No. 731,321. PATENTED JUNE 16, 1903.

J. W. PAGE.

BASCULE BRIDGE.

APPLICATION FILED NOV. 13, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

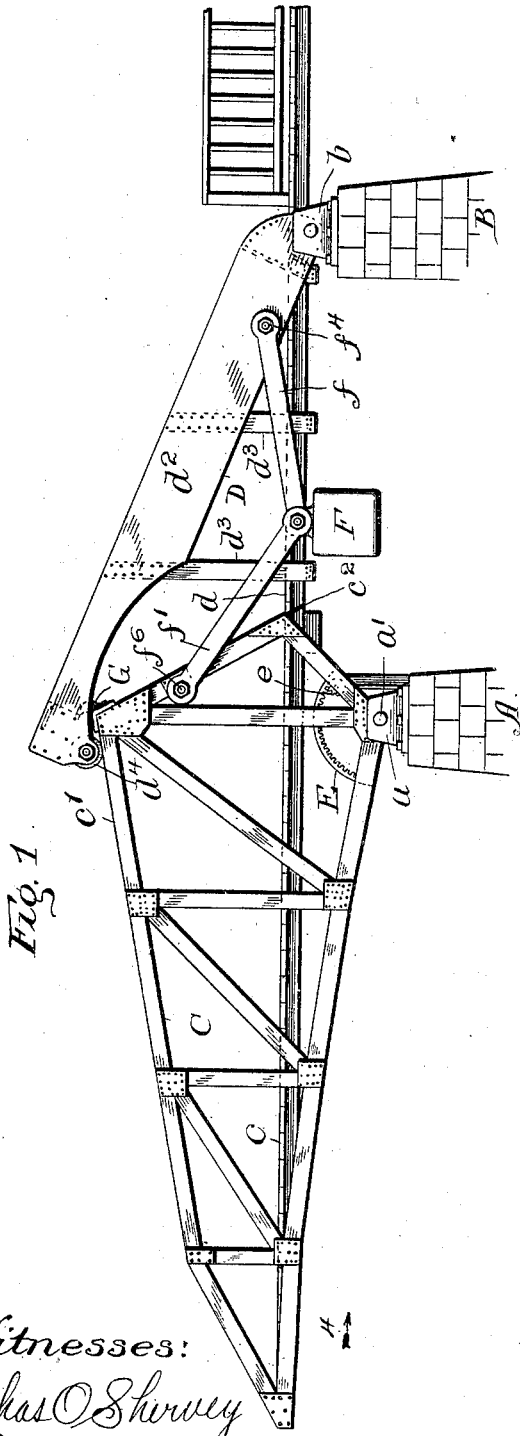

Fig. 1

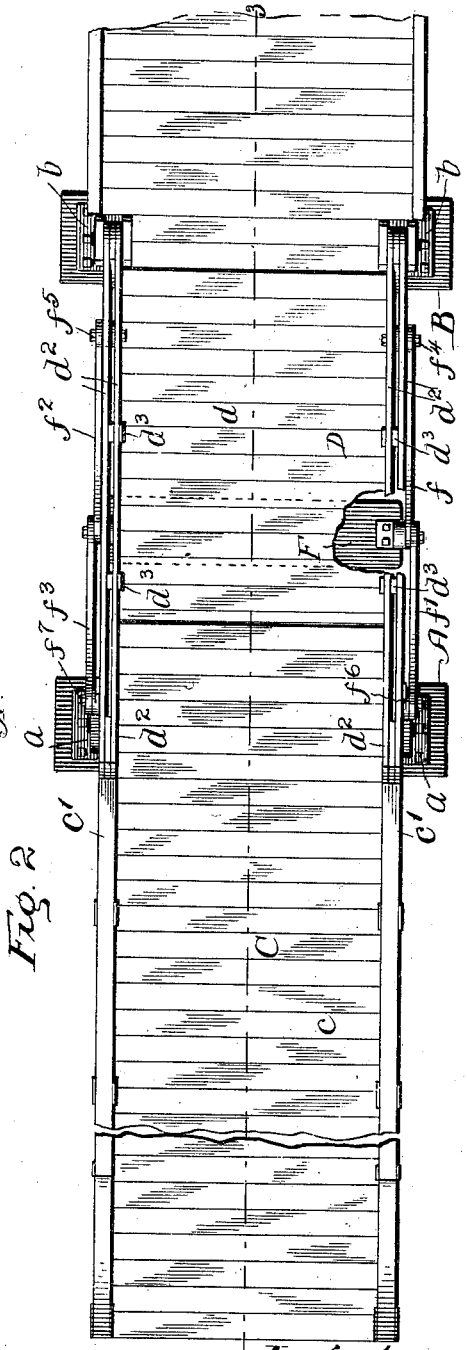

Fig. 2

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NO MODEL. 2 SHEETS—SHEET 2.

