

Protection of Wooden Trestles.

The Board of Railway Commissioners has passed the following order 11446:

In pursuance of the powers conferred upon it by secs. 30 and 269 of the Railway Act, and of all other powers possessed by the Board in that behalf; and upon hearing what was alleged at the sittings of the Board held in Ottawa on June 8, 1909, by counsel and representatives for the Canadian Northern, the Grand Trunk and the Canadian Pacific Railway Companies, and the Michigan Central R. Co.: it is ordered

1. That every railway company subject to the legislative authority of the Parliament of Canada, operating by steam power any railway or railroads, any part or parts of which is or are constructed of, or upon, wooden trestles the whole of which cannot be seen from an approaching train for a distance of at least 1,000 ft., do, during May, June, July, August, September and October of each year, provide, place, and keep a watchman, track-walker, fire alarm signals, ballast flooring, zinc covering over caps and intersections, or approved fireproof paint, as hereinafter directed, for the purpose of protecting the said trestles from fire, each such company having the option of adopting any of the said foregoing methods of protection.

2. That every such company shall cause to be placed and maintained at every trestle less than 30 ft. in length, one barrel of a capacity of at least 45

walker shall see that water barrels are at all times kept filled to within 10 in. of the top, or forthwith report same to his superior officer. Every such watchman or track-walker, whenever any such trestle is injured by fire, shall, as soon as possible thereafter, report the same to his superior officer.

8. That the fire alarm signals be equal, in the opinion of an engineer of the Board, to the Montauk thermostat.

9. That if fireproof paint is used, one coat thereof, at least equal to the Clapp fireproof paint, be applied at least every five years.

10. That the ballast flooring be of gravel and be at least equal to the standard of the flooring adopted by the Great Northern Ry. Co., plans of which are on file with the Board. This flooring consists of a complete coating of gravel from beneath the head of the rail to the ties, extending laterally from outside guardrail to outside guardrail.

11. That if zinc or galvanized iron is used, the caps, stringers, and the outside of the batter posts of every such trestle, and, if the company desires, the ties, be covered with a zinc or galvanized iron covering.

12. That every railway company failing or neglecting to comply with any of the foregoing regulations, shall be subject to a penalty of \$30.

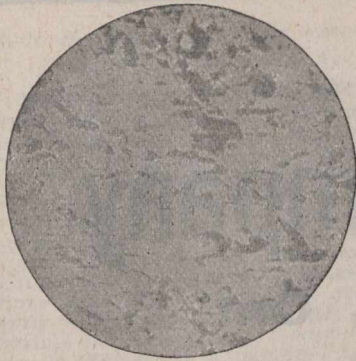
13. That every watchman or track-walker failing or neglecting to make inspection in accordance with the foregoing regulations, or failing or neglecting to make any of the reports herein required of him, or otherwise defaulting in any of the duties imposed upon him by this order, shall be subject to a penalty of \$15 for each such failure or neglect.

14. That every railway company shall cause every watchman or track-walker to be furnished with a copy of this order.

15. That order 5103, July 30, 1908, be rescinded.

A. E. Voysey, General Traffic Department, C.P.R., London, Eng., in renewing his subscription, writes: "I look forward with much interest to reading The Railway and Marine World every month."

The Board of Railway Commissioners has approved of the following passenger tariffs:—Supplement no. 1 to local standard passenger tariff no. 1 of the St. Maurice Valley Ry., fixing a fare of 3 cents a mile between Shawinigan Falls and Grand Mere, Que., same as is in force on the previously completed portion of the line from Three Rivers to Shawinigan Falls. Standard passenger tariff of the Algoma Central and Hudson Bay Ry.; and of the Manitoulin and North Shore Ry., at the rate of 4 cents a mile. Standard passenger tariff, C.R.C. no. 550 of the Great Northern Ry., for the following lines in Canada:—Crow's Nest Southern Ry., 4 cents a mile; International Navigation and Trading Co., 4 cents a mile; Manitoba Great Northern Ry., 3 cents a mile; New Westminster Southern Ry., 4 cents a mile.



Iron Castings. Fig. 1.

to about 1/2 of 1% and with the other elements properly proportioned the castings would give good service for years under the same conditions.

