

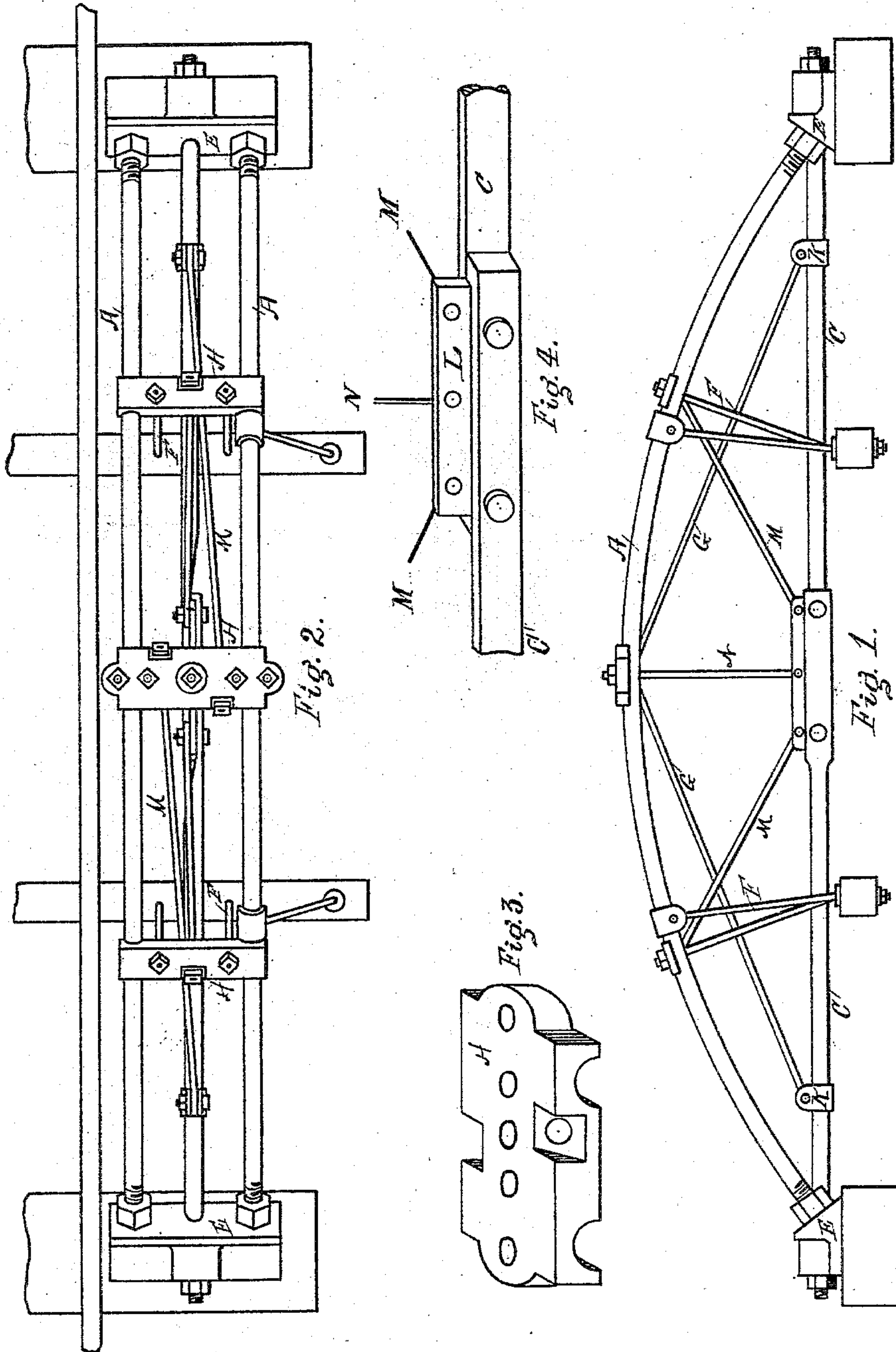
(No Model.)

I. A. SPRAGUE.

TRUSS BRIDGE.

No. 287,974.

Patented Nov. 6, 1883.



Witnesses:

Albert Straus
Witness,

Ira H. Sprague, Inventor,
By Geo. E. Tracy,
Attorney.

