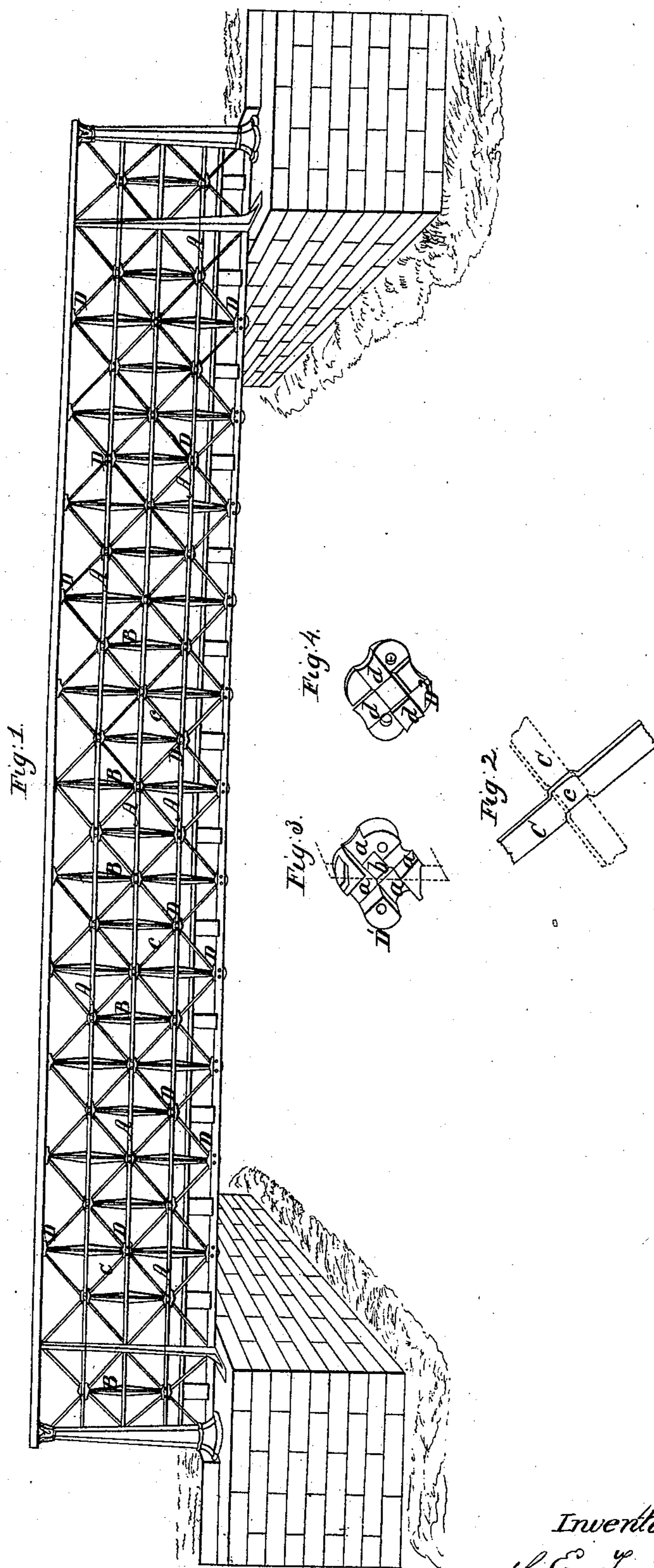


# I. E. Truesdell. Truss Bridge.

N<sup>o</sup> 24,068.

Patented May 17, 1859.



Witnesses;  
William H. Bishop  
L. E. Truesdell

Inventor;  
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# UNITED STATES PATENT OFFICE.

L. E. TRUESDELL, OF WARREN, MASSACHUSETTS.

## CONNECTING TOGETHER THE BRACES OF TRUSS-BRIDGES.

Specification of Letters Patent No. 24,068, dated May 17, 1859.

