

THE HOME-MADE BRICK BROODER

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THE homemade brick or stone brooder was first tried out in Alabama about 1923 and is now generally used in most southern states. Poultrymen in Virginia, particularly in the southside section, became interested in this type of brooder about three years ago and a few were built according to plans from other states and used with varying results. Some have proved satisfactory, others unsatisfactory. As Virginia has colder winters, particularly in the mountainous sec-

tions, farms include the use of commercial brooders using either coal, oil or wood as fuel. Most coal brooders require hard or anthracite coal costing \$17.00 to \$18.00 a ton. Oil is a little less expensive but the danger from fire is greater. The brooders themselves are rather expensive. On the other hand, the brick brooder uses wood produced on the farm and usually the only cost of this wood is the cutting. Virginia flock owners state that the brick brooder requires a minimum of attention



Figure 1. — Brick brooder with hovers removed.

tion, than the states in which the brick brooder was developed, the state extension service was unwilling to recommend its use or prepare plans for its construction until it was definitely established by experience and a study of its limitations that it could be used with safety. Conclusions from this study are that the brick brooder stove as illustrated in this circular may be used profitably in brooding chicks.

Present methods of brooding on average Virginia

and that even if the fire goes out the bricks will hold heat for a long time. This makes chilling much less likely than with other stoves. The cost of the brick brooder is comparatively small since much of the material used in its construction is often available on the farm, or may be obtained second hand at very low prices. Some have been built for no cash outlay whatever and others for only a dollar or two. Brick gives best results but stone has been used satisfactorily.

At first glance the plan finally developed for Virginia conditions may seem more elaborate than necessary but a close examination will show that all the features tend toward greater efficiency and safety and more ease of operation. For best results the plan should be carefully followed.

Bill of Material

Materials needed for a brick brooder based on a length of 9 feet as shown on plan are:

- 700 common bricks (new or used)
- 4 sacks cement
- 1 sack hydrated lime
- 1 cu. yd. sand
- 6 8" strap hinges
- 18' 24 gauge sheet iron 36" wide
- 1 pc. 20 gauge sheet iron 24" x 24"
- 30 stove bolts
- 1 pc. angle iron 1" x 1" x 30"
- 1 stove pipe damper
- Several joints 6" stove pipe (Number depends on building)
- 1 roof flange

