

# The Canadian Engineer

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## DON RIVER BASCULE BRIDGE, TORONTO

Toronto Harbor Commission Erects Single Leaf Strauss Trunnion Bascule Over Don River at Cherry Street To Accommodate the New "Eastern Harbor Terminal District"—Some Details of Design and Construction

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AS the reclamation work in the Eastern Harbor Terminal District, formerly called Ashbridge's Bay, in the city of Toronto, progressed to the point where industries were able to locate and traffic to this district consequently increased many fold, it became necessary to provide for the handling of this traffic by the construction of a modern movable bridge across the Don River Channel at the foot of Cherry Street, in the location shown in Fig. No. 3.

The temporary timber swing bridge formerly in use not only was inadequate to handle the increased traffic, but also, on account of its centre pier, greatly limited the size of vessel which was able to pass up the channel.

Before deciding on the type of new bridge best suited for the purpose, studies were made of several types of bridges, after which skeleton plans of the several studies were submitted to the builders of various types of movable bridges, with the request that they furnish rough plans and estimates of their particular type, together with methods and cost of operation.

After carefully going into the situation and considering all the circumstances in connection with the location, it was decided that the Strauss type of bascule bridge would be best suited for the Cherry Street bridge; consequently a contract was entered into between the Toronto Harbor Commission and the Strauss Bascule Bridge Co., Chicago, for detail plans and specifications, and tenders were called for on the basis of those plans and specifications.

The main foundations for the bridge consist of two main trunnion piers and two counterweight trunnion piers. The main trunnion piers consist of concrete cylinders, 6 ft. in diameter, resting on rock. The counterweight trunnion piers are of the same construction and are 8 ft.

in diameter, also resting on rock. The method of construction consisted in driving 14-inch, arch-web Lackawanna steel sheet piling in a circle the inside diameter of which equalled the required diameter of foundation. This sheet piling was given two feet penetration in the rock. The excavation was then removed in the water with an orange-peel bucket. When the excavation was completed, the unwatering was commenced. As the water lowered in the cofferdam, pairs of angles, bent to the exact circle of the interior of the piling, were placed at intervals to prevent the collapsing of the forms. The concrete was placed in the dry. The angle bracing above referred to was removed as the concrete was brought up.

In the case of one of the cylinders, some difficulty was encountered in excavating. There was evidently a fissure in the rock not stopped by the sheet piling and the sand entered from the bottom

as quickly as it was removed from the top by the bucket. The difficulty was overcome by plugging the fissure with clay.

Particular care was taken to see that all superstructure metal resting on concrete work was set to exact position and elevation. In order that the elevations of the bases

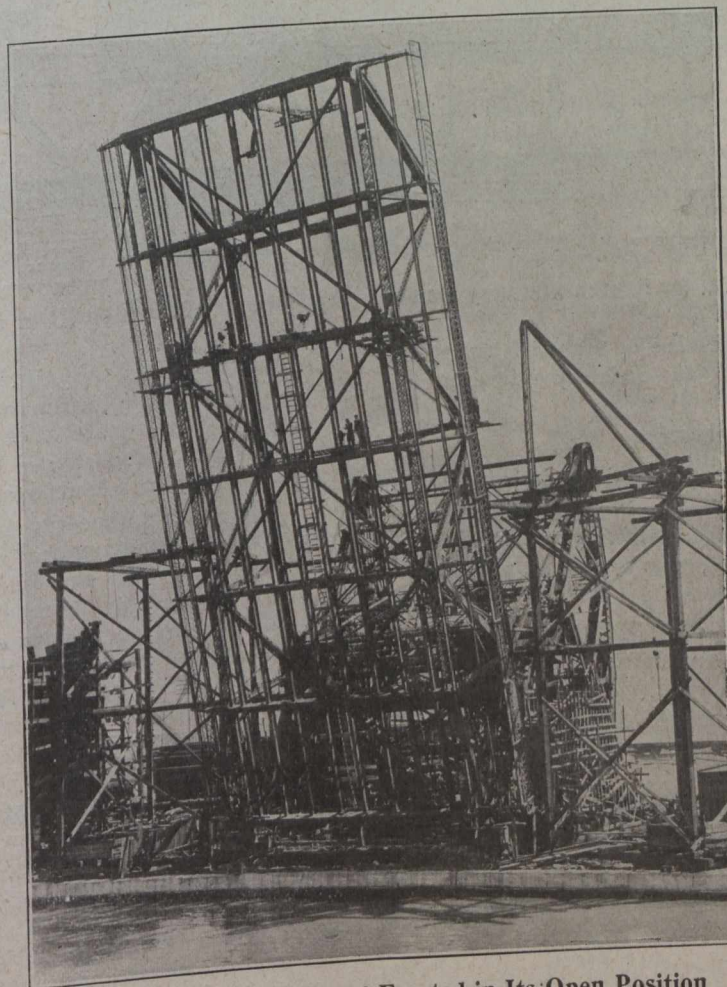


Fig. No. 1—Moving Leaf Erected in Its Open Position