A. Mc. Guffie.

Truss Bridge.

No. 2,950.

33,954.

Patented Dec. 17, 1861.

Fig. 4.

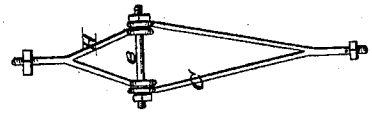


Fig. 5.

Fig. 3.

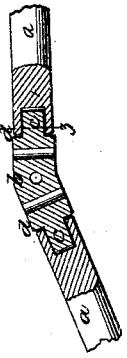


Fig. 1.

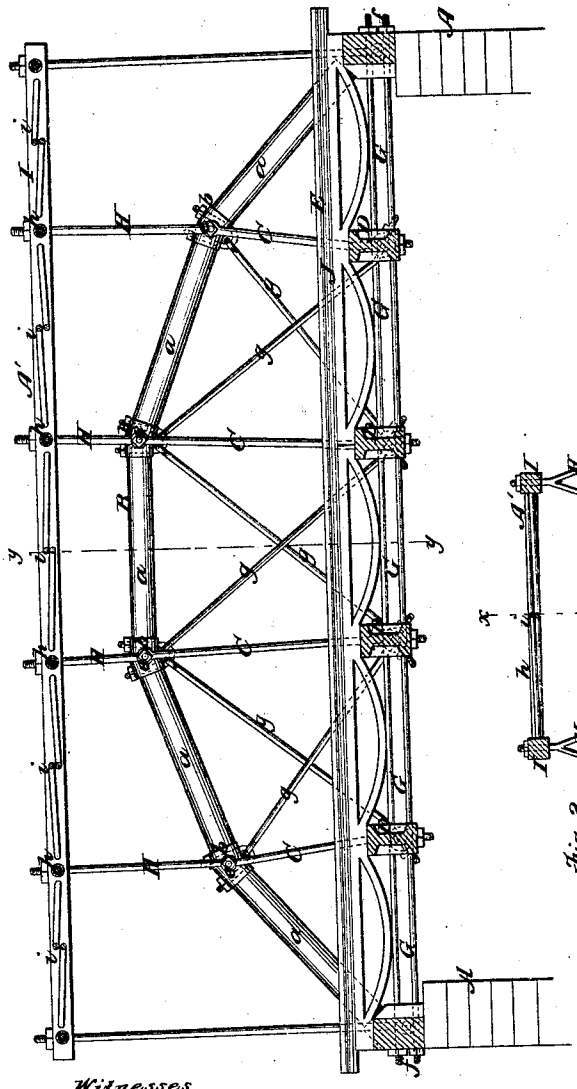
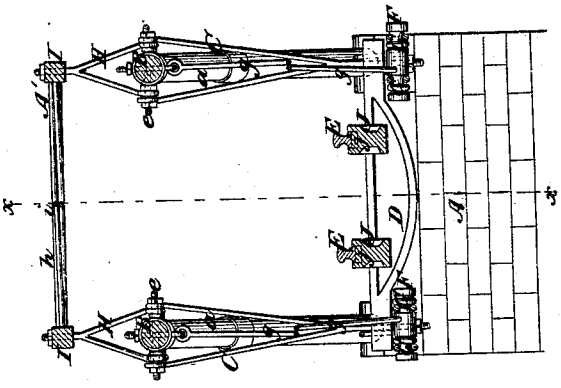


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

ARCHIBALD McGUFFIE, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN CONSTRUCTION OF BRIDGES.

Specification forming part of Letters Patent No. **33,954**, dated December 17, 1861.

To all whom it may concern:

Be it known that I, ARCHIBALD McGUFFIE, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in the Construction of Bridges; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a transverse vertical section of the same, taken in the line *y y*, Fig. 1; Fig. 3, a detached and enlarged longitudinal section of one of the joints pertaining to the same; Fig. 4, a detached view of a portion of the bracing pertaining to the same; Fig. 5, a transverse section of Fig. 3, taken in the line *z z*.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improvement in that class of bridges in which the suspension and arch bridges are combined.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A A represent the two abutments of the bridges, and B B are two arches, the ends of which rest on the abutments A A, one at each side. The arches B B are formed in sections, each section *a* being a straight metal tube, the ends of which are fitted on joints *b*, which are simple angular metal heads provided with tenons *c* and shoulders *d*, the ends of the tubes *a* fitting on the tenons *c* and abutting against the shoulders *d*, as shown clearly in Fig. 3. The shoulders *d* have a miter or beveled position, so that when the sections are connected together they form arches, as shown clearly in Fig. 1.

The joints *b*, by which the sections *a* are connected together, form the medium for connecting the suspension-rods to the arches, and also for connecting lateral stays thereto. The joints *b* have each a rod *e* passing through them transversely, and to the ends of the rods *e* the upper ends of forked suspension-rods C are attached. The lower ends of the rods C pass through the ends of sleepers D, which support the flooring of the bridge or the rails E laid thereon, provided the structure be used as a railroad-bridge. The lower ends of the rods C are secured to bars F, on which the ends of the sleepers D rest, and said bars F are braced or retained in proper position by means of rods G, which pass around the bars F at each end like links, the end rods G being secured in the abutments A A, as shown at *f* in Fig. 1.

The bars F and joints *b* are braced by diagonal or cross-rods *g*, as shown in Fig. 1.

H represents rods which are forked and have their lower ends connected to the rods *e*, which pass through the joints *b*. The rods H form supports for longitudinal and horizontal bars I I, which are connected by cross-bars *h* and diagonal rods *i*. The bars I I *h* and rods *i* form a framing A′, to prevent any lateral movement of the arches B B.

When the bridge is designed for railroad purposes, the transverse sleepers D may be of cast or wrought iron, and the longitudinal sleepers J may be of the same material, the latter being grooved longitudinally to receive the rails E, which should rest on wooden strips *j*, or other material, in order to allow the rails to yield or give to a certain extent. For railroad-bridges it would be preferable to have all the materials of metal, in order to guard against fire.

By forming or constructing the arches B as shown and described—to wit, of tubular sections *a*, fitted on joints *b*—the sections and joints may be readily and snugly adjusted together, so as to form tight and firm connections, as the ends of the tubes *a* may be turned to form perfect joints.

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

1. The combination of the angular tenoned heads *b* with the tubular arch-sections *a*, in the manner herein shown and described.

2. The arrangement, with the heads *b* and sections *a*, of the rods *e*, forked rods C, sleepers D, bars F, rods G *g* H, and bars I, as herein shown and described.

ARCHIBALD McGUFFIE.

Witnesses:

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