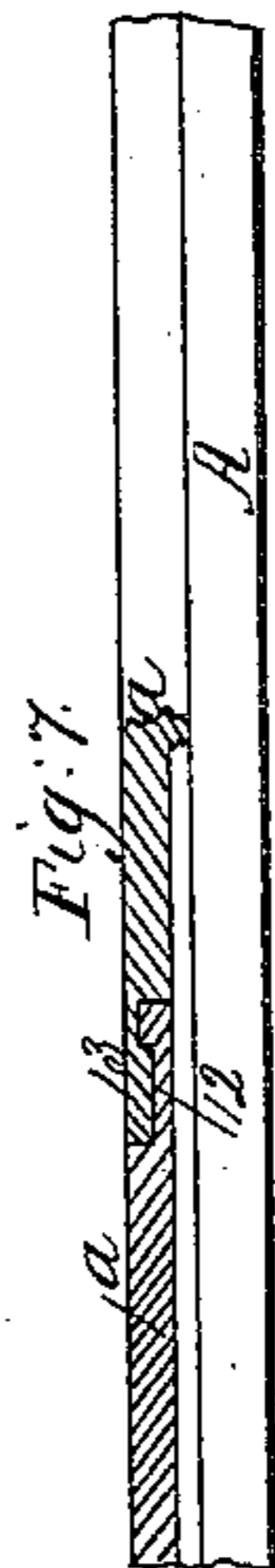
