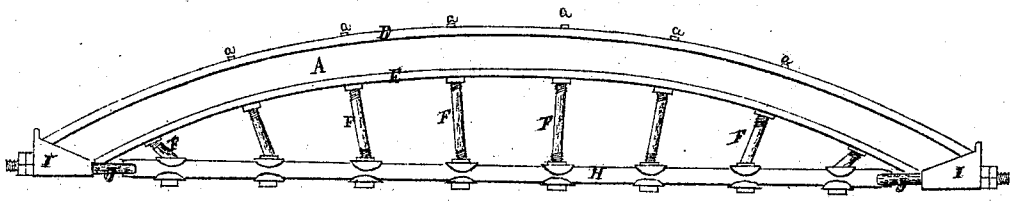
M. Miller,

Truss Bridge.

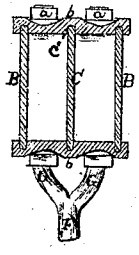
No. 103,911. Patented June 7. 1870.

Fig, 1.

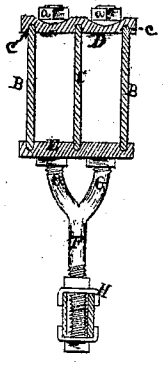


Fig, 2.

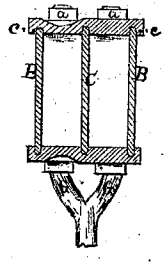
Fig, 6.



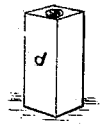
Fig, 3.



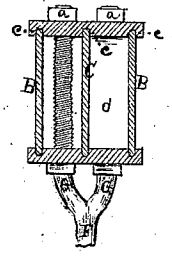
Fig, 4.



Fig, 7.



Fig, 5.



Inventor
M. Miller

Witnesses.
D. L. Humphrey
L. H. Burridge

United States Patent Office.

MAHLON MILLER, OF CLEVELAND, OHIO.

Letters Patent No. 103,911, *dated June* 7, 1870.

IMPROVEMENT IN IRON BRIDGES.

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, MAHLON MILLER, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Iron Bridges; and I do hereby declare that the following is a full and complete description of the same, reference being had to the accompanying drawing making part of this specification.

This invention relates to tubular arches for bridges, roofs, &c., as hereinafter more fully described.

Figure 1 is a side view of an arch.

Figure 2, a top view of the same.

Figure 3, a transverse section.

Figures 4, 5, and 6, are transverse sections to which reference will be made.

Figure 7, a detached section.

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

Description.

In fig. 1, A represents an arch, which consists of a pair of side plates B B, fig. 3, and a central plate, C, the length, thickness, and curvature of which being as the strength and span of the arch may require.

The upper and lower plates D E, constituting the upper and lower side of the arch, have on their inner surfaces grooves or channels *c*, into which are received the edges of the side and central plates, as shown in the drawing.

By this means the several plates are securely held in a vertical position, and in immediate and close contact with the upper and lower plates, forming a strong and durable joint of simple and easy construction.

The upper and lower plates are secured in their contact with the vertical plates by means of the suspension-rods F, the upper ends of which are bifurcated, thereby forming a pair of bolts, G, which penetrate the arch, and are secured on the upper end by nuts *a*, whereas the lower ends of the rods depend, and thereto is attached the cord or stringer H, on which the floor or roadway is supported.

The ends of the arch are received into and rest upon abutment-shoes I, and are secured therein by the cord-bolts J.

It will be observed that the upper plate D of the arch is fluted or channeled, whereby is formed a central rib, *b*, along the arch line. This form of the plate is intended to be used when extra strength is required for the arch, and for which like purpose the lower plate may be constructed in the same manner, as shown in fig. 6.

For ordinary purposes, or when no extraordinary strain is to be exerted upon the arch, both the upper and lower plates may be plain, like unto the lower one in fig. 1, and which is more fully shown in fig. 5.

Fig. 4 shows a modification of the above, in which it will be seen that the upper and lower plates combine the channel and plain form, all of which, however, embrace the same principle of construction and adaptation of the several plates to each other by means of grooves on the inner faces of the upper and lower plates for the admission of the edges of the side or vertical plates, as above described.

In order to obtain more lateral strength to the arch and keep the several plates in their articulation square with each other, a fillet or box, fig. 7, is introduced into each tubular section of the arch, which, exactly fitting the inside, as shown at *d*, fig. 5, serves as a brace, thereby preventing the sides from swerving from their rectangular relation to the upper and lower plates.

A box or fillet of this nature may be placed around each bolt, or around as many of them as may be desired.

In fig. 7 one only is shown, whereas the bolt in the adjoining tubular section is shown as being without such fillet or box.

Claim.

What I claim as my improvement, and desire to secure by Letters Patent, is—

The plates D E, provided with grooves *c* and plates B B, with or without central plate or plates, in combination with the fillet or box *d*, and bolts G, constructed and arrranged in the manner substantially as and for the purpose set forth.

MAHLON MILLER.

Witnesses:

W. H. BURRIDGE,

J. H. BURRIDGE.