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BASCULE BRIDGE

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3 Sheets-Sheet 2

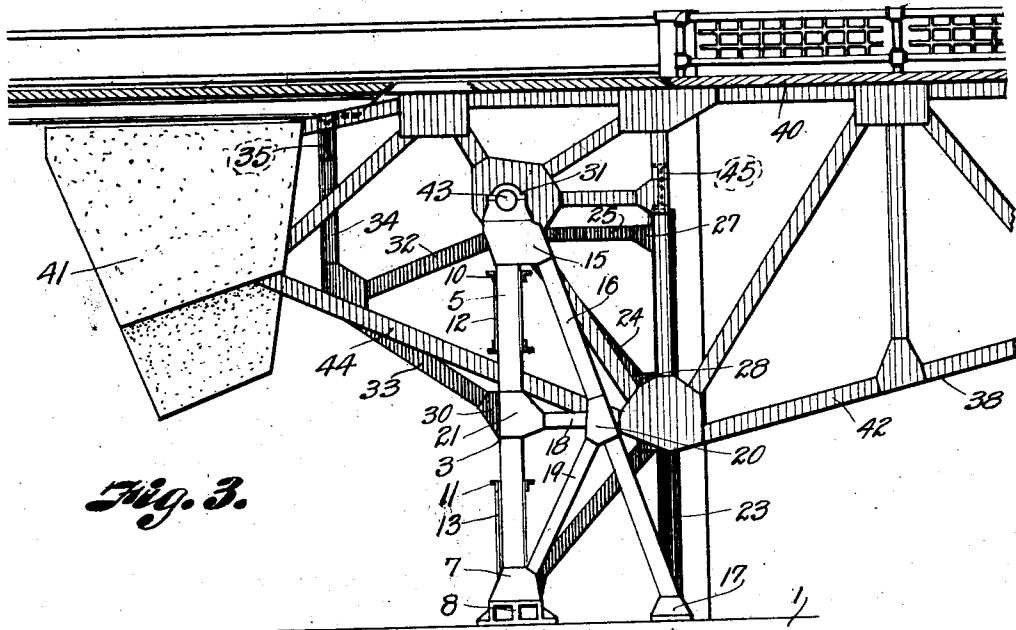


Fig. 3.

