

line. In consequence, the feed pipe was always full of water, which in severe weather is a decided disadvantage, endangering the piping from freezing. With this new arrangement the feed pipe rises on a gentle slope to the bell stand, where there is an outside check valve in addition to the one in the casting. Immediately

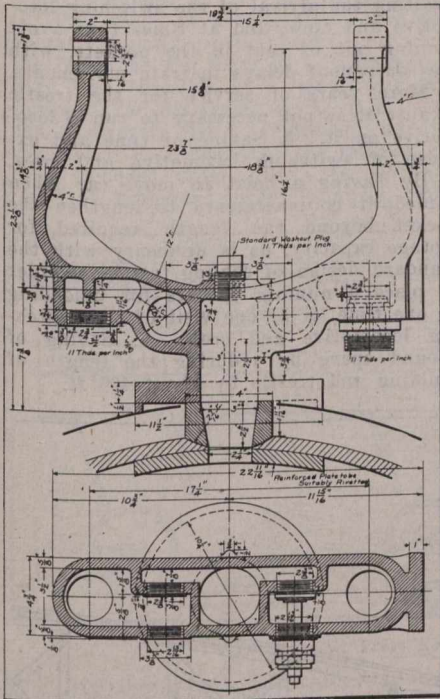


Fig. 8.—C.N.R. Bell Stand Feed Water Inlet.

the injector is shut off, the pipe drains through the injector overflow, eliminating trouble from frozen piping.

