

I. Rogers.
Truss Bridge

N^o 15,823.

Patented Sept. 30, 1856.

Fig. 1.

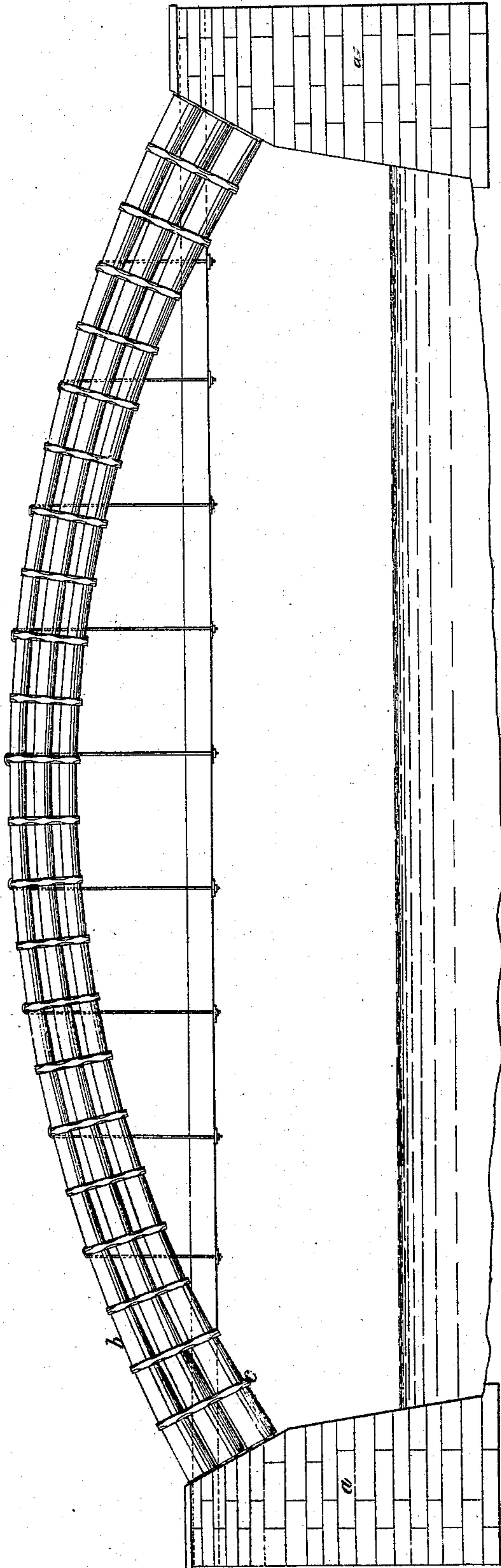
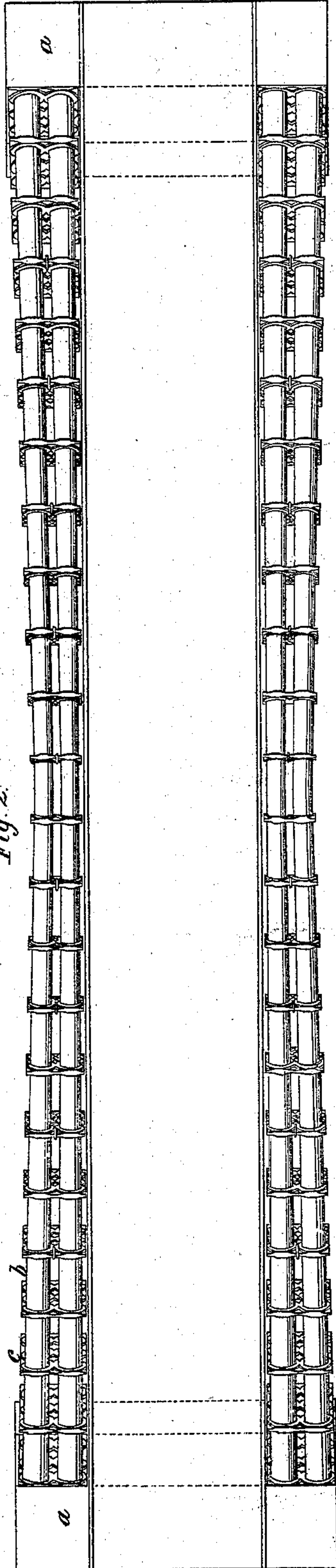


Fig. 2.



