

## *Onto Life as a Logger*

Shortly after their marriage, the Shay's moved up to a farm in Ionia County, Michigan. Here Ephraim was known to have served as a clerk in the Township of Sebewa, 1867-1868. In 1869 the Shay's were in the Township of Sunfield, Michigan and Ephraim was now operating a steam sawmill until 1873. Their son Lette was born here in January of 1870.

In 1873, with the tract of timber in Sunfield exhausted, the Shay family moved north to the Manistee river basin of Michigan and set up his sawmill and a general store near a lumber camp called Haring, newly settled only the year before.

Logging in the 1870's was far different than today. Essentially once all the trees along the rivers were harvested and floated down river to a mill, logging operations were done in the winter month as loggers depended on snow cover to more easily move the cut timber on sleds drawn by horse or oxen. This method naturally depended on the weather systems and if there were a mild winter there would be a low yield of lumber from the mills. If nature cooperated with the ideal 2 feet of snow needed to make ice roads then operations went relative well. When loggers could not move their harvest easily to the mill they were kept busy falling trees and attending to or making new roads to move the logs when the snows came.

By this method of obtaining lumber, it was estimated that as little as 17% of the actual cost, represented the lumber while as much as 73% was for transportation of the lumber. This unbalanced production cost was due to the manpower and time required to make and maintain the ice and snow roads needed to move the lumber. The winter of 1874-75 was one of little snowfall. Shay in his second year on the new land realized he had to overcome the obvious limitations of nature.

Ephraim, always the man of ideas, spent the summer of 1875 building his first tramway. A logging tram way is not fancy and was not intended to last forever. It is intended to access timberland just long enough to confiscate the desired timber and then withdraw from the land. Ephraim realized that if successful, he would reduce his transportation cost and thereby be able to reduce his selling price of lumber, undercutting his competitors.

Shay's first tramway was simple and crude. Made simply of wood rails spiked to a 26-inch gauge over a limited number of cross ties and laid with little concern for grading to level, the right of way. Logs were loaded onto a pair of disconnect logging type trucks and were drawn by horses to the mill. This proved dangerous for the horses that often would be overtaken on a downgrade and killed or seriously injured. While this method allowed Shay to now log year round and reduce his cost of getting in the lumber he realized animal powered trams were not the best answer. It would be 2 years before he had developed the replacement for horsepower.

## *Birth of the Shay*

In 1876, Shay built a conventional steam loco, very crude by his own description and experimented with it. Controlling the movement of the log cars up and down grades was not a problem however the dynamic force of conventional locomotives pistons proved to be too much and damaged the track curves. When Shay noticed that the heavier log cars had little or no effect on the wooden curves he set out to design an engine using the smaller logging type trucks. By the winter of 1876-77 Shay was developing his idea while communicating by mail with several boiler manufactures.

Just south of Haring, Shay found one William Crippen a machinist and foundry operator in Clam Lake, Michigan, a small town that later in 1877