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FARM HOME WATER SUPPLY SYSTEMS

I. INEXPENSIVE KITCHEN INSTALLATIONS

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FARM HOME WATER SUPPLY SYSTEMS
I. INEXPENSIVE KITCHEN INSTALLATIONS

Every farm home needs some sort of a water supply system and for the home without a supply and with limited resources for the purchase of one, this circular describes three extremely simple types, one of which is within the possibility of every farmer in the State. For larger farms with more capital to invest, there are more complex and more desirable systems, but this circular attempts to describe the very simple types only.

The source of water on most farms is one of the three types of wells, a cistern, or a spring and in general it may be said that wells form a more desirable source than either cisterns or springs. Pumps are roughly divided into two groups: (1) Lift pumps, and (2) force pumps. Lift pumps cannot raise water higher than the spout, while force pumps can be used to force water to elevated tanks or into pressure tanks. The common pitcher pump used for kitchen-sink installations is a true lift pump and is shown in Figs. 1 and 2. Figs. 3, 4 and 5 show force pumps so named because in each case the water can be forced higher than the pump.

Explanation of Fig. 1

The very simple system illustrated by Fig. 1 is only recommended where it is impossible to construct a better one. It is limited to certain sections where the low water level in the well is within 22 feet of the sink measured vertically. The kitchen pitcher pump shown cannot raise water above this height and when the water is below this level, it is necessary to have a pump with the cylinder not over 22 feet from the low water level. This does not have to be a force pump but a lift pump may be used. The distance from the sink to the well should not be over 100 feet or the pump cannot lift the water to a height of 22 feet. If a greater horizontal distance is necessary either the lift must be lessened or a pump with the cylinder closer to the water must be used as in Fig. 2, although this method is not generally used.

Using the least expensive materials and pump, and with both the suction pipe and drain pipe thirty feet each in length the cost of the materials as shown in Fig. 1 will approximate $35.00 without including the cost of the drain tile or the well. This will vary with local prices and with the quality of the pump and sink, and wherever possible, good quality should be used. A list of materials needed is given on page 3.

Explanation of Fig. 3

Fig. 3 shows a simple system which has some very desirable advantages over that shown in Fig. 1, chief of which is that of the men folks can fill the storage tank and relieve the house-wife of the pumping and it is not necessary that the level of the water of the supply be so close to the surface or that the supply be so close to the sink as in the former system.

As a rule the extra cost of this system will be well spent. The chief disadvantages of this system are that the water used is not strictly fresh and the fact that the average ceiling joists which must support the tank are not large enough to support a very large amount of water. Either extra framing may be used or the tank by being placed above a partition will usually have sufficient support so that pumping once a day will take care of the kitchen needs. An ordinary water tight barrel or a steel drum may be used and for added capacity others may be connected to the first. This type of tank is not the most desirable, but probably the least expensive. More desirable storage tanks can be made of wood or steel and elevated outside, or a steel pressure tank can be put in the ground or cellar and a different type of pump used. These are more desirable features which may be added as funds become available.

The pump is of necessity a force pump and if the type shown in Fig.3 is exposed and freezing is common, the type shown in Fig.4 with the underground connection and the shut-off valve may be used. This latter type of pump can force water any reasonable distance and if too large a cylinder is not purchased the pumping will not be too hard for a boy to handle. An overflow pipe, as shown is handy to indicate when the tank is full.

This outfit with a good quality pump can be installed at present prices for approximately $48.00 for materials when the well is 50 feet from the house. A list of materials is given on page 3.

Explanation of Fig. 5

Fig. 5 shows a kitchen water-system that should be the aim of every farmer whose resources prevent the installation of a complete home water-system with bath and inside toilet. The same tank, sink, pump and connections used in the system shown in Fig.3 are used in this, both of which allow connections for providing hot water to be added as funds become available. The hot water-system consists as shown above, of a hot water tank connected to a water front in the kitchen range and a hot-water faucet over the sink. This outfit will do wonders in relieving the house-wife of some of the work of the kitchen. It will be noticed that the cold water-pipe entering the hot-water tank extends well down from the top. A 30-gallon steel hot-water tank should be used with a stand and drain fittings. The materials needed for this installation will cost about $70.00

In both systems shown in Figs.3 and 5 an overflow from the tank is shown. The one in Fig.5 is to be preferred to the other as the pump operator can tell when the tank is full without leaving the pump.

