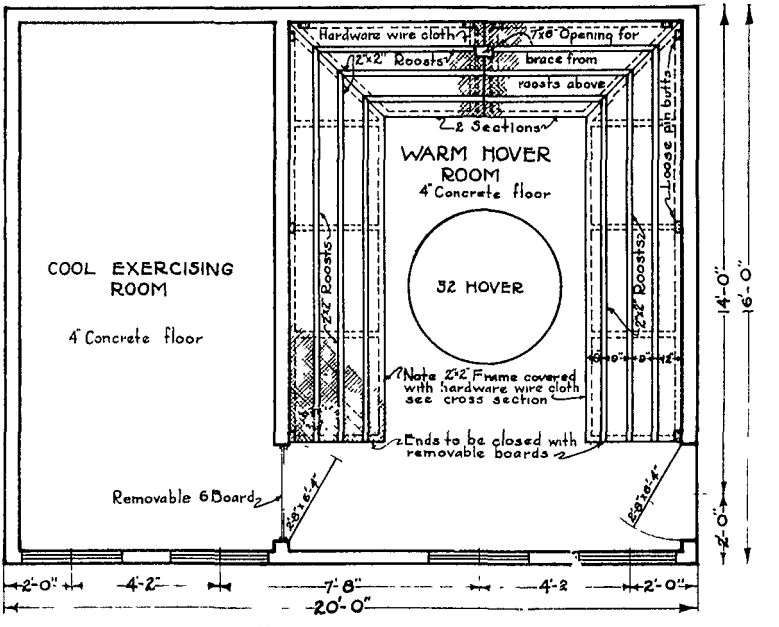
May Be Either Stationary or Portable

Whether the house should be stationary or portable is a question that is worth considering. If the house is so constructed that it can be easily moved, each succeeding brood of chicks or the broods of different seasons may have new runs. This helps to prevent disease and to obtain a fresh supply of insect life and greens for the chicks; and is advantageous if it ever becomes necessary to move the plant for a rearrangement of the farm buildings. If this is likely to be done, the house should be built with wooden floors, strongly braced, and with heavy skids. When the house is to be stationary, a better foundation may be put in and the house will last much longer, as it is not racked

or wrenched by moving and more permanent and desirable structures are likely to be built.

Yards and Runs Need Attention

Yards and runs can be freshened by turning the soil over and planting to some quickly sprouting small grains—oats during the summer, or rye or winter wheat in the fall for use the next spring. It is well to build light portable fences, those with wire attached to stakes that may be easily withdrawn from the soil. The fencing with attached stakes may be rolled up and a cultivator or plow may be used in the yards without obstruction. The line posts may be 2x2 inches, sharpened at the bottom like any stake and long enough to hold a 1-inch mesh poultry netting 6 feet wide. Long before the time when the chicks are able to fly over such a fence, they will be ready for the range and undoubtedly on it, and possibly a new brood installed in the brooder house. The end posts should be of stronger and heavier material and permanent, as it will not be necessary to move them in order to turn the soil. A common cedar post from 4 to 6 inches across the top, or small end, answers here.



FLOOR PLAN

Fig. 2. Minnesota Model Two-pen, Stationary Brooder House

Floor plan, showing warm room with inclined screened roosting frames which prevent the smothering of chicks by crowding; and also, cold exercise room. Dimensions 12 X 16 feet.

Size and Capacity Will Depend on Equipment

The dimensions must be considered with reference to the brooding device to be used. In this case, we are considering what is known as the coal-burning colony or canopy-topped brooder which has a capacity of from 500 to 1000 chicks. The width of the hover varies, but on the average is about 48 inches, and the height of the stove from the floor is usually 2½ or 3 feet. Such devices as these are advertised to hover from 200 to 1,500 chicks each, but it is well to discount the claims of the manufacturers, especially when the operator has not had considerable experience. In most cases it would be well to divide the manufacturer's claim by two, at least. With experience it is safe to keep from 250 to 300 chicks in a 42-inch hover and from 500 to 600 chicks can be cared for under a 52-inch hover. For chicks hatched after the middle of May, when the risk is less, 1,500 chicks may be put in one hover, but the writers do not recommend 1,500 chicks in one flock in any case, for while one person succeeds with that number, several will fail. For hovers of 500 capacity, the house should be 12x14 feet and it may be 12x16, 14x16, or 16x16 feet, or a house of the last dimensions and a hover of 1,000 capacity could be used together, and probably to advantage, even tho only 500 chicks were accommodated. For a single unit, the shorter dimension should be from east to west, and the longer from north to south, as it is easier to ventilate and the chicks have a better chance to get out of the draft. If there is a very perceptible

