

UNIVERSITY OF IDAHO  
COLLEGE OF AGRICULTURE  
EXTENSION DIVISION

L. W. FLUHARTY  
DIRECTOR

HOUSING FARM POULTRY



R. T. PARKHURST, *Associate Professor of Poultry Husbandry*  
PREN MOORE, *Poultry Husbandman University Extension Division*  
M. R. LEWIS, *Associate Professor of Agricultural Engineering*

REVISED

COOPERATIVE EXTENSION SERVICE IN AGRICULTURE AND HOME  
ECONOMICS OF THE STATE OF IDAHO UNIVERSITY OF IDAHO  
EXTENSION DIVISION AND U. S. DEPARTMENT  
OF AGRICULTURE COOPERATING

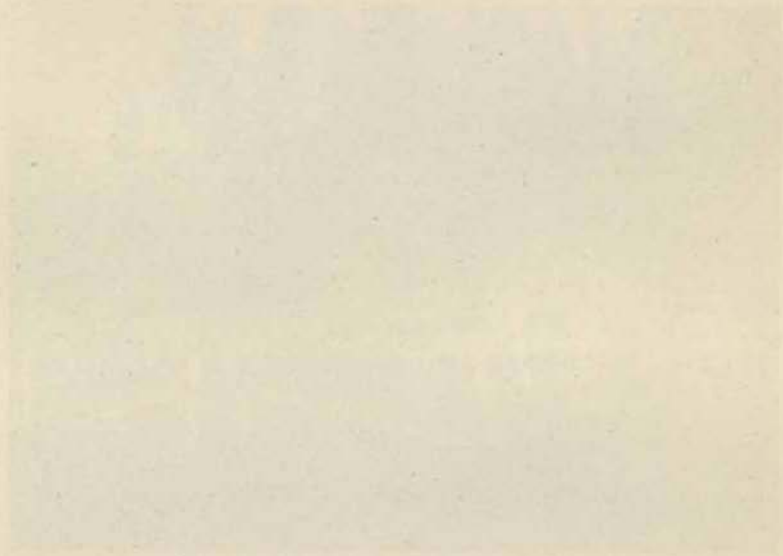
NO LONGER PROPERTY OF  
SPOKANE COUNTY SECTION  
PUBLIC LIBRARY

Printed and distributed in furtherance of the purposes of the Cooperative  
Agriculture Extension Service provided for in Act of Congress, May 8, 1914.

S  
53  
E424  
no 42

PUBLIC LIBRARY

PROPERTY OF IDAHO  
HORSING FARM POLITY



NO LONGER PROPERTY OF  
SPOKANE PUBLIC LIBRARY

JAN 1918

## CONTENTS

	PAGE
Location.....	5
Essential Features of a Poultry House.....	6
The Idaho Half-Monitor Laying House.....	9
Plans and Construction.....	10
Bill of Material.....	17
Wooden Floor.....	19
The Half-Monitor Colony House.....	21
The Idaho Colony House.....	24
The Two Room Brooder House.....	30
Handy Labor Saving Equipment.....	34

## LIST OF FIGURES

- Fig. 1. A Good House Properly Located.
- Fig. 2. A System of Ventilation.
- Fig. 3. A Shed-Type Remodeled to Conform to the "Idaho Model Half-Monitor" Poultry House.
- Fig. 4. Isometric Half-Monitor Laying House.
- Fig. 5. Floor Plan Half-Monitor Laying House.
- Fig. 6. Section Half-Monitor Laying House.
- Fig. 7. Front or South Elevation Half-Monitor Laying House.
- Fig. 8. Wood Floor Plan.
- Fig. 9. Isometric Half-Monitor Colony House.
- Fig. 10. Section Half-Monitor Colony House.
- Fig. 11. Front Elevation and Rear Elevation Half-Monitor Colony House.
- Fig. 12. Floor Plan of Idaho Colony House.
- Fig. 13. Perspective of Idaho Colony House.
- Fig. 14. Front View of Idaho Colony House.
- Fig. 15. Side View of Idaho Colony House. (South)
- Fig. 16. Window Detail of Idaho Colony House.
- Fig. 17. Side Elevation of Brooder House.
- Fig. 18. Plan of Brooder House.
- Fig. 19. Section of Brooder House.
- Fig. 20. End Elevation of Brooder House.
- Fig. 21. Droppings Scraper.
- Fig. 22. Droppings Carrier.
- Fig. 23. Open Nests.
- Fig. 24. Trap Nests.
- Fig. 25. Feed Hopper.
- Fig. 26. Range Hopper.
- Fig. 27. Water Pan.
- Fig. 28. Catching Coop.
- Fig. 29. Catching Hook and Net.
- Fig. 30. Shipping Crate.

The essentials in Poultry Housing are:

1. Sanitation.
2. Comfort.
3. Sufficient ventilation.
4. Freedom from moisture.
5. Distribution of light.
6. Ample floor space.
7. Convenience.
8. Durability.
9. Economy.
10. Protection against destructive animals.

Poultry houses should be tight on three sides—East, North and West.

Have no more head space than is necessary for the attendant.

Do not use curtains except when necessary to keep rain or snow out.

Do not close hens in tight during cold weather.

Build houses deep from south to north—not less than 24 feet.

Provide droppings boards.

Provide some glass in back wall under droppings boards.

Ceil space over droppings boards.

Provide floor in house to make it complete.

Put all equipment off the floor.

Shed types may be remodeled.

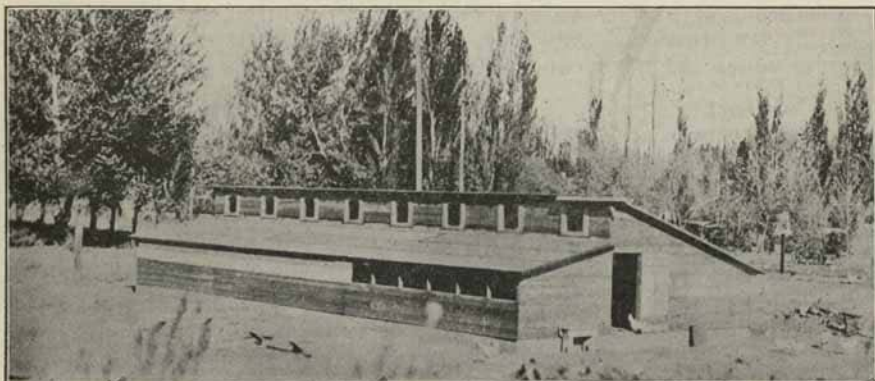
Do not permit carpenters to alter plans given in this bulletin.

# HOUSING FARM POULTRY

By

R. T. PARKHURST, *Associate Professor of Poultry Husbandry*  
PREN MOORE, *Poultry Husbandman, University Extension Division*  
M. R. LEWIS, *Associate Professor of Agricultural Engineering*

The cost of constructing a satisfactory poultry house is not large, when considered as an investment. It is real economy to properly house the hens no matter what size the flock may be. Even if the flock ranges over the farm in summer, there is need for proper housing in winter. Winter egg production is of greatest importance and is possible only when housing conditions are correct. Hens do best when confined during winter. Proper housing not only results in higher egg production but has many other advantages. A properly constructed house can be kept clean and sanitary and mites and disease are easily controlled. Less time and labor are necessary as everything is arranged for convenience and to save labor. Under present conditions a house, built according to accompanying plans, will cost about \$1.75 per bird.



*Fig. 1. A good house properly located.*

## LOCATION

The house should be located in a sheltered place where there is good water and air drainage and is convenient to other buildings. The house must face the south to admit sunlight. The ideal location for a poultry house is a southern slope, near an orchard or woodlot where the snow thaws more readily and the ground dries and warms quickly. Hilltops and low places are not satisfactory locations for the poultry as low places are cold and damp and hilltops are wind swept. Portable houses may be placed along alfalfa and other crop fields.

A sandy loam soil is ideal as it drains rapidly and is warmer than the heavier soils. It is sufficiently fertile to produce a sod, yet

does not become quickly contaminated. When possible the location should be such that the soil may be plowed on all sides of the house as a means for keeping the soil sweet.

## ESSENTIAL FEATURES OF A POULTRY HOUSE

The essentials of a properly constructed poultry house are: sanitation, comfort, sufficient ventilation, freedom from moisture, distribution of light, ample floor space, convenience, durability, economy, and protection against destructive animals.

### HEALTH AND COMFORT OF THE FOWLS

**Sanitation**—A properly constructed house is the best possible safeguard of the health of the birds as it is an important factor in preventing poultry diseases. In the modern house sanitation is made easy. It has a cement floor that is easily cleaned, droppings boards that aid in the removal of the droppings, and removable perches that are readily disinfected. Fresh air is circulating about the house at all times and removes without drafts the surplus moisture and impure gases. Properly distributed sunlight aids in disinfecting the house and with the other factors provides conditions under which the fowls can thrive.

**Comfort**—Comfort is essential for maximum results. Most poultry keepers are familiar with the immediate loss in production caused by sharp changes in temperature or excessive cold when a suitable house is not provided. In addition to adequate protection the quarters for the laying hens must be made comfortable by being dry, entirely free from drafts, supplied with plenty of fresh air and fowls are more contented, especially in winter, if there is plenty of sunlight in the house.

**Ventilation**—The importance of ventilation in keeping the poultry house dry is not generally appreciated or understood. A hen breathes three times as fast as a human being and has no sweat glands. She must, therefore, throw off all the poisonous material thru her lungs. A hen exhales approximately 40 cubic feet of air per day which is saturated with moisture. One hundred birds throw off a gallon and a half of water every twenty-four hours and unless proper ventilation is supplied, the air in the house becomes moist very quickly. During cold weather the outside air usually contains much more moisture than during warm weather. It is, therefore, necessary to have much more ventilation in cold weather to remove this moisture. Poultry can stand severe cold in a dry atmosphere but their combs will freeze very quickly in a damp atmosphere. Lack of sufficient ventilation is often indicated by damp litter, moist, ill-smelling air and by the collection of moisture or frost on the windows, walls or ceiling.

The house should be tight on three sides with openings provided in the front or south wall of the house. The open front with a muslin curtain for use during inclement weather is now in general

use. This opening is placed two feet or more off the floor to prevent a direct draft on the birds. Curtains are never used except when necessary to keep out rain or snow.

In the Idaho half-monitor house the peak windows are used but little during winter, usually during mild days when the air in the building becomes foul. The top sash should be closed at night during winter except during mild weather. All windows in the half-monitor house should be open during hot weather. The windows under the droppings boards, the peak windows and the lower front opening allow ideal ventilation in summer. In winter the windows under the droppings boards are closed and the air circulates from the front around the droppings boards as shown in the diagram.

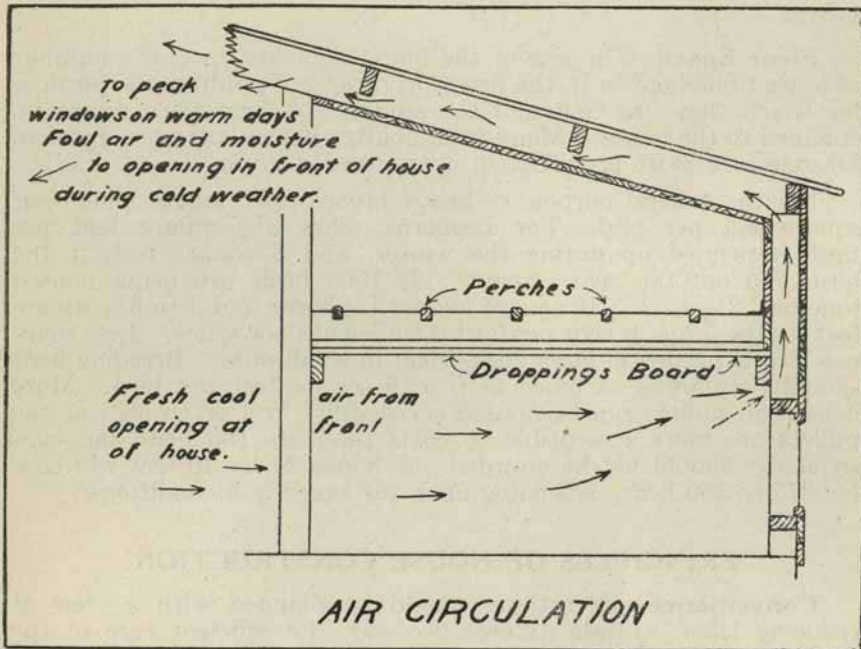


Fig. 2. The System of Ventilation.

