A. H. SCHERZER.

BASCULE BRIDGE.

APPLICATION FILED AUG. 5, 1912.

1,104,318.

Patented July 21, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

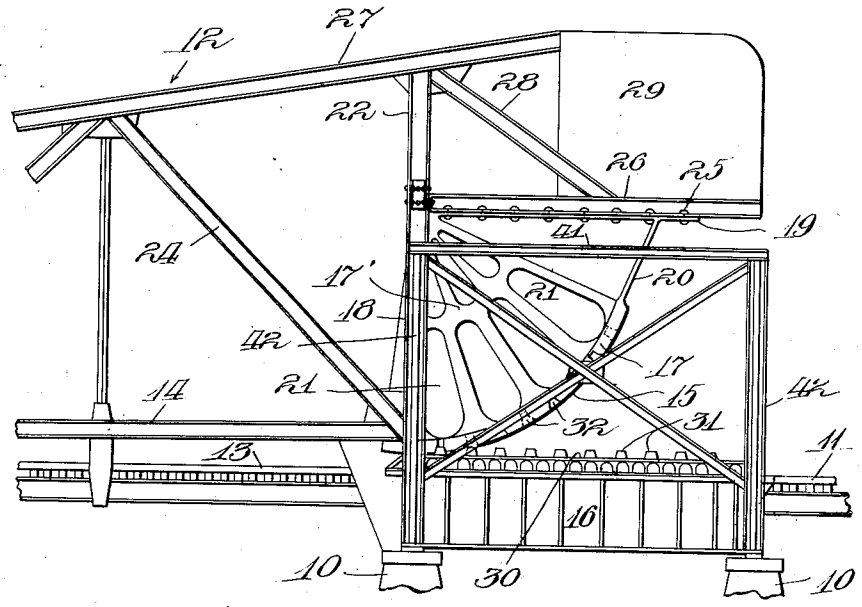
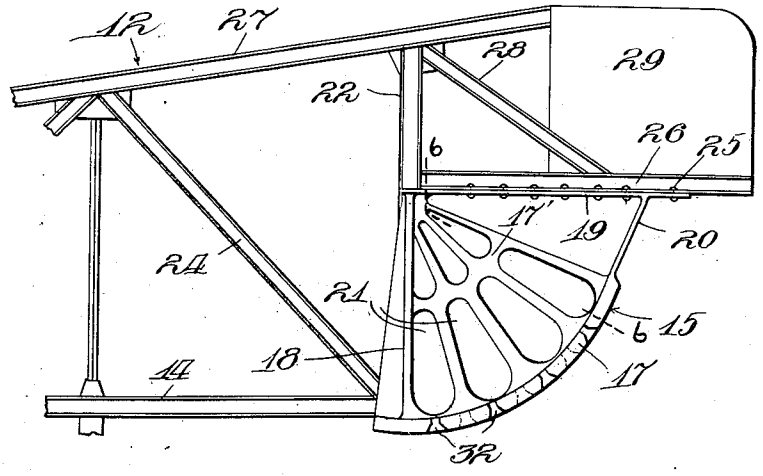


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

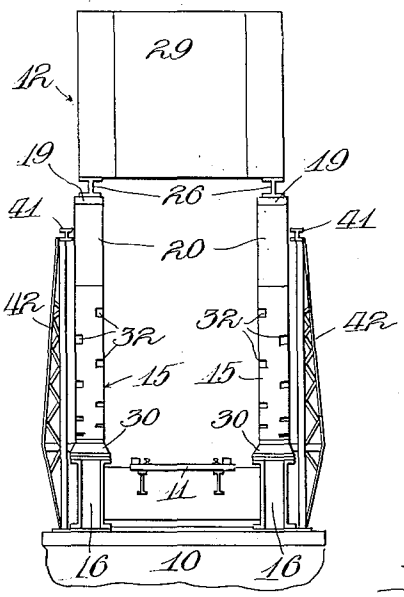


Fig. 7.

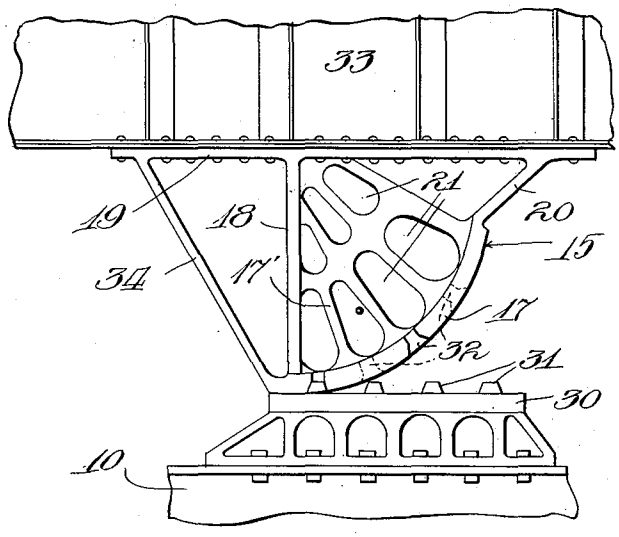


Fig. 4.

