

Brooder Houses

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FINE pullets have sometimes come out of the most makeshift quarters. But it is safe to say that the majority of poultry raisers will produce better pullets year in and year out if plans for the type of brooder house to be used are made with the following points taken into consideration:

- Number of chicks needed
- Number of broods to be raised
- Convenience of the house itself
- Ease of moving and otherwise providing sanitary range conditions
- Fuel use
- Use of house for other purposes
- Plans for expanding the poultry enterprise

Makeshift quarters are sometimes advisable in making a start, but a single year's outstanding success is seldom repeated unless such factors are considered in the light of the farm in question, its layout, soil, power, and man labor available, and the division of the labor load in the different seasons.

The house that is especially designed to meet these conditions saves time and energy. In such a house chicks are more likely to receive the attention they require than in inconvenient makeshift buildings.

Brooder Houses

TO be satisfactory, a brooder house must be capable of maintaining the desired brooding temperature under the hover regardless of weather conditions. It must be large enough for the chicks and for the brooder stove, so that there are always cool areas available to the chicks. Otherwise, the chicks feather slowly and are apt to develop cannibalistic habits. The house must be tightly constructed to prevent drafts, and it must have a floor that can be cleaned and disinfected readily. The lighting must be such that the necessary number of feeders can receive adequate light. Ventilation under all conditions, yet without drafts, is essential.

These conditions can be provided in a great variety of buildings, but different types of buildings suit the needs of different flock owners.

One factor to be considered is the ease with which clean range can be provided. It is becoming more and more apparent that some of the most serious disease problems are best handled by keeping the chicks

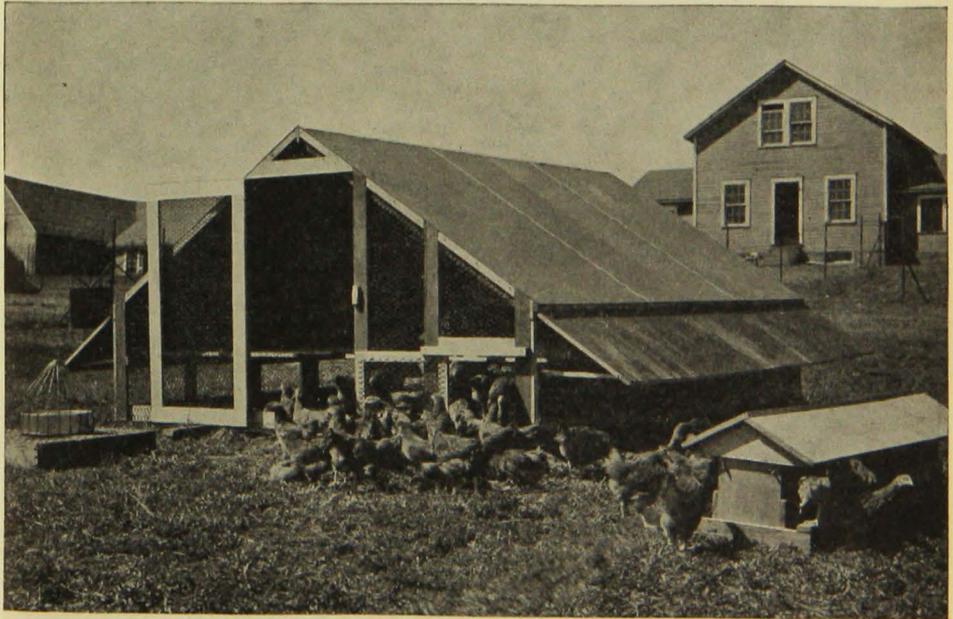


FIG. 1. Range shelter, Plan No. 340, made with separate floor of one-inch mesh hardware cloth
Hinged doors on sides may be nailed solid.