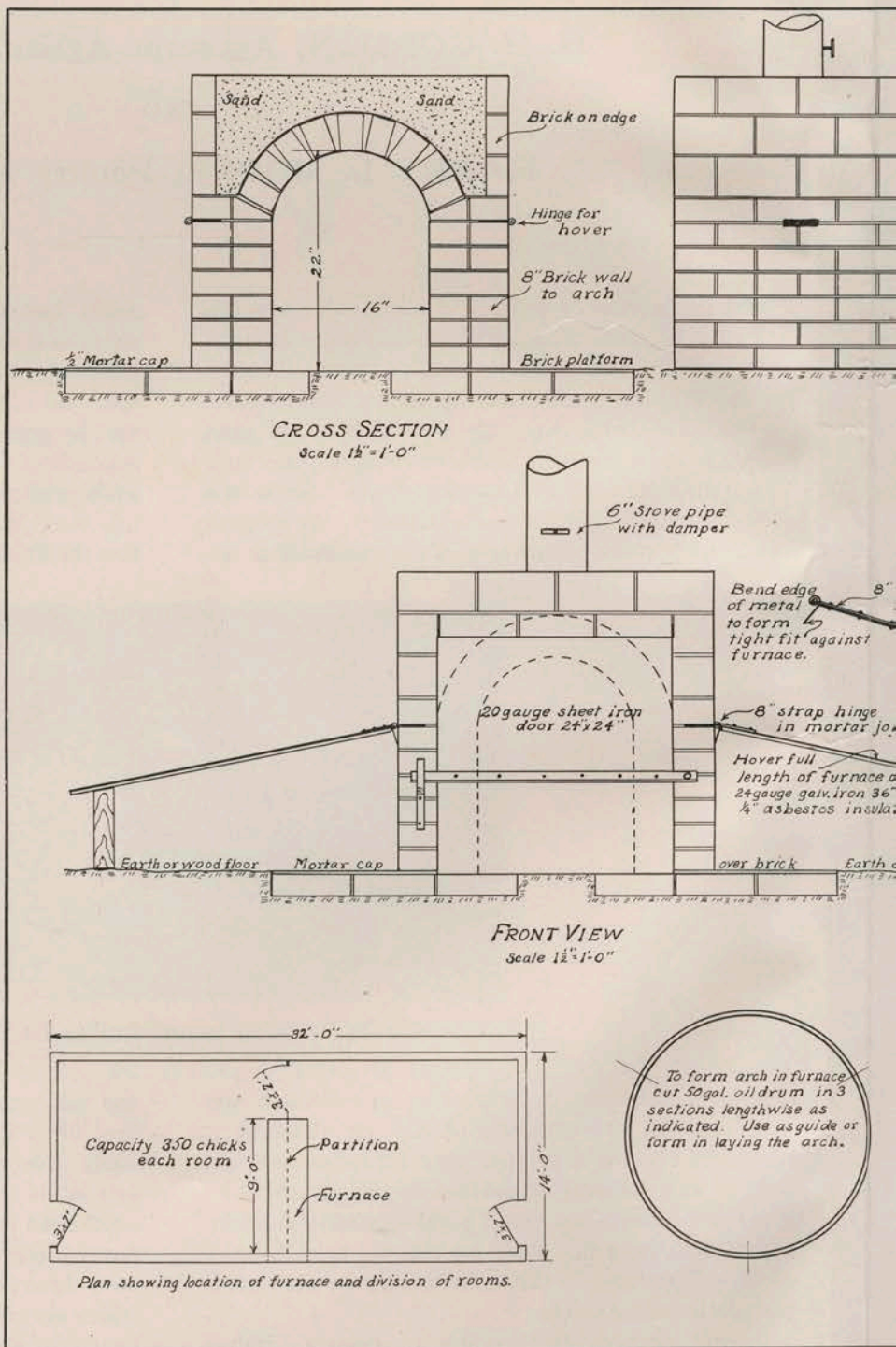
The 9 foot brooder is based on a house 14 feet deep with space for hovering two broods of chicks at the same time. Such a brooder is adequate for a room 20 feet square or for a building 14 x 32 feet such as is illustrated on plan. If only one lot of chicks is to be hovered in a building 12 feet deep, the length of stove may be shortened in proportion. The space for comfortable hovering is the important point. The stove is made long to prevent crowding. In this plan hovers are provided on both sides. These are considered essential for the colder sections of the state and are advisable even under Southside Virginia conditions. To avoid undue loss of heat the use of asbestos board $\frac{1}{4}$ inch thick, or more, is also suggested.

In a number of cases old tobacco barns remodelled as shown in Figure 2, with an open front and removable or permanent ceiling; have been used very satisfactorily in connection with the brick brooder. In Southside Virginia this offers many possibilities for starting in the poultry business cheaply.

Construction

The stove should be located in the center of the building. While it may be fired from the inside, the better practice is to fire from the outside, as this does not disturb the chicks and lessens danger from fire. If the building is large enough for two batches of chicks, a wire partition should be erected as shown, dividing the chicks and hover space equally. Three hundred and fifty chicks should be the maximum number in any one batch, or 700 to the stove.

If the brooder house floor is of earth or concrete, the



stove may be built directly on the floor surface. If the floor is of wood, a hole at least 4 inches larger than the stove must be cut and a foundation of brick, or stone and sand, built up to the floor level. Bricks should be placed on edge between the stove and floor around the entire circumference of the hole.