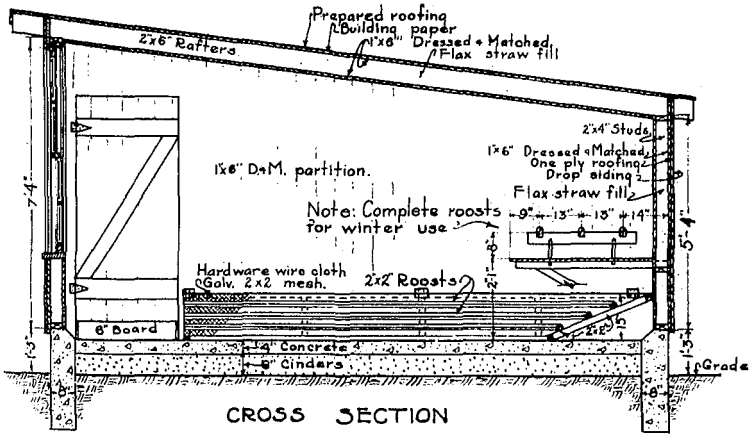


Fig. 3. Minnesota Model, Two-pen, Stationary Brooder House

Cross-section, showing the lower inclined screened roosting frames for the younger chicks and upper roosts and roosting platform for older chicks; also the construction of floors and double insulated walls and roof, necessary for warmth of chicks hatched in early spring.

draft, heavy mortality is sure to follow. There are certain advantages in a two-pen brooding house that should not be overlooked. It provides for a moderately cool exercise room which accustoms the chicks to a temperature much below that of the room in which they are brooded and yet considerably warmer than outdoors. For early chicks this is advisable, because they can not be allowed an outdoor run with safety, and exercise in a cool room makes them sturdier and healthier than if kept in a warm room all the time. The outside dimensions for a two-pen brooder house should be 20x16 feet. The larger and heated room should be 12x16 feet and the small, or cool exercise room, should be 8x16 feet.

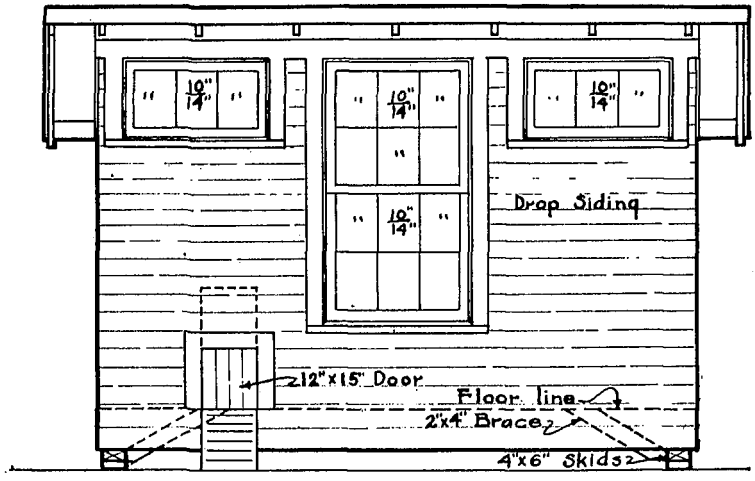


Fig. 4. Minnesota Model, One-pen, Portable Brooder House

South elevation showing light and ventilation obtained through one double hung window with weights and two small three-light windows hung as transoms. By this arrangement ventilation may be regulated for both extremes of weather. Dimensions 12 × 16 feet.

Floor Must Be Warm

For a portable house, the floors must be warm and free from drafts so that the chicks will not be chilled. Two thicknesses of matched boards laid crosswise are desirable, with one-ply roofing paper between and overlapped and fastened to the lower course of boards. Both the upper and lower floor should be well fitted to the side walls. For a stationary house, a concrete floor is best because of the necessity of frequent cleaning. Concrete floors are hard, cold, and damp as usually constructed. To correct these evils, concrete floors should be laid above crushed rock or cinders and covered with a litter of sand or gravel.

Litter of Straw and Sand Should Cover Floor

All hard floors should be covered with a layer of fine, clean sand, more or less heavy according to the frequency of removal, and this with a litter of fine cut straw or equivalent. The age or size of the chicks should determine the amount of litter—the larger the chick, the more litter. Add the cut straw gradually, do not use so much that the chick can not lift it or scratch it about.

