J. W. Murphy.

Truss Bridge.

No. 28,240. Patented May 8, 1860.

Fig. 1.

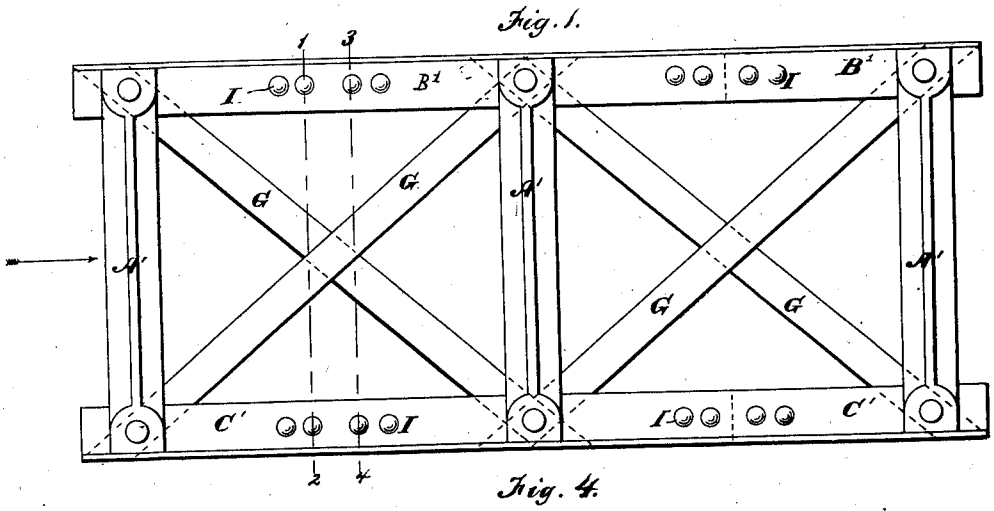


Fig. 4.

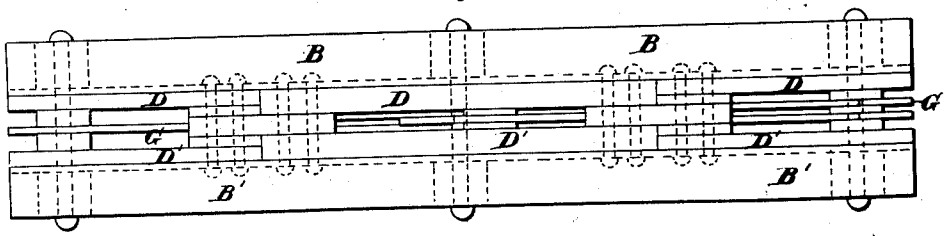


Fig. 2.

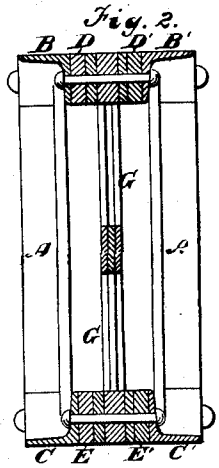
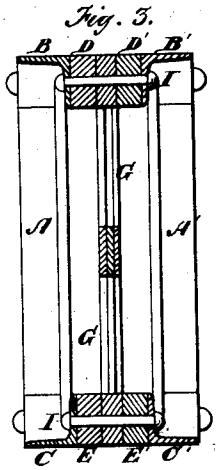


Fig. 3.



Witnesses.
Henry Howson
Chas Hawson.

Inventor.
Jas W Murphy.

UNITED STATES PATENT OFFICE.

JOHN W. MURPHY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO A. AND P. ROBERTS, OF SAME PLACE.

IRON TRUSS-GIRDER.

Specification of Letters Patent No. 28,240, dated May 8, 1860.

To all whom it may concern:

Be it known that I, JOHN W. MURPHY, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in the Construction of Iron Girders; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention relates to an improvement in metallic truss frame girders, having upper and lower chords of angle iron, and my improvement consists in the employment of packing pieces so arranged in respect to the posts and angle iron chords that the said posts and packing pieces shall serve to retain the vertical flanges of the angle iron chords in their proper position free from all liability to warp, the posts at the same time serving as bearings for the horizontal flanges of the angle iron, while the packing pieces, which may be varied in thickness throughout the length of the girder, serve to impart a graduated rigidity to the same.

The object of my invention is to form a metallic truss frame girder, cheap and simple in construction, and extremely light in proportion to its strength.

In order to enable others to make and use my invention I will now proceed to describe its construction and operation.

On reference to the accompanying drawing, which forms a part of this specification, Figure 1 is a side view of a portion of my improved girder; Fig. 2, a transverse sectional elevation on the line 1, 2 Fig. 1; Fig. 3, the same on the line 3—4 Fig. 1, and Fig. 4, a plan view.

Similar letters refer to similar parts throughout the several views.

The girder is composed of the cast iron posts A and A′, the upper angle iron ribs B and B′, the lower angle iron ribs C and C′ upper packing pieces D and D′, lower packing pieces E and E′ and the diagonal braces G.

The cast iron plates are fitted snugly to the angle iron ribs, as seen in Figs. 2 and 3, and the packing pieces D and D′, which extend throughout the entire length of the girder and which vary in thickness, are fitted between the diagonal braces and vertical flanges of the angle iron ribs, the diagonal braces occupying a position midway between the opposite posts of the girder when the latter is viewed transversely. At the top and bottom of the girder, a bolt or rivet I passes through the opposite posts, through the vertical flanges of both angle iron ribs, through the packing pieces as well as through the diagonal braces, thus securing the whole firmly together.

In the application of angle iron to girders and other structures, it is essential that the vertical rib which has to resist the greatest strain, should be prevented from warping and buckling. This requirement is fully provided for in my improved girder by fitting the ends of the posts snugly to the angles formed by the two flanges of the angle iron and securely confining the vertical flanges of that angle iron between the posts and packing pieces by means of the bolts I. By thus confining the vertical flanges of the angle iron, it cannot become warped or disarranged, unless the bolts I and the entire girder be broken. As the vertical pressure on the horizontal flanges of the angle iron ribs is received by the ends of the posts, the latter serve to maintain the said flanges in their proper horizontal position.

One of the main advantages of my improvement is the facility with which the packing pieces may be made to impart a graduated rigidity to the girder. The angle iron chords or ribs have the same thickness and depth of flanges throughout the entire length of the girder, but the packing pieces may be made of varying thickness, the thickest packing piece being in the middle of the girder and the thinnest packing pieces at the opopsite ends as best observed or reference to Fig. 4, in which two thicknesses of packing pieces only are shown. It will be readily seen that for girders of greater length, three, four, or more different thicknesses of packing pieces may be used. The junction of the packing pieces being at a distance from the junction of the angle iron chords, the heavy costly and uncertain spliced joints which would be required in the absence of the packing pieces, are avoided.

The posts in addition to the duty of imparting rigidity to the girder serve, with the packing pieces, to maintain the angle iron chords in that undisturbed position which renders them most available for resisting the strains to which they are subjected, and that the packing pieces afford a means of gradu-

ating the rigidity of the girder as well as of facilitating the construction of the same by a simple arrangement of joints.

I wish it to be understood that I do not claim broadly the employment in the construction of truss frame girders, of cast iron posts combined with angle iron chords; but

I claim as my invention and desire to secure by Letters Patent—

The combination of the within described angle iron chords, packing pieces, and posts or verticals, when applied, and arranged in respect to each other as and for the purpose herein set forth.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JNO. W. MURPHY.

Witnesses:
HENRY HOWSON,
CHARLES D. FREEMAN.