NEW POULTRY EQUIPMENT

Portable Brooder House With Composition Board Siding

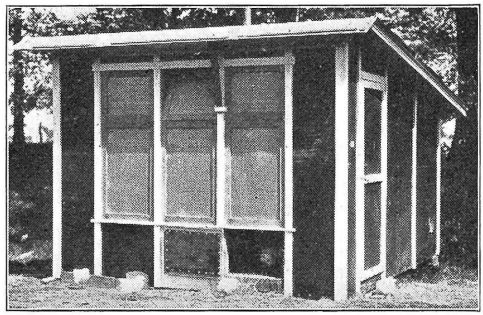
Summer Range Shelter

New Model Mash Feeder

Warm Water Device for Winter Layers

Droppings Board Scraper

D. C. KENNARD



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OHIO AGRICULTURAL EXPERIMENT STATION

Special Circular 14

POULTRY EQUIPMENT

Suitable poultry equipment designed for efficiency, convenience, and simplicity is essential for best success. No progressive poultry keeper can afford to suffer the handicap of make-shift or antiquated equipment. The satisfaction, pride, and enthusiasm of the poultry keeper in the care of the flock is largely determined by the kind of equipment used—in fact this may be the explanation of his success or failure.

PORTABLE BROODER HOUSE WITH COMPOSITION BOARD SIDING

The 10 by 12 brooder house designed by the Ohio Station in 1928 has some departures and features which may be of interest to poultry keepers in general. Attention will be given to three points in particular: the composition board siding, the front and rear ventilators, and the windows and their arrangement.

Composition board siding.—Composition board recently has come into a variety of uses and it seems to have a place in the construction of brooder houses. This type of construction for a portable brooder house has the advantage of being lighter and tighter and, in some cases, warmer than lumber, and perhaps less time may be required for its erection. The fact that the composition board should be painted inside may be considered a disadvantage. Other possible disadvantages might be its lack of strength and durability, depending upon the type and quality of the material employed. There are a variety of these products on the market, some of which seem to be well adapted for brooder house construction, while others are not. Hence care and good judgment should be exercised in the selection of the product to be used.

By following the plan of construction shown by drawings and photographs, 4 by 8 ft. sheets of the composition board can be used with practically no waste and at the same time have all joints vertical, as a horizontal joint is undesirable.

Two precautions should be emphasized: First, the composition board requires painting on both sides and the edges should be soaked in paint; Second, the 1 by 4 inch stripping or trimming at bottom of house should be sealed to composition board by a liberal application of paint so that after nailing, the joint will be water tight. Furthermore, this stripping must project ½ to ¾ inch below the lower edge of composition board (Fig. 2) to carry off the water so it cannot be absorbed by the bottom edge of the composition board, which would prove very objectionable.

Asphalt or roofing paint can be used for the first coat and this can be followed with a white or gray lead oil paint if desired.

Front and rear ventilators.—The detailed drawings of these ventilators are self-explanatory and no further description will be given. It is well, however, to have both the rear and front ventilators in three parts, one in the center to cover one rafter space

