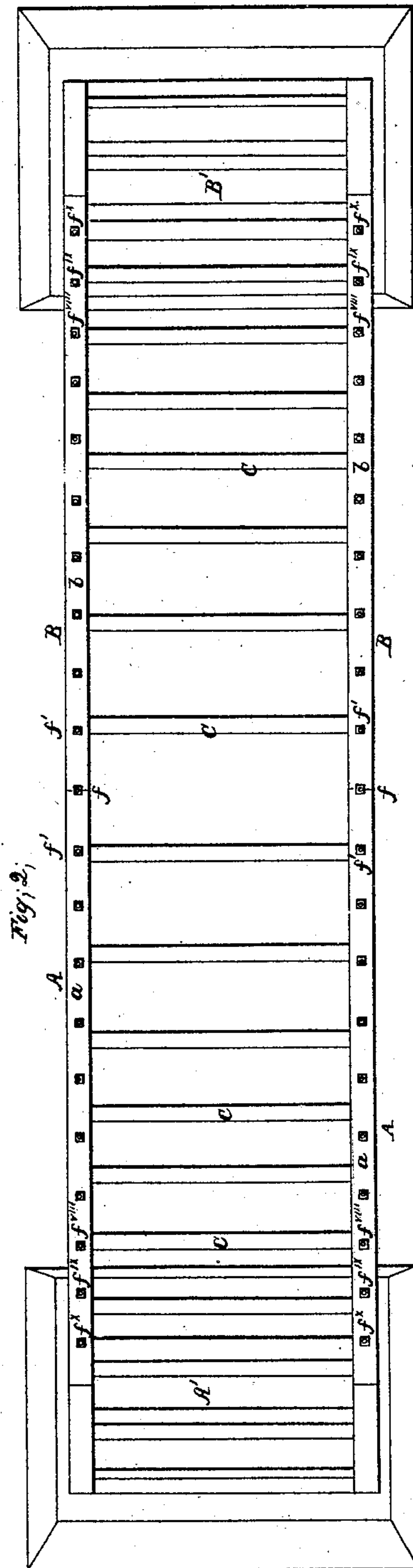
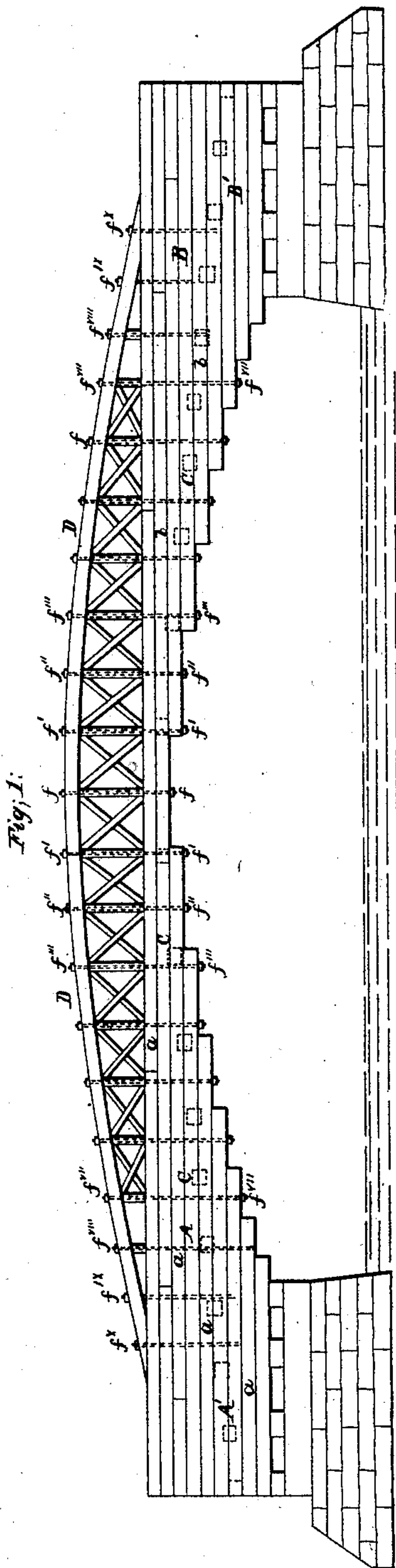


L. Liscom Truss Bridge.

N^o 76,212.

Patented Mar 31, 1868.



Witnesses;
M. Bailey.
C. Page, Jr.

Inventor;
L. Liscom by
A. Pollock
his atty.

United States Patent Office.

