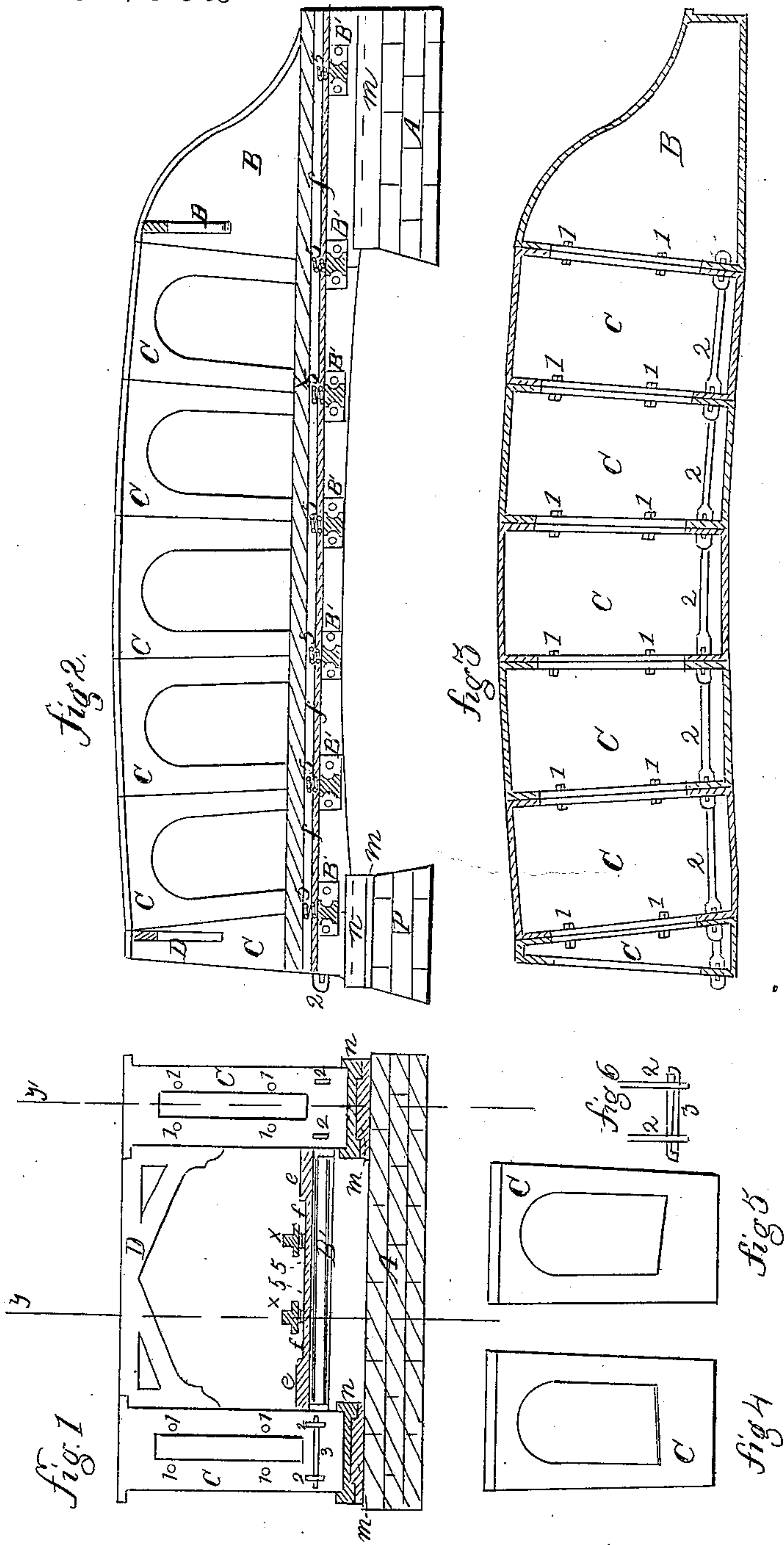


*R. W. Rogers,*  
*Truss Bridge.*

*No. 85,332.*

*Patented Dec. 29. 1868.*

*85.332*



attest:

*Charles Johnson*  
*De Nauman*

*Robt M. Rogers*



# United States Patent Office.

ROBERT W. ROGERS, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 85,332, dated December 29, 1868.