The stove walls should be 8 inches thick. In other words, two bricks laid flat, side by side. Mortar joints should be broken, that is bricks in alternate rows should reach from center to center of the two bricks below as shown. A header course in which one layer of bricks is laid across is also desirable. The bricks should be

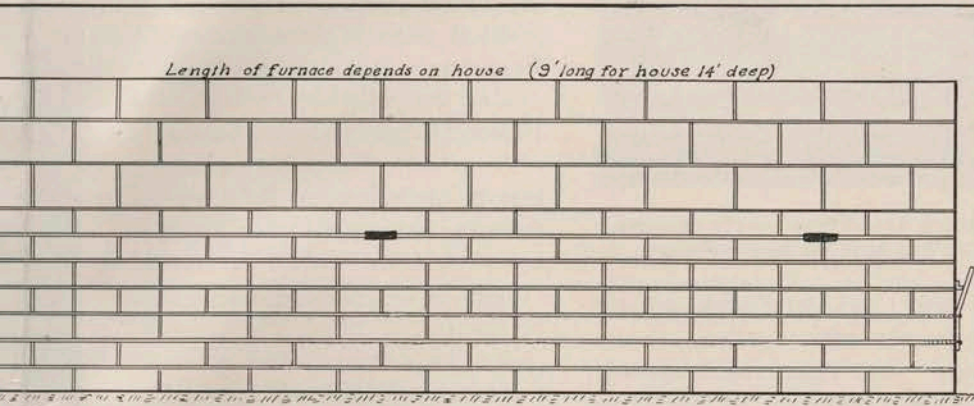
laid up in cement mortar consisting of 1 part cement and 3 parts sand with just enough lime to make the mortar more workable. The lime should not exceed 10 percent of the volume of cement. Mortar joints should be $\frac{3}{8}$ to $\frac{1}{2}$ inch thick. (Clay or clay and salt are sometimes used for mortar but are less permanent and desirable).

Hinges for attaching the hovers are set in the mortar joint between the sixth and seventh courses of brick. If a mason is laying the brick, no form will be necessary for the arch, as he is familiar with "keying in" the arch brick. If the farmer is laying the brick, a form is desirable. An old 50 gallon oil drum divided lengthwise into three equal parts is desirable for this (see plan) or wooden forms may be used. The walls of the stove are carried up three more bricks on edge as shown, or if preferred a stronger wall can be made by using six layers of brick and laying them flat. The purpose of this top wall is to allow for covering the area with sand. The sand will conserve heat, provide humidity when wet, and prevent possible injury to chicks. Covering the top with wire at an angle to prevent chicks roosting is also desirable.

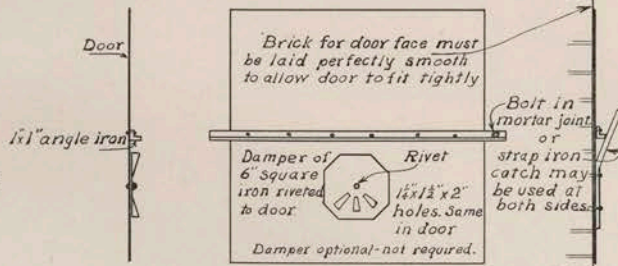
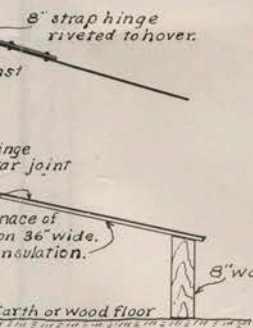
The stove pipe should be set in the arch about 8 inches from the end opposite the door. The first joint of pipe should contain a damper. The brick forming the door face must be laid up smoothly so the door will fit tightly. Little or no draft is necessary once the fire is well started. The door is made of a heavy sheet of iron two feet square, to which an angle iron is riveted. The angle iron may be bolted at one end as shown, or it may set in a catch at both ends. These catches are made of strap iron and bent so the door will be pressed tightly against the door face.