LEVI LISCOM, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF, RUFUS S. MERRILL, AND WILLIAM LINCOLN.

Letters Patent No. 76,212, dated March 31, 1868.

IMPROVEMENT IN BRIDGES.

The Schedule referred to in these Letters Patent and making part of the same.

TO WHOM IT MAY CONCERN:

Be it known that I, LEVI LISCOM, of Boston, in the county of Suffolk, and State of Massachusetts, have invented certain new and useful Improvements in Bridges; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a bridge made in accordance with my invention, and

Figure 2 is a top view of the same.

My invention relates to bridges of the kind for which Letters Patent, No. 43,099, were issued to A. Cottrell, on the 14th day of June, 1864, and my object is to impart increased strength and solidity to such bridge.

The bridge invented by said Cottrell may be considered to be composed of two or more levers projected from each side of the space to be spanned. Each lever is composed of a series of superposed layers of timbers bolted or pinned together, which project, one in advance of the other, a given distance, the shore-end of the lever or levers being weighted so as to compensate for the increase in the projection, and consequent weight of the opposite end. The topmost layers of timbers of the opposite levers meet in about the centre of the space to be bridged, and are then joined together, thus completing the framework of the bridge, the flooring of which is laid at any time, either after the framework is completed or during the progress of the work.

My invention consists in the combination, with the double lever of which the bridge of the said Cottrell is composed, of truss-work, united with the same by means of tie-bolts or rods, as hereinafter described, so that the said lever shall in effect constitute the bottom chord of the truss.

To enable those skilled in the art to understand and use my invention, I will now proceed to describe the manner in which the same is or may be carried into effect by reference to the accompanying drawings.

The bridge there shown is made of two sets of levers, A B, composed of superposed layers of timbers, *a b*, each of which layers projects a given distance in advance of the one below. The shore-ends A' B' of the levers, that is to say, the ends of the levers on each side, in rear of the points from which the span is projected, are weighted with masonry, stones, or other suitable material, to compensate for the weight of the projecting ends, and the pair of levers on each side are connected by joists or cross-braces C, upon which the flooring is laid. The bridge, thus far, is constructed in accordance with the invention described in the above-named patent of A. Cottrell, and constitutes a bridge which, while cheap and easy of construction, is strong enough for ordinary purposes.

In order, however, to impart an increased stability to the bridge, so as to fit it to withstand any usage, and to make it perfectly steady, and rigid, and safe, I combine with it a truss, D, placed above the levers, as shown in fig. 1. The truss is connected throughout its whole length with the levers by means of iron tie-rods or bolts, *f, f¹, &c.*, in the manner shown in the drawings. The centre rod, *f*, passes through the truss and the two contiguous beams or timbers of the topmost layers *a b* of the respective levers, and is secured in position by nuts *h*, applied to its ends A B. The adjoining rods *f¹ f¹*, on each side of the centre rod, pass down through the uppermost layer, and are respectively secured to the projecting timbers of the layers *a¹ b¹*, immediately below. The next rods, *f² f²*, pass through the layers *a² b²*, and are secured in a similar manner to the projecting timbers of the layers *a² b²*, and so on. By this means the layers are held together and united with the truss most firmly and securely, and the levers or double lever A B is thus made in effect the bottom chord of the truss.

If, for instance, at the centre of the bridge there be a heavy weight, its tendency will be to depress the projecting and united ends of the levers A B, and consequently to draw down or spread the arched truss D, which is united by the tied bolts *f, &c.*, with the levers. This action will, for reasons well known to those acquainted with the construction of bridges, cause the ends of the truss to bear upon the shore-ends A' B' of the levers with an increased pressure, thus upholding the projecting ends of the same, and increasing, if possible, the rigidity and unyielding properties of the bridge. So, too, the bolts *f¹, f², &c.*, uphold the projecting ends of the several layers, *a¹, b¹, &c.*, and put them in direct communication with the truss.

The truss is further strengthened and upheld by cross-beams K and uprights *m*, through which the tie-

bolts may pass, if desired. The arrangement, however, of these beams, as well as of the bolts, may be considerably varied without departing from the principle of my invention.

Having now described my invention, and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

The combination, with the double lever, constructed as herein described, of truss-work, united with the said lever by means of tie-bolts or rods, as herein described, so that the said lever shall in effect constitute the bottom chord of the truss, substantially as set forth.

In testimony whereof, I have signed my name to this specification before two subscribing witnesses.

LEVI LISCOM.

Witnesses:

WM. E. LINCOLN,

D. F. LINCOLN.