*To all whom it may concern:*

Be it known that I, LUCIUS E. TRUESDELL, of Warren, in the county of Worcester and State of Massachusetts, have invented a certain new and useful Improvement in Bridges, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, making part of this specification, in which—

Figure 1, represents a view in perspective of an iron bridge embracing my present improvement. Fig. 2, a view of a pair of diagonal braces as locked. Figs. 3 and 4, detail views of the clamp.

My improvement relates to that class of iron bridges provided with diagonal braces. It is the usual practice in these structures to secure the diagonal braces together by means of bolts, pins, or rivets which necessitates the formation of holes in the braces for their reception, thereby greatly impairing their strength—a point of material consideration. In practice it has been found that the vibrations of the bridge will cause the holes to be enlarged in a very short time, so that constant changes or renewals of bolts or pins are unavoidable, in order to keep the braces rigidly secured. Such frequent alterations greatly augment the cost and labor of keeping the bridge in good repair. Others again have tried simply to bind the braces together at their points of intersection, by means of a clamp. But to such an arrangement there are many serious objections, as it is well known that however firmly they (the braces) may be bolted together by means of a clamp, the continuous strain exerted on it (the clamp) at the point of intersection of the braces will cause, in the lapse of time, the clamp to slide or settle lower down, whereby the proper relative position of the different parts becomes deranged, and an undue strain in certain parts of the structure thereby originated.

To obviate all of which is the object of my present improvement, and it consists in so constructing the diagonal braces that they shall lock or embrace each other at the points of their intersection, so that when bolted together by means of a clamp of suitable construction, they will be so firmly connected that any dislocation or disarrangement of the parts will be effectually prevented.

To enable others skilled in the art to make,

construct and use my invention I will now proceed to describe it in detail, omitting a description of such portions of the bridge structure as are not essential to the full understanding of my present improvement.

In the accompanying drawing the structure of the bridge is represented as consisting of a series of horizontal cords (A), vertical braces (B) and diagonal braces (C) so arranged and combined together as to form as it were, a network—the whole being firmly secured together by means of clamps (D). The diagonal braces (C) which intersect each other at right angles, or thereabouts, are at their points of intersection bent or curved in opposite directions for a distance equal to the width of the other, so that they shall fit into and embrace each other as represented in Fig. 2. Being thus constructed they are locked in by means of a clamp (D) formed in two halves ( $D^1$  and  $D^2$ ) of cast iron or other suitable material—in one of which ( $D^1$ ) are formed diagonal grooves ( $a$ ) of sufficient size to embrace and receive the two diagonal braces as fitted to each other, for which purpose the square ( $b$ ) formed by the intersection of the two grooves ( $a$ ) is depressed and serves as a receptacle for the curved or raised portion ( $c$ ) of the braces where they embrace each other. The other half ( $D^2$ ) has four tenons ( $d$ ) corresponding in shape to the grooves ( $a$ ) with the exception that the tenons are not raised as high as the grooves are deepened so as to leave sufficient space for the reception of the diagonal braces. The two halves of the clamp are then firmly secured together by means of screw bolts. The connection thus formed possesses superior firmness and rigidity because of the raised or curved portions ( $c$ ) of the braces being embedded in the depressions formed in the clamp, so that dislocation or sliding of the braces is rendered perfectly impossible.

In the clamps (D) represented in the drawing the horizontal cords (A) are fitted into a groove formed on the outside of each half of the clamp to which they are secured by the bolts that clamp together the diagonal braces. But if deemed advisable these cords may be secured to the diagonal braces in the inside of the clamp (D) without the necessity of passing the bolts through them as in the present case, for which purpose

however a suitable change must be made in the construction of the inner faces of the two halves ( $D^1$  and  $D^2$ ) that constitute the clamp.

5 Having thus described my improvement what I claim as new and desire to secure by Letters Patent is—

The method herein described of construct-

ing and interlocking the diagonal braces for the purposes set forth.

In testimony whereof, I hereunto set my hand to this specification.

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L. E. TRUESELLE.

Witnesses:

E. D. BEACH,

WM. H. HAILE.