

Henkin's Ford Bridge  
(Bridge No. 1810019)  
Spanning Shoal Creek on CART Road No. 181  
Proctorville Vicinity  
Caldwell County  
Missouri

HAER No. MO-104

HAER  
MO  
13-PROV. V,  
1-

**PHOTOGRAPHS**

**WRITTEN HISTORICAL AND DESCRIPTIVE DATA**

Historic American Engineering Record  
National Park Service  
Great Plains Support Office  
1709 Jackson Street  
Omaha, Nebraska 68102

HISTORIC AMERICAN ENGINEERING RECORD  
HENKIN'S FORD BRIDGE

HAER  
MO  
13-PROV. V,  
1-

I. INTRODUCTION

HAER No. MO-104

Location: The Henkin's Ford Bridge is located on CART Road 181 in the Southwest Quarter of Section 9, Township 56 North, Range 26 West in Fairview Township, Caldwell County, Missouri. It is approximately 3.0 miles west of Proctorville, and 9.0 miles east and 4.2 miles south from the intersection of U.S. Highway 36 and Missouri Highway 13.

Quadrangle: Flat Creek

Latitude: 39 degrees, 40 minutes, 30 seconds

Longitude: 93 degrees, 49 minutes, 54 seconds

UTM: Point A: 15/4391530/428566  
Point B: 15/4391636/428526

Date of Construction: 1887

Present Owner: Caldwell County  
Kingston, Missouri 64650

Present Use: Vehicular bridge to be replaced by a new vehicular bridge. Projected date of bypass: Fall 1997.

Significance: The Henkin's Ford Bridge is an example of a pin-connected through Warren Truss erected by King Bridge Company. This type of bridge was rarely used in this part of the country and is one of two left in the state of Missouri.

Compiled by: Robert S. Chambers, P.E., Cook, Flatt and Strobel, Engineers, P.A., 6111 S.W. 29th St., Topeka, KS 66614.

## II. HISTORY

### A. COUNTY RECORDS

The Henkin's Ford Bridge was constructed in 1887. The Caldwell County Courthouse, along with all county records, was destroyed by fire in 1897. In addition, no newspapers in the county have retained early records of their publications.

A request was made of the Missouri State Historical Society in Columbia, Missouri, for any records in their possession for Caldwell County newspapers published between 1887 and 1896. Microfilm was obtained containing some publications from several county newspapers.<sup>1</sup> These records were used in the following section.

### B. CONSTRUCTION CHRONOLOGY

Shoal Creek and its tributaries provide a natural barrier in the northeast and east portion of Caldwell County. In 1870, a 140-foot timber truss was built at this site.<sup>2</sup> By the late 1880's, the timber structure was showing signs of wear. A more reliable bridge was needed to connect the northeast and east portion of the county to the markets and railroads in the middle of Caldwell County. The county court moved to replace the existing timber structure. At their request, County Surveyor W.J. Boyd inspected the site and made estimates for a new structure in May 1887.<sup>3</sup> Boyd solicited competitive proposals for the new structure in June 1887, and in July, a contract for its fabrication and erection was awarded to

the King Bridge Company for \$2,698.00<sup>4</sup>. The Cleveland-based company used a pin-connected Warren truss configuration for the bridge, erecting the span on iron tubular piers in 1887. In January 1888, King was paid for the completion of the Henkin's Ford Bridge.<sup>5</sup>

The Warren truss configuration was developed along with the Pratt truss in the 1840's, but it was the Pratt truss that received the most widespread use. The reasons for this probably relate to the versatility of the Pratt truss. Relatively few pinned Warren trusses were built in Missouri and only two remain in use today with the Henkin's Ford Bridge being the longer. Thus, this structure is distinguished as a well-preserved example of a rare nineteenth century truss type.

#### C. LOCATION

The Henkin's Ford Bridge is located on CART Road 181 in the Southwest Quarter of Section 9, Township 56 North, Range 26 West in Fairview Township, Caldwell County, Missouri. It is approximately 3.0 miles west of Proctorville. It lies 9.0 miles east and 4.2 miles south from the intersection of U.S. Highway 36 and Missouri Highway 13.