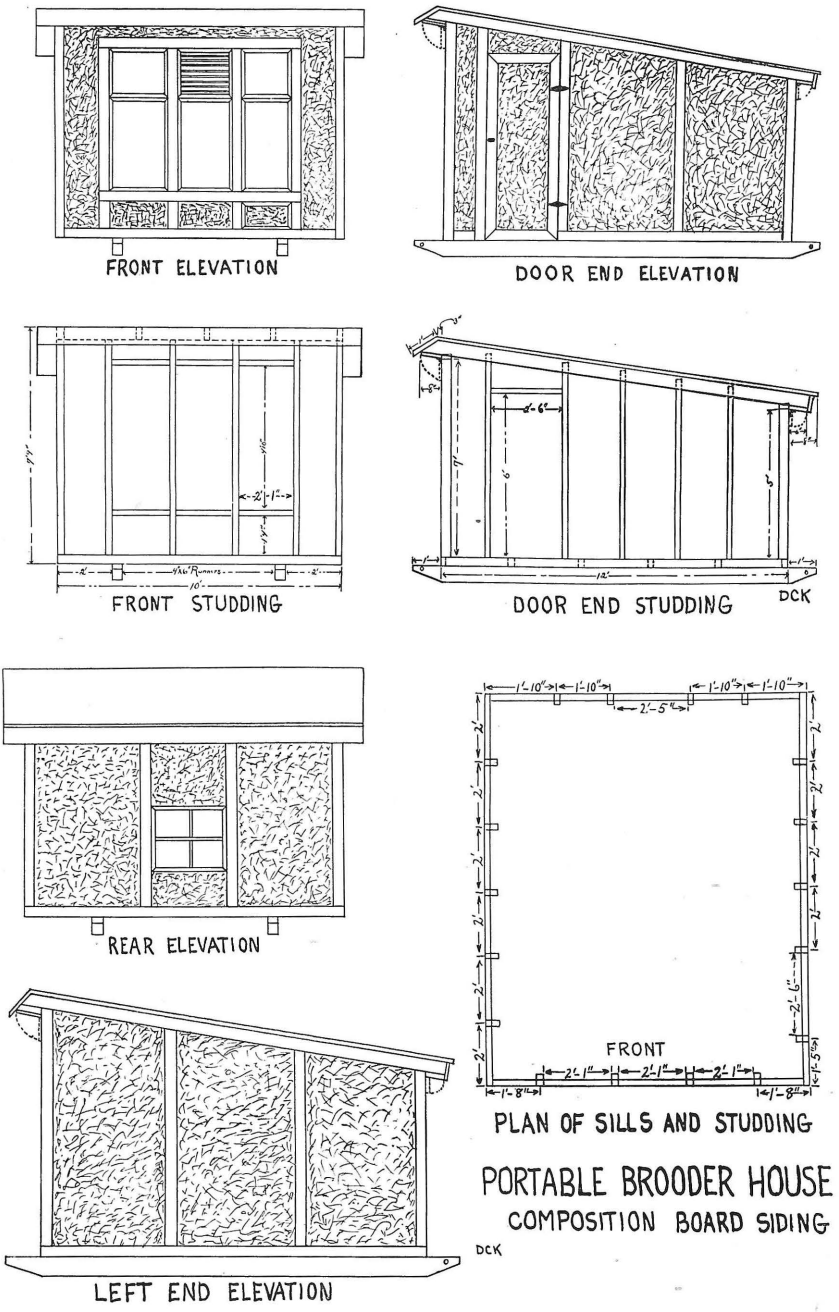


Fig. 1.—Portable brooder house

and one on either side to cover the balance of the rafter spaces. This arrangement permits regulating the ventilation to suit any kind of weather. During cold windy weather perhaps only the

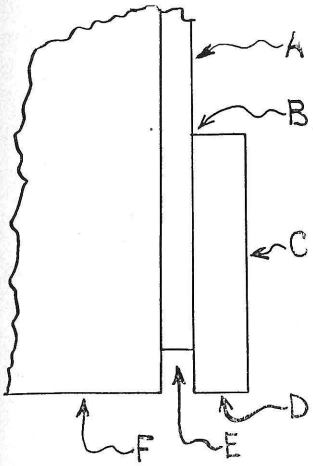


Fig. 2.—Detail for application of bottom trimming for protection of composition board from absorption of moisture thru bottom edge.

A. Composition board.

B. This joint must be water tight so as to carry water off at bottom of board (D). Fresh paint is liberally applied from (B) to bottom of composition board (E) so as to make a water tight joint all the way.

C. 1 " x 4 " bottom trimming board.

D. Bottom edge of trimming extends ½ " to ¾ " below lower edge of composition board (E).

E. This space protects lower edge of composition board from absorbing moisture from water carried off bottom of trimming board at (D).