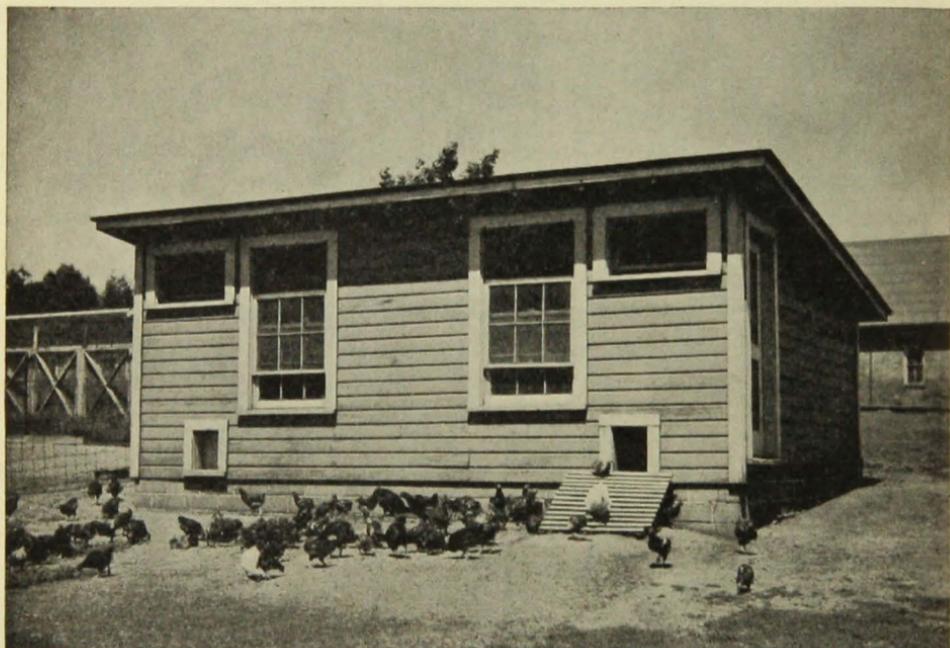


FIG. 2. Permanent brooder house—two-pen

off contaminated ground and away from the adult flock until they are at least three months old. Pullorum disease, coccidiosis, intestinal worms, tuberculosis, and probably other diseases that cause losses in both chicks and laying pullets are, to a considerable extent, controlled by providing clean range and by moving houses or shelters three or four times during the growing period.

Types of Brooder Houses

For the person who raises no more than 350 chicks a year, a portable house set on skids is perhaps most suitable. This permits moving the chicks to clean range easily and yet requires a minimum of equipment. A portable house must be of light construction to permit easy moving, a factor which entails the

use of more fuel than in a well-built permanent house.

For the person who raises more than 350 at one time, and must brood them in two or more units, it may be desirable to have a stationary brooder house divided into as many pens as the size of the flock demands. It is not desirable to brood more than 350 chicks in one lot. Use of a permanent brooder house requires some additional equipment: (1) a sun porch for use during the brooding season, so that chicks can be outdoors without coming in contact with contaminated soil, and (2) a light roosting shelter, usually of wire netting, for use on range when chicks can no longer be confined to the brooder house and sun porch.

While the stationary house system entails a slightly higher investment in equipment, it has certain advantages:

1. It combines the work of handling two or more lots of chicks under one roof.

2. It makes possible the building of a well-insulated house with concrete foundation and floor which saves fuel during the brooding season, is more comfortable during the hot weather, and can be used for housing hens or pullets during the winter. The concrete floor can be cleaned or disinfected more effectively than can a board floor.

3. The roosting shelter (described in "Equipment for Chicks," Minnesota Agricultural Extension Bulletin 163) is much more easily moved than a good portable brooder house. It also prevents the overheating of pullets, a common trouble in the ordinary, tightly constructed brooder house.

Location of House

The brooder house should be placed to provide a sanitary range for chicks. A yard that has not been used for chickens for at least two years is essential to disease prevention. A yard that is not well drained, or one that is heavily shaded, such as a grove, furnishes fertile soil for diseases such as coccidiosis or worms, especially if it has been used for poultry previously.

To provide sanitary conditions, the movable brooder house may be placed on an alfalfa range that has been free of chickens for two or three years.

With a stationary house, this is obviously impossible. Even when a portable house is used, it may prove too inconvenient to be practical. In this case the house may safely be placed in a more convenient location during the brooding period if a wire screen porch is attached to the south side of the house. This provides for the outdoor

exercise so necessary to good growth, without the danger of disease from contaminated soil. (For plans for the sun porch and round-top brooder house see Extension Pamphlet 40.)

