

CENTER STREET BRIDGE  
Pennsylvania Historic Bridges Recording Project III  
Spanning Conneat Creek  
Conneatville  
Crawford County  
Pennsylvania

HAER No. PA-627

PHOTOGRAPHS

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
U.S. Department of the Interior  
1849 C St. NW  
Washington, DC 20240

ADDENDUM TO:  
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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
U.S. Department of the Interior  
1849 C Street NW  
Washington, DC 20240-0001

# HISTORIC AMERICAN ENGINEERING RECORD

## ADDENDUM TO CENTER STREET BRIDGE HAER No. PA-627

Location: Spanning Conneaut Creek at Center Street, Conneautville, Spring Township, Crawford County, Pennsylvania

UTM: 17.552287.4622940, Conneautville, Pennsylvania, Quad.

Structural Type: Pratt through truss

Date of Construction: 1896

Manufacturer/Builder: Youngstown Bridge Company, Youngstown, Ohio

Owner: Crawford County, Pennsylvania

Use: Vehicular bridge

Significance: Center Street Bridge is an unusually ornate example of a late-nineteenth century, pin-connected Pratt through truss roadway bridge. It is one of four surviving Crawford County bridges built by the Youngstown Bridge Company of Youngstown, Ohio, a nationally significant metal bridge manufacturing firm.<sup>1</sup>

Historian: Researched and written by Lola Bennett, April-May 2006

Project Information: The Pennsylvania Historic Bridges Recording Project III is part of the Historic American Engineering Record (HAER), a long-range program to document historically significant engineering and industrial works in the United States. HAER is administered by the Historic American Buildings Survey/Historic American Engineering Record, a division of the National Park Service, U.S. Department of the Interior. The Pennsylvania Department of Transportation funded the project.

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<sup>1</sup> The other surviving Youngstown Bridge Company bridges in Crawford County are: Craig Road Bridge (1896) over Woodcock Creek, Price Road Bridge (1896) over Woodcock Creek, and South Street Bridge (1900) over French Creek.

## **Chronology**

- 1762 Pennsylvania legislature authorizes county governments to build and maintain bridges
- 1799 Andrew Power erects a grist mill near this site on Conneaut Creek
- 1800 Crawford County created
- 1814 Alexander Power plats village of Powerstown (now Conneautville)
- 1836 Conneautville appears on H.S. Tanner's "New Map of Pennsylvania"
- 1840 America's first all-iron bridge built on Erie Canal at Frankfurt, New York
- 1844 Borough of Conneautville incorporated
- 1844 Pratt truss patented
- 1850 Conneautville population 787
- 1860 Conneautville population 1,200
- 1868 Center Street extended across Conneaut Creek by this date
- 1890 Youngstown Bridge Company established at Youngstown, Ohio
- 1892 Crawford County begins metal bridge building campaign
- 1896 Center Street Bridge erected
- 1900 American Bridge Company formed
- 2002 Center Street Bridge recorded by the Historic American Engineering Record

## Description

Center Street Bridge is a single-span, five-panel, steel Pratt through truss bridge on 3'-diameter concrete-filled cylinder piers. The bridge is 80' long, 14' high and 18' wide overall, with a clear span of 75'-6" and a roadway width of 15' (reduced to 11' in 1973).

The upper chords and inclined end posts are 7"x16" riveted, built-up members composed of back-to-back channels with a plate on top and tie plates underneath. The lower chords are paired 1"x3" loop-welded eyebars. Verticals are 5"x12" riveted, built-up posts composed of back-to-back channels connected with lacing. Hip verticals are paired, loop-ended, 1-1/4" square rods. Diagonal braces angling up toward the ends in panels 2 and 4 are paired, loop-ended 1"x2-1/2" bars. Crossed diagonal braces in the center panel are looped-ended, 1-1/2" square rods with turnbuckles. The verticals, diagonals and chords are pinned together at each panel point with a 3"-diameter pin secured with hex nuts.

The trusses are connected transversely with struts between the upper panel points and 6"x15" floor beams between the lower panel points. The riveted, built-up struts are composed of angles with lacing, and are riveted to the upper chords. The floor beams hang below the lower chords by means of hangers supported by the pins. Upper and lower lateral sway bracing is 1"-diameter round rods crossing between the transverse members.

The deck system is composed of five lines of 7"x12" I-beam stringers laid longitudinally on top of the floor beams, and a corrugated metal deck on top of the stringers. There is a cantilevered, 7'-wide sidewalk on each side of the bridge.

The bridge is embellished with latticework portal bracing, radiation-pattern knee braces, finials and decorative cresting above the portals and handsome ornamental railings along the sidewalks. There are two builder's plates, one above each portal, which read as follows:

1896 BUILT BY THE YOUNGSTOWN BRIDGE COMPANY YOUNGSTOWN OHIO	LEVI M. SAYRE JOSEPH T. FIRST LEVI PUTNAM COMMISSIONERS 1896 CRAWFORD CO. PENN.
(west end)	(east end)

## History

In 1799, Alexander Power (1763-1850) erected a grist mill near this site on Conneaut Creek. That mill "*proved a great convenience to the settlers in the vicinity,*" and in 1815, Power platted the village of Conneautville. By 1820, the hamlet boasted three stores, a tavern, a cobbler's shop,

a cooper shop, a blacksmith shop and a tannery. In 1844, the Pennsylvania State Legislature incorporated the Borough of Conneautville.

