and steel plate girder bulkheads calculated to support the large concentrated loads to which they have twice been subjected, the same scows as were used last year, being used again this year.

The scows required about 8 feet 2 inches of draught to float the span; their bottoms were placed at elevation 83, a considerable distance above low water at spring tides and in this position the high tide rose about 2 feet above the decks, although when the span floated, the deck was more than three feet above the water level. Each of the scows had six valves in the bottom which were operated from the deck and these valves were left open until last Sunday night, so that the tide might flow in and out, keeping the level of the water inside the scows the same as on the outside, thus preventing any tendency to float except from the buoyancy of the wood in the timber skin.

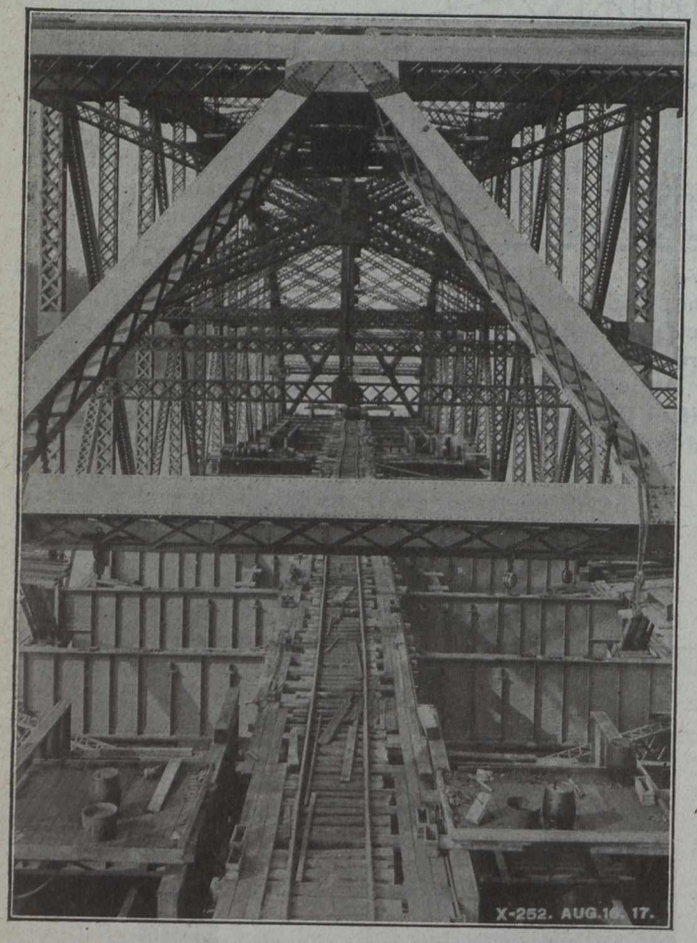

Fig. 8.—View Through New Suspended Span, Showing Sway Bracing

The design of the scows was governed by the arrangement and requirements of loading and the possible condition of the surface of the river during floating-in operations; also so that they might have some commercial value now that their work of floating-in the suspended span has been completed.

The average length from crest to crest of wave at the bridge site is about 40 ft.; the maximum wave height allowed for was 4 ft. This unevenness of the surface of the river produced unequal upward pressures at the four corners of the span and consequent stresses in the sway and lateral bracing. The inequality of pressure was proportional to the horizontal cross-section of the loaded scows near the surface of the water. To reduce wave effect as much as possible, long, narrow scows with a deep draft were used. With the design of scow adopted the oscillation of the span from wave action produced only stresses in the sway and lateral bracing, which these systems were well able to resist.

The scows are 32 ft. 5½ ins. wide, 164 ft. 6 ins. long and 11 ft. 7½ ins. draft over bilge timbers. Each has a steel frame made up of three longitudinal trusses,

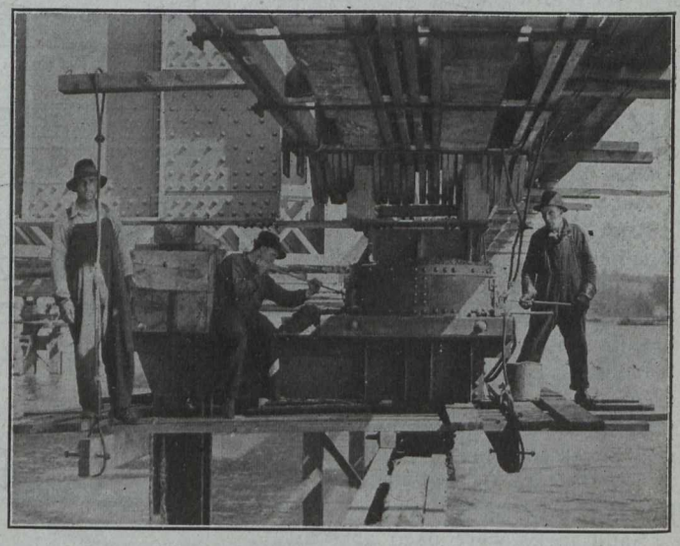

Fig. 9.—Removing Sand from Sand Jacks on Top of Intermediate Supporting Bents of Suspended Span

spaced 10 ft. 6 ins. centre to centre and braced transversely by four water-tight steel bulkheads with intermediate cross-frames between the bulkheads, spaced 8 ft. 4 ins. centre to centre. No special longitudinal bracing in the horizontal planes was provided, as the 11½ x 5½-in. cross-timbers, spaced 2 ft. 9 ins. centre to centre were bolted directly to the steel framework of the scow; and the 4-in. timber covering was spiked to these cross-timbers with 8 x 7/16-in. boat spikes, three at each inter-

Fig. 10.—Suspended Span Erected at Sillery Cove

section, providing an efficient resistance to any transverse or longitudinal horizontal-shearing and bending forces.

The load of the suspended span was transferred to the bulkheads by means of cross-girders and I-beams. The bulkheads transferred this load to the longitudinal trusses, which distributed it over the length of the scows.