

H.L. Hervey Truss Bridge

Patented Feb. 20, 1856.

No. 14,314.

Fig. 1

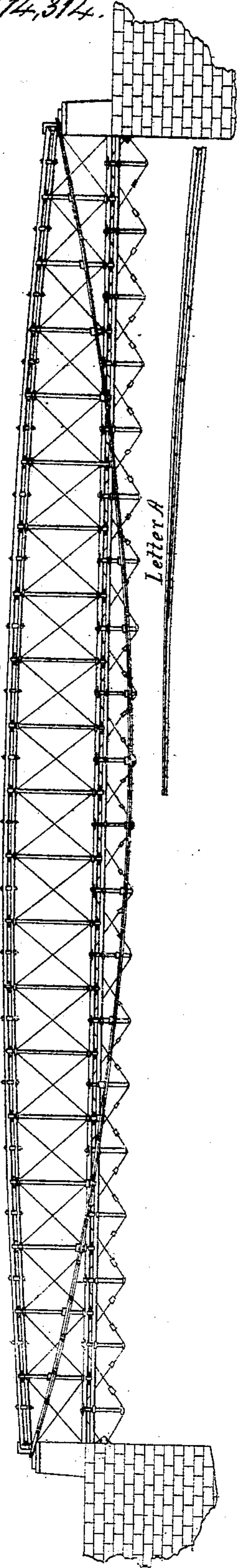


