

TRACK ELEVATION, MCADAM JUNCTION STATION, CANADIAN PACIFIC RAILWAY.

C.P.R. Tracklaying by Machinery.

The following description of the work of a steam tracklaying machine on the C.P.R.'s Columbia & Western branch in B.C., has been prepared by A. C. Dennis, Division En-Sineer of Construction. The tracklaying machine consists of a head or "pioneer ' car fitted with side chutes for delivering the rails & ties on the ground ahead of the train, & having a stationary steam engine to operate the rollers in the chutes. Similar chutes or tramways extend along each side of the flat cars of the material train, these chutes being carried by brackets inserted from the bottom of the stake pockets. Ordinary flat cars are used. The chutes are connected between the cars, & in the bottom of each chute are live rollers, the alternate rollers being driven by a shaft extending the whole length of the train & being fitted with universal couplings between the cars. The vertical engine on the head or pioneer car drives the shafts by means of gearing & takes its steam from the locomotive. The rails are sent forward on one side of the train & the ties on the other, the ties being delivered by the chute about 60 ft. ahead of the rails, while the rail chute extends about 6 ft. beyond the car. The driven rollers of the tie chute have corrugated Surfaces, to get a good hold on the ties, while the alternate rollers are plain & are set about 1-in. lower than the others.

The material train is made up of the rail cars in front of the locomotive & the tie cars behind. At the material yard 8 men & a foreman were employed in unloading, sorting & reloading rails & fastenings, & in curving rails. Each car sent to the front with rails Was numbered with a consecutive or lot number & also marked with the initial station of any curved rails it carried, the first & last rail of each curve having the station painted on it. The cars of rails loaded for the front were trimmed with angle bars only. Spikes, bolts, tie-plates, etc., were loaded together in a separate car, which was used as a tool car as noted later.

The tracklaying train was made up for half a day's work as follows: (1) The pioneer car; (2) four cars of rails, carrying 1,000 ft. of track & anglebars, or about 22 tons ; (3) the engine ; (4) eight cars of ties carrying 250 to 270 ties each; (5) the tool car. A pushing engine was used at the rear when required. The anglebars & some bolts were transferred to the front end of the pioneer car, which carried a sort of apron provided for that distributed as follows: (1) The tie line stretcher, whose duty it was to keep the tieline stretched 4 ft. from track centre stakes as a guide by which to line up the end of the ties; (2) eight or ten "tie buckers," who took the ties from the end of the tie tram or chute (which extended about 60 ft. beyond the pioneer), & dropped them approximately at the required spacing; (3) the tie marker, who marked ties where rails should lie across them, & kept the spacing pole moved up as required; this pole was a piece of band iron 30 ft. long, with a ring in the front end to pull it along, & having copper rivets at intervals to mark the proper spacing of the ties ; it was placed just outside the tie line; (4) two men with "picaroons" lining the ties to the tie line, & at the same time squaring & spacing them according to the rivets in the pole. - A11 this work was entirely ahead of the steel or rail gang & out of their way.

The steel gang consists of 8 "heelers" "strappers." The strapper puts a pair The strapper puts a pair of angle bars on the last rail laid, & one bolt, not yet tightened. When the next rail came he opened the angle bar with his wrench to re-ceive the rail end. The rail was "entered," the front end dropped & rail pushed back against the expansion shim, the bolt tightened up, & bolt struck and nut started for rail just laid. This is called the "slow-heel" method, but it is believed to be just as quick as, & to give a better chance to regulate the expansion, than the common method of throwing each rail back against the one laid. By the time the first bolt is tight the conductor signaled the engineman to move ahead, & the train advances a rail length. No spiking at all was done ahead of the train. The rails were held to gauge by bridle bars, 2 to a rail length on tangents, & 3 on sharp curves. These bridles were §-in. rods, flattened at the ends & turned back so that the rails were at proper gauge when the bridle was hooked under the base of the rails. There was a slot at the inside edge of the rail, through which a spike was stuck. The bridle was hooked under the line rail, a spike dropped in the slot, & the gauge rail thrown in so as to clear the turned over part of the bridle; the bridle being held up & the rail pushed out it hooked itself, & on the spike being dropped in it was secured. The bridles were put on by the "heelers," who generally got them before the "strappers" could fix their joint. On the "pioneer car" there was the en-rineman for the stationary engine that ran

On the "pioneer car" there was the engineman for the stationary engine that ran the tram rollers, & one of the train crew to give signals to the locomotive engineman by means of whistle signals from the stationary engine. There were 3 men on the tie cars

