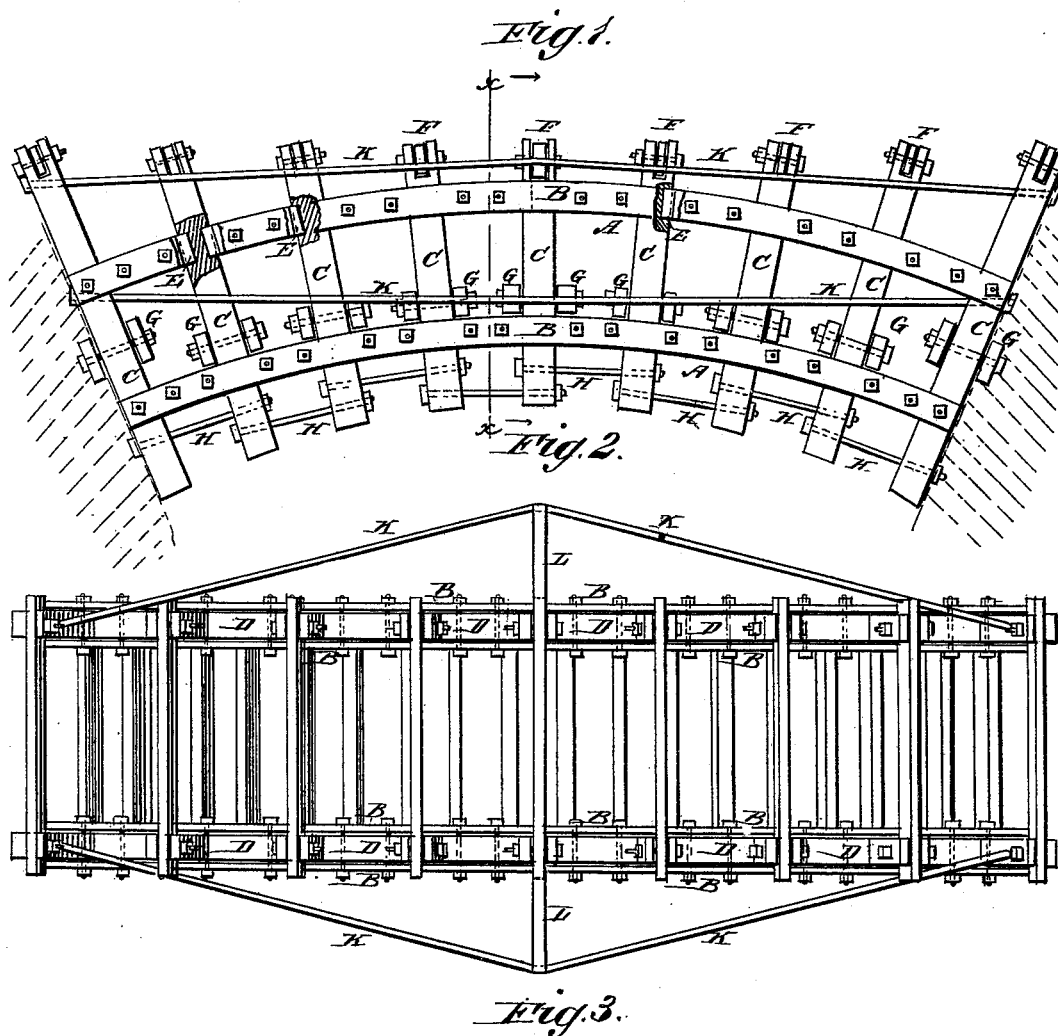


R. B. VARDELL.  
Bridge.

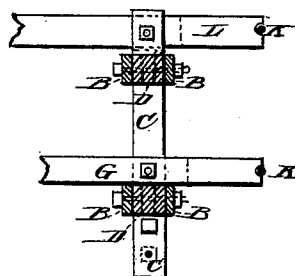
No. 221,632.

Patented Nov. 11, 1879.



WITNESSES:

*Francis McAnally*  
*C. Sedgwick*



INVENTOR:

*R. B. Vardell*  
BY *Mum & Co*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

ROBERT B. VARDELL, OF DARDANELLE, ARKANSAS.

## IMPROVEMENT IN BRIDGES.

Specification forming part of Letters Patent No. **221,632**, dated November 11, 1879; application filed June 5, 1879.

*To all whom it may concern:*

Be it known that I, ROBERT B. VARDELL, of Dardanelle, in the county of Yell and State of Arkansas, have invented a new and Improved Bridge, of which the following is a specification.

Figure 1 is a side elevation of the bridge. Fig. 2 is a plan of the same. Fig. 3 is a vertical section on line *xx*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide a bridge of great strength and durability, that can be thrown across a stream at a single span, and require for its support only an abutment at each end.

The invention consists of two pair of arched bearings, an upper and a lower pair, each formed of side planks, B B, between which are secured the struts C C, arranged radially, or nearly so, from the center of the circle described by the upper pair of beams; and between these side planks are bolted the balks D D, whose ends are also mortised into the struts, as shown at E, Fig. 1, and which serve as the bridge thrust-pieces.

F F are the supplementary ties that are mortised and bolted into the heads of the struts, and serve to support the upper road-bed; and G G are the ties bolted to the sides of the struts just above the lower beam, and serving to support the lower road-bed. H H are stay-bolts passed through the lower ends of the struts.

Lateral flexion of the bridge is prevented by the stay-rods K K and the stretcher L.

Viewing the side elevation of the bridge, it will be seen that each section—each pair of struts with intermediate balks—forms a sec-

tion or key of an arch, and that a bridge of almost indefinite length and immense strength can be thus constructed, provided only it may rest against strong abutments at either end. The tops of the struts may be on a horizontal line, as shown, or on a line parallel with the upper arched beams.

The lower arched beams may be set in a curve parallel to the upper ones, or may be of a less curve, or even straight, without seriously detracting from the strength of the bridge.

Constructed of good white oak and well covered with boards, such a bridge will last as long as an iron one. For ordinary traffic or travel the bridge will be strong enough if wooden pins be substituted for all the bolts excepting the stay-bolts.

In cheapness, strength, and durability this construction is superior to any with which I am acquainted, while it is better adapted than any other to span streams where piers cannot conveniently be set.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The within-described bridge, consisting of the two pairs of arched beams, composed of side pieces, B B, and balks D D, within which are set the struts C C, arranged radially, or nearly so, from the center of the circle described by the upper beams, in combination with the ties F F and G G, the stay-bolts H H, the stay-rods K K, and stretcher L, constructed substantially as herein shown and described.

ROBERT B. VARDELL.

Witnesses:

A. MEDERVALD,  
GEORGE L. KIMBALL.