F. Dieckman,
Truss Bridge.

No. 113,030. Patented Mar. 28 1871.

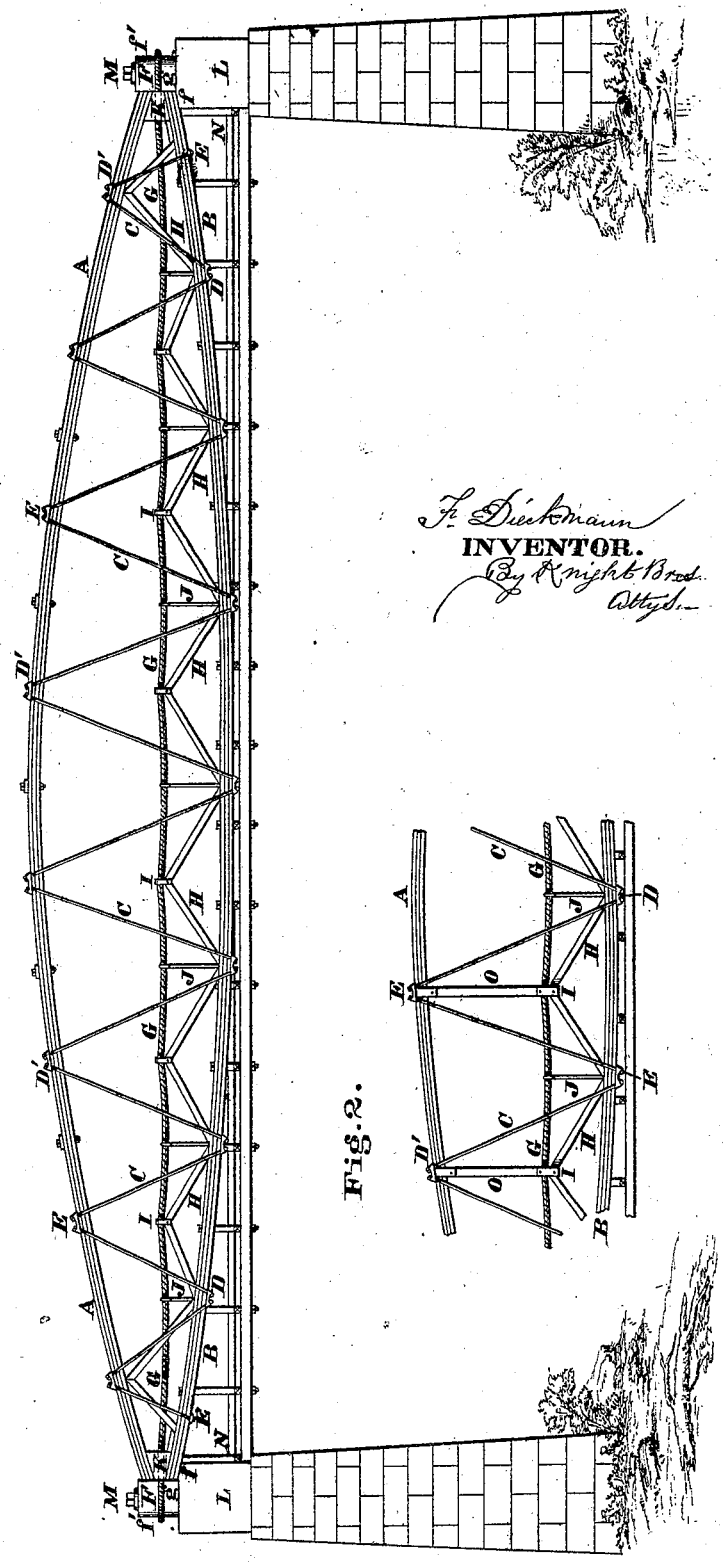

Fig. 1.

Fig. 2.

Attest.
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UNITED STATES PATENT OFFICE.

FERDINAND DIECKMANN, OF CINCINNATI, OHIO.

IMPROVEMENT IN BRIDGES.

Specification forming part of Letters Patent No. **113,030**, dated March 28, 1871.

To all whom it may concern:

Be it known that I, FERDINAND DIECKMANN, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Bridges, of which the following is a specification:

My invention consists in a novel arrangement of parts constituting a bridge, whose upper and lower members consist, respectively, of a direct and an inverted arch of timber or of metal, connected by diagonal bracing, which forms, with said arches, a series of triangles, the whole being tied longitudinally by a wire cable, that is connected to one or both arches by vertical and diagonal braces, in manner hereinafter set forth.

My bridge is believed to combine in an eminent degree the maximum strength with minimum weight and cost.

Referring to the drawings, Figure 1 is a side elevation of a bridge embodying my invention. Fig. 2 is a partial elevation, showing a modification of my bridge.

A and B are, respectively, the upper and lower arches, which, when of timber, as here represented, are scarfed and bolted, or otherwise suitably secured, as customary in the arch and string pieces of wooden bridges. C are diagonal braces (preferably iron rods) passing through or alongside of the arch-timbers, and through plates D D′ outside the same, where they are secured by nuts E. The ends of the arches rest against abutments F, which have flat shoulders *f* for that purpose, and which are rounded (*f′*) on their outside ends, to take the bight or loop *g* of a wire cable, G, which is stretched from end to end of the bridge, and which is held fast and supported by truss-timbers H, whose lower ends abut in pairs upon the lower arch just over the points of intersection of the diagonal braces, and whose upper ends abut in pairs just below the said cable, which they serve to support, and to which they are united by stirrups I. Rods J, having heads below the plates D and passing upward through them, are hooked over the cable G. A block, K, which may form part of the abutment F, is interposed between the upper and lower arches at their extremities, and may be bolted to the same.

The bridge rests, by its end pieces or abutments F, upon suitable sills or bolsters L, to which it is made fast by bolts M or other means.

The roadway N may be below the bridge proper, and be suspended from the lower arch, in the manner represented, or may be within or supported above the said bridge proper, if desired.

A modification of my invention may have posts O, that extend from the apexes of the truss-timbers H and the wire cable G to the upper arch, to which, as to the cable, they are secured by suitable stirrups.

In practice the bridge proper will consist of the two structures, as above described, united by suitable cross and diagonal bracing.

The cable G serves to oppose the longitudinal extension of the bridge, and, acting through the abutments F, preserves the proper convexity of the arches, which convexity is, in turn, restricted to proper bounds by the diagonal braces C, trusses H, and rods O, in conjunction with the cable, and with the described or equivalent accessories.

I claim herein as new and of my invention—

The described arrangement and combination of arches A B, diagonal braces C, abutments F F, cable G, truss-timbers H, either with or without the posts O, as and for the purpose set forth.

In testimony of which invention I hereunto set my hand.

FERDINAND DIECKMANN.

Witnesses:

GEO. H. KNIGHT,

JAMES H. LAYMAN.