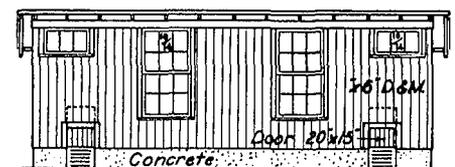
Size of House

Experience has shown that chicks grow best when the heated area under the hover is large enough so that all can keep comfortable at night without crowding and yet have a considerably cooler area in the outer part of the room during the day. The small brooder house of a few years ago was unsatisfactory chiefly from this standpoint. The fire could not be kept burning without heating the house too evenly and sometimes keeping the temperature too high in the entire room. Too high temperatures are most frequent causes of cannibalism, slow growth, and poor feathering, as well as heavy losses. Furthermore, a house that is too small for the chicks does not provide sufficient room for the pullets as they develop, a common cause of overheating and summer colds during the latter half of the season.

The standard requirement is one square foot of floor space for two chicks, with 7 square inches of space per chick under the hover. This means that a 12' x 14' house with a 56-inch hover is about right for 350 chicks. Experiments have shown that larger numbers of chicks result in heavier losses as well as waste of feed used by chicks that die. This size will take care of 50 Leghorn hens or 40 heavies.

Floors

A tight floor that can be easily cleaned and disinfected is essential for the health of the chicks and for effi-



SOUTH ELEVATION

FIG. 3. Permanent brooder house, Plan No. 266, showing vertical boarding on outside

ciency in caring for the flock. A concrete floor is ideal and can be used in a permanent house. However, board floors must be used in portable houses. To insure tightness and sufficient floor warmth, such floors must be double-boarded, with paper between, or houses well banked, for the usual early-season brooding of chicks. Single floors for late-brooded turkeys may be warm enough but lack the strength needed in a house that is to be moved about. Greater strength is provided if the lower course of flooring is laid on the diagonal.

Lighting

There is a tendency to use so much glass in the south side of the brooder house that the house is overheated at times. Small windows on two sides are sometimes preferred for this reason and also because chicks crowd less when the light is evenly distributed. Such arrangement of windows is not always practical. One regular house window on the south side, or two barn-sash windows on north and south sides of a 12'x14' or 12'x16' house will provide all the light that is needed. Glass substitutes may be used, although in general they are not very durable. They cannot be depended upon as a means of providing ultraviolet light as a sub-

stitute for feeding cod-liver oil, since cloudy weather during the brooding period may completely destroy their effectiveness. Safety demands that a vitamin A and D product be fed as long as the chicks are confined indoors, as a source of vitamin A, as well as for the sunshine vitamin D. For these reasons and for their greater durability, windows of glass are preferable.

Ventilation

Cross ventilation, obtainable when windows are placed on two sides of the house, is a desirable feature if handled so as to avoid drafts. If windows are placed on the south side only, as is common in shed-roof houses, the outlets must be located at the highest point in front. For this purpose, the windows should be hung with the top flush with the ceiling and arranged for easy opening at the top. This may be done with sashes hung on weights and pulleys, or hinged at the bottom to be tipped in at the top. Additional ventilation is provided by means of transom sash placed close to the ceiling in the front of the house. These are hinged at the bottom to swing in or out. For summer ventilation, the top board in the rear wall can be hinged at the bottom to be dropped as weather conditions require. The extra ventilator is not practical in a wall with fill insulation, but such a house ventilates well without it.

Doors

The door should open in and swing about 6 inches above the floor level to avoid injuring the chicks. A small door, 20"x15", placed between the studdings in the front corner of the house opposite the large door provides

an exit for the chicks and facilitates driving chicks into crates whenever they are to be moved. Brooder houses, whether stationary or portable, should not be set so high above the ground that baby chicks find the runways too steep.

Portable houses, as well as runways themselves, should be tightly boarded or screened below the floor so that chicks have no opportunity to crowd underneath. Such piling may injure the chicks, and the ground under the brooder house is a constant source of contamination.

Arrangement

Best conditions for the chicks are provided if the brooder stove is set somewhat back from the center of the house. The front portion of the house then furnishes the lower temperatures needed for good growth and makes for a convenient arrangement and good lighting of feeders.

