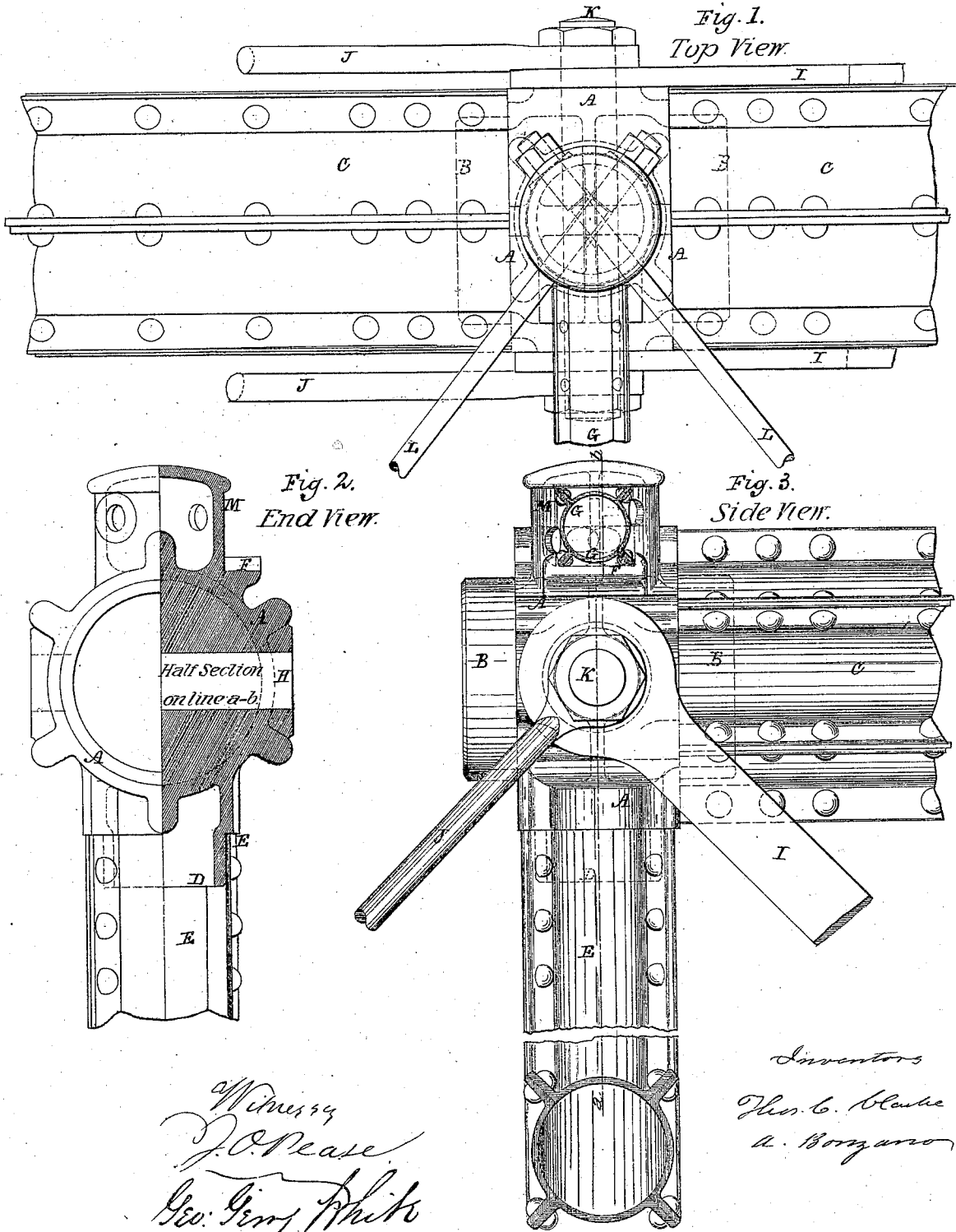


T. C. CLARKE & A. BONZANO.

Improvement in Bridge-Connections.

No. 130,479.

Patented Aug. 13, 1872.



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# UNITED STATES PATENT OFFICE.

THOMAS C. CLARKE AND ADOLPHUS BONZANO, OF PHILADELPHIA, PA.

## IMPROVEMENT IN BRIDGE-CONNECTIONS.

Specification forming part of Letters Patent No. 130,479, dated August 13, 1872.

*To all whom it may concern:*

Be it known that we, THOMAS C. CLARKE and ADOLPHUS BONZANO, of the city of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Connections or Fastenings for Bridges of Iron or Steel; and we do hereby declare the following to be a full, clear, and exact description of the same.

Our invention consists of a block or connecting-piece having a projection for the passage of tie-rods, and a socket for the reception of the end of a transverse strut, so arranged that the said strut shall resist the strains imparted through the tie-rods.

In the accompanying drawing, Figure 1 is a plan view, showing our connecting-piece applied to the upper chord system of an iron bridge; Fig. 2, a side view; and Fig. 3, an elevation, partly in section.

The connecting-piece A consists of a cast-metal block or cylinder having at the upper side a cylindrical projection, M; at the opposite ends annular projections B B; an annular projection, D, at the lower side; and at one side of the projection M a socket, F. The arrangement of the said projections may be slightly varied, in accordance with the position to be occupied by the connecting-piece and by the character of the structure of which it forms a part. In the present instance, the projection D extends into and is riveted to the upper end of a hollow post, E; the adjacent ends of two hollow sections, C C, of the top chord in like manner receive and are riveted to the projections B B; and one end of the

transverse strut G rests in the socket F. In order to insure a firm and positive bearing of the connecting-piece against the strut G, the projection M is perforated for the passage of two diagonal tie-rods, L L, each of which extends across the vertical axis of the projection, one being above the other, as shown in the drawing, and both being very nearly on the same horizontal plane as the axis of the strut. Owing to this arrangement the strains, applied through the tie-rods to the projection M, are sustained by the strut G. The said projection can, therefore, be much less in dimension than it would be if the strut were differently situated and the entire strain had to be resisted by the projection. In the connecting-piece is a transverse opening, H, for the reception (in the present instance) of the through-pin K, to which the main and counter diagonals I J are attached.

The projections D B, instead of being annular may be octagonal or of other form, to coincide with chord-pieces or posts of corresponding sectional form.

### *Claim.*

The combination, with a connecting-piece, of a projection, M, socket F or other support for the end of a strut, and recesses for the passage of diagonals L L, arranged in respect to the said socket as described.

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Witnesses:

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