

BRITISH
COLUMBIA
ELECTRIC
RAILWAY
DEVELOPMENTS

Electric Railway Department

Car Barn for British Columbia Electric Railway.

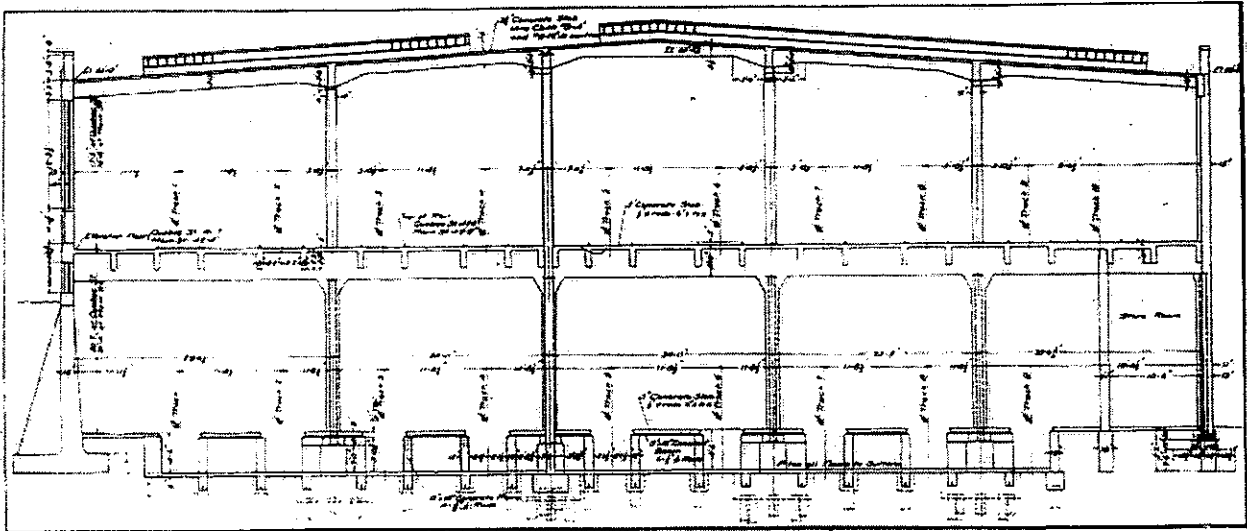
The car barn under construction in the Mt. Pleasant district, in Vancouver, is shown in the accompanying plans. It will be a double deck barn, of reinforced concrete beam and girder construction, brick walls, steel sash glazed with $\frac{1}{4}$ in. wired glass, and

floor, and there will also be a small repair shop near the storeroom for making light repairs. The total storage capacity will be 120 cars.

The general overall dimensions will be 351 $\frac{1}{4}$ by 130 $\frac{1}{2}$ ft., extending between Main

rail centres. The pit floor will be 4 $\frac{1}{2}$ ft. below that of the lower level, and formed of 6 ins. of concrete, with piers under each of the track pedestals and building columns.

The upper floor will be a 5 in. reinforced concrete slab construction, with 8 by 24 in.