Roosts

Roosts are placed across the back or along the sides, with an allowance of 2½ to 3 inches per chick started. The roost platform has six 2"x2" roosts on a frame covered with one-inch mesh chicken netting. This platform is hinged at the back 18 inches from the floor and comes down to the floor in front. Chicks are thus prevented from piling up under the roosts or in the corners. It also helps in teaching chicks to roost at an early age.

If the roost platform is provided with 18" hinged legs at the front, the whole platform can be raised to a level position as soon as the chicks begin to show preference for the higher roosts. Roosts provided from the beginning will greatly simplify the job of getting pullets to go up on the roosts readily when they are moved into the laying house. Six roosts across the back of the house provide enough space for the mature pullets.

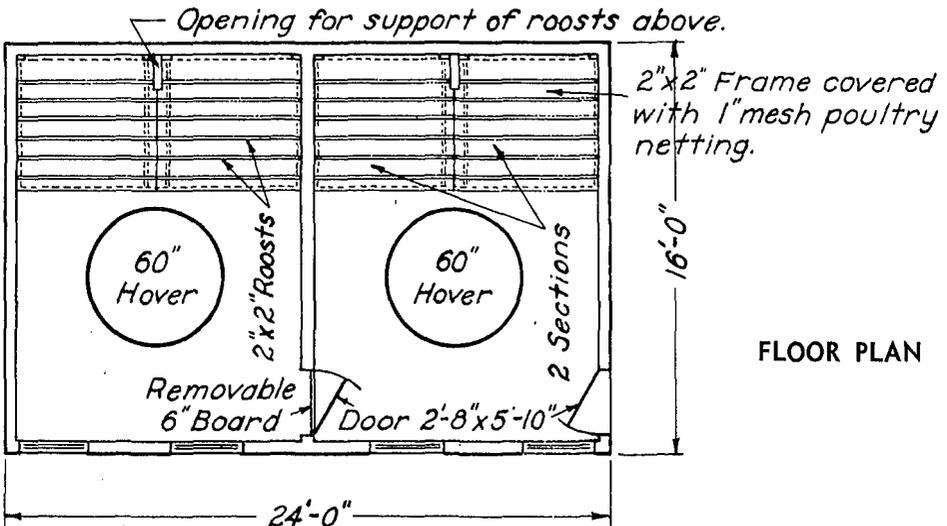


FIG. 4. Interior arrangement of two-pen house

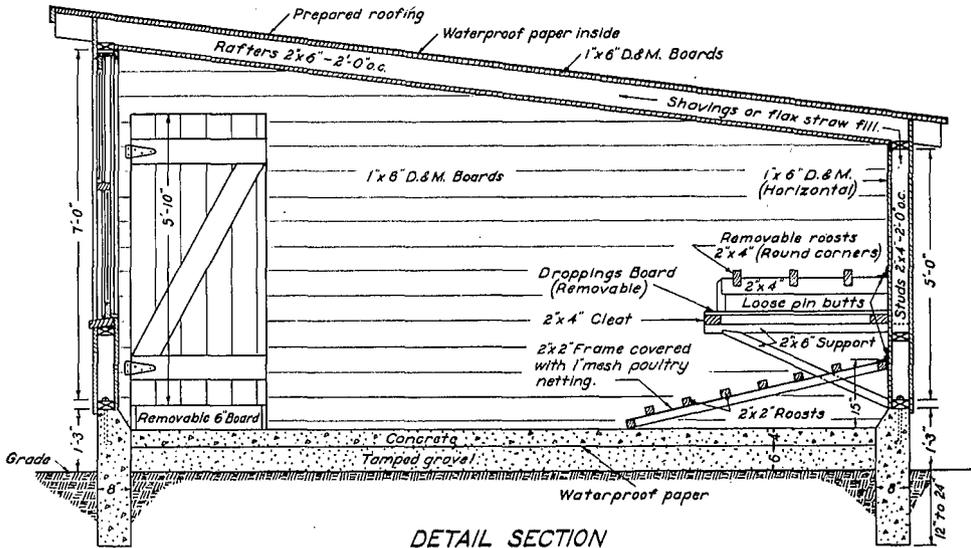


FIG. 5. Permanent brooder house
Horizontal boarding inside permits easy filling of wall.