F. Base sill or studding to which lower edge of composition board and bottom trimming board are attached.

middle ventilator covering the one rafter space would be open. By proper use of the ventilators the windows can all be closed if necessary, and yet provide ample ventilation.

Windows and their arrangement.— The windows are arranged for convenience and usefulness. The slatted space is optional. The middle window can be the same as others like photograph (Fig. 1) because, with the eave ventilators it is not necessary to have any slatted open front spaces. The windows are approximately 25 by 54 inches, and may be of glass or a glass substitute. Each window is in two sections. The upper 18-inch section is hinged to lower section so it can be opened inward. This makes it convenient to open one or all top sections when desired. All the windows are held in place by small iron turn buttons so they can be removed when no longer needed.

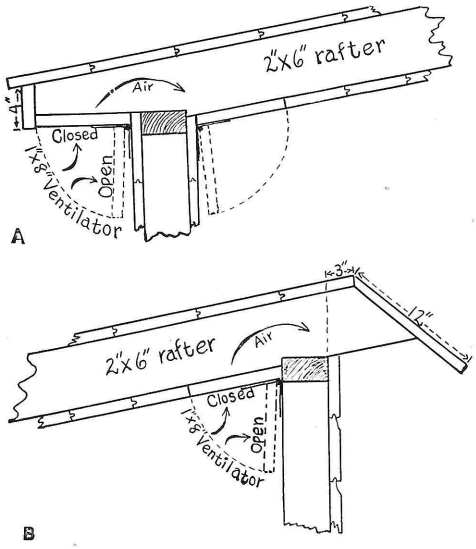


Fig. 3.—A—Detail of rear eave ventilator. B—Detail of front ventilator.

This brooder is not intended to be ceiled inside. It seems that the single thickness of composition board offers sufficient insulation and protection against the cold weather likely to be experienced during the brooding season. Wood siding, if preferred, can be used in place of the composition material without any change of the plans. The cost is practically the same.

BILL OF MATERIAL FOR BROODER HOUSE

Composition board siding 8 pieces 4 x 8 feet
Joists 6—2″ x 6″—10 feet long
2—2″ x 6″—12 feet long
Plates 2—2″ x 4″—10 feet long
Studs 12—2″ x 4″—12 feet long
1—2″ x 4″ x 10 feet under windows
Rafters 5—2″ x 6″—14 feet long
Framing 2—2″ x 4″—12 feet long
Roof 6″ matched sheating 200 board feet in 12 foot lengths
Flooring 1″ x 6″—12 feet long—150 feet board measure
Front roof projection 1—1″ x 12″—12 feet long
Front ventilator 1—1″ x 8″—10 feet long
Rear ventilator 1—1″ x 6″—10 feet long
Facing for rear ends of rafters 1—1″ x 5″—12 feet long
Trimming and door and window frames 20—1″ x 3″—12 feet long
6—1″ x 4″—14 feet long
10 plaster lath—4 feet long
1—4 light 10″ x 12″ sash
1—25′ roll glass substitute
2 rolls prepared roofing
16 linear feet 1″ poultry netting 2 feet wide
2 extra heavy 6″ strap hinges
12—3-inch strap hinges
6—3-inch 2″ x 3″ butt hinges
1—door latch D handle
12—2″ japanned iron buttons
10 lb. 6d nails
5 lb. 8d nails
5 lb. 10d nails
2 lb. 20d nails
¼ lb. poultry netting staples
5 lb. large head long galvanized roofing nails for attaching composition board

SUMMER RANGE SHELTER

The management of the pullets on summer range should be the simplest and most successful phase of poultry keeping. But in actual practice the summer range period often proves the most hazardous of all. Perhaps the greatest pitfall is the lack of ample and suitable housing facilities and failure to move the range houses when necessary. To assist in overcoming these problems the Ohio Station has designed a 10 by 12 ft. roosting and feeding shelter for use on the summer range. This shelter is comparatively inexpensive. The material costs about $20, and it is light enough so two men may carry it to a new location when desired.

