the remainder by Messrs. Robins & Co., and other well known English makers.

In June, 1875, tenders were ordered to be obtained for the Dock pumping machinery, and Messrs. James Watt & Co., of Soho, Birmingham, secured the work at the contract price of £6300. This contract included the boilers, engines, caisson hauling gear, sluices, pumps, &c. The boilers (3 in number, one spare) are of the cylindrical and multitubular type, each 15 feet long, and 6½ feet in diameter, having 2 flues 4 feet 6 inches long, 2 feet 3 inches in diameter, a large combustion chamber, and 120 tubes 2½ inches in diameter, 5 feet in length. (Fig. 27). The boilers were tested to 120 lbs. per square inch, the working pressure being estimated at 60 lbs. The main pumping engines are capable of raising 907,000 cubic feet of water in 6 hours, with an extreme lift of 35 feet, and a mean lift of 17 feet 6 inches. These engines are of the low pressure condensing horizontal description. The cylinders, 2 in number, are 27½ inches in diameter, with a stroke of 4 feet. The main pumps are 4 feet in diameter, and 5 feet stroke, the working barrels (Fig. 24) of which are lined with brass; the pump buckets are also of brass, with india-rubber valves, and designed to discharge from 15,000 to 18,000 gallons per minute. The auxiliary engine is of the vertical direct acting description, having a cylinder 14 inches diameter, and a 12 inch stroke. This engine is used both for working the auxiliary pumps and the caisson hauling gear. The auxiliary or drainage pumps, 2 in number, 10 inches in diameter, with a 2½ feet stroke, are jointly capable of raising 600 to 800 gallons per minute, 50 feet high. (Fig. 26.)

The whole of this machinery was delivered at Esquimalt in 1876, and stored, with the exception of the auxiliary pump, which was used to pump out the area behind the Cofferdam, and also to keep down the surface drainage during the whole period that the works were under construction; thus the necessity of obtaining special pumps for this purpose was obviated.

On the 5th of September, 1879, tenders were advertised for the main works, and Messrs. F. B. McNamee & Co., Montreal, were the successful contractors.

The works, however, were not commenced before the 13th of September, 1880; but progress was slow, and in April, 1882, the contractors stopped work, and consequently, in June, 1882, possession of the works was taken by the Government of British Columbia. The works were carried on for the following 12 months by day labor, and again under the direction of their Resident Engineer. On the 24th of August, 1883, the works were handed over by the Government of British Columbia to the Dominion Government, under the terms of the Settlement Bill, one of the terms of which Act provided for the repayment of all sums expended on Dock account by the Federal to the Provincial Government.

The Dominion Government thereupon advertised for tenders for completion of the works, but it was not until November, 1884, that the tender of the well-known firm of Messrs. Larkin, Connolly & Co., of Quebec, was accepted, and they afterwards prosecuted the works to completion with great energy and ability.

The Dock is 450 feet in length (Fig. 9) from the inner face of the caisson, when in its ordinary berth, to the base of the circular head, and has a width at the entrance of 65 feet. (Fig. 10.)

The walls of the Dock are parallel for the entire length, and the width across the floor is 41 feet. The top inside width of the Dock at coping level is 90 feet, and the depth on sill at ordinary H.W. is 26½ feet, occasionally, however, the tide rises from 2½ to 3½ feet higher.

The excavation for the Dock, which was commenced in 1880, was mostly in sand and shells for a depth of about 3 feet over the entire area of Thetis-Cove. Below this level very stiff brown and blue clay was encountered (with occasional boulders imbedded), with the exception of an out-cropping of rock, which occurred about half way up the Dock, continuing to the end, and under the caisson chamber and engine house foundations.

The whole of the foundations of the entrance works are of cellular brickwork, laid in 3 to 1 Portland cement compo, and the pockets filled in with concrete.