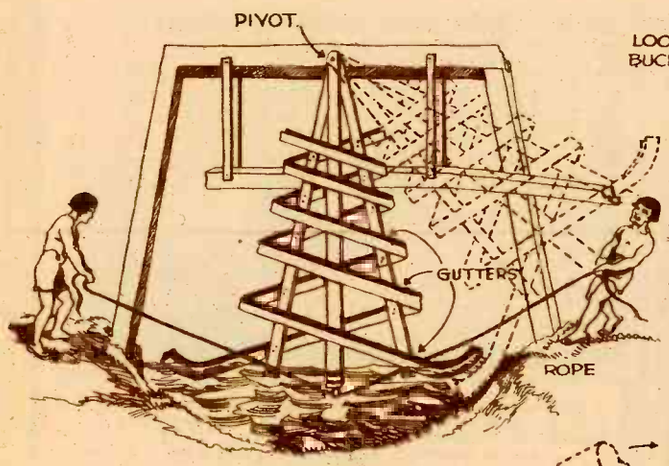
Ancient Methods of Raising Water

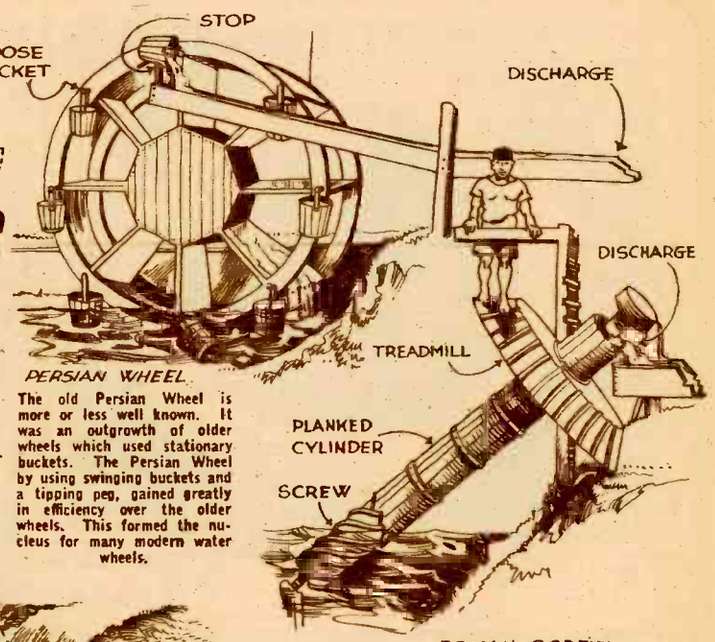
The Forerunners of Our Modern Pumps

By L. B. ROBBINS



A JANTU.

The Jantu was one of the most ingenious and cunning of all ancient methods of raising water above its own level. A double series of gutters arranged in zig-zag fashion and swung from a pivot, as shown above, was pulled backwards and forwards by two operators. The gutters filled on the down stroke and emptied on the upward one.

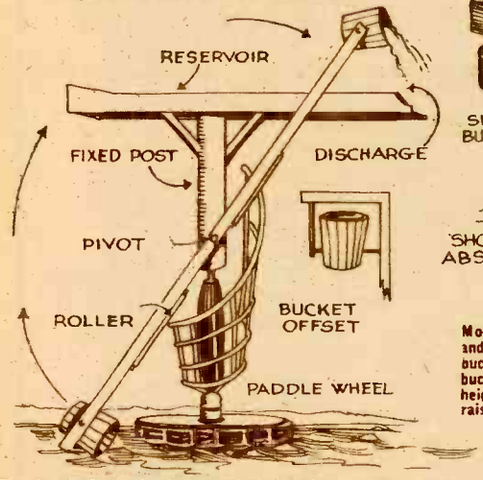


PERSIAN WHEEL.

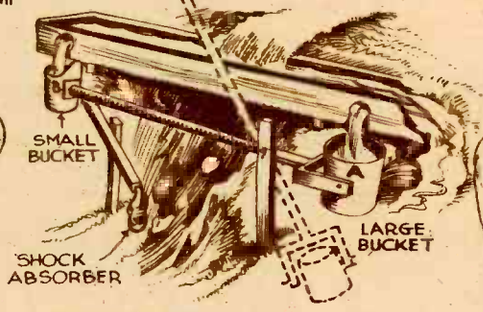
The old Persian Wheel is more or less well known. It was an outgrowth of older wheels which used stationary buckets. The Persian Wheel by using swinging buckets and a tipping peg, gained greatly in efficiency over the older wheels. This formed the nucleus for many modern water wheels.

ROMAN SCREW

The Romans who were blessed with a large amount of man-power developed the screw which is illustrated above. It is nothing more than a double screw built around a wooden axle and placed in a water-tight casement with a tread-wheel on the upper end. The water is raised by the screw action.