## IMPROVED 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, ROBERT W. ROGERS, of Pittsburg, in the county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in Bridges; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon.

The nature of my invention consists in the construction and arrangement of bridges in sections, when supported, arranged, and connected together in the manner hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, which form part of my specification—

Figure 1 is an end elevation of my improvement in bridges.

Figure 2 is a longitudinal section of the same, when cut through at line *y* of fig. 1.

Figure 3 is a longitudinal section of the same, when cut through at line *y'* of fig. 1.

Figures 4 and 5 represent side elevations of two similar sections of a span in the bridge.

Figure 6 is a top view of a section of the straining-rods or links, and represents the manner of "keying up" the rods or links, and the method of securing the keys in the desired position.

In the drawings—

A represents the abutment, and

P represents a pier of the bridge.

The abutments and piers are constructed of ordinary masonry-work.

B represents the sections, which are secured on and to what is termed "a pier-plate," which should be secured to the abutment A in a very strong and secure manner.

C represents metal sections, which are hollow.

These sections may be cast in one or more pieces, or they may be constructed of wrought-iron, but the contour of each section should be substantially as shown in the accompanying drawings, and in every case the dividing lines between the sections should converge to a common centre, which should be the centre of a circle, an arc of which should form a span of the bridge, as shown in fig. 2.

The sections C are secured together by means of bolts, as indicated at the points marked 1.

One end of each span of the bridge is secured to what are termed "expansion-plates," *n*, which rest on pier-plates, *m*, and so arranged that they will move or slide back or forward on the pier-plates *m*, on a line with the longitudinal plane of the bridge, to allow for the expansion of the several parts, and of the whole, as combined in a single span.

The end of the next span is secured firmly on and to the plates *m*, and its other end being provided with expansion-plates *n*, rests on plates *m* on the next pier, and thus each span of the bridge is arranged with one end secured firmly and in a fixed position, and the other end arranged so that it can slide back and forward

sufficiently to allow for the expansion of the several parts.

B' represents the cross-beams for the floor *f*. These beams are bolted to the sides of the bridge, as shown in fig. 2, and should rest on suitable projections.

D are cross-ties or braces, for holding the upper part of the sides of the bridge in position.

*e* represents the foot-walks of the bridge.

*x* represents rails, for railways on the bridge.

In recesses in the floor *f*, directly under the rails *x*, are placed spiral springs, 5, on which rests the bottom or base of the rails. These springs are used for the purpose of relieving the bridge from the vibrations caused by the cars passing over the rails *x*.

The links or rods, marked 2, are used for the purpose of tying and binding together, longitudinally, the several parts and spans of the bridge, and also for imparting strength and firmness to the structure, as a whole.

The several links or rods are connected and "drawn up," so as to obtain the desired tension on the links or rods 2, by means of keys, 3. The construction and arrangement of the links or rods 2 and keys 3 are clearly shown in figs. 1, 3, and 6.

As the construction and arrangement of the several parts of my improvement in bridges will readily be seen and understood from the foregoing description, and by reference to the accompanying drawings, I will therefore, without further description of its construction, proceed to set forth some few of the many advantages of my improvement in bridges.

First, it is a very cheap method of constructing what are termed "iron bridges;" for I avoid the use of "angle-blocks," "suspension-blocks," "counter-rods and top-cords," all of which are items in the construction of bridges which add greatly to their cost of construction.

Second, the form of the several sections of my improvement in bridges being an arc of a circle, and each span also an arc, it will readily be seen that its sustaining-power will be very great, and that this mode of constructing bridges is very desirable for strength and durability.

Third, by making each section hollow, each side of the bridge can be made into a series of rooms or compartments, for stores, offices, or dwellings.

Fourth, in case of any accident which would impair any part of the bridge, the injured part can be easily and readily repaired.

Fifth, my method of constructing bridges can be adapted to "deck" or "through-bridges."

Having thus described the nature, construction, and advantages of my improvement in bridges,

What I claim as of my invention, is—

The construction and arrangement of bridges in sections, when supported, arranged, and connected together in the manner and for the purpose herein described.

ROBT. W. ROGERS.

Witnesses:

A. C. JOHNSTON,  
JAMES THOMPSON.