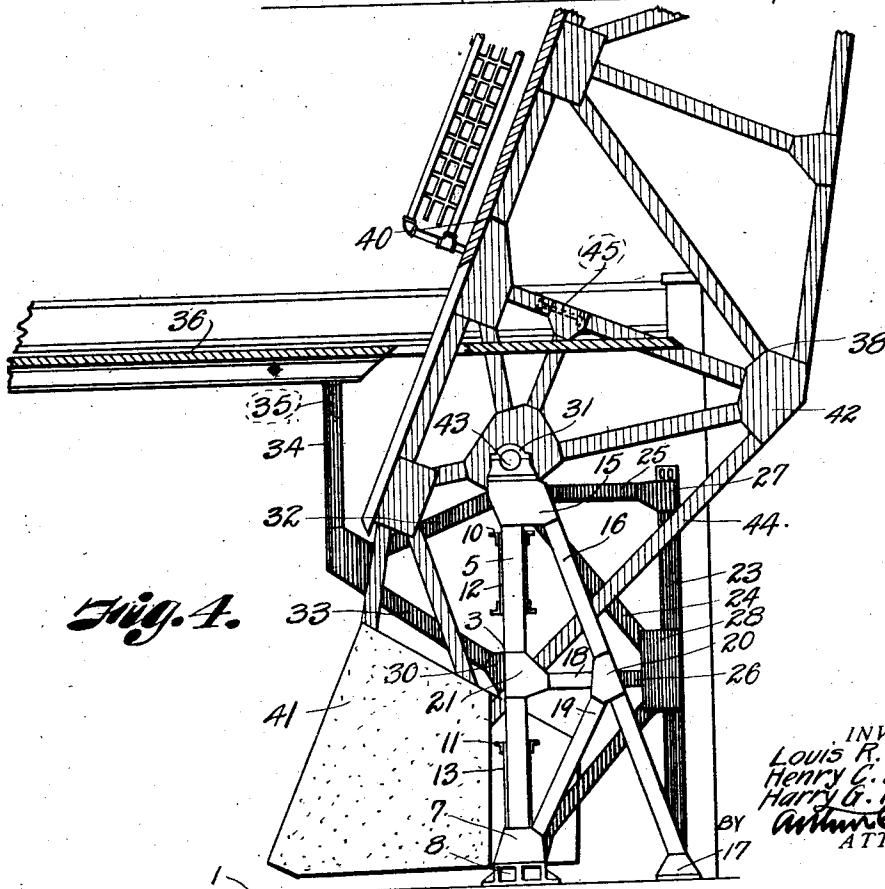


Fig. 4.

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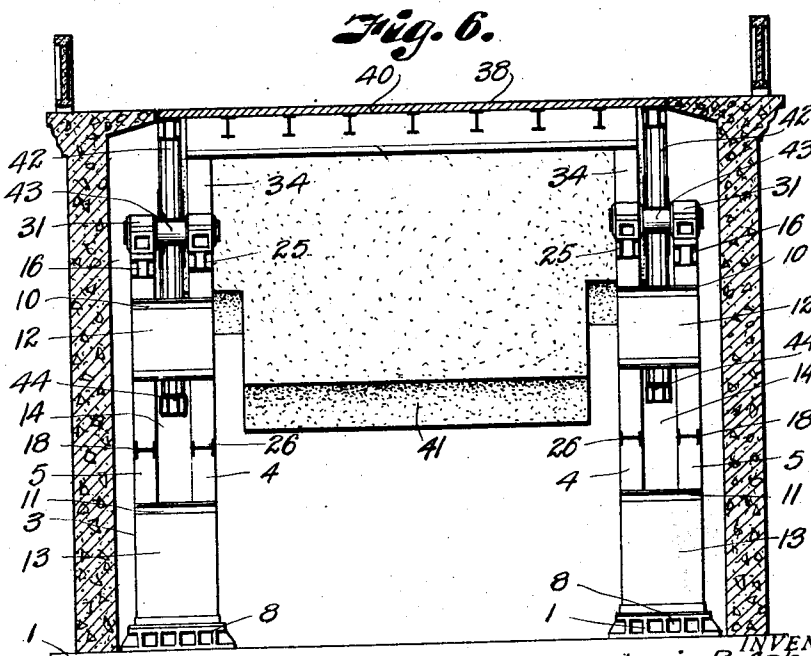
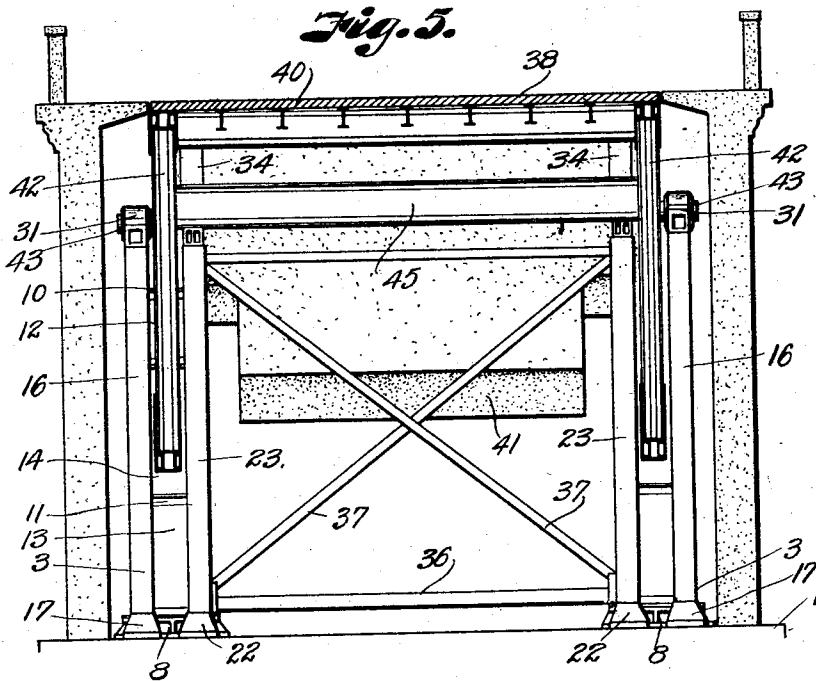
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UNITED STATES PATENT OFFICE.