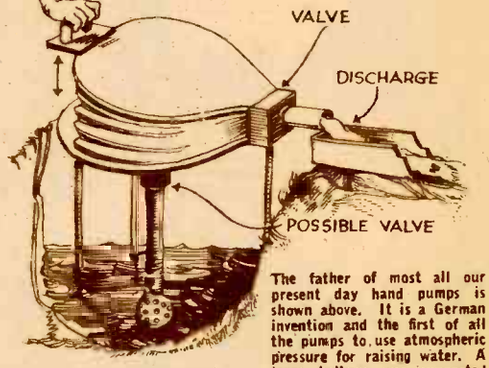


The double Swape involved a principle which has fallen more or less into disuse at the present time as a method of utilizing waterpower for raising the water itself, on account of its great inefficiency and the trouble of installation. As the water wheel revolves as shown above, it raises the buckets alternately.



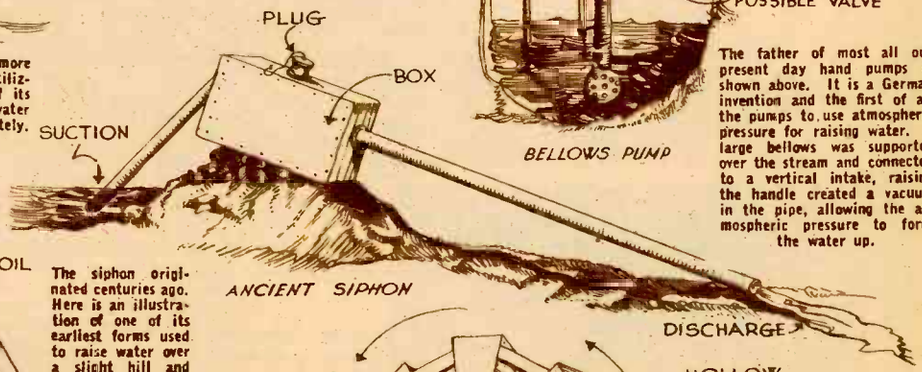
GAINING AND LOSING BUCKET.

More or less on the same principle are the gaining and losing buckets. The water falling into the large bucket on the short end of the lever raises the smaller bucket on the long end of the lever to the desired height. This is an exceptionally inefficient method of raising water but is easily and cheaply constructed.



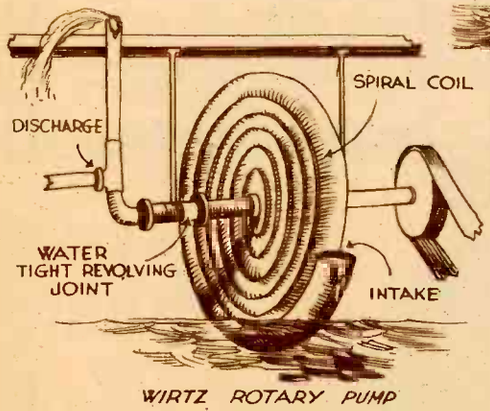
BELLOWS PUMP

The father of most all our present day hand pumps is shown above. It is a German invention and the first of all the pumps to use atmospheric pressure for raising water. A large bellows was supported over the stream and connected to a vertical intake, raising the handle created a vacuum in the pipe, allowing the atmospheric pressure to force the water up.



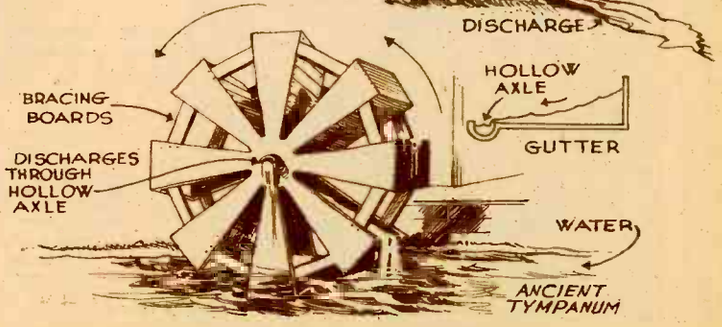
ANCIENT SIPHON

The siphon originated centuries ago. Here is an illustration of one of its earliest forms used to raise water over a slight hill and releasing it at a lower level.



WIRTZ ROTARY PUMP

A somewhat later pump using mechanical parts in the form of a large coiled tube suspended on bearings and rotated at such a height above the water to be raised that only the outside end of the pipe passes through the water, is shown above. The constant weight of the water at the intake keeps forcing the water through the spiral and to the outlet at the center of the wheel.



ANCIENT TYMPANUM

The ancient Tympanum was a slight improvement on the old Persian Wheel. It involved the same principle, but instead of using buckets at one side of the wheel to lift the water, an extension arm built in trough form leading to a center spout, served to raise the water, while the force of the stream on the back of the troughs rotated the wheel.