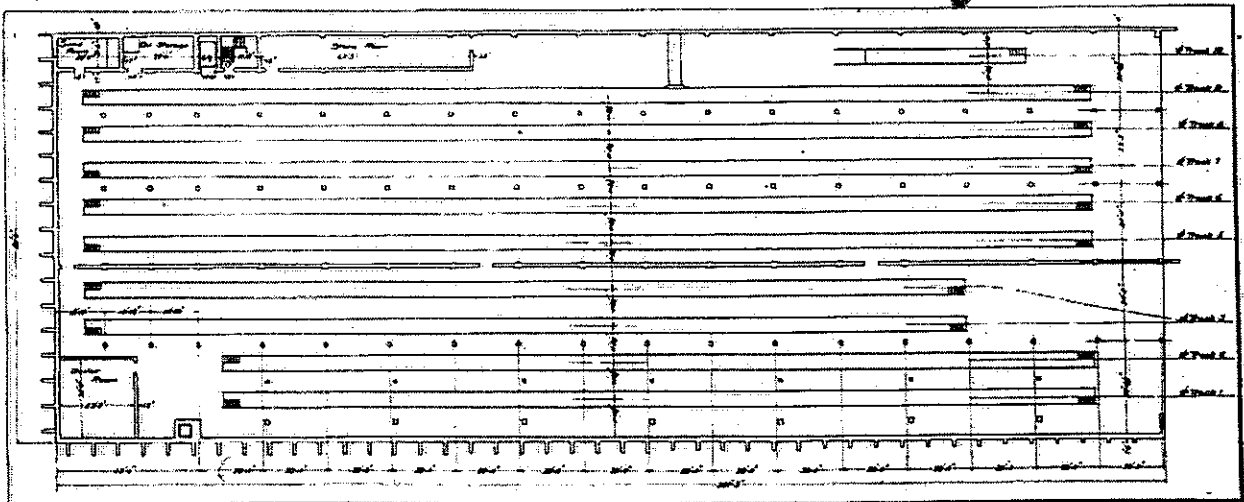


Cross Section of Mt. Pleasant Car Barn for British Columbia Electric Railway.

rolling steel doors. A brick fire wall extending from the lower floor to the roof will divide the building into two fire sections. The first floor will have inspection pits arranged to form a basement under the lower floor, so that each track within a fire

and Quebec Sts., with Fourteenth St. along one side. There is a sufficient difference in elevation between Main and Quebec Sts. to make possible the two floor scheme, the lower level being entered from the Quebec St. elevation, and the upper floor from the

reinforced concrete girders extending under the rails. The floor will be supported on concrete columns between each pair of tracks, the columns varying in centre to centre distance across the building from 23 ft. 5 ins. to 29 ft. 6 $\frac{1}{4}$ ins. The length-



Lower Floor Plan of Mt. Pleasant Car Barn for British Columbia Electric Railway.

division will be accessible from every other track. The barn will be equipped with both roof and aisle sprinklers throughout. One track on the lower floor and one on the upper floor will be arranged as a wash and paint

Main St. elevation, both entrances being at grade.

The lower floor will consist of 5 in. reinforced concrete slabs between adjoining rails, supported on 12 in. square concrete

wise spacing will be 30 ft. 4 ins. The cross girders between the columns will be 3 ft. 10 ins. deep.

The roof will be a 3 $\frac{1}{2}$ in. reinforced concrete slab, carried on cross concrete beams

August 1914

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Electric Railway Department

Car Barn for British Columbia Electric Railway.

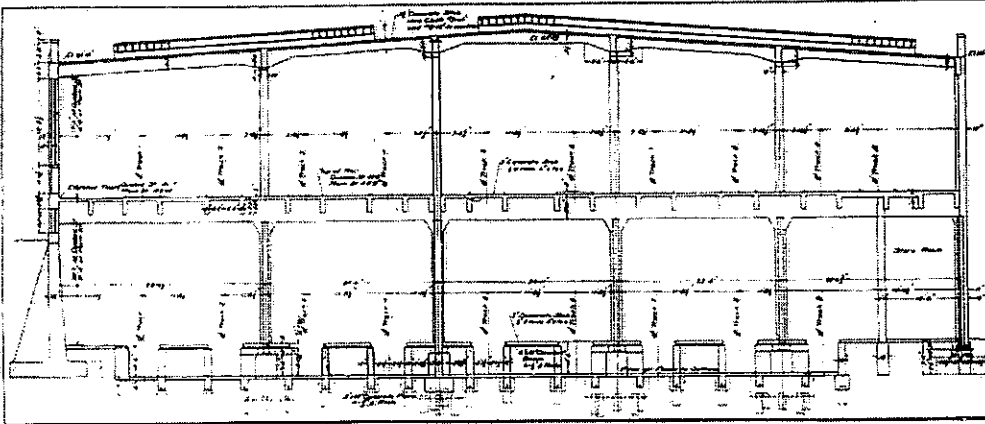
The car barn under construction in the Mt. Pleasant district, in Vancouver, is shown in the accompanying plans. It will be a double deck barn, of reinforced concrete beam and girder construction, brick walls, steel sash glazed with $\frac{1}{4}$ in. wired glass, and

floor, and there will also be a small repair shop near the storeroom for making light repairs. The total storage capacity will be 120 cars.

