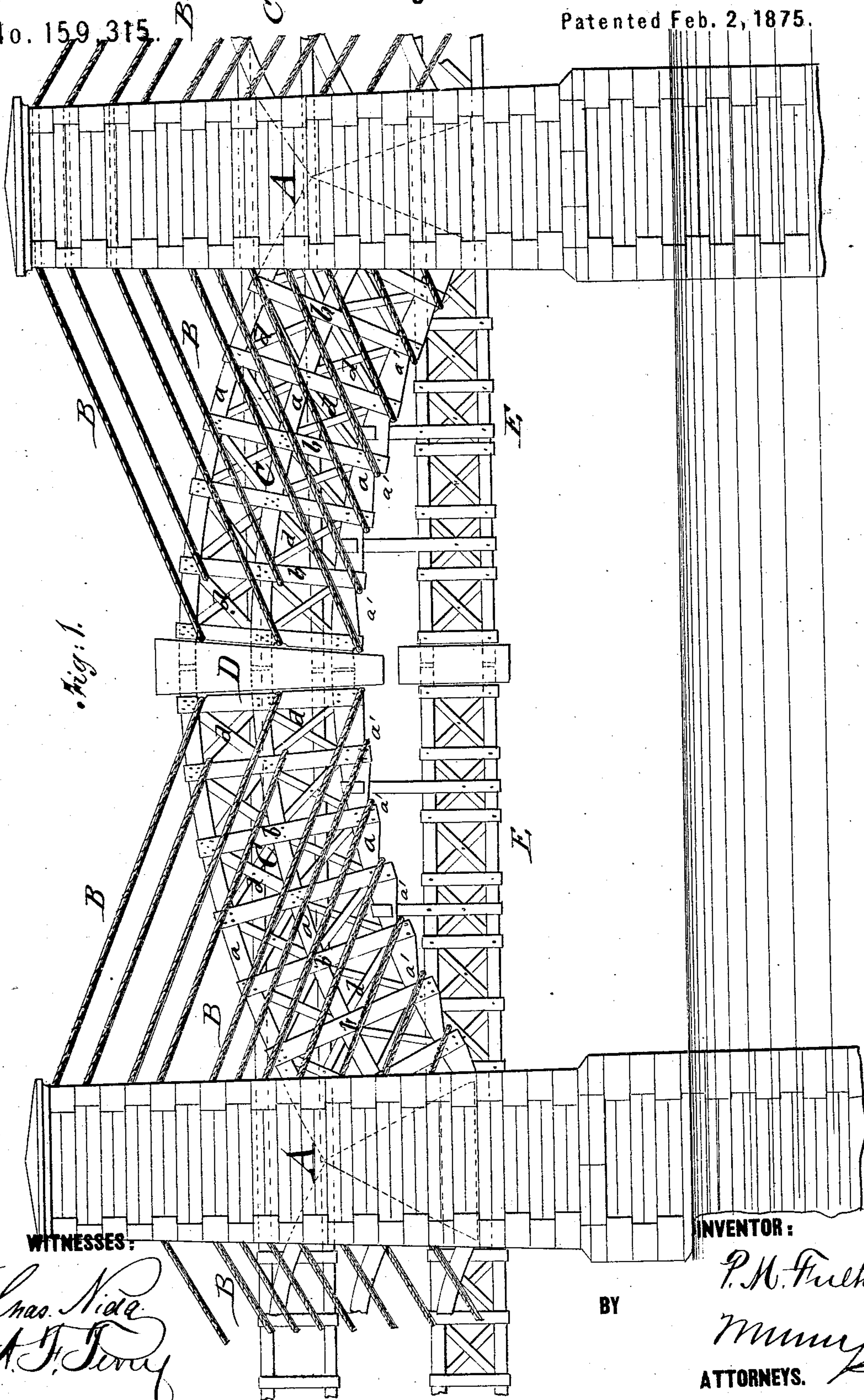


P. M. FULTON.
Bridge.

No. 159,315.

Patented Feb. 2, 1875.