Walls Should Be Tight

The walls must be so tightly constructed that there is no possible chance of a cross-draft, and all the ventilation must come from one direction. The least cross-draft causes trouble of various sorts—colds in the head, bowel chills, and troubles of this nature always mean heavy mortality. The walls should also be warm and may be more or less insulated according to conditions. As a rule, the more insulation, the less coal. If you insulate well,

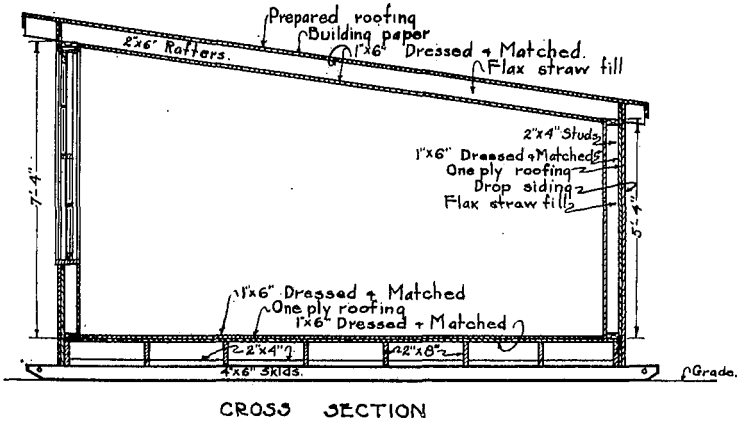


Fig. 5. Minnesota Model, One-pen, Portable Brooder House

Cross-section, showing floor construction resting on skids, and double insulated walls and roof, advisable for early chicks. Dimensions 12 × 14 feet.

your fuel bill will be low; if you do not insulate well, it will be larger and the insulation cost lighter, comparatively. With any sort of construction, the outside wall should be of matched boards on the outside of the studs, and if the house is not to be ceiled, these should be up and down for the sake of durability and for economy of time when spraying with disinfectants and insecticides. Outside of this, good building paper or roofing paper, and in general the more the better, is desirable—two thicknesses will be very good insulation. Outside of this, drop-siding, lap-siding, or

shingles may be used. For early chicks, even more insulation will be beneficial. If one of the standard insulating plaster bases is used, a thin coat of fine plaster can be applied, and the results will be very satisfactory. If lumber is preferred, cover the studs with roofing paper well lapped and then put on matched and dressed lumber for sheathing. This should run vertically for reasons given above. Walls are sometimes insulated by using some such construction as mentioned or by covering the outside of the studs with roofing paper well lapped and drop-siding, and the inside with roofing paper and dressed and matched stock laid vertically. This wall, because of the circulation between the studs, is not so warm as desirable. To prevent circulation, the space between the studs is often filled with sawdust, planer shavings, or flax straw. Because of condensation, the sawdust will sooner or later deteriorate and decay at the base, causing the lumber to decay also. Of the three, flax straw appears to be best for this purpose. Several forms of insulation may be laid between the stud, but must be covered by sheathing. The amount of insulation required depends somewhat upon the season at which chicks are to be hatched, that is, more insulation is necessary if the first chicks are hatched in March than if they are hatched in April. If the chicks are not hatched until the middle of April and later, the use of one course of matched boards and one or two layers of building or roofing paper, and drop-siding outside of all, would be ample. On the other hand, if it is desirable to hatch chicks in March, more insulation is necessary, unless you are prepared to meet a heavy coal bill.

Roof Should Be Well Insulated

The roof should also be very warm as a great deal of heat will escape through a loosely constructed roof. This is easily understood because it is well known that hot air rises rapidly. The roof boards should be matched, smooth lumber. These should be covered with building paper and then with roofing, 3-ply being desirable. It is advisable for the sake of economy to ceil the roof with matched lumber and fill the space between the rafters with straw closely packed, flax straw being preferred, if the chicks are to be hatched in March or early April.

Sunlight Is Vital Need

Sunlight is very vital in the rearing of chicks. Mortality has been heavy and growth slow in many broods because of inadequate natural light. It is necessary to build so that the floor of

the coop will be flooded with sunlight on sunny days, and so that the house will not be too cold on cloudy days and during the night. Consequently a happy medium must be found. This means that about twenty-five per cent of the south elevation should be of glass, but to prevent overheating at times, means for ample ventilation must be provided and this is most easily and cheaply done by making the glass movable. The most satisfactory way is to use double-sash 12-light windows hung on weights and pulleys just as house windows are hung. Do not allow the contractor to persuade you to substitute home-made window frames in which there are no pulleys or to substitute spring catches or

