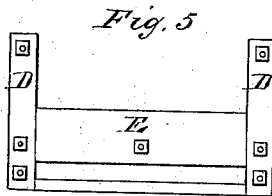
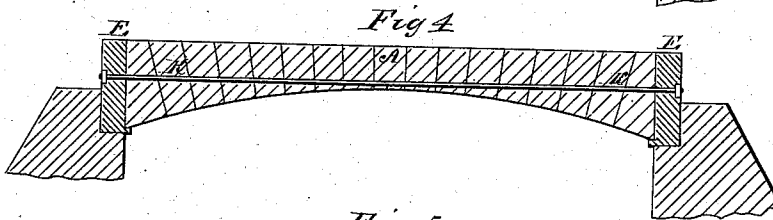
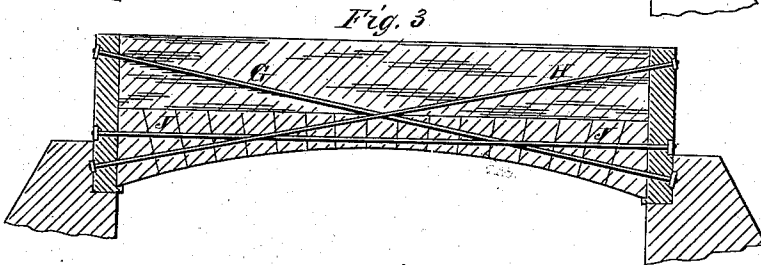
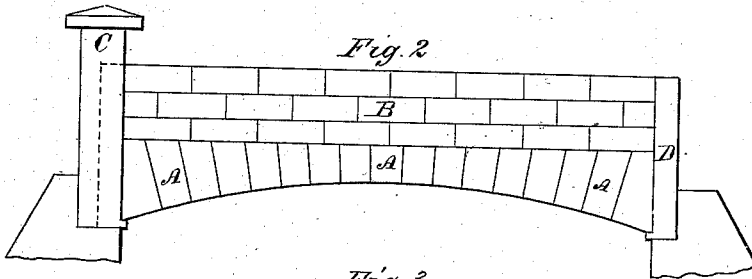
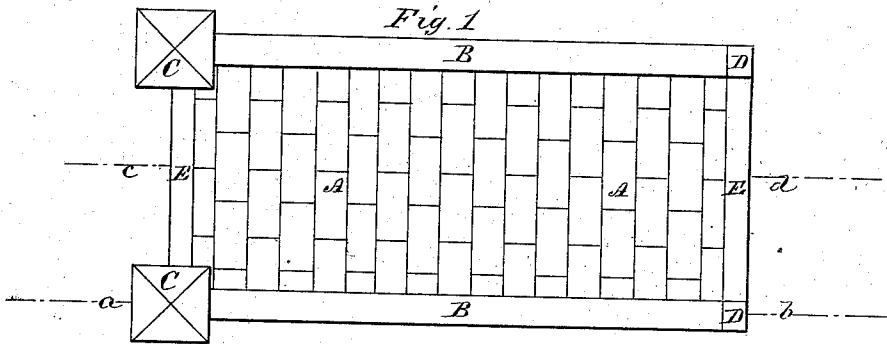


(No Model.)

S. BISSELL.  
Arch Bridge.

No. 237,471.

Patented Feb. 8, 1881.



Witnesses

Wilmot Horton

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# UNITED STATES PATENT OFFICE.

SYLVESTER BISSELL, OF HARTFORD, CONNECTICUT.

## ARCH-BRIDGE.

SPECIFICATION forming part of Letters Patent No. 237,471, dated February 8, 1881.

Application filed May 31, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, SYLVESTER BISSELL, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Arch-Bridges; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My improvement relates to arch-bridges of masonry where it is desired to construct an arch of limited span without causing any horizontal thrust upon the abutments or end supports of the bridge.

The object of my invention is to provide a concealed means for receiving the thrust of the masonry and supporting the arch, so that the bridge will have all the external appearance of an arch of masonry only, while it exerts a vertical pressure alone upon its supports.

In the accompanying drawings, illustrating my invention, Figure 1 is a top view of a bridge of my improved construction, having the corner-posts at one end removed to show the interior construction. Fig. 2 is a side view of the same. Fig. 3 is a longitudinal vertical section on the line *a b*, showing the interior arrangement of tie-rods for supporting the bridge. Fig. 4 is a longitudinal vertical section through the middle of the bridge on the line *c d*, showing the method of supporting the roadway between the parapets. Fig. 5 is an end view of the bridge with the corner-posts removed to show the interior construction.

A is the arch, composed of a series of voussoirs reaching from the intrados through to the roadway.

B B are the parapets, built of masonry in the usual form.

C C are corner-posts, intended to be of similar masonry to the rest of the bridge; but they may be of iron or other material, as their purpose is simply ornament.

D D are iron posts, fitting against the ends of the masonry parapet and extending downward against the end of the arch to the spring-line.

E E are plates or girders, against which the arch abuts, and which are connected, by bolts or otherwise, with the posts D. As shown in the drawings, this plate, together with the posts D, forms the part of the bridge which rests upon the supports at the ends.

The parts D and E are intended to be of cast or wrought iron, and may be made all in one piece, or may be made in separate parts and bolted together.

G and H are diagonal wrought-iron tie-rods, extending from the top of the iron post at one end of the parapet to the bottom of the post at the other end, passing through the masonry of the parapet and arch concealed from sight. These tie-rods form, with the parapet-wall, a beam, which assists in sustaining the weight of the arch and its load. The parapet takes the compressive strain at the top and the rods the tensive strain at the bottom.

J and K are tie-rods passing through the masonry of the arch horizontally, just above the crown of the intrados, so as to lie wholly within the masonry. Their ends pass through the posts D or the plate E, according to their position, and they serve to bind the whole of the voussoirs together. They act as ties to receive the thrust of the arch and prevent it from spreading.

My improved bridge is adapted to situations where it is desired to have stone or brick bridges for architectural or ornamental effect, and the construction is one of great permanence and durability. The iron bars, being embedded in the masonry, are not liable to corrosion, and are little influenced by changes of temperature.

What I claim as my invention is—

1. The combination of the embedded diagonal bars or ties G H and the posts D with the parapet B, substantially as and for the purpose described.

2. The combination of the arch A and its tie-rods J K with the parapet B and its diagonal braces G H, substantially as described.

SYLVESTER BISSELL.

Witnesses:

THEO. G. ELLIS,  
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