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The upper floor will be a 5 in. reinforced concrete slab construction, with 3 by 24 in.

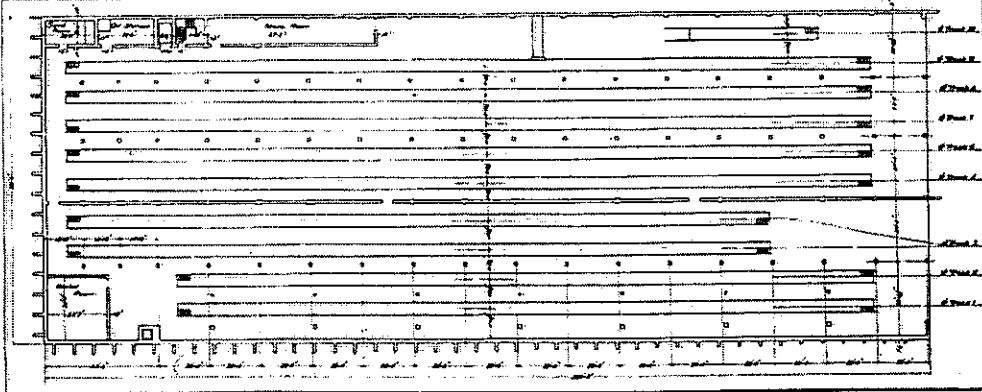


Cross Section of Mt. Pleasant Car Barn for British Columbia Electric Railway.

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Lower Floor Plan of Mt. Pleasant Car Barn for British Columbia Electric Railway.

division will be accessible from every other track. The barn will be equipped with both roof and aisle sprinklers throughout. One track on the lower floor and one on the upper floor will be arranged as a wash and paint track. A sand drier room and storeroom and an oil room will be provided on the lower

Main St. elevation, both entrances being at grade.

The lower floor will consist of 5 in. reinforced concrete slabs between adjoining rails, supported on 12 in. square concrete piers from the pit floor below, these piers being at about 7 ft. centres, in line with the

wise spacing will be 20 ft. 4 ins. The cross girders between the columns will be 3 ft. 10 ins. deep.

The roof will be a 3 $\frac{1}{2}$ in. reinforced concrete slab, carried on cross concrete beams 18 ins. deep. Westinghouse, Church, Kerr and Co. are the contractors.

Montreal Tramways Association

Following are extracts from the annual report for the year ended at the annual meeting, Summary of relief work for the year:

Members disabled through or injury
 Visits made by physically able members
 Consultations given by to disabled members
 Prescriptions issued
 Paid for sickness and in
 Paid for medicine
 Paid for pensions
 Paid for withdrawals
 Paid for death and burial
 Twenty six members of their death and burial promptly. Five members their benefits commuted to. Following is the sum-

REVENUE

Accumulated Reserve of preceding years
 From Members—
 Fees
 Dues
 From Company—
 Dues
 Special Donations
 Expenses of management
 Picnic
 Interest on investments
 Interest on Bank Deposit

EXPENSES

Sickness and injury
 Deaths and burials
 Medical examinations
 Medical attendance
 Medicine
 Withdrawals
 Pensions
 Management expenses
 Accumulated reserve—
 To 1913
 For 1914
 Total accumulated reserve in bank
 Invested

The committee of members is as follows: J. E. Hutchings, Dubeau, Secretary-Treasurer; A. Robert, H. Brisson, A. Remouille, A. S. Byrd, Humphreys, W. Thibault, J. L. Perron, K. It costs \$1 to join the in cases of disability days, \$60 per day for day for the next 90 days; free medical discount on all medical members of the family policy of \$500; and \$60 pension. A pension (and too old to work) after 5 years membership to a refund of one-third paid in by them, less benefits. Members: 10 years membership; fund of two-thirds less them, less amount received.