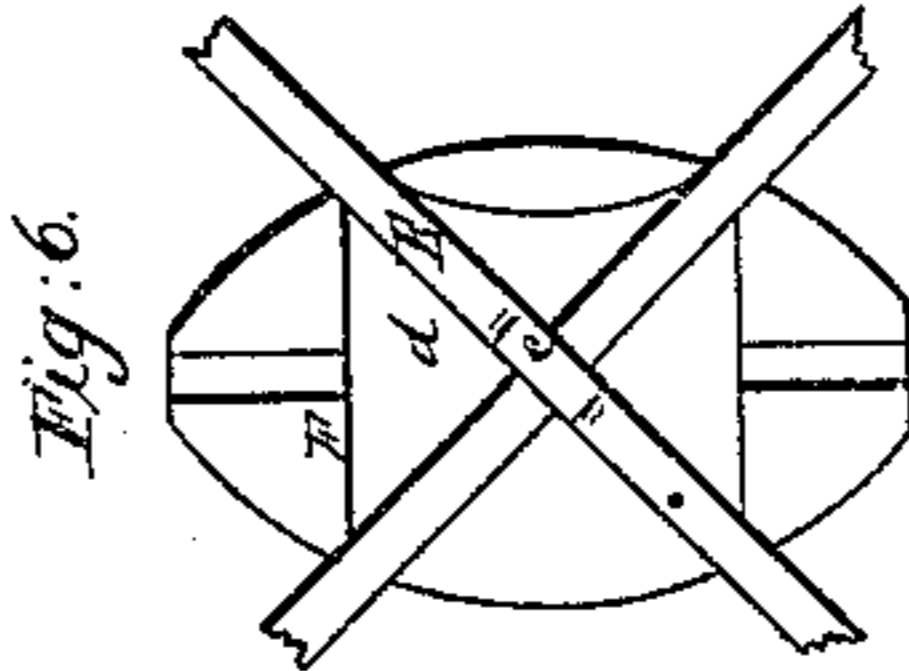
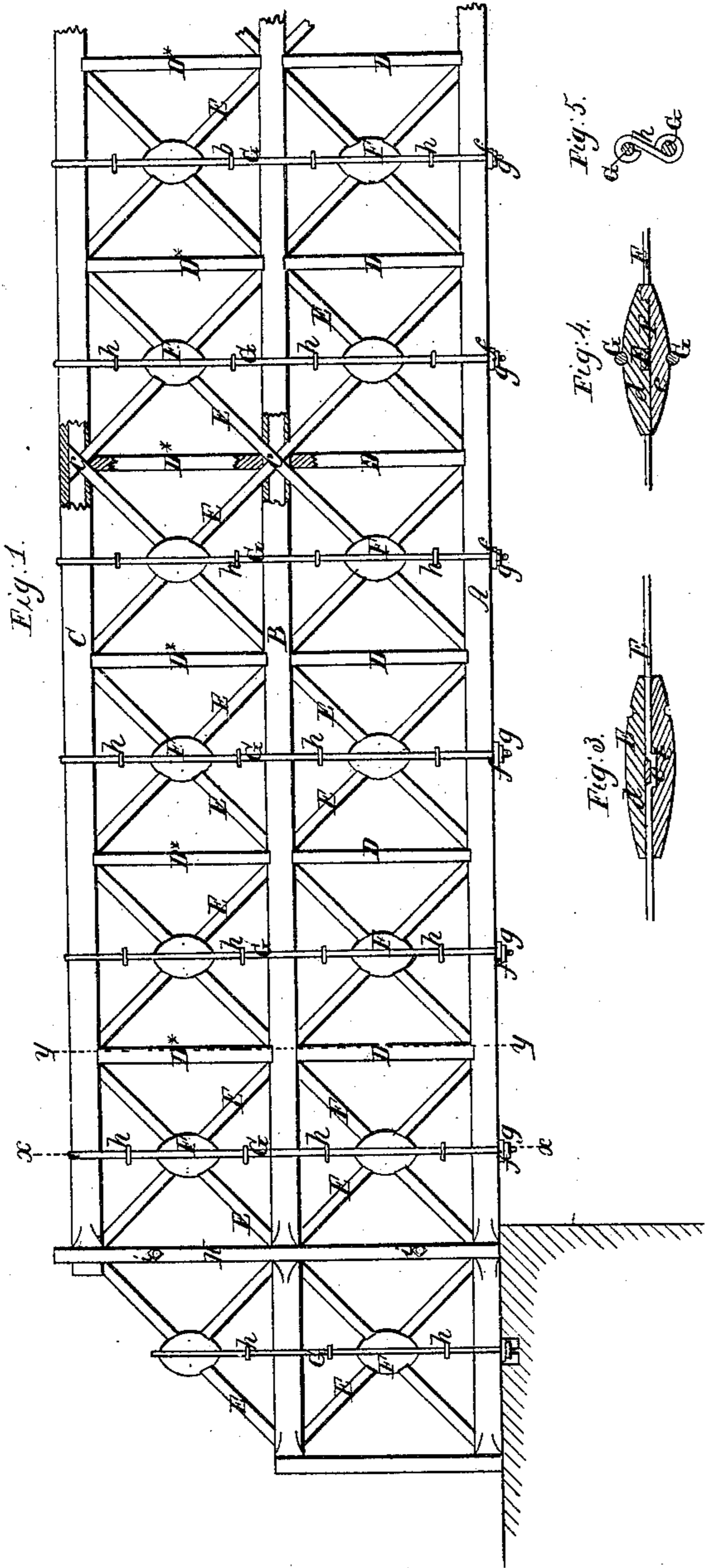
