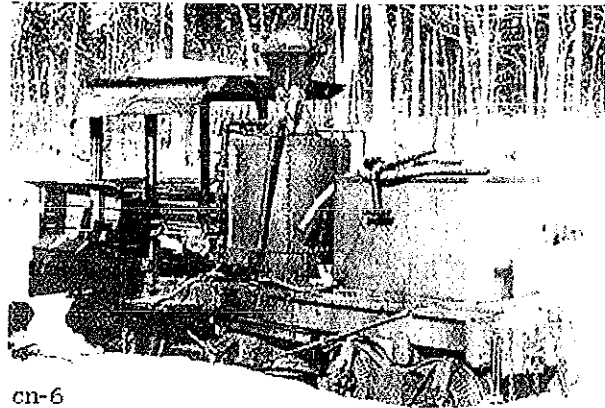
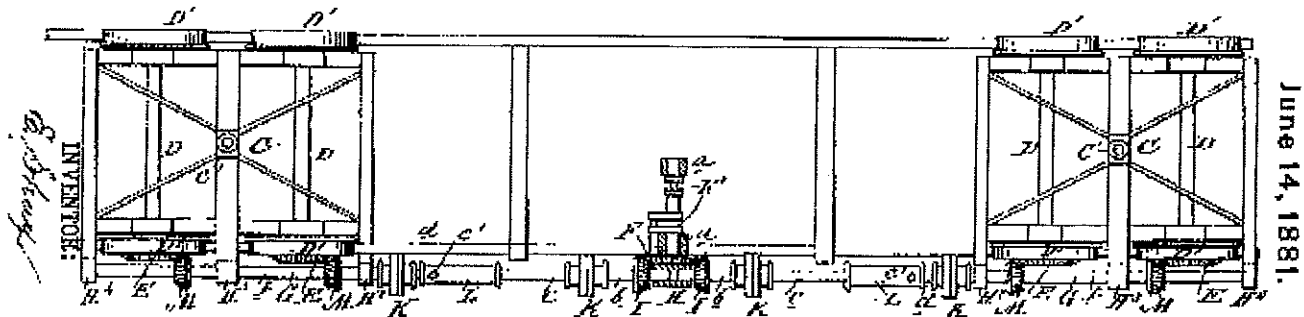


Milton J. Bond ordered Lima Machine Works sn-6 after he saw Shay's updated engine. It was to duplicate the Shay Lima had just converted and returned to Ephraim Shay. This became the first redesigned Shay completely built by Lima Machine Works. A photograph of sn-6 is therefore a sample of what Ephraim Shay's rebuilt locomotive looked like once returned. Lima would go on to build a total of 2768 Shays that would be used around the world.



sn-6

Though Shay's locomotive was for the most part a combination of known and some even patented technology, Shay found that he could apply for a patent on his rebuilt locomotive. He filed for patent on March 30th 1881. Despite the fact that Lima Machine Works was already producing Shay style engines, the United States Patent Office did issue to Ephraim Shay, of Haring Michigan, Patent No. 242,992 for a Locomotive Engine. The patent describes a Shay Locomotive similar to the Lima production Shays with the drive shaft on the right. However Ephraim's patent describes a quite different means of attaching the engine to the drive shaft. Shay had patented a concept and not necessarily an exact plan. Thus it was determined that the issued patent did cover the Shays produced by Lima Machine Works and Michigan Machine Works granting Ephraim complete rights to the invention. To this end Shay, did license Lima Machine Works and Michigan Machine Works both to produce Shay type locomotives.



Ephraim Shay's First Patent

Ephraim Shay acquired 64 shares of Lima Machine Works stock, valued at \$1000 per share plus a royalty for each of the first 400 Shays Lima built, this amount being based on the weight of the completed locomotive. He received royalties for 16 years plus dividends on his shares. As a shareholder in Lima Machine Works, Shay held no position of responsibility and was not involved in further development of the Shay style locomotive from Lima.

Shay granted manufacturing rights to a second machine works, this one in Cadillac Michigan. A relatively new company, Michigan Iron Works, then under the ownership of J. W. Cummer and James Henderson in 1882. The locomotive they would produce differed a great deal from Shay's design but again, Shay's patented 'concept' covered their design. It would be referred to as the "Henderson Shay". This Shay design was very different indeed. The drive shaft line was off the left center and under the engine and the pistons were under the horizontal boiler. This design actually proved to be more powerful than the Lima Shay's and in fact set a record of hauling 47 fully loaded log cars with 393 logs to a sawmill. Ephraim Shay's exact financial arrangement with the Michigan Machine Works is not know, however it had to be similar to that of Lima's as Mr. Shay would advertise and promote Shay Patent Locomotives sales for both companies.

In 1882 Shay had printed a 12 page circular mentioning both Machine Works. Shay also in November of