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Sheet 2, 2 Sheets.

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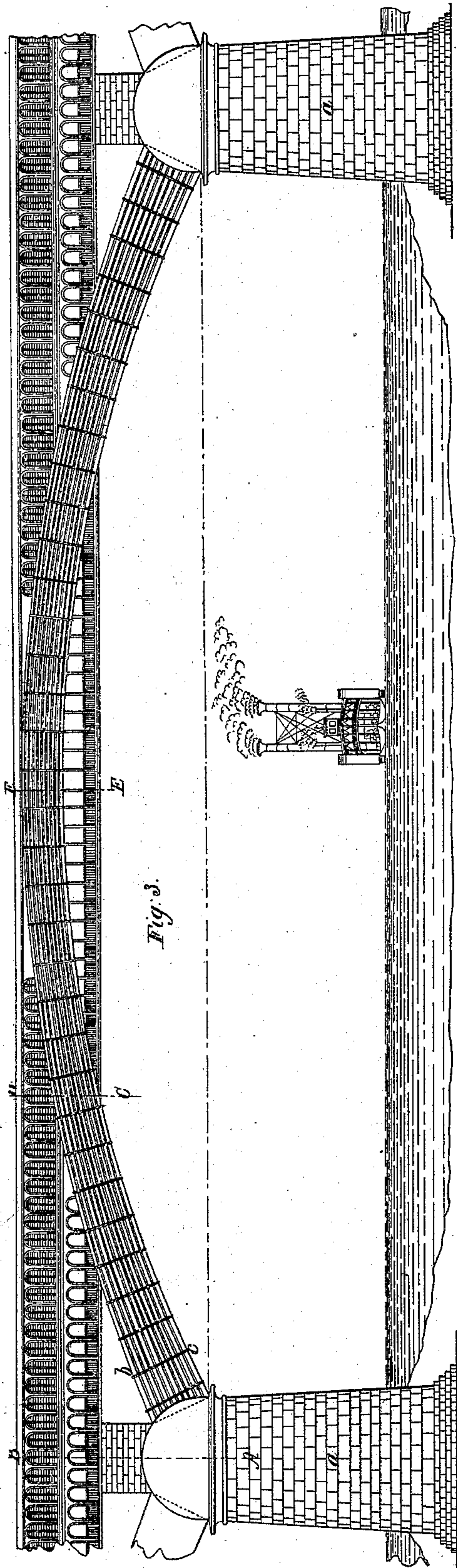


Fig. 3.