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BASCULE BRIDGE.

Application filed September 7, 1926. Serial No. 133,816.

Our invention relates to bascule bridges of single or double span types and has for its principal objects, to provide an improved span support, braced to resist the various stresses to which it is subject at different positions of the span, and to provide supplemental support for the free end of the fixed span at all times, and supplemental support for the movable span when the bridge is closed; all without interference with the trusses of the movable span.

In accomplishing these and other objects of the invention, we have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawings wherein:

Fig. 1 is an elevation of a double span bascule bridge equipped with our improved supports;

Fig. 2 is a plan view of abutting ends of fixed and movable spans;

Fig. 3 is an enlarged side elevation of movable and fixed spans, in connection with the support, the bridge being shown in closed position;

Fig. 4 is a similar view of the same parts as they appear when the bridge is open;

Fig. 5 is a transverse, vertical section on the line 5—5, Fig. 2;

Fig. 6 is a transverse, vertical section on the line 6—6, Fig. 2;

Fig. 7 is a detail perspective view of one of the trunnion posts.

Referring more in detail to the drawings:

1, 2 designate fixed abutments at the opposite sides of a channel for supporting the movable spans of a bascule bridge of any ordinary type, except for the improvements hereinafter noted.

While we have, in the principal figure of the drawing, indicated our improvements as applied to a double span bridge, they are not necessarily limited to this type, but applicable as well to a single span bridge, the supports being merely duplicated on each of the abutments when used in connection with a bridge of the double span type. For that reason we will refer to but one of the supports with the understanding that such description relates equally to both.

Mounted on the abutment 1 are spaced trunnion posts, indicated generally by the numeral 3, each of the posts 3 comprising spaced, paired columns 4 and 5, mounted in

separate seats 6, 7 on a common base 8, resting on and suitably secured to the abutment, the seats being preferably cross-braced as at 9. The inner and outer columns 4 and 5 are cross-braced at the top and bottom by angles 10, 11 and plates 12 and 13, leaving an opening 14 between the angles for a purpose presently described.

Connected with the top of the outer column 5, by a gusset plate 15, is a forwardly-directed, diagonal brace 16, resting at its lower end in a seat 17 on the abutment 1 and having cross and diagonal braces 18 and 19 running from about its center to connect with the column 5, the ends of the cross-brace being seated between gusset plates 20 on a diagonal and 21 on the column and the diagonal brace 19 preferably seating between the plates 20 on the diagonal and in the seat 7 within which the lower end of the column is also located. Resting in a seat 22 on the abutment 1 and rising to about the level of the pivot bearings on inner and outer column, presently described, is a vertical brace 23, having diagonal sub-braces 24 leading from about its center to contact with the inner column 4, and horizontal sub-braces 25 and 26 leading to the column 4, the ends of the sub-braces being seated between gusset plates 27, 28, 29, and 30 on the vertical brace and on the column 4 respectively.

On the tops of the inner and outer columns 4 and 5 are pivot bearings 31, of any suitable type adapted for mounting the pivot members on the side trusses of a movable bridge span.

Fixed to and extending rearwardly from the inner column 4 are bracket members 32, 33, supporting an upright 34, and fixed to the uprights 34 on the brackets of the respective trunnion posts is a girder 35 that extends beneath the end of the fixed floor over the counter-weight.

The inner columns of the trunnion posts at opposite sides of the bridge are connected and braced by girts 36 and diagonals 37 of any suitable construction, in order to stabilize the support.

The movable span is designated generally by the numeral 38 and comprises a leaf member 40, provided with a counter-weight 41 of any suitable construction.

The span 38 has the usual side trusses 42, provided with pivot members 43, which seat

in the bearings 31 on the tops of the trunnion post columns, the side-trusses being in longitudinal alignment with the spaces between the columns of the respective trunnion posts and having members 44 extending from a point forwardly of the trunnion posts, through the openings 14 in said posts to the counter-weight 41, the spacing between the cross-braces 10 and 11 of the trunnion posts being sufficient to allow the truss members 44 to play in said space during opening and closing movements of the span, without interference.

