The bridge is designed to carry two railway tracks, capable of carrying two trains weighing approximately 5,000 lbs. per lineal foot each. There are also two sidewalks for foot passengers. No provision has been made for highway traffic.

New shops have been constructed by the St. Lawrence Bridge Company, exclusively for the manufacture of this bridge, with special equipment and handling machinery, the whole costing in the neighborhood of a million dollars.* Up to the present some 9,000 tons of material have been manufactured and shipped to the site.

During the past season the contractor for the superstructure has got his plant in shape and has already erected the two north approach spans from the abutments out to the anchor pier. It is expected that during the coming season practically the whole of the north anchor arm will be erected.

The erection of this bridge is probably one of the greatest problems, calling for more engineering skill than any other structure of its kind in the world. Every feature of erection from the placing of the members to the driving of the rivets is worked out in detail, and is supplied in printed form in a bound book to the erecting superintendent. All engineering problems are therefore solved for the erection force before they start, their duty being simply to carry out the mechanical end of the work in accordance with positive instructions. To handle the huge members on the bridge itself during erection, enormous steel travellers will be used, one on each side of the river, each of which, with its machinery, will weigh over 1,000 tons. One steel traveller is at the present time nearing completion on the north shore. All the cranes and derricks on this traveller are operated by electricity. The traveller runs on trucks and is moved from point to point on the floor of the bridge as the work progresses. This derrick is capable of lifting 55 tons on a boom 50 feet long. Everything about the mechanism and machinery has been made as nearly foolproof as possible.

In order that there may be no possibility of these heavy members being dropped and doing damage to the bridge or endangering lives, it is necessary to operate the hoisting engines against an electric resistance which means that the engines have to work just as hard to lower a piece as is necessary to raise it. Some idea of the size of the tackle used may be gained from the fact that the large blocks employed are about 5 feet in height, and weigh approximately 5,000 lbs. each.

One of the features of the erection which will probably be unique in the annals of bridge engineering will be the floating in of the centre or suspended span. This span will weigh about 5,000 tons and will be erected on trestles at some point near the bridge. When it is ready to be floated, very large pontoons will be floated under the span at low tide and when the tide rises will lift the entire span off the blocks. It will then be floated into position under the two ends of the cantilever arms at a low level and be connected up to these arms with long steel links. During this operation all navigation will be stopped in the river. When the connection has been made at the four corners at extreme high tide, the barges will settle with the tide and leave the span suspended. Powerful jacks of 2,000 tons capacity, situated at each corner of the cantilever arm, will then be brought into play and this span lifted slowly into place. It is estimated that the connecting up of the span should not take over an hour under good conditions and the span itself should be lifted into its proper position in about 48 hours.

The erection of the suspended span in this manner will save about one year in the time required for the complete erection of the bridge.

It is expected that the bridge will be sufficiently completed to allow traffic to proceed over it by the end of 1917.

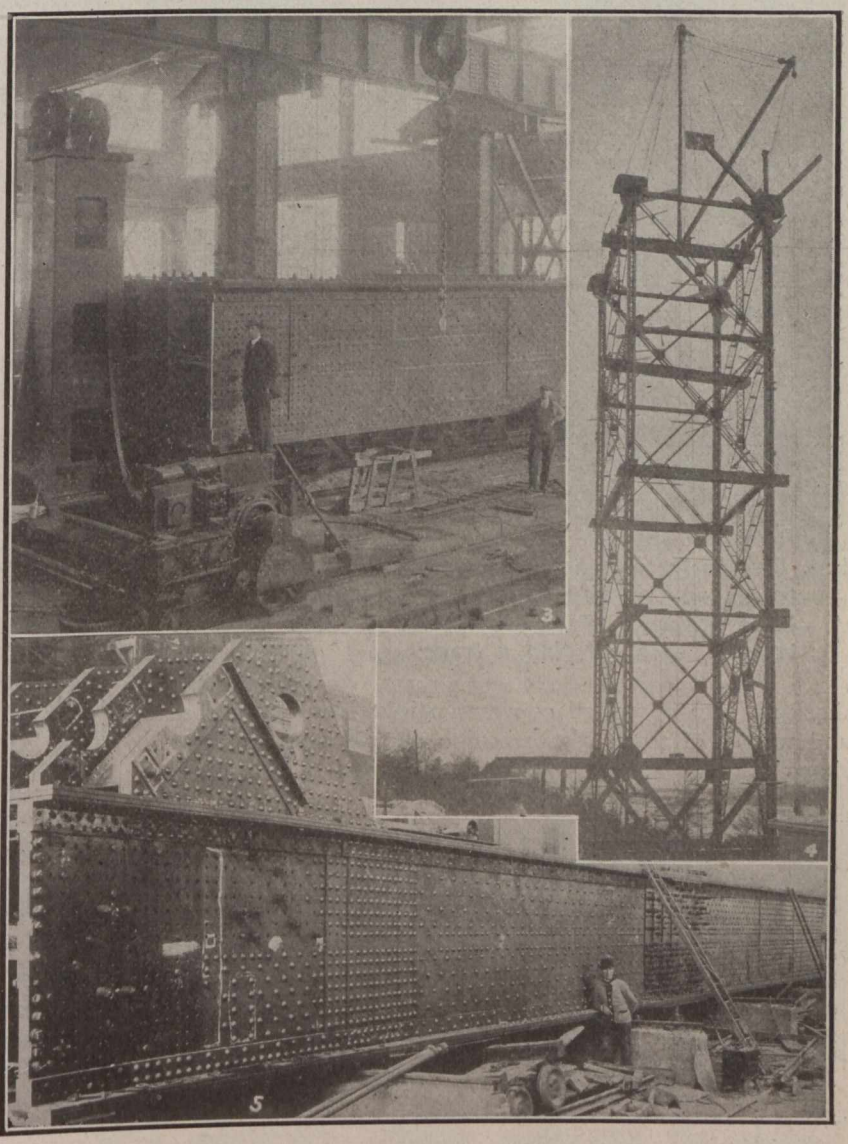

Fig. 3.—View of one end of main bottom chord in twin vertical facing machine which faces both ends simultaneously. This chord is a ½-panel length and is shipped in two pieces. Fig. 4.—North shore traveller in course of erection. It is 200 ft. high and will weigh over 1,000 tons. Fig. 5.—One full panel length connected up for the reaming of the splice plates. The member, as it stands, weighs 400 tons. The heavy gusset plates taking a vertical tension and diagonal compression member is shown at one end.

*For full description of these shops see *The Canadian Engineer* for January 22nd, 1914.