

through the tunnel, and for a sufficient length of time after the train passes to entirely clear the tunnel of gas.

In fig 1 is a small diagram, showing the location of the plant in reference to the spiral of a 4 degree curve at the entrance of the tunnel. The reason I

and sections, with the arrangements of engines are shown in fig 2.

A change was made in the original plans, by building the inside arch, from the portal proper, as far back as the engine house extended, of concrete, and in this way eliminating entirely a great

the moving air approximately at the centre of the section of the tunnel.

The tunnel was opened for operation Dec. 9, 1916, and no annoyance or trouble of any kind from gases or smoke has been experienced in it. The work was laid out and commenced under F. F. Busted, M.Can.Soc.C.E., Engineer in Charge of Double Tracking. It was subsequently under the supervision of W. A. James, M.Can.Soc.C.E., Engineer of Construction, Western Lines, with H. G. Barber, as Assistant Engineer, T. Martin, Resident Engineer at the west end and J. R. C. Macredie, M.Can.Soc.C.E., Resident Engineer at the east end. The contractors were Foley Bros., Welch & Stewart. The construction work was supervised for the contractors by A. C. Dennis.

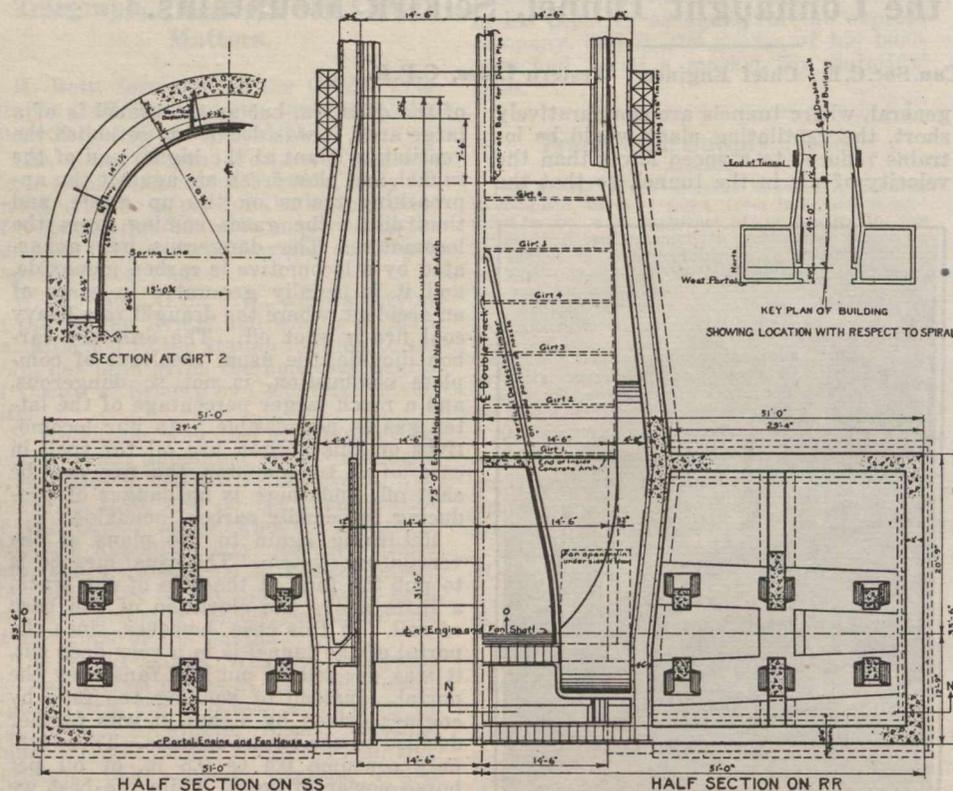


Fig. 1.—Connaught Tunnel Ventilation, Sectional Plan.

show it here is to give a general outline of air space and nozzle, and I may state that this air space was greatly reduced from the original plans, on the suggestion of the engineers of the company supplying the fans; the idea being that there was nothing to be gained by changing from dynamic pressure, as the air left the fans, and then again change to dynamic pressure in the air leaving the nozzle at a high velocity. All that was required was a chamber large enough to allow the air to spread out to the flat long nozzle on the circumference of the tunnel. The fan house between the two engine rooms is being left entirely open, thereby offering as little resistance as possible to the flow of air from the outside to the fans.

