

General Notes on Line Shaft Systems for the Modeler by Charles Brommer and Brett Gallant

The operation of many steam driven line shaft systems during the age of electrification was made possible only by the durability of its components and the availability of cheap fuel. Line shaft systems in sawmills are a simple concept but can become quite elaborate in a large facility. The sole function of the line shaft is to transmit the rotational force of the mill engine throughout the mill. Being directly connected by belts and wheels to the crankshaft of the governor controlled, non-reversing engine, the line shaft will turn at a constant, uni-directional speed. The shaft is fitted to cast iron pillow blocks bolted to the ceiling structure and giving rise to the popular term "overhead belt drive" system. A real boon to the modeler since these types of line shaft systems were common and are simple to model with a good deal of accuracy. The level of complexity they bring in appearance adds to the convincing reality of a well built sawmill model.

In a basic mill the simplest form of installation is necessary as illustrated. Here the

mill engine is located in a separate, nearby room. Power can then be transferred to one or more parallel shafts using shaft drive wheels as needed. Perpendicular shafts are driven by using mitre gears.

Belts are easily modeled using "Tyvek" plastic. Envelopes made from this material can be purchased at any office supply store. Cut the material to the appropriate width then stain brown to simulate leather with a little thinned Floquil Roof Brown. Allow to dry completely then use tiny drops of CA (Super Glue) to bond it in place around the wheels. Be sure to locate the seam where it will be hidden best.

When constructing the mill itself it is best to build all of the machinery first, then plan the mill floor and shaft layout. This way there will be sufficient room for all of the necessary components. Install the overhead belt drive system after the rafters have been installed but before the roof base and roofing. This allows room for you to work and line the parts up correctly.

Weathering and aging the cast metal parts is quite simple. Each piece is "dunked" in a plastic container filled with a chemical blackening agent like "A-West Blacken-It". A small detail brush is used to remove any air bubbles that get trapped on the surface of the casting. Once the desired intensity is achieved the piece is removed and dried off. A beautiful and realistic aged patina of well worn metal results from rubbing the piece with a towel or your finger. A very fine grit sandpaper (220 or better) is used on any surface where normal use would prevent the aging such as the face of all the shaft wheels. The constant motion of the leather belt on the wheel would keep it shiny and prevent it from appearing old and dirty.

