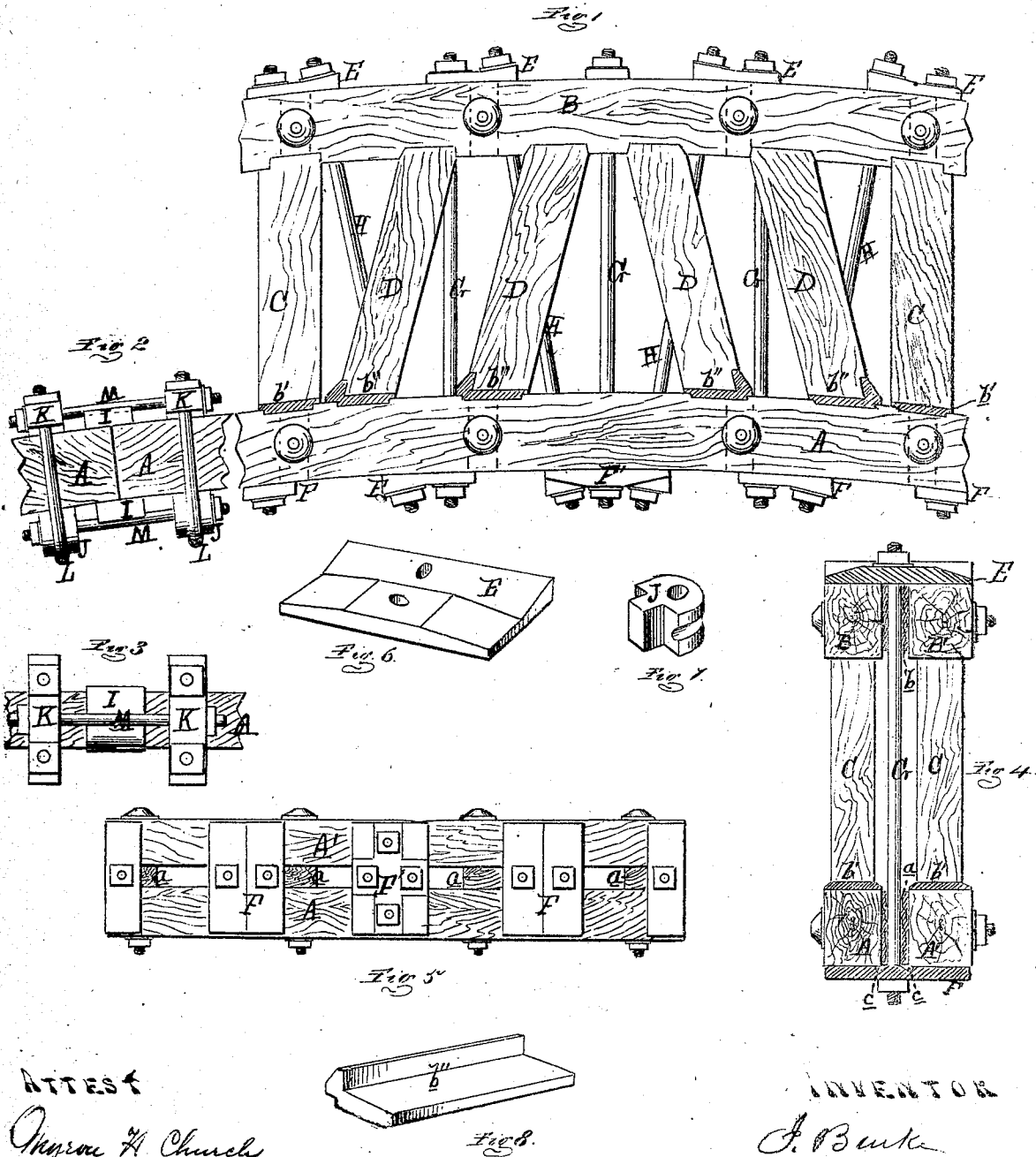


J. BURKE.

TRUSS BRIDGE.

117042

PATENTED JUL 18 1871



ATTEST

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JOSEPH BURKE, OF SAGINAW, MICHIGAN.

IMPROVEMENT IN WOODEN TRUSS-BRIDGES.

Specification forming part of Letters Patent No. 117,042, dated July 18, 1871.