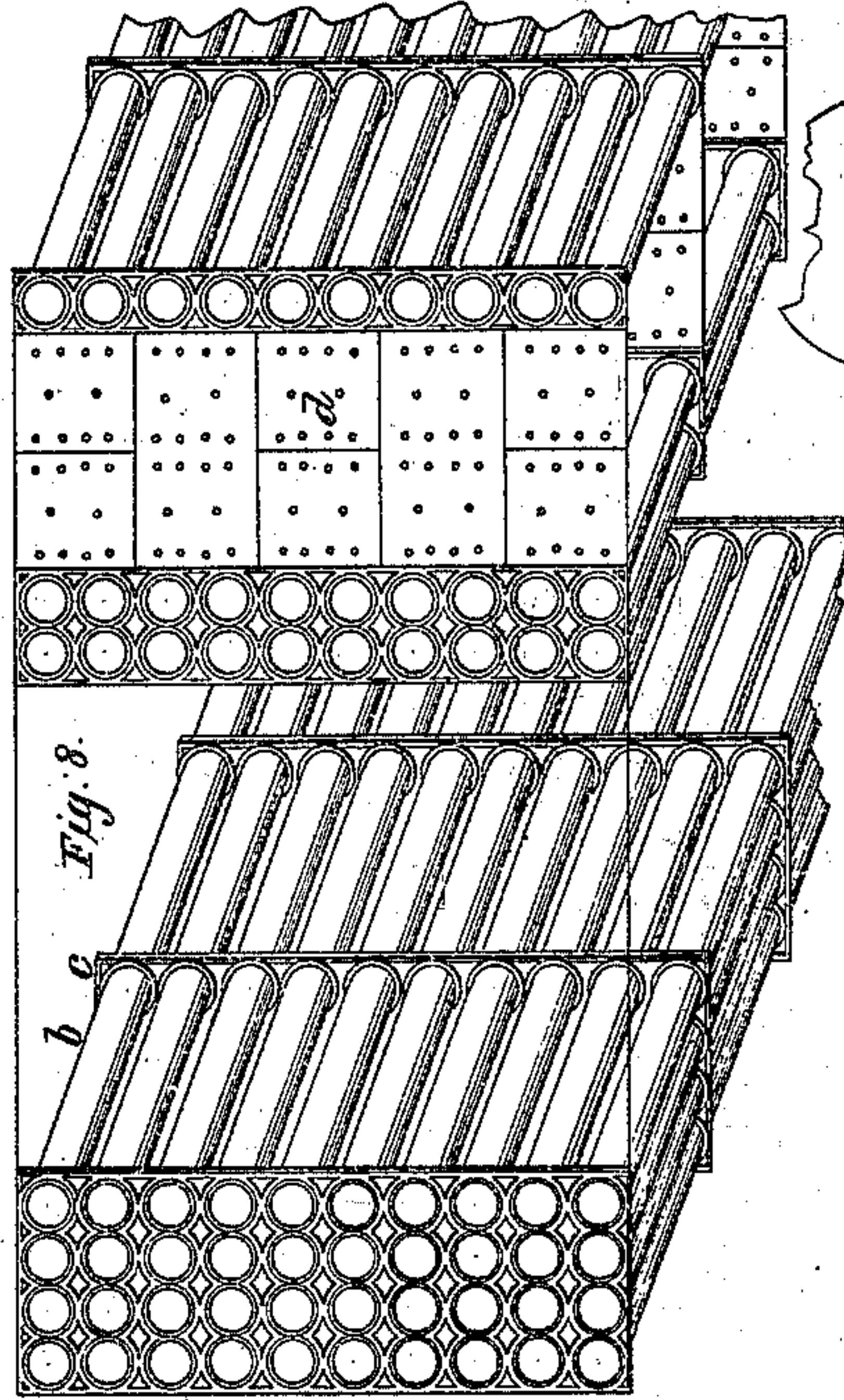


Fig. 8.