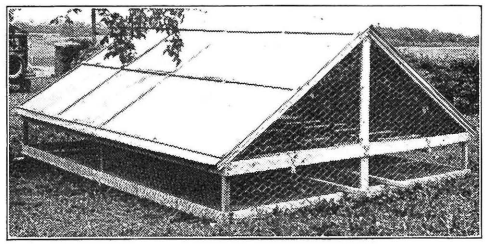


Fig. 4.—Summer range shelter

By reference to the drawings and photograph no difficulty should be experienced in constructing the shelter. The prepared roofing is laid over 2-inch mesh poultry netting to make it light. Some may desire to use heavy muslin or canvas instead. The cloth should prove quite satisfactory and will be lighter and perhaps less expensive. When the birds must be protected from vermin finer mesh wire may be used on floor and sides.

DESCRIPTION

The base of shelter is about 9½ feet wide, 12 feet long, and 18 inches high. The lower part of frame is made of 1 by 4-inch pieces set edgewise. The cross pieces to support wire floor are spaced about 2 feet apart. The center cross piece is 1 by 4 inches and the others are 1 by 3 inches. The upper part of frame is made of 1 by 4-inch pieces edgewise supported by 2 by 2-inch posts in each corner and at middle of each side. These posts extend to top of rafters above, which are nailed to posts.

