

(No Model.)

3 Sheets—Sheet 1.

J. A. DAVIDSON.
BRIDGE CONSTRUCTION.

No. 605,474.

Patented June 14, 1898.

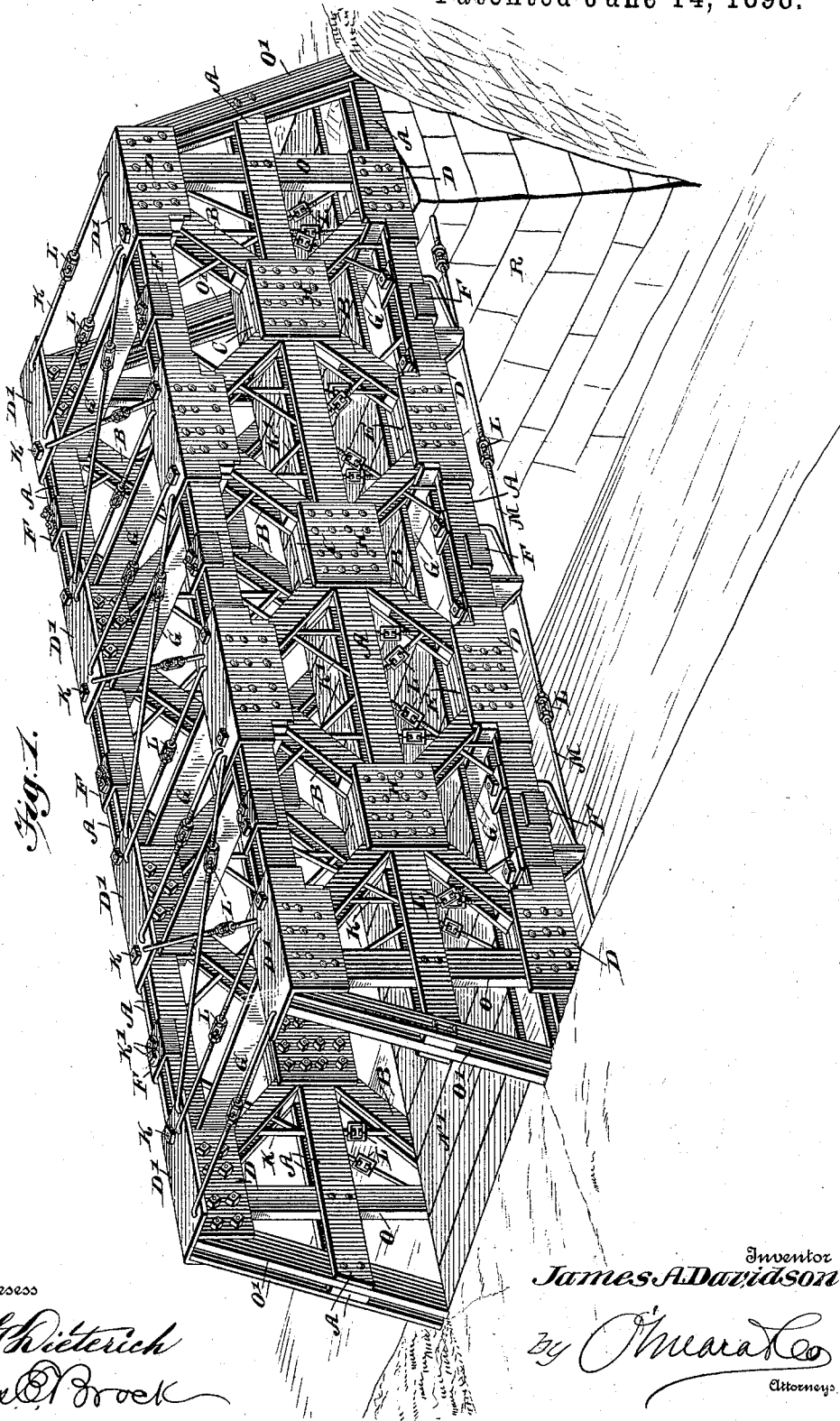


Fig. 1.