Fig. 2

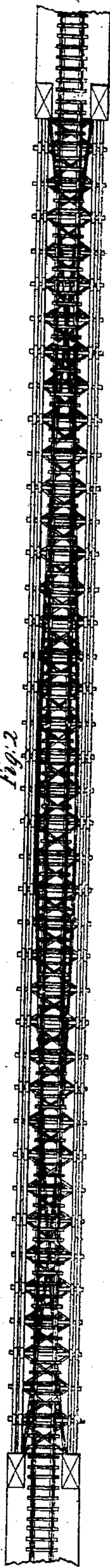


Fig. 3

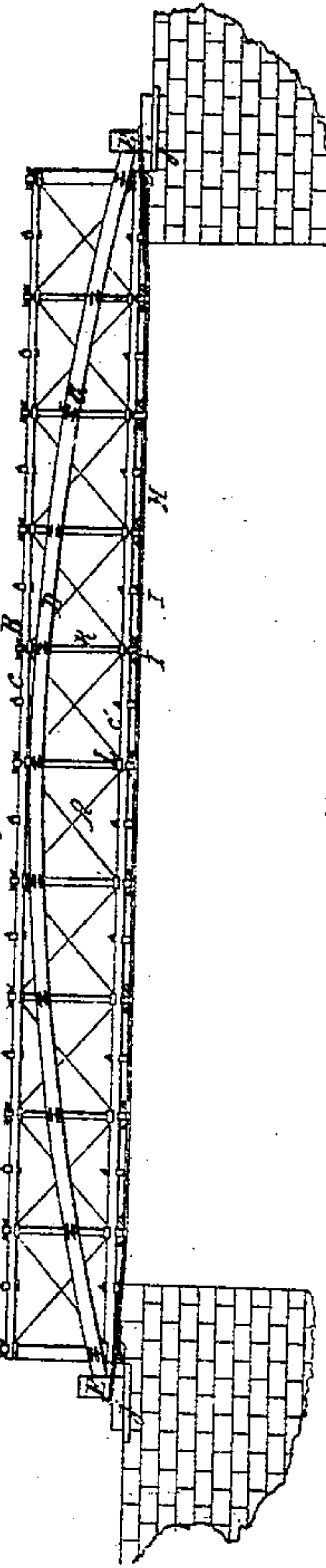


Fig. 4