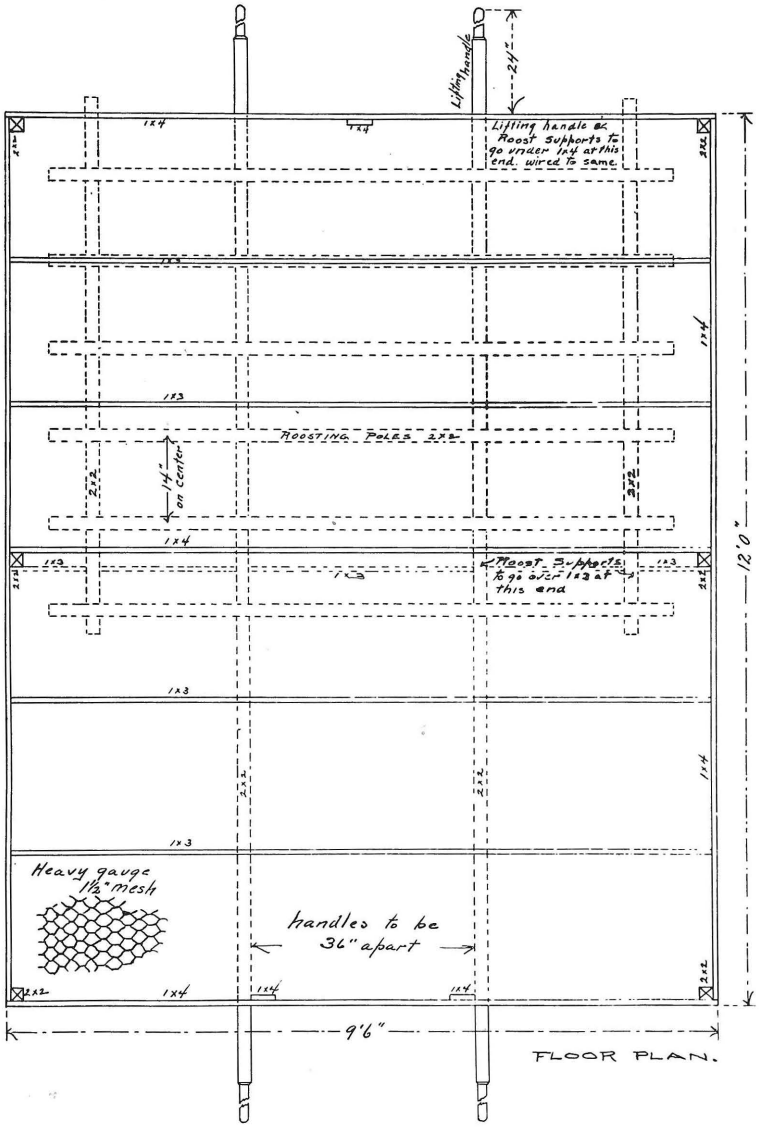


Fig. 5.—Floor plan of summer range shelter

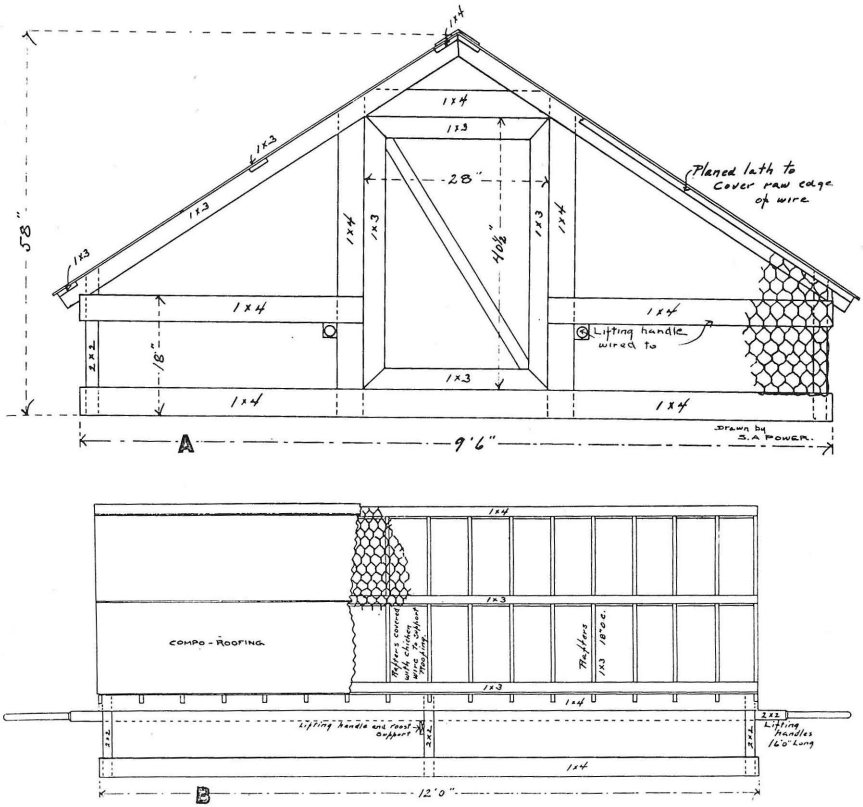


Fig. 6.—A, end elevation; B, side view, showing rafters

BILL OF MATERIAL FOR SUMMER RANGE SHELTER

Base	5—1 " x 4 " —10 ft. long	No. 1 spruce, common or white pine
	4—1 " x 4 " —12 " "	" "
Door frame	1—1 " x 4 " —12 " "	" "
Door	1—1 " x 3 " —12 " "	" "
Screen floor supports	4—1 " x 3 " —10 " "	" "
Rafters	9—1 " x 3 " —12 " "	" "
Rafter ties	6—1 " x 3 " —12 " "	" "
6 base posts	1—2 " x 2 " —12 " "	No. 1 yellow pine
4 handles	2—2 " x 2 " —12 " "	" "
Roosts	10—2 " x 2 " —10 " "	" "

1 bundle 4′ plaster lath
150 sq. ft. prepared roofing, medium weight
Screen floor—30 ft. 1½ " —mesh No. 16 gauge wire netting 4′ wide
To inclose base—72 ft. 2 " —mesh poultry netting 1′ wide
To cover rafter in place of sheathing—24 ft. 2 " —mesh poultry netting 6′ wide
1 lb. ¾ " poultry netting steeples
2 lb. 6d nails
2 lb. 7d nails

The ridge of roof is 5 feet above bottom. The 1 by 3-inch rafters are about 6½ feet long and 16 inches apart. Instead of sheathing the rafters are covered with 2-inch mesh poultry netting tightly stretched to support roofing. 1 by 3-inch tie pieces run across the rafters at ridge, center and at eaves. These are mortised in so the face is even with top edge of rafters. The eaves extend over sides about 4 inches. The roofing may be run lengthwise with rafters from eave to eave or crosswise. The roofing is held in place by plaster lath nailed over each rafter and across ridge, center and eave rafter crossties.