Witnesses

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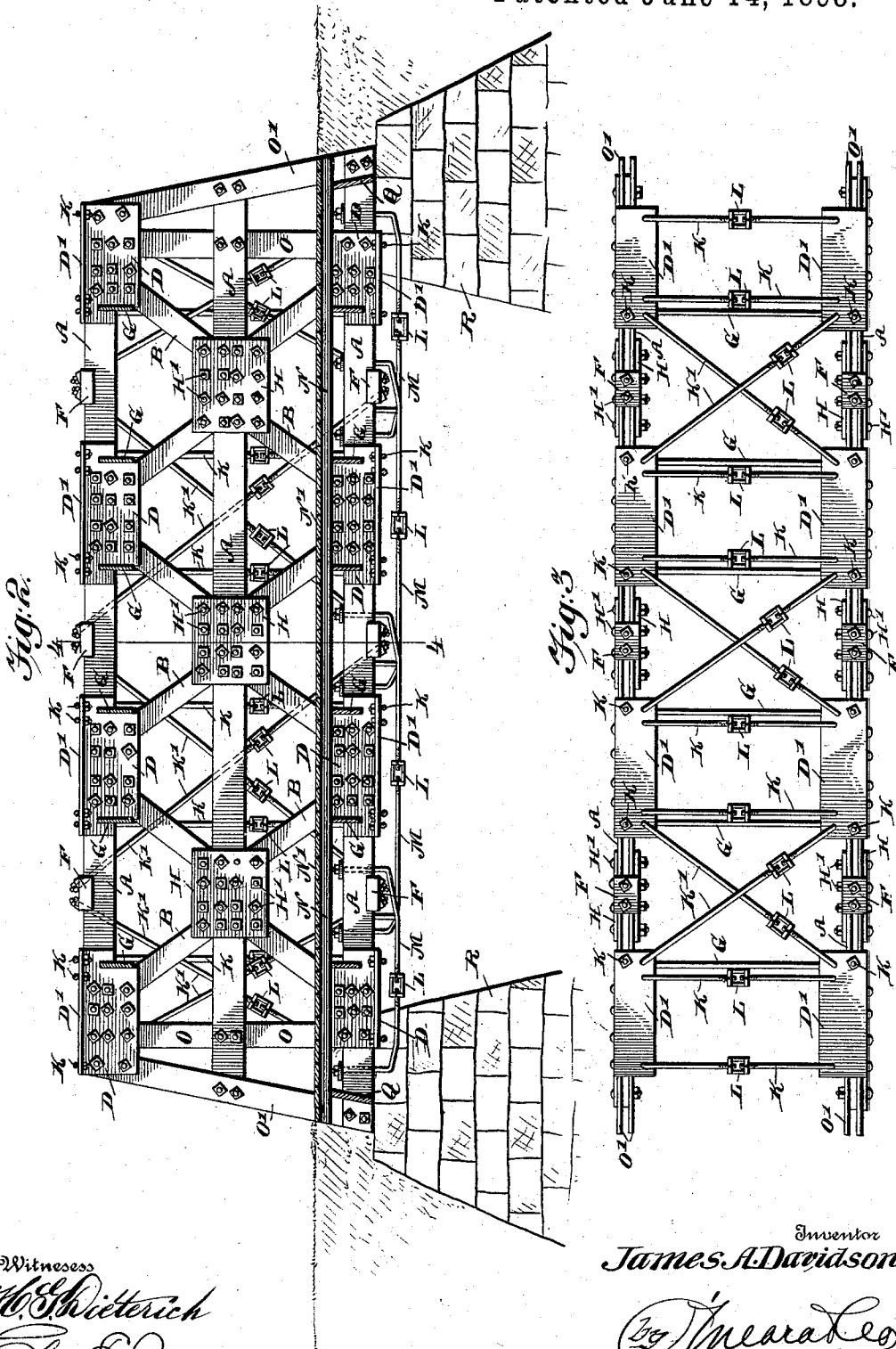
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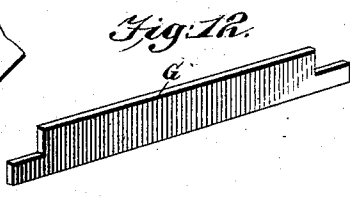
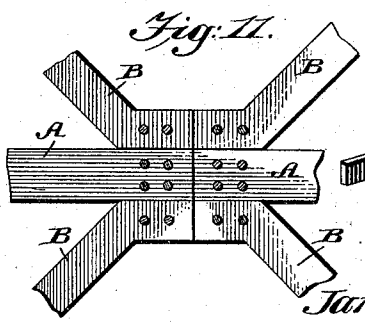
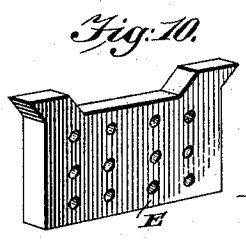
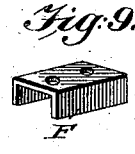
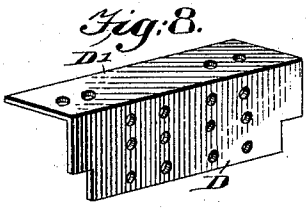
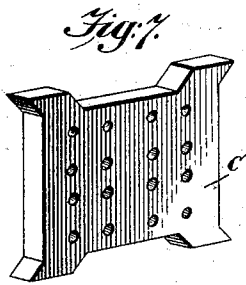
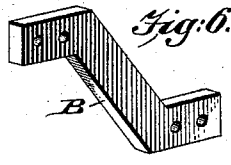
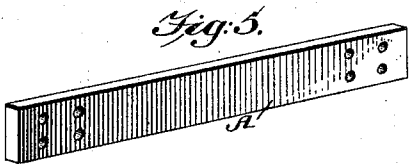
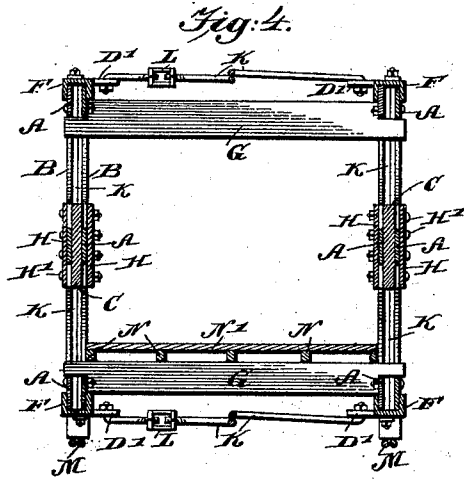
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UNITED STATES PATENT OFFICE.

