E. J. Story.

Truss Bridge.

No. 411. — Patented Feb. 12, 1861.

31,415.

Fig: 3.

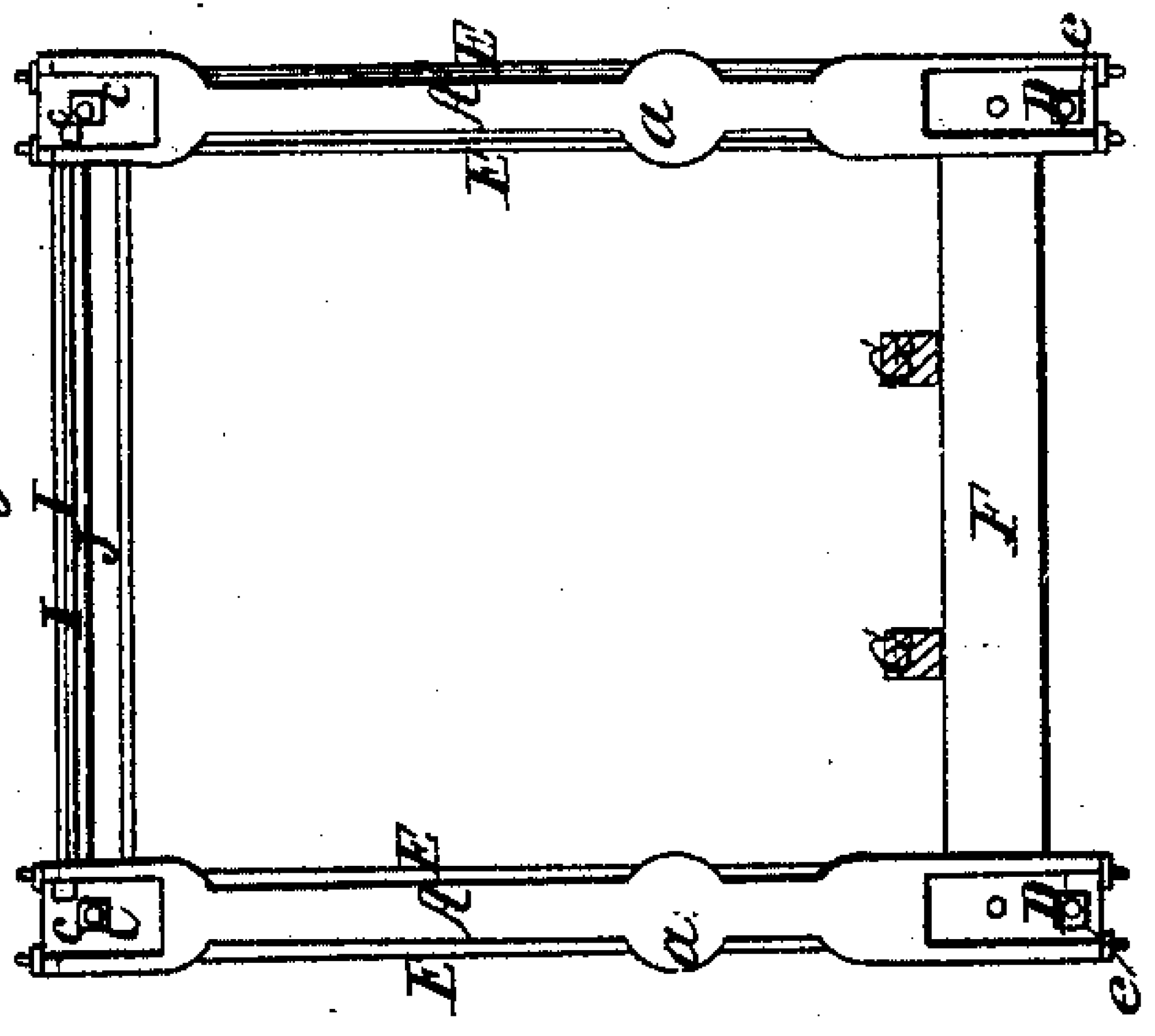


Fig: 1.