In cylinders, radiators, and other castings, a very close texture is essential in order to avoid leakage. Often there is little or no indication to the eye that holes exist in the iron, and yet under test the pressure gauge falls, showing that the iron is porous. Such character may be due to the presence of slag and oxide in the casting, or, in other words, the continuity of the iron may be broken up by fine particles of foreign matter. This condition may be caused by overblowing the iron in the cupola, or it may result from the impurities in the scrap, and in order to remove it thorough deoxidation is essential.

From what has been said, it will be readily understood that radical differences exist in the structure of the metal of castings, and within recent years great strides have been taken in the development and microscopic study of the characteristic forms, and it has become possible to identify many causes of difficulty by the appearance of polished or etched sections cut from the castings.

Fig. 1 shows a very open structure with large areas of graphite. A structure of this kind is relatively weak, and not well adapted to withstand impacts. In fig. 2 the iron is porous and contains considerable oxidized metal, a consequence of defective foundry practice. In fig. 3 the metal as a whole has a close texture, and is strong and well adapted for the service intended. The iron is largely free from slag and oxides and the graphite, although present in even larger proportions than in figure 1, is distributed in fine lines throughout the metal, greatly increasing the strength. The analysis of this iron showed that the constituents had been carefully selected, and its structure proves that correct methods of foundry practice have been used.

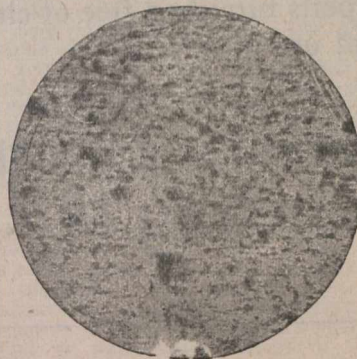
The foregoing paper was prepared by Robt. Job, Director of Laboratories, Mil-ton Hersey Co., Limited, for presentation before the Canadian Railway Club.

**Railway Lands Patented.**—Letters patent were issued during July, covering Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows:—

	Acres.
Canadian Northern Ry. ....	20.15
Canadian Pacific Ry. ....	972.46
Canadian Pacific Ry. roadbed and station grounds .....	156.62
Grand Trunk Pacific Ry. ....	836.51
Total .....	1,985.74

Sir Thos. G. Shaughnessy, President C.P.R., has given \$1,000 towards the National Apple Show at Vancouver, B.C.

A. Smith, cashier of the Canadian Northern Transfer Co., Winnipeg, Man., was placed under arrest Sept. 7, on a charge of embezzlement, the alleged shortage being \$2,500.



Iron Castings. Fig. 2.

gallons, and on trestles of over 30 ft. in length a like barrel upon or near each end, with intermediate barrels of the like capacity not more than 150 ft. apart; provided, however, that pile trestles over streams or other bodies of water need not be furnished with intermediate barrels.

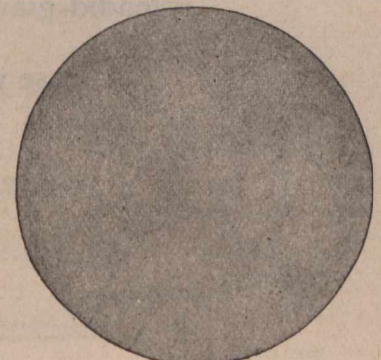
3. That every such company shall cause the said barrels to be kept filled with water.

4. That every such company shall cause all brush and dead grass to be removed from beneath and around every such trestle, and shall cause its right of way crossed by such trestle to be kept free from combustible matter.

5. That on or in the neighborhood of timber lands, or in localities distant from settlement, every such company shall cause to be provided pails for use at all trestles, and all watchmen and track-walkers shall carry such pails while upon duty at trestles.

6. That where the protection provided is by watchman or track-walker, all trestles on main lines shall be inspected at least twice each 24 hours, at intervals of not less than eight hours, and once every 24 hours on branch lines.

7. That in the event of any such barrel or pail not being in good and efficient condition for holding water, every such watchman or track-walker shall forthwith repair or replace the same, or if it cannot be done by him, he shall forthwith report such condition to his superior officer. Every such watchman or track-



Iron Castings. Fig. 3.