### III. THE BRIDGE

#### A. DESCRIPTION

The Henkin's Ford Bridge consists of a 125-foot, ten panel, pin-connected Warren through truss. Total length of the bridge is 195'. Vertical clearance over the deck is 13.5'. The clear roadway is 13.8'.<sup>6</sup>

The bridge has diagonal members in tension and compression. The two vertical members nearest the ends of the structure are hangers and act in tension. Round iron rods were used for diagonal bracing at both top and bottom. Diagonal members consist of double eyebars, round iron rods or two channels with a solid cover plate and laced underside bracing tied to pins at top and bottom. The inclined end posts and top chord are composed of two channels, with a solid cover plate and laced underside bracing. The vertical members consist of round iron rods. The upper bracing is fabricated of angles with lattice at the portals. The bracing connects to the vertical compression members and the end posts. The lower chords are eyebars pin-connected to the diagonal and vertical members. The floorbeams are u-bolted to the lower chord pins.

The bridge deck is made of rough swan lumber of various dimensions. The decking is laid transverse to the centerline of the bridge, with timber runners added. The deck rests on steel

stringers comprised of I-beams. The stringers are supported by built-up beams commonly known as transverse floorbeams. The handrails consist of channels with lattice on each side of the roadway attached to the vertical and diagonal members.<sup>6</sup> The Warren truss design utilized for the Henkin's Ford Bridge is of a type rarely used for bridges built in this part of the country due to the fact of the versatility of the Pratt truss. The Pratt truss has seen more widespread use.

#### B. OWNERSHIP AND FUTURE

The Henkin's Ford Bridge has been owned and maintained by Caldwell County since its original construction. The county bridge inventory number is 1810019. Field inspection shows the structure to be in poor condition. The deck shows signs of heavy deterioration and many structural members are rusted from exposure to the elements. The bridge is posted for a 4-ton weight limit. This restriction, along with its narrow roadway and alignment, makes the structure inadequate for present needs.

The Henkin's Ford Bridge has been scheduled for replacement. An advertisement regarding availability of the bridge will be placed in The Missouri Transportation Bulletin, Preservation, and a local newspaper. If no new owner is found, upon completion of all documentation and approval by the National Park Service, the

structure will be bypassed by the new construction and left in place.

#### IV. BIOGRAPHICAL MATERIAL

Records of the designer, fabricator and builder of the Henkin's Ford Bridge were lost when the Caldwell County Courthouse burned near the turn of the century. However, according to newspaper articles of that time period, the structure was erected by the King Bridge Company<sup>7</sup>.

Zenas King began in the bridge industry in 1858 as an employee of Cincinnati's Mosley and Company (1856-1861). In 1861 he and Peter Frees began their own business building boilers and bridges. After a few years, however, this partnership was terminated, but King decided to start his own company. The King Iron Bridge and Manufacturing Company was incorporated in 1871, and in 1893 it became the King Bridge Company. King formed affiliate companies in Iola and Topeka, Kansas, but they were both shortlived; the Iola company lasted from 1871-72, while the Topeka company from 1872-73.<sup>8</sup> The company built more than 5,000 bridges including structures in Audrain, Bates, Caldwell, Clay, Daviess, Grundy, Henry, Holt, Lafayette and various other Missouri counties. The company's work was prevalent in states throughout the eastern, northeastern and even southeastern parts of the country.

Currently, only a few of the bridges produced by the King Iron Bridge and Manufacturing Company exist in Missouri.

**V. PROJECT INFORMATION**

This Historic American Engineering Record (HAER) project was undertaken by Caldwell County Commission and the Missouri Highway and Transportation Department in conjunction with a bridge replacement project in Caldwell County. The project was conducted in accordance with the Federal Highway Administration's (FHWA) Memorandum of Agreement (MOA) with the Missouri State Historic Preservation and the Advisory Council on Historic Preservation. The MOA stipulates that HAER documentation be provided for the Henkin's Ford Bridge. The field work and report was prepared by Cook, Flatt and Strobel of Topeka, Kansas. Archival photography was provided by Phillip Geller of St. Joseph, Missouri.

