

C. H. Parker,
Draw Bridge.

No. 103,233.

Patented May 17, 1870.

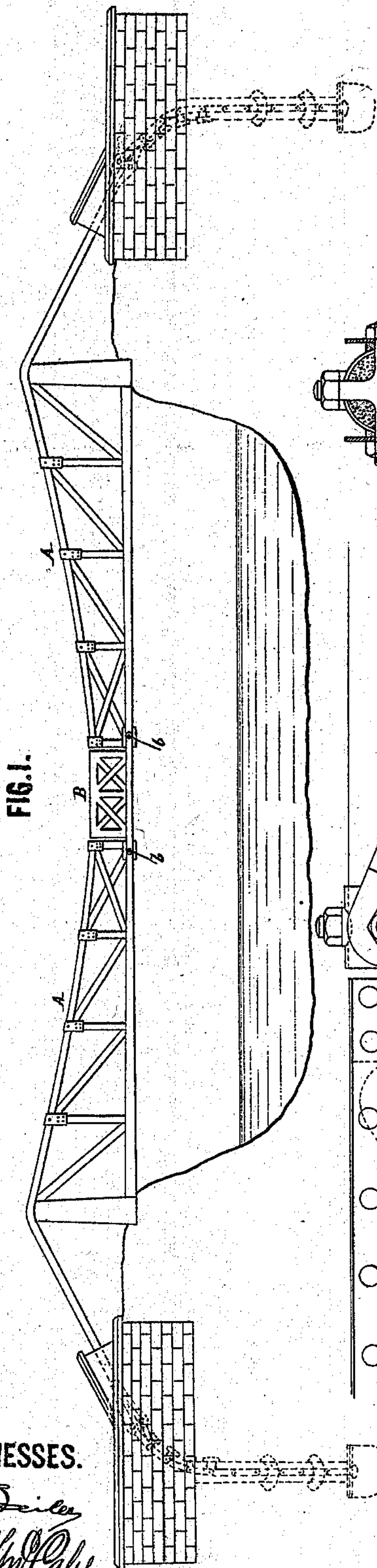


FIG. 1.