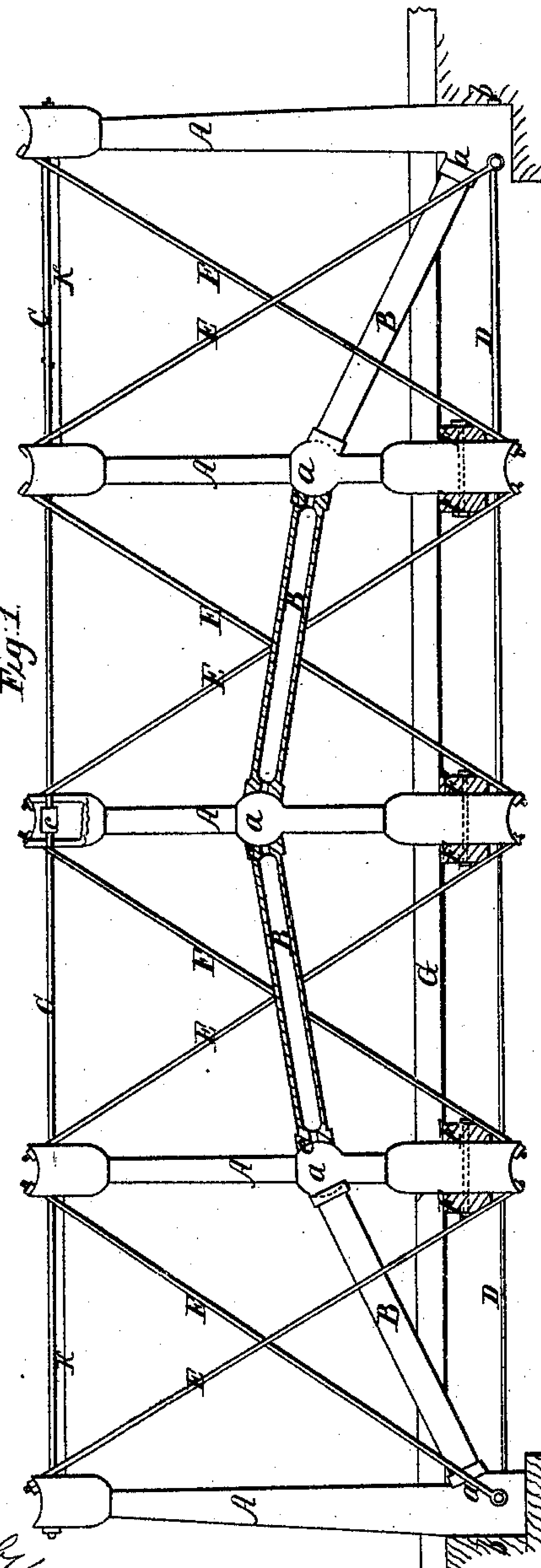
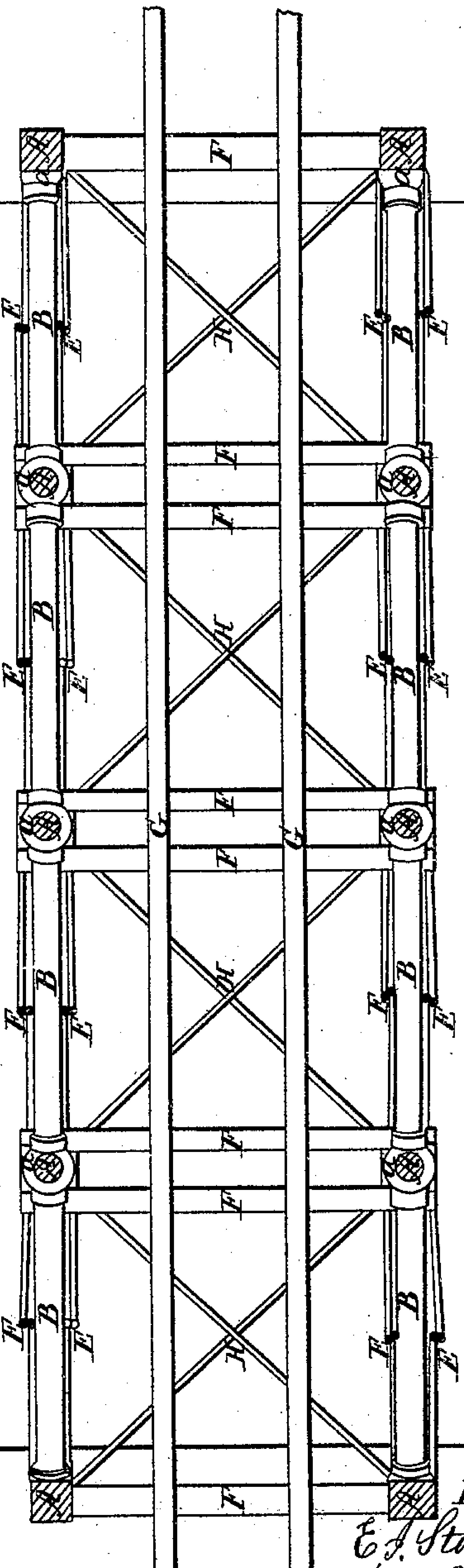


