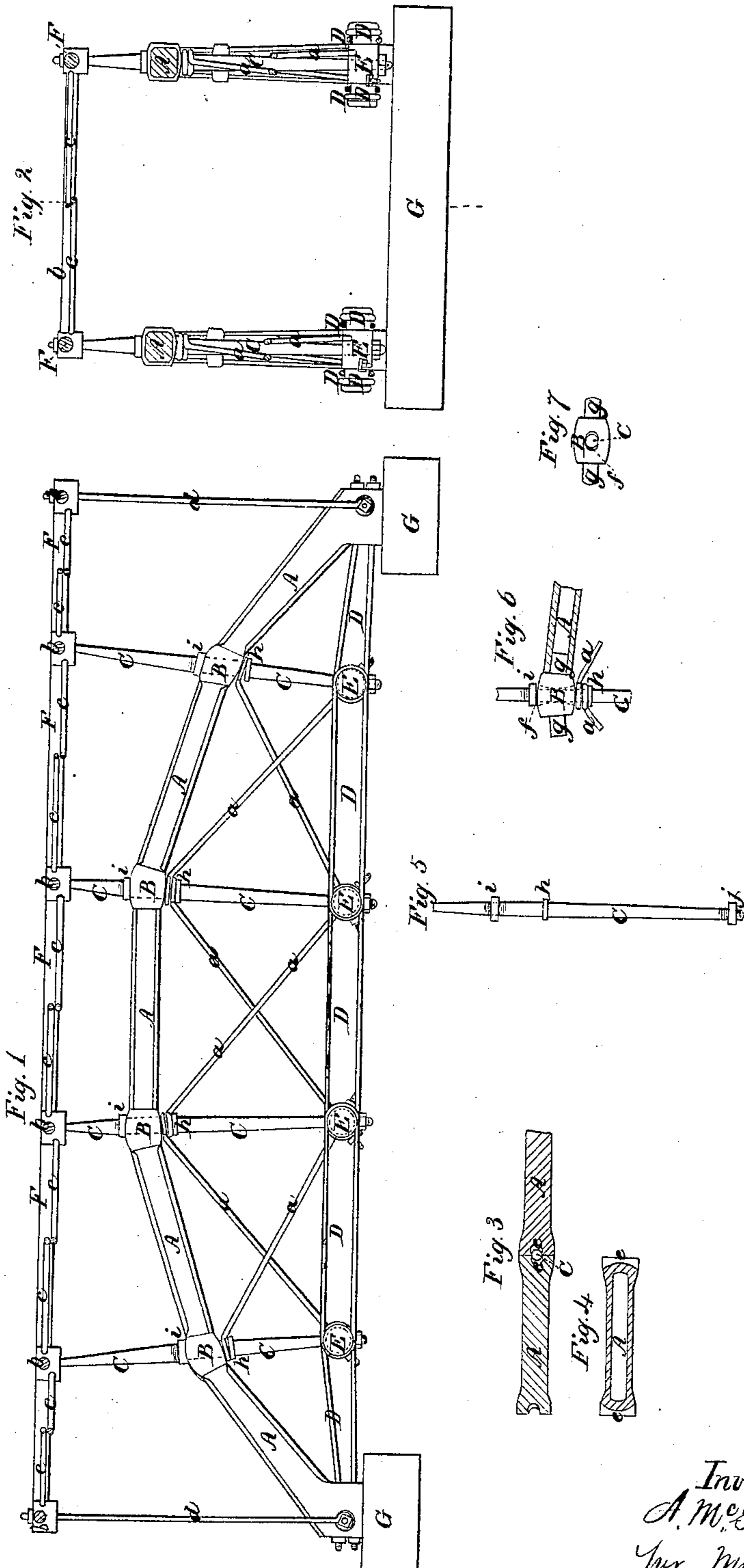


A. Mc Guffie. Truss Bridge.

N^o 34,765.

Patented Mar. 25, 1862.



Witnesses
J. W. Brown
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UNITED STATES PATENT OFFICE.