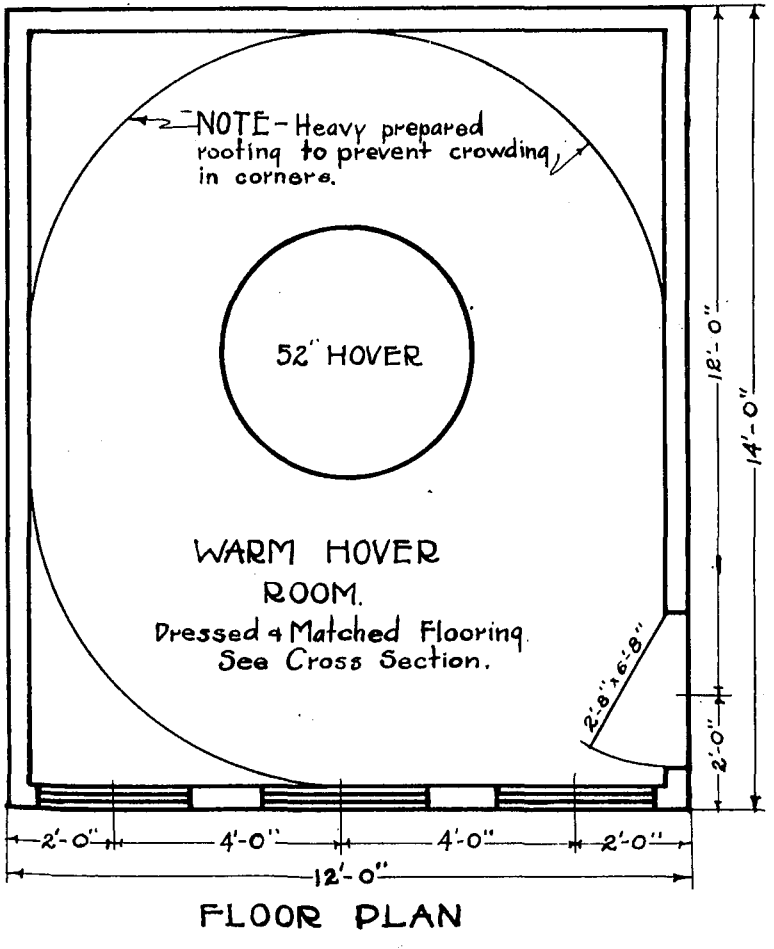


Fig. 6. Minnesota Model One-pen Brooder House

Floor plan, showing simple arrangement to prevent crowding and smothering of chicks. Dimensions 12 × 16 feet.

hinges for weights and pulleys. They will cost a little less but not enough less to make up for the inconvenience. The spring window bolt arrangemnt often does not work easily and is sure sooner or later to get out of order and the operator will become disgusted with it to the extent that he will not use it. The result will be that the windows are not adjusted as they should be for proper control of the ventilation, that is, the windows will often be left stationary, at times causing drafts, while at other times the house will become overheated. Unless properly constructed in regard to ventilation, any brooder house will become too hot in the middle of a bright sunny day and late in the season. Therefore, provide adequate means of ventilation. This may be simple and cost little beyond the first expense. In a house 12x14 feet, one double sash window with 12 lights and 10x14 inch panes should be installed, with a transom made of a 3-pane cellar window sash, 10x14 inches in the east and west upper corners of the south side, as near the plate as the construction will permit. These may be equipped with transom rods or, for simpler construction, attach