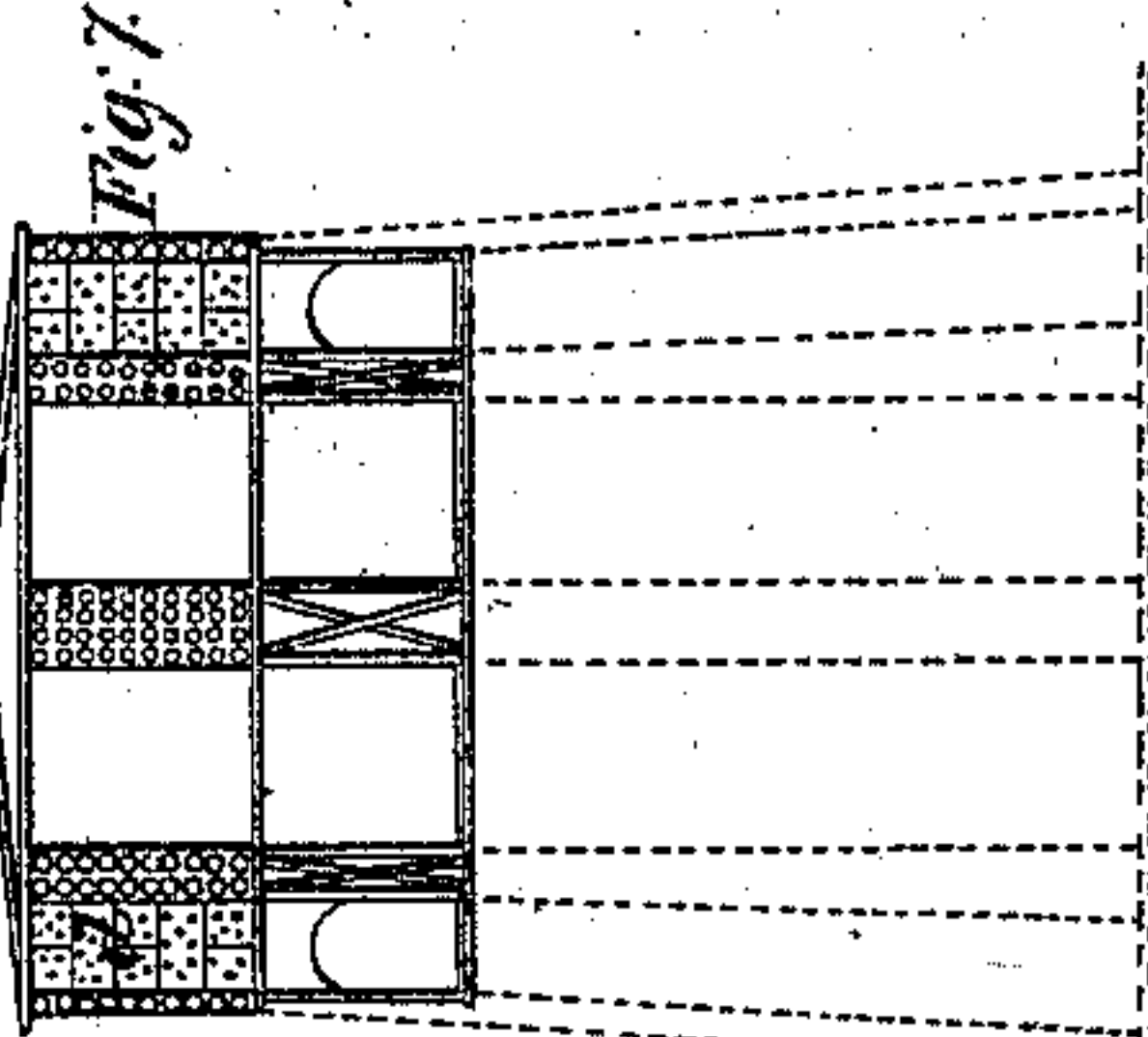


Fig. 7.