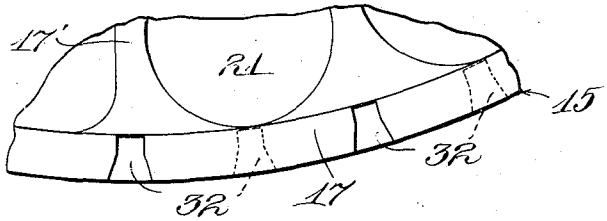


Fig. 6.

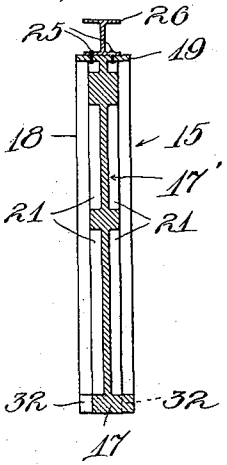
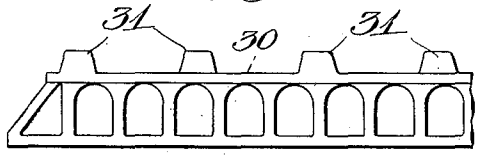


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALBERT H. SCHERZER, OF CHICAGO, ILLINOIS.

BASCULE-BRIDGE.

1,104,318. Specification of Letters Patent. Patented July 21, 1914.

Original application filed January 23, 1911, Serial No. 604,015. Divided and this application filed August 5, 1912. Serial No. 713,486.

To all whom it may concern:

Be it known that I, ALBERT H. SCHERZER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bascule-Bridges; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of the specification.

This invention relates to improvements in bascule or lift bridges of that kind wherein the bridge is opened and closed by the swinging movement of a movable span or spans in a vertical plane, and the invention consists in the matters hereinafter set forth and more particularly pointed out in the appended claims.

The invention refers more specifically to an improved bearing support or rolling segment for the bridge leaf by which the one end of the leaf is supported and upon which it rolls in the opening and closing movements of the bridge.

The invention herein shown is a division of my prior application for U. S. Letters Patent, Serial No. 604,015, filed January 23rd, 1911.

As shown in the drawings;—Figure 1 is a side elevation of the shore end of the bridge leaf and its supporting piers and approach. Fig. 2 is a side elevation of one of the trusses of the leaf, its supporting segment and counterweight. Fig. 3 is an end view of the bridge with parts omitted. Fig. 4 is an elevation detail of the curved bearing member of the supporting segment. Fig. 5 is a side elevation of a form of the track on which the rolling segment rolls. Fig. 6 is a section on the line 6—6 of Fig. 2. Fig. 7 is a partial side elevation of a deck bridge equipped with my improved supporting segment.

As shown in the drawings 10, 10 designates the shore piers for the bridge leaf or span and 11 designates the bridge approach.

12 designates as a whole the movable leaf of the bridge.

The bridge illustrated in Figs. 1 and 2 is of that kind known as a "through bridge", it embracing two lateral trusses and a bridge floor 13 supported adjacent to the lower chords 14 of the trusses. The inner or shore end of the bridge leaf is provided with rolling segments 15, 15 which are attached rigidly to and form parts of the trusses of the movable leaf and are adapted to rest and roll on horizontal girders 16, 16 located on either side of the approach 11 and supported on the piers 10, 10. The said segments are in the planes of the trusses and constitute the rear or heel ends thereof and support the shore end of the span in all positions of the latter.

Each of the supporting segments 15, is made of a single or integral cast or pressed steel piece, and comprises a curved bearing member 17 which rests and rolls on the supporting girders 16 and a sector shaped body or web 17' which is thickened and flanged at its inner side to constitute the strut or compression member 18 of the supporting segment. The said sector shaped body is formed at its upper side with oppositely extending horizontal flanges 19, 19 which constitute means by which the supporting segment is attached to the truss structure. The outer side of the web or sector shaped body is thickened and flanged at 20 to constitute a continuation of the curved bearing member 17 of the supporting segment to stiffen the body and connect the bearing member with the attaching flanges 19. The sector shaped web or body portion of the supporting segment is cored out, as indicated at 21 to lighten the same. The vertical strut member 18 of the segment is placed in the truss in vertical alinement with the strut member 22 of the truss, and is attached to the lower end of said strut member 22 by any suitable rigid fastening means. The lower chord 14 and the oblique brace member 24 of the strut are rigidly fastened to each other and to the foot of the thickened or strut member of the one-piece supporting segment by any suitable attaching means. The attaching flanges 19 of the upper side of the supporting segment are fastened by bolts 25 to a horizontal girder 26 which constitutes part of the truss, and which is attached at its forward end to the strut member 22 and extends rearwardly therefrom, and is braced from said strut member and the upper chord 27 of the truss by means of an oblique brace member 28. Supported from the girders 26 of the trusses and the upper chords thereof, and extending between and rigidly connecting the trusses, as herein shown, is a counter-

weight box 29 which is weighted to counterbalance the bridge leaf and by which the leaf is counterbalanced to facilitate the opening and closing movements of the bridge.