**Freedom from Moisture**—Temperature and moisture are closely related factors in the housing of poultry. If a laying house is dry it is much easier to prevent poultry diseases and maintain health and vigor in the flock as disease germs develop very rapidly in damp poultry houses. If the house is to be dry it must be located in a dry place. A properly constructed floor will keep moisture from coming into the house from the soil. The wood floor must be far enough off the ground so that the moisture does not accumulate on the ground under the floor and cause it to become damp. Concrete floors should have a filling of coarse gravel under them to insure adequate drainage.

**Distribution of Light**—There should be no dark corners in the poultry house. The reason for facing the poultry house south is to give the greatest possible amount of sunlight. Few disease germs can withstand direct sunlight. Sunlight makes the house a great deal more pleasant, induces greater feed consumption and consequently higher egg production is obtained. The opening in the front should be arranged so that the light is distributed to give the maximum value. Window sashes should not be used unless they allow for proper ventilation by being hinged to open. Artificial lighting may be used to aid in proper lighting on dark days or to lengthen the working and feeding time in winter. Sashes are placed on the north side of the house under the dropping boards to supply the light there. The fowls work toward the light and there is less difficulty with the birds scratching the litter back under the droppings boards.

**Floor Space**—The size of the house depends upon the number of fowls to be kept in it, the breed or variety of poultry, the purpose for which they are kept and the amount of time they are to be confined to the house. Many farm poultry houses are over-crowded. Diseases are more prevalent in over-crowded flocks.

For the general purpose or heavy breeds it is best to allow four square feet per bird. For Leghorns, allow  $3\frac{1}{2}$  square feet per bird, if penned up during the winter, and 3 square feet, if the birds run out the year around. If 1000 birds are being housed together,  $2\frac{1}{2}$  to  $2\frac{7}{10}$  square feet for Leghorns and 3 to  $3\frac{1}{4}$  square feet for the larger breeds per fowl is sufficient floor space. Less space per bird is needed in large flocks than in small ones. Breeding hens should be allowed as much as 5 or 6 square feet per bird. More hens than pullets can be housed successfully in a given area as the pullets are more susceptible to colds than are the hens and consequently should not be crowded. A house 24 by 40 feet will care for 275 to 350 hens, depending upon the breed and conditions.

## PRINCIPLES OF HOUSE CONSTRUCTION

**Convenience**—Everything should be planned with a view of reducing labor. Inside fixtures necessary for efficient care of the flock should be placed above the floor leaving the entire floor space for scratching and making the cleaning of the house easier. Nests can be placed beneath the droppings boards but for convenience and sanitation it is preferable to have them on the end walls. The mash hoppers may be constructed so as to be filled from the outside by means of an opening in the roof. A sloping top to the nests and mash hoppers will prevent the birds from roosting on them and leaving their droppings there. A grain box near the door large enough for a week's supply or more will save much time and labor. Droppings boards make the removal of the droppings from the house much easier.

**Durability**—It pays to use good materials in the poultry house. The roof especially should be built water tight and have strength



sufficient to withstand the heavy snows and windstorms. The walls can often be made of second hand lumber from around the farm if covered with three-ply prepared roofing. However, rustic siding is more permanent. On account of its durability, concrete should be used when possible for the foundations and floors of permanent buildings. Colony houses must be strongly constructed and of good materials in order to withstand the strain of moving.

**Economy**—The house should be built as cheaply as is consistent with good construction. It is not necessary to make the house expensive to be satisfactory. Many houses cost a great deal to build but fail absolutely to be practical because in planning attention was not paid to the essentials of ventilation, sunlight and convenience. At moderate cost a house can be constructed to meet all the needs of the fowls and the poultry keeper.

Many poultry houses are built unnecessarily high. Too great height is undesirable because it not only detracts from the comfort and welfare of the fowls but adds unnecessary cost to the construction. The house should not be built higher than is necessary for the convenience of the attendant. It is economical to build the poultry house as deep as possible and still provide sunlight in the back of the house and the proper ventilation. Narrow houses are expensive per square foot of floor space and are usually drafty and cold. As the poultry house is, in most cases, a permanent investment it is good economy to use materials having lasting qualities.

**Protection Against Destructive Animals**—A properly constructed cement floor is the best preventive of loss from the predatory animals such as rats, minks, weasels and skunks. When wooden flooring is used, screening placed at the top of the supporting posts is an excellent means of making the structure rat-proof.

### THE IDAHO HALF-MONITOR LAYING HOUSE

This type of house has proven very satisfactory under Idaho conditions. It provides ventilation in the extreme front, far from the roosts, which is desirable. The fresh air enters the open front, drops to the floor and then circulates toward the back and upward going out at the peak, taking the moisture with it. When properly used the window sashes in the peak are opened sufficiently to cause this circulation. The only difficulty experienced with this type of house has been due to keeping the house too tightly closed. This type of house has the special advantage over most types in that the sun can strike nearly every part of the house sometime during the day. Good head room is furnished with a minimum of air space and a low cost of material. The half-monitor house is especially well adapted to houses 24 to 30 feet in depth and is economical to build when the amount of floor space provided is considered.

Many shed type houses can be remodeled into half-monitor houses at small expense thus giving better ventilation, more sunlight, as well as being more convenient.



*Fig. 3. A Shed-type Remodeled to Conform to the "Idaho Model Half-Monitor" Poultry House.*

**Shape of the House**—The nearer square a house is the cheaper it is to build. The deeper from front to back, the warmer the house will be and the further the hens will be from the open front, consequently the less exposed to draft. A satisfactory depth for the half-monitor house under ordinary conditions is 24 to 30 feet. The 30 foot depth is quite popular and does not require that the height be increased over that used for a 24-foot depth.

**Height of the Walls**—The walls should be just high enough to allow head room for the attendant, to permit sunlight to reach the back of the house and to give sufficient room for droppings boards and the roosts in the back of the house. For a 24 foot half-monitor house, the height in front is 4 feet, the height at the peak 6 feet, the total height at peak 8 feet 9 inches and the height in back 4½ feet. These dimensions provide for droppings boards high enough from the floor to permit the hens to walk under them and also allow plenty of head room. There is a tendency to build houses entirely too high. Not only is this costly but makes the house cold. The air space should be kept at a minimum.

### PLANS AND CONSTRUCTION

Figures 4, 5, 6 and 7 show the details of construction of the Half-Monitor Laying House. The bill of materials for this house is complete for the house as it is shown with a concrete floor, droppings boards and roosts. Separate bills are given for the nests and feed hoppers as shown in the plans.

The construction of the house as shown with a concrete floor will be taken up first. An acceptable wooden floor will then be described.



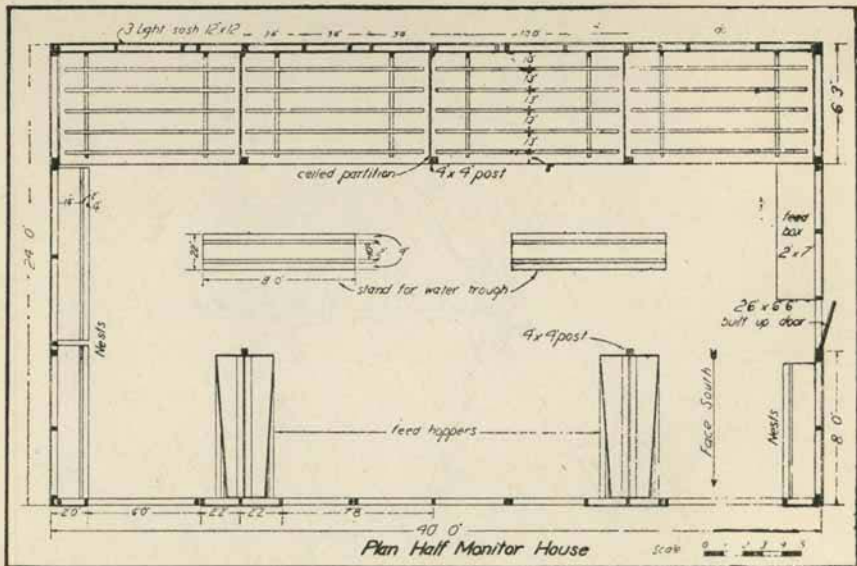


Fig. 5. Floor Plan of Half-Monitor Laying House.

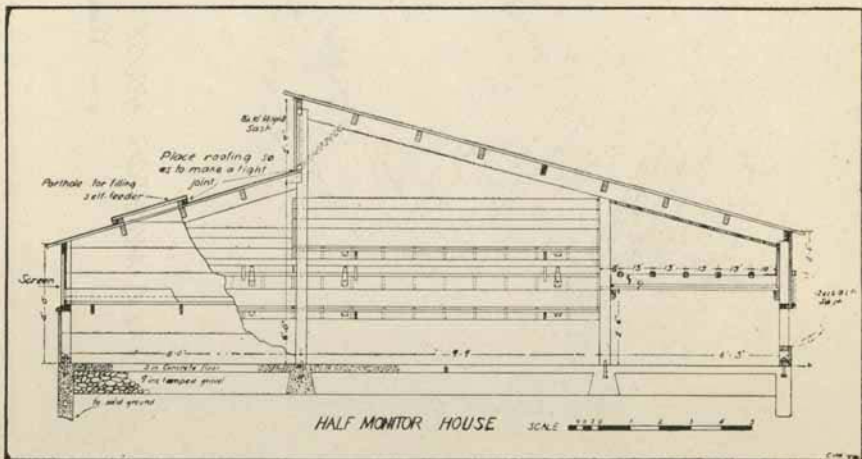


Fig. 6. Section of Half-Monitor Laying House.

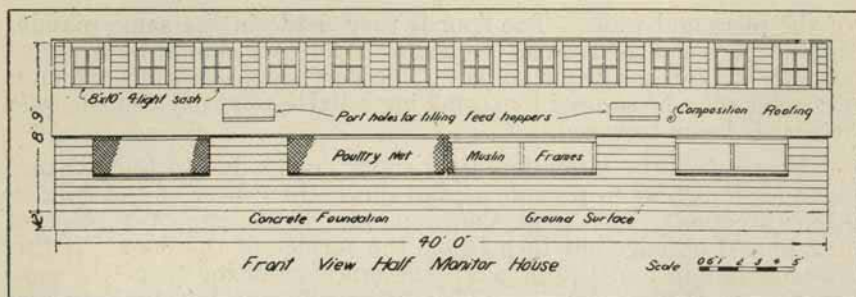


Fig. . 7 Front or South Elevation Half-Monitor Laying House.

### FOUNDATION AND FLOOR

The first thing to do after the location for the building has been selected is to stake out the foundation. Lines should be stretched along all four sides of the building. Just inside these lines trenches are dug to a firm foundation 18 in. to 30 in. below the surface. If the ground is firm no forms will be needed below the ground level. The trench should be as narrow as possible to avoid the use of too much concrete. Above the surface forms are built and carefully braced to insure straight walls. The form walls may be made of some of the shiplap which will later be used in the building, care being taken not to nail it so tightly that it will be broken in taking the forms apart. The top of the foundation should be 10 to 12 inches above the highest point of the ground. The inside form is made three inches lower than the outside to allow for the floor.

