Volume 23. Toronto, Dec. 26, 1912

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The Canadian Engineer

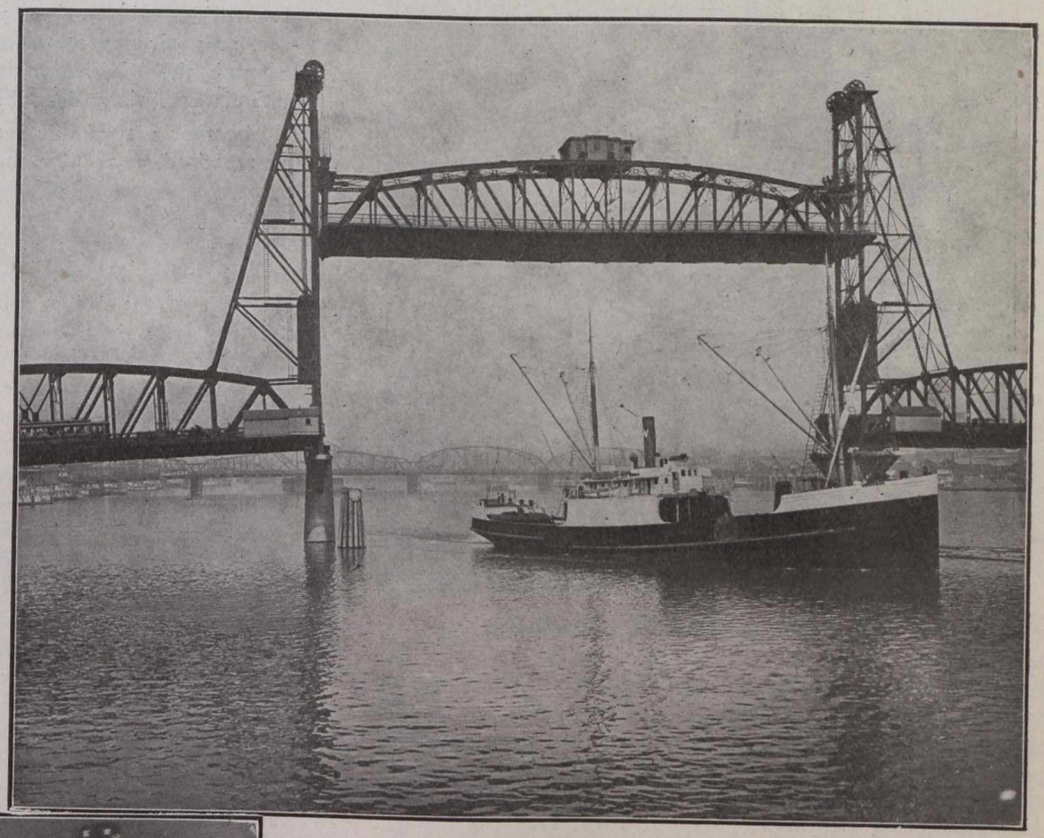
An Engineering Weekly

THE ELECTRICAL EQUIPMENT OF THE HAWTHORNE AVENUE BRIDGE, PORTLAND, OREGON.

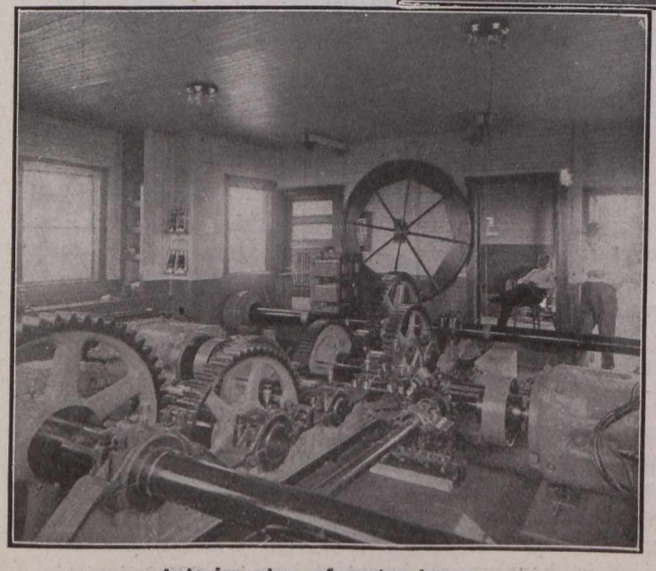
In laying plans for the installation of a draw bridge for Hawthorne Avenue, Portland, Oregon, the city officials endeavored to eliminate the many vexatious delays that were due to the constant opening and closing of the old draw span type Madison Street bridge, which formerly occupied approximately the same location as the present structure.

After looking over the various types offered, they finally decided on the lift span type as being the one which would most effectively alleviate these conditions. This has proven a very wise selection on the part of the city officials, as the time required to raise the bridge to the top of the span and lower it is less than that required to swing open the draw span type. The lift span type, however, possesses an additional advantage in that it is unnecessary in most cases to raise the span more than a few feet to accommodate the greater bulk of the river traffic, and consequently the delays to traffic across this bridge have been reduced to a minimum.

This type of span resolves itself, from an operating standpoint, into practically an elevator proposition, the weight of the span being balanced by means of large concrete counter weights connected to the span by means of steel cables operating over sheaves located at the top of the towers on either side of the span. These counter weights are clearly shown in their position in the photographs.



View of Hawthorne Avenue Bridge, Portland, Oregon, with draw raised showing boat going through.



Interior view of motor house showing motors and operating gears.

The bridge is operated by means of two No. 160 Westinghouse 125 horse-power, 550-volt, direct current railway crane type motors, which are directly coupled to a train of gears located in the machinery house on the top of the span; this reduction gearing, in turn, operates the bridge by means of steel cables. The lift span is guided in raising or lowering by means of steel roller bearings operating in the guides located in the vertical uprights of the towers. Besides the advantage of greater speed in operation, and consequently less delay to the traffic, this type of bridge also presents three great advantages from an engineering standpoint.