

travels at the rate of 560 feet per minute, each leg being able to raise 8,790 bushels per hour. Before continuing to show the method of manipulating the grain, it is necessary to describe the power used for setting the machinery in motion.

The Boiler House is a substantial brick and timber structure, 40' x 47', placed midway between the elevators, with a height to the eaves of 20 feet, the roof sloping each way, and surmounted by a good ventilator, and contains at present 3 boilers 5' 6" in dia. and 15 feet long, with 56-31" tubes firegrate 4' 6" x 6", they were built at the Montreal shops of the Canadian Pacific Railway.

The boilers are placed upon a strong timber foundation of 2 thick masses of 6" timber, placed on 16" x 16" caps, mortised on to piles placed at 3' centres, and driven through the 22 feet of earth filling over the wharf level, into the solid ground below, being at least 30' long.

The steam from the boilers is conveyed to the engines which are placed in buildings 24' x 40' adjoining the elevators, by a 6 inch pipe laid in a wood n box, containing besides the feed pipes for the boilers and the exhaust pipes. The engine of No. 1 elevator is a Wheelock Horizontal Engine with condenser attached, making it equivalent to 175 horse power, the cold water for the condenser being pumped by a Northey pump, direct from the River through an eight inch iron pipe, passing under the revetment wall and into a well at the river front in the wharf cribwork, the water entering by a hole cut through the front timbers, 12 inches below low water. Inside the well a foot valve is placed to equalize the pressure. The waste water is run through an ordinary 9 inch sewer pipe, laid in the same trench as the water pipe, but carried down stream on approaching the river. The dimensions of the engine are, cylinder 20" x 16" with a fly wheel of 16" diameter, making 65 revolutions per minute. This is reduced to 26 by means of a 5' 4" and 9' 1" diameter cogwheel with a face of 16 inches pitch of teeth 5 inches, the larger one is on the 10" driving shaft, to which the driving pulley of a face of 18 inches and 7 feet in diameter is attached, the main belt, 48 inches wide, of 6 ply rubber, made by the Canada Rubber Co., 250 feet long, passing round it, and over a 7 foot pulley wheel on the main shaft at the top of the elevator, setting in motion the machinery for driving the elevating legs.

Between the two tracks is a platform 4 feet above the rails, and 11 feet wide, and below this are 5 receiving tanks made of 2 inch T and G planks, and lined inside with iron, set in wrought iron tanks and placed on the level of the piers, these tanks are 35 feet centre to centre, or as near as possible opposite the car doors, and at the level of the rails and extending up to those nearest the platform are iron gratings. The cars can be moved about at pleasure by means of a hawser wound round a capstair, and attached to the front of the cars. When the grain is ready to be unloaded, it is done by a wooden shovel, with 2 handles attached (in shape like a railway scraper) with a rope connected to it, and wound round a drum working automatically, on a shaft fixed to the posts over the platform, and running the whole length of the building, there are 5 of these shovels, one over each tank; the shovel is drawn into the car, and as soon as the tension is taken off the rope, a small hammer falls, and the drum is turned, winding up the rope, and scraping the grain from the car's door, down on to the grating through which it passes into the tank, the sides of which are at an angle of 45°, it pours then through a small door at the bottom immediately under the elevating leg, the buckets scooping it up, and elevating it to the top of the building, where it is discharged into a receiving hopper, from this it drops into the weighing hopper, of a capacity of 30,000 lbs., or 500 bushels of grain. The shovels have an unloading capacity of one car of 600 bushels in 15 minutes, in most cases 5 cars per hour, and as there are 5 shovel machines with 2 drums on each the total number of bushels that can be unloaded per hour, with all the machines working, amounts to 30,000 bushels. The scales used are those made by the Fairbanks Scale Co., and are nine in number, an accurate account of the grain weighed being kept, the weight being also checked by a contrivance patented by Mr. Jamieson, a pencil operating on a card around a circular roller attached to the scale, and registering the exact weight each time the hopper is filled. Under each weighing hopper is a circular table, around which are fixed a number of wooden spouts leading to the bins belonging to its particular radius, the grain is therefore discharged through a revolving spout, fixed to the bottom of the weighing hopper, and placed opposite any particular spout, leading to the bin required to be filled. There are 4 legs on the south side, similar to the 5 on the track side, so that grain can be taken from any bin, run into one of these tanks, elevated, and put into another bin, and by dropping it, and continually passing it on, it is possible to take grain from a bin at the extreme end of the building, and put into one at the other.

The grain can be thoroughly cleaned by being passed through a separating machine, the dirt and dust dropping into a receptacle for that purpose, the air is conducted from the cells through a tight wooden box, the draught being caused by 2 fans, 4' in diameter each, revolving 625 to the minute. There are 2 separators one at each end of the building, and on the same floor as the scales and weighing hoppers.

2 spouts on the lower floor are used for loading cars, and the discharge