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BRIDGE

Filed March 10, 1925

2 Sheets-Sheet 1

Fig. 2

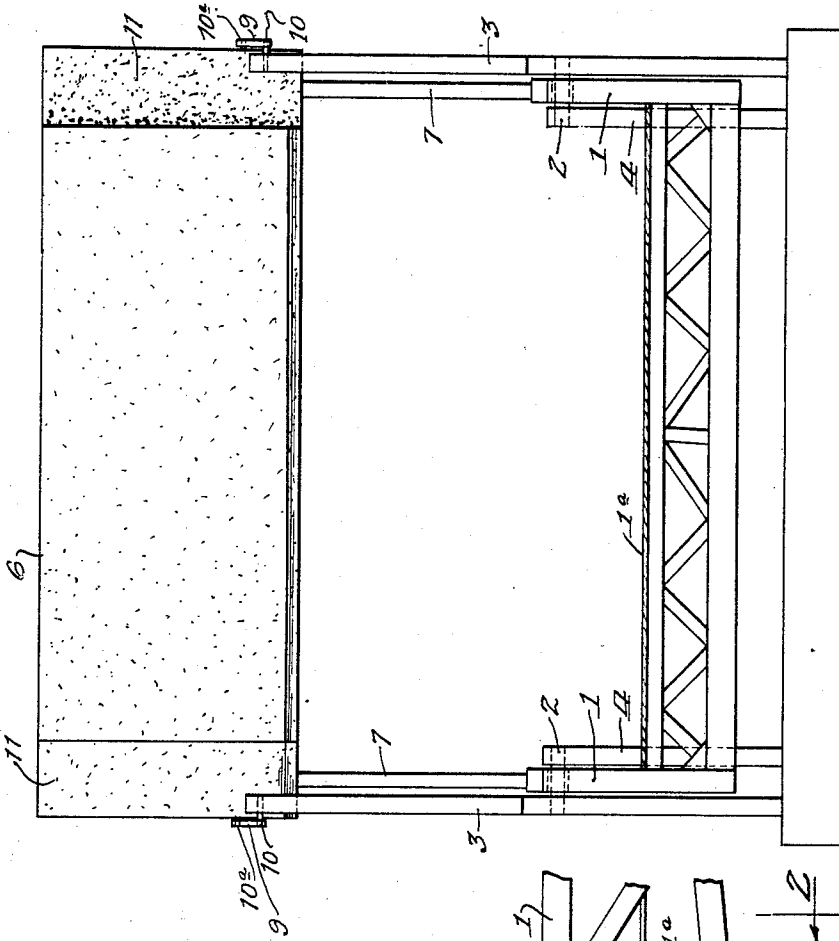
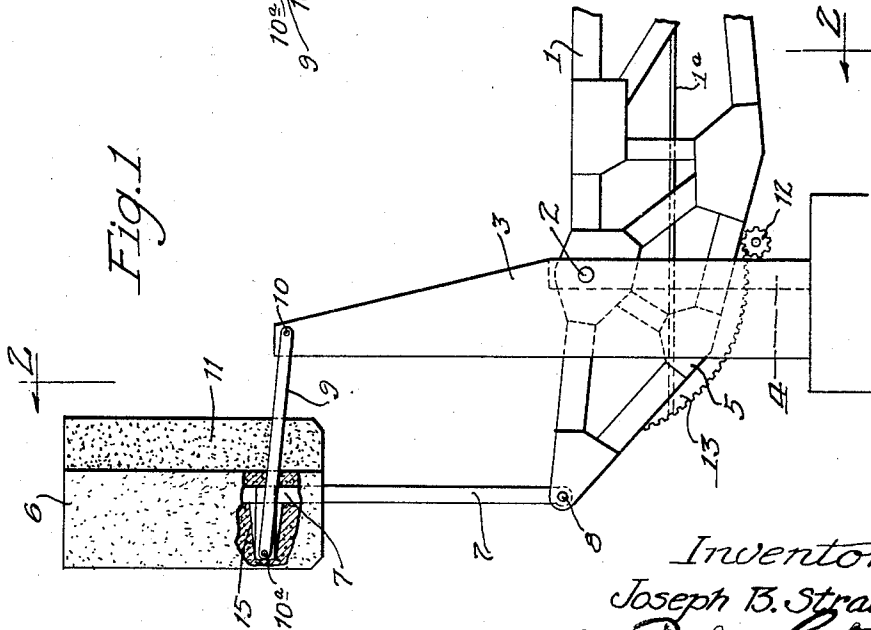


Fig. 1



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BRIDGE

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This invention relates to bridges of the bascule type and has for its object to provide a new and improved bridge of this description. The invention has as a further object to provide a new and improved construction of counterweights and means of supporting same, and new and improved means for supporting the bascule leaf. The invention has other objects which are more particularly pointed out in the following description.

Referring now to the drawings:

Fig. 1 is a side elevation with parts omitted showing one form of device embodying the invention.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1.

Fig. 3 is a plan view of one end of the counterweight with parts broken away, showing the method of attachment to the support of the leaf.

Fig. 4 is a view with parts omitted showing the metal frame for the counterweight.

Fig. 5 is a view in part section showing a modified construction.

Like numerals refer to like parts throughout the several figures.

