

Canadian Railway and Marine World.

October, 1912.

The Construction of a Steel Centre Sill Wooden Box Car at the C.P.R. Angus Shops.

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Very few of the many people engaged in railway business have any inside information of the steps involved in the production of rolling stock in large quantities, most of the information generally at hand being that which deals with the repair of cars, and the general carpenter work incidental thereto. The production of cars by the hundreds is an entirely different proposition, involving different methods of preparation and assembly to those entering into the repair of cars or their production in small quantities. Everything is handled on such a large scale as to make the two conditions almost entirely foreign to each other. For that reason, and feeling that there is a desire for information of the methods used by the larger builders in the construction of cars, the article here presented was undertaken. As typical in many particulars of the practice of the large

the C.P.R. having several thousands now in operation.

THE TRUCK. Nearly all the parts entering into the construction of the car are made right in the works, very little of the material being purchased outside. In other words, the plant is practically complete in itself. The trucks are no exception, other than the bolsters, both truck and body.

The arrangement of the shops for the expeditious handling of the material in its passage through them in the course of manufacture and assembly is particularly worthy of note. The wheel foundry is located in a building to the rear of the truck shop, and from that building the wheels are taken to the rear end of the truck shop for machining. The casting of the cast iron wheels is such a familiar process that no particular description will be given

couple of wheel presses for the mounting of the wheels on the axles in the usual manner familiar to all. From that point, the wheels are run on to a through track running the length of the shop, each mounted wheel being run down this track as assembled. The length of the track provides ample storage capacity for any fluctuations in the rapidity with which the wheels are drawn off, and also when the wheels are mounted more slowly than usual.

Near the front of the shop, the awaiting axles of the mounted wheels have the axle boxes slipped over the ends, a whole batch being so mounted at one time by an operator going up one side and down the other, the boxes being piled up on each side of the track in a convenient manner. These boxes are first of all assembled with the dirt collar, etc., on the inner end, and are all ready for assembling at this stage.



Fig. 1.—C.P.R. Steel Centre Sill Wooden Box Car.

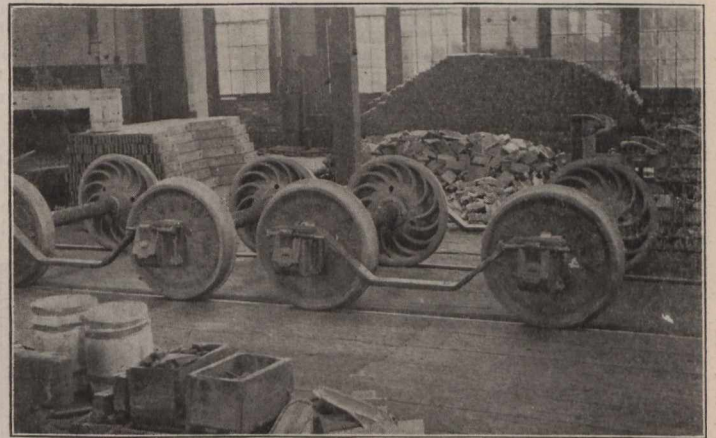


Fig. 2.—First Step in Car Truck Assembling.

builders, and at the same time a process unique in itself, the methods employed at the Canadian Pacific Ry. Angus shops, Montreal, have been selected for the matter of description. The methods involved have been advanced to a very high degree of efficiency, and it is doubtful if there are any companies which can produce as high a grade of car more expeditiously than is possible in these shops. On four tracks, it is regular practice to turn out 40 cars a day of the type under discussion here, viz.: the steel centre sill wooden box car, large numbers of which have been added to the company's rolling stock during the last two years.

This car is constructed entirely of wood throughout, except for a steel centre sill, around which the car is constructed. This is a type of construction that has become fairly common on the bigger roads recently. The kind used by the C.P.R. is slightly different from those commonly to be found, the individuality of the designers entering into the construction to a certain degree. The car here considered is shown in fig. 1,

of the process, the steps of the manufacture being taken up at the point where the cast wheels are delivered to the truck shop. At the rear of this shop there are several wheel boring mills, where the hubs are bored out to a standard gauge, and the process and movements on the parts of the operatives have been developed to such a degree that the cost of machining the wheels is reduced to a remarkably small figure. The axles are also turned down to the required dimensions in the same place, which is equipped with special axle turning lathes, and the same points regarding the cost of production may be here emphasized as well. It may be pointed out, however, that while the cost of production is remarkably low, the quality of the output has in no way been reduced, as the processes have been refined to such a degree, and the operatives are so familiarized with the steps involved, from the regularity of their employment on this class of work alone, that the quality is maintained with decreased operating expenses.

In the same part of the shop, there are a

Pairs of these wheels are next rolled along the track in the same direction to the position shown in fig. 2. To the left, on the other side of the assembling track, there is kept a pile of arch bars. On the other side of the track in fig. 2, there will also be noticed a pile of bearing brasses conveniently located to the assembling point. Into the axle boxes previously mounted on the axle ends, a journal brass is slipped into position, one in each. When two wheels are thus equipped, an arch bar is placed across between as in the illustration, in the correct position for finally bolting together, thereby assembling the wheels in the correct relation to each other. On top of each of the axle boxes, there are also placed two bolts of the required length, for convenience in the final fitting up. These bolts are obtained by the assemblers from bins conveniently located alongside the assembling track.

Two truck skeleton frames thus loosely thrown together are then run further on down the track to the point shown in fig. 3, where they are further added to by the