

*S. F. Cassaway*  
*Suspension Bridge.*

*Patented Sept. 18, 1847.*

N<sup>o</sup> 5,297.

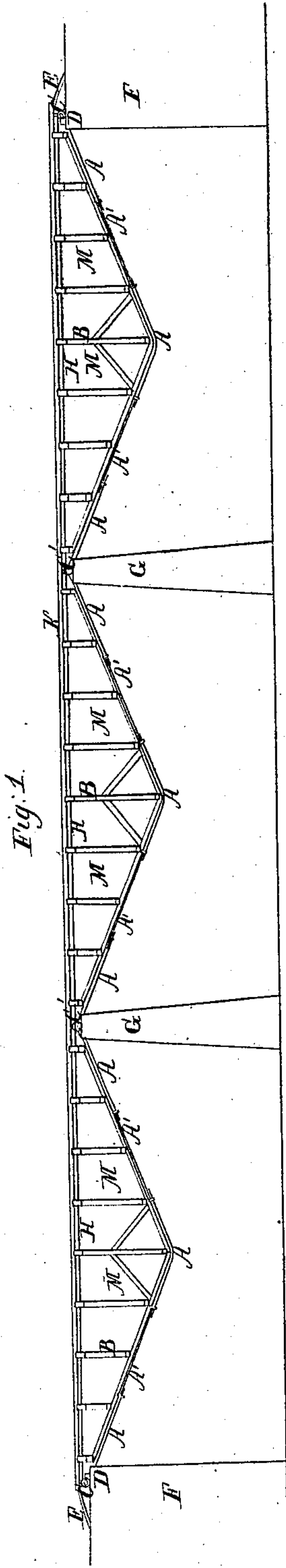
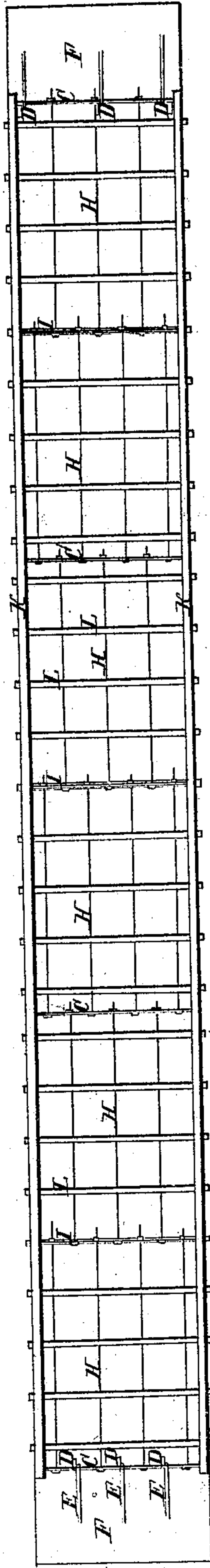


Fig. 2.





# UNITED STATES PATENT OFFICE.

SAMUEL F. GASSAWAY, OF MARIETTA, GEORGIA.

## BRIDGE.

Specification of Letters Patent No. 5,297, dated September 18, 1847.

*To all whom it may concern:*

Be it known that I, SAMUEL F. GASSAWAY, of the town of Marietta, in the county of Cobb and State of Georgia, have invented  
5 certain new and useful Improvements in the Construction of Suspension Bridges for Supporting Railroads and for other Uses, called "Gassaway's Improved Suspension-  
10 Bridge," which improvements are described as follows, reference being had to the annexed drawings of the same, making part of this specification.

The nature of my invention and improvement, consists in combining a number of  
15 parallel wrought iron suspension chains and horizontal iron chords, with light timber frames, arranged between them, said chains and chords being secured to horizontal parallel transverse iron bars resting upon stone  
20 abutments and piers for supporting the usual parallel strings, cross-ties, and iron rails of a railway—forming at once, a light, strong, durable and cheap structure, adapted to plans where bridges of great span, strength  
25 and economy are required.