JAMES ALLEN DAVIDSON, OF MILLSAP, TEXAS.

BRIDGE CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 605,474, dated June 14, 1898.

Application filed August 17, 1897. Serial No. 648,605. (No model.)

To all whom it may concern:

Be it known that I, JAMES ALLEN DAVIDSON, residing at Millsap, in the county of Parker and State of Texas, have invented a new and useful Bridge Construction, of which the following is a specification.

This invention relates to improvements in the construction of bridges, and has for its object to provide a bridge combining great strength and durability and applicable to spans of reasonable length.

My improved bridge may be constructed either of iron or steel, and consists of a plurality of interchangeable parts forming double-walled supporting-trusses of great strength and braced in a suitable manner transversely, longitudinally, and diagonally, so that when completed the frame is practically solid and of the same strength in the center as at any other portion.

My improved bridge is exceedingly simple, and may be put together by workmen of ordinary skill other than expert builders, and in building does not require any forging of parts or riveting, the portions being fastened together by means of screw-threaded bolts and nuts.

Another advantage of my improved bridge is that its parts are so constructed as to permit the commencement of the bridge upon one end and the indefinite projection therefrom. After the abutments have been provided all that is required is a simple calculation as to the number of small parts required to construct the bridge in its entirety.

My improved bridge is equally applicable to country roads or for railways, and for the first-named purpose may be of composite structure, using wood and iron, although it is preferable that iron and steel be employed.

