

CANADIAN
PACIFIC
RAILWAY

G-2

PACIFIC

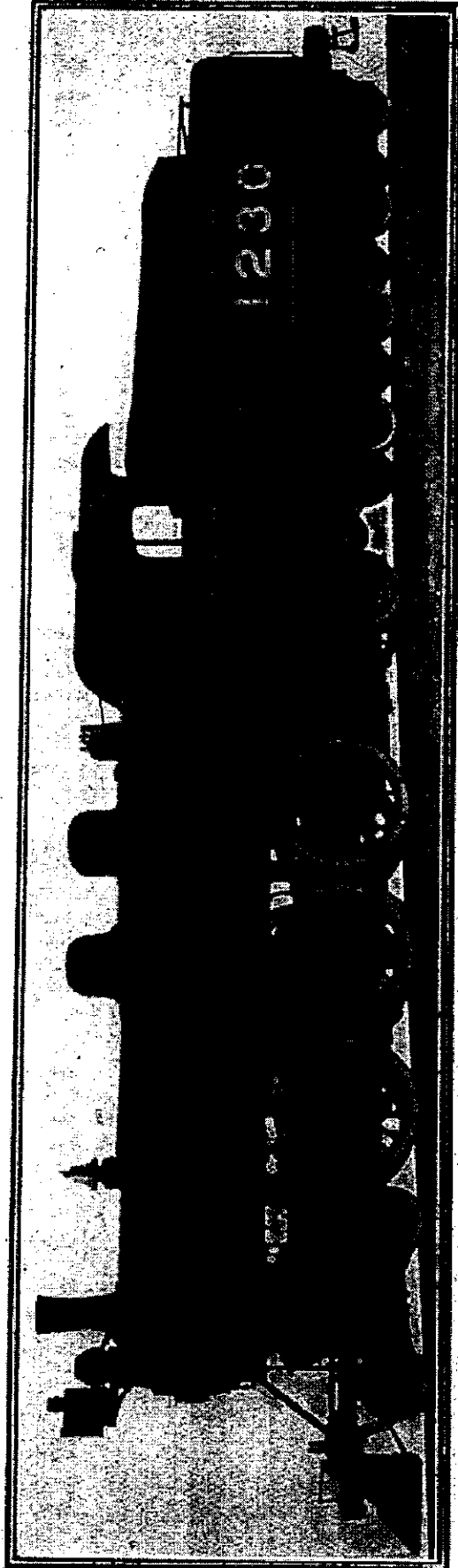
C. P. R. Pacific Type Locomotives.

The C.P.R. has received recently from the Montreal Locomotive Works 30 Pacific type (462 class) locomotives of the railway company's G-2d class. They are equipped with the Vaughan-Horsey superheater and Walschaert valve gear. The boiler is of the extended wagon top type, 67 $\frac{3}{8}$ " outside diameter at the front end. The barrel is built with three rings, the second of which is tapered, with the dome on the third ring. The horizontal seams are butt jointed, sextuple riveted with welt strips inside and outside. The circumferential seams are double riveted. The fire box has a sloping throat and back head and is radially stayed. Flexible staybolts are located in the breaking zone of throat, sides and back head. Flexible staybolts are also used for the four rows at the front of fire box crown sheet. The fire box ring slopes from front to back and is supported at each end by an expansion sheet and brackets. The fire box ring is 5" wide at the front, 4 $\frac{1}{2}$ " at the sides, and 3 $\frac{1}{2}$ " at the back. The injector check valve is located on the top of the first ring of the boiler under the bell stand. The water is discharged from the valve direct without any internal pipes. A deflecting plate prevents the cold water from striking the dry pipe. The smoke box is of a self cleaning type. The superheater is the

~~November 1909~~
December 1909

G-2

... .. when they were built at the InS type. The superheater is the



CANADIAN PACIFIC RY. PACIFIC TYPE LOCOMOTIVE.

November 1909

Vaughan-Horsey type with two cast iron headers in the smoke box, one being for saturated steam and the other for superheated steam. The five inch boiler tubes contain four seamless steel superheating pipes $1\frac{1}{4}$ " diameter, arranged in pairs, the two pipes in each being connected at the rear end by cast steel return bend. The pipes on emerging from the tubes are carried to the connections at the headers. The superheater pipes reach within 30" of the fire box tube sheet. Cast iron steam pipes connect the superheated header with the cylinder. The passage of the gases through the five inch tubes is controlled by a damper, which is automatically operated by steam cylinder located on the outside of the smoke box. This cylinder is directly connected to the steam passage of the cylinder and is operated by the pressure in the cylinder. When the throttle is open the pressure in the cylinder opens the damper, but when the steam is shut off a counterweight closes it. The cylinder is the railway company's standard pattern and has a bushing $\frac{3}{4}$ " thick. The piston valves are 11" diameter, inside admission. For the Walschaert valve gear an auxiliary reverse shaft is used. A cast steel cross tie supports the link bearers.