August 1914

Electric Railway Department.

Electric Locomotives for British Columbia Electric Railway Freight Service.

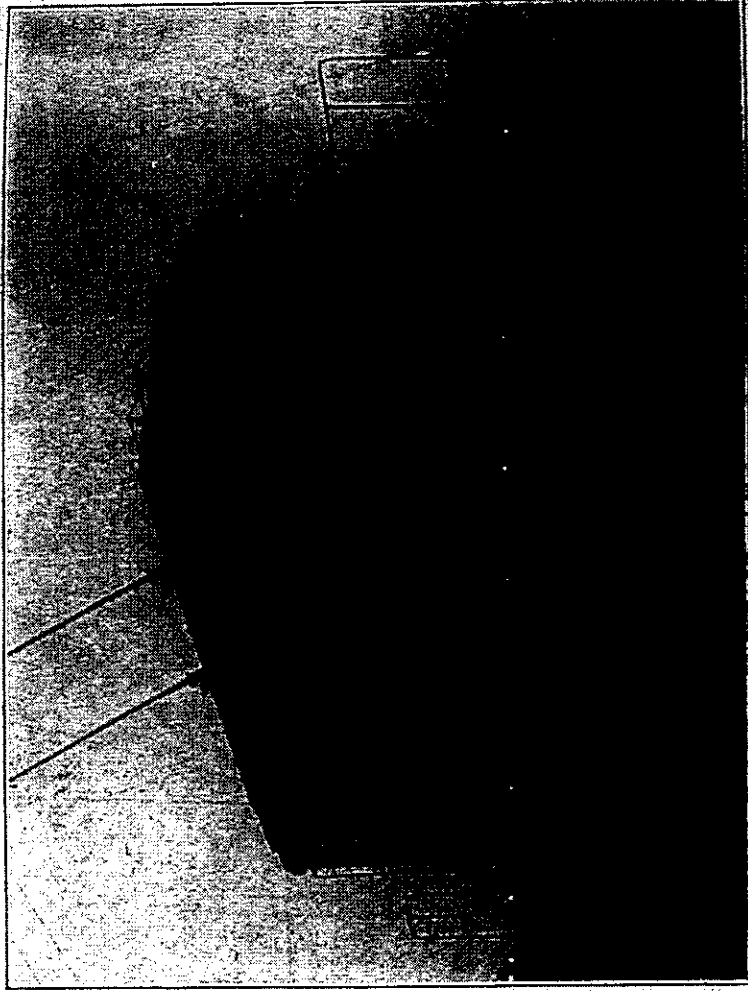
The B.C. Electric Ry. Co. has recently received five 50 ton electric locomotives for freight service, which are similar to some 60 ton ones built recently for the Southern Pacific Co. They are standard gauge, and are of the double truck type, with a central cab of the steeple type. This type of locomotive, because of its flexibility and simplicity of construction, is said to be proving very successful in freight, switching and industrial service, where severe operating conditions are frequently met.

Each locomotive is equipped with four Westinghouse 308-D-3 box frame commutating pole 600-1200 volt railway motors, and Westinghouse type hb unit switch control. The 308-D-3 commutating pole motors are adapted to subway, elevated and trunk line railway service. Since this motor is high powered and of the commutating pole type, heavy loads can be handled without encountering motor troubles that are incident to such conditions. The 308-D-3 motor is well adapted where 1,200 volt direct current operation is desired, and for such service two motors are permanently connected in series. The box frame construction is claimed to have decided advantages, on account of its solid mechanical construction and the alignment of all parts. The commutating pole feature of this motor is claimed to make it operate reliably and economically, as heavy overloads can be handled safely and a large range of over voltage is permissible without serious consequences, which is incident to such heavy service in which this equipment operates.