Feeders

Satisfactory feeders for chicks of all sizes may be bought at reasonable prices but can be made more cheaply at home. The important things to keep in mind are that they should prevent waste and fouling of feed as much as possible and that they should hold enough feed so that one filling a day is adequate. Open troughs with reel or screen to keep chickens out of the feed are most popular answers to these requirements. They may be flat-bottomed or V-shaped. Setting feeders up on stands of a height suitable to the size of the chicks will not only prevent feed contamination but will also reduce the danger of disease from other causes. The moisture that is always found under feeders sitting flat on the floor furnishes ideal conditions for the development of disease germs, worm eggs, and the like.

Types of feeders are shown in Minnesota Agricultural Extension Bulletin 163.

Brooders

Colony brooders are commonly used on a brooder house floor, and battery brooders for chicks in close confinement off the floor.

Battery brooders are convenient for raising broilers or for starting chicks to be transferred to colony brooders after a few weeks. Three or four weeks is the limit of time chicks can safely be confined to batteries if they are to be transferred to colony houses and raised to maturity. For this reason, unless several different lots of chicks are to be brooded, as in the case of the hatcheryman who produces started chicks, the battery brooder represents investment in extra equipment which will be used for a very short time. For

farm use, where only one or two lots of chicks are to be raised, the colony brooder is more economical.

Colony brooders are heated by coal, oil, gas, or electricity. Experiments at the University of Pennsylvania indicate that the quality of pullets raised is not influenced by the fuel used but, rather, by the management of the brooder.

Electric brooders have the advantage of being easily regulated but are not safe unless an uninterrupted supply of current is assured. In using electric brooders it is always advisable to place insulation board on the floor underneath the hover to keep the moisture from condensing on the floor, thus causing damp litter.

Since management of the brooder plays so large a part in successful rearing, it is important to choose brooders that are automatically regulated to provide uniform temperatures. It also is important to use a stove of a size suited to the house. A stove that is too small

for the house is less of a risk than one that is too large, providing the number of chicks kept is right for the size of the hover. In such a case, the chicks will seek heat, as necessary for their comfort, under the hover.

If, however, the stove is too large for the house, the chicks will suffer from the continuous high temperatures. It must be remembered, however, that chilling is likely to result if the hover is too small for the number of chicks brooded.

Regardless of size or type of stove, a hover the right size for the number of chicks plays an important part in securing normal growth and feathering. At least 6 to 7 square inches under the hover are needed for each chick started. When electric brooders are used it will be necessary to increase this to 10 square inches per chick when chicks are brooded before early April. Chicks which are brooded during the winter months should be allowed even more space than this.

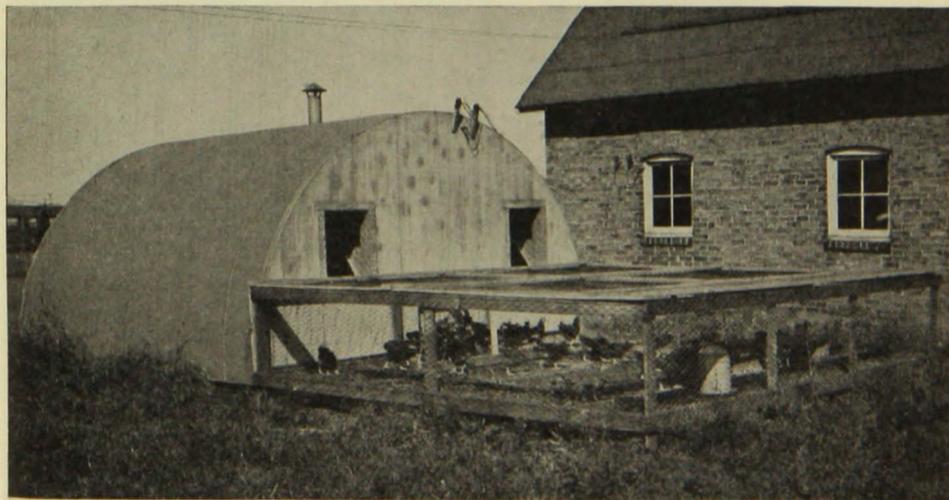


FIG. 6. Round-top brooder house, Plan No. 337

The sun porch may have a floor of one-inch wood strips laid an inch apart.

