

## **BUCKEYE FURNACE COVERED BRIDGE**

### **DESCRIPTION**

The Buckeye Furnace Bridge was built in 1872. This structure was built using a variation of Smith's 1869 patent. This bridge carries Milton Township Road 165 over the Little Raccoon Creek. There are currently 3 ton posting signs at this location. This structure is listed on the state inventory as Bridge No. MIL-T0165-0156, SFN 4032292.

The trusses are 58' 0" in overall length, with 13' 6" clear between the trusses. The trusses are constructed of oak and are protected by vertical wood siding on the outside of the members, and by a sheet metal roof.

The top and bottom chords are built up of three members each. The top consists of three 4'x8' members which are spliced at various locations along the length of the structure. The bottom chord is built up of three 5"x10" members also spliced at various locations. Both chords have about 2" gaps between their members. At the splices the members are notched around splice blocks and the entire chord is through bolted. The chord members are also notched to accept the tension diagonals. The diagonals are all about 6"x8" timbers and they in turn are also notched where they pass through the chords. The end posts of are composed of two 6"x6" members.

The upper and lower bracing systems are connected directly to their respective chords. Both bracing systems consist of transverse members which are perpendicular to the trusses and diagonal members crossing between the transverse members.

The floor system consists of two layers of timber planks laid diagonally on timber floorbeams. There is one layer of longitudinal planking on top of the diagonal flooring running along the wheel lines and along the trusses. The width of the planks varies from board to board and the thickness of each layer is approximately 2-1/2". The floorbeams are supported directly on the bottom chord. The floorbeams are roughly 3-1/4" x 11-3/4" members every 26" on center.

The abutments are constructed of stone. The abutment seats have been repaired with concrete.

## **Statement of Significance**

Buckeye Furnace Covered Bridge is in a remote section of eastern Jackson County on a township road just southwest of old Buckeye Iron Furnace. The name of the bridge comes from the furnace which was built some 20 years before the bridge. Like all Jackson County covered bridges of which there is any record, this bridge is a Smith truss. This truss plan enjoyed great popularity here in Ohio, the home of its inventor, and many of our largest and finest covered bridges were Smith trusses. The Buckeye Furnace Covered Bridge was built in 1872, probably using pre-fabricated trusses erected by local labor.

This bridge is historically important because it is the last such span left in the vicinity of an old iron furnace. Buckeye Furnace is a State Memorial and has been renovated by the Ohio Historical Society who also rebuilt the surrounding complex to look as it did - in the days of the Civil War. This whole area, including the furnace and covered bridge, lies within the Wayne National Forest. The old covered bridge gave access to the furnace village from the west and continued to serve this area long after the old furnace went out of blast in 1894 and the surrounding village disappeared.

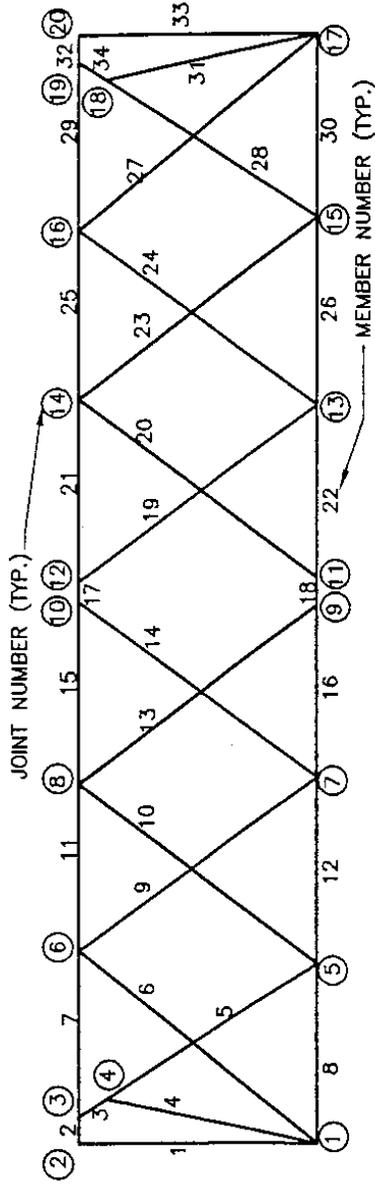
## **Physical Appearance**

The structure under consideration is a one-span wooden truss covered bridge spanning Little Raccoon Creek three miles southeast of Wellston in Milton Township sec. 26, Jackson County, Ohio. The site is less than one quarter of a mile southwest of old Buckeye Furnace. The bridge has vertical, high-boarded siding, a metal roof, slightly projected portals and stone abutments.