If a kerosene stove is used in summer for cooking, a kerosene water-heater may be connected to the hot-water tank. It is possible to have the tank connected to both the kerosene heater and the water front in the kitchen range if so desired.

Certain valves and standard pipe fittings are needed and are shown in the various figures with symbols as follows: (U) for unions; (GV) gate valve; (CV) check valve. All turns are shown with standard elbows which are not marked.

Materials Needed

The following is a list of materials needed for the very simplest installation of the above systems as shown. Additional fittings and lengths of pipe will be needed when the connections cannot be made exactly as shown.

Description of Material	For the systems illustrated in -		
	Fig. 1	Fig. 3	Fig. 5
1½-inch galvanized pipe (sink to drain)	#	#	#
1¼-inch galvanized pipe(well to drain)	#		
1-inch galvanized pipe pump to tank		#	#
Pitcher pump	1		
Force pump		1	1
Porcelain lined sink, 18" x 30" or larger with 1½-inch trap fitting	1	1	1
1½-inch sink trap with cleanout plug	1	1	1
Wall bracket for sink	2	2	2
1¼-inch foot valve	1		
1¼-inch galvanized elbows	2		
1½-inch galvanized elbows	1	1	1
1-inch galvanized elbow		3	3
1-inch galvanized pipe(overflow)		#	#
1-inch galvanized elbow(overflow)		1	
Tank or barrel		1	1
1-inch tank connection		1	1
1-inch x 1-inch x ½ inch T		1	1
1-inch x 1-inch x 3/4-inch T			1
1/2-inch faucet		1	2
1-inch unions		2	2
1-inch globe valve		1	1
1-inch check valve		1	1
3/4-inch x 1/2-inch bushing			1
3/4-inch galvanized pipe(hot water)			#
30-gallon galvanized hot water tank and stand			1
3/4-inch galvanized tank connections			2
3/4-inch galvanized elbows			6
3/4-inch galvanized unions			3

#These lengths will vary with each installation.

Description of Material	For the Systems Illustrated in -		
	Fig. 1	Fig. 3	Fig. 5
1-inch x 1-inch x 3/4-inch T			1
1/2-inch faucet		1	2
1-inch unions		2	2
1-inch globe valve		1	1
1-inch check valve		1	1
3/4-inch x 1/2 inch bushing			1
3/4-inch galvanized pipe(hot water)			#
30-gallon galvanized hot water tank and stand			1
3/4-inch galvanized tank connections			2
3/4-inch galvanized elbows			6
3/4-inch galvanized unions			3