PERMANENT BROODER HOUSE

The permanent house shown is a two-pen building, but the number of pens may be increased as needed. The house is 16'x24', providing two pens, each 12'x16'. The plan is the same as for the one-room house except in depth, which is 16 feet. This depth is recommended in order to provide better conditions for winter housing than would be found in the shallower house. A solid partition separates the two rooms, with a door between swinging about 6 inches clear of the floor.

Size of House

The 12'x16' pen will accommodate 400 chicks under a 60-inch hover. This should be the limit. A house built for a given number of chicks may safely be used for a smaller number, but crowding in too many is dangerous.

Construction for Warmth

One reason for building a permanent brooder house is that it can be built sufficiently warm to reduce the fuel bill effectively. The wall construction recommended is the same as that being used with good results in winter laying houses throughout the state. The wall is double with dressed and matched lumber laid vertically over paper outside the studdings, shiplap or sheathing laid horizontally inside the studdings, with a fill between of flax straw or planer shavings.

A wall constructed in this manner provides three times as effective insulation as does the same wall without the fill material, and the increase in cost is very little. Care must be taken to have the boarding absolutely tight so as not to attract rats and mice.

Plywood may be used for the inside

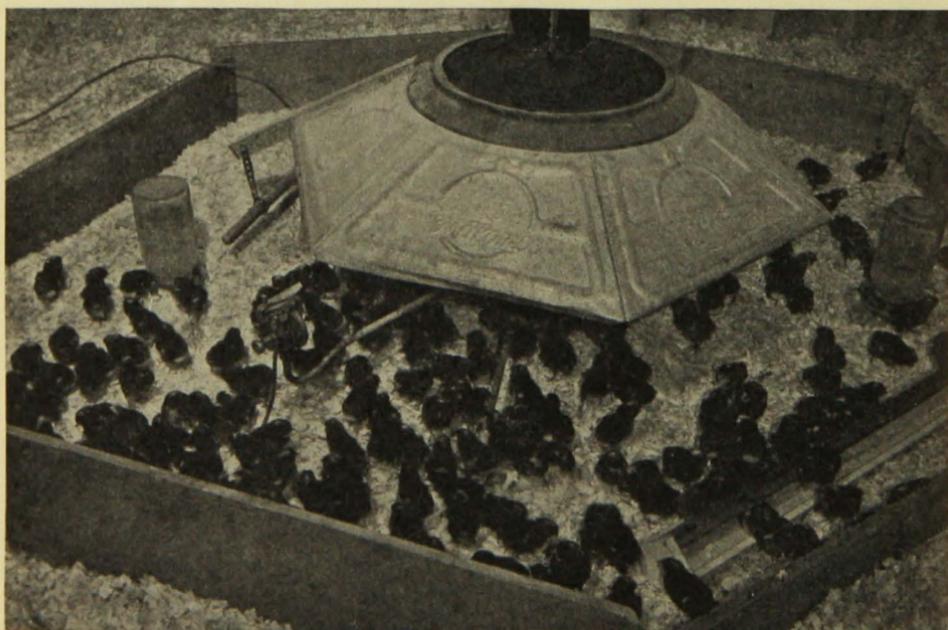


FIG. 7. Interior of round-top brooder house

sheathing if the cost can be reduced by doing so.

The roof is finished in the same manner as the walls, except that roof boards and roofing take the place of building paper and siding used in the side walls.

Windows

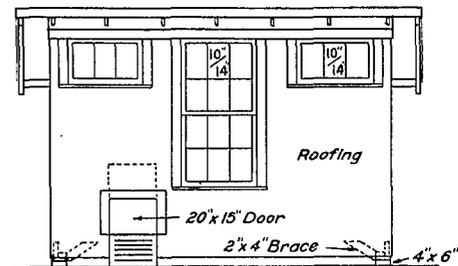
One house window consisting of twelve 10"x14" panes with a transom having three panes of the same size lights the house sufficiently. Placing windows and transoms flush with the ceiling insures good ventilation at all seasons.

Foundation and Floor

The concrete foundation is set 12 to 24 inches into the ground or down to uniform soil to guard against cracking from frost. A fill of crushed rock and gravel or cinders reduces surface moisture from the soil. On top of this, a three-inch layer of concrete provides for easy cleaning and sanitation.