Referring now to the drawings, the moving leaf of the bridge is provided on each side with the trusses 1 which are provided with trunnions 2. The trusses are provided on the outside with the supports 3 which extend upwardly above the leaf and with the inside supports 4, which are preferably only of such length as to receive the trunnions and which are short as compared with the outside supports, there being a long outside support and a short inside support for each trunnion. The trusses 1 have the tail ends 5 which project to the rear of the trunnions and with which is connected the counterweight 6 by means of the counterweight supports 7 which are pivoted to the tail ends of the trusses at 8. The counterweight is connected by links 9 to the outer supports or posts 3 by means of pivots 10, said links being connected to the counterweight itself by the pivots 10^a, the connection to the counterweight being near the bottom thereof. The counterweight as shown in Figs. 1 and 2 is made of concrete and extends across and

above the roadway and is recessed or cut away at its ends 11, said recesses adapted to receive the supports for the trusses when the bridge is open. Embedded in the counterweight 6 is a metal frame having the end pieces 7 and the cross pieces 14 (see Fig. 4). A series of diagonal metal members 17 extend across the frame to which are connected the pieces 16 which extend at an angle to the members 17. The entire frame is embedded in the concrete of the counterweight. The counterweight is provided with the usual reinforcing rods. The links 9 of the counterweight are pivoted to the projecting members 15 connected to the main counterweight frame as clearly shown in Figs. 2, 3, and 4. The members 14 are preferably connected near their middle by the member 19^a. The main span or leaf is lifted and lowered by means of a rack 13 and a pinion 12. Each of the trusses 1 may have a rack and pinion associated therewith. It will be noted that the outside supports 3 for the trunnions are wide at the bottom so as to take care of all the forces and properly support the structure including the counterweight. The roadway extends across between the trusses 1 as clearly shown in Figs. 1 and 2. In Fig. 5 I have shown a modified construction in which the counterweight is divided into two sections 6^a on opposite sides of the roadway which are connected by the member 7^a with the main trusses of the span the two sections being connected together by the cross frame consisting of the parts 7^a and the parts 18 and the intermediate members 19. When the bridge is closed the parts are in the position shown in Figs. 1 and 2, and when the bridge is open the main span is moved about the trunnions 2 so as to be lifted. This causes the counterweight to lower and the recesses 11 prevent interference with the movement of the parts by the supports for the main span. The line connecting the pivot of the link of the counterweight that is between 10 and 10^a is parallel to the line intersecting the connection of the counterweight and the trunnions 2, and the line connecting the trunnions 2 and the pivot 10 of the counterweight link is parallel to the line connecting the pivot

10^a of the counterweight and the pivot 8 where the counterweight is pivotally supported on the trusses.

I claim:

5 1. A counterweight for the span of a bascule bridge comprising a counterweight metal frame embedded in concrete having an outer exposed concrete surface, said frame being provided with portions which project beyond the concrete and which are pivotally connected with the tail end of said span, and a counterweight link at each side pivotally connected with said counterweight frame and adapted to connect it with the trunnion support of said span.

10 2. A counterweight for the span of a bascule bridge comprising a counterweight metal frame embedded in concrete, said frame being provided with portions which project beyond the concrete and which are pivotally connected with the tail end of said span and a counterweight link at each side, a metal projection projecting from said counterweight frame, said link pivoted to said projection at one end and adapted to be connected to the trunnion support of said span at the other end, said counterweight having an outer exposed concrete surface.

15 3. A bridge comprising a main leaf, trunnions therefor, supports upon which said trunnions are mounted, said leaf provided with a tail end integral therewith and projecting beyond said trunnions, one of said supports at each side extending above the leaf, a counterweight located above the trunnions of the leaf, a pivotal connection between said counterweight and the tail end of said span, and a counterweight link at each side pivotally connected with said counterweight frame and with the trunnion support, said counterweight link located near the bottom of said counterweight.

20 4. A counterweight for the span of a bascule bridge comprising a counterweight metal frame embedded in concrete, said counterweight having an outer exposed concrete surface, said frame comprising end pieces and cross pieces and diagonal members located between them, means for pivotally connecting said frame and the tail end of said span, and a counterweight link at each side adapted to be pivotally connected with said counterweight of said span frame and with the trunnion support.

25 5. A counterweight for the span of a bascule bridge comprising a counterweight metal frame embedded in concrete, said counterweight having an outer exposed concrete surface, said frame comprising end pieces and cross pieces and diagonal members located between them, the end pieces projecting beyond the counterweight and adapted to be pivotally connected with the tail end of the span, links for connecting said coun-

terweight frame with the trunnion support of said span.

6. A bridge comprising a main leaf, supports upon which it is pivotally mounted, said leaf provided with a tail end, one of said supports at each side extending above the leaf, a counterweight located above the trunnions of the leaf, the counterweight frame embedded in the counterweight, a pivotal connection between said counterweight frame and the tail end of said span, and a counterweight link at each side pivotally connected with said counterweight frame and with the trunnion support, said outside supports comprising posts wide at the bottom to take care of the stresses when the bridge is being operated.

7. A counterweight for the span of a bascule bridge comprising two posts connected together to form a frame, said frame embedded in concrete, said posts projecting downward from said frame and concrete, means for providing a pivotal connection between the ends of said posts and the tail end of said span, said counterweight having an outer exposed concrete surface.

8. A bridge comprising a main leaf, supports upon which it is pivotally mounted, a metal frame above said span and extending across the roadway, said frame having end pieces which project downwardly and which are pivotally connected with said leaf, concrete at each end of the frame in which a portion of the frame is embedded, said concrete having an outer, exposed concrete surface, the metal frame between the ends being exposed.

Signed at Chicago, county of Cook, and State of Illinois, this 21st day of February, 1925.

JOSEPH B. STRAUSS.