The concrete for the foundation and floor should be made of a mixture of one sack of cement to two and a half cubic feet of sand and five cubic feet of crushed stone or pebbles. The sand should be clean, that is it should include **no** vegetable matter and **very little** clay or earth. It should consist of a mixture of all sizes up to particles one quarter inch in size. Clean crushed stone or pebbles should be used, graded in sizes from one quarter inch to one and one-half inches in diameter. If a natural mixture of sand and gravel is used not more than six cubic feet should be used to one sack of cement. Better results will be secured if the sand and pebbles are measured separately. After thoroly mixing the dry materials, water is added and the mixture is again shoveled over until each pebble is completely covered with mortar. The concrete should be just wet enough that a very little water will come to the surface when it is spaded in the forms. Vigorous use of a spade in working the stone back from the face of the wall will insure a smooth surface.

As the foundation walls are built bolts should be placed as shown in the plans to fasten the sills down. The forms are filled up to the top of the inside section. The piers for the inside posts are made in the same manner as the outside walls up to 3 inches below the final floor level. The concrete is allowed to set for two or three days. The inside forms are then removed. The space inclosed by walls is then filled with coarse gravel or stone and tamped **solid** to the level

of the piers and walls. The floor is then made in the same manner and of the same mixture as the walls. The floor should be troweled smooth after it has begun to set. The very smooth surface which is desirable may be secured by sprinkling a **little** pure dry cement over it as it is being troweled.

To prevent the formation of irregular cracks due to temperature changes it is best to provide a joint down the center of the floor in each direction. This joint shown in Fig. 3 consists of a piece of 1x2 placed on edge one inch below the surface of the floor. If this piece is put in and left in place the crack resulting from the contraction of the concrete in cold weather will not be objectionable. A more waterproof joint may be made by the use of asphalt or some of the patent expansion joint materials.

The floor, as is true of all other concrete in thin sections, should be cured by sprinkling several times a day or by covering, after it has set, with wet sand or earth for several days.

### FRAME

The floor should be thoroly hardened before the frame of the building is constructed. Unless a generous over supply of lumber is purchased care must be taken not to cut pieces of lumber except for the use for which each length is intended as shown in the bill of material. The holes are bored in the sills for the foundation bolts and they are then bolted to the foundation. The studs and rafters are then cut to the correct lengths. The proper position for each stud as shown on the plans is marked on the sills. The studs in the rear wall are then set up in position and toe-nailed to the sills. As soon as several studs are set up and plumbed the plate is nailed to them. The front row of studs with its plate is then set up in the same manner.

The end studs and center posts at the end are next set up and toe-nailed to the sill. The two end rafters are then put in place. The post on the next pier is set up and the plates running lengthwise at the bottom and the top of the monitor put in place, after which the rafters are put up. This same plan is followed thru to the other end. Next the frames for the door, windows and screened openings are put in. Care must be taken that the frames exactly fit the sashes as no window boxes are provided in these plans.

The frame is made of No. 1 common dimension fir as this is strong and cheaper than clear material.

**Siding**—Six inch drop siding is used for the outside walls. It must be carefully laid up so as to be tight.

**Roof**—The roof is made of a layer of 8 in. shiplap laid tight up and down the roof. If they can be obtained eighteen foot boards should be used to tie the building together. The roof covering is a reputable brand of three ply prepared roofing laid with the strips running lengthwise of the building. This type of roofing is preferred for a poultry house since it is air tight as well as water proof. The

roofing on the front of the building runs up under the windows in the monitor to make a water proof joint.

The openings thru the roof for the hoppers must be entirely leakproof or trouble will be caused by damp or wet feed.

**Windows**—The windows in the back wall are placed high under the droppings boards to prevent their becoming blocked with litter. Three light 12x12 inch cellar sash are used. They should be hinged at the top on the outside of the house so that they may be fastened up against the wall out of the way. Poultry netting is fastened inside these windows to keep out vermin. The windows in the monitor are four light 8x10 inch barn or factory sash. These windows are hinged at the bottom on the inside so that they may be opened in to allow the escape of foul air without letting in rain or snow. The windows should be fastened with transom catches at the top. These catches can be easily worked by means of a hook on the end of a stick. To prevent the windows falling open too far they may be held with a short length of light coil chain.

### SCREENED OPENINGS

On the front of the building screened openings are provided for ventilation. These openings are permanently screened with inch mesh poultry netting. The netting is placed on the outside of the wall. For use during storms frames covered with muslin are provided which will fit into these openings from the inside. These frames are made like ordinary window screens but are covered with unbleached muslin. Hinge the screens at the top that they can be fastened up to the roof with a hook and eye when not in use. Beveled sills are provided to cause the rain to drip off outside the building.

**Door**—The door is 2 feet 6 inches by 6 feet 6 inches and is built of siding.

**Droppings Boards**—The droppings boards are a permanent and necessary part of the house. They are made of No. 3 clear V. G. tongued and grooved flooring. Flooring is used as the wear is severe on account of the continual scraping; also because it makes a tight, smooth surface in which mites find no shelter. The droppings boards are supported, as shown in the plan, by two 2x4 inch strips running the full length of the house. These boards are put on before the ceiling over the roosts and run lengthwise from the back wall of the house toward the front so as to permit the use of a scraper without its catching in cracks. They extend 8 inches beyond the outside roost.

**Roosts**—The roosts are supported on two by fours hinged at the top to the back wall and supported at the front by a block. The roosts are made of 2x2 inch material with the top corners rounded off. They are set into notches in the supporting 2x4's as shown in the plans. The outside one is nailed in so as to be used in raising the roosts which are lifted up and hooked to the roof while the droppings boards are cleaned. The back roost is set 10 inches from the

wall and the rest 13 inches apart. All the roosts are on the same level, which is six inches above the droppings boards.

**Ceiling**—The back of the house and the roof above the roosts are ceiled over to create a warm pocket for the birds on cold nights. This ceiling is No. 3 clear ceiling 6 inches wide. It is nailed close to prevent any possible draft on the birds while on the roosts. At each post supporting the roof a partition is built extending from the front to the rear of the droppings boards and from the droppings boards to the roof. These partitions prevent currents of air passing lengthwise of the house along the perches.

**Painting**—If the house is to last as it should it must be properly painted. The cost of paint will be well repaid in the greater life of the building.

**Nests and Feed Hoppers**—Nests are shown on the end wall of the house. The nests are made as shown in Fig. 20. The nests in the high part of the house are three tiers high, the others only two.

Two large feed hoppers are shown in the plans. These hoppers are made in the same manner as the one shown in Fig. 22, except that the front side is carried up to the roof. The hoppers are intended to be filled thru the port holes in the roof.

**Artificial Lighting**—To properly light the house on dark days and to lengthen the working and feeding time, lights should be installed. They may be placed along the 2x6's that are below the windows in the monitor or may be suspended from the roof half way between the front and back walls. The proper adjustment should be made so that the lights will strike the floor just inside the walls and beneath the droppings boards. Allow 1 watt for each eight square feet of floor space. Two 25 watt lamps are usually better than one 50 watt lamp.



**BILL OF MATERIAL FOR  
HALF-MONITOR LAYING HOUSE  
24'x40'**

**Detail of Framing Material**

No. OF PIECES	SIZE	Length		USE
		AS USED	AS BOUGHT	
4	2x4	12	12	Sills
8	2x4	10	10	Sills
5	4x4	5' 7"	12	Posts
5	4x4	8' 6"	10	Posts
3	4x4	4' 6"	10	Posts
13	2x4	3' 7"	14	S. side studs
12	2x4	4' 1"	16	N. side studs
2	2x4	4' 6"	10	End studs
2	2x4	6' 6"	14	End studs
1	2x4	7' 6"		
8	2x4	3' 4"	14	N. side window frames
2	2x6	6'	12	Sills for openings
2	2x6	8'	8	Sills for openings
5	2x6	8' 3"	10	Rafters
8	2x6	16' 6"	18	Rafters
56	2x4	10'	10	Plates and Purlins
4	2x4	6' 6"	14	Nail ties for ceiling
24	2x4	2' 1"	16	Monitor window frames
1	2x4	2' 6"		
8	2x4	5' 6"	12	Roost supports
20	2x2	10'	10	Roosts
8	2x4	10'	16	Droppings boards supports
10	1x4	Odd	16	Expansion joints and frames
11	2x2	2' 3"	10	Porthole frames and nailing pieces for ceiling.

**Summary of Above**

No. OF PIECES	SIZE	LENGTH	MATERIAL	F. B. M.
3	4x4	12	No. 1 Common fir.....	48
6	4x4	10	No. 1 Common fir.....	80
8	2x6	18	No. 1 Common fir.....	144
1	2x6	12	No. 1 Common fir.....	12
5	2x6	10	No. 1 Common fir.....	50
2	2x6	8	No. 1 Common fir.....	16
9	2x4	16	No. 1 Common fir.....	96
8	2x4	14	No. 1 Common fir.....	75
8	2x4	12	No. 1 Common fir.....	64
74	2x4	10	No. 1 Common fir.....	493
23	2x2	10	No. 1 Common fir.....	77
10	1x4	16	No. 1 Common fir.....	54

TOTAL..... 1149

1x6 Drop siding No. 2 clear	800
1x4 No. 3 clear V. G. T. & G. flooring	340
1x6 No. 3 clear ceiling	460
1x8 No. 1 Shiplap 18' long	1300
<b>TOTAL LUMBER</b>	<b>4049</b>

- 68 bags cement.
- 16 cubic yards bank run gravel or  $\left\{ \begin{array}{l} 6\frac{1}{4} \text{ cubic yards sand} \\ 12\frac{1}{2} \text{ cubic yds. crushed stone or} \\ \text{pebbles.} \end{array} \right.$
- 33 cubic yards crushed stone or coarse gravel under floor.
- 12 rolls 3 ply composition roofing.
- 4 12"x12"—3 light cellar sash.
- 12 8"x10"—4 light barn sash.
- 16 1½" transom catches.
- 1 rim lock door set.
- 17 ft. 8 gauge light coil chain.
- 16 pairs 3" steel butt hinges tight pin.
- 4 pairs 6" steel strap hinges.
- 28 ft. galvanized poultry netting, 1" mesh, 24" wide.
- 14 ft. galvanized poultry netting, 1" mesh, 18" wide.
- 18 ¾"x10 bolts with nuts and washers.
- 6 ¾"x10 drift pins.
- 8 Hooks with two screw eyes.
- 20 pounds 20d nails.
- 60 pounds 8d nails.
- 12 yards muslin 24" wide.

Note—This bill of material allows for the least possible amount of waste. Unless great care is taken more material will be needed than is listed.

### BILL OF MATERIAL FOR NESTS

(AS SHOWN IN HALF-MONITOR LAYING HOUSE)

NO. OF PIECES	SIZE	LENGTH	MATERIAL	F. B. M.
16	1x8	10	No. 1 shiplap	} .....
12	1x8	8	No. 1 shiplap	
1	1x12	14	No. 1 common boards	} .....
3	1x6	10	No. 1 common boards	
3	1x4	14	No. 1 common boards	
7	1x4	10	No. 1 common boards	
<b>TOTAL LUMBER</b>				<b>238</b>

5 pair 8" steel T. hinges.

### BILL OF MATERIAL FOR FEED HOPPERS (AS SHOWN IN HALF-MONITOR LAYING HOUSE)

NO. OF PIECES	SIZE	LENGTH	MATERIAL	F. B. M.	
2	2x4	14	No. 1 common	}	
2	2x4	10	No. 1 common		
2	1x8	16	No. 1 common		66
2	1x4	16	No. 1 common		
	1x6		No. 1 shiplap	300	
TOTAL LUMBER.....				366	

### WOODEN FLOOR FOR HALF-MONITOR LAYING HOUSE

Fig. 8 shows in detail a satisfactory wooden floor for the large laying house. The floor is set on concrete posts high enough above the ground to prevent any accumulation of moisture.

