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The Shay

Restoring the Shay

Restoration work began in 2011 and is ongoing

Special Exhibits:

Shay Steam Locomotive (Serial #1643)

Shay locomotive, serial number 1643, fondly known as "Ole Four Spot", is on display in is in the Shay shed where it is in process of being rebuilt. It is one of our most prized exhibits. She served as a workhorse for the Libby Lumber Co and later the J. Neils Lumber Co. for logging operations in and around Libby, Montana in the early 1900s.

This is a powerful standard gauge, Class B 37-2, gear driven Shay locomotive, commonly referred to as a sidewinder or a stem-winder because of the peculiar arrangement of gears and a drive shaft running the full-length of the right side of the locomotive making all wheels drivers. It was manufactured by the Lima Locomotive Works in 1906 at Lima, Ohio as one in a special class of four locomotives (serial numbers 1642, 1643, 1644 and 1645) built for the Thompson Greer Construction Company. All have the same builder date of March 7th, 1906 and all were shipped to Buhl, Minnesota. Locomotive No. 1643 was designated Thompson Greer Engine No. 11. and is the only survivor of their class, all others having been scrapped.

It is believed she may have been leased to the Rainy Creek Lumber Company for logging operations near the Minnesota-Canadian border for a time, but it is known that she was delivered to Buhl by common carrier and hauled across a frozen lake on a logging sleigh to the company logging railroad. There she hauled logs from the forest to water until 1909 when purchased by the Libby Lumber Company of Libby, Montana and shipped there by rail. The Libby Lumber Co. designated her Libby Lumber Engine No 4 and she has retained road number 4 through all subsequent ownerships.

At Libby, she hauled logs, supplies and logging crews until about 1924 over rough, uneven, steep logging lines east of Libby with an efficient operating range of only about 15 miles due to an operating speed of about 12 miles per hour. Later, rails were laid some 12 miles to the west, over J. Neils' RR logging bridge across the Kootenai River to access valuable forest reserves owned or operated by the company. The abandoned J. Neils RR logging bridge was destroyed by US Army sappers during WWII as a training exercise.

Between 1925 and 1931, she operated on the Great Northern mainline north of Libby along the Kootenai River for a distance of about 12 miles and after 1931 was used primarily to haul logging crews and equipment to logging camps and to perform switching operations in the woods.

After 1936, railroad logging gave way to logging by trucks. The "Ole Four Spot" was used primarily for switching cars in the mill yard and to the local Great Northern mainline, a distance of about 1/2 mile. This use continued until about 1944, when she was replaced by a larger locomotive, J. Neils No. 5, brought here from Klickitat, Washington. However, she continued intermittent switching until retired from operations in about 1946, for an active service life of about 39 years. Ole Four Spot was then left to molder in the mill bone yard until about 1963 when the new mill owners, The St. Regis Lumber Co., decided to give her a cosmetic face lift and put her on permanent display outside their Libby offices. There she remained until acquired by The Heritage Museum. She was moved by truck to the new museum grounds not a half mile from her former place of labor as a switch engine at the end of the line and but a few hundred feet of the site of her days in the bone yard.

In the mid 1980's Ole Four Spot, in need of preservation, received a further cosmetic treatment by museum volunteers to keep her on display a few more years until restoration might return her to glory with the ultimate goal of returning her to active service as Engine No 4 on the recently established J. Neils and The Heritage Museum Logging Railway.

Shay Locomotives were built from 1878 until 1945 in many sizes configurations and gauges. These steam locomotives were used coast to coast and the world over with 3,354 locomotives manufactured by the company in the Shay pattern. The shay has a very distinct frontal profile. Because of the great weight of the (2 or 3) vertical steam engines on the right side of the locomotive and the geared drive shaft arrangement, the boiler is off set to the opposite side to balance the weight of these two major components. From the front shays appear to have been in an accident that shifted the boiler to one side.

Shays were fueled variously by wood, coal, oil and gas with even experimentally configured diesel engine driven shays. Although few of these were actually manufactured by Lima and none are known to survive as originally configured shay designed diesel locomotives, rumors abound of after market conversions.

Builder Specifications for Locomotive No. 1643

Original empty shipping weight: 64,900 pounds
Weight with full load of fuel and water: 42 tons
42" Wagon top boiler
Original Working Pressure -180 pounds
Three 10" by 12" vertically oriented cylinders on the right side
Two trucks of four 29.5 inch wheels under each truck
Steam Jam locomotive brakes
Westinghouse air brake to control cars making up a train

Steam dynamo electrical lighting system



Looking it over. Dec. 2011, Photo by Maggie Craig, LibbyMT.com.

Timeline

1906: Locomotive built in Lima, Ohio
1906-1909: Uncertain, working around Buhl, Minnesota
1909: Purchased by Libby Lumber Company
1909-1924: Logging operations east of Libby
1925-1931: Logging operations north of Libby along river
1931: Hauled logging crews, equipment, switching operations
1936-1944: Mill yard switching
1946: Retired from operations
1963: New owners St. Regis Lumber Co. refurbishes & displays
19__: Acquired by The Heritage Museum
Mid 1980s: Cosmetic facelift on Museum grounds
2011-2015: Restoration in progress with goal to bring to active service in the recently established J. Neils and Heritage Museum Logging Railway

Please help us restore the Shay!

Are you a railroad enthusiast or RR history buff who would like to help our efforts to restore Ole Four Spot? Our goal is to restore the Shay to full working order and active service as Engine No. 4 on the recently established J. Neils and Heritage Museum Logging Railway. We welcome volunteers and donations of money, experience, materials, advice, and bequests towards returning her to active service at the museum. We are a non-profit, 501 (c) (3) organization. Accordingly, donations are generally tax deductible. Your kind donations will help us to continue to preserve, protect and restore our beloved shay. For more information about volunteering or donating toward restoration of the Shay Locomotive, click here and tell us how you may be able to help.

Related News Media Stories:

[Shay locomotive moved to restoration shed](#) Dec. 27, 2011 (LibbyMT.com)
[The Heritage Museum's Shay Locomotive](#) Dec. 6, 2011 (LibbyMT.com)

Related Links:

[ShayLocomotives.com](#)
[Geared Steam Locomotive Works](#)
[Shay 1643 at The Heritage Museum in Libby](#) (shaylocomotives.com)