The main frames are cast steel, $4\frac{1}{2}$ " wide with double front rails and single rear sections of wrought iron. The main frames and rear sections are bolted to

December 1909

G-2

cast steel cross-tie just back of the
 ar pedestals. The frames are braced
 a very substantial manner by cast
 el cross-ties. The trailing truck, which
 s outside boxes, requires but a single
 section frame 2" thick. The boxes
 e of cast steel fitted in cast steel pedes-
 s. The load is transferred to the
 nk by semi-elliptic spring connected
 one end to an equalizing beam from
 a rear driving spring, and at the other
 d to a steel casting bolted to the
 me. The spring rests in a cast steel
 ring seat, which has projecting ends
 ing into the top of the front and back
 destal. The load is transferred from
 a spring seat to the box by means of
 oe point bearing swing links, which
 e also used to bring the truck back to
 a normal centre after passing a curve
 e front truck has a swing centre cast-
 g with three point hangers. Two cab
 ets are used and each one has a
 arate dry pipe extending to the dome.
 e driving boxes are cast steel with
 nze gibs in the shoe and wedge fit,
 d are equipped with hard grease lubri-
 or. The driving wheels are the rail-
 y company's standard cast steel
 ire and have cast iron hub liners.
 e front truck is equipped with steel
 ed wheels having cast steel spoke
 ntres and the tender with steel tired
 eels having wrought iron disc centres.
 A 5,000 Imperial gallon semi-water
 tom tank is applied to the tender and
 ce provided for 10 tons of coal. The
 me is built of 13" channels for centre
 ls and 10" channels for side sills. The
 der trucks are the equalized pedestal
 e with a cast steel bolster and semi-
 ptic springs. The leading particulars
 e as follows:

December
 1909
 G-2

Passenger	Passenger
Bituminous coal	Bituminous coal
33,460 lbs.	33,460 lbs.
214,200 "	214,200 "
135,000 "	135,000 "
42,700 "	42,700 "
36,500 "	36,500 "
133,200 "	133,200 "
347,400 "	347,400 "
13' 0"	13' 0"
33' 7"	33' 7"
60' 0 1/4"	60' 0 1/4"
Simple	Simple
21" x 28"	21" x 28"
Piston	Piston
5 3/4"	5 3/4"
15-16"	15-16"
16"	16"

ing order	347,400 "
Wheel base, driving	13' 0"
total	33' 7"
total engine and tender	60' 0 1/2 "
Cylinders, kind	Simple
diameter and stroke	21" x 28"
Valves, kind	Piston
greatest travel	5 3/4 "
steam lap	15-16"
inside clearance	1/8 "
lead constant	5-16"
Wheels, driving, diameter over tires	69"
thickness of tires	3"
Driving journals, diam. and length, M.	9 1/2 " x 12"
F. & B.	9" x 12"
Engine truck wheels, diameter	31"
journals	6" x 10"
Trailing wheels, diameter	44"
journals	7" x 14"
Boiler, style	Extended wagon top
Working pressure	200 lbs.
Outside diameter of first ring	67 3/8 "
Outside diameter of third ring	75 1/2 "
Fire box, length and width	94 1/8 " x 69 7/8 "
water space, front	5"
sides	4 1/2 "
back	3 1/2 "
Tubes, number fire tubes	193
number superheater fire tubes	22
diameter fire tubes	2 1/4 "
diameter superheater	5"
length	19' 6"
Heating surface, tubes	2,765 sq. ft.
fire box	176.6 "
total	2,941.6 "
Superheater heating surface	542.5 "
Grate area	45.67 "
Smoke stack, diameter	14 1/2 " at choke
height above rail	15' 1 3-16"
Tender, tank	Semi water bottom
frame	13" and 10" channels
wheels, diam., 34" on 15 engs.	36 1/4 "
on 15 engs.	
journals, diam. and length	5 1/2 " x 10"
truck	four wheel pedestal type
water capacity	5,000 imp. gallons
coal capacity	10 tons

December 1909

G-2