Conneautville was originally laid out on the east bank of Conneaut Creek. Between 1850 and 1860, the population increased from 787 to 1,200, and the village expanded across to the west bank of the creek. Historic maps indicate that there was a bridge at this location—one of three Conneaut Creek crossings in Conneautville—by 1868. According to county records, the first bridge at this site was a wooden span.<sup>2</sup>

In 1892, following the loss of numerous county bridges in a series of floods, the Crawford County Commissioners embarked on an intensive bridge building and replacement campaign that lasted through the remainder of the decade.<sup>3</sup> Center Street Bridge was one of at least fifty metal truss bridges erected in Crawford County during the last decade of the nineteenth century. Among the manufacturers represented were: Variety Bridge Company (Cleveland, Ohio), Penn Bridge Company (Beaver Falls, Pennsylvania), Wrought Iron Bridge Company (Canton, Ohio), Massillon Bridge Company (Massillon, Ohio) and Youngstown Bridge Company (Youngstown, Ohio).<sup>4</sup>

In November 1895, the Crawford County Court appointed N.C. McLaughlin, Theodore Sigler and John Whiting as viewers to examine the Center Street Bridge at Conneautville and report their findings regarding a new county bridge at that location. On February 6, 1896, the *Conneautville Courier* reported that the viewers found the Center Street Bridge "*in much worse condition than our authorities ... anticipated,*" and the bridge was immediately closed to traffic.<sup>5</sup> The viewers reported to the Crawford County Court of Quarter Sessions as follows:

*After a careful consideration of the premises and of all information obtainable, it is our opinion that a new bridge over Conneaut Creek where Center Street a public highway crosses said Creek in the Borough of Conneautville is indispensably necessary and that the expense of erecting such a bridge would be attended with more cost than the said Borough could bear, they now having eight bridges to keep in repair. We therefore recommend that said bridge be erected and paid for by the County of Crawford. We also recommend that the span be eighty feet instead of sixty-two feet, which is the length of the wooden bridge now crossing said Conneaut Creek; also that the width of the roadway be sixteen feet and a five foot sidewalk.<sup>6</sup>*

In March 1896, the Crawford County Commissioners contracted with the Youngstown Bridge Company of Youngstown, Ohio, for an 80' steel Pratt through truss bridge. The superstructure was shipped to Conneautville in late May and was erected on site in June 1896.<sup>7</sup> On August 14,

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<sup>2</sup> Viewers' Report, *Crawford County Road Dockets*, 31 January 1896.

<sup>3</sup> "New County Bridges," *The Conneautville Courier*, 30 January 1896, 5.

<sup>4</sup> *Crawford County Road Dockets*, Books E, F and G.

<sup>5</sup> *Conneautville Courier*, 6 February 1896, 1.

<sup>6</sup> *Crawford County Road Dockets*, Book G, 333.

<sup>7</sup> *Conneautville Courier*, 28 May 1896 and 4 June 1896, 1.

1896, the viewers reported to the Crawford County Court that they had inspected the Center Street Bridge and found it to be "*a substantial and artistic structure.*"<sup>8</sup>

## Design

In 1844, Boston architect Caleb Pratt and his son, railroad engineer Thomas Pratt, received a patent for a wood and iron truss with vertical members in compression and diagonal members in tension that became the predominant truss type in American bridge building. Similar in appearance to the 1840 Howe truss, the Pratt truss reversed the functions of the web members to reduce the danger of buckling. Developed at a time when railroads were placing new demands on bridges and the structural action of trusses was just beginning to be understood, the Pratt truss was one of several truss types that heralded the transformation from empirical to scientific bridge design. While the type was not immediately popular for wood spans, the Pratt truss came to be favored for its straightforward design, strength and adaptability, and by 1870, in a simplified all-metal version, it had become the standard American truss for moderate road and railroad spans, and remained so well into the twentieth century.

## Builder

In 1878, Charles J. Morse and Henry G. Morse established the Morse Bridge Company at Youngstown, Ohio. The company employed 100 men in the manufacture of structural steel until 1888, when a fire destroyed the plant. In 1890, the firm reorganized as the Youngstown Bridge Company, advertising its specialty as the manufacture of "*iron and steel bridges, iron structural work, iron roofs and turn tables.*"<sup>9</sup> The company is known to have erected bridges in Ohio, Illinois, Indiana, Arkansas, Missouri, Colorado, Nebraska, Tennessee, Virginia, Maryland and Pennsylvania. In 1900, Youngstown Bridge Company was one of twenty-four bridge fabricating firms, representing half the nation's fabricating capacity, that consolidated to form the American Bridge Company, a subsidiary of United States Steel Corporation. The Youngstown plant was subsequently sold to Youngstown Sheet & Tube Company.

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<sup>8</sup> *Crawford County Road Dockets.*

<sup>9</sup> *Engineering News-Record* 51 (1891): 27.



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