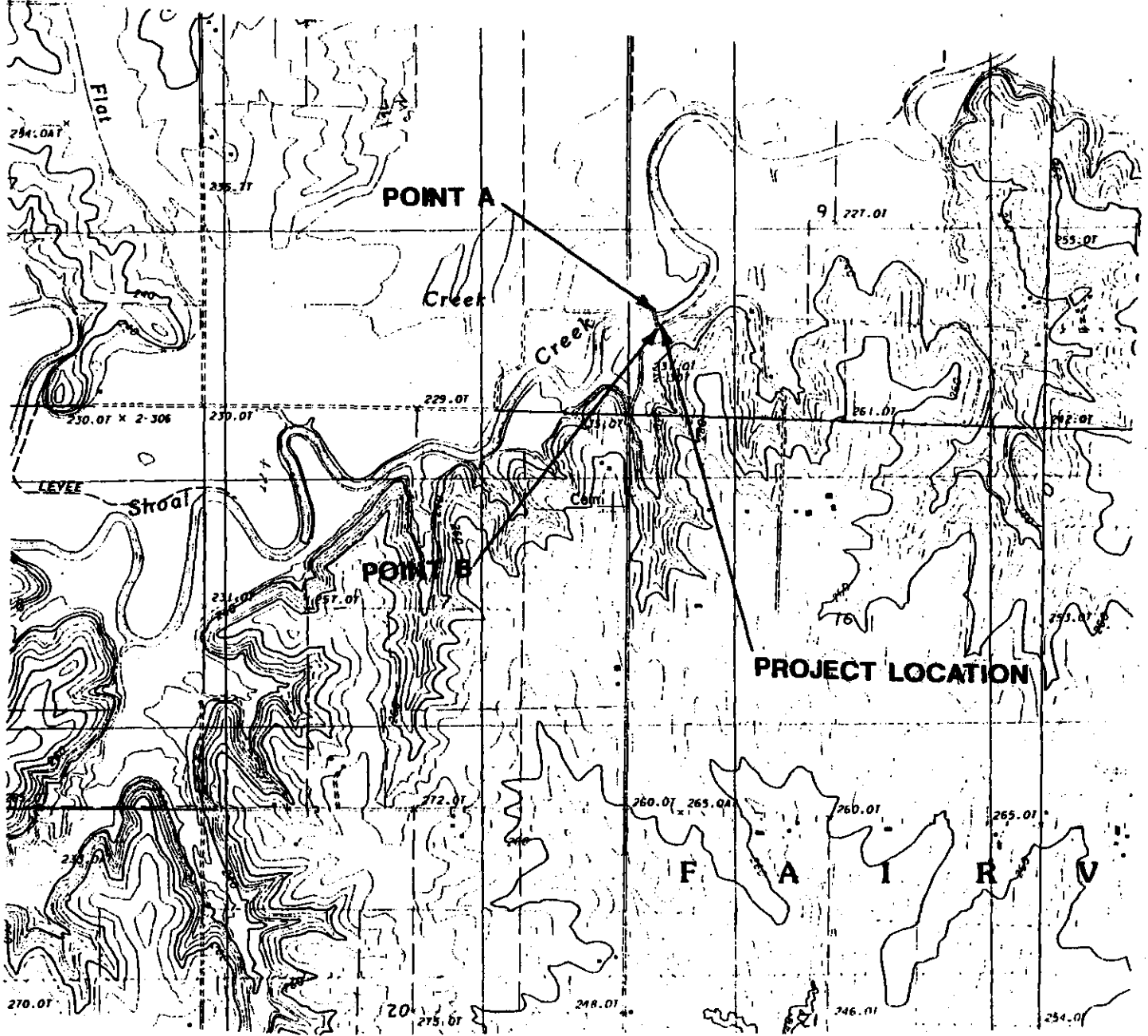


PRODUCED BY THE UNITED STATES GEOLOGICAL SURVEY  
 CONTROL BY USGS AND NOS/NOAA  
 COMPILED FROM AERIAL PHOTOGRAPHS TAKEN 1980  
 FIELD CHECKED 1982 MAP EDITED 1984  
 PROJECTION UNIVERSAL TRANSVERSE MERCATOR  
 GRID: 1000-METER UNIVERSAL TRANSVERSE MERCATOR ZONE 15  
 10,000-FOOT STATE GRID TICKS MISSOURI, WEST ZONE  
 AND CENTRAL ZONE