In the drawings herewith forming a part of this specification, in which like parts are indicated by similar letters of reference, Figure 1 is a perspective view of my improved bridge. Fig. 2 is a longitudinal section centrally thereof. Fig. 3 is a top plan view. Fig. 4 is a section on line 4 4 of Fig. 2. Figs. 5, 6, 7, 8, 9, 10, and 12 are perspective details of portions hereinafter described, while Fig. 11 shows the parts 5 and 6 in conjunction.

In the construction of my improved bridge I employ, supporting each side of the same,

a double truss consisting of longitudinal plate-rails A, which are separated from each other and supported by means of the angular portions B, as shown in Fig. 11, the plate C being interposed between the parallel frames thus formed and covered by outer plates H, the whole being then bolted together by means of a plurality of bolts H'. The bottom portion of the bridge is constructed substantially in the same manner except that the separating-plates E are formed as shown in Fig. 10, said plates being interposed in the same way as the plates C and covered by the angle-plates B and a horizontal plate D' bolted thereto. The plates D are in duplicate both at the top and bottom.

I also provide a cap-plate F for both the top and bottom rails, said rails being inclosed by the flanges of the said cap-plates, which are kept in place and the bridge-frame braced by means of rods K', made taut by means of turnbuckles L. The parts are also vertically and laterally braced by means of rods K, also tightened by means of turnbuckles L.

I also provide, connecting the two trusses on each side of the bridge, spanners G, having scarfed ends, said ends resting at the top against the inclined portions B and at the bottom within the scarfed portion of the angle-plates B and held therein by means of the vertical and inclined brace-rods K and K'. The stringers N are laid upon these spanners and the flooring N' upon the stringers N, as ordinarily.

I also provide a series of longitudinal brace-rods M, also tightened by means of turnbuckles L, the said brace-rods projected upwardly between the parallel rails A and secured by means of nuts resting upon washers extending over the edges of said rails.

At the ends of the bridge the trusses are provided with perpendiculars O, properly bolted within the trusses, also with inclined end portions O', secured in the same manner.

I also provide transverse base-boards Q, which are provided for keeping clear from dirt, gravel, or other sifting particles the tops of the piers or abutments R, said base-boards being secured in any suitable manner to the truss portions.

The construction of my improved bridge may be readily perceived from an inspection

of the views in Figs. 5 to 12, inclusive, said views embracing all the portions excepting the plates H, the bracing-rods K and K', the end portions O and O', and the stringers and flooring. It will be evident that in consequence of the interchangeable parts the bridge may be indefinitely projected, the only essential being to support the advancing end until the opposite abutment has been reached.

As herein stated, the only calculation necessary is to estimate the length of the span and provide as many of the rails A as is necessary to extend between the abutments, multiplying the same by twelve, there being three lines on each truss and each line being in duplicate. The other portions, consisting of the plates C, D, E, F, and H, may be readily calculated, as well as the portions D and the spanners G.

Having thus fully described my invention, what I claim as new, and desire to secure by means of Letters Patent, is—

1. A bridge consisting of stringers and flooring supported between double-walled trusses composed of longitudinal rails secured in duplicate and parallel alinement by means of angular supports and inner plates, and held together by means of outer plates and bolts passing therethrough, and supplemental vertical, longitudinal and diagonal brace-rods adapted to be made taut by means of turnbuckles, all substantially as herein shown and set forth.

2. The combination in a double-walled truss-bridge, of rail portions supported in duplicate and parallel to each other by means of inner and outer plates and angular supporting portions, other plates adapted to secure the top and bottom rails to said supporting angular portion, and a system of braces consisting of rods projected transversely, vertically and diagonally, said rods being provided with turnbuckles for tightening the same, all substantially as herein shown and set forth.

3. The combination in a double-walled truss-bridge, of stringers and flooring supported between said trusses, the latter consisting of longitudinal rail-plates A in duplicate supported by angular portions B secured thereon separated from each other by plates C centrally and through plates E at the top and bottom portions of the truss, also separated laterally by means of spanners G, and connected and braced laterally, diagonally and longitudinally by means of brace-rods K, K' and M, said rods being provided with turnbuckles L for making taut the same, the whole, constructed, arranged and adapted for operation substantially as herein shown and set forth.

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Witnesses:

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