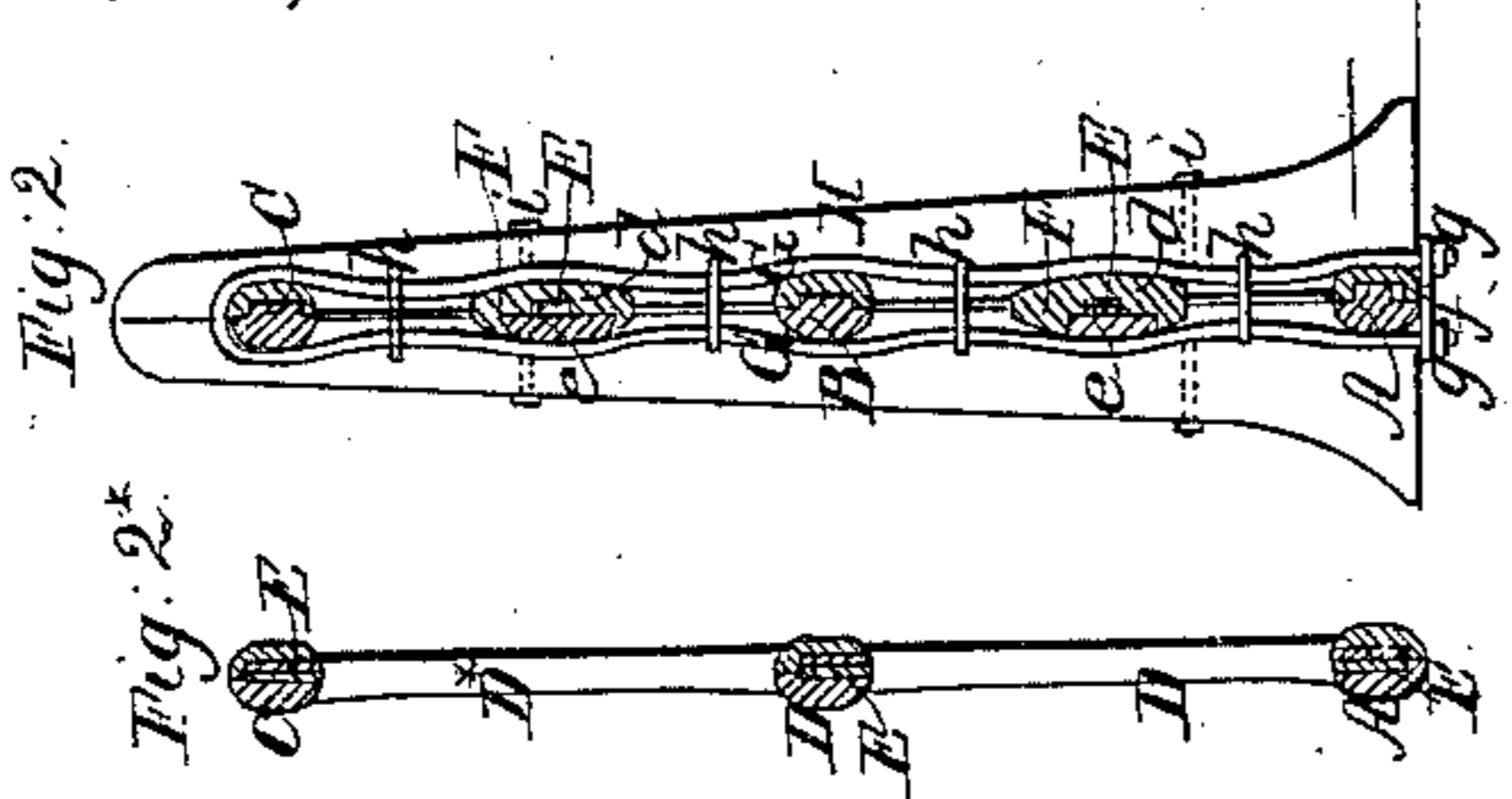