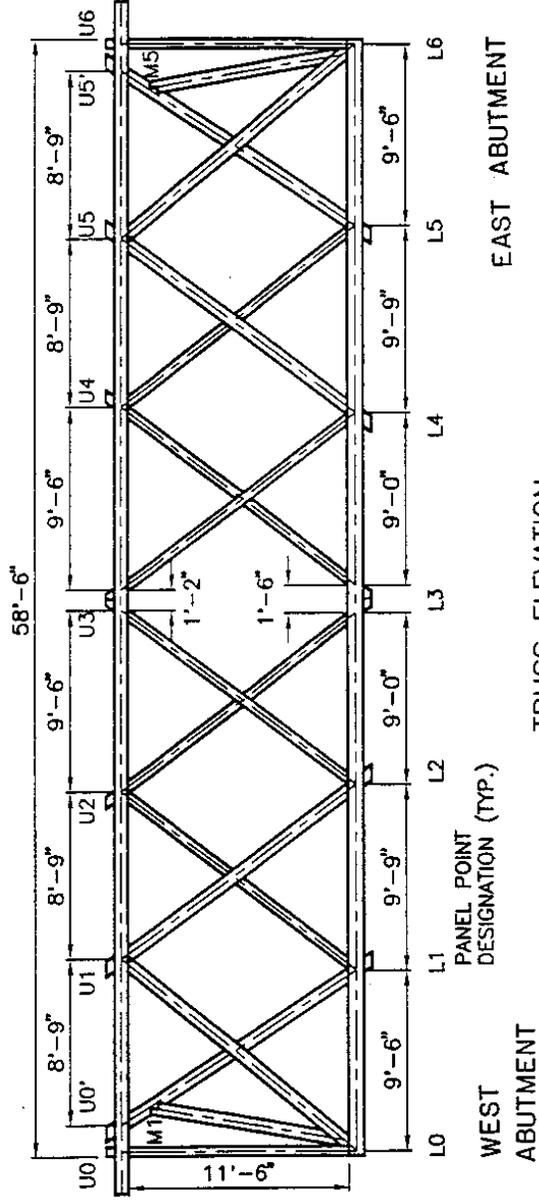
This bridge is known as the Buckeye Furnace Bridge and is built on the Smith truss plan which was patented in 1867 and again in 1869 by Robert W. Smith of Tipp City, later Toldeo, Ohio. The Smith trusses in existence today are all built on the 1869 patent, #97,714, which truss expert Raymond E. Wilson of Swarthmore, Pa, has divided into four distinct types, according to variations in construction details. These variations, while improvements on the 1869 patent, were never patented themselves.

The Buckeye Furnace Bridge is a 6 panel Smith, type 3. The Smith truss features braces set at a 45° angle between 60° counterbraces welded to the top and bottom chords. The type 3 Smith truss had rigidly fastened roof and floor stringers. Another feature of the type 3 Smith truss is the addition of extra diagonal braces found in the center panel. Mr. Smith claimed that the advantages of his truss type were to be found in the method of bracing, its cheapness, lightness and equal distribution of the load. The Buckeye Furnace Bridge is 68-1/2' long with a 58-1/2' clear span. It is 16' wide overall with a 13'7" roadway. The overhead clearance is 12'.





