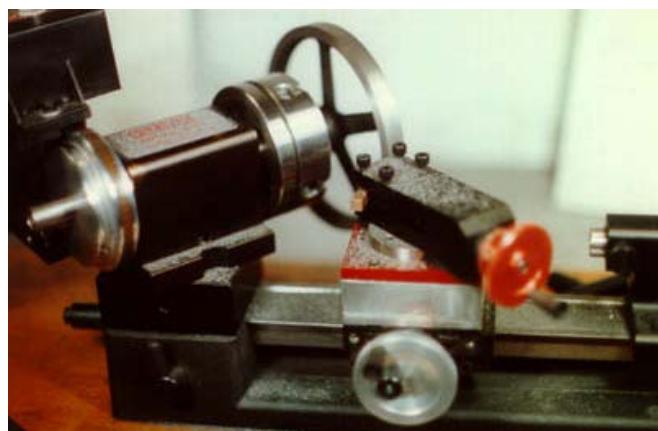
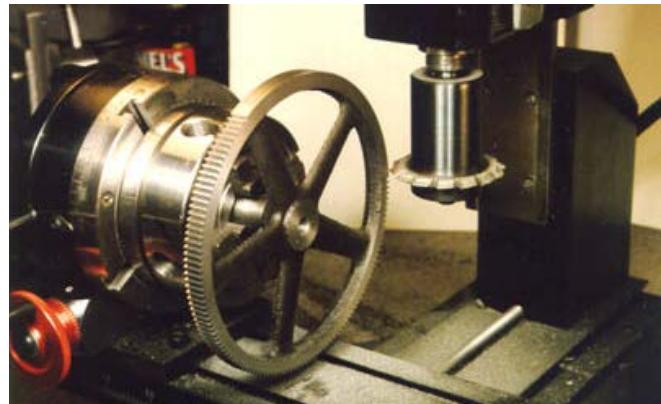


Extreme Project 2—Machining Large Steam Engine Castings/Pam Weiss

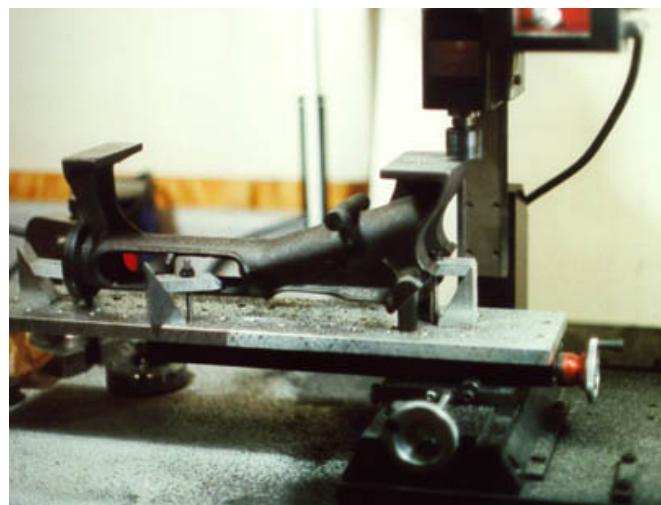
Pam is a Sherline employee who maintains our large factory equipment. She is also an excellent race-car mechanic and machinist on all size tools. At home, she uses Sherline tools to work on her model trains and to build gas and steam engines, guns and clocks. She is currently building a running scale model of a Porsche flat six racing engine, some photos of which are included in Joe Martin's book, *Tabletop Machining*. The castings shown below are from a steam engine casting kit that is far too large to be made on Sherline tools, but Pam wanted to see if she could do it.



Finishing the outer edge and back edge of a large wheel. The headstock is lifted using a riser block to get an additional 1.25" clearance. By turning the headstock at a 45° angle and using the compound slide at a 45° angle with a cutting tool also angled at 45°, Pam was able to finish the outside and back faces.



The gear teeth are being cut into the wheel using an involute gear cutter on a long arbor. The wheel just clears the table using the standard vertical rotary table setup. A chuck mounted to the rotary table holds an arbor that secures the wheel by its center hole. The small closeup (previous photo) shows the nice tooth form.



This casting is huge for a machine of this size, but an oversize tooling plate was designed to hold it. Several step block clamps are used to hold the casting down while an inserted tip carbide fly cutter is used to flatten a surface.