To all whom it may concern:

Be it known that I, JOSEPH BURKE, of Saginaw, in the county of Saginaw and State of Michigan, have invented a new and useful Improvement in Wooden Truss-Bridges; and I do declare that the following is a true and accurate description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, and being a part of this specification, in which—

Figure 1 is a side elevation of a section of a span of my improved truss. Fig. 2 is the same figure, showing a splice in the lower chord. Fig. 3 is a plan of the top of the splice. Fig. 4 is an end elevation of a span-section. Fig. 5 is a bottom plan of the same. Fig. 6 is a perspective view of an iron cap. Fig. 7 is a similar view of a splice-clamp, and Fig. 8 is a perspective view of a step.

Like letters refer to like parts in each figure.

The nature of this invention relates to an improved, simplified, and cheapened construction of wooden truss-bridges, combining the maximum of strength and durability with a minimum of weight as compared with bridges of similar types. The invention consists in the peculiar form of the caps and steps, so that no water can reach the joints and filling-blocks to rot the wood-work, and in a novel and peculiar chord-splice of great strength and easy of adjustment, every joint of the bridge being covered either with a cap, step, or splice-bar, so arranged that water must run off and not lodge.

In the drawing, A A' represent the timbers of the lower chord, separated by the filling-blocks *a*. B B' represent the timbers of the upper chord, in like manner separated by the filling-blocks *b*. C are the vertical posts at each end of the span, which rise from the cast-iron steps *b'*, which are tongued on their lower faces, with the tongues gained into the lower chords A A'. In the upper surface of these steps a mortise is formed to receive a tenon on the end of the vertical post, the upper end of which is gained into the under face of the upper chord. D are the diagonal braces, which are received in the steps *b''*, which are gained into the tops of the lower chords, and whose upper ends are gained into the upper chords. The thrust end of the steps *b''* is provided with a hook-flange, which is gained into the face of the timber brace to prevent slipping,

as well as to carry off the water running down the brace. E are cast-iron caps extending across both timbers of the upper chord, and F are the bottom caps extending across the timbers of the lower chord. G are the vertical, and H the diagonal tie-rods, which pass through the upper and lower caps, and are provided with suitable nuts and washers on their threaded ends to draw the chords, posts, and braces firmly together. The exterior faces of the caps not only offer a fair seat for the nuts and interposed washers, but are inclined to throw off the water at the sides of the upper chords, as shown in Fig. 6. The lower caps are cast with two channels, *c*, Fig. 4, to carry off the water and prevent it from getting between the caps and the bottom of the lower chord. In the center of the span, or in long spans where the diagonal braces diverge, the vertical tie-rods are doubled, one securing each top and bottom chord. In the latter a rubber packing or bushing around the rod prevents the entrance of the water. In no other case does a rod pass through the chords. The splices in the chords are made without cutting away enough of the timber to weaken it, in the following manner: The timbers of the chord are butted together, and across the top and bottom of the joint are laid the splice-bars I. Underneath the chord, at each side of the joint, is placed a clamp, J, Fig. 7, having a short tenon mortised into the chord. Above each is laid a plate, K, having a stirrup, L, passed up through its projecting ends, which embraces the clamp J, and properly tightened by screw-nuts on the ends of the stirrup. The plates K are provided with short tenons, Fig. 2, which are mortised into the upper side of the chord. Tension-rods M, with screw-nuts at each end, pass through the pair of clamps J and plates K, over the splice-bars I, and enable the ends of the timbers to be drawn together and the shrinkage to be taken up whenever necessary. It will be observed that but very little of the timber is cut away to reduce its strength, and that no rod passes through it except the vertical rods at the center of each span. The caps E and F are cast with two outer faces, the one being flat for the vertical rods and the other being diagonal, and at right angles with the pitch of the diagonal rods. At the center of each span, where the tie-rods are doubled, as hereinbefore described, the bottom plate F' is made with a

flat center for the vertical rods, and with two inclined faces, as shown, in opposite directions, to present an outer face at right angles with the pitch of the diagonal tie-rods.

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

1. In combination with the upper and lower chords of a bridge, the caps E F F' and steps b' b'', the lower caps F F' being provided with channels c, substantially as and for the purposes set forth.

2. The means employed for splicing the chords of a bridge, consisting of the splice-bars I, clamps J, plates K, each provided with tenons entering corresponding mortises in the chords, stirrups L, and tension-rods M, when the several parts are constructed, arranged, and operated substantially as described and shown.

JOSEPH BURKE.

Witnesses:

THOS. S. SPRAGUE,
MYRON H. CHURCH.