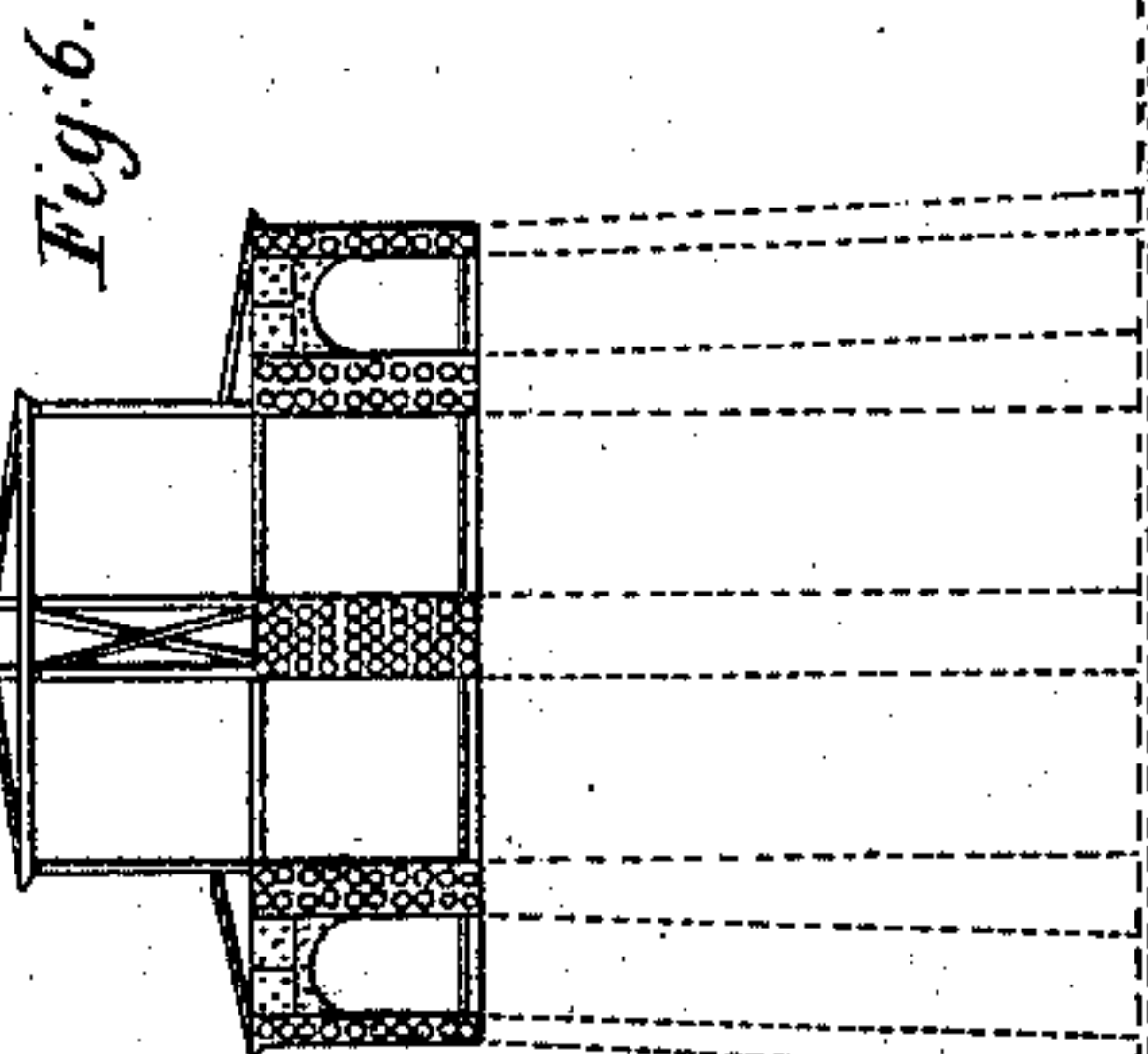


Fig. 6.