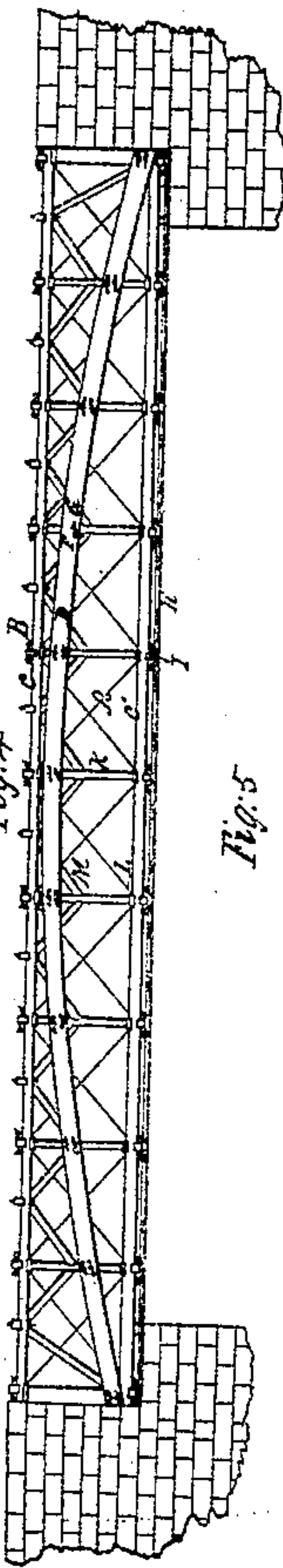
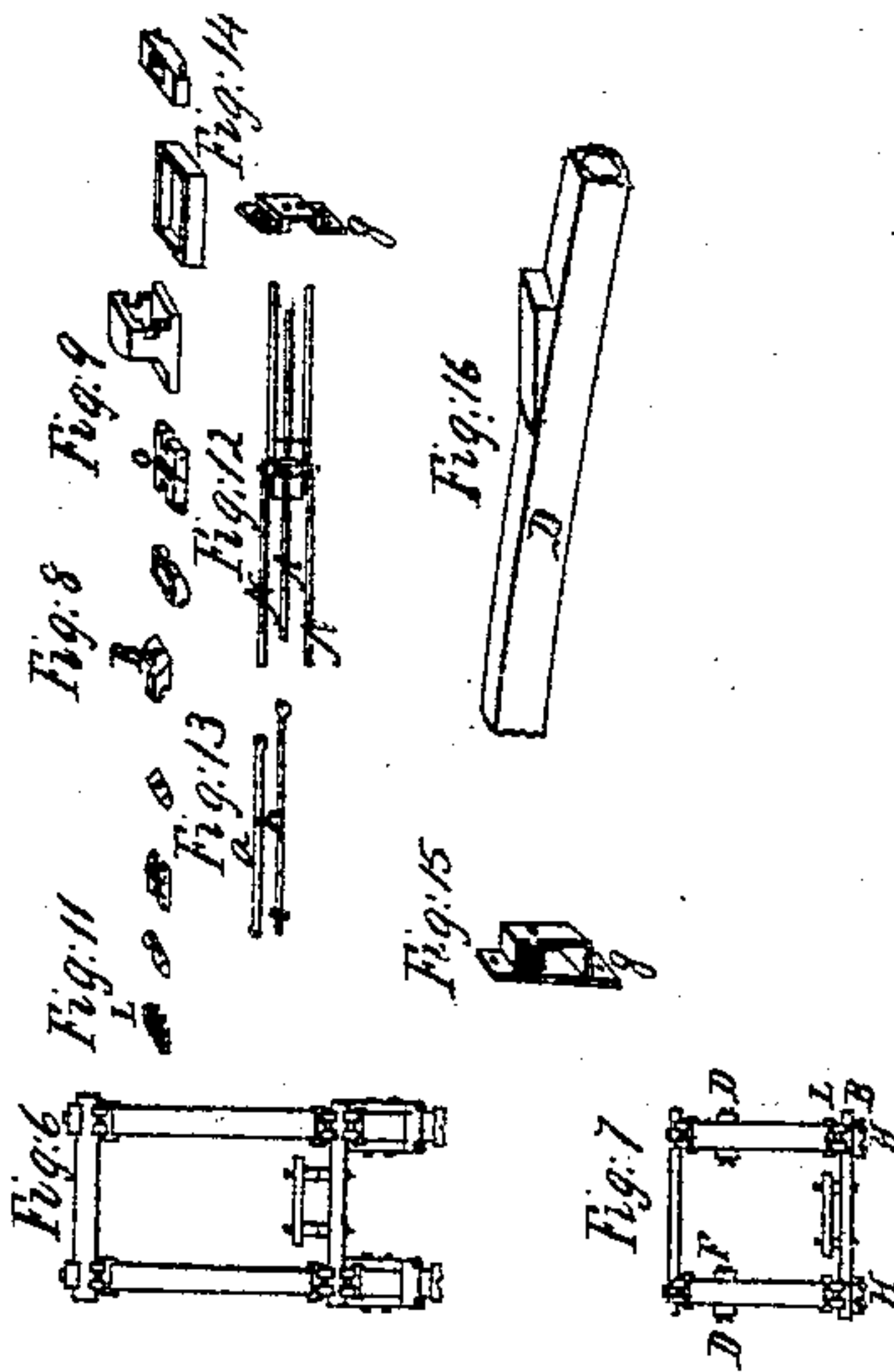
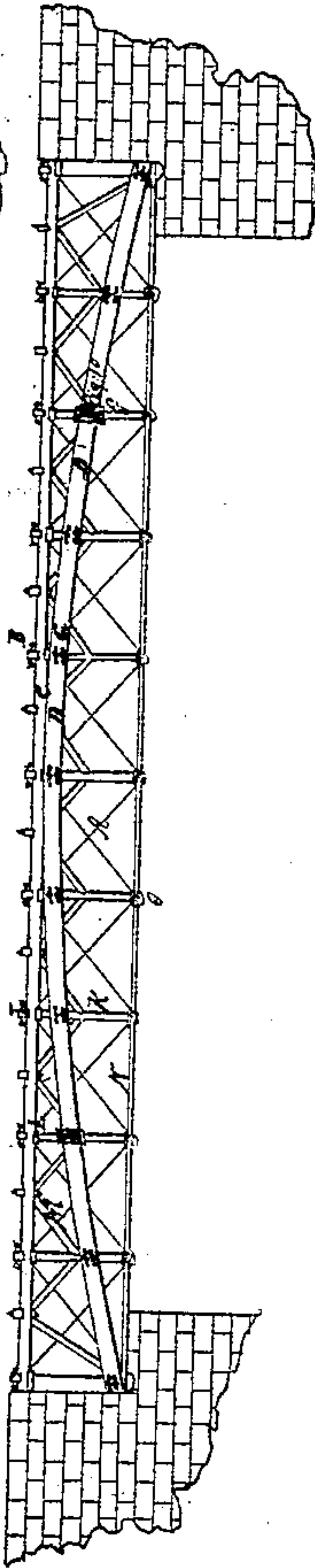