The bearing member 17 of the supporting segments and the supporting girders 16 are provided with interfitting parts to prevent the displacement of the bridge structure on said girders. As herein shown the girders are surmounted by track members 30, which may also be made of cast or pressed steel. The track members are provided with upwardly extending lugs 31, and the bearing members of the supporting segments are provided with corresponding notches 32 which are adapted to engage over said lugs as the segments roll on the track members. The said lugs are rounded on their upper ends and the notches are correspondingly flared at their lower sides so as to insure the entrance of said lugs into said notches.

While the lugs are shown on the track and the notches on the segment it will be obvious that the reversal of the arrangement will produce the same results, and further that the detail of the tooth and notch construction between said coacting members may be otherwise varied.

It will be observed that the rolling, supporting segments 15 constitute parts of the trusses, the flanged or thickened strut members 18 thereof acting with the strut member 22 of the trusses to transmit the live and dead loads of the leaf to the supporting or track girders 16. In the construction shown in Figs. 1 and 2 the entire live and dead loads of the outer end of the bridge leaf are transmitted through the inner parts or members 18 of the segments, the truss strut members 22 terminating at the upper sides of the segments. Whether the said truss strut members be so terminated or extend to the lower sides of the segments and rigidly attached thereto, said segments act to transmit the whole or part of the said loads to the supporting girders.

In Fig. 7 I have shown the application of my improved one-piece segment to a deck bridge, wherein the segments are located wholly below the floor of the leaf 33. The supporting segment 15, shown in Fig. 7, embraces also an integral brace member 34 which corresponds to the separately formed brace member 24 of the truss shown in Figs. 1 and 2.

An advantage of the one piece supporting segments upon which the shoreward end of the bridge leaf rests and rolls lies in the great simplicity of the construction as compared with rolling segments which are made up of plates and flanged bars that are riveted together. The improved construction described saves the time and expense of assembling the plates and bars heretofore employed, and punching and riveting the assembled parts together. Furthermore the load transmitted through the rolling segments herein shown is transmitted without likelihood or danger of internal shearing stresses such as occur in the built-up plate and bar construction. There is avoided the danger therefore of injury to the segments by unequal or non-uniform loading.

It will be understood that the structural details of the several features of the invention are capable of variation within the scope and spirit of the invention, and may thus be varied to adapt the same to bridges of varying constructions. For instance, the interfitting parts of the segment and track girders 16, may be reversed with the projections on the segments and the notches in the members 30 of the track girders and the said interfitting parts may be differently arranged and shaped.

I claim as my invention;—

1. A bascule bridge provided with a one piece rolling and supporting segment which constitutes a component part of and is fixed rigidly to the bridge truss at the heel end of the truss to support the weight of the shore end of the truss in all positions of the latter, embracing a web thickened at its lower side to provide a curved bearing member, and flanged at one of its sides to constitute a strut or compression member and flanged also at another side to constitute an attaching member by which the segment is rigidly attached to the truss.

2. In a bascule bridge, the combination with a bridge leaf truss, of a one-piece rolling segment, embracing a web flanged at its lower side to constitute a curved bearing member and flanged at its inner side to constitute a strut or compression member, the truss having a strut member arranged end to end and in line with the strut member of said segment, with means for rigidly fastening the segment in the truss structure, whereby the segment constitutes a component part of the truss structure.

3. In a bascule bridge, the combination with bridge leaf trusses, of rolling segments at and constituting the heel ends of the trusses and adapted to support the weight of the shore end of the leaf in all positions of the latter, each of said segments embracing a web arranged in the plane of its truss and flanged at its lower edge to constitute a curved bearing member and flanged at its inner side to constitute a strut or compression member, the truss having a strut member arranged end to end and in line with the strut member of said segment, with means to fixedly fasten the segment in the truss structure.

4. In a bascule bridge, the combination with a leaf truss comprising upper and lower chords, with a strut member extending downwardly from the upper chord and

terminating above the lower chord, and with a horizontal girder extending rearwardly from said strut member, of a one-piece rolling and supporting segment comprising a web thickened at its lower side to constitute a curved bearing member, and thickened at its inner side to constitute a strut member which is arranged end to end and in line with the shorter strut member of the truss, and being also flanged to provide a horizontal attaching member, with means to rigidly attach it to said girder.

In testimony, that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 23rd day of July, 1912.

ALBERT H. SCHERZER.

Witnesses:

W. L. HALL,

HARRY S. GAITHER.