

Glass, Schneider & Reznor, Bridge.

71868

PATENTED

Fig. 1,

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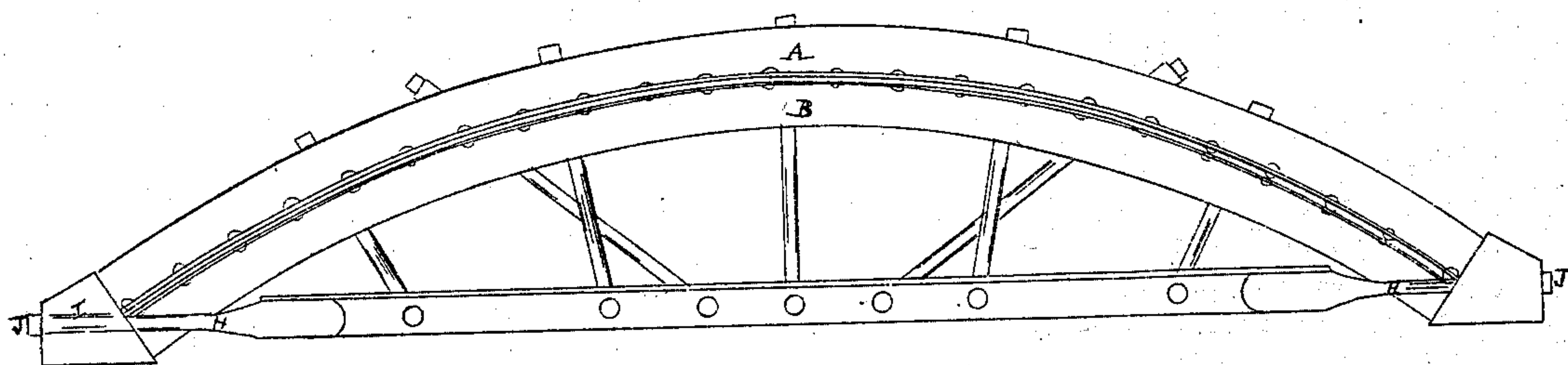


