

is so great that a car of 600 bushels can be filled in three minutes. On the lower floor is a 1 inch shaft, connected to the main driving shaft, and running longitudinally, supported on iron standards, the centre being 18 inches above the flooring, this is utilized for driving the conveyor belts. The conveyors are carried across the wharf on trestles, formed of 5 x 8 timbers, resting on sills bolted to posts, the beams being well braced and bolted, and placed at 42 centres. The chords are of 2 x 3 x 8 pieces strengthened by braces and straining beams, keyed and bolted to the chords on these rest the floor joists 2 x 8-11'0" long and at 3 centres, the flooring being 2" thick and 11 feet wide. The upper portion is made as high as possible, being a simple framework supporting convex rollers 38" long, placed at 6' centres, there being two rows, 14 inches centre to centre. The grain in transit is protected by a tarred canvas covering, fastened to circular iron bands 3 inches wide and 1/2 an inch thick, placed 18 feet apart and supported also between these at every 3 feet by 1/2 inch bars bent to the same radius, namely 36 inches diameter with flaps opposite every roller, so that the journals can be oiled from the outside, space being left between the covering and the outside of the floor to admit of decent footwalks protected by hand railings, and leading across the entire structure from the elevator to the tower.

On a small shaft in the elevator is a 18" diameter pulley face (38"), on a base sleeve, worked with a clutch, and set in motion by a reversible level gear, so that the conveyor belt can be run either in or out of the building for loading or unloading vessels. The conveyor belt is 36" wide, 515 1/2' long of 1 ply rubber, and is carried on a level over the convex rollers, the grain being dropped on to it from the bins above through a small hopper, the belt being lagged at this particular point to run the grain on to the centre. The conveyor belt travels at the rate of 155 per minute, and its capacity is about 9,000 bushels per hour. The transit of grain should be seen in operation to be realized, as the idea that wheat and other grain, and especially peas can be carried along on a flat and level belt without running over the sides is a wonderful fact. The grain after passing into the tower, which is at the river end of the structure, is discharged into a small hopper, to the bottom of which is fixed a rotating iron spout, capable of being raised or lowered to suit the height and position of the vessel's hatches, and dropping it into the ship's hold. There are 2 conveyors to each elevator placed at 146' centres, and are made as light as possible, the whole structure being put together with bolts, as they must be removed from the wharf as soon as navigation closes, and before the river rises. In the towers are horizontal tighteners, around which the belt passes, fixed to a moveable iron frame, and worked by hand.

The Halifax elevator, as also the million bushel one in Boston, have conveyors on this principle. On my visit to the latter place I had the pleasure of seeing peas carried by a conveying belt out to the ocean steamers. Here the conveyor was over a quarter of a mile in length, and built not in one straight line but round corners, the grain being thrown from one belt on to another, the belt itself being the driving power, level gear being keyed on to the shaft of the pulley wheel at the extreme end, and set into another on the adjoining belt at right angles to the centre, and at the angle of the turn, the power being conveyed thereby. The last portion of the conveyor is built down the centre of a wharf with vessels on each side, and at certain distances on each side of the structure are receiving hoppers, with spouts attached under which the vessels are placed.

Moveable trappers are then placed under the belt, lifting it up some little height above its level, the grain ascending the incline, and being shot forward by its velocity over the summit, falls into any particular hopper, opposite which the trapper is placed, and is conveyed into the vessel's hold.

The chimney rests upon a pile and concrete foundation, with 49 piles at 3 centres, the concrete being 21'6" square on top, up to the level of the street is a solid mass of masonry 20' square at the bottom 22'6" high, and at the ground or street level 15' square. The ashlar work is carried up to a height above the street of 137' with a heavy chattered coping, from this the brickwork starts with a square base of 12', measuring in height 132 feet with a batter on each face of 1 in 47 1/2. The walls are 18" in thickness at bottom, with an air space of 12 inches, this space is carried up to a height of 100 feet, the wall being reduced alternately 4 inches on either side of this space at every 25' of height, until at the point where it is vertical the walls are 16" and 20 inches, the top is surmounted with an iron cap, well being over a ton, and is thoroughly bolted down to the brickwork, and was made in eight sections and bolted together in place. The shaft is 4' square inside measurement, and up to a height of 10' above the stonework is lined with 8 inches of fire-brick. The walls are banded together with iron bands, and built into the brickwork in one corner, the whole height of the chimney are iron steps.