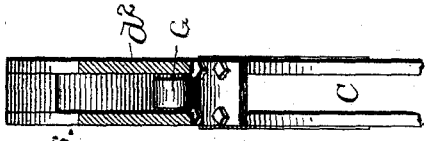

Fig. 6.

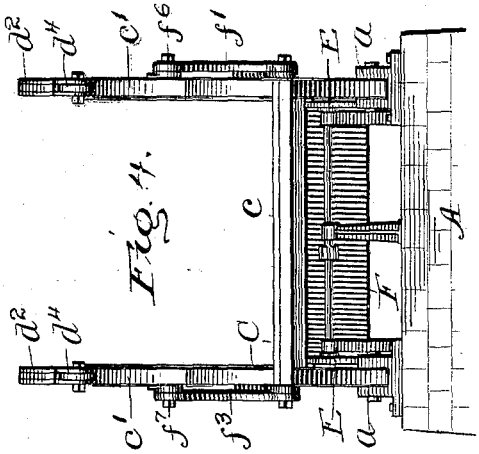

Fig. 4.

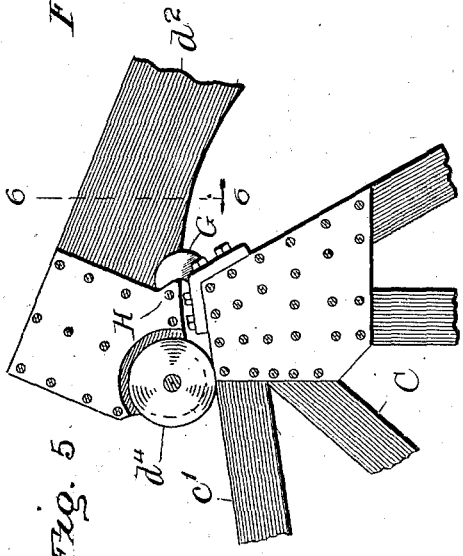

Fig. 5

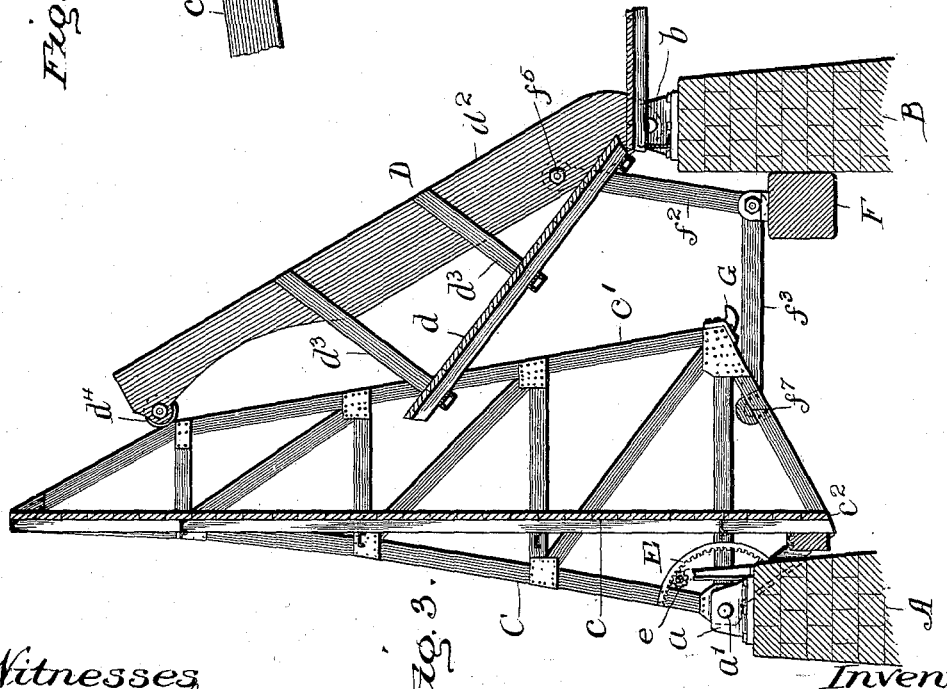

Fig. 3.

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No. 731,321. Patented June 16, 1903.

UNITED STATES PATENT OFFICE.

JOHN W. PAGE, OF CHICAGO, ILLINOIS.

BASCULE-BRIDGE.

SPECIFICATION forming part of Letters Patent No. 731,321, dated June 16, 1903.

Application filed November 13, 1902. Serial No. 131,079. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. PAGE, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bascule-Bridges, of which the following is a specification.

My invention relates to certain improvements in bascule-bridges designed with especial reference to the counterbalancing of the oscillating parts of the bridges and incidental thereto with reference to simplicity of construction and ease of operation.

In the illustration of the bridge I have shown a single span which may be used separately or in combination with a similar span upon the opposite side of the stream, the two spans meeting at the center.

