

# Ephraim Shay and the Shay Locomotive

FOR299  
PA Logging History

Greg Wiltsie



## Shay Locomotive



## Shay Locomotives

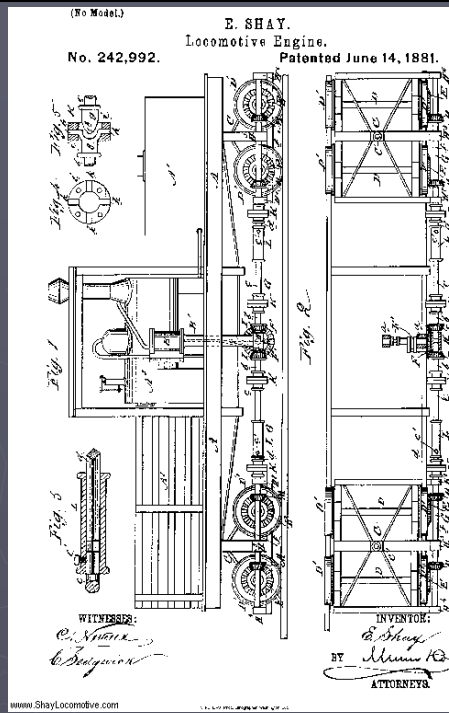
The Shay locomotive differed from other steam locomotives built during the same period in that it was a geared locomotive. The Shay had a normal boiler like other steam locomotives, but the boiler on the Shay was offset from the center of the frame to the left. On the right side of the locomotive, 2 or 3 cylinders were mounted vertically. These cylinders drove a driveshaft that was mounted at axle height. This driveshaft was connected with gears to each axle, which propelled the locomotive.



## United States Patent for the Shay Locomotive

Patent number 242,992

Patented June 14, 1881



## Shay Locomotive Classes

- ▶ Class A
  - Two cylinders, two trucks, 6 to 24 tons
- ▶ Class B
  - Three cylinders, two trucks, 10 to 80 tons
- ▶ Class C
  - Three cylinders, three trucks, 40 to 160 tons
- ▶ Class D
  - Three cylinders, four trucks, 100 to 150 tons

## Shay Locomotive History

- Built in Lima, Ohio by the Lima Locomotive Works
- Locomotive designed by Ephraim Shay
- Design was a geared steam locomotive
- Built between 1878 and 1945

## Shay Locomotive History

- 2,768 locomotives in four models were built
- Only 115 Shay locomotives survive today
- Oldest surviving locomotive, number sn-122, was built in 1884 and is located in Redding, California
- Last built locomotive, number sn-3354, built in 1945, is still operational in Cass, West Virginia
- Weights ranged from 6 tons to 160 tons

## Surviving Shay Locomotives in PA

There are five surviving Shay locomotives located in Pennsylvania

- Number sn-1799  
PA State RR Museum, Strasburg



sn-1799  
SLc-photo by Mac McCalla, Aug 2000

## Surviving Shay Locomotives in PA

- Number sn-2317  
Steamtown Nat. Historic Site, Scranton



## Surviving Shay Locomotives in PA

- Number sn-2598  
PA Lumber Museum, Galeton



## Surviving Shay Locomotives in PA

- Number sn-3118  
Foster Brook & State Line RR, Bradford



## Surviving Shay Locomotives in PA

- Number sn-3299  
Private collection, New Centerville



### Ephraim Shay



- Born July 17, 1839
- Born in Sherman Township, Ohio
- Moved to Michigan in 1861 and enlisted in the 8<sup>th</sup> Missouri Volunteer Infantry, Company D, and fought in the American Civil War under the command of General Sherman in the Western Theater of the war

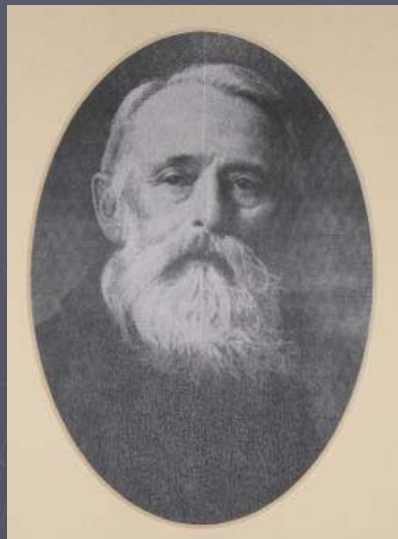
### Ephraim Shay

- Honorably discharged from the army in 1864
- Returned to Ohio after the war and married Jane Henderson on July 26, 1864
- Moved back to Michigan and operated a steam sawmill
- Around 1876, got an idea to use steam locomotives to move logs for the mill
- Worked with Lima Locomotive Works and built first loco in 1880 for a customer in Grand Rapids, Michigan

### Ephraim Shay

- Shay started to file patents for his geared locomotive in 1881
- Built 4 Shays in 1881 and was up to 37 Shays in 1883
- Had a 34 page catalog, showing 5 different locomotive models, in 1884
- Shay locomotives were being shipped all over the world by 1890

### Ephraim Shay



- Died April 19, 1916
- Shay was 76 years old when he died
- Died in Harbor Springs, Michigan
- Shay's wife Jane died on July 24, 1912



### Ephraim Shay

- Shay built sleds with clear Maple runners for children's Christmas gifts, making over 400 over the years
- Shay also built a hexagonal shaped house in Harbor Springs, Michigan in 1888
- The house had six wings off of the central portion, with a tower on the top
- Shay also built an all steel boat in 1891, that was 40 feet long and had a 6 foot beam, named the Aha

### Ephraim Shay and His Railroad

- Moved to Harbor Springs, Michigan in 1888
- Started his own railroad in town for experimentation purposes
- Named the railroad the Hemlock Central
- Also used as a sightseeing railroad, charging 25 ¢ per person to ride

## The Hemlock Central Railroad

- Railroad was a narrow gauge railroad – meaning rails were 30 inches apart
- Originally seven miles in length
- Extended by one mile in 1904
- Shay operated three locomotives built by him on the Hemlock Central
- Locomotives were normal Shay type, except for not having a frame, with the boiler providing the main support
- Cost \$51,346 to build
- Railroad ceased operations in 1911 and was dismantled in 1912

## The Hemlock Central Railroad



## Hemlock Central and Shay's House



Hezagon House & Hemlock Central #2

## Ephraim Shay's House Today