WITNESSES:

Chas. Nida
A. J. Perry

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ATTORNEYS.

P. M. FULTON.
Bridge.

No. 159,315.
Fig: 4.

Patented Feb. 2, 1875.
Fig: 5.

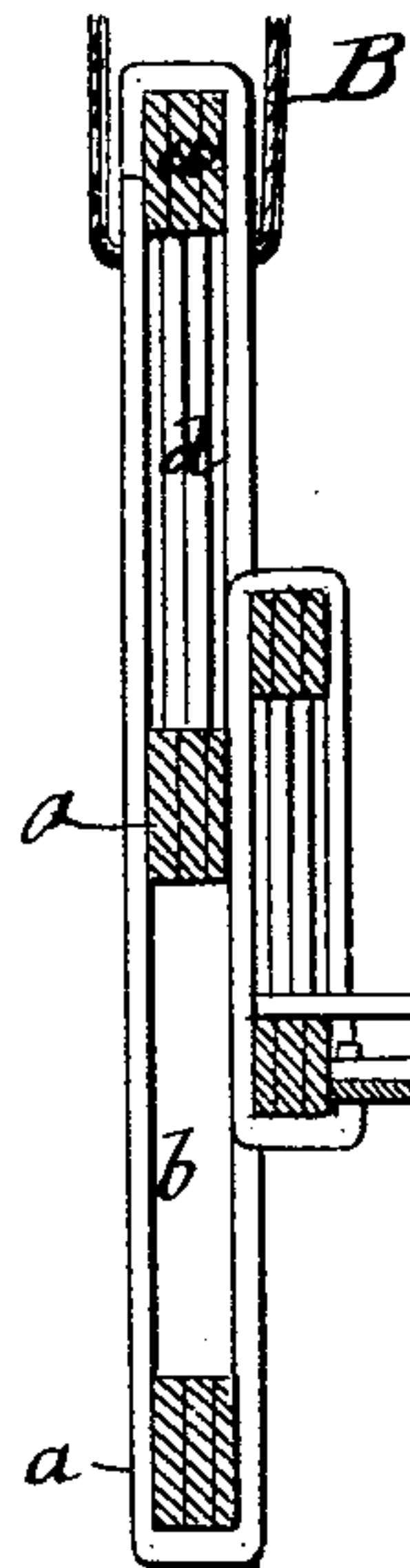
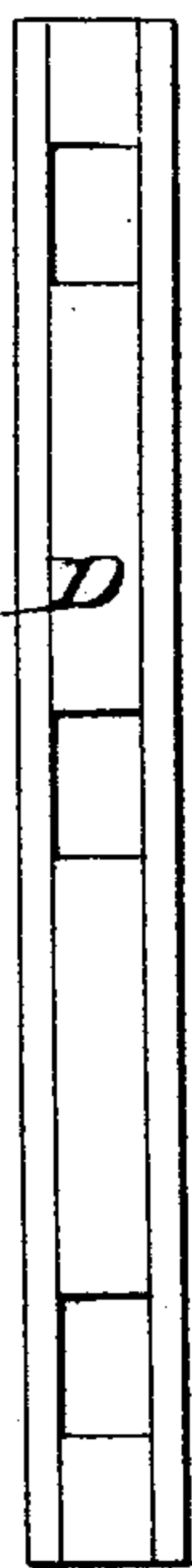


Fig: 4.

