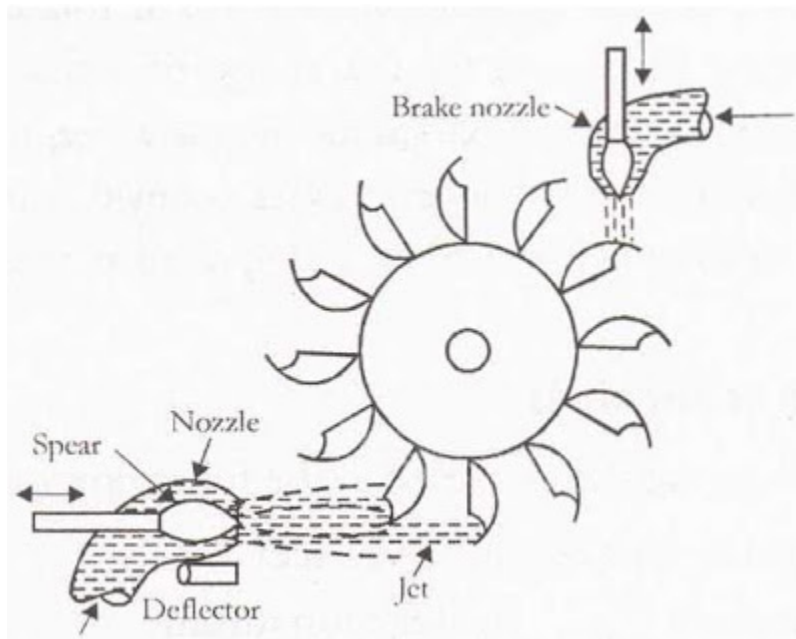


PELTON TURBINE

Among different types of impulse turbines, Pelton wheel is the only turbine being used at present. It was discovered in 1880 by an American Engineer Lester A. Pelton. It operates under very high heads (upto 1800 m) and requires comparatively lesser quantity of water.

Working principle of Pelton turbines



From the head race in the mountains water is conveyed to the turbines installed in the power house through the penstocks. The lower end of the penstock is joined with a nozzle in the turbine casing. Water is delivered by the nozzle at a high velocity on the buckets. These buckets are mounted on the periphery of a circular wheel (also known as runner) which is generally mounted on a horizontal shaft. The quantity

of water coming out of the nozzle or nozzles can be controlled by regulators (governing arrangement) in case of big installations and by hand wheels in case of small installations.

The impact of water on the buckets causes the runner to rotate, thus develops mechanical energy. After doing work on the buckets water is discharged in the tail race. Being impulse turbine it must run at atmospheric pressure and therefore, these are located above the tail race. The buckets are so shaped that water enters tangentially in the middle and discharges backward and flows again tangentially in both the direction to avoid thrust on the wheel (as shown in the line sketch).

Actually the jet is deflected by 160°. To produce electric energy these are coupled with the electric generators.

Source : <http://mediatoget.blogspot.in/2011/11/pelton-turbine.html>