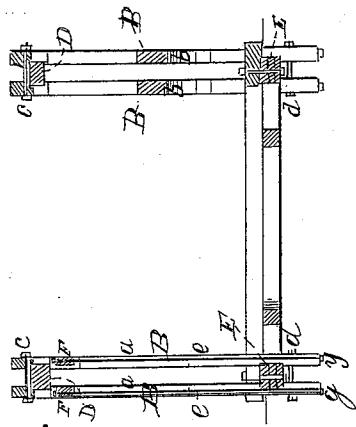


*E. M. Carpenter,  
Truss Bridge.*

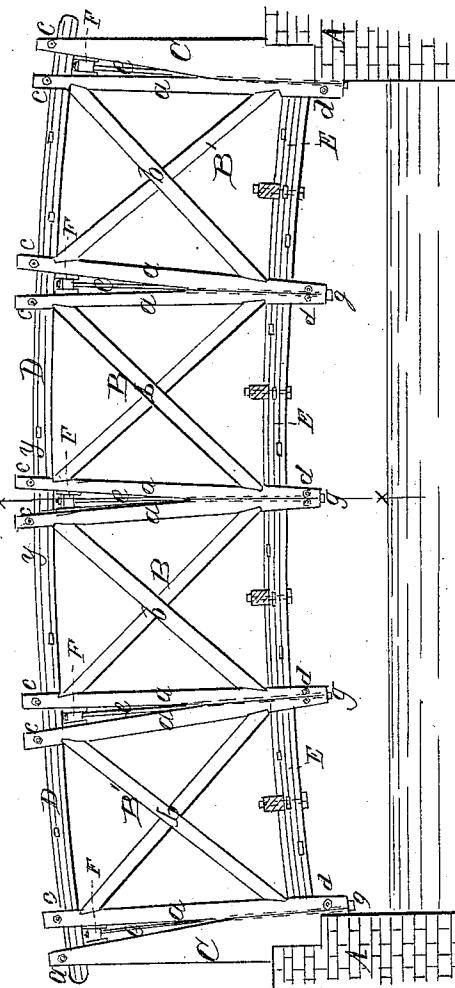
*No. 77,800.*

*Patented May 12, 1868.*

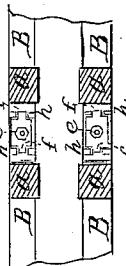
*Fig. 2.*



*Fig. 1.*



*Fig. 3.*



*Witnesses:*  
H. C. Asenketted  
John Morgan

*Inventor:*  
E. M. Carpenter  
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*Attorneys.*

# United States Patent Office.

EDWARD M. CARPENTER, OF MIDDLETOWN, NEW YORK.

*Letters Patent No. 77,800, dated May 12, 1868.*

## IMPROVED SUSPENSION-BRIDGE.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, EDWARD M. CARPENTER, of Middletown, in the county of Orange, and State of New York, have invented a new and useful Improvement in Suspension-Bridges; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Figure 1 represents a side elevation of my improved suspension-bridge.

Figure 2 is a vertical transverse section of the same, taken on the plane of the line  $x\ x$ , fig. 1.

Figure 3 is a horizontal sectional view of the same, taken on the plane of the line  $y\ y$ , fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to a new suspension-bridge, which is so arranged that it can always be held tense, and that it does not depend upon the construction and strength of its top and bottom chord.

The invention consists in making each of the uprights of the bridge of two pieces, which are not at all connected with each other, and between which, from above, a wedge is inserted, which drives the upper ends of each pair of uprights apart, thereby stretching all parts of the whole bridge-frame, and producing the desired arch. The wedges are downward adjustable, by being connected with bolts or rods, and, by means of this adjustment, they can always be brought farther down, to tighten the frame, if the wood should shrink.

A, in the drawing, represents the upright posts of a bridge. They are built of suitable material, in any suitable manner. The frame of the bridge consists of sections B B, each of which sections consisting of two uprights,  $\alpha\ \alpha$ , that are connected by means of braces,  $b\ b$ , framed into them, as is clearly shown in fig. 1. The end-sections, B, bear against uprights C C, that are firmly secured to or upon the posts A, while the various sections of one row are not connected amongst themselves, but are simply suspended from the top cord, D, by means of bolts,  $e\ e$ , that connect the two rows of sections, on each side of the bridge, as in fig. 2. The lower ends of the opposite sections of two rows are also connected, by means of bolts,  $d\ d$ , that fit below the bottom chord, E, as shown.

When the sections have been thus suspended from the cord, wedges F F are inserted between the contiguous posts,  $\alpha\ \alpha$ , of every two adjoining sections, and also between the contiguous post,  $\alpha$ , and uprights C. These wedges are connected with screw-rods  $e\ e$ , that have nuts,  $g$ , at their lower ends, such nuts resting against the lower end of the posts  $\alpha\ \alpha$ , as is clearly shown in the drawings.

By forcing the wedges downward, the upper parts of the sections will be spread apart, and the lower parts held together, so as to produce the requisite arch and the requisite tension.

The wedges may or should have tenons,  $ff$ , that fit into grooves formed in or by plates,  $h$ , that line the posts, as is shown more clearly in fig. 3.

If the wood-work of the bridge should begin to shrink, the wedges are drawn farther down, and the whole is made tight again. The top and bottom chord can be almost entirely dispensed with, if the sections are thus united, and the whole structure does, therefore, not depend solely upon the strength of these chords, as it does in the ordinary bridges.

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

1. The construction and arrangement of the frame of a bridge, of separate sections, B B and B', in combination with the wedges F F, substantially as herein shown and described.

2. The wedges F F, combined with the screw-rods  $e$  and nuts  $g$ , substantially as and for the purpose herein shown and described.

EDWARD M. CARPENTER.

Witnesses:

CHAS. G. DILL,

THOMAS BROWN.