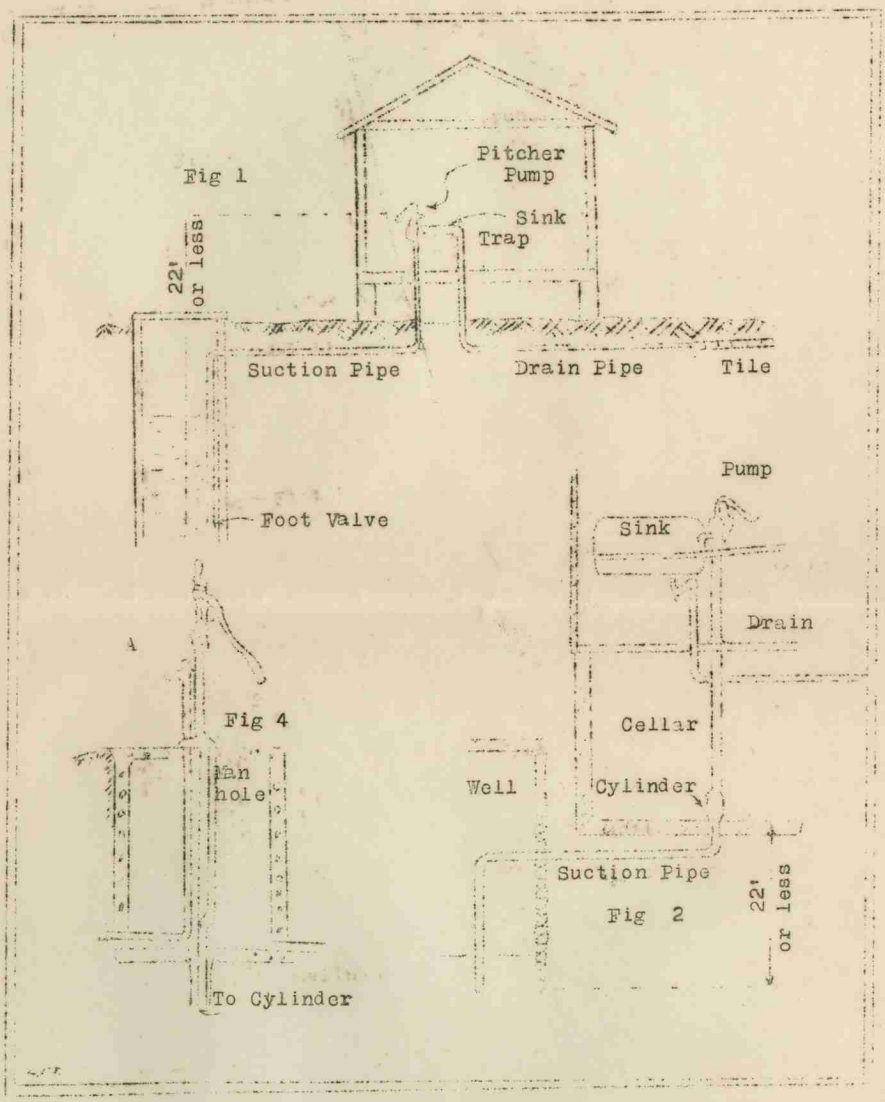


Fig 1
Pitcher Pump
Sink Trap
22' or less
Suction Pipe
Drain Pipe
Tile
Foot Valve
Pump
Sink
Drain
Cellar
Cylinder
Well
Suction Pipe
22' or less
Fig 2
Fig 4
Man hole
To Cylinder

Fig 3

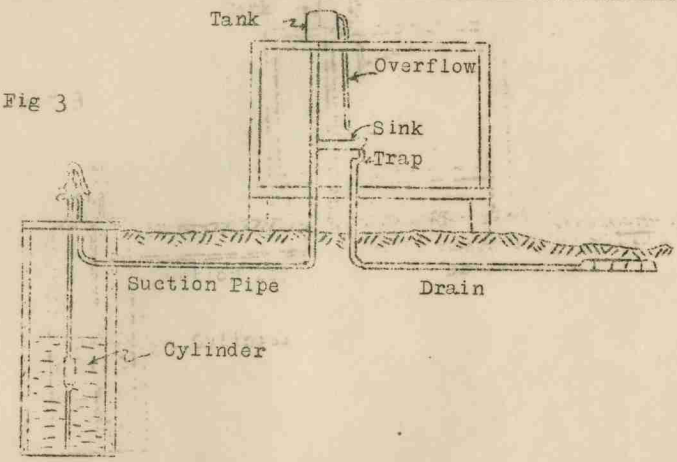
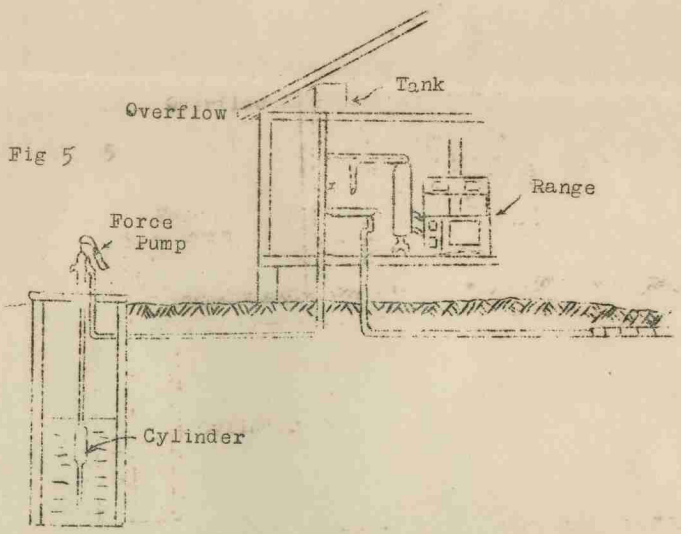

Tank
Overflow
Sink
Trap
Suction Pipe
Drain
Cylinder

Fig 5


Tank
Overflow
Range
Force
Pump
Cylinder