UTM GRID DECLINATION 0°31' WEST  
 MAGNETIC NORTH DECLINATION 5°00' EAST  
 VERTICAL DATUM NATIONAL GEODETIC VERTICAL DATUM OF 1929  
 HORIZONTAL DATUM 1927 NORTH AMERICAN DATUM

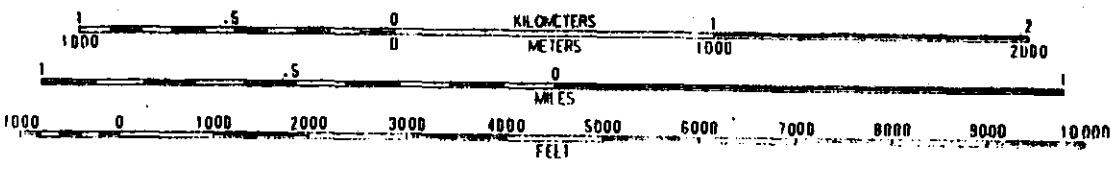
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To place on the predicted North American Datum of 1983,  
 move the projection lines as shown by dashed corner ticks  
 (2 meters north and 18 meters east)  
 There may be private inholdings within the boundaries of any  
 Federal and State Reservations shown on this map  
 No distinction made between houses, barns, and other buildings



FLAT CREEK QUADRANGLE  
 MISSOURI

SCALE 1:24 000



QUADRANGLE LOCATION

**VI. ENDNOTES**

1. Missouri State Historical Society microfilm containing copies of some publication of The Breckenridge Bulletin, Cowgill Chief, Hamilton Farmers Advocate, Hamiltonian, Hamilton News-Graphic, Caldwell County Banner, Caldwell County Sentinel, and the Kingston Times.
2. Clayton B. Fraser, Missouri Historic Bridge Inventory. Structure Number 181001.9. Missouri Office of Preservation, Jefferson City, Missouri, July 1993.
3. Hamiltonian, 13 May 1887, Hamilton, Missouri.
4. Hamiltonian, 22 July 1887, Hamilton, Missouri.
5. Hamiltonian, 13 January 1888, Hamilton, Missouri.
6. Caldwell County Bridge Inspection Records, Structure Number 181001.9, Caldwell County Courthouse, 1994.
7. Hamiltonian, 22 July 1887, Hamilton, Missouri.
8. Victor C. Darnell, Directory of American Bridge-Building Companies: 1840-1900 (Washington D.C.: Society for Industrial Archeology 1984), 17-18, 50.

**VII. BIBLIOGRAPHY**

Caldwell County Bridge Inspection Records, Structure Number  
1810019.

Darnell, Victor C. Directory of American Bridge - Building  
Companies: 1840-1900. Washington D.C.: Society for  
Industrial Archeology, 1984.

Fraser, Clayton B. Missouri Historic Bridge Inventory.  
Structure Number 181001.9. Missouri Office of Historic  
Preservation. Jefferson City, Missouri. July 1993.

Hamiltonian, 13 May 1887, 22 July 1887, 13 January 1888,  
Hamilton, Missouri.

ADDENDUM TO:  
HENKIN'S FORD BRIDGE  
(Bridge No. 1810019)  
Spanning Shoal Creek at CART Road 181  
Proctorville vicinity  
Caldwell County  
Missouri

HAER MO-104  
*MO, 13-PROV. V, 1-*

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

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

HENKIN'S FORD BRIDGE  
(Bridge No. 1810019)  
(Marshall's Mill Bridge)

This is an addendum to a 10 page report previously transmitted to the Library of Congress.

A lack of historical records makes verifying the name of this structure difficult, but lifelong residents know Henkin's Ford Bridge as Marshall's Mill Bridge. This name reflects the structure's location near Marshall's Mill, a grist mill dating to ca. 1838. The original HAER documentation relied on the Missouri Historic Bridge Inventory, which refers to the structure as "Henkin's Ford Bridge." To better reflect its commonly used name, Marshall's Mill Bridge has been added as a secondary name to the record.