A. MCGUFFIE, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN TRUSS-BRIDGES.

Specification forming part of Letters Patent No. 34,765, dated March 25, 1862.

To all whom it may concern:

Be it known that I, A. MCGUFFIE, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Truss-Bridges; 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, making a part of this specification, in which—

Figure 1 is a longitudinal vertical section of a bridge constructed according to my invention. Fig. 2 is a transverse vertical section of the same. Figs. 3, 4, 5, 6, and 7 are views of some of the details.

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

This invention consists in a novel arrangement and combination of arch-sections, posts, links, and braces, by which a light, strong, stiff, and easily-constructed bridge is obtained; also in a novel mode of combining the arch-sections.

To enable others skilled in the art to construct bridges according to my invention, I will proceed to describe it with reference to the drawings.

A A represent a number of hollow sections of cast or wrought iron having their ends beveled in such manner that by abutting against each other or against interposed angular heads or blocks B B they will form arches.

C C are posts of cast or wrought iron intersecting the arch between the sections A, and serving to suspend the roadway therefrom, but extending upward some distance above the arch.

D D are wrought-iron links connecting the bottoms of the posts C C, and connecting the posts with the ends of the arch A A by means of joint-blocks E E.

a a are oblique tension-braces from the posts C C to the joint-blocks E E.

F F are top chords made in sections and arranged in horizontal lines at the tops of the posts C C, upon which they are supported.

b b are direct lateral braces arranged between the chords F F at the heads of the posts C C, and serving to keep the chords and posts at the proper distance apart, and c c are oblique tension-braces connecting the chords at the heads of the posts and serving to prevent the spreading apart of the chords and posts.

The braces b b and c c combine to brace the bridge laterally.

d d are tension-rods of wrought-iron connecting the ends of the chords F F with the ends of their respective arches.

G G are abutments or piers, upon which the ends of the arches A A rest.

When the sections A A of the arches abut directly against each other, as shown in the top view of two chords, Fig. 3, without the interposition of the angular heads or blocks B B, grooves e e, Figs. 3 and 4, are provided in their ends for the reception of the posts, the said grooves being of such form as to fit the posts at the middle of the section, but deeper at the top and bottom of the section, as shown in Fig. 4, (which is a central section of one of the sections A A,) to allow the posts to be moved at top or bottom; but when the angular heads or blocks B B are used the ends of the sections A A receive tenons g g, provided on the said heads or blocks to fit them, as shown in Fig. 6, which is a sectional view of one of the joints of the arch, and holes f are provided in the said heads or blocks for the posts to pass through, the said holes fitting the posts in the middle of the block, but being elongated at top and bottom, as shown in Fig. 7, which is a top view of a head or block B.

The posts C C are made with shoulders h h below the arch, and have screw-threads cut some distance above these shoulders for the reception of nuts i i, which screw down on the top of the arch and which suspend the posts therefrom. The said posts may have the parts above the arch made separately and screwed or otherwise fitted and secured into the lower parts. The posts in each arch are inclined in such manner as to converge toward each other slightly in a downward direction, but not nearly so much as to make them radial to the arch. The lower ends of the posts have also screw-threads on their exteriors for the reception of nuts, which screw up against the joint-blocks E E, through which the posts pass. The diagonal tension-braces have formed on their upper ends eyes or loops, which embrace the posts between the shoulders h h and the arches A A, and their lower ends, which are screwed, pass through holes in the joint-blocks E E and are secured by nuts k k below the said joint-blocks.

In this bridge the arches are braced so se-

curely by means of the links D D, posts C C, braces *a a*, top chords F F, and lateral braces *b b* and *c c* as to prevent the possibility of buckling and obviate all tendency to lateral vibration.

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

The combination of the arch-sections A A, (either with or without the interposed heads

or blocks B B,) the posts C C, the joint-blocks E, the links D D, diagonal tension-rods *a a*, top chords F F, and lateral braces *c c*, the whole arranged substantially as herein specified.

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Witnesses:

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