The bottom is screened with 1½-inch mesh netting No. 16 gauge wire placed on top of lower frame and cross pieces of base. The sides and ends are enclosed with 2-inch mesh netting No. 19 gauge wire.

The six 2 by 2-inch roosts about 10 feet long are supported by two 2 by 2-inch pieces, 8 feet long, which are wired to bottom edge of end cross pieces of upper part of base. The other ends of these supports rest upon a 1 by 3-inch cross piece nailed to center side posts so bottom side of roosts is even with bottom edge of top side of base which supports the rafters. The roosts are cut so as to fit the inside width of shelter. The 2 by 2-inch cross supports under roosts are placed 1 foot from ends of roosts.

On one end an upright 1 by 4-inch piece extends from center of bottom of base to ridge. The other end has two upright supports placed 2 feet apart for a door which is about 2 by 3½ feet. The 2 by 2-inch handles, two on each end, extend 12 inches beyond ends of shelter.

NEW MODEL MASH FEEDER FOR LAYERS

Mash feeders like most everything else have to change to meet present requirements. Until the last few years the magazine type of feeder or hopper was the vogue. Then came the open box feeders which for obvious reasons have largely replaced the old magazine feeders or hoppers.

The reel mash feeder was designed at the Ohio Station in 1921 and has come into extensive use thruout the country. This feeder was 12 inches wide and 6 inches deep inside. Experience has proven it was too wide and too deep. It holds too much feed.

Feed fresh mash daily.—We found that for best results fresh mash should be fed daily in the evening in about the amount the birds will consume before the next feeding period regardless of the method of feeding. This requires a mash box of less capacity, hence the new model is reduced in width and depth so the last part of the feed in the bottom is easily accessible. With the advent of all-mash feeding the layers five years ago the question of suitable mash feeders and ample feeding space has come to be recognized as a matter of great importance. Even when grain and mash are fed separately the common error is to not provide suitable feeders with adequate feeding space.

Plenty of feeding space essential.—For each 100 leghorn layers 20 to 30 feet of feeding space should be provided, and for heavier breeds 30 to 40 feet. This applies equally to all-mash feeding or grain and mash, for if it is desired to feed grain separately, as many will, there is no better place to feed it than in the mash feeder on top of the dry mash. Surely in the light of present information the day is past when anyone should feel obliged to feed clean wholesome grain in filthy litter for sake of the traditional scratch grain-exercise theory. Furthermore this type of mash feeder makes the best and cleanest place to feed moist mash or germinated oats—simply put it right on top of the dry mash.

Suitable mash feeders and plenty of them are of first importance for profitable egg production. No one can afford to use obsolete feeding equipment. Just try one of these and see for yourself. At the same time try feeding a coarse granular mash daily as suggested and if it is your practice to feed scratch grain, moist mash, or germinated oats, try feeding it in this feeder on top

of the dry mash and see whether you will again care to throw clean wholesome grain in filthy, dusty, or damp litter.

The photograph shows general plan of construction. The box is 4 inches deep 8 inches wide and the length according to the number of birds to be accommodated. This feeder is 12 feet long and is designed to serve 100 leghorns. The two 2 by 2 inch square revolving poles are 6 feet long and are used instead of one 12 feet long to prevent sagging. The pole supports are made of No. 7 hard steel wire. Plaster lath are nailed on top edges of box and extend