Fig. 1 is a general plan, and on the right hand side shows a deflector, keeping the air from each fan separated to a point within 7 or 8 ft. of the opening of the nozzle. The reason for introducing this feature is, that Diesel engines run at a constant speed, and will carry practically no great overload. When it is necessary to shut down one engine, and run only one fan, if the air was allowed to spread over the entire nozzle, the resistance would be reduced, the fan would throw somewhat more air, and paradoxical as this may seem, would require more horse power to drive the fan, which would necessitate installing dampers, to choke the output of the fan, and also to entirely shut off the opening of the idle second fan to prevent the air coming back through it. The Diesel engines are of Swedish pattern, manufactured at Auburn, N.Y. Each engine consists of 4 cylinders, 4 cycle type, and is of 500 rated horse power at sea level. The elevations

number of rods that were in the air chamber holding the wooden arch in place. Another innovation was the use of rails as arch ribs for the nozzle lining. This only required one stay to be put through the air space for each rib, instead of having stays every 3 or 4 ft.

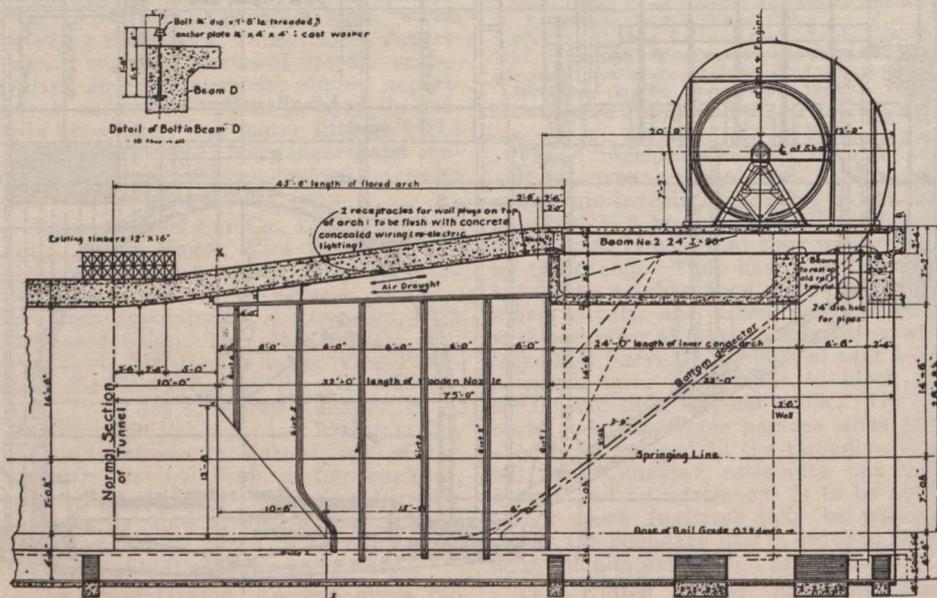


Fig. 3.—Connaught Tunnel Ventilation, Longitudinal Section.

which would offer obstruction of the free passage of the air. These features are shown in figs. 1, 2, and 3. The bottom of the nozzle is cut away, to enlarge the opening of the nozzle at grade line, which is a development of the opening of the nozzle, to keep the centre of gravity of

pany's appeal. Other municipalities are said to be interested in the decision, although they were not parties to the action. New Westminster is said to be interested to the extent of \$150,000; Burnaby Tp. to the extent of about \$20,000, and Kelowna to about the same extent.

Canadian Northern Pacific Railway Taxation Appeal Case.

The Imperial Privy Council gave judgment, Aug. 3, on the Canadian Northern Pacific Ry.'s appeal against the British Columbia Court of Appeal's decision as to the right of municipalities to tax railway owned lands not actually used for railway purposes. The case was taken direct from the Court of Appeal to the Privy Council. The case involved a rather important point, viz., whether a provincial government has the right to give away a second time something which it has already granted by charter to a corporate body. Under the powers vested in it by the British North America Act, the British Columbia Legislature had granted municipal charters, which confer the right to tax all lands within their bounds, with certain specific exemptions, which exemptions do not cover railway lands. The company has title to certain lands in New Westminster City and Burnaby Tp., which it claims are exempt from assessment for taxes under its agreement with the government, which agreement was confirmed by the legislature. The final court of the Empire has now affirmed the provincial court's decision by dismissing the com-