The mechanical features of the motors are of interest. The frame is a one piece steel casting with large openings bored out at each end to admit the armature

truck suspension bar, carries the weight of the motor except that part carried by the axles. Safety suspension lugs provided as an additional safeguard are so arranged that should the main sus-

through a bottom connection, reaches the waste in the waste pocket. The oil then filters up to the bearing by capillary attraction, leaving all dirt at the bottom under the waste. The reservoir has an



Fifty Ton Electric Locomotive for British Columbia Electric Railway.

pension lug break the motor would drop but a fraction of an inch on to the truck suspension bar, causing no trouble. Axle bearing dust guards are provided, which consist of sheet steel casings arranged

ple capacity and is so located in the bearing housings as to be easily emptied and cleaned. The Westinghouse unit switch control used is similar to the control used by

August
1913

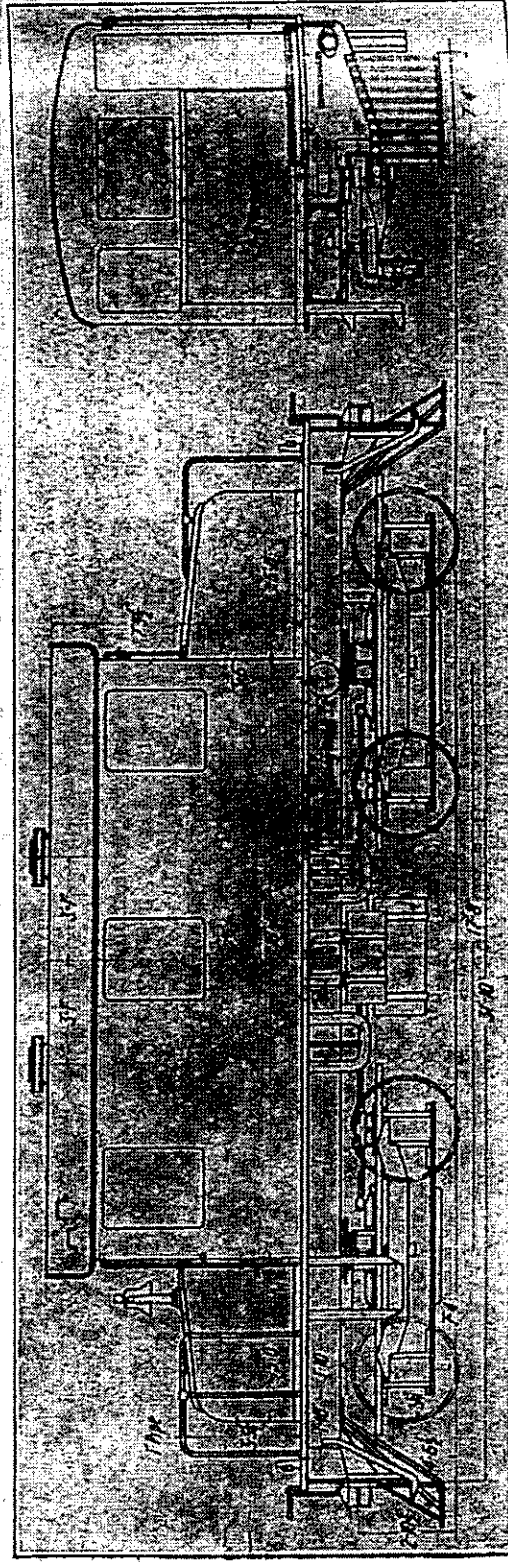
adapted where 1,200 volt direct current operation is desired, and for such service two motors are permanently connected in series. The box frame construction is claimed to have decided advantages, on account of its solid mechanical construction and the alignment of all parts. The commutating pole feature of this motor is claimed to make it operate reliably and economically, as heavy overloads can be handled safely and a large range of over voltage is permissible without serious consequences, which is incident to such heavy service in which this equipment operates.