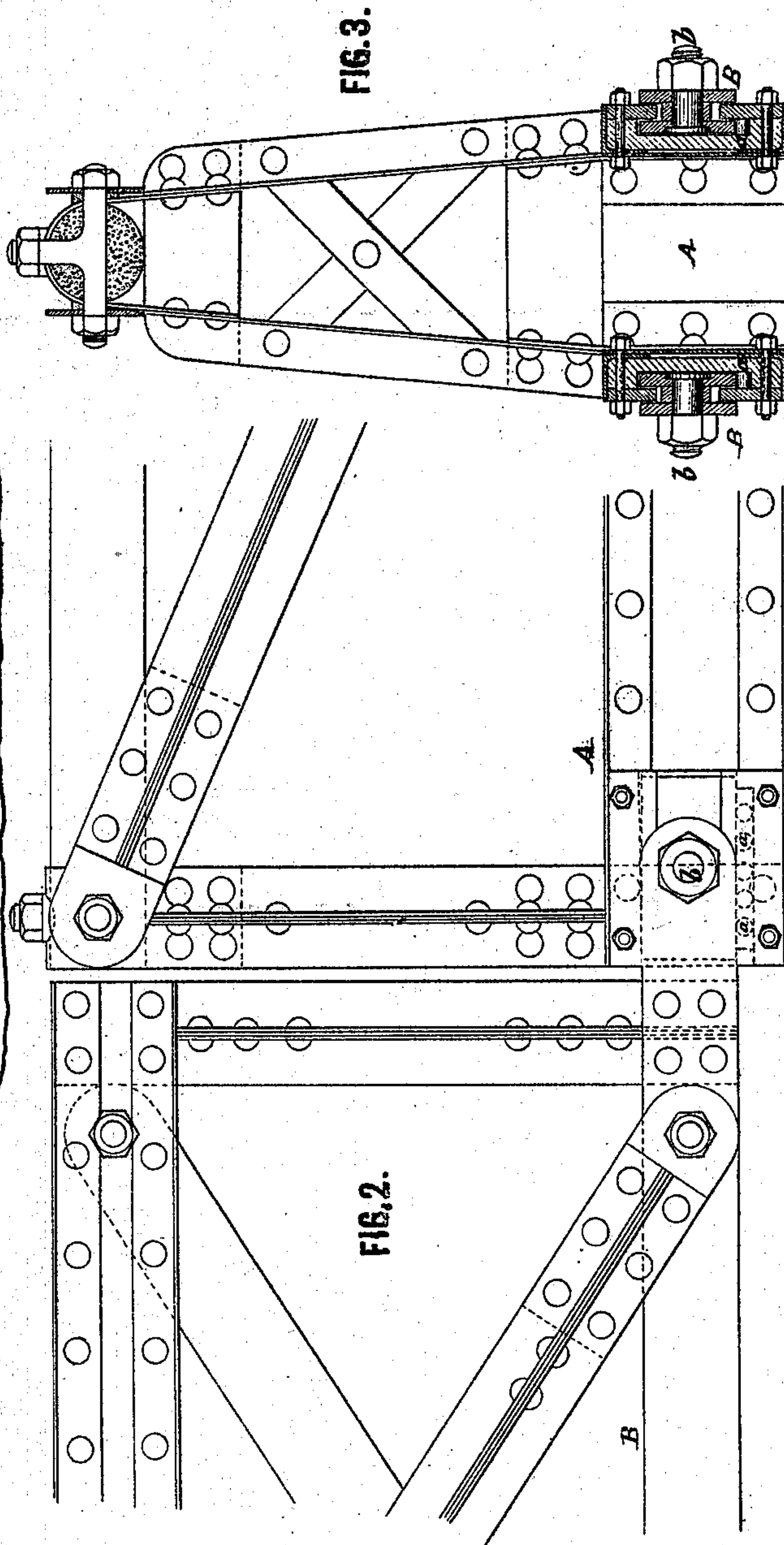


FIG. 3.

FIG. 2.

WITNESSES.

Wm. D. Bailey
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by his atty
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United States Patent Office.

CHARLES H. PARKER, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 103,233, dated May 17, 1870.

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, CHARLES H. PARKER, of Boston, county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in the Construction of Bridges; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

Figure 1 represents a side elevation of a bridge made in accordance with my invention.

Figure 2 is a side elevation of the center of the same, on an enlarged scale.

Figure 3 represents a vertical section of the bridge, taken through the point of junction of the cantilever and independent center girder or panel.

The present improvements in bridges relate to that system of bridges known as the "cantilever," the cantilever used being anchored to the shore by any system of anchorage.

The object of my invention is to so construct a cantilever bridge that it will act as a cantilever clear to the center of the span, and thus avoid the difficulties usually experienced in this system of bridges, attendant upon the expansion and contraction in metallic structures, and the impossibility of making the cantilever system available for the full length of the span, from the fact that a bridge composed of two connected cantilevers cannot act as a cantilever between the two points of contrary flexure, but the center must act as a beam, supported at its extremities upon the extreme points of the two cantilevers from opposite shores.

Another advantage to be gained is to free the opposite or unloaded half of a span from the effect or action of the loaded half.

The means by which these advantages are obtained constitute the improvements in the system of the cantilever bridge, which I desire to protect by Letters Patent.

The manner in which these improvements are or may be carried out will be readily understood by reference to the accompanying drawing.

To combine the two cantilevers, A, of which the span is composed, so as to allow of free contraction or expansion away from or toward the center, the contiguous ends of the levers are not rigidly united, but have a yielding connection, which, in this instance, is effected by means of the short center panel or girder B, the lower part or member of which is, at each end, fitted into and made capable of sliding in the bottom chord of the contiguous lever.

This is shown clearly in figs. 2 and 3, where the ends of the girder fit in recesses formed for their reception in the levers, and rest upon friction-rollers *a*. Under this arrangement the cantilevers have no direct connection with each other, and there is perfect freedom to contract and expand away from and toward the center, so that each will act as a cantilever clear to the center of the span.

As above stated, my further object is not only to render the bridge capable of free contraction and expansion in the manner described, but also to arrange it so that each span will, as regards deflection, act independently of the other. This result, in part, is effected by the adjustable or yielding connection between the levers, as described, each lever being independent, so that the two points of contrary flexure are removed to the center of the span.

The difference in deflection of the two cantilevers, due to one of them being loaded while the other is unloaded, I overcome by means of the short auxiliary girder B, constructed as before specified, in such manner as to allow of free movement lengthwise from contraction and expansion, and hinged, at *b*, by bolts or other suitable means, so that a vertical movement of one cantilever will not be imparted to or affect the other.

The bolts pass through slots in the bottom chords of the levers, as shown in figs. 2 and 3, so that, while they hold the girder firmly to the levers by a hinged connection, they at the same time permit the free endwise movements of the girder or levers due to contraction and expansion.

Having described my invention, I would state that I do not claim, broadly, a bridge composed of two independent cantilevers connected by a central span or girder, as I am aware that the same is not new; but

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

The combination, with the two disconnected cantilevers, of the auxiliary central girder, united with said levers by a hinged and sliding connection, substantially as shown and set forth.

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

CHAS. H. PARKER.

Witnesses:

WM. A. BLODGETT,
CADWALLADER CURRY.