The concrete piers are built in the same manner as in the foundation previously described. The sills are set on top of the piers. These sills may be solid 4x6 timbers or may be built up of two 2x6's spiked together. If the 2x6's are used, the joints should come over the piers. The floor joists should be stiffened at their centers by bridging made of 1x4 material. The floor is then laid and the rest of the building is completed in the same manner described above. The floor may be of either one layer of No. 3 clear V. G. tongued and grooved flooring or of two layers of cheaper material as No. 1 shiplap or No. 1 common boards.

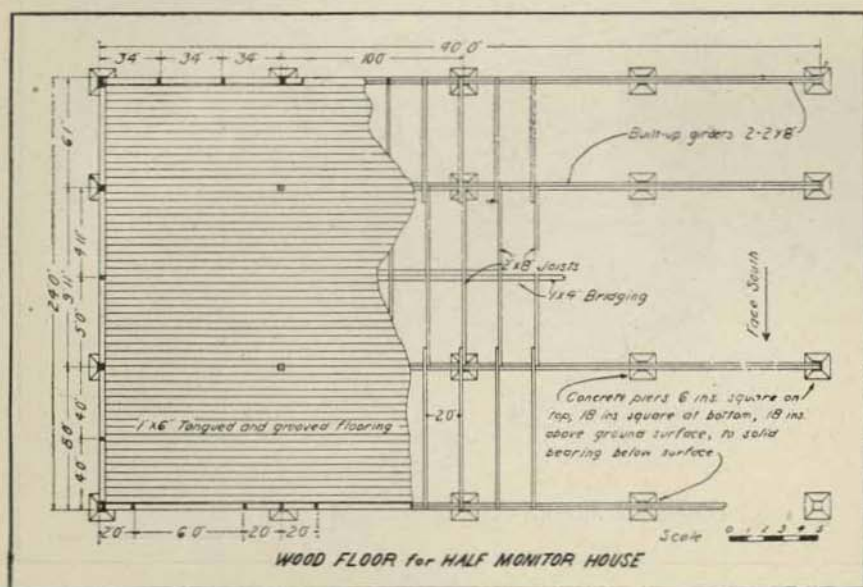


Fig. 8.

### BILL OF MATERIAL FOR WOOD FLOOR HALF-MONITOR LAYING HOUSE

No. OF PIECES	SIZE	LENGTH	MATERIAL	F. B. M.
32	2x8	10	No. 1 common.....	427
21	2x8	16	No. 1 common.....	448
21	2x8	10	No. 1 common.....	280
8	1x4	10	No. 1 common.....	27
			TOTAL.....	1182
	1x6	..	No. 3 Clear V. G. T. and G. Flooring.....	1200
			TOTAL LUMBER.....	2382

15 pounds 20d nails.

25 pounds 8d finish nails.

8 Sacks cement.

1 yd. sand

2 yds. crushed stone or pebbles } or { 2½ yds. bank run gravel.

Note—This bill of material allows for the least possible amount of waste. Unless great care is taken more material will be needed than is listed.

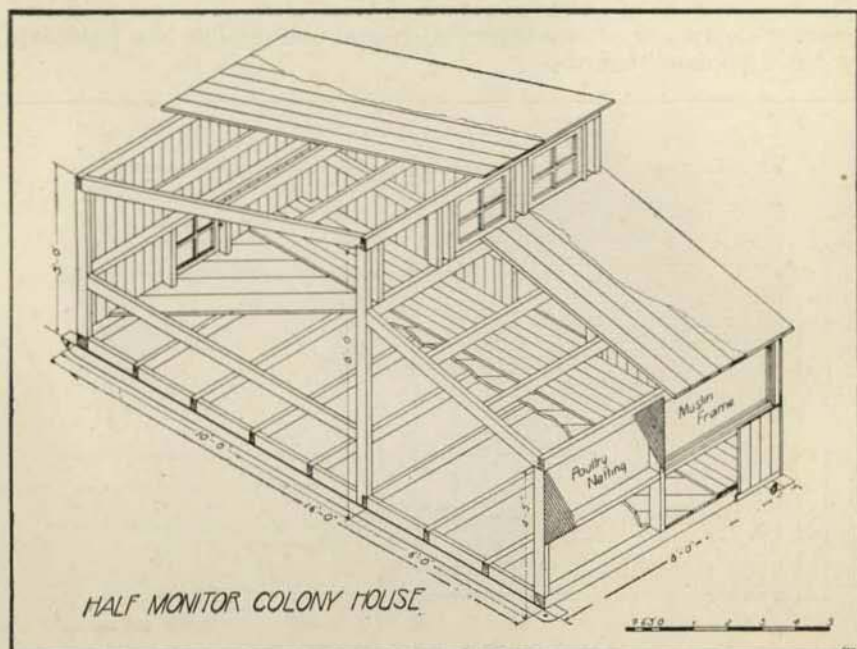


Fig. 9. Isometric Half-Monitor Colony House.

### THE HALF-MONITOR COLONY HOUSE

This house is especially adapted to the use of the coal stove for colony brooding. It is roomy, easily heated, properly ventilated and satisfactory from the standpoint of light, dryness and convenience. It may also be used for back yard poultry keeping or as a range growing house in connection with the "Two Room Brooder House."

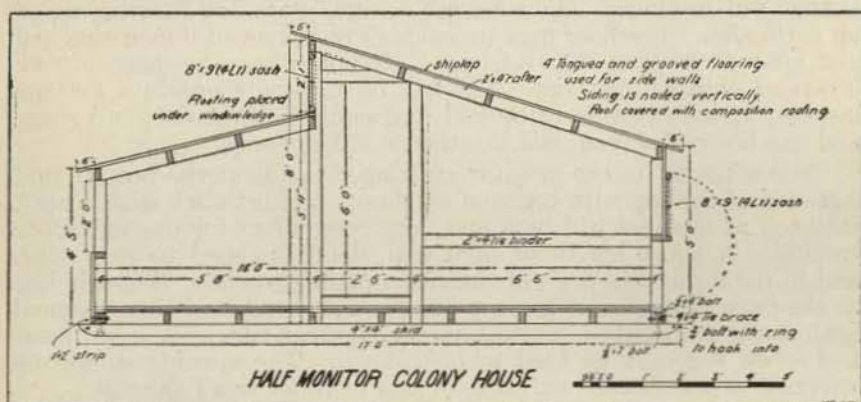


Fig. 10. Section of Half-Monitor Colony House.

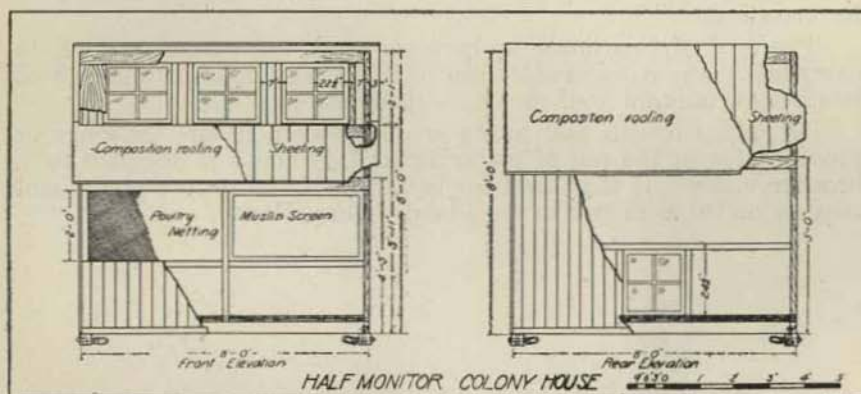


Fig. 11. Front and Rear Elevations of Half-Monitor Colony House.

### THE HALF-MONITOR COLONY HOUSE

**Plans and Construction**—Figs. 9, 10 and 11 show in detail the construction of the Half-Monitor Colony House. This house is built on skids that it may be moved from place to place. The sills should be first leveled and the cross braces bolted at front and back. The floor joists are then laid and firmly spiked to the sills. Pieces of 2x4 are then fitted between the joists to prevent twisting. The studs at the front of the monitor are halved at the bottom to

fit over the floor joists as shown in the plans. The corner posts are toe-nailed to the 4x4 cross ties. The plates are then nailed in place. These plates are pieces of 2x4 set on edge on top of the studs. The rafters at each side of the building are next cut and spiked to the plates. The roof supports are nailed in place between the rafters and the roof covered with the shiplap set close together; the boards running up and down the roof. The frame-work around the door and windows is then put in place. The sides are covered with 1x6 flooring nailed on vertically. The floor may be made of one layer of 6-inch tongued and grooved flooring (No. 3 Clear V. G.) or it may be made of two layers of cheaper material. The bill of materials provides for one layer of 12-inch boards to be laid diagonally to brace the structure and one layer of shiplap laid lengthwise of the house.

The windows in the monitor are hinged inside at the bottom and fastened at the top with transom catches. A short stick with a hook fastened at one end will be found very convenient for operating the catches. A short length of light coil chain fastened to each sash and to the frame will prevent the sash opening too far. The window at the back is hinged at the top outside to permit its being fastened against the wall out of the way in the summer time. A small hook and screw eye may be used to hold it up. The opening should be screened to prevent the entrance of rats or other small animals.

The openings at the front of the house are permanently screened with poultry netting. Muslin frames are also used as described for the large house. The peak windows must be darkened when used for brooding.

The roof of this house as here shown is not strong enough to carry safely any considerable snow load. If this house is built where much snow falls the roof should be made stronger.

Droppings boards and roosts are not shown in the drawings or provided for in the bill of materials as this house is designed as a brooder house. If it is used for laying hens the proper equipment may be added as shown in the Idaho Colony House.

## BILL OF MATERIAL FOR THE HALF-MONITOR COLONY HOUSE

8'x16' Size

### Detail of Framing Material

No. OF PIECES	SIZE	LENGTH		USE
		AS USED	AS BOUGHT	
2	4x4	18	18	Skids
16	2x4	1' 10½"	16	Blocks between joists.
2	4x4	8	16	End joists.
7	2x4	8	16	Joists.
3	2x4	4	16	Front studs.
2	2x4	5	10	Back studs.
2	2x4	8	16	Peak studs.
1	2x4	8	16	Door studs.
1	2x4	10	10	Binder.
2	2x4	8	16	Binder.
1	2x4	7	16	Binder.
9	2x4	8	16	Plates and purlins.
8	2x4	2	16	Window frames.
1	2x4	2' 6"	16	Door frames.
2	2x4	12	12	Rafters.
2	2x4	8	16	Rafters.
12	1x12	12	12	Rough floor.

### Summary of Above and Complete Bill.

No. OF PIECES	SIZE	LENGTH	MATERIAL	F. B. M.
2	4x4	18	No. 1 common fir.....	48
1	4x4	16	No. 1 common fir.....	22
17	2x4	16	No. 1 common fir.....	182
1	2x4	12	No. 1 common fir.....	8
2	2x4	10	No. 1 common fir.....	14
12	1x12	12	No. 1 common fir.....	144

TOTAL..... 418

MATERIAL	F. B. M.
1x6 No. 1 Shiplap.....	160
1x8 No. 1 Shiplap.....	250
1x6 No. 3 clear F. G. Flooring.....	320
6 1x4 No. 2 clear finish.....	16

TOTAL LUMBER..... 1164

- 2 rolls 3 ply composition roofing.
- 4 8"x9" 4 light barn sash.
- 10 ft. 30" galvanized poultry netting 1" mesh.
- 4 1½" transom catches.
- 5 ft. light coil chain.
- 4 pair 2" steel butts tight pin.
- 1 pair 6" T. hinge.
- 1 Hook and screw eye.

- 1 rim lock set.
- 3 yards 30" muslin.
- 4  $\frac{1}{2}$ "x4 bolts.
- 4  $\frac{5}{8}$ "x7 bolts.
- 4  $\frac{3}{4}$ "x5 eye bolts.
- 3 pounds 20d nails.
- 20 pounds 8d nails.

Note—This bill of material allows for the least possible amount of waste. Unless great care is taken to prevent waste more material will be needed than is listed.