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Side and End Elevations, Electric Locomotive, British Columbia Electric Railway.

bearing housings and for taking out the armature.

The weight of the motor on the axle is carried almost entirely by a solid bracket, which extends over the axle. The split of the axle caps is such that the weight of the motor is taken off the axle cap bolts, thus greatly reducing troubles at this point. This type of motor is, it is claimed, easily-handled in the shop where travelling cranes are available. The frame has a large lug or nose cast on it which, by means of a

between the axle bearing housings. The dust guards effectively protect the axle bearings against the entrance of dust and dirt and thereby increase the life of the bearings, gears and axles.

At each inspection of the bearing construction it is possible to gauge the oil by means of a chamber provided for this purpose, which results in economy in oil. Each housing consists of three chambers, an oil reservoir, a waste pocket, and an overflow pocket. Oil is poured into the oil reservoir and then,

many electric railways and electrified steam roads. It is claimed that it is especially adapted to locomotive service, where currents of high value are to be handled and broken, for, due to the inherent construction of the unit switch, there is positive action in the making and breaking of circuits carrying heavy currents, and due to the high pressure between contacts made possible by closing all switches by compressed air, no overheating or burning is experienced. It is also claimed to be simple and accessible

August
1913

for inspection, reliable in operation, and economical to maintain.

The control equipment consists of the following principal apparatus:—2 master controllers, 2 switch groups, 2 reversers, 1 series parallel switch, 1 line switch, 1 control resistor, 2 hand operated change over switches, 2 sets of storage batteries (10 cells, each set giving 20 volts). All of the above pieces of apparatus are enclosed in a wire cage supported by an angle iron frame work in the centre of the locomotive cab.

The grid resistors are mounted in the roof of the locomotive cab over the unit switch apparatus, in a portion framed off and ventilated through the roof by two ventilators. Each of the two master controllers have three running notches on 600 volts and two on 1,200 volts. An interesting item of this equipment is a series parallel switch, which is controlled by a single pole double throw knife switch at either end of the cab. On 1,200 volts the connections are so arranged on the change over switch that the series parallel switch is in the 1,200 volt position, connecting two motors in

to facilitate ease of inspection and maintenance. By the control equipment being centrally located, it is accessible from all four sides. This is a distinct advantage to operating companies, since ease of inspection assists in reducing the maintenance.

Two Westinghouse dynamotor compressors are used to furnish compressed air for the brakes and control, a blower fan attached to the dynamotor shaft furnishes the air for ventilating the main motors. One of these is mounted under each end hood. The dynamotor runs continuously, but the air compressor does not run all of the time, it being stopped by a governor throwing the friction clutch out between the dynamotor and compressor. The dynamotor compressor supplies 600 volt current for the lights. A steel air duct built into the frame of the dynamotor compressor delivers air for ventilation to points directly over each motor where by means of canvas ducts the air is conducted to the motors. Two dynamotor switches are furnished, one for each dynamotor. Two transfer switches are used for transferring the

braced transversely, midway between the truck centres. The end bumpers consist of steel plates 1 in. thick, to which the coupler pockets are bolted. The couplers are of the M. C. B. type, placed at standard height (84½ ins.) above the rail.

The cab is of steel, arranged for double end operation. It is provided with end doors, and careful attention has been given to such details as hand holds, steps and cab windows. A sloping hood is placed at each end of the locomotive. The floor of the cab is of steel plate, covered with hardwood matched flooring.

The equipment includes air and hand brakes on all wheels, air sanders, a pilot and head light at each end, a bell gong and air whistle.