E

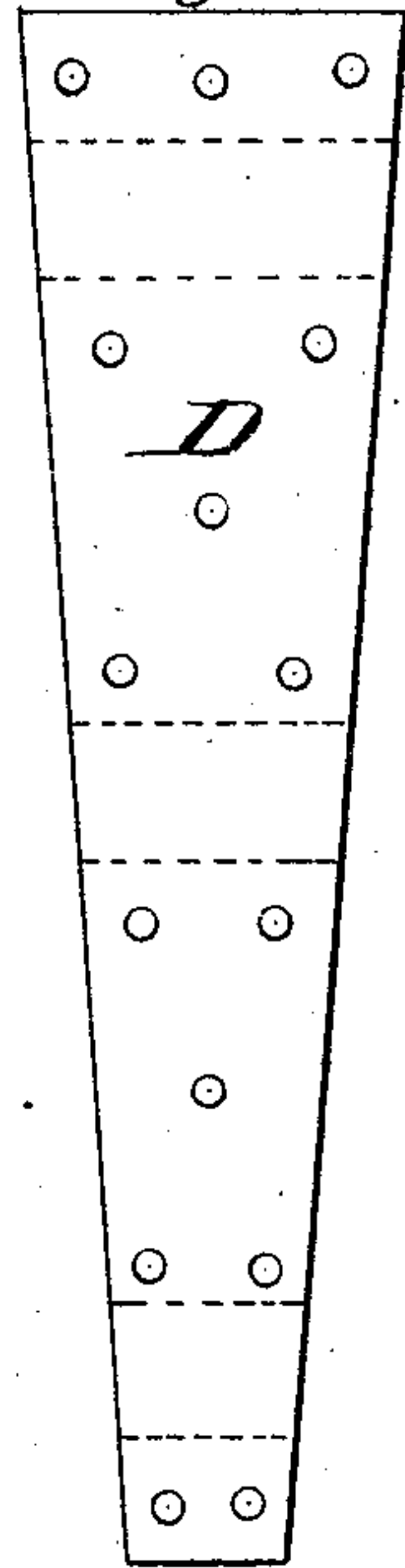
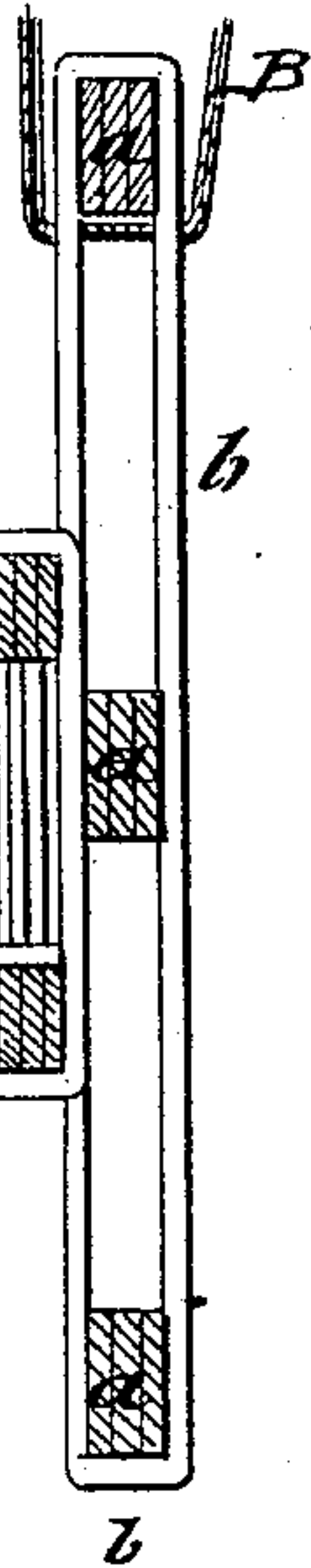