### THE IDAHO COLONY HOUSE

This is a portable house and is excellent for those sections where there are severe storms or strong winds coming from the south, east or west. The door is on the north side.

**Plans and Construction**—Figs. 12 to 16 inclusive show the construction of the Idaho Colony House. This building is built in much the same manner as the Half-Monitor Colony House. The floor is 10 by 16 feet; the front of the house is 6 feet high; the peak of the roof 7 feet 6 inches and the rear 5 feet.

The studs are spiked to the sills and, where possible, to the joists. The window and door openings are arranged so that no extra studs are required to frame them. A door is provided at the highest part of the north side of the building.

The windows consist of two 8"x10" 6-light barn sash hinged as shown in Fig. 16. The top sash is hinged to the lower one and the lower one is hinged to the frame. In this manner the upper sash may be opened in to allow for ventilation in cool weather. The whole window may also be opened like a door. A short length of light chain will prevent the top sash from dropping and being broken. These openings are screened and provided with muslin frames and must be darkened when used for brooding.

The floor is of 6" flooring. Tongued and grooved drop siding is used for the sides. The roof is built of shiplap laid close and covered with composition roofing. This roof is stronger than the one shown on the Half-Monitor Colony House but is not strong enough for very heavy snow loads.

Droppings boards and roosts are shown in the plans and provided for in the bill of material. The feed hopper shown is built according to the detail plan shown in Fig. 25 except that it is only 4 feet 3 inches long. It is not provided for in the bill of material.



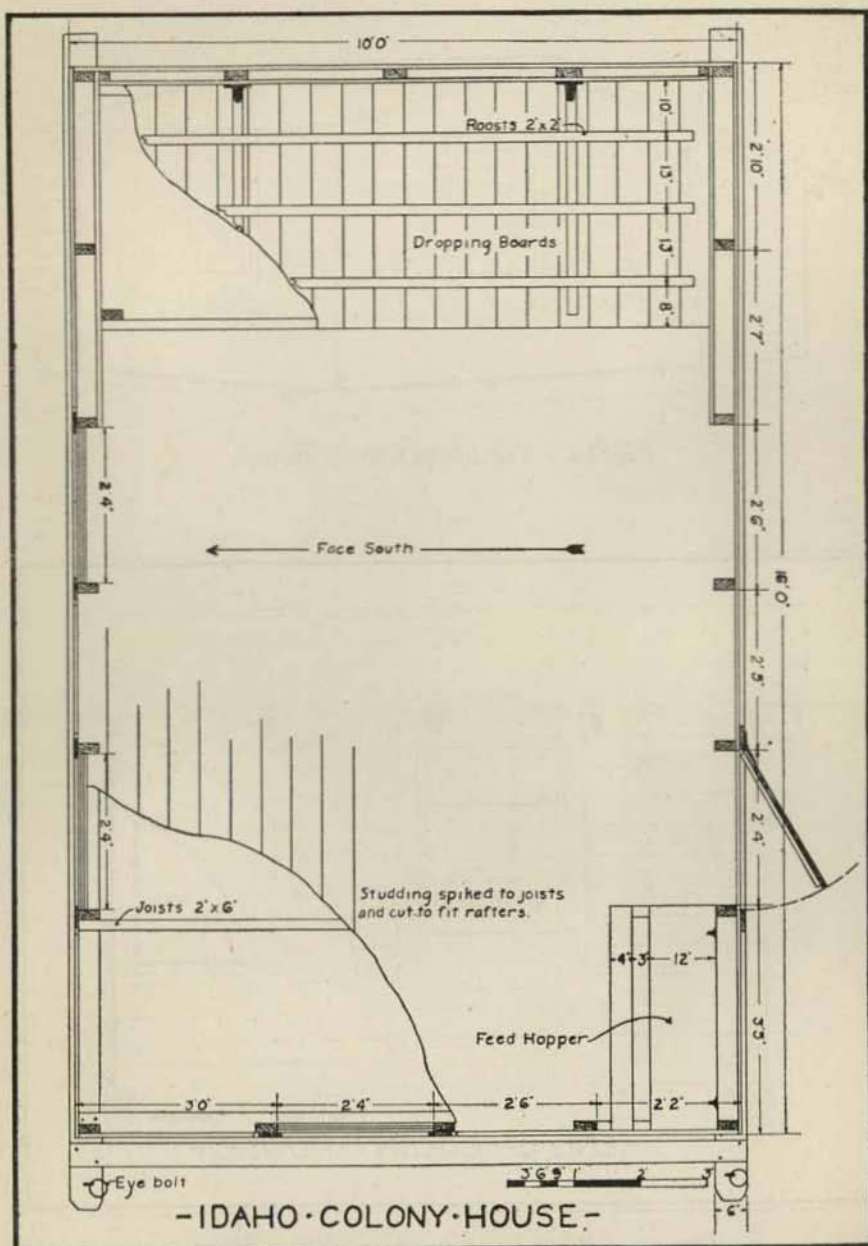


Fig. 12. Floor Plan of Idaho Colony House.

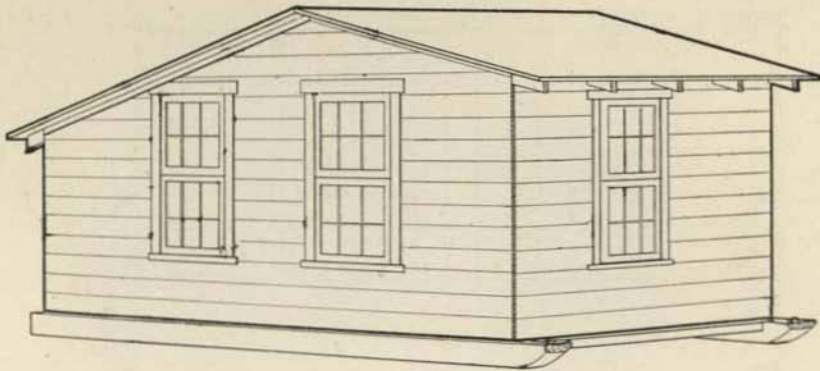


Fig. 13. *The Idaho Colony House.*

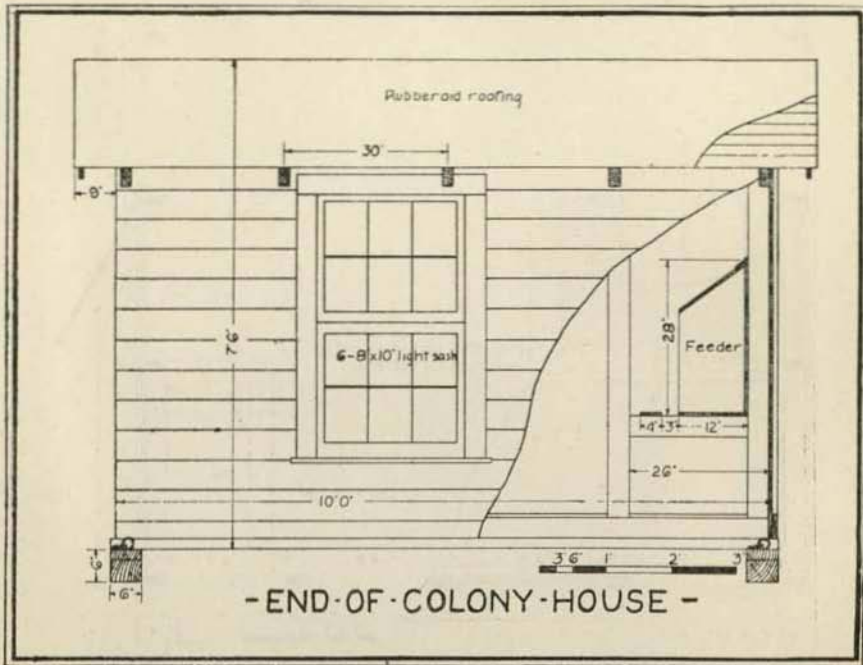


Fig. 14. *Front View of Idaho Colony House.*

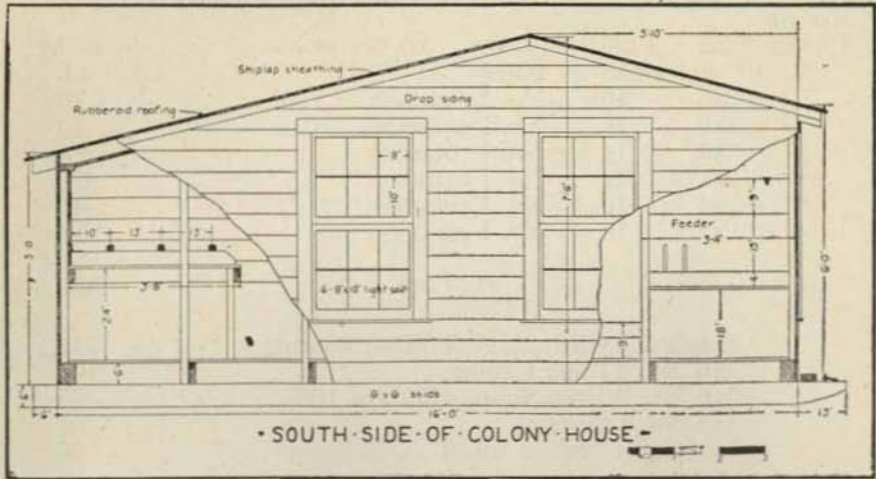


Fig. 15. Side view of Idaho Colony House. (South)

**BILL OF MATERIAL FOR THE IDAHO COLONY HOUSE**  
10'x16' Size

**Detail of Framing Material**

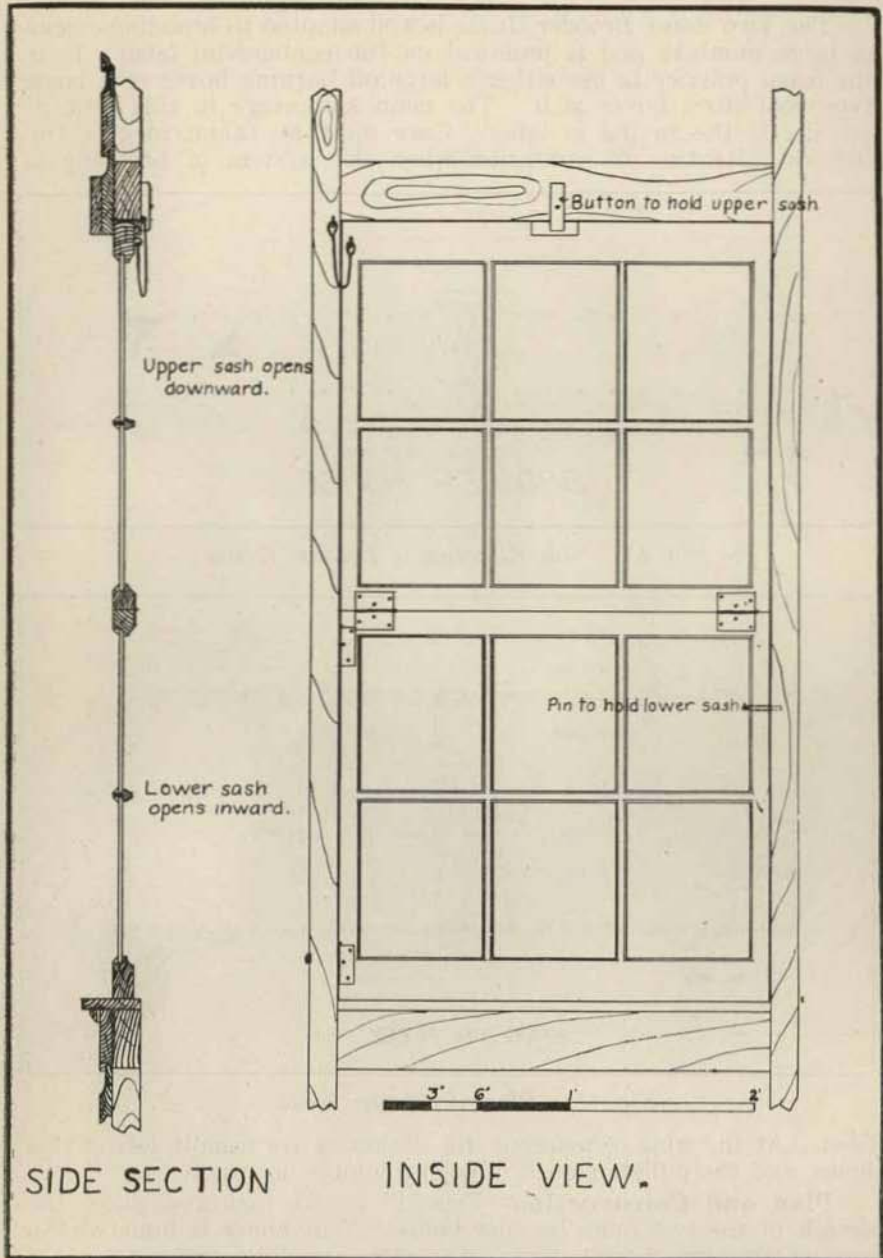
NO. OF PIECES	SIZE	LENGTH		USE
		As USED	As BOUGHT	
2	10" poles	18	18	Skids.
7	2x6	10	10	Joists.
2	4x6	10	10	Braces.
1	2x4	10	10	Braces.
5	2x4	6	12	Front studs.
5	2x4	5	10	Back studs.
2	2x2	5	10	Back studs.
7	2x4	7	14	Side studs.
4	2x4	6	12	Side studs.
5	2x4	7	14	Rafters.
5	2x4	12	12	Rafters.
2	2x4	10	10	Plates.
2	2x4	10		
2	2x4	2' 6"	14	Droppings boards supports.
2	2x4	3' 6"		
2	2x4		8	Roost supports.
3	2x2	10	10	Roosts.