Fig. 5



UNITED STATES PATENT OFFICE.

HORACE L. HERVEY, OF QUINCY, ILLINOIS.

ARCHED TRUSSED BRIDGE.

Specification of Letters Patent No. 14,314, dated February 26, 1856.

To all whom it may concern:

Be it known that I, HORACE L. HERVEY, of the city of Quincy, county of Adams, and State of Illinois, have invented a new and useful Improvement in Suspension Arch Truss Bridges; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 is a side view of the original bridge. Fig. 2, is a bottom or floor view of the same. Fig. 3, is a side elevation of a short span bridge, with the suspension blocks resting on the main abutments instead of the towers. Fig. 4, is a side elevation of the short span bridge, dropped down to allow the roadway to pass on the top of the structure. The combination of the arch, cables and suspension blocks I consider to be the same as in the original bridge. Fig. 5, is the same elevation, with bars of iron as cables and do not use a lower chord or stringer. Fig. 6 is an end view of the original bridge. Fig. 7 is an end view of the bridge marked Fig. 3. Fig. 8 is a view of the blocks for the tension braces to pass through and to support the cross ties. Fig. 9 is a view of one of the blocks to which the tension braces and suspension bars are fastened to. Fig. 10 is a view of one of the clamps holding or connecting the arches with the truss, as in Fig. 5 letter *g*. Fig. 11, is a view of one of the sockets for the posts to set in. Fig. 12 is a view showing how the tension braces and suspension bars are united with the blocks. Fig. 13, *a* the tension braces, *b* the suspension bars. Fig. 14, is a view of one of the clamps. Fig. 15 is a view of one of the clamps with a friction roller inserted. Fig. 16, is a section of the arch provided with a wedge block for the friction roller to move upon.

To enable others skilled in the art to make and use my invention I will describe its construction and operation.

Fig. 3, is a side elevation of a short span bridge. It is composed of tension braces A. These braces pass through the blocks B, and their ends are furnished with heads or nuts. C, C', are the stringers or chords. D is a tubular or solid arch with its ends resting in and against the suspension blocks E. These arches are provided with slots or

clamps provided with slots for the bolts F, to pass through to fasten them to the truss. The slot G, allows the camber of the arch to adjust itself in such a manner as not to affect the truss in a horizontal direction, and at the same time operate in connection with the truss in a vertical direction. H is the suspension cables. They pass around or are fastened to the suspension blocks E. The cable runs straight or nearly so passing under the cross ties J, and assist in sustaining them. The cables are fastened to the stringers C', at as many points as is desirable to relieve it of the strain which would be caused by deflection or sag. This cable may be made of wire in the usual manner of suspension cables or rods of iron. The suspension blocks E, are made of cast iron or any other materials. They rest upon rollers or balls to prevent friction in such a manner as to not affect the abutments. The balls or rollers are contained in plates *j, j*. These plates are hollow and rest upon the main abutments. K, K, are posts for the purpose of preventing the chords or stringers C, C', from being drawn together by the tension braces A, and are provided with sockets L, at their ends to prevent the posts K from slipping out of place. The sockets L are the same as are used in the original bridge. The blocks B, are of cast iron or other metal made in a triangular shape and are provided with a projection to keep the cables in their proper places and support the cross ties I.

Fig. 4, is a side view, the same as Fig. 3 with the addition of compression braces M acting in connection with the tension braces A, for the purpose of supporting every alternate bearing point and is intended to have the road way placed upon the top of the structure. The arch D, and cables H, are provided with suspension blocks, rollers or balls and plates similar to Fig. 3. These blocks, rollers or balls and plates are placed in a chamber provided for them in the abutments.

Fig. 5, is a side elevation the same as Fig. 4 with the stringer or chord C' not used and suspension bars N, used in the place of the cables and said stringer or chord and with the addition of the sockets O, to which the tension braces A, and suspension bars N are fastened to and connected with the foot

of the posts K rest in and are kept in their proper places by the said sockets.

The clamp in Fig. 14 for fastening the arch to the truss may have in it a friction roller as shown in Fig. 15 running upon the arch and wedge shaped block attached to the arch for the purpose of preventing friction when the camber of the arch changes and as the arch changes its camber it will not affect the truss in a horizontal direction but at the same time will cause the truss to rise and fall in proportion to the change in the camber of the arch.

Drawing letter A shows one way of constructing the arch when formed of timber entirely.

Having thus fully described the construction and operation of my invention what

I claim as new and desire to secure by Letters Patent is—

1. The use of compression braces in combination with tension braces to support each alternate bearing point.

2. I claim the clamps with or without slots in them or slots in the arch with or without friction rollers traversing the wedge blocks as the equivalents of them in combination with the truss for the purpose of allowing the truss to rise and fall in proportion to the change in the camber of the arch as herein set forth.

HORACE L. HERVEY. [L. s.]

Witnesses:

J. C. CLAYTON,
T. G. CLAYTON.