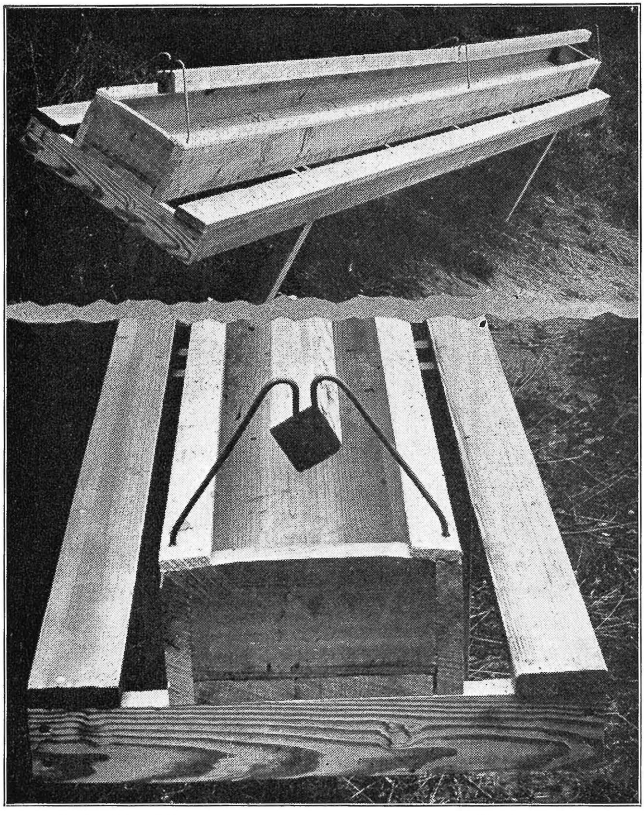


Fig. 7.—New model reel mash feeder for layers

inside ¾ inch to prevent waste of feed. The clearance between poles and edges of box is 3½ inches for leghorns and 4½ inches for heavier breeds. The stand supports mash box 18 inches off the floor. The 1 by 3 inch boards for birds to stand on while eating are even with the bottom of the box and spaced 1½ inches from the box.

WARM WATER FOR WINTER LAYERS

Warm water is one of the essentials for best winter egg production. Hens drink sparingly of cold water, but relish warm water. A liberal intake of water increases egg production by stimulating feed consumption and supplying the large amount of water required for egg formation.

The insulated water pail and electric heater illustrated in Figure 8, is the simplest, most effective and inexpensive device for its purpose we know of. This outfit with a 16 quart pail nicely serves 100 layers.

Insulation of water pail.—The construction of a box container is self explanatory from the photograph, Figure 8 and the sketch, Figure 9. The galvanized iron cover is cut so as to fit snugly under rim of pail and sloped so as to carry off drip water to keep inside packing dry. The bottom of box is removable so as to pack easily or renew insulation around pail. When box with iron cover is completed the pail is put in place and the box turned up side down so as to pack straw, excelsior, or newspapers firmly around the pail. The bottom is then fastened in place. The pail can then be removed when desired and packing will stay in place. One packing will usually last thru the winter season. The 1 by 3 inch boards for hens to stand on are placed 4 inches below top of pail and one inch from box. The size of box is such as to provide 1½ inches space for packing between top edge of box and the pail.

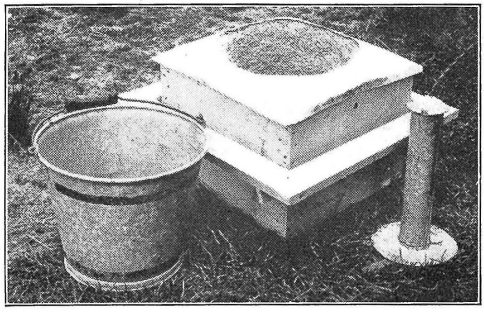


Fig. 8.—Warm water device

The electric heater.—This heater is patterned after the design used by the Poultry Department, Cornell University. These heaters were used at the Ohio Station during the winter of 1927-28 and proved highly satisfactory in every respect. It consists of a piece of galvanized iron conductor pipe 12 inches long and 2½ inches in diameter and made water tight on one end. To this

bottom end a six inch disc of galvanized iron is attached so as to keep heater upright. Then one inch of sand is put in bottom and an extension cord inserted so bulb rests on sand. More sand is then added to fill around bulb and to a point three or four inches above so as to hold heater on bottom of pail when it is full of water. A tin cap is put on top of heater to keep out any water hens might flip

