

An elevator as built at present provides means for receiving the grain, places in which to put it and appliances for delivering it. It also provides machinery for weighing it both when it is received and when it is delivered.

Fig. 3 will serve to illustrate the characteristics of an elevator, the receiving and shipping parts being separated and more clearly shown than in some of the other houses. In this illustration the grain is received from a vessel and elevated by means of a leg, which is simply an endless belt with cups on it. The leg discharges the grain at the top into a small chamber in which it is weighed and then spouted into the bottom of another elevator leg, which takes it to the top of the building and discharges it into a system of spouts which distribute it with the assistance of a system of belt conveyors to the various bins in the storage part of the house. When it is desired to ship, the grain is spouted out of the bottom of the bins on to a belt conveyor, which carries it to the working house where it is elevated to the top, discharged into a garner under which a weighing chamber is located resting on a scale capable of weighing a car load at a time. From this scale it is spouted into the carloading spout which drops it into the car. In this house there are two marine legs, so that there are two streams going up to the top and appliances for distributing the grain to any part of the house. The process of unloading from the large lake vessels is rapid, each leg having a capacity of 20,000 bushels an hour on the dip or when the leg is first put into the vessel. The machine, however, cannot take 20,000 bushels an hour continuously out of a vessel, because it is impossible to get the grain to it at that rate; but there are devices, consisting of ship shovels and clean-up shovels, which transfer the grain from the ends of the hold of the vessel to the leg so as to keep the leg supplied with as nearly 20,000 bushels an hour as possible.

The shipping is a comparatively easy operation. One of the valves at the bottom of one of the bins is opened, letting the grain run down to one of the belt conveyors by which it is carried to the working house, where it is elevated to the top, weighed and dropped into a car. A car can be loaded in about three minutes. There are records of two legs loading 230 cars in fifteen hours using only two spouts. The average carload is 1,200 bushels.

There are several kinds of elevators, the design depending on the location, the local conditions and the business that is to be performed. Fig. 3 illustrates an elevator on Georgian Bay receiving from vessels and loading to cars. While there are facilities for unloading cars if necessary, the business of this elevator is to unload lake vessels and to load cars. At Fort William, on the other hand, the elevator receives from cars and ships to lake vessels. This condition requires large track sheds containing pits where cars are unloaded; the grain is then conveyed to the working house, elevated, weighed and distributed to the different bins. The shipping to vessels holding large cargoes makes it advisable to place the working house near the slip, so that the grain can be spouted into the hold