UNITED STATES PATENT OFFICE.

IRA A. SPRAGUE, OF GLENWOOD, IOWA.

TRUSS-BRIDGE.

SPECIFICATION forming part of Letters Patent No. 287,974, dated November 6, 1883.

Application filed April 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, IRA A. SPRAGUE, of Glenwood, county of Mills, and State of Iowa, have invented a new and Improved Tubular
5 Truss-Bridge; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the accompanying drawings, and to the letters of reference marked thereon.

10 My invention relates to improvements in bridges, and refers more particularly to the class known as "wrought-iron truss-bridges;" and the object of my improvements is to produce an arch for bridge-trusses of metal tubes
15 bent to the curve of the arch, the chords being of round or flat bars or wire cables, as may be preferred. I attain my objects by the arrangements illustrated in the accompanying drawings, in which—

20 Figure 1 is a side view of one complete span. Fig. 2 is a top view of the same; Fig. 3 an isometric view of one of the saddles or supports, and Fig. 4 is a view of the chord-connection.

25 Similar letters of reference refer to similar parts in all the drawings.

A, Fig. 1, is a tube of metal, preferably iron or steel, of any desired dimensions, bent to the curve of the required arch, and forming an arc of a circle of any given radius.
30 The ends of these tubes have screw-threads cut upon them, and are fitted with suitable nuts for the purpose of adjustment and equalization of strains when in place.

35 E E are angle-blocks placed on suitable abutments.

C represents the chords, which pass through the angle-blocks, and which are secured at the outer ends by screws and nuts. The chords
40 may be made of round or flat bars coupled together by bolts in the middle, or at any desired point, as shown; or they may be of wire rope, if preferred.

Saddles are placed at H H H, which extend
45 from one arch to the other, and from which lateral braces depend, as well as suspension-rods F F, supporting the needle-beams, which carry the timbers for the roadway. The saddle-plates may be made in any desired man-

ner, of wrought or cast iron, steel, or plate- 50 iron. A style of saddle that will probably be found satisfactory in practice is represented in Fig. 3. It is intended to be made of cast-iron, and of sufficient strength to bear the strains of compression and stay rods, as
55 well as the suspension-rods carrying the needle-beams. The bevel portions intended for the reception of the angular stay-rods are to have a face perpendicular to the axis of said rods, in order to form a good seat for the nuts 60 holding said rods.

G G are stay-rods, fitted with screws and nuts on their upper ends for the purpose of adjustment and equalization, the lower ends being securely bolted to and held by clamps 65 K K, attached to members of the chord, as shown in the drawings, the couplings in the chord are to be made at any point required. A mode of making these couplings is shown at Fig. 4 which in practice will be found 70 perfectly satisfactory. It will be seen that the splice is made by a hook on the end of each of two bars, a flat piece of metal, L, being inserted between the ends, the whole being bolted securely together, as shown. The 75 block L is of sufficient width to pass above the edge of the chords, and to allow stay-rods M M and brace N to be securely bolted to it. At each splice in the chord, stay-rods and braces are always inserted. 80

From the foregoing and from the drawings it will be seen that my bridge consists of arched tubular trusses securely guarded by braces, stay-rods, chord and angle-plates, all fitted with nuts and screws for ready adjust- 85 ment and easy equalization of strains, and at the same time securely guarded against lateral or vibratory movements, while the saddles or supports on the top of the arches are prevented from displacement by U-shaped 90 bolts passing round each arch and up through the saddle, where they are secured by screws and nuts, as shown in the drawings.

What I claim as my invention, and wish to secure by Letters Patent, is— 95

A truss-girder for bridges, made of two or more metal tubes bent to the curve of the arch required, said tubes or arcs having their ends

tapped for the reception of nuts for the purpose of adjustment, as stated, chords for the same being formed of rods, bars, or wire cables, the two former being coupled at such points as may be required, in the manner illustrated in Fig. 4 or its equivalent, the ends secured by nuts and screws to suitable angle-blocks, as fully described and shown.

This specification signed and witnessed this 25th day of April, 1881.

IRA A. SPRAGUE.

Witnesses:

ALEX. TIPTON,

E. B. WOODRUFF.