### Summary and Complete Bill of Idaho Colony House

No. OF PIECES	SIZE	LENGTH	MATERIAL	F. B. M.
2	10" poles	18	Poles.....	60
7	2x6	10	No. 1 common.....	70
2	4x6	10	No. 1 common.....	40
9	2x4	14	No. 1 common.....	84
9	2x4	12	No. 1 common.....	72
6	2x4	10	No. 1 common.....	40
4	2x2	10	No. 1 common.....	14
TOTAL.....				380
1x6 No. 3 Clear V. G. T. & G. flooring.....				245
1x6 No. 3 Clear Ceiling.....				100
1x6 No. 2 Drop Siding (Pattern 106).....				370
1x8 No. 1 Shiplap.....				261
1x4 12 No. 2 clear finish.....				36
TOTAL LUMBER.....				1392

- 3 Rolls 3 ply composition roofing.
- 6 8x10—6 light barn sash.
- 6 1½" transom catches.
- 5 ft. No. 8 gauge light coil chain.
- 6 pairs 2" butt hinges tight pin.
- 1 pair 4" strap hinges.
- 1 pair 6" T. hinges.
- 4 ⅝"x11" bolts.
- 2 ¾"x7" eye bolts.
- 1 rim lock set.
- 3 pounds 20d nails.
- 20 pounds 8d nails.
- 15 ft. poultry netting 30" wide.
- 5 yards muslin, 30" wide.

Note—This bill of material allows for the least possible waste. Unless great care is taken to prevent waste more material will be needed than is listed.



*Fig. 16. Window detail of Idaho Colony House.*

## THE TWO ROOM BROODER HOUSE

The Two Room Brooder House is well adapted to brooding chicks in large numbers and is practical on the commercial farm. It is the usual practice to use either a large oil burning hover or a large type coal stove hover in it. The main advantage in this type of brooder is the saving in labor. Care must be taken to give the strictest attention to sanitation when this system of brooding is

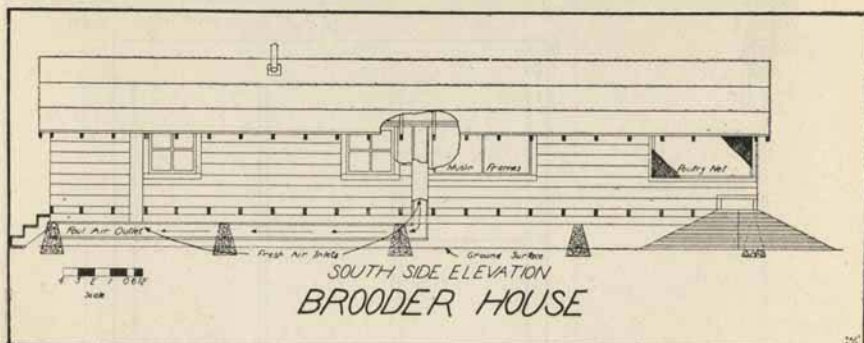


Fig. 17. Side Elevation of Brooder House.

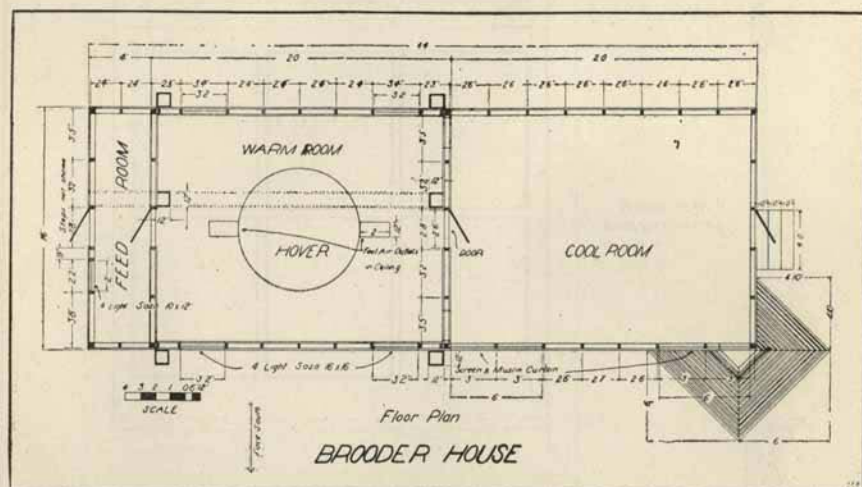


Fig. 18. Plan of Brooder House.

used. At the time of weaning the cockerels are usually left in this house and the pullets placed in colony houses on range.

**Plan and Construction**—Figs. 17 to 20 inclusive show the details of the two room brooder house. This house is built with a wooden floor on cement piers. The piers and floor are constructed in the same manner as the wooden floor described in connection with the Half-Monitor Laying House.

Before laying the flooring, the foul air outlet duct is built of 1x12

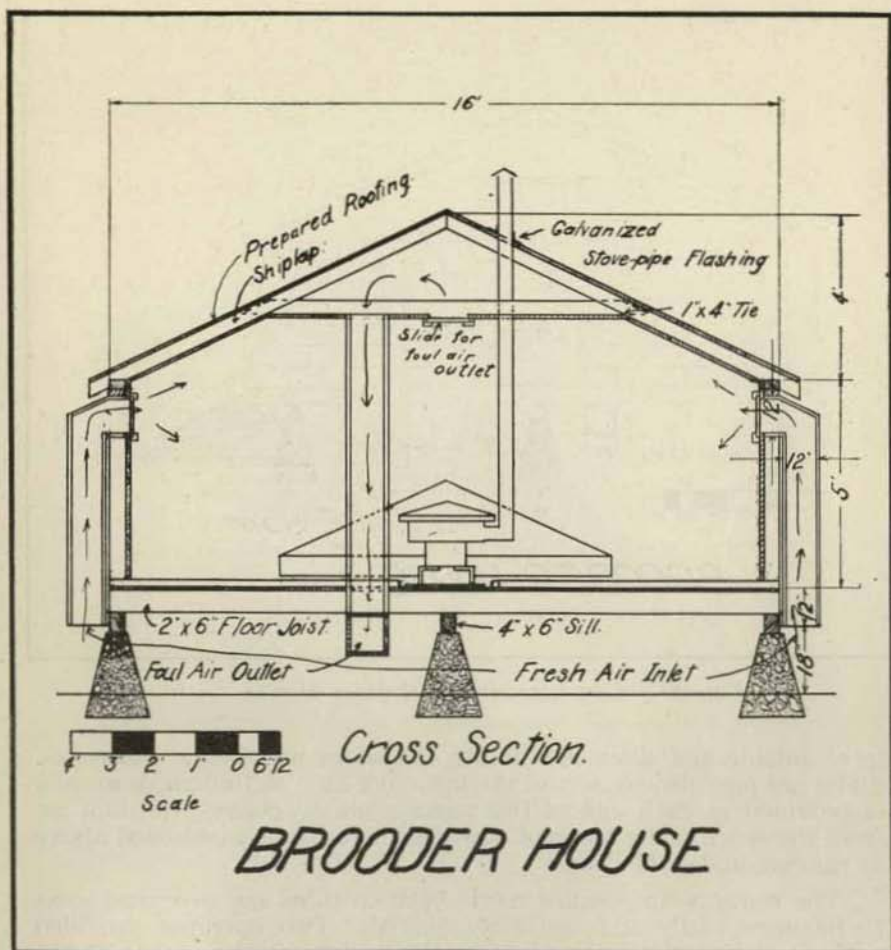


Fig. 19. Section of Brooder House.

boards. This duct, as shown, leads from the downtake at the center partition under the floor joists to the west end of the building. After the floor is completed a 2x4 sill is spiked down around the outside and across at the partitions. The proper places for the studs are marked on the sill as shown on the plan. The studs are then set up and toe-nailed in place, the plates, constructed of two 2x4's are fastened on the rafters, cut and nailed together in pairs with the 1x4 tie in place. After the rafters are set up the shiplap is put on and covered with roofing material. An opening is left in the roof for the pipe from the stove in the warm room and a galvanized stove pipe flashing put in place.

Window and door frames are put in as noted in the plans. Fresh air inlets are built at each corner of the warm room. These inlets are 12 inches square. They take the air from just below the floor

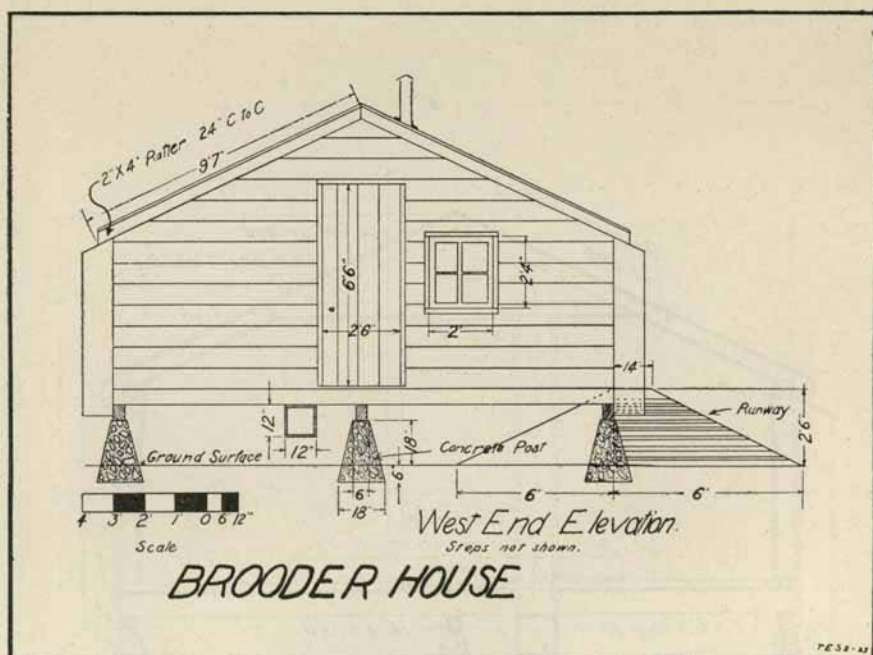


Fig. 20. End Elevation of Brooder House.

level outside and discharge it into the room just below the eaves. Slides are provided to control the incoming air. A foul air downtake is provided at each end of the warm room to convey the foul air from the space under the roof down to the outtake mentioned above as running under the floor.

