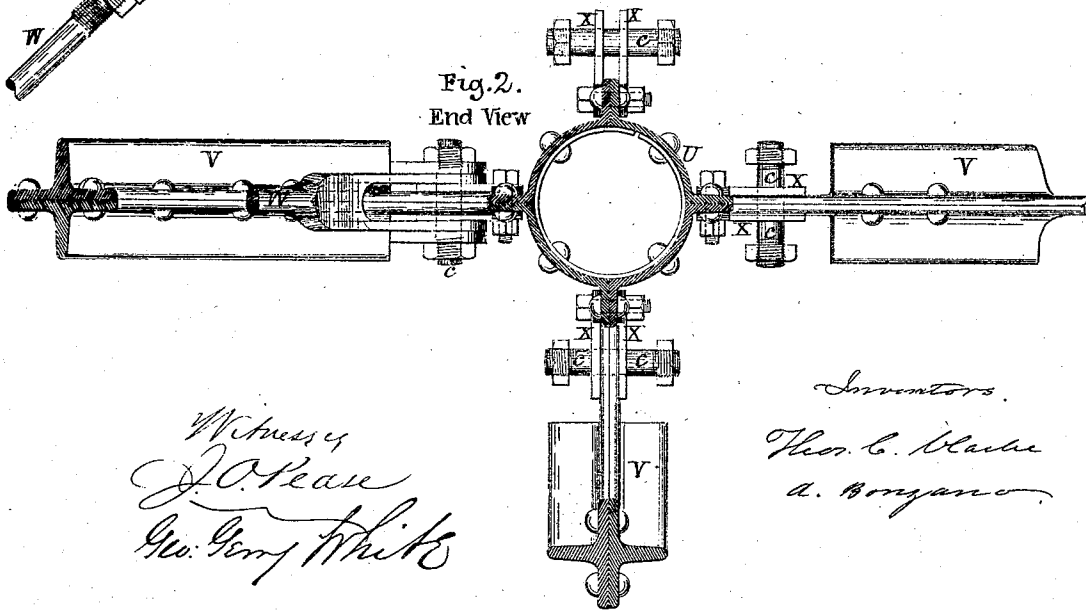
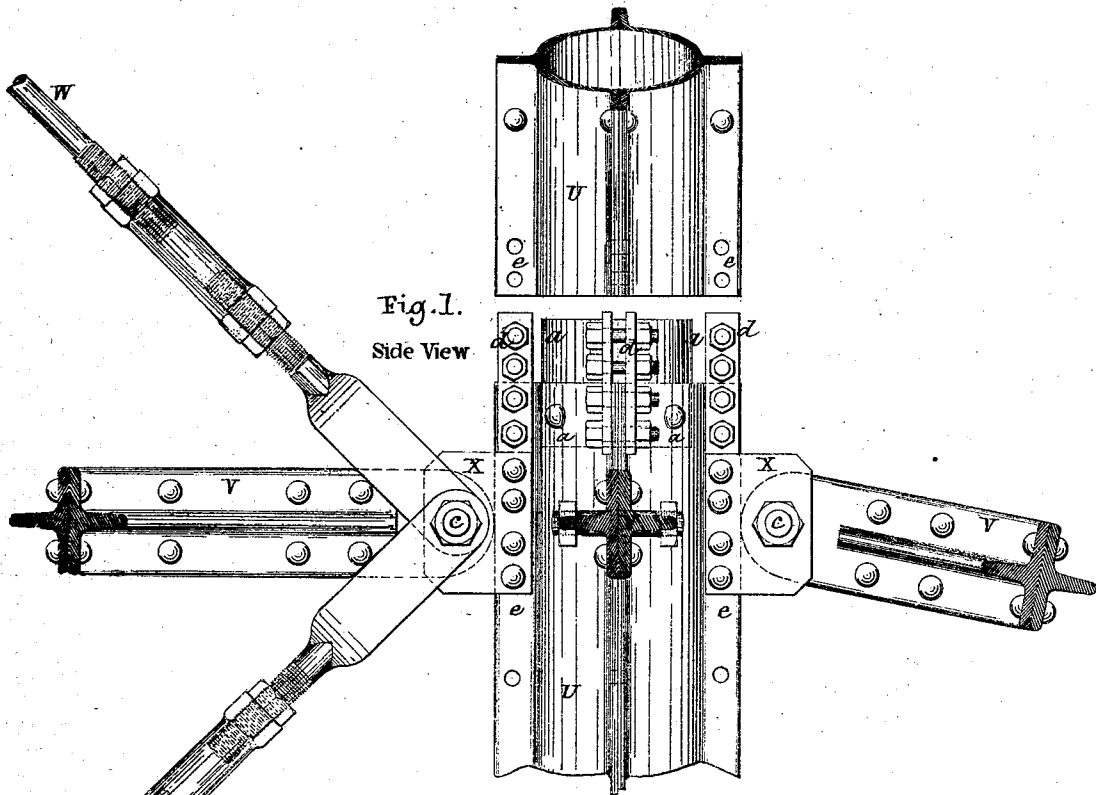


*Thomas C. Clarke & Adolphus Bonzano's,
Improved Connections for Iron Bridges.*

117047

PATENTED JUL 18 1871



Witnesses
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UNITED STATES PATENT OFFICE.

THOMAS C. CLARKE AND ADOLPHUS BONZANO, OF PHILADELPHIA, PA.

IMPROVEMENT IN CONNECTIONS FOR IRON AND STEEL BRIDGES.

Specification forming part of Letters Patent No. 117,047, dated July 18, 1871.

To all whom it may concern:

Be it known that we, THOMAS C. CLARKE and ADOLPHUS BONZANO, of the city of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Connections for Iron and Steel Bridges; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figures 1 and 2 represent, respectively, a side and end view of the manner of connecting flanged segmental wrought-iron columns with one another to form upright columns in towers, viaducts, bridge-piers, and similar structures, and for forming attachments for lateral and transverse bracing to be connected therewith.

This invention consists in uniting hollow and flanged wrought-iron columns to each other by means of an internal sleeve fastened at the joint, and splice-plates fastened to the outside flanges; also, in uniting lugs to the flanges of the column or structure, for attaching lateral bracing to the column or structure.

To enable others skilled in the art to make and use our invention, we will proceed to describe the same with reference to the drawing.

U represents a "Phoenix" or hollow and flanged column spliced or extended by means of an internal iron sleeve, *a*, crossing the joint between the columns, entering both, and acting as a tenon thereto. Splice-plates *d* are placed against the

flanges *e* of columns or sections, and so also as to cross the joint, and are riveted through and through, thus making a firm and strong union between the sections of columns. The transverse bracing V and tie-rods W are united by a pin, *e*, which passes through lugs X riveted to the flanges *e* of the columns, and thus said bracing is connected with the column. The bracing V is of cruciform iron, and to unite it to the lugs X its horizontal flanges or ribs are cut away, which leaves a tongue or tenon that fits in between said lugs. The pin then being entered holds the bracing and rods to the lugs and column.

Having thus fully described our invention, what we claim herein as new, and desire to secure by Letters Patent, is—

1. Connecting two hollow flanged columns or sections together by means of an internal sleeve crossing the joint and serving as a tenon to both sections, in combination with external splice-plates *d*, substantially as and for the purpose described.

2. In combination with the flanged column, the lugs X, riveted thereto for the purpose of affording an attachment for lateral bracing and tie-rods, substantially as described.

THOMAS C. CLARKE.
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Witnesses:

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