Between the side trusses 42 is a stop 45 arranged to contact the tops of the vertical braces 23 of the respective trunnion posts to support the leaf when the latter is in traffic carrying position.

With the movable span constructed as described, mounted on a support employing our improvements, the end of the fixed floor over the counter weight is supported at all times from the brackets on the trunnion posts and the movable span has supplemental support on the upper ends of the vertical braces of the support when the bridge is closed. During opening or closing travel of the movable span, the rearwardly directed truss members travel through the trunnion posts without interference, and the counter-weight moves in an arc beneath and rearwardly of the supplemental fixed floor support, without interference therefrom.

It is apparent, therefore, that each of the movable span trusses may be supported in a balanced position on the spaced trunnion posts, and that the diagonal, cross and vertical braces employed in connection with the post columns absorb the various stresses to which the trunnion posts are subjected in the operation of a bridge of this type.

Having thus described our invention, what we claim is new therein, and desire to secure by Letters Patent is:

1. In a bascule bridge, spaced trunnion posts, bearings on said posts, a live load supporting member on and forward of the posts, an approach support extending in the opposite direction and supported by said posts, a movable span comprising side trusses and pivot members having mounting in said bearings, and a transverse girder connecting the trusses and adapted to seat on said supporting member when the span is in load carrying position.

2. In a bascule bridge, spaced trunnion posts, each comprising spaced inner and outer columns, bearings on the columns, a diagonal brace for the outer column of each post, a vertical brace for the inner column of each post, terminating at substantially the level of the said bearings, a span movable between the outer columns of the trunnion posts and comprising side trusses, and a girder connecting said trusses and seated

on said vertical braces when the span is in load carrying position.

3. In a bascule bridge, spaced trunnion posts, each comprising spaced inner and outer columns, spaced transverse braces connecting the columns of each post, a diagonal brace for each outer column, a vertical brace for each inner column, a span comprising side trusses having members movable between the columns of respective trunnion posts and between said transverse braces, and a transverse girder connecting said trusses and seated on said vertical braces when the span is in load carrying position.

4. In combination with the fixed and movable spans of a bascule bridge, spaced trunnion posts, trusses on the movable span having pivot bearing on the trunnion posts, brackets on the trunnion posts between the trusses, and a girder on the brackets supporting the end of the fixed floor.

5. In connection with the fixed and movable spans of a bascule bridge, spaced trunnion posts, each comprising paired columns, cross braced and provided with bearings, the movable span comprising side trusses, having pivot members seated in said bearings and having members extending between paired columns between their cross braces, rearwardly extending brackets on the inner columns, and a girder connecting said brackets and supporting the end of the fixed floor over the counter-weight.

6. In a bascule bridge, a fixed span, trunnion posts, each comprising a pair of spaced columns, rearwardly extended brackets on the inner columns of said trunnion posts, a girder on said brackets supporting the end of the fixed floor over the counter-weight, spaced cross braces for the columns, bearings on the columns, a movable span comprising side trusses having pivot members seated in said bearings and having members extending through the trunnion posts between the column braces, and a counter-weight on the rear ends of said trusses located beneath the fixed floor and rearward of said supporting girders when the bridge is closed.

7. In a bascule bridge, a pair of trunnion posts, each comprising a pair of spaced columns, having post bearings and spaced cross braces, diagonal braces for the outer columns, vertical braces for the inner columns terminating substantially at the level of the post bearings, fixed and movable spans having a floor break rearwardly of the post mountings, rearwardly directed brackets on the inner columns, having a cross girder supporting the end of the fixed floor and side trusses on the movable span having members movable between the paired columns of the trunnion posts, other members seatable on said vertical braces, and a

counter-weight located beneath the fixed floor back of the supporting girders when the bridge is closed. on the brackets supporting the end of the fixed floor. 10

8. In combination with the fixed and movable spans of a bascule bridge, spaced trunnion posts, trusses on the movable span having pivot bearing on the trunnion posts, brackets on the trunnion posts, and a girder

In testimony whereof we affix our signatures.

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