Inbound Freight.

(a)

(1) Unloading from cars.
(2) Trucking to wagons.

(b)

(1) Unloading from cars.
(2) Trucking to storage space.
(3) Trucking from storage to wagons.

In order to increase the efficiency of the working of the terminal and hence reduce the cost per ton of merchandise handled in the terminal, a mechanical freight handling plant must conform as closely as possible to the following requirements:—

(1) It must eliminate rehandling as much as possible.
(2) It must cause no congestion.
(3) It should be so designed and operated as to give a large increased capacity to the terminal compared with the old hand trucking method.
(4) The operating expenses should be reduced.
(5) The switching of cars should be reduced as much as possible.

A type of moving platform has been devised for handling freight, and is capable of development for use in a number of cases. This platform can be used either to carry the package placed directly on the conveyer or else to move the trucks in which the freight is loaded. For use in a long freight shed two of these platforms could be placed on either side of the shed, moving in opposite directions. A great many suggestions have been made with regard to the use of these platforms, but they do not seem to have been used to any very great extent.

Some are in favor of a moving platform three to four inches above the level of the stationary platform, with short ramps, adjacent to it, while others think that the platform should be set in level with the shed floor. The relative value of these methods will probably only be settled by experience.

Another type, similar in operation to the moving platform, but different in construction, is the chain conveyer, different views of which are shown in Fig. 7. As will be seen, this is simply another means of moving the ordinary hand trucks at a fair rate of speed along fixed lines. The

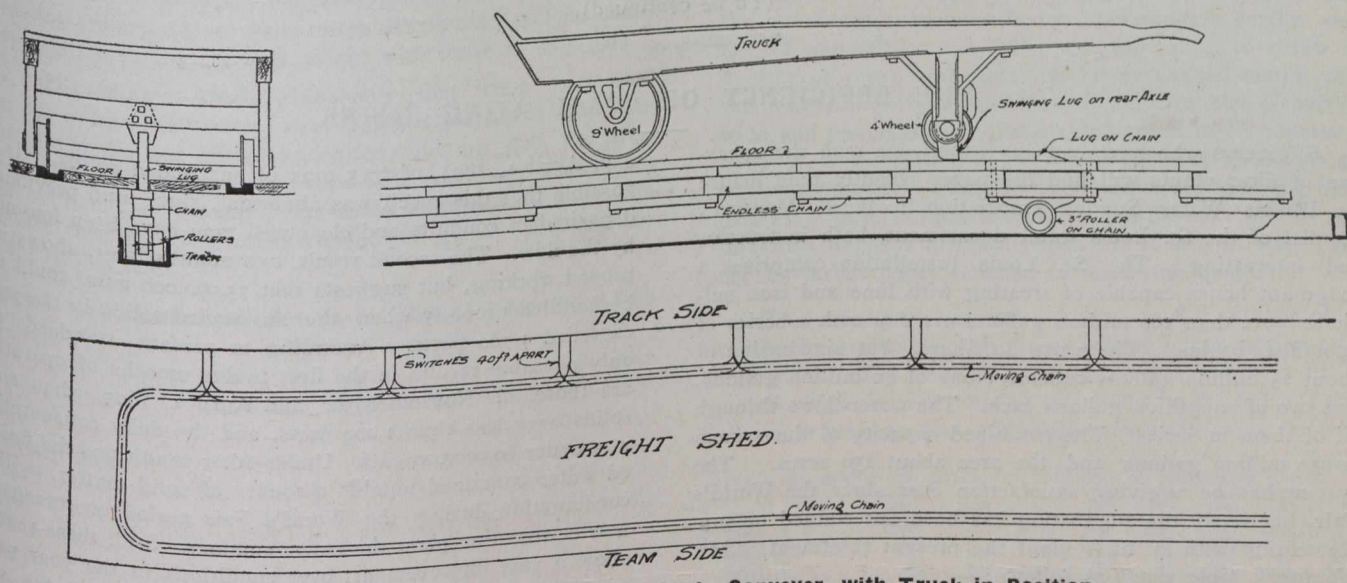

Fig. 7.—General Plan and Details of Chain Conveyer, with Truck in Position.

(6) The detention of cars in the terminal should be reduced to the minimum.

(7) It must be capable of being operated at high speed.

In general, the different kinds of plants for handling freight may be divided into four classes, viz.:—

(1) Conveyers.
(2) Overhead travelling cranes.
(3) Carrier systems.
(4) Motor trucks.

Whatever type is selected, it must be able to overcome the difficulties of coping with the great variety of shape, size and weight of commodities which it will be called upon to handle, also with the necessity of transferring the various packages from the teams to the cars, and from the cars to the storage platforms, or to the drays at the shed doors.

Conveyers.—There are quite a number of different types of conveyers in use for different purposes, such as roller, chain, belt, platforms, etc. These conveyers are very suitable for use where freight of one general class has to be handled on more or less fixed routes, such as are usual on steamship piers and transfer stations, but they are not adaptable to changing conditions.

roller chain is set in a space below the floor with an opening through the floor about one inch wide immediately over the centre of the chain. On either side of this opening running rails are set in flush with the floor, and in operation the truck is wheeled on to the track and when lined up the handle end is lowered and a swinging lug on the rear axle falls into the slot and is engaged by a lug on the chain which then pushes the car forward. Switches should be placed at about 40-foot intervals around the shed, as shown in the general plan in Fig. 7. This conveyer has been patented by a firm of conveyer manufacturers and is designed to travel at a speed of 60 feet per minute, carrying one truck every 12 feet, enabling the conveyer to handle about 100 to 150 tons per hour.

Roller gravity conveyers have been installed for special purposes, such as at the Minnesota transfer, near St. Paul, where large quantities of lumber and shingle are distributed from the cars by gravity over the lumber yard and warehouse.

The general opinion, however, with regard to these type of conveyers described above is that they are too limited in their capabilities to be really efficient in handling the great variety of package freight such as is usually met with at a general freight terminal.