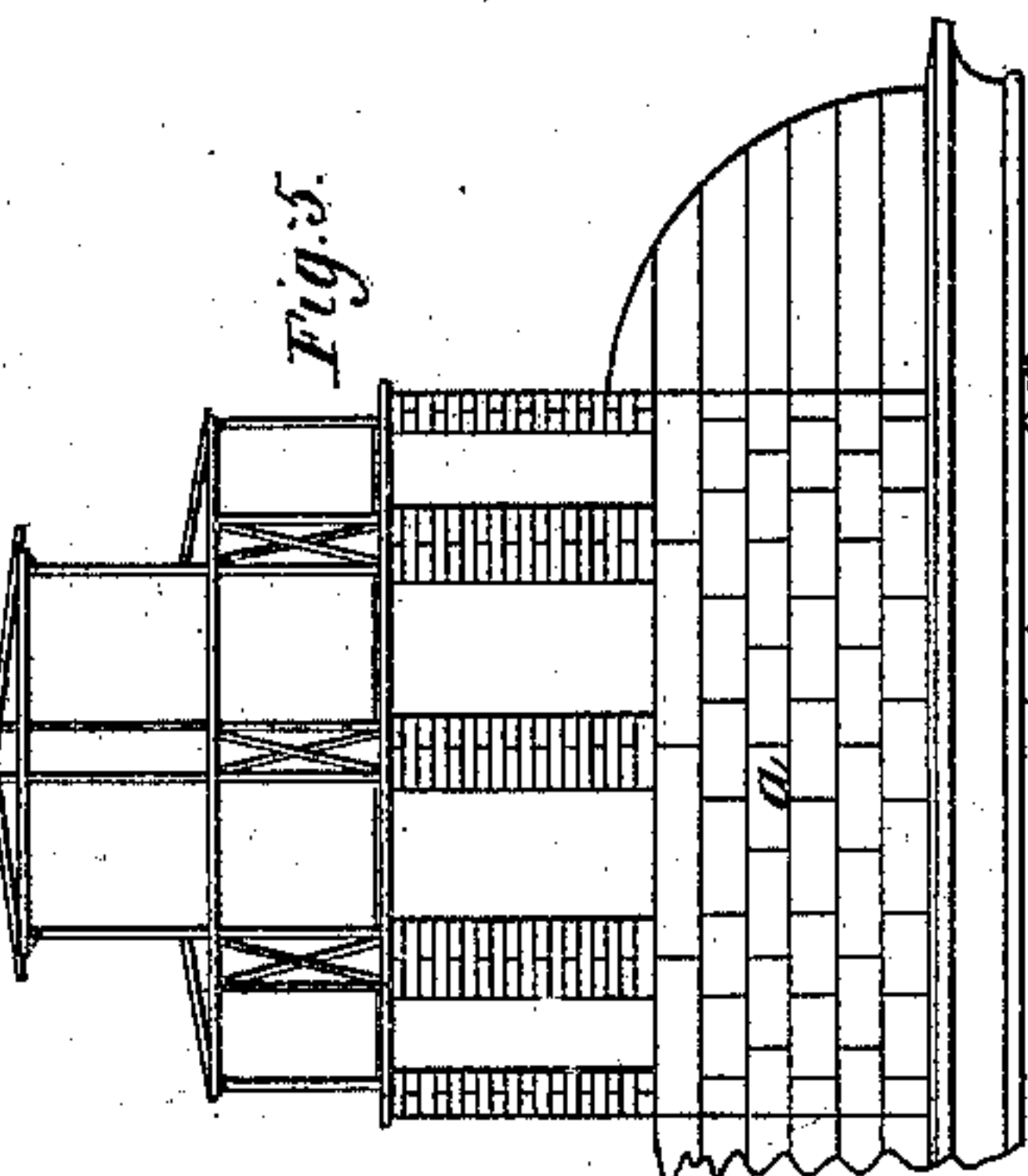


Fig. 5.

Section E.F.

Section C.D.

Section A.B.

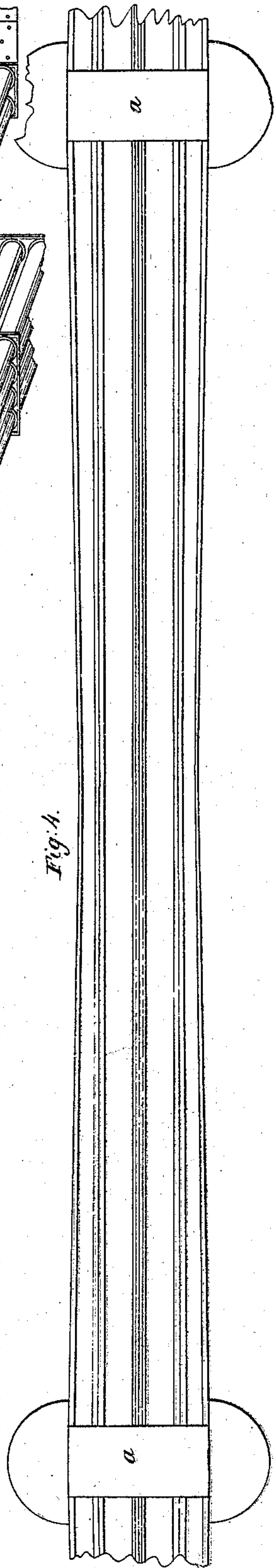


Fig. 4.