Fig. 2,

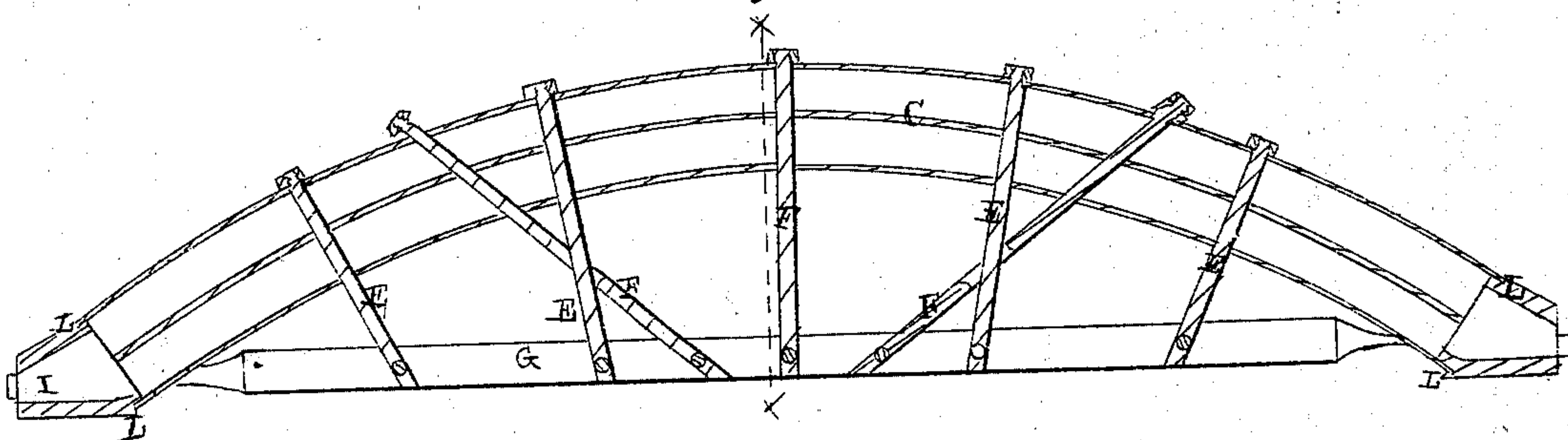


Fig. 3,

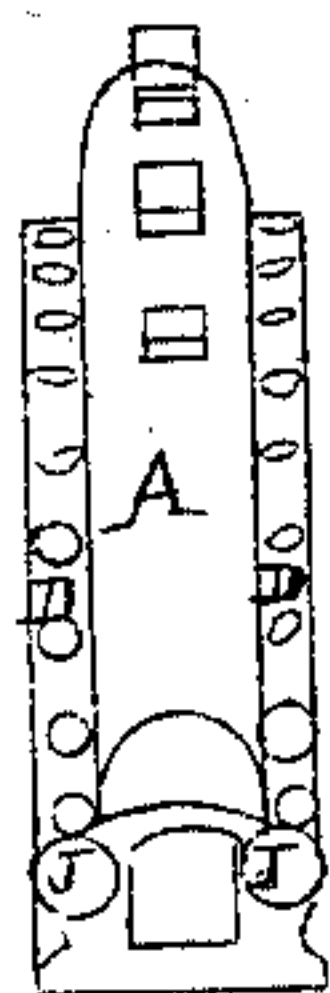


Fig. 4,

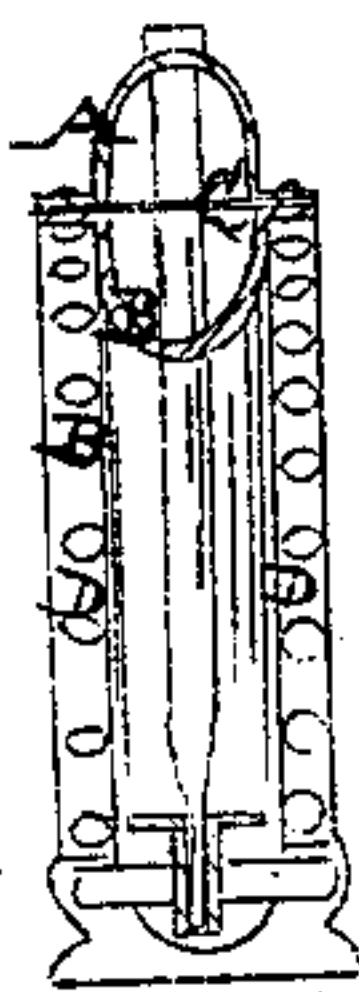
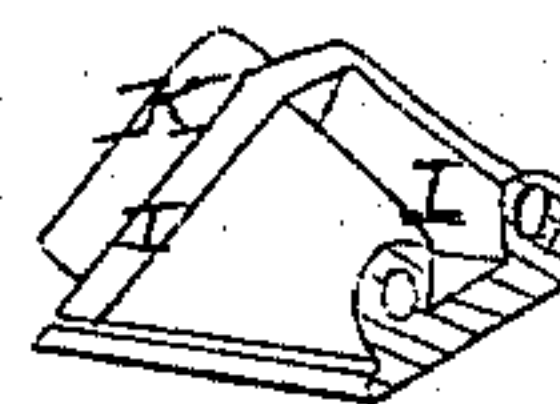


Fig. 5,



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JOHN GLASS, GEORGE P. SCHNEIDER, AND WILLIAM B. REZNER, OF
CLEVELAND, OHIO.

Letters Patent No. 71,868, dated December 10, 1867.

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 we, J. GLASS, G. P. SCHNEIDER, and W. B. REZNER, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Bridges; and we do hereby declare the following to be a full and complete description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of the arch.

Figure 2 is a longitudinal section.

Figure 3 is an end view.

Figure 4 is a transverse section in the direction of the line $x x$, fig. 2.

Figure 5 is a detached view.

Like letters of reference refer to like parts in the views.

Fig. 1 represents the arch of the bridge, which is constructed in three sections, A B C, fig. 4. Each of the sections A B consists of a series of iron plates, bent into a semi-oval or circular form, while they are in the process of being manufactured or rolled out in the mill. The special curve is given to each plate, to form the spring of the arch, by a set of rollers provided for that purpose, the degree of which being more or less, as the nature of the circumstance may require, for the span of the bridge. These plates are then riveted or bolted together, and when placed one upon the other, as shown in the transverse section, fig. 4, forms an oval tube, the longest axis of which being in a right line with the radii of the arch, however, may be varied from an oval more or less, as may be desired. These two sections A B are each provided with a flange, D, fig. 3, by which they are riveted or bolted together, as shown in fig. 1. The third section, C, referred to, consists of a diaphragm placed between the two sections A B, as seen in fig. 4, and which form the minor axis of the tube. The relative position of the diaphragm to the tubes is shown in fig. 2, in which it will be seen that it describes an arch in common with the tubes, and is secured between the flanges by means of the bolts or rivets by which the two sections are fastened together. The purpose of this diaphragm is to resist the lateral strain upon the tubes, and thereby prevent any possible vertical compression of them, thus giving additional strength to the structure. The chord G of the arch forms the stringers on which are placed the cross-beams for supporting the flooring of the bridge. These chords are connected to the ends of the arch by rods H, the ends of said rods being projected through the foot-blocks I, against which the ends of the arch abut, and are secured by nuts J. These foot-blocks are provided with a deep flange or boss K, fig. 5, which is made to project into the ends of the arch, so that the ends will rest upon the shoulders L, as shown in fig. 2. By this arrangement the blocks cannot get displaced, but afford a secure and permanent abutment for the ends of the arch. E are the main stays, by which the stringers and flooring of the bridge are sustained by the arch, and counterbalanced by the stays E.

The tubes of the arch as above described are curvilinear, but the plates may be bent so as to form an angle, making an angular tube of any variable degree of regularity, without changing the principle of a tubular arch for bridges, roofing, or other purpose to which it may be applied.

What we claim as our improvement, and desire to secure by Letters Patent, is—

1. The tubular flanged sections A B, as arranged in combination with the diaphragm C, for the purpose and in the manner substantially as set forth.
2. The tubular arch, as constructed with sections A B C, in combination with the foot-block I, provided with a flange or boss, K, when arranged in the manner as and for the purpose set forth.

JOHN GLASS,
GEO. P. SCHNEIDER,
WM. B. REZNER.

Witnesses:

W. H. BURRIDGE,
J. HOLMES.