These locomotives are designed to negotiate curves of 40 ft. radius when running without trailing loads. Their principal dimensions are as follows:—

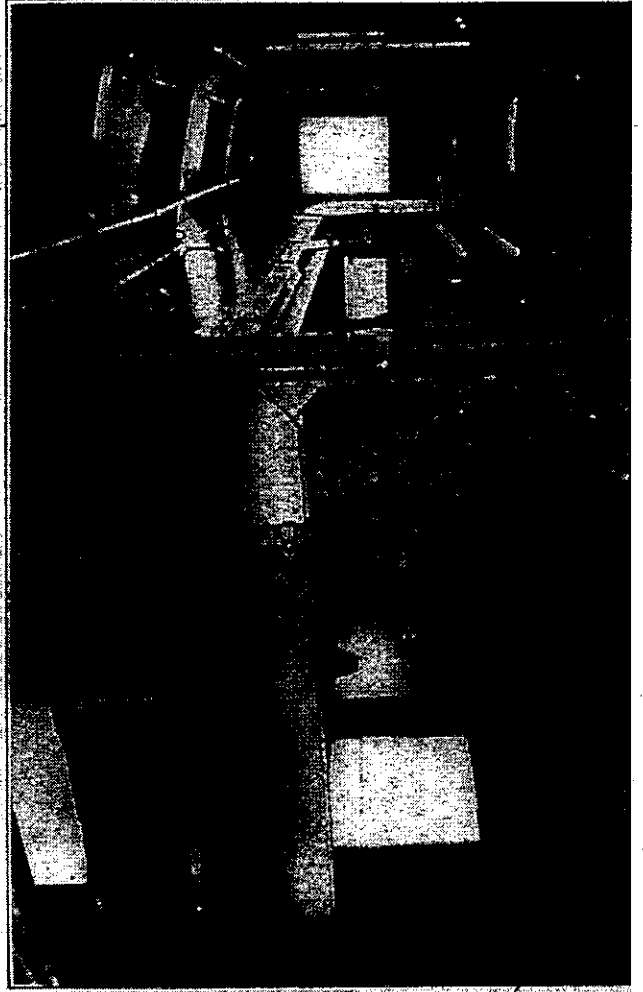
Wheel base, rigid.....	7 ft. 4 ins.—total, 25 ft.
Driving wheels, diameter.....	36 ins.
Journals, over all.....	5 x 9 ins.
Width, over all.....	10 ft.
Height of top of cab.....	12 ft.
Length between coupler knuckles.....	35 ft.
Weight.....	100,000 lbs.

The electric apparatus was built by the Westinghouse Co., and the mechanical parts by the Baldwin Locomotive Works.