Fig: 6

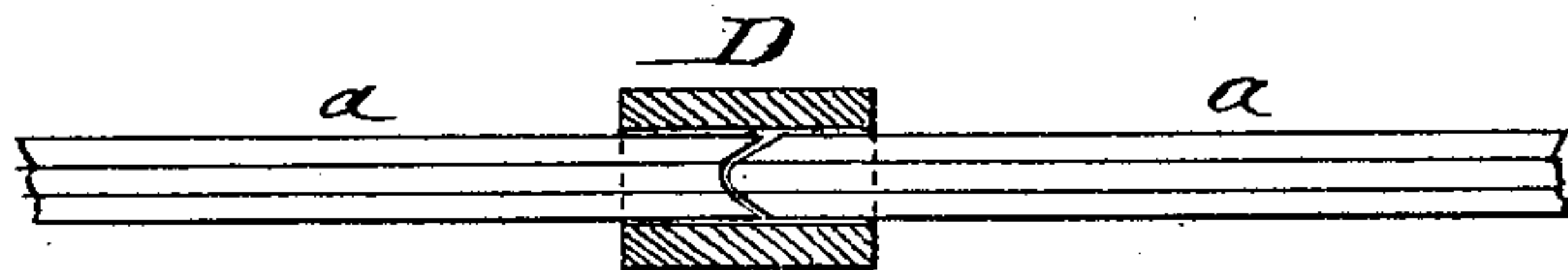
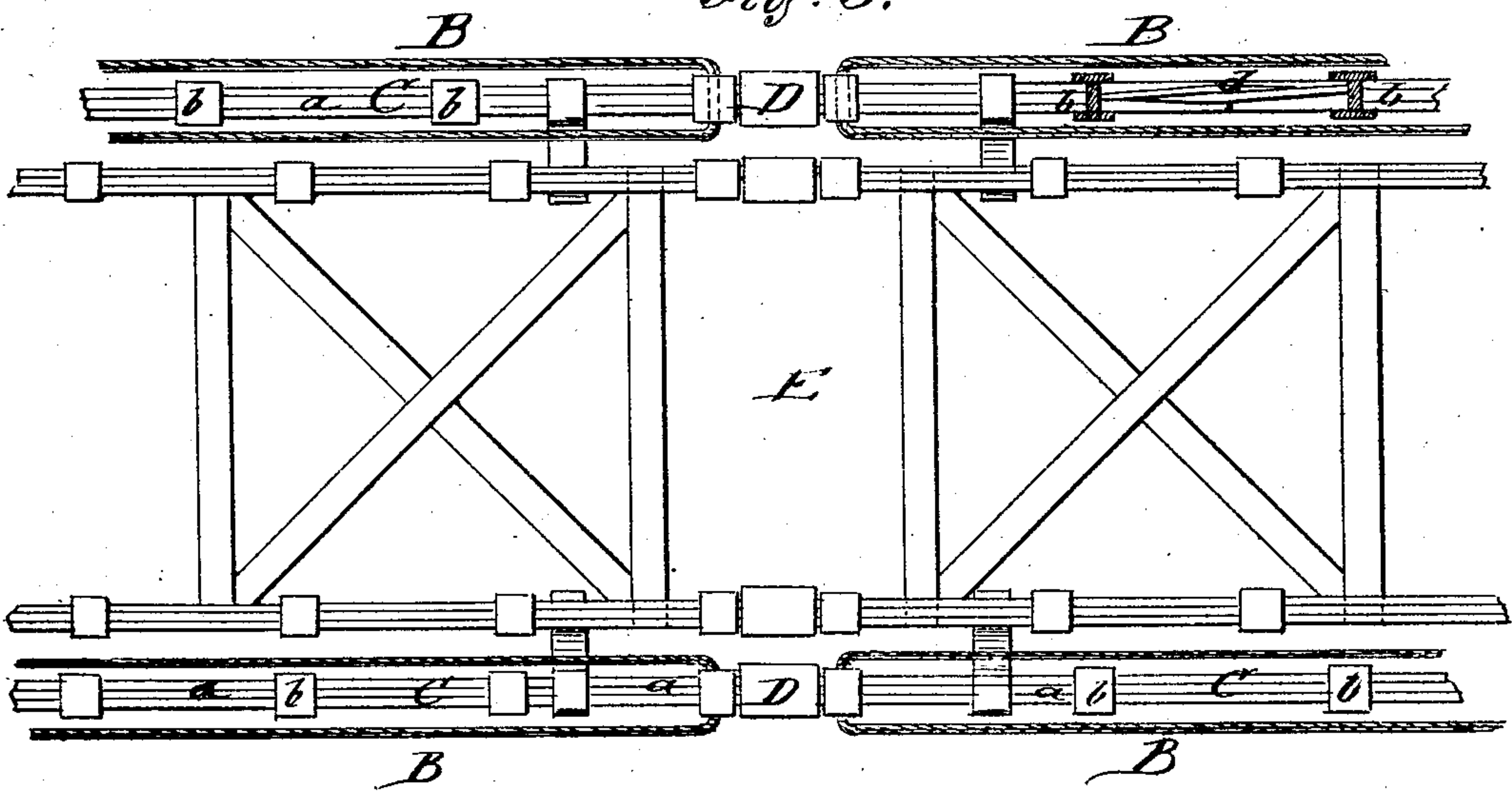


Fig: 3.



