

Keyword **tub wheel**

Title **definition of tub wheel**

Author **Dr. John Lovett Jr**

TUB WHEEL

A tub wheel is so-called because it is a horizontal water wheel with curved blades which revolves in a wooden or masonry hoop or tub enclosure, much like a millstone hoop. These developed in Europe prior to 1750 and were the forerunners of the modern water turbines. Now to the Smokies, the term "tub mill" has traditionally been connected to small nineteenth-century American mills (such as those two in the Smokies) which utilized a wooden horizontal wheel to typically power one set of millstones. These wheels were crudely made, often from a single piece of wood when one of sufficient diameter was available, by employing hand augers and axes. Blades were cut so that a single jet of water could be directed onto the top of the wheel. They operated much like a child's pinwheel, except on water velocity (or percussion) and not wind. They were normally less than 30% efficient, but if sufficient head and volume of water could be developed, they would perform work. Usually a horizontal shaft connected the wheel directly to the millstones, so they would turn a small set (say 36-inch diameter) about 125 revolutions per minute. Some quickly constructed, very crude tub wheels didn't even have a tub, and if I remember correctly, at least one of those in the Smokies is of that design. Thus it is not a true tub wheel, but would be called that anyway. The purpose of the tub was to keep the water from overshooting the wheel and help direct it to the vanes. Without the tub the water will splatter all over as it strikes the wheel.