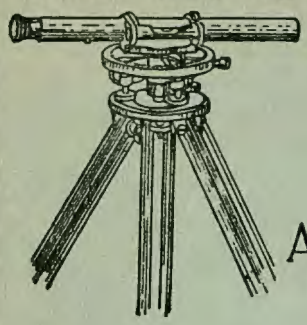

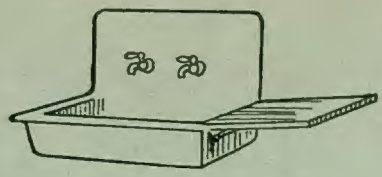

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PUMPS FOR FARM WELLS

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For our purpose in this discussion a pump is a device for lifting or transferring water. The word pump means, to most people, the cast iron part that stands on the well platform, but actually, a pump consists of a cylinder, piston, valves, rods, gears, levers, and perhaps other parts, without which water could not be moved. The source of power and storage facilities will not, except incidentally, be considered here.

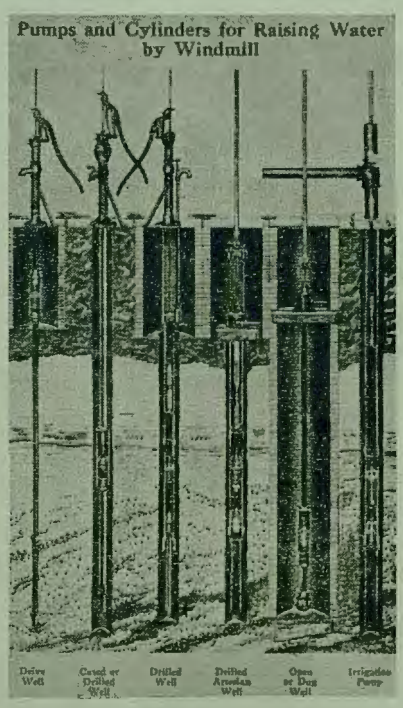
Pumps are of many kinds, such as reciprocating, rotary, centrifugal, suction, hydro-pneumatic, etc. and are further described by the power used as hand, windmill, electric, and so on. Other descriptive terms such as heavy duty, single acting, set length, underground discharge, etc. help to point out certain characteristics. The kind and depth of well, together with quality and quantity of water to be pumped, are factors which must be considered when selecting a pump.

Good and Bad Pumps

There probably are no such things as good and bad pumps for a good pump under certain conditions might be a bad one under other conditions. When we speak of a pump as a good one we mean that it operates efficiently, that it does not get out of order easily, that the bearings and moving parts are so designed that they will give long service, that it operates quietly, that it is rugged enough to stand some abuse and that, so far as possible, it is foolproof. The best pump in the world will need a certain amount of intelligent care. Most of us are familiar with the squeaks and clanks of some farm pumps, and some people go so far as to classify a farmer according to how he cares for his pump and other machinery.

Good and Bad Qualities in Pumps

The first requirement of a pump is that it must fit the conditions. A light weight suction pump would be useless in a deep well. If the water has to be lifted far or if it has to be forced against considerable pressure, the cylinder must not be too large nor the rods too small. If sand is a problem, the parts subject to the cutting action of the sand must be easily accessible for repair. If water is to be piped to several locations, one of the underground discharge pumps is called for. If a force pump is needed the relative merits of the packing nut and the packing tube should be considered. If large amounts of water are wanted, a double-acting cylinder may be called for, and this may require heavier rods. A suitable air chamber is essential with all force pumps. Good pumps are so constructed as to keep foreign material out of the water.



Location of Pump

In practically all deep well installations the pump is located at the well, but with shallow wells the pump may be placed at any reasonable distance from the well and still work as it should. If the pump is not over the well the suction line must be tight and should slope upward toward the pump to prevent air pockets. A foot valve on the suction line is not absolutely essential, but is desirable. Proper housing, of course, is assumed not only for frost protection but for convenience in making repairs during inclement weather. Since the location of the pump is nearly always determined by the location of the well, it behooves the owner to give some thought to the location of the well. For example, the well might be so placed that gravity distribution would be possible, thus saving the cost of a pressure system.

Cylinders

In practice, the common drop cylinder, the tubular well cylinder, and the artesian well cylinder are most frequently used. Drop cylinders range in size from 2 to 4 inches and usually take a 1¼ inch drop pipe. They may be had in solid brass, brass lined or plain cast iron and with stroke of from 6 to 12 inches. In general, they work harder, have a lower first cost, and are harder to fix than the other types.

Tubular well cylinders are made of galvanized or black pipe, bored and polished, or of seamless brass and range in size from 1-13/16 to 5½ inches and in stroke from 10 to 48 inches. The brass cylinders are forced down the casing after the well is made and need no separate drop pipe. The plunger and check valve may be withdrawn for inspection or repair without removing the cylinder.

Artesian well cylinders are made of standard pipe, brass lined, or of solid brass. The cylinder forms a part of the drop pipe and may be obtained in almost any size and length desired. The valves may be removed without disturbing the drop pipe.

The most desirable kind of a pump for any given condition is, of course, a debatable question. Unless the owner is an expert on pumps, or thinks he is, it is best to take the advice of a reputable wellman or dealer. The only sure thing about pumps is that a man never gets more than he pays for.

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