WITNESSES:

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A. J. Terry

INVENTOR:

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UNITED STATES PATENT OFFICE.

PETER M. FULTON, OF RHINEBECK, NEW YORK.

IMPROVEMENT IN BRIDGES.

Specification forming part of Letters Patent No. **159,315**, dated February 2, 1875; application filed October 17, 1874.

To all whom it may concern:

Be it known that I, PETER M. FULTON, of Rhinebeck, in the county of Dutchess and State of New York, have invented a new and Improved Bridge, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a side elevation of my improved bridge; Fig. 2, a vertical transverse section of the same in enlarged scale; Fig. 3, a top view in enlarged scale. Figs. 4 and 5, respectively, are side and front views of the key-stone or central connecting-piece; and Fig. 6 is a horizontal section of the same.

Similar letters of reference indicate corresponding parts.

The invention will first be fully described, and then pointed out in the claims.

In the drawing, A represents the towers, which are erected at suitable required distance from each other, and built for bearing the arch-supporting cables B. The height of the towers may be reduced to a considerable extent, and thereby the great cost of the same as compared to suspension-bridges lessened. The towers serve also as abutments for the arch-sections C, which are stretched and supported across the span between the towers, their symmetrical semi-sections being firmly joined by central key-pieces D, in the shape and nature of a key-stone of an arch. In large spans additional intermediate key-pieces may be used for binding the smaller arch-sections together. The semi-sections C of the arch are preferably constructed of three concentric bands or arcs, *a*, which are braced and bound by radial pieces *b*, bolted, riveted, or otherwise applied thereto. The space between bands *a* and radial pieces *b* is strengthened by diagonal stiffening-braces *d*, which give the necessary degree of strength and resistance to the arch. The lowermost band is provided with notches *a'* at the end of each radial piece, and the cables B placed in the notches and passed sidewise along the arch to the bearing in the towers, and through the same to a lug, trestle, or any suitable anchorage. The upper bands, *a*, are also hung to ca-

bles B, two or more being stretched at the crossing of bands and radial pieces, so that in this manner the arch is rigidly and securely supported, and thus a combination of arch and suspension bridge obtained.

The arch-sections are constructed from both towers toward the center without a supporting scaffolding by the use of a derrick above and a traveling-truck underneath, which forms the platform for the workmen. The truck is hung on rollers, and can be raised or lowered and kept in position by a brake. One arch-section after the other is joined to the other and hung to the cables, until the grooved and pointed approaching ends of the arch-sections may be connected by the correspondingly-perforated key-pieces D. The roadway E is then hung by vertical suspension-rods or pieces to the lowermost arc, being constructed of horizontal and vertical pieces with diagonal braces and central key, analogous to the arch-sections. The cables of the middle arches are stretched from one arch-section over the tower to the adjoining section of the next arch, while the shore cables are anchored without difficulty in the earth or in the shore abutments.

In this manner a very strong and substantial bridge may be constructed in a convenient and not very expensive manner, and rivers or other waters be spanned readily with two or more roadways placed above and sidewise of each other.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the supporting-towers A with the arch-sections C and the series of stretched cables, for serving as arch-abutments and cable-bearings, as specified.

2. The perforated key-piece D, in combination with the grooved and tapering ends of the arc-bands *a*, for forming the joint of the arches, as set forth.

PETER M. FULTON.

Witnesses:

J. C. McCARTY,
GEO. ESSELSTYER.