

The Canadian Engineer

A weekly paper for Canadian civil engineers and contractors

THE ROLLING AND FLOATING STEEL CAISSONS OF THE LEVIS DRY DOCK AT LAUZON, P.Q.*

PART II.

A DETAILED DESCRIPTION OF THE DESIGN, FABRICATION AND ERECTION OF THE FLOATING CAISSON.

By **LESSLIE R. THOMSON, B.A.Sc., A.M.Can.Soc.C.E., Assoc.M.Am.Soc.C.E.,**
Engineering Staff, Dominion Bridge Co.

IN a previous article the rolling caisson and its intricacies were described; in this, the floating caisson, while radically different from the rolling gate, will probably be found to lend itself more readily to an easy and understandable description.

The floating caisson of this dock is a large structure designed to be floated to and then swung across the berth entrance, sunk with its bearing pieces against the sills, subsequently, when berth is emptied, to act as a dam

length at elevation of bridge deck is 133 feet 6 inches. The depth of the structure is 50 feet. The cross-section shows clearly the arrangement of the chambers and decks, which are named as follows: Keel, ballast chamber, deck E, air chamber, deck D, tidal chamber, deck B, motor and floor stand space, and deck A (traffic deck).

The ability of the caisson to successfully float or submerge itself as required by (1) and (2) will be discussed fully later.

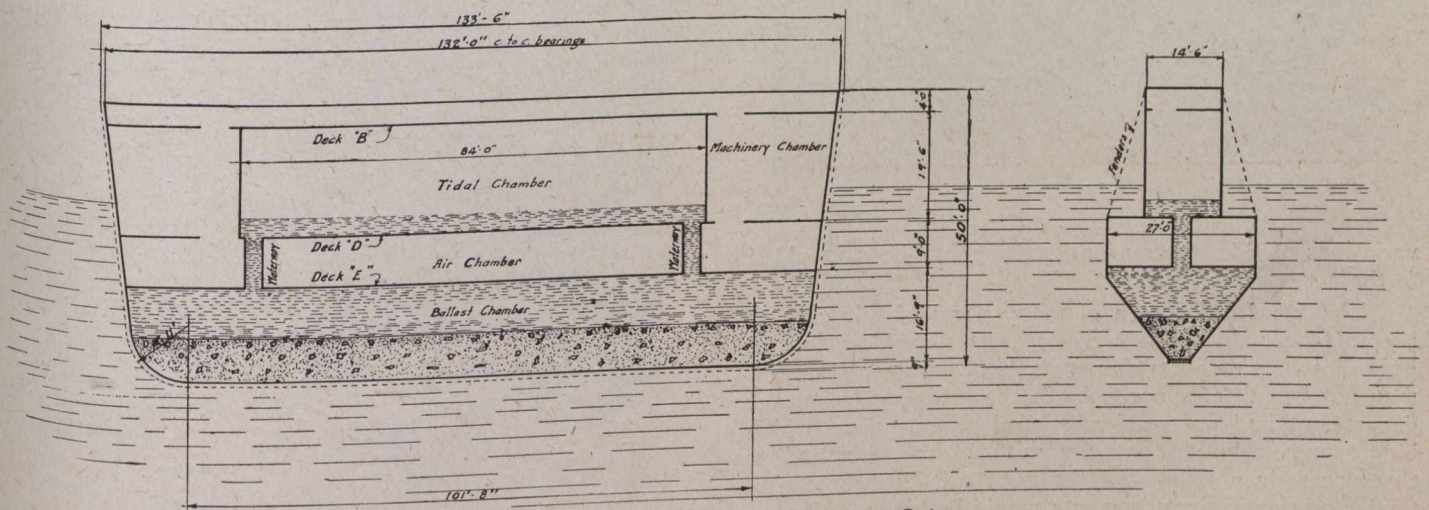


Fig. 1.—Line Diagram of the Floating Caisson.

against the sea water, and to afford passageway from one wall to the other. It must consequently possess four distinct characteristics: (1) It must be able to float when desired. (2) It must be capable of being submerged at will. (3) It must be strong enough when acting as a stop gate to carry the tremendous hydrostatic loads and transmit them to the sills. (4) While in position it must provide a passageway for light traffic.

The caisson in general outline is shown in Fig. 1. It will be noted that the keel section is straight, likewise the stems, which are, however, flared so that the overall

None of the mechanical equipment of the caisson is shown in Fig. 1, which is only intended to illustrate the general outline of the gate and the arrangement of its decks and chambers, consequently there is no indication given of even the six large 42-inch filling culverts which run completely through the caisson, and through whose agency the berth is flooded when desired.

At the very bottom of the structure is seen the concrete ballast, enough of which is placed to enable the minimum draft of caisson (no water ballast whatever) to be 22 feet 6 inches, thus giving 2 feet 6 inches clear over sills at low water, mean spring tides.

It will be next noted that the tidal chamber does not run the full length of the caisson, but is only about 84

*Extract of part of paper read before a meeting of the Mechanical Section of the Canadian Society of Civil Engineers at Montreal, March 30, 1916.