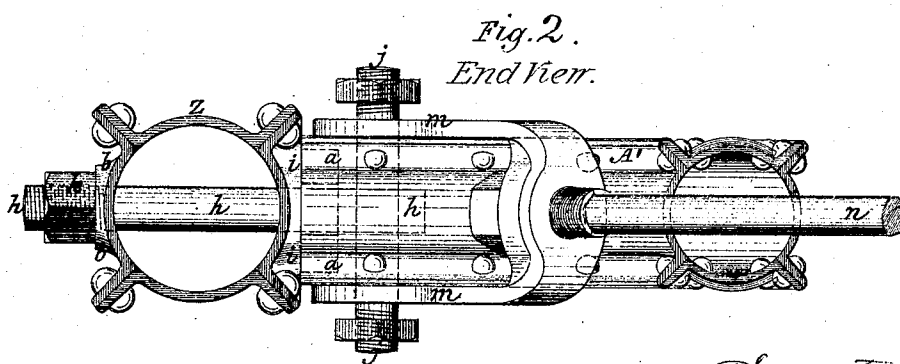
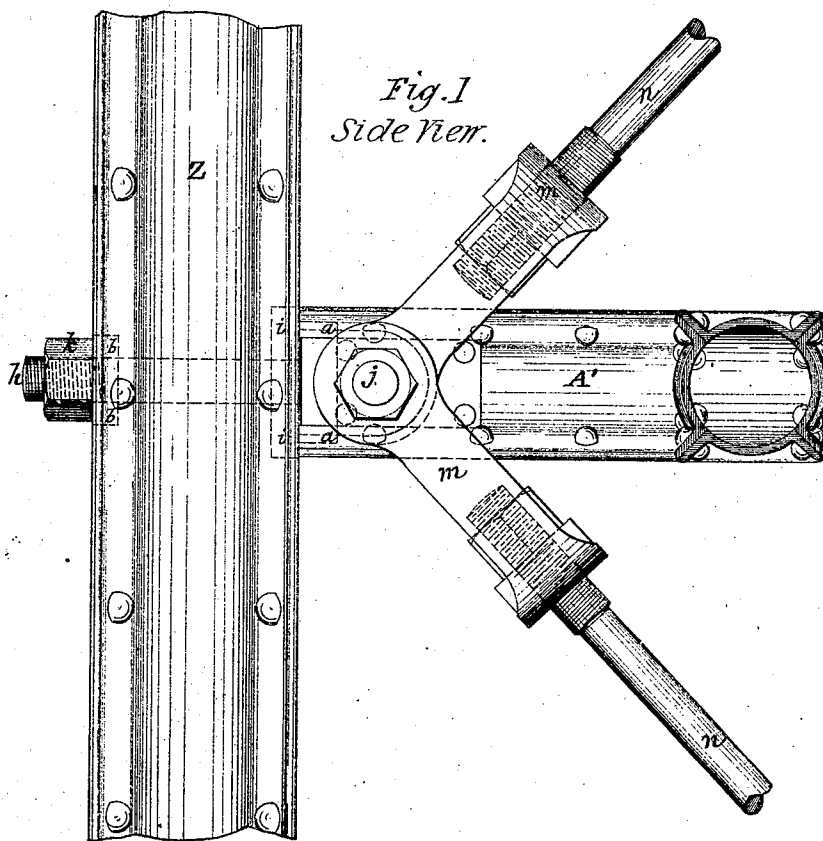


*Thomas C. Clarke & Adolphus Bonzano's,  
Improved Connections for Iron Bridges.*

117049

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. 117,049, 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 we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making part of this specification, in which—

Figures 1 and 2 represent, respectively, side and end views of a plan of attaching lateral bracing at any desired point to a column.

This invention consists in attaching lateral bracing to any part or point of a column without the use of brackets, lugs, or sleeves, viz.: by means of eyebolts passing through the body of the column, which unite the lateral bracing to the columns through or by means of pins and washers.

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.

At any point in the height or length of a column, Z, where it is desirable to unite a lateral brace, A', a hole is bored through the body of the column for the reception of an eyebolt *h*. Against the column Z, at the point where the lateral bracing A' is to be united, is placed a washer, *i*, made to fit against the panel, stave,

or perimeter of said column, which washer has a sleeve, *a*, upon it to receive the end of said bracing. Through the bracing A' is made a hole for the reception of the pin *j*, which pin passes through the eye of the bolt *h*, which bolt *h* passes through the washer *i*, through the body of the column *z*, and through a washer, *b*, and is caught and drawn up tightly by a nut, *k*, bearing against the washer *b*. The straps *m*, to which the tie-rods *n n* are attached, are also caught and held by the pin *j*. By beveling or skewing the washers *i b*, and inclining the hole through the body of the column, the lateral bracing A' may be set and secured at any desired angle in relation to the column Z; or the hole through the column may be horizontal, as the eyebolt will readily accommodate itself to such an opening, as it can freely turn on its pin.

Having thus fully described our invention, what we claim herein as new is—

The attachment of lateral struts or bracing at any point of a column, and at any angle thereon, by means of a pin, eyebolt, and suitable washers, substantially as described.

THOMAS C. CLARKE.  
A. BONZANO.

Witnesses:

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