Hovers are made of medium weight sheet iron 3 feet wide and the length of the stove. One edge of the sheet iron is bent to a 45 degree angle to insure a tight fit against the stove wall. The hinges are fastened to the bent edge with stove bolts. The other edge is supported as frequently as necessary with legs 8 inches long. Hovers are made removable by drawing the pin in the hinges.

The length of stove pipe will depend on the roof height or pipe exit. Whether the pipe goes through roof



SIDE VIEW
Scale $\frac{1}{2}'' = 1'-0''$



DOOR DETAILS
Scale $\frac{1}{2}'' = 1'-0''$

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| <p>BRICK BROODER STOVE</p> <p>Designed by K.N. Ellis, Petersburg, Va.</p> | <p>AGRICULTURAL ENGINEERING DEPARTMENT EXTENSION DIVISION-VPI</p> | | |
| | <p>Drawn by H.H.G. Traced by V.R.H. Revised by C.E.S. and Foultry Dept. VPI.</p> | <p>Sheet 1 of 1 Oct 3, 1933. Scale as shown</p> | <p>Refer to Number F-20</p> |

or wall, the wood should be cut away three or four inches and tin or asbestos used as an insulation. If the pipe goes through the roof a roof flange is desirable to prevent leaks.

It is important that the stove be built two to three weeks before a fire is necessary so the mortar may gain its full strength.

Fuel

Green cord wood or poles, preferably oak or other hard wood makes the best fuel. Sticks up to 8 inches in diameter are satisfactory; the larger ones are more desirable. Two sticks are used at a time. With such wood attention to the fire is required only two to three times daily.

Operation

Two days before chicks are to be put in the house, a fire should be started in the brick brooder to dry out the house and floor thoroughly, and give the operator experience in firing and controlling the draft. Those using the brooder claim that once the fire is started and the drafts properly adjusted it is necessary to

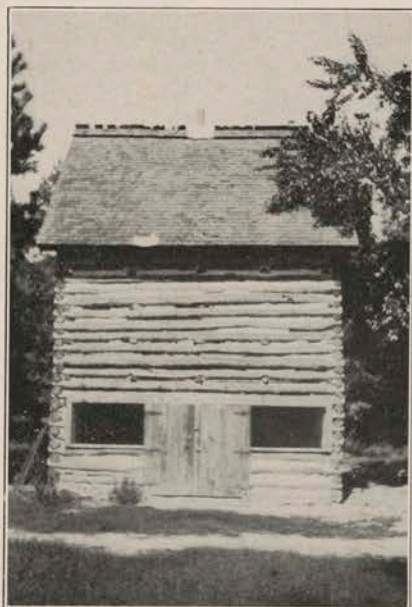


Figure 2. — Tobacco barn remodelled and used for brooder house.

fire only once daily with suitable wood in normal weather. Colder weather and more rapid burning wood, of course, call for greater attention.

Advantages

Among the advantages of the brick brooder in addition to low first cost and low operating costs are (1) safe-

ty, (2) freedom from fumes, (3) ease of operation, (4) simplicity and long life, (5) less danger of chilling, (6) ample hover space.

Disadvantages

While several minor disadvantages of the brick brooder might be mentioned, the only one of any importance is that the brooder house can not be moved to fresh ground as can the portable brooder houses. Very practical ways of overcoming this disadvantage are rotating runs or by moving the pullets to fresh ground as soon as they are old enough to do without heat. The cockerels may be kept in the house and fed a special fattening ration until ready for market. When the pullets are moved to clean ground, they need some kind of shelter. A simple cheap, range shelter such as illustrated in figure 3 on this page has proven satisfactory. Detailed plans for this shelter, as well as for standard laying houses and numerous other poultry buildings, are available through your local county farm or home agent or by writing direct to the Extension Division, Blacksburg, Virginia.



Figure 3. — Range shelters help to grow better pullets.