Fig: 2.



Witnesses;
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UNITED STATES PATENT OFFICE.

EPHRAIM J. STORY, OF GETZVILLE, NEW YORK.

TRUSS-BRIDGE.

Specification of Letters Patent No. 31,415, dated February 12, 1861.

To all whom it may concern:

Be it known that I, EPHRAIM J. STORY, of Getzville, in the county of Erie 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, forming part of this specification, in which—

Figure 1, is a side elevation partly in section, of a bridge constructed according to my invention. Fig. 2, is a plan of the same. Fig. 3, is a transverse vertical section of the same.

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

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

A, A, represent the posts.

B, B, are the arch sections of cast iron.

C, C, are the top chords, connecting the upper ends of the posts; and D, D, are the bottom chords connecting the lower ends of the posts said chords being all of wrought iron.

E, E, are diagonal tension braces of wrought iron crossing each other and connecting the head of each post with the foot of the next one on either side of it.

F, F, are the transverse floor beams secured to the lower parts of the posts A, A; and G, G, are joists resting on the said beams.

H, H, are horizontal diagonal tension braces of wrought iron connecting the feet of the posts and I, I, are similar braces connecting the heads of the posts.

J, J, are transverse straining beams of cast iron arranged between the heads of the opposite posts. Longitudinal straining beams may also be used between the heads of the posts as shown at K.

The posts A, A, and arch sections B, B, may be made tubular or the posts may be made solid with a suitable transverse sectional form but I prefer the arch sections to be tubular as represented in Fig. 1. The balls *a*, *a*, formed upon the posts, should consist of portions of spheres of a diameter about one half larger than the diameter of the arch sections, whose ends are hollowed out in socket form as shown at *e*, *e*, to fit the said balls. The ball-and-socket joints thus formed are confined together by the tension of the chords and braces, and form perfect bearings between the arch sections and posts at all times and under all changes of temperature accommodating themselves to the effects of expansion and contraction and to any deflection of the bridge from other causes.

The top and bottom chords C, and D, are made each of several rods or bars of suitable length connected by screw threads on their ends screwing into wrought-iron couplings *c*, Fig. 1, placed within the posts. The screwed terminal portions of the said rods or bars are made larger than the other portions in order to prevent their being weakest at the screw threads. The said chords are set up by nuts *b*, *b*, applied outside of the end posts of the truss. The several braces and counterbraces are set up by nuts applied as represented in the drawings.

The object in having the posts A extended above the points of compression of the arch sections B as shown is to secure stronger bracing and counter bracing.

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

The construction of the posts A with balls *a* and the arch sections B with sockets *e* in the manner and for the purpose substantially as herein shown and described.

E. J. STORY.

Witnesses:

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