

KINGSTON GRAVING DOCK.

This dock is situated in the centre of the harbour at the foot of Union Street. It is built of stone laid in cement, has good yard accommodation, and can take in any vessel which passes through the Welland Canal.

The following is a description of the dock proper, caisson, boilers, engines, &c.

The dock is 280 feet long from the inner face of invert to the foot of the stairs. The invert is 10 feet wide, hence from the inner face of the caisson to the foot of the stairs is 290 feet. This length can be increased by 13 feet by placing the caisson on the apron line. The width of dock at floor level is 47 feet and at coping 79 feet. The depth is 20 feet 6 inches. The rudder well commences at 10 feet from the inner face of the invert and is 3 feet wide, 12 feet deep and 24 feet long. The keel blocks extend the whole length of the dock at 5 feet centres. There are 32 bilge blocks placed at 10 feet centres. The depth of water on the sill at low water is 16 feet, and at high water 18 feet.

The caisson is 59 feet in length on long face, 57 feet on short face, 13 feet wide by 22 feet deep. It is operated by a worm gear arrangement in connection with the auxiliary engines hereinafter alluded to.

The large steam boilers (battery of 4) are all connected and are provided with controlling valves so that one or more of them may be used at the same time. The length of shell is 14 feet, diameter 5 feet 6 inches, thickness of plates $\frac{3}{8}$ inch, 84, $3\frac{1}{2}$ flues same length as shell. Pressure of steam 100 lbs. to square inch.

The small auxiliary boiler is of the drop flue type. The shell is 9 feet by 4 feet, plates $\frac{3}{8}$ inch thick, has 250 drop flues $1\frac{1}{2}$ by 18 inches with circulating tubes. This boiler saves from 50 to 75 per cent of the fuel required by one of the large boilers to do the same amount of work.

The main engines, two in number, are of the vertical high pressure type. The cylinders being each 18 inches by 18 inches. These engines operate the two main pumps.

The main pumps are of the centrifugal type, having each a 20 inch diameter discharge and jointly capable of discharging 30,000 gallons per minute against a head of 33 feet.

The auxiliary engines are of the vertical high pressure type. The two cylinders are each 12 inches by 12 inches. These engines operate the auxiliary pump and the caisson.

The fire pump was made by the Knowles Co., of Boston. The steam cylinder is 15 inches by 21 inches and the water cylinder 10 inches by 21 inches. This pump can also be used to do the duty of the auxiliary centrifugal pump should the latter be disabled.

The pony engine and pump has two steam cylinders each 6 inches by 7 inches. The water cylinder is 4 inches by 7 inches. This pump is used for feeding the water supply to the boilers and for sprinkling purposes, and is capable of lifting 3,000 gallons per minute against a head of 32 feet.

During the fiscal year 1892-93, several material improvements were made to the dock.

A vertical boiler 4 feet in diameter by 9 feet in height was purchased.

This boiler will pay for itself, it is claimed, in one year, as it will save 40 per cent of the coal consumed in keeping the dock free from water flowing through the arterial drains while it is un-watered.

The fire pump was removed from the upper to the lower floor of the engine-room. A shed for the storage of coal, the dimensions of which are 30 feet by 40 feet was built on the wharf south of the machinery building, also a wooden fence of the best description was built around the whole government property for a length of 868 feet, with gates on Gore and Union Streets.

During the year, 51 vessels of various class and tonnage were docked, the amount of revenue being \$6,196.49.