

Institution of Mechanical Engineers.

ON THE CONSTRUCTION OF CANADIAN LOCOMOTIVES.

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In the present paper the writer purposes dealing more particularly with those classes of Locomotives which have been built from his designs and under his personal supervision at the shops of the Canadian Pacific Railway, Montreal. A few preliminary remarks are desirable, in order to present the subject on a fairer basis for comparison with English practice.

The permanent way in Canada consists generally of flat-bottomed rails, weighing from 56 lbs. to 72 lbs. per yard according to class of service and age of road. The rails are spiked to flattened ties or sleepers at about 2 feet centres, or closer if necessary. Either common or angle fish-plates are used; and brace castings are placed against the outside rails at curves as required.

Grades are usually expressed in percentage, or in ft. per mile; and curvature in degrees of the angle subtended by a 100-ft. chord on the curve; thus a curve of 1° has a radius of 5,730 feet, and a curve of 6° has a radius of $\frac{5730}{6} = 955$ feet. The maximum grades on main lines are commonly 1 per cent. or 52.8 feet per mile, and the maximum curvature 6° or 955 feet radius; these limits of course do not apply to mountain sections.

The classes of service comprise:—way or stopping freight, that is, goods trains; through or fast freight; mixed, that is, one or more passenger coaches attached to freight trains for local country service; local passenger; and express. All these have to run on single track, and are operated by telegraph from the “train despatcher’s” office. In order to get the traffic through, it is considered of more importance that the engines should haul the