Sun Porch

While, as mentioned before, a sun porch is frequently used with a movable house to save labor during the brooding period, it becomes an essential addition to the equipment when a permanent house is used. In no other way can chicks be provided with outdoor exercise safe from contaminated soil. This sun porch sometimes has a concrete slab floor, but more commonly it is movable and has a floor made of one-inch mesh 16-gauge hardware cloth with sides and top of 20-gauge galvanized chicken netting. It is built about the size of the brooder house floor. The top is best made of remov-



SOUTH ELEVATION

FIG. 8. Movable shed-roof house,
Plan No. 269

able sections to facilitate filling and care of feeders and fountains. Frequently, particularly for turkeys, the feeders are hung on the sides of the sun porch so that all filling and care is handled from the outside.

PORTABLE BROODER HOUSES

Round-Top

The most serious handicap to be overcome in portable houses is the difficulty of moving them if they are built warmly enough to conserve fuel. This disadvantage is largely overcome in the round-top houses because the shape reduces the weight and the space to be heated by about one fifth.

Small windows (barn sash) placed in each end provide good lighting and ventilation without the excessive heat that is common to houses with large windows on the south only. The more even lighting thus provided reduces crowding.

In this house the roost platforms are hinged to the sides of the room instead of along the back. One disadvantage of this house is that it is not readily adapted to housing poultry in the winter.

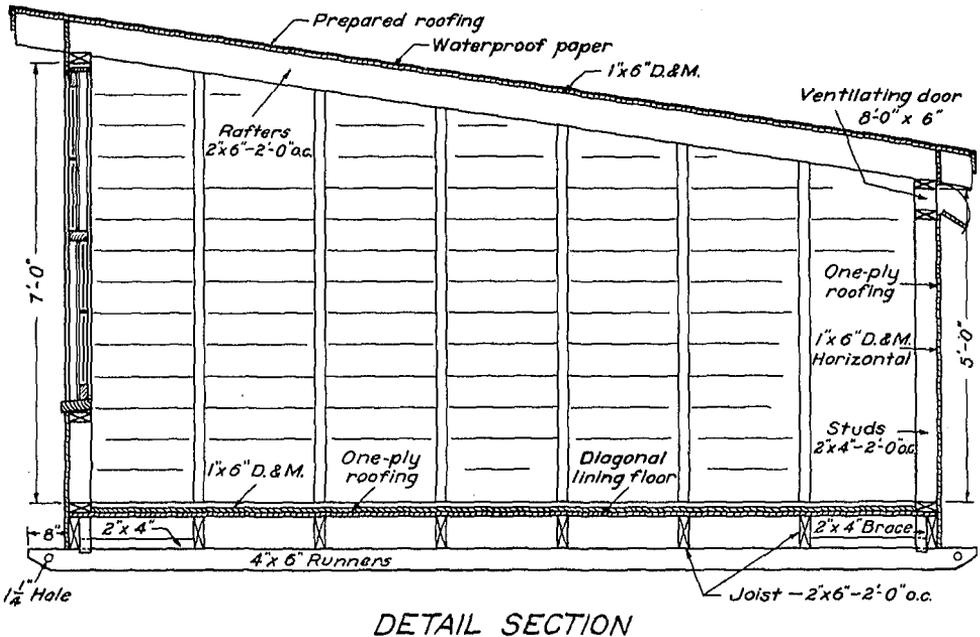


FIG. 9. Movable house—boarding is placed horizontally to give strength

Shed-roof

The person who has to use the brooder house for winter housing of breeders or surplus pullets may find the shed-roof type more readily adaptable to his needs, even though it is less efficiently heated for chicks than the houses already described and is somewhat harder to move than the round-top house.

The wall is constructed with a single layer of dressed and matched lumber

covered with a good grade of roofing. By banking the house to the eaves on three sides and over the roof, it provides reasonably satisfactory winter quarters.

In shape, lighting, ventilation, and arrangement it is similar to one room of the stationary house. Because it is smaller, it requires a 56-inch hover suitable for 350 chicks instead of the 60-inch size called for in the permanent house.

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