The warm room is ceiled inside both on sides and overhead so as to be more easily and uniformly heated. Two openings provided with regulating slides are made in the ceiling for the escape of the foul air into the space under the roof.

Light is provided in the warm room by means of 4 sashes each 16"x16" 4 light. A single 10"x12" 4 light sash provides light for the feed room. The south side of the cool room is provided with 2 openings for ventilation. These openings are screened and provided with muslin frames as described for the Half-Monitor House. During the first few weeks dark curtains should be used over the south windows to prevent sun spots. To prevent toe picking all windows should be darkened the first few days.

A runway for the small chicks is provided at one corner of the building as shown. This runway is so built that there are no corners in which the chicks may get caught. The runway leads to an opening thru the wall.

In the bill of material 40 feet of small mesh poultry netting is provided to be stretched around the foundation piers on two sides



of the cool room to prevent the small chicks getting under the house. If the yard extends a greater distance around the house more netting must be provided.

Steps at each end of the building provide means of entrance for attendants.

## BILL OF MATERIAL FOR TWO-ROOM BROODER HOUSE

16'x44' Size

### Detail of Framing Material

NO. OF PIECES	SIZES	LENGTH		USE
		AS USED	AS BOUGHT	
12	4x6	12	12	Girders.
23	2x6	16	16	Joists.
50	2x4	10	10	Rafters.
49	2x4	4' 7½"	10	Side studs.
16	2x4	6' to 9'	16	End and partition studs.
4	2x4	2' 6"	14	Door and end window frames.
2	2x4			
4	2x4	16	16	Sills (ends and partition.)
24	2x4	12	12	Plates and sills (sides.)
4	2x4	3' 2"	14	Window sills.
4	2x4			
23	1x4	10	10	Ties.
4	1x12	16	16	Ventilation ducts.
16	1x12	12	12	Ventilation ducts.
8	1x12	10	10	Runway floors.
	1x1	200 lin.ft.		Runway cleats.
16	2x12	4	16	Steps.
4	2x12	5	10	Runway.
6	1x8	4	12	Steps.

### Summary of Above and Complete Bill

NO. OF PIECES	SIZE	LENGTH	MATERIAL	F. B. M.
12	4x6	12	No. 1 common.....	288
4	2x12	16	No. 1 common.....	128
2	2x12	10	No. 1 common.....	40
23	2x6	16	No. 1 common.....	368
12	2x4	16	No. 1 common.....	128
2	2x4	14	No. 1 common.....	19
25	2x4	12	No. 1 common.....	200
75	2x4	10	No. 1 common.....	500
8	1x12	10	No. 1 common.....	80
2	1x8	12	No. 1 common.....	16
23	1x4	10	No. 1 common.....	77
	1x1	200 lin. ft.	No. 1 common.....	20
TOTAL.....				1864

4	1x12	16	Selected common.....	64
16	1x12	12	Selected common.....	192
	1x4	150 lin. ft.	No. 2 clear finish.....	50
	1x8		No. 1 shiplap.....	2240
	1x6		No. 2 clear and better drop siding	880
	1x4		No. 3 clear V. G. T. & G. flooring.....	1000
TOTAL LUMBER.....				6290

- 9 Rolls 3 ply composition roofing.
- 4 16"x16" 4 light barn sash.
- 1 10"x12" 4 light barn sash.
- 6 Sacks portland cement.
- $\frac{3}{4}$  cubic yard sand.
- $1\frac{1}{2}$  cubic yards crushed stone or pebbles —or  $1\frac{1}{2}$  yards gravel.
- 13 ft. 42" poultry netting 1" mesh.
- 40 ft. 24" poultry netting 1" mesh.
- 4 pairs 6" strap hinges.
- 4 pairs 3" steel butt hinges tight pin.
- 1 5" galvanized stove pipe flashing.
- 4 Rim lock door sets.
- 20 Pounds 20d nails.
- 25 Pounds 8d nails (finish)
- 65 Pounds 8d nails (common)
- $4\frac{1}{2}$  Yards 42" muslin.

Note—This bill of material allows for the least possible amount of waste. Unless great care is taken to prevent waste more material will be needed than is listed.

### HANDY LABOR-SAVING EQUIPMENT

Simple devices for saving time and unnecessary expenditure of labor are essential. They can be easily and cheaply made at home. Patent equipment is often expensive and no better than the least experienced in carpentry can make. It is a good idea to place the labor-saving equipment in the house at the time of building, otherwise it may be overlooked at a later date.

**Droppings Boards**—Droppings boards are essential. First, they increase the amount of floor space available for scratching purposes. The birds will not make use of that part of the floor covered with droppings. Second, less litter is required as the floor does not require cleaning so often. Third, when cleaning off the droppings an enormous amount of moisture is removed. In fact, for each hundred birds over a ton of water would be removed in this way during the year. Fourth, it is unsanitary to allow birds to walk over their droppings. Diseases such as Tuberculosis, Fowl Cholera, etc., spread principally thru the droppings. Fifth, the eggs are kept much cleaner. The droppings boards cleaned regularly every day are the best possible preventative of the spread of diseases.

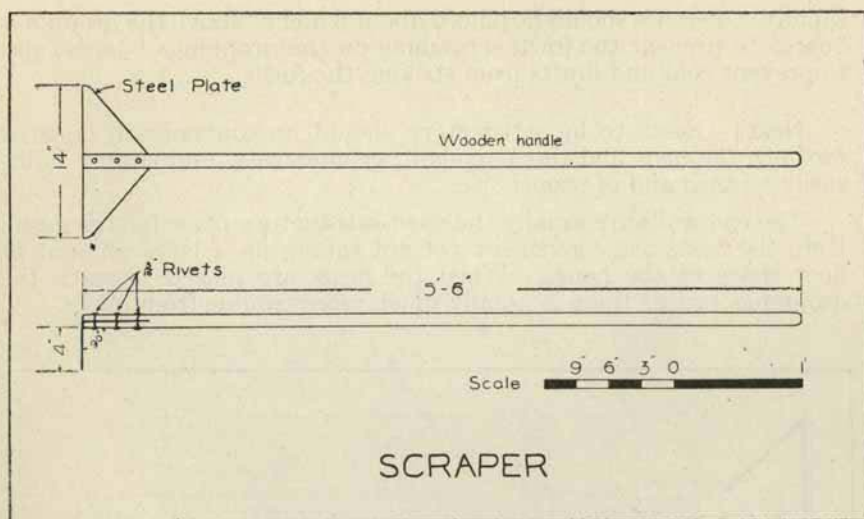


Fig. 21. Droppings Board Scraper.

**Droppings Board Scraper**—A handy device for cleaning the droppings boards is shown in the diagram. The materials and method of construction are self-explanatory.

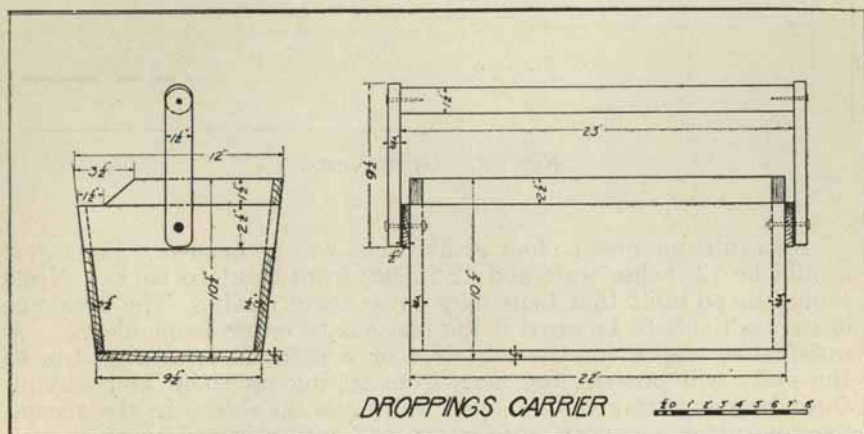


Fig. 22. Droppings Carrier.

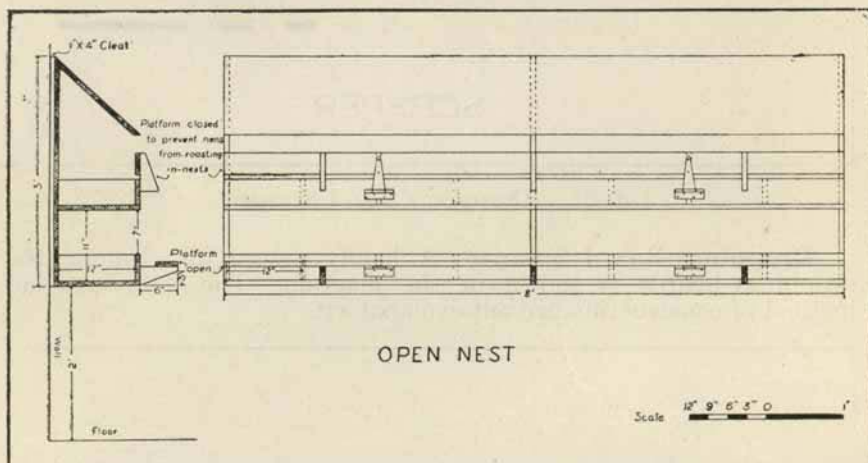
**Droppings Carrier**—Much time and inconvenience can be saved when this carrier is held against the droppings board and used with the scraper. Fig. 22 gives a working plan to follow in its construction.

**Perches**—Perches should be placed on a level to allow the fowls to spread out and have plenty of room. When perches are on a slant the fowls are overcrowded and diseases, if present, spread very

rapidly. Perches should be placed about 6 inches above the droppings boards to prevent the fowls scratching on the droppings boards; also to prevent cold and drafts from striking the fowls.

**Nests**—Nests to be satisfactory should be conveniently located for both the hens and the attendant, economically and simply built, easily cleaned and of proper size.

The end walls are usually the most satisfactory place for the nests. Here the nests are convenient yet not taking up a large amount of floor space of the house. When the nests are placed beneath the droppings boards there is usually much more trouble from mites.



*Fig. 23. Open Nests.*

As a rule one nest to four or five hens will be needed. Each nest should be 12 inches wide and 12 inches from front to back. Nests should be so built that hens may enter them easily. The breakage of eggs is liable to be great if the hen has to enter from above. A satisfactory depth for the nest is 4 or 5 inches. A sloping top to the nests will prevent the hens from sitting on them and leaving their droppings there. The open wall nests, as shown in the accompanying plans, are very satisfactory and well adapted to most conditions. They may be made with open backs where the wall of the house is such as to answer for the backs of the nests. Trap nests are needed only by the specialist who is doing careful breeding work and has the time to care for them. The use of the trap nests requires much labor and usually is not practical for the average poultryman. Fig. 24 shows a simple practical trap nest. As the hen enters it her tail forces up the door allowing the trigger to drop in such a position that no other birds can enter and she can not get out without assistance.

