

y the mid-1870s, the era of composite cast and wrought iron bridge construction was over. The 1870s witnessed the gradual elimination of cast iron from bridge construction because wrought iron handled both tensile and compressive stresses and the production costs of wrought iron decreased substantially. The U.S. Army ordered this three span, 400-foot-long bowstring arch truss from the King Iron Bridge & Manufacturing Company of Cleveland. It remains today, in mint condition under National Park Service stewardship, as an engineering feature of this Oregon Trail historic site.

Fort Laramie Boustring Arch-Truss Bridge

(1875) North Platt River, Fort Laramie National Historic Site, Wyoming. Zenas King, Designer.

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he Wrought Iron Bridge Company (WIBCo) of Canton, Ohio, was a major competitor of the King Iron Bridge & Manufacturing Company of Cleveland. This bridge features a distinctive upper-chord section, different from those used by King or WIBCo. It is an "Oval Wrought Iron Tubular Arch," patented in 1867 by William Rezner, a physician, John Glass, a foundryman, and George Schneider, a railroad machinist—all from Cleveland. The reason for the variety of upper-chord sections in bowstring truss design was to generate a section that was as strong laterally as vertically to resist the tendency of these members to twist sideways when loaded.

White Boustring Arch-Truss Bridge

(1877) Cemetery Drive over Yellow Creek, Poland, Ohio. William Rezner, John Glass, and George Schneider, Designers.



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he Wrought Iron Bridge Company of Canton, Ohio, also built this remarkable structure, along with hundreds of others throughout the midwest. Remarkable for its span at 302 feet and its 40-foot height for a parallel-chord vehicular truss, it is also the only known example of a triple-intersection Pratt truss (diagonals cross three panel points) in the United States.

Laughery Creek Bridge

(1878) Old State Route 56 over Laughery Creek, Aurora vicinity, Indiana. David A. Hammond, Builder; Job Abbott, Engineer.



ourteen bowstring truss bridges survive in Iowa—more than in any other state because the popularity of this type of truss peaked at a time when the counties in this part of the country were upgrading their road systems. This combination of events and the state's rural character favor the retention of old bridges. The Lower Plymouth Rock Bridge was the oldest bowstring arch in the state until 1986, when it was destroyed.

LowerPlymouth RockBridge

(1877, demolished 1986) Unnumbered Winneshiek County Road over Upper Iowa River, Kendallville vicinity, Iowa. David A. Hammond, Builder; Job Abbott, Engineer.



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Freeport Bridge

reeport Bridge is an example of the Wrought Iron Bridge Company's most popular bridge type as it was the most commonly specified span range, 140–180 feet, in county bridge construction. It uses the "column, plate, and channel" design patented by David Hammond, founder of WIBCo. The Freeport Bridge was relocated to a county park alongside State Route 9 east of Decorah, Iowa, because it is the longest known WIBCo bowstring arch-truss (159 feet 8 inches) in the country.

(1878)

Unnumbered Winneshiek County Road over Upper Iowa River, Decorah vicinity, Iowa. David A. Hammond, Builder; Job Abbott, Engineer.





carlets Mill Bridge is a cast and wrought iron Pratt-type truss with an upper chord formed in the shape of an ellipse. It is believed to have been built in the Pottstown Shops of the Reading Railroad under the supervision of John L. Foreman, master carpenter, and used as an overhead crossing on a Reading branch just west of Reading. It was moved to its present site between 1907 and 1935. The bridge is unusual in its use of the elliptical form and the use of cast and wrought iron for its principal structural members at such a late date.

Scarlets Mill Bridge

(1881) Horse-Shoe Trail over Reading Railroad (abandoned), Scarlets Mill, Pennsylvania. John L. Foreman, Designer.



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