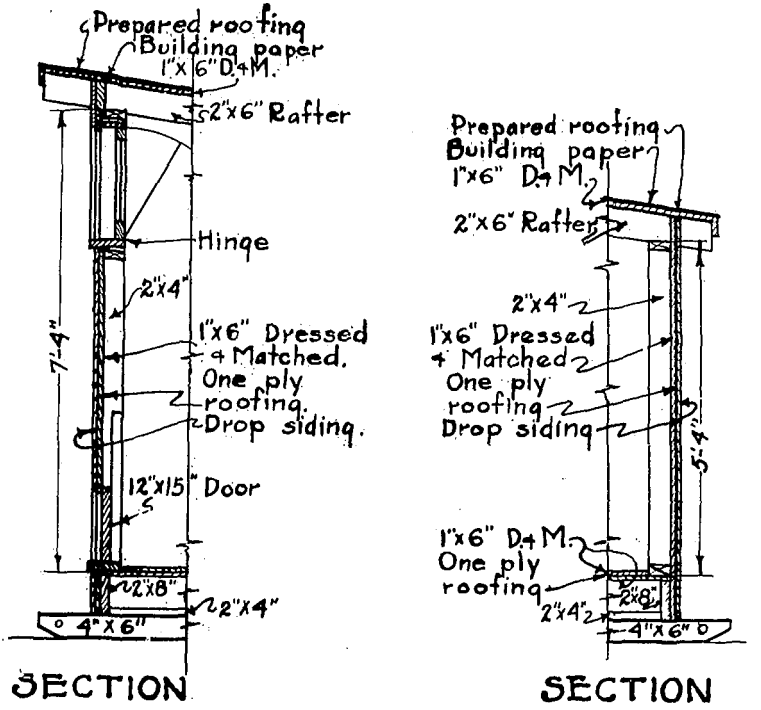


Fig. 7. Minnesota Model Brooder House

Section of south and north walls, showing construction of single walls consisting of two courses of lumber with building paper between, which is ample insulation for use after April 1.

a loop chain 8 to 12 inches long to the studding and catch it over a little right-angle hook placed in the adjacent upper corner of the window sash. With this the window can be opened any desired distance, depending upon the conditions of the wind and weather.

Door Should Be Large

The door should be large enough to admit a person with baskets, boxes, etc., for the necessary cleaning operations. It should open in, and to prevent injury to the chicks, should swing about eight inches above the floor level. Brooder houses, whether portable or stationary, should not be set too high above the outside ground level on the south, as the chicks will find it difficult or impossible to use the inclined runs if too steep.

Yards Are a Great Help

A yard in which the chicks can be confined for at least the first two or three weeks is a great help in getting the chicks into the house easily in case of a storm. It also serves as a protection against animals and keeps the chicks out of the wet grass in the mornings. The yard or yards should be on the south because of the sun, and if protected from winds by trees, bushes, shrubs, or other buildings, so much the better. In that case the chicks may be out many days when otherwise they could not. The brooder house itself will afford considerable protection from the north.

Arrangement Should Be Studied

A one-room brooder house provides the greatest comfort, if the brooder stove is placed a little back from the center. This allows the chicks to choose the temperature they prefer, enabling them to get away from the stove if they wish.

Portable Furnishings Desirable

Much time can be saved throughout the season if the furnishings are so arranged that changes necessary as the chicks develop can be made with a minimum of effort.

To protect the chicks from a draft and to keep them from going too far from the stove during the first two weeks, provide six boards fitted together at the corners to be set up around the stove from 15 to 18 inches from the edge of the hover. Extra boards should be available to enlarge this pen as the chicks outgrow the need of a small one, or a roll of one-inch mesh poultry netting of the right length may be substituted.

The corners of the house should be rounded off by a light frame of 2x2 inch strips covered with hardware cloth, inclined at an angle of about 30 degrees, to prevent chicks crowding into the corners, in which case some are overheated or perhaps smothered. Whatever material is used, it should be brought close into the corner at the top so that chicks can not fly over behind it and become smothered. The open ends should also be enclosed to keep the chicks out from under these frames or boards.

There are two sets of roosts placed at different levels, the top of the lower set is about 12 inches from the floor. These are placed on the inclined frames that hold the hardware cloth. The chicks at first use the lower roosts but eventually give the upper perch the preference. These lower sets of roosts are used until the chicks are about eight weeks old, when they may be removed by simply drawing the pins from the hinges. The upper roosts may be 2½ or 3 feet from the floor. The upper roosts may rest on cleats nailed to the end walls at the desired height. These roosts may be 2x4's, allowing the chicks to roost on the wide side first, but when they get older they will prefer to use the narrow edge. These 2x4's should be placed on three sides of the house and the corners and edges of the roosts rounded off somewhat with a plane. Notches cut in the cleats make it possible to place the roosts in either position.

Feeders for the very small chicks can be made cheaply from 4-inch boards, with strips of lath nailed to the sides and ends to form a flat trough. A strip of lath running from end to end on top of the trough and supported by two nails in each end of the trough keeps the chicks from wasting feed, and is easy to remove for cleaning and filling. Larger feeders of the same sort may be used later.

If hanging feeders and fountains are used, it is a good plan to place round-head screws in the studding at various heights so that the feeders can be raised to correspond with the changing needs of the chicks. After two or three days the feeders can be raised 2 inches off the floor, and enough higher as the chicks grow, to keep the feed and litter clean.

Many people find portable partitions running out from the brooder stove to separate the chicks into lots of about 100 during the first 10 days, a great help in preventing the spread of disease.

Special bulletin No. 83 describes the care and management of chicks artificially reared.