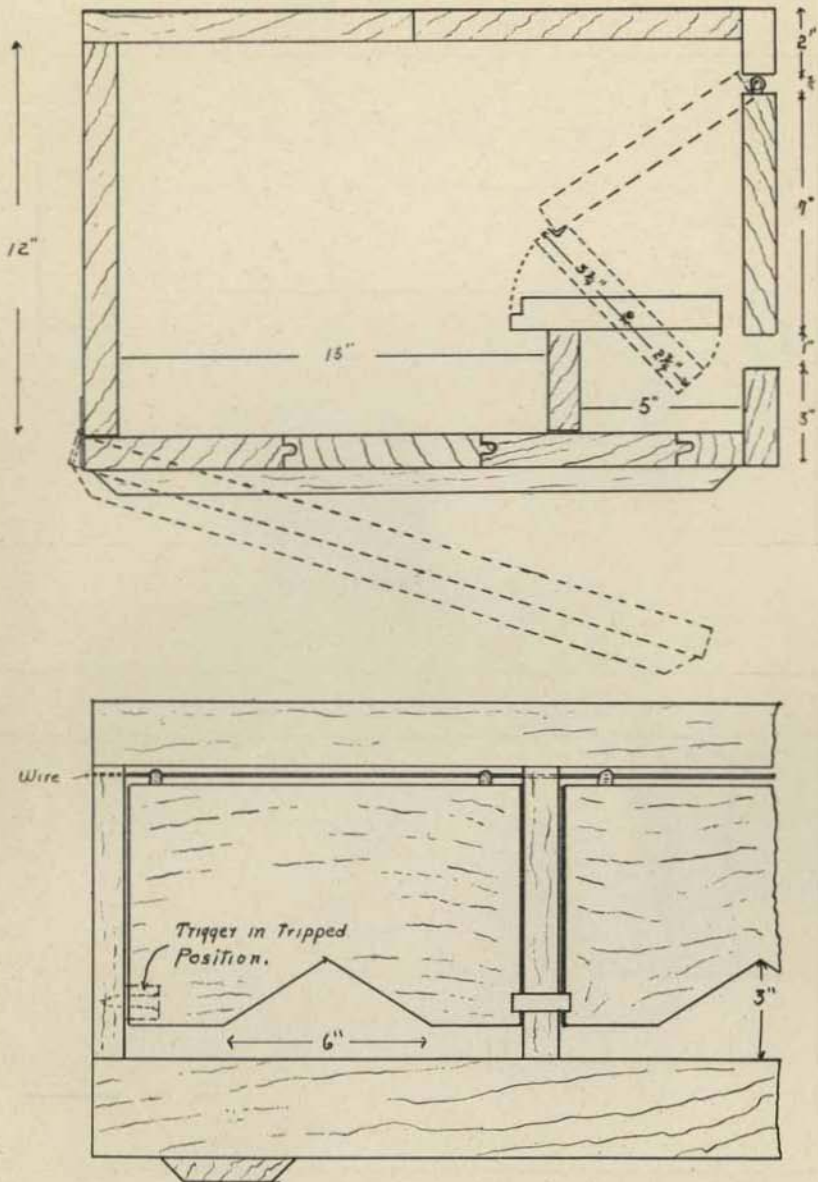


Fig. 24. Trap Nest.

Above: End Section of the Nest. Below: Front View.

**Feed Hoppers**—Satisfactory dry mash hoppers for laying hens and growing stock are shown in the plans. They are simple to construct and will not waste feed if made according to plans. It is advisable to elevate the dry mash hopper for laying hens both to induce exercise and to improve the sanitary conditions.

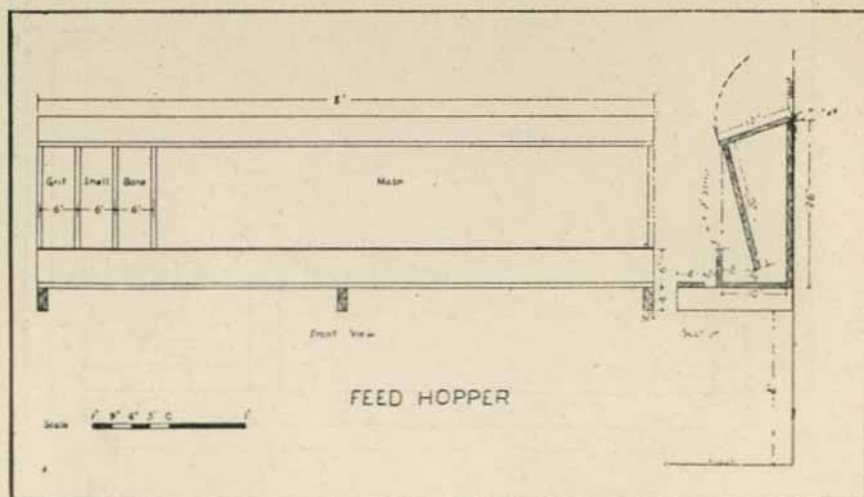


Fig. 25. Feed Hopper.

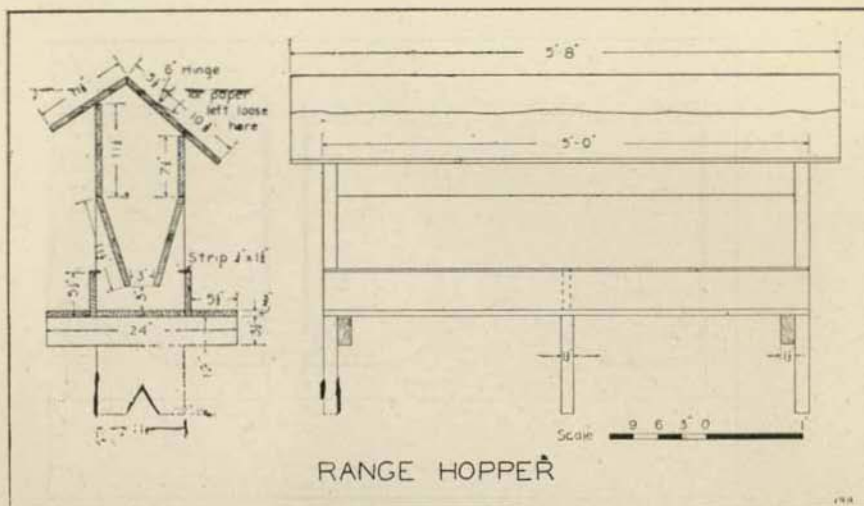


Fig. 26. Range Hopper.

**Water Pans**—The water vessels should be easily cleaned and sanitary. They should be elevated at least 2 feet off the floor to permit the use of the space beneath, induce exercise in winter, and to improve sanitation. Fig. 27 shows a satisfactory water pan.

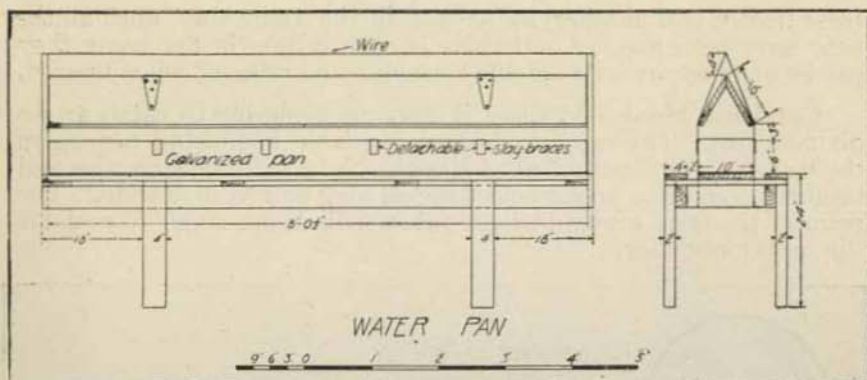


Fig. 27. Water Pan.

**Broody Coops**—The most important features of a broody coop are that it shall be elevated and that it shall have slatted bottom, top and sides. It may be built in the house or may be placed outside in the shade of a tree, in which case a roof should be provided to protect the hens from the rain. Suitable arrangements must be made to supply feed and fresh water. If the average hen is put in a properly constructed broody coop the first night she is found on the nest and given plenty of feed and fresh water, she will be “broken up” in from one to six days and will be back to laying in from one to two weeks.

**Catching Coops**—The catching coop, as shown in the photograph, is a very valuable appliance on any poultry farm. It is often detrimental to egg production to catch hens individually for lice treatment or culling.

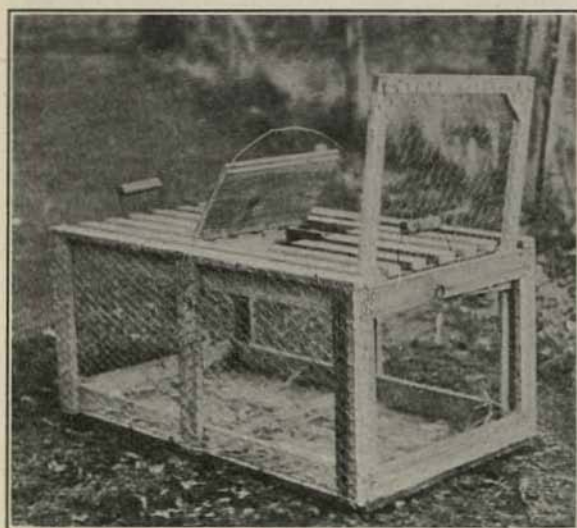


Fig. 28. The Catching Coop.

With this coop the catching is made comparatively easy. The fowls should be handled at night whenever possible. By having a partition in the house, running all the hens to one side and providing a small opening between the pens, the hens can be driven thru the opening into the coop until the coop is full,

these treated and another lot caught in the same way until all the hens have been handled. If there is no partition in the house they can be handled similarly outside the house and released when treated.

**Catching Hook**—At times it may be desirable to catch an individual hen. The catching hook is valuable in picking her up in the house. Use about 5 feet of straight No. 8 steel fencing wire and bend the end into a hook about 4 inches long and  $\frac{1}{2}$  inch wide. The point of the hook should be bent out at a 45 degree angle to make it slip on the hen's leg.

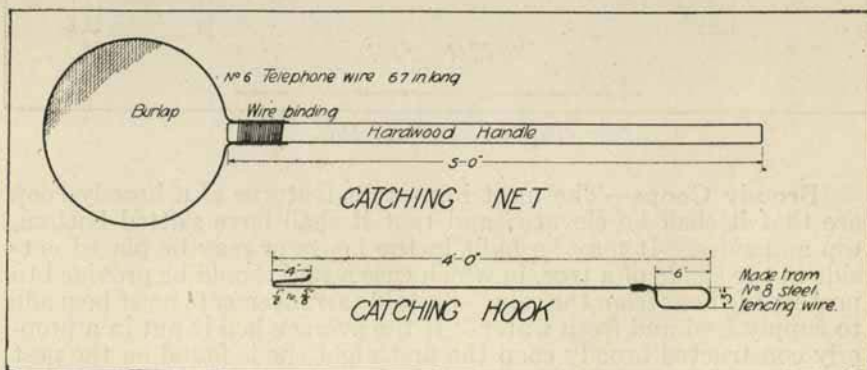


Fig. 29. The Catching Hook and Net.

**Catching Net**—A timesaver is shown in the accompanying diagram. The catching net serves the same purpose in the yard as the catching hook does in the house. It is possible to run down and easily catch birds with the catching net that it would be very difficult to get otherwise.

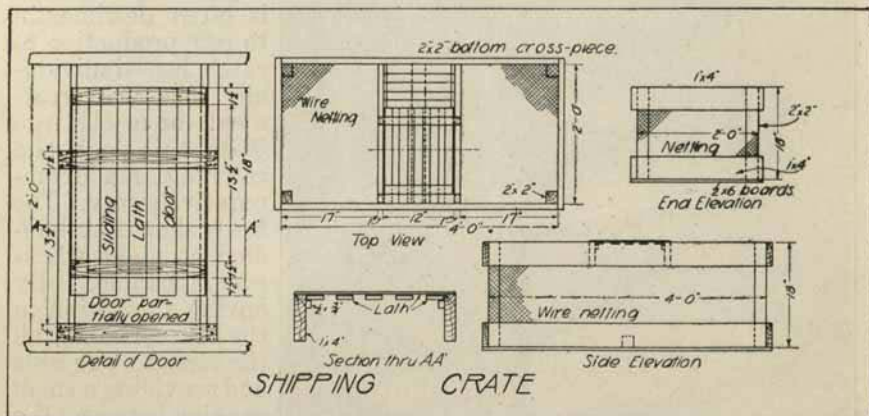


Fig. 30. The Shipping Crate.

**Shipping Crate**—A cheap but very satisfactory market crate can be made from this diagram.