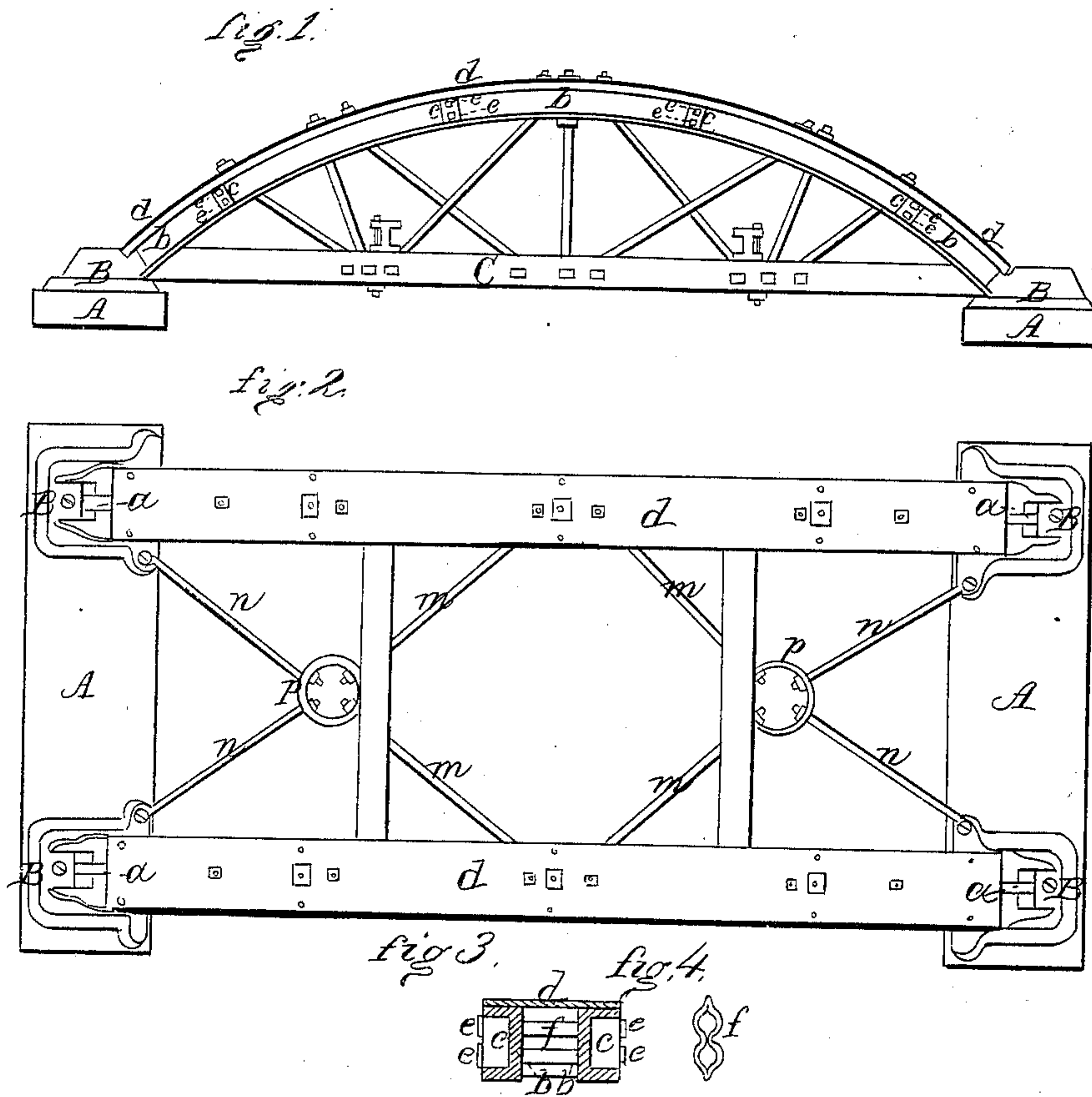


J. & C. F. Laird, Truss Bridge.

No. 94,322.

Patented Aug. 31. 1869.



Witnesses.
Cornelius F. O.
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United States Patent Office.

JOHN LAIRD AND G. F. LAIRD, OF CANTON, OHIO.

Letters Patent No. 94,322, dated August 31, 1869.

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, JOHN LAIRD and G. F. LAIRD, of Canton, in the county of Stark, and in the State of Ohio, have invented certain new and useful Improvements in Wrought-Iron Bridges; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of our invention consists in the construction and general arrangement of a wrought-iron bridge; and in order to enable others skilled in the art to which our invention appertains to make and use the same, we will now proceed to describe how it is or may be constructed, referring to the annexed drawings, which form a part of this specification, and in which—

Figure 1 is a side view, and

Figure 2 a plan view of the bridge.

Figure 3 is a cross-section of the arch, and

Figure 4 is an end view of the inside-supporting block.

A A represent the piers or abutments, supporting the arches of the bridge.

On these piers, the shoes B B are firmly secured.

C represents the span, which consists of two bars of iron, placed side by side a suitable distance apart, and connected at the ends by means of bolts. Between the ends of said bars is inserted a T-shaped bar, *a*, or a straight bar, with a block on each side of its outer end, forming the arms of the T.

The ends of the span C, thus formed, are let into correspondingly-cut slots in the shoes B B, thus effectually preventing any separation of the piers or abutments A A.

The arch of the bridge is constructed of channelled side-beams *b b*, placed a suitable distance apart, and covered on the upper side with plate-iron, *d*. The beams *b b* are channelled on the outside, and fastened together by bolts *e e*, which pass through the same, and through supporting-blocks *c c*, placed in the channel, on the outer side of each beam. Between the

beams is placed an inside-supporting block, *f*, through which the bolts *e e* pass, and against which the beams bear when fastened by said bolts.

We fasten the beams *b b* together at intervals or regular distances, throughout their entire length, with such inside and outside-supporting blocks and bolts.

The plate-iron *d* is secured to the channelled beams *b b*, by rivets through said plate-iron and the upper flanges of the beams.

The ends of the arches, thus constructed, are placed on the inner sides of the shoes B B, said shoes being bevelled and notched, as shown in fig. 1, to admit the channelled beams *b b*.

A suitable system or series of braces connects the arches with the span, strengthening the bridge.

In addition to these, we use braces or rods *m m*, extending from about the centre of the spans C C, and braces or rods *n n*, extending inward from the inner corners of the shoes B B.

Two of the braces, *m m*, and the braces *n n*, at each end of the bridge, pass through a ring, *p*, inside of which nuts are placed on the ends of said braces or rods, by means of which the whole structure is materially strengthened.

Having thus fully described our invention,

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

1. The combination of the channelled beams *b b*, plate-iron *d*, outside-supporting blocks *c c*, inside-supporting blocks *f f*, and bolts *e e*, all constructed and arranged substantially as shown and described.

2. The arrangement of the beams *b b*, iron *d*, blocks *c c* and *f f*, shoes B B, spans C C, and bars *a a*, all as herein shown and described.

In testimony that we claim the foregoing, we have hereunto set our hands, this 9th day of February, 1869.

JOHN LAIRD.
G. F. LAIRD.

Witnesses:

GEO. W. RAFF,
W. A. KNAPP.