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COLLEGE OF AGRICULTURE, EXTENSION DIVISION

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PITCHER PUMP INSTALLATION

By

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A very common source of water for family use in Kentucky is a well or cistern just outside the kitchen. The pump is usually located directly over the water supply. All water used in the house must be carried from the pump to the kitchen, which means loss of time and energy for the housewife. The installation suggested in this circular consists of a pitcher pump at a kitchen sink and a drain for disposing of water in a sanitary way. The system is simple but is a great aid in homes without a water pressure system.

DESCRIPTION OF THE SYSTEM

Cistern or Well. The system provides for the protection of the well or cistern from surface pollution. All cistern water should be filtered. The filter may be a commercial one or it may be made according to plans on the last page of this circular. A cut-off or waste spout in the line leading from the roof of the house to the cistern should be provided in order that the roof and gutters may be washed clean before water is run into the cistern.

The Pump. The pump used may be an ordinary pitcher pump or a hand force pump with the cylinder in the stock. Either type of pump lifts water a vertical distance of twenty feet, and a horizontal distance of fifty feet does not materially affect the working of the pump. The pump is supported at the end of the kitchen sink by means of a bracket or shelf so placed that the waste water runs into the sink. Another pump may be set directly over the cistern or well for drawing water to be used outside the house.

The Sink. A substantial kitchen sink should be used. It should be securely fastened to the wall with brackets. A drain board at one end of the sink and a "sink back" to protect the wall from water improves the installation. A trap should be placed in the drain from the sink to prevent gases from working back into the kitchen. The height of the bottom of the sink above the floor should be 30-36 inches, depending on the height of the person using it.

The Disposal System. The disposal system is made of 1½-in. galvanized pipe, leading from the trap at the sink to a grease trap; a grease trap to prevent solids from entering the tile line; and 50 to 100 feet of 4 in. agricultural drain tile laid with open joints and from 12 to 18 inches below the surface of the ground. A "T" pipe fitting at the point "B" between the vertical and horizontal sections of the drain pipe makes it possible to clean out the drain pipe without disconnecting any pipe. The fall of the pipe line should be at least one inch in ten feet and the drain tiles should have a fall of not more than four inches in 100 feet, so that the water may soak into the soil thru the joints between the tiles, along the whole line. The end of the tile line should be closed. If the soil in which the drain tiles are laid is very tight, the trench should be dug about two feet deep and filled with 8 to 10 inches of gravel or cinders before the tiles are placed. Then the trench is filled with the earth that has been removed. It is well to cover the joints between the tiles with broken pieces of tile or tarred paper, to prevent soil from entering the line.

INSTALLING THE PUMP AND WATER PIPE

The pump should be kept in water for an hour before being placed in order to expand the cup leathers and cause them to fit the walls of the cylinder better. The pipe should be of the proper length so as to hold the pump in the right position on the platform provided for it. The suction pipe should not be allowed to touch the bottom of the cistern. Where the suction pipe is long or the suction lift high (18-20 feet), it is desirable to use a foot-valve at the end of the pipe in the water, to assure quick starting of the pump, by keeping the suction pipe full of water. If a foot-valve is used and the water pipe is not protected from freezing, a stop-and-waste cock to provide drainage should be placed in the pipe line as

indicated. All pipe joints should be well threaded and screwed together firmly to assure perfect suction. The horizontal part of the pipe is given a slight fall towards the water supply to prevent air pockets in the line. The water pipe should be placed 30 inches below the surface of the ground, to prevent freezing, and the vertical pipe from the ground to the pump should be boxed in, for the same reason. One-inch or 1 $\frac{1}{4}$ -inch pipe may be used. Since most pitcher pumps have the stock connection threaded for 1 $\frac{1}{4}$ -inch pipe, a bushing must be used with 1-inch pipe.

ITEMS REQUIRED

1. Enameled kitchen sink and fittings (including trap, sink back and drain board).
2. Pitcher pump or hand force pump and pump bracket.
3. 1 $\frac{1}{2}$ -inch drain pipe and fittings (tee and plug, union, coupling, etc.).
4. 1 $\frac{1}{4}$ -inch water pipe and fittings (union, elbows and coupling).
5. Combined foot-valve and strainer.
6. 1 $\frac{1}{4}$ -inch stop and waste cock and turn key.
7. 4-inch agricultural drain tile, 50 to 100 feet.
8. Grease trap.

The cost of installing a pitcher pump will vary from \$15.00 to \$40.00, depending on the quality of sink purchased and the amount of plumbing supplies needed.

For further information write to the Extension Division of the College of Agriculture, Lexington, Ky.

