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PNEUMATIC CAISSONS AT FORT WILLIAM.

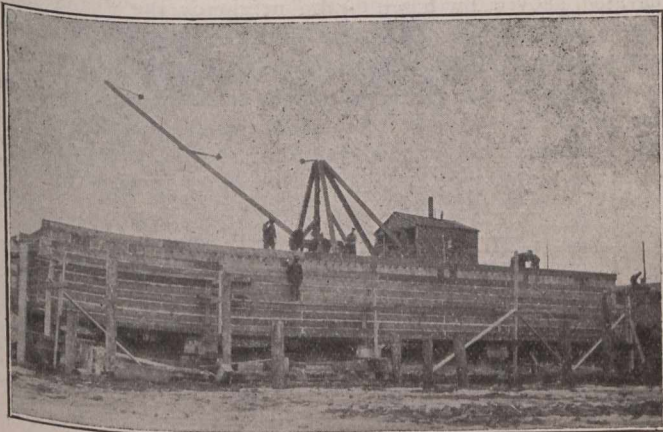
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In the construction of the foundations for the Kaministiquia River Bridge for the C.P.R. at Fort William, it was found necessary to use pneumatic caissons, in getting down to bed rock, for the two main piers.

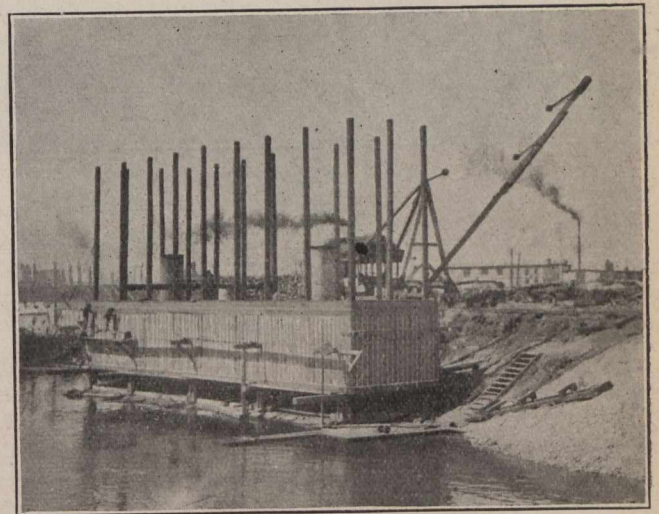
A. C. Stewart & Company have recently finished their contract for the foundation work, which proved to be a rather difficult proposition. The soundings showed bed rock at an elevation of from thirty to forty-five feet below water level, and the central piers were required to have a level bearing on solid rock.

As soon as the pneumatic caisson method was decided upon, an up-to-date air plant was at once ordered. This consisted of two Rand, Class C, air compressors, having steam cylinders 12-inch by 18-inch stroke and air cylinders 15-inch by 18-inch stroke, 515 cu. ft. each per minute at 140 R.P.M.; a 48-inch by 12 feet vertical air receiver; a water-tube aftercooler; a 50 horse-power feed-water heater; duplex

working chamber was 8 feet deep and divided in the center by a timber bulkhead of 12-inch by 12-inch timber, having 3 ft. by 4 ft. man-hole for free passage between chambers. One man-lock three feet in diameter was used and two

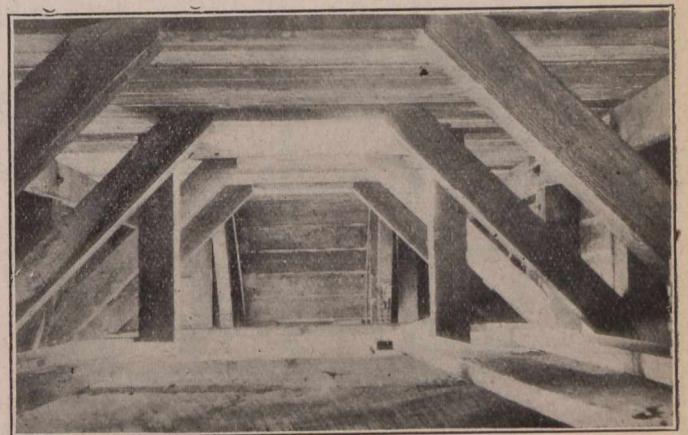


1. Caisson Under Construction.



2. Caisson Ready to Launch.

material locks 4½ feet in diameter, of the Moon type, allowing the free passage of the bucket cable through the top doors for use in excavation of rock, etc. The working chamber of the caisson was built of 60,500 ft. B.M. of timber and 10,300 lbs. of bolts, ship spikes, etc., and had 21,800



3. Inside View of Caisson.

feed pumps; two duplex water supply pumps; one high pressure air compressor, steam and air cylinders 6-inch by 8-inch stroke, capacity 50 cu. ft. per minute at 195 R.P.M. with air receiver, pneumatic wood-borers and drift bolt drivers; and two 50 horse-power locomotive type boilers.

The caissons were 18 by 80 feet and built of British Columbia fir. (Fig. 1.) The walls were of 12-inch by 12-inch timber, caulked both inside and out, and planked outside with 3-inch by 12-inch vertical plank, which was also caulked. The inside posts and struts were of 12-inch by 12-inch, and the braces of 8-inch by 10-inch timber, placed at 6 feet 3-inch centres, and strengthened by 1-inch steel strut and roof rods, the roof consisted of two layers of 12-inch by 12-inch timber transverse and longitudinal; ¾-inch by 26-inch drift bolts at 36-inch centres were used in the heavy timber and ¾-inch by 7-inch ship spikes in the plank. The

feet of caulking. The caisson was built on a skidway having a slope of 1:5. There were five skid timbers, each skid being supported by eight piles driven to hard-pan. When