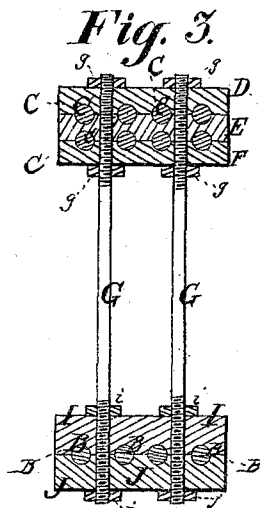
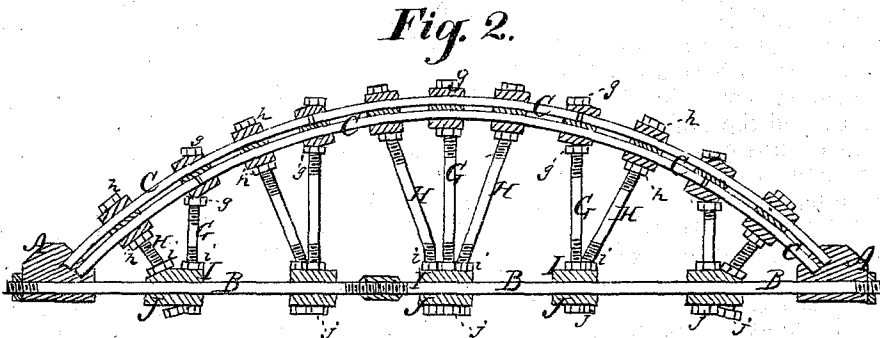
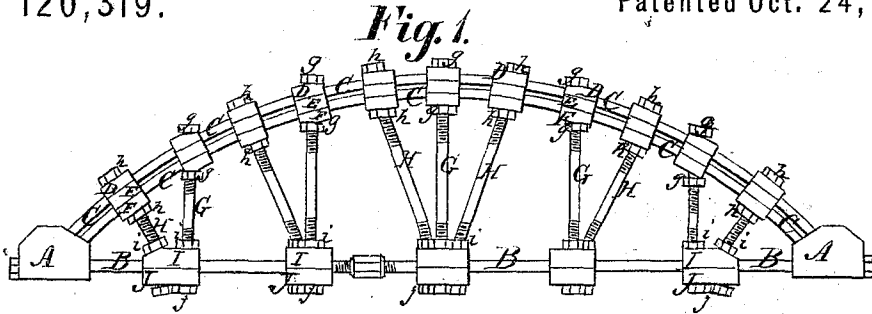


OLIVER H. PERRY & WILLIAM H. ALLEN.

Improvement in Bridges.

No. 120,319.

Patented Oct. 24, 1871.

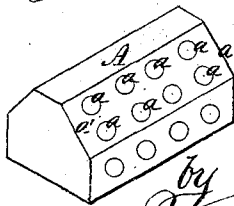


*Fig. 4.*

*Witnesses:*

*L. B. Wayne, Jr.*

*Wesl Wagner.*



*Inventors*

*Oliver H. Perry and  
William H. Allen*

*by Johnson, Klauke & Co.  
Their attorneys.*

# UNITED STATES PATENT OFFICE.

OLIVER H. PERRY AND WILLIAM H. ALLEN, OF BELOIT, WISCONSIN.

## IMPROVEMENT IN BRIDGES.

Specification forming part of Letters Patent No. 120,319, dated October 24, 1871.

*To all whom it may concern:*

Be it known that we, OLIVER H. PERRY and WILLIAM H. ALLEN, both of Beloit, Rock county, in the State of Wisconsin, have invented a new and useful Improvement in Bridges, of which the following is a specification:

Our invention relates to bow-string bridges in which the arch-rods are composed of sections which abut against each other in the direction of their length; and the said invention consists in utilizing the clamps by which the said arched rods are connected to the brace-rods, so as to form the couplings and seats for the adjacent ends of the arch-rods, and thereby dispense with separate or telescopic couplings for that purpose.

In the drawing, Figure 1 is a side elevation of our improved bridge-arch. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a vertical cross-section of the same; and Fig. 4, a detached view of one of the shoes.

A in the drawing represents the shoes of an arch, connected to each other by means of horizontal supporting-rods B, which pass through the shoes at each end of the arch, and are held by screw-nuts or in any other suitable manner. The arch proper is formed by sections of rods C starting from the shoes A, in which they have suitable bearings formed by openings *a* in the inclined face *a'* of the shoes. These sections C abut against each other and are firmly held between clamps formed in three parts—upper parts D, intermediate parts E, and lower ones F—the intermediate ones being used only when we form the arch of a double set of sections C, one above the other. These parts D E F are provided on their proper faces with semicircular grooves, the grooves of each two contiguous parts forming one complete bearing for the rods of that section C. These parts D E F are firmly held to each other and in place by means of tension-rods G H, which pass through these parts and are provided with screw-threads and nuts *g h* above and below these parts. These tension-rods extend downwardly, the rods G vertically, and the rods H diagonally, and pass through parts I and J of clamps similar to the parts D F of the arch-clamps, and, like those, provided with grooves, in which the rods B are held; and these tension-

rods are also held in these lower clamps I J by means of nuts *i j*. The number of the lower clamps may be less than that of the upper ones, and two or more tension-rods, G H, may connect one lower clamp with several upper ones, as clearly shown in the drawing. The arch-rod sections C need not touch each other in the upper clamps, but a small space may be left between them, so as to allow for a lengthwise expansion or contraction caused by the changes of the atmosphere, or for a lengthwise movement caused by the depression of the arch through a severe strain. The rods C may be hollow or solid, and if hollow may be filled with water, sand, or any other suitable substance to prevent their collapsing.

A bridge constructed according to our improvement is as strong as any other bridge, while it is much more elastic in resisting strain. It can be easily manufactured, and by reason of its being constructed in comparatively small parts can be easily packed and sent to its destination, for the sections of rods C, being of irregular length, allow of its being made shorter or longer to correspond to the rods B by using shorter or longer sections.

We are aware that bridge-girders have been made of hollow chords in sections, so as to telescope with each other, and that the hollow chords have been supported by braces passing through them and saddles, the embracing saddles serving only to prevent the hollow chords from being crushed by the screw-nuts of the brace-rods; and we do not claim saddles when applied to protect hollow beams, nor making the chords of bridges in sections.

Having described our invention, what we claim is—

The coupling clamping-seats D, E, and F, arranged to receive and support the adjacent ends of the arched rods C, and form a connection for the brace-rods, thus dispensing with separate or tubular couplings for this purpose, as shown and described.

OLIVER H. PERRY.  
WILLIAM H. ALLEN.

Witnesses:

R. TATTERSHALL,  
D. G. GOODALL.

(21)