

J. VALLELEY.
Bridges.

No. 146,034.

Patented Dec. 30, 1873.

Fig. 1.

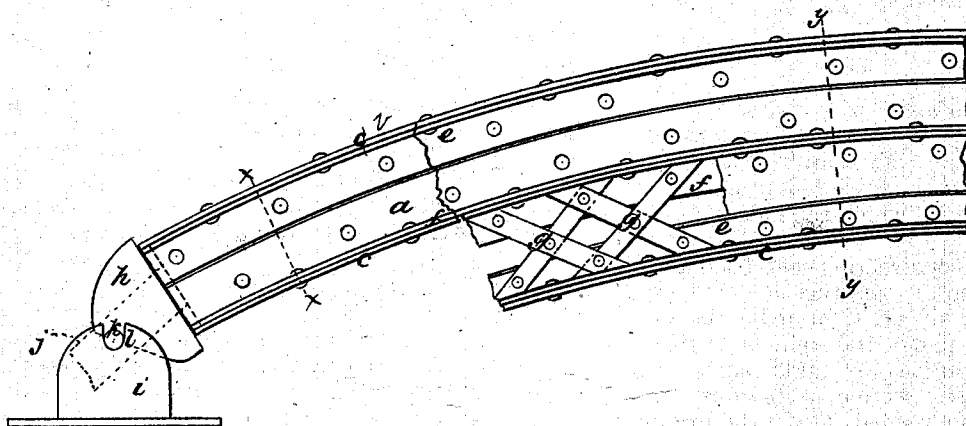


Fig. 2.

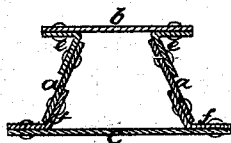
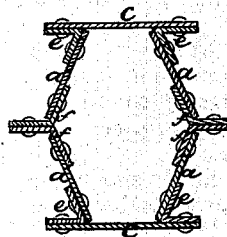


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES VALLELEY, OF CANTON, OHIO.

IMPROVEMENT IN BRIDGES.

Specification forming part of Letters Patent No. **146,084**, dated December 30, 1873; applicat'on filed August 4, 1873.

To all whom it may concern:

Be it known that I, JAMES VALLELEY, of Canton, in the county of Stark and State of Ohio, have invented a new and Improved Bridge, of which the following is a specification:

For constructing metal arches for bridges, I propose to construct hollow trunks, either of four or six sides, formed of flat plates, or some of flat plates and some of lattice bars, united at the angles by angle bars, the said trunks having a section of the form of a trapezoid when four-sided, and of the form of two trapezoids, placed base to base, when constructed with six sides. And I propose to make the shoe for the end of the arch or chord of two metal pieces, one of which receives the end of the chord on its face and is supported by trunnions in bearings on the top of the other piece, which is bedded in the foundation, so that the piece supporting the end can turn readily, as required by the expansion and contraction of the arch.

Figure 1 is a side elevation of a portion of an arch and a shoe, showing my invention, the arch representing both the single and double forms which I propose, also the construction of two sides in lattice-work. Fig. 2 is a cross-section of the arch on the line *x x*, and Fig. 3 is a cross-section on the line *y y*.

Similar letters of reference indicate corresponding parts.

I take two narrow side plates, *a*, a wider top plate, *b*, and a still wider bottom plate, *c*, for

the single form of the arch, and unite them together by angle-plates, *e f*, as shown in Fig. 2; and for the double form I take the same in duplicate, except the bottom plate, and unite them, as shown in Fig. 3, thus making strong and stiff chords or arches with a small quantity of metal. The sides *a* may be modified by substituting lattice bars *g* for them in some cases. *h* represents one of the pieces which I use for the shoe, and *i* the other piece. The truss rests at the end against the face of piece *h*, and the said piece has a groove in the under side, in which a strong rod or shaft, *k*, is secured by the metal strap or bars *j*, (shown dotted,) through which the rod passes, and this rod rests in bearings *l* in the top of the bottom piece *i*, which rests on the foundation, so that the upper piece will vibrate freely to accommodate the movements of the chord by expansion and contraction.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A bridge-arch, consisting of a tube made trapezoidal in cross-section, and formed of four plates, *a a b c*, as and for the purpose described.

2. The shoe, composed of the two pieces *h* and *i*, and connected by the shaft *k*, and arranged with the chord and the foundation, substantially as specified.

Witnesses: JAMES VALLELEY.

WILBUR A. REEVES,
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