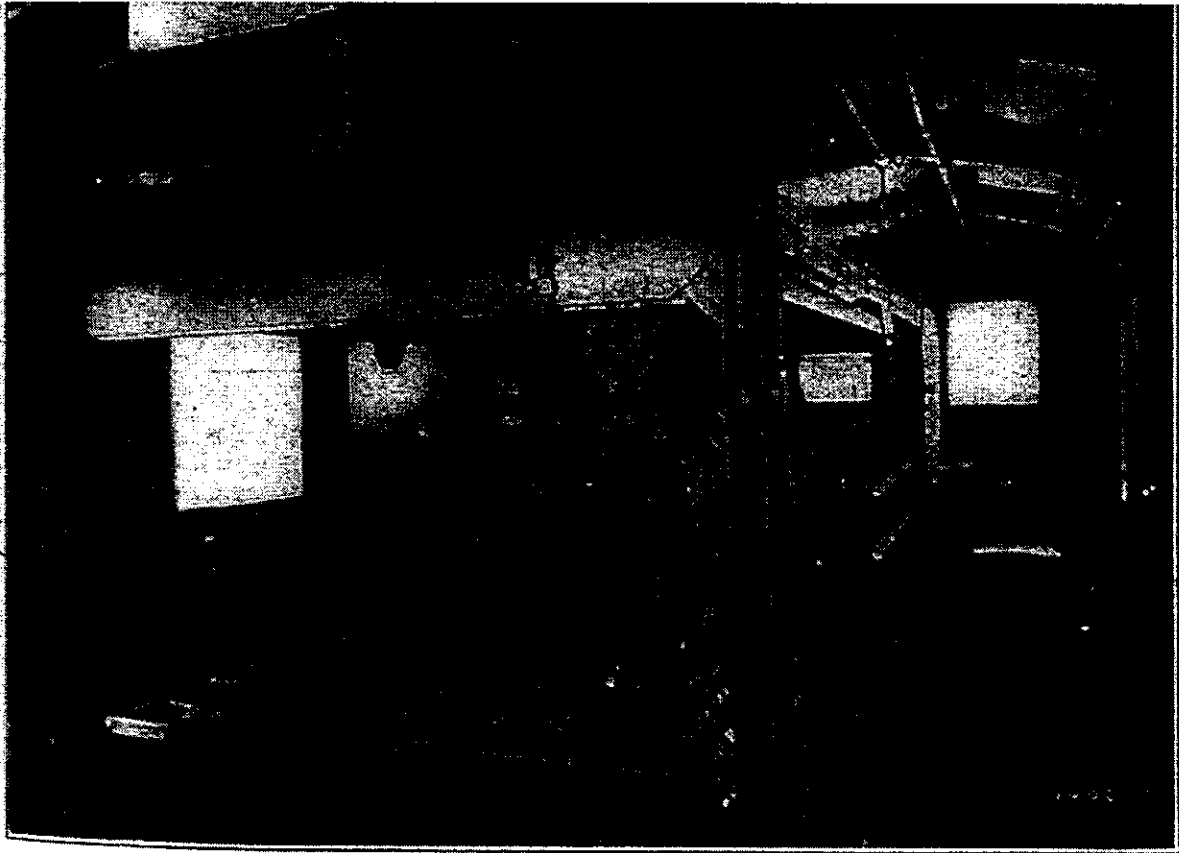
Attempt by Board of Health to Regulate Street Railways in Toronto.

On the recommendation of C. J. Haastings, M.D., Medical Officer of Health for the city of Toronto and executive officer of the Local Board of Health, the Board has passed the following regulations:—

"From and after the approval of these regulations, all companies or corporations operating street passenger cars or vehicles constructed and used for the purpose of carrying passengers, whether propelled by horse, electricity or cable power, are prohibited from hauling, carrying or conveying in any car at any one time a greater number of passengers than is equal to 1 2-5 times the proper seating capacity thereof, with the addition of five passengers on the rear



August
1913



Cab Interior, Electric Locomotive, British Columbia Electric Railway.

series regardless of the position of the knife switch.

On 600 volts, the connections on the change over switch are so altered on changing over to the 600 volt position that the motors of each pair, by means of the series parallel switch, may be thrown either two in series or two in parallel, where in the 1,200 volt position the motors are two in series only. This is of particular advantage on 600 volts in accelerating heavy loads. The motors are first connected four in series until the train is started. The controller is then returned to the "off" position, and the series parallel switch thrown to connect the motors of each pair in parallel. The master controller is then operated to connect in "series parallel" and finally in "parallel." In changing over from 1,200 volts to 600 volts, the resistances are paralleled, and also the dynamotor circuits are adjusted for 600 volts. This is all done by the two change over switches.

On these locomotives particular care has been taken in arranging the appara-

lighting load from one dynamotor and the cab lights on the other.

All wiring is put in conduit. A complete type EL combined straight and automatic air brake equipment, with two D3 compressors, each having a displacement capacity of 35 cu. ft. of free air per minute, is included in the equipment for each locomotive.

The trucks are of the equalized pedestal type, with rolled steel side frames and angle iron end frames. They have rigid centres, the bolsters secured directly to the side frames. The bolsters are of cast steel. The truck is kept square by heavy cast steel gusset plates, which are bolted to both side frames and bolster. The springs are half elliptic, and of such length (44 ins.) as to insure easy riding qualities. The wheels are steel tired, with cast iron spoke centres.

The frame is composed of four 13 in. longitudinal channels. These are strongly braced transversely, above the truck bolsters, by means of plate stays, which are riveted to the channels, frame bolster and floor plating. The channels are also

August 1913

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