UNITED STATES PATENT OFFICE.

I. ROGERS, OF CINCINNATI, OHIO.

BRIDGE.

Specification of Letters Patent No. 15,823, dated September 30, 1856.

To all whom it may concern:

Be it known that I, ISAIAH ROGERS, of Cincinnati, Hamilton county, Ohio, have invented new and useful Improvements in Bridges; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the annexed drawings, making part of this specification.

My invention has for its objects a construction of an arch bridge combining lightness and economy of material with perfect stability and particularly adapted to form arches of wide span-flat curve and absolute rigidity such as are frequently required for railroads.

To accomplish these objects I have devised a formation of arch in which each voussoir is composed of tubes arranged in a number of parallel ranks of concentric arcs, and in which the tubing of each component arc has an enlarged substance and wider bearing toward the spring or abutment; the tubes composing each voussoir being held firmly to their respective ranks and positions by flanged head plates placed radially with respect to the curve of the arch.

In the accompanying drawings Figure 1 represents by side elevation a small bridge on my improved plan of construction. Fig. 2 is a top view of the same. Fig. 3 is a side elevation representing a bridge of five hundred feet span. Fig. 4 is a top view of the same. Fig. 5 is a transverse section taken at the line A B Fig. 1. Fig. 6 is a transverse section taken at the line C D Fig. 1. Fig. 7 is a transverse section taken at the line E F Fig. 1. Fig. 8 is a perspective view on an enlarged scale of a portion of the ranges belonging to one side of the bridge.

The piers (a) may be of usual construction.

(b) are tubes of cast iron or otherwise; these tubes, as they extend from the crown toward the abutment on either side increase in size substance and breadth of bearing, and may be all of them cylindrical in shape, or where a parallel roadway is desired the expansion toward the abutment and the contraction toward the crown may be wholly or chiefly in a vertical direction, so that the tubing being cylindrical about the haunches

of the arch assumes a gradually ovaling form both toward the crown and toward the abutments, the major diameter being of course in such case horizontal toward and at the center of the arch and vertical at the ends.

(c) are flat iron plates of rectangular outline, and placed at stated distances radially in the arch; their represented annular flanges being adapted to confine the ends of the tubes and to secure them against lateral displacement.

(d) are brace or connecting plates formed of boiler iron and extending from the nearest vertical edge of the head plate of one set of voussoirs to that of the next adjacent set. These brace plates are on either edge firmly secured to the said head plates. They may be placed wherever they will not interfere with the thoroughfares.

In the present illustration, two principal thoroughfares or roadways are provided for, the upper one supporting a railroad track, and the lower one being occupied by a wagon road and foot paths. Wrought iron or wood may be partly or wholly substituted for cast iron in this connection.

I claim as new and of my invention herein—

1. The formation substantially as described, of an arch whose voussoirs consist of one or more ranges of tubes in vertical planes, held in position by the described radial plates with confining flanges, the tubes of each component arc, being gradually displayed and enlarged from the crown of the arch each way, the enlargement in one direction and the contraction in the other direction being such as to preserve a circular section throughout, or gradually ovaling from the haunches by a vertical enlargement toward the ends and a corresponding contraction toward the center of the arch according to circumstances.

2. I claim in combination therewith the described mode of staying and bracing together the several ranges of such tubular voussoirs.

In testimony whereof, I hereunto set my hand.

ISAIAH ROGERS.

Attest:

JAS. H. GRIDLEY,
WM. L. SPOONER.