COMPUTER MODEL  
 MIL-T0165-0156 SFN 4032292

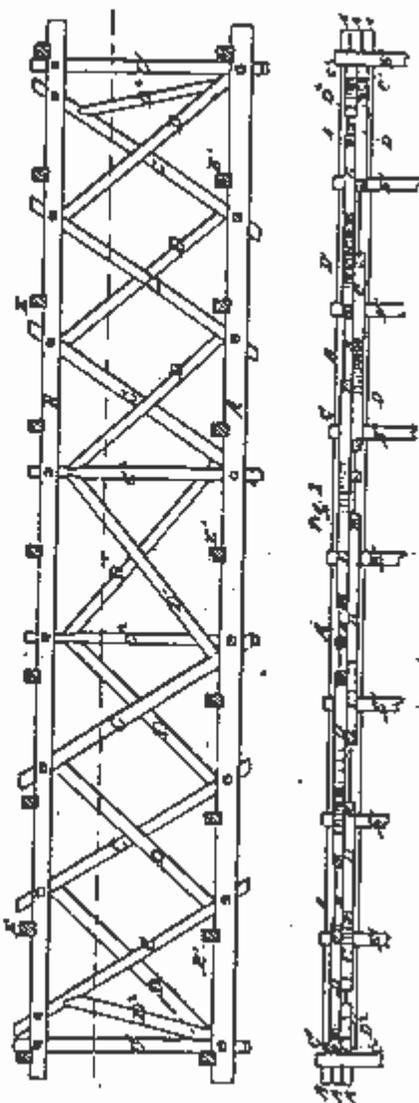


TRUSS ELEVATION  
 MIL-T0165-0156 SFN 4032292

R. W. Smith,  
Truss Bridge.

No. 66,900.

Patented July 16, 1897.



ATTORNEY  
Lester S. Smith

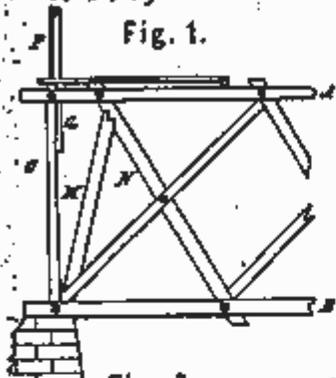
R. W. Smith  
Inventor  
B. C. Hollway, Asst. City

Robert W. Smith,

Bridge.

No. 17,714

Fig. 1.



Patented Dec. 7, 1869.

Fig. 2.

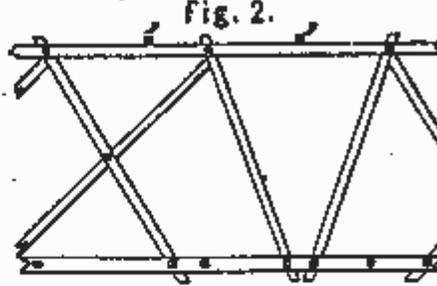


Fig. 3.

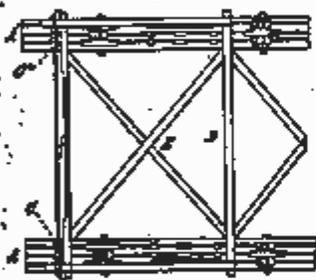


Fig. 4.

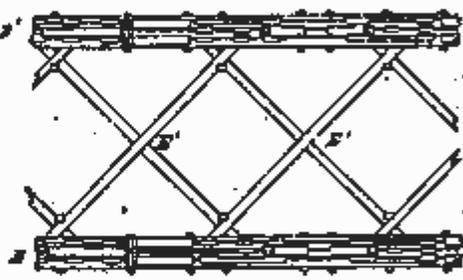


Fig. 8.

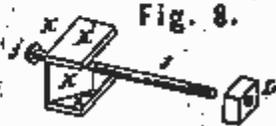


Fig. 5.

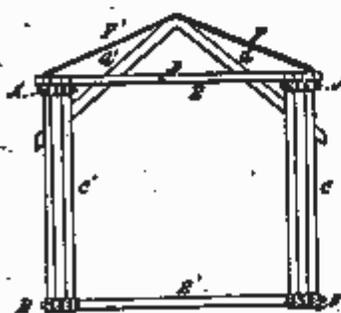


Fig. 6.

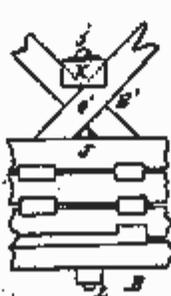


Fig. 7.



Witnesses.

*Samuel H. Smith*  
*William H. Smith*

Inventor

*R. W. Smith*  
*By [Signature]*