

The Bridge Builders: J.J. Daniels

(Information was extracted from George Gould's Indiana Covered Bridges Thru the Years for the following)

Joseph J. Daniels was born in 1826 in Marietta, Ohio, the son of bridge builder Stephen Daniels. His father was an agent for Stephen Long and built many Long-truss covered bridges across southern Ohio in the 1830's and 1840's. Many of these bridges were for railroads; Joseph assisted his father in the 1840's, then started in the bridge business for himself.

At the age of 24, he completed his first bridge in Indiana on the Rising Sun to Versailles Pike. In 1851, he was called to the opposite side of the State to build a bridge in Union Township in Parke County. This bridge was presumably at Hollandburg over Big Raccoon Creek.

In addition to work with his father, J. J. Daniels built at least six bridges in Greene and Warren Counties, Ohio, between the years of 1847 and 1852. These were Long truss bridges, as probably was the Rising Sun bridge. For some reason, perhaps the royalty fees, he built no other Long truss bridges in Indiana. J.J. preferred to use the Burr Arch truss but occasionally was forced by competitors or desires of county commissioners to use the Howe truss.

In 1853, Daniels left Ohio for good and took a job as construction engineer for the new Evansville & Crawfordsville Railroad. In that year, he built a 600 foot, 4-span Burr Arch bridge near Hazelton over the White River. At the time, it was called "The Best in the West." The railroad route north from Evansville crossed many streams and undoubtedly many had covered bridges. Records indicate that Daniels built bridges in 1865 over Big and Little Raccoon Creeks in Parke County.

After eight years with the railroad, Daniels moved to Rockville where he spent the remainder of his life. His first bridge, the Jackson bridge in 1861, was perhaps the most outstanding of his 43 years of bridge construction work. This bridge was (and still is) a single span of 207 feet. To support such a structure, Daniels used extra heavy timber in framing and double arches on each truss, that is, a total of eight arches. Although it has been repaired numerous times, it is still in use today after 138+ years.

Starting in 1861, Daniels bid on covered bridges in his home county, Parke, and in the nearby counties of Putnam, Montgomery & Vermillion. He also built three bridges in Jackson County, three in Lawrence County, and at least one each in Owen and Vigo Counties.

Among his bridges were the 450 foot, three span Tunnelton bridge in Lawrence County, the three span 434 foot Medora bridge still standing in Jackson County, and the six span, two lane bridge over the Wabash River at Terre Haute.



J.J. Daniels

from George Gould's Indiana Covered Bridges Thru the years

Writers say Daniels built 60 bridges during his lifetime, but Gould could not corroborate that, being able to substantiate "only" 53. The Indiana Historical Society Library has files on covered bridges, including original letters and specification for some of Daniels' bridges. From letter in that archive, Gould was able to glean some new information regarding Daniels as a promoter.

Other information are specifications for some bridges like a 404 foot bridge over the White River at Spencer (which Daniels cannot be confirmed as having built), the 192 foot Eugene bridge in Vermillion County, and a list of materials for the 450 foot Tunnelton bridge in Lawrence County. Included were 13,666 pounds of iron (plates, rods, bolts) plus 24 kegs of nails and spikes and 154,051 board feet of lumber. The chords and posts were of pine, the main braces, floor beams, and arches of poplar: the flooring and wall plates of white oak; and the roofing of sycamore.

In the 1817 Burr patent, the arches were mortised to fit into the vertical timbers. The Indiana builders used Iron bolts to fasten the arch to the verticals. In Kennedy bridges, the arches were fastened before the falsework was removed. Daniels, on the other hand, erected the arches alongside the truss timbers, but did not fasten them until the false work was removed and the main framework had settled into place.

Daniels was always experimenting with new ideas and used more iron pieces than the Kennedy family. Both Daniels and Britton used metal tension rods long enough to span the width of the bridge. These rods served a double purpose as they secured the kingpost to the top and bottom chords in addition to tightening the sides of the truss against cross braces. Another innovation by Daniels was the use of a metal brace holder or "shoe" which required less carpentry work in the placement of braces.

The arches of Daniels' bridges were perfect symmetrical curves and their height was determined by the length of the truss. In the early Britton trusses, arches were defective, but after 1900, his arches were symmetrical.

Daniels most often set an iron plate between the masonry abutment and the lower end of the wooden arch. His reason was to prevent the wood from taking up moisture from the abutment. Both Daniels and Britton often used tie rods to firmly attach the superstructure to the abutment or pier. Daniels employed two 1.5 inch rods to each abutment. For the same purpose, Britton linked two 0.75 inch hexagonal rods, chain fashion.

In 1904, J.J. Daniels completed his last bridge, appropriately named the Neet bridge. Twelve years later, he died in Rockville at the age of 90 and is buried there.

Following are the J.J. Daniels bridges still standing in Indiana:

- Jackson
- Mansfield
- Bridgeton
- Roseville
- Mecca
- West Union
- Billie Creek
- Neet
- Oakalla
- Shieldstown
- Medora
- Deer's Mill
- Williams
- Eugene

- Big Rocky Fork
- Melcher
- Newport