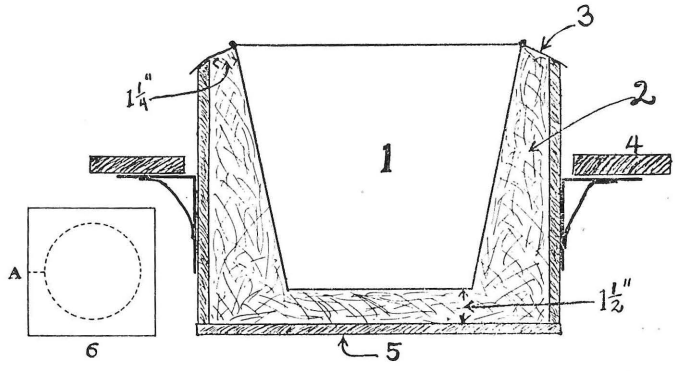


Fig. 9.—Insulated water pail and container

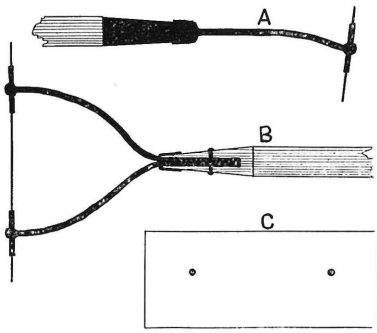
1. 12 or 14 quart galvanized water pail.
2. Straw or excelsior for insulation.
3. Galvanized sheet iron top to keep insulation dry.
4. 1 by 3 inch running board.
5. Removable bottom.
6. Sheet iron top marked for cutting.

about, as the heater must be kept dry inside to prevent a short circuit. Carbon filament bulbs are best suited for heating as they give off more heat and less light than other types of filaments. Bulbs of 16 to 50 candle power may be used depending on requirements. Other kinds of electric bulbs may be used. If carbon filament bulbs are not available locally they can be secured from wholesalers of electrical supplies.

SCRAPER FOR CLEANING DROPPINGS BOARDS

If there is one utensil that practically every poultry keeper needs but does not have, it is a good scraper for cleaning the droppings boards. Some manufacturers are making scrapers for this purpose but they are seldom carried in stock at the local hardware store. Until a really satisfactory scraper is made and stocked by local merchants, poultry keepers will be obliged to have them made to order. This can be easily done by following these suggestions:

First, secure a hoe or rake handle of the desired length and size, fitted with an iron ferrule. The scraper blade may be made of an old saw, or steel plates desirable for the purpose can be purchased at small cost.* The steel plate should be 4 by 10 inches and made of 1/16-inch steel. By taking the handle and steel plate to a blacksmith or machine shop the scraper can be completed by following the sketch and the details given below.



A. Side view of scraper. Note how the lower edge is turned in one-half inch to make it cling to the boards. For scraping next to wall turn scraper over and use top edge.

B. Top view of scraper showing attachment to rake or hoe handle. The handle is 4 to 5 feet long and should be strong, rather stiff, but not too heavy. The handle should have a strong iron ferrule to receive forked irons connecting handle to scraper. These irons may be made of 5/16 or 3/8 square or round steel to make it strong and stiff. The ends which go into handle may be tapered or reduced in size somewhat and welded. Make sure it is riveted thru the ferrule.

C. Blade for scraper 4 by 10 inches. The 3/16 or 1/4 inch holes are two inches from ends and the edge of holes is 1/4 inch above the middle.

FIG. 10.—SCRAPER FOR CLEANING DROPPINGS BOARDS

*If it is desired to purchase the steel plates address a postal to the Ohio Experiment Station, Wooster for manufacturer's address.