Figure 1 is a side elevation of the bridge. Fig. 2 is a plan of same.

Each of the parallel suspension chains A, is composed of a number of wrought iron  
30 links coupled together by screw rods A, and nuts for the purpose of adjusting the tension of the several parallel chains, so that each shall be made to perform its duty; and for lifting and adjusting the light timber frame  
35 work B, placed thereon whenever out of order from any cause. The ends of the chains are well secured to horizontal stationary transverse bars C, of iron, the outside chains being well fastened to the ends of  
40 said bars. One of these bars of iron is laid horizontally and transversely upon the top of each pier, and each abutment between iron posts D, built into the masonry to secure them from moving longitudinally or  
45 transversely. The transverse bars that are secured to the abutments, must be still farther secured to the abutments, by strong iron anchors E, fastened to them and the iron frames, built into the masonry of the abut-  
50 ments F, or otherwise secured in a permanent manner, so as to counteract the strain upon said bars: all the outside chains are made and secured in the same manner. The transverse bars C, that are placed upon the  
55 piers G will require no anchors, as the chains

one side of the pier will counteract the strain on the opposite side. The intermediate parallel suspension chains, are passed through openings in the bars and secured in a permanent manner by riveting or otherwise. 60 The number of intermediate piers for sustaining the transverse bars, to depend upon the width of the river to be bridged, and the extent of each span.

A horizontal wrought iron bridge is 65 formed above the aforesaid suspension chains for supporting the rail-road tracks, or flooring, or whatever is to be constructed or placed thereon, by taking a number of wrought iron rods H, having each a head on 70 one end, and a screw on the other end, and passing them through the bars C C, of iron on the abutments and piers, the heads of the rods being brought against the sides of the bars C C and the screws being inserted 75 through intermediate bar I, arranged midway between the piers having nuts screwed on these screws on either side of said bars I, for the purpose of keeping the rods horizontal and of uniform tension. The strings 80 K, and cross-ties L of the rail-road tracks are placed upon this horizontal wrought iron bridge, and well secured thereto. Likewise a floor for pedestrians, and a suitable light railing for protection. The permanent and 85 contingent weight brought upon this bridge, produces a longitudinal strain lengthwise of the grain of the iron of which the parallel suspension rods are composed, from the abutments and piers toward the intermediate 90 cross bars, placed between them and toward the center of the bridge, in proportion to the weight brought thereon. The vertical descent of the horizontal bridge being resisted by a light frame work M, of diagonal 95 and oblique, and other braces formed and arranged between the suspension chains, and the horizontal bridge, which impart stiffness to the whole structure: and not only prevents the horizontal track from dropping below its 100 true level, but prevents it from becoming deranged by tempest and other causes. Each of these frames forms a figure corresponding with that formed by the combination of the horizontal rods H, and swinging or suspen- 105 sion chains A, with the transverse bars C, and approximating to the form of a triangular roof—the bars of the triangular frame being inverted, and brought against the underside of the wrought iron rods or bridge 110



H, aforesaid, the sloped or inclined sides resting on the aforesaid suspension chains A, having the ends or acute angles bearing against the piers and abutments.

5 The bridge may be braced by horizontal diagonal braces, let into the piers and abutments, if the position and nature of the bridge should require it.

10 In regard to the size and material of the abutments and triangular frames, and the length of spans and width of road-way numbers and diameter of the rods, braces, chains and screws, nuts, bars, plates, anchors and other parts of which the bridge is to be com-  
15 posed, I have not deemed it necessary to

specify these particulars, as they may be varied to suit circumstances of locality, nature of material, &c.

What I claim as my invention and desire to secure by Letters Patent, is—

20

Uniting the successive spans of the bridge to each other and causing them to coöperate by the combination of the rods H, H and A, A with the cross timbers I and the bolsters or transverse plates C resting on the  
25 piers as herein set forth.

SAMUEL F. GASSAWAY.

Witnesses:

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W. H. HUNT.