*S. D. Kendall*  
*Truss Bridge*

No 34,209.

*Patented Jan. 21, 1862.*



Witnesses;  
James Laird  
Richardson Hawley.

Inventor;  
Jas. L. Kendall.

# UNITED STATES PATENT OFFICE.

SAMUEL D. KENDALL, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN TRUSS-GIRDERS FOR BRIDGES.

Specification forming part of Letters Patent No. 34,209, dated January 21, 1862.

*To all whom it may concern:*

Be it known that I, SAMUEL D. KENDALL, of the eastern district of the city of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Truss-Girders for Bridges and other Structures; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side view of a portion of a truss-girder constructed according to my invention. Fig. 2 is a transverse vertical section of the same on the line X X. Fig. 2\* is a transverse section of the same on the line Y Y. Figs. 3, 4, 5, 6, 7, 8, and 9 are views of some of the details of the truss, which will be hereinafter explained.

Similar letters of reference indicate corresponding parts wherever they occur in the several figures.

This invention consists in a certain arrangement and combination of chords and posts of cast-iron, diagonal braces, vertical tension-rods, and couplings of wrought-iron, and binding-blocks of cast-iron, making a truss of great strength in proportion to the weight of material employed in its construction.

To enable others skilled in the art to make and use my invention, I will proceed to describe it with reference to the drawings.

A B C are chords, of cast-iron, of solid or tubular construction, each composed of two series of bars *a a* and *b b*, arranged side by side and fitted together in such manner as to lock together, to break joint with each other, and to be incapable of vertical displacement, as illustrated by Figs. 7, 8, and 9. Fig. 7 is a top view of part of the chord with the bars *a a* partly in section. Fig. 8 is an inside face view of parts of two bars *a a*, and Fig. 9 a transverse section of one of the chords. 12 13 in Figs. 7 and 8 represent the two portions of the splice formed between the ends of the adjacent bars *a a*.

D D are cast-iron posts placed between the lower chord A and middle chord B, and D\* D\* are similar posts between the middle chord B and top chord C to keep the said chords at proper distances apart.

E E are two series of diagonal wrought-iron

braces extending in opposite directions from the top chord C to the bottom chord A, uniting with the top chord C at the heads of the posts D\* D\* and with the lower chord A at the feet of the posts D D, and crossing each other in each chord and midway between the chords, and each being offset at every crossing, as shown at C in Fig. 3, to make each prevent the movements of the other in a longitudinal direction, and these offsets form protuberances on the outer sides, which fit to recesses provided for them in the inner faces of the bars *a a* and *b b* of the chords, and so serve to fasten them securely to the several chords.

F F are the binding-blocks, of cast-iron, applied at the crossings of the tension-braces E E between the chords to secure the said braces together at those crossings. These blocks are each composed of two pieces *d* and *e* and shown in Figs. 2, 3, and 4, Fig. 3 being a section of one of the said blocks parallel with one of the tension-braces, and Fig. 4 a horizontal section of the same, and these pieces have recesses in their inner faces for the reception of the offsets *c* of the braces. The said pieces *d* and *e* may fit together with dovetail edges, as shown in the section, Fig. 2, or be bolted together. Fig. 6 is a face view of the piece *d* without *e*.

G G are the vertical tension-rods applied to the chords midway between the posts D\* D\* and opposite to the binding-blocks F F. These rods are made double in the form of long stirrups, which rest upon the top of the top chord and are secured below the bottom chord by plates *f f* and nuts *g g*. *h h* are the couplings applied to embrace the opposite portions of the rods G G between the chords and the binding-blocks F F. These couplings make the said rods assist in securing the two parts *d* and *e* of the several binding-blocks together. Fig. 5 represents a top view of one of the said couplings.

At each end of the truss the chords A, B, and C are connected by and with a strong cast-iron post H, which is divided vertically, and has its two parts notched into opposite sides of the chords and bolted together by bolts *i i* passing through them. These posts rest upon the piers or abutments, and are braced at their backs by a continuation of the lower and middle chords for some distance be-

yond them and a similar continuation of the system of tension braces and rods.

In a girder of large space I propose to arch the truss in some degree.

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

The arrangement and combination, substantially as herein described, of the chords A B

C, posts D D\*, braces E E, tension-rods G G, binding-blocks F F, and couplings h h, the whole forming a truss-girder for a bridge or other structure.

SAML. D. KENDALL.

Witnesses:

J. W. COOMBS,

JAMES LAIRD.