In the drawings, Figure 1 is a side elevation of a complete bridge, except that the bridge or abutment upon one side is omitted. Fig. 2 is a plan of the same. Fig. 3 is a vertical longitudinal section in plane 3 3 of Fig. 2. Fig. 4 is an end elevation looking in the direction of the arrow 4 in Fig. 1. Fig. 5 is a side elevation of the rolling engagement between the swinging span and the oscillating leaf, the plate upon one side of the roller being cut away to show the roller; and Fig. 6 is a vertical section in line 6 6 of Fig. 5 looking in the direction of the arrow 6.

Referring to the drawings, A B are piers or abutments supporting caps *a b*, to which the swinging span and the oscillating leaf are respectively pivoted. The swinging span C is made up of suitable trusswork supporting a roadway *c*, the top stringer *c'* of the truss being arranged to form a suitable track. The roadway *c* extends beyond the vertical line through the pivot *a'* and is shown as cut away on a bevel at c^2, so that as the swinging span rises this extension of the roadway will drop away from the portion *d*, supported by an oscillating leaf D, pivoted to the caps *b b*. This leaf is shown as consisting of two rigid stringers d^2, from which the roadway is supported by uprights d^3 and has journaled in its free end a roller d^4, running upon the track *c'* of the main truss. A segment E, secured to the main truss and concentric with the pivot thereof, together with a pinion *e*, suitably supported and rotated, provides means for swinging the span of the bridge, and as said span is swung the roller d^4 runs up the track *c'* until the parts reach the position shown in Fig. 3.

A counterbalancing-weight F is hung upon four links $f f' f^2 f^3$, pivoted at one end to the weight and at the other end, respectively, to the main truss and the swinging leaf—that is to say, the links $f f^2$ are pivoted to the swinging leaf at $f^4 f^5$ and the links $f' f^3$ are pivoted to the main truss at $f^6 f^7$. As the parts are located in Fig. 1 it will be seen that the counterbalancing-weight F pulls with great force upon the main span, because the pivots are almost in line, and a slight movement of the span causes a considerable movement of the weight. At the same time the pull of the weight upon the swinging leaf is almost in line with the pivot of that leaf, so that at this point the angular pull of the weight upon the leaf is slight. Furthermore, the downward strain of the leaf upon the span assists in counterbalancing the span in this position, inasmuch as a line perpendicular to the track at the roller passes back of the pivot of the truss. Fig. 3 shows that when the bridge is up the strain of the counterbalancing-weight upon the bridge is substantially in line with the pivot of the main span, and the purchase of said counterbalancing-weight upon the leaf is also close to the line of the pivot of the latter. Between the two positions the counterbalancing-weight swings from one position to another, graduating the pull upon its points of attachment, so as to balance the bridge to the best advantage. At the same time the roller d^4 runs along the track upon the upper truss, shifting its point of bearing so that the line of strain from this roller passes through the pivot-span to the other side and the span itself swings upward and backward upon its pivot until its center of gravity passes over the pivot, after which its tendency to fall backward is restrained by the counterbalancing effect of the swinging leaf. In this way the weight of the swinging leaf is utilized first to assist in counterbalancing the weight of the span by pressing downward upon the shore side of the pivot, and later

when the center of gravity of the span passes from one side of the pivot to the other to afford a counterbalancing effect upon the span in the opposite direction. A pair of hooks or stops G upon the main truss are adapted to engage with shoulders H upon the stringers d^2 to limit the downward swing of the bridge. It is obvious, of course, that the track upon the bridge which supports the swinging leaf may be made of any desired form or shape, so that such counterbalancing effect can be utilized to the best advantage and to suit the best requirements. Variation in other particulars is possible, and for that reason I do not limit myself to the specific details shown.

I claim as new and desire to secure by Letters Patent—

1. The combination with a vertically-oscillating bridge and a vertically-oscillating leaf forming a continuation thereof, of a counterbalancing-weight hung both from the bridge and from the leaf and having a varying purchase upon the bridge, substantially as described.

2. The combination with a vertically-oscillating bridge and a vertically-oscillating leaf forming an extension thereof, of a suitable track upon the bridge, a supporting-stringer upon the leaf and a roller upon the leaf adapted to run upon said track, substantially as described.

3. The combination with a vertically-oscillating bridge, of a pair of pivoted links, pivoted together at one end, a counterbalancing-weight hung from said ends, one of said links being pivoted to the bridge at a point eccentric to the axis of oscillation of the bridge, substantially as described.

4. The combination with a vertically-swinging bridge having a suitable top stringer or rail, of a vertically-swinging leaf resting at one end upon said top rail, substantially as described.

5. The combination with the vertically-swinging main span, C, provided with the hook, G, and top stringer, c', of the swinging leaf, D, provided with the shoulder, H, and the roller, d^4, the latter being adapted to rest and travel upon the stringer, c', substantially as described.

In witness whereof I have signed the above application for Letters Patent, at Chicago, in the county of Cook and State of Illinois, this 31st day of October, A. D. 1902.

JOHN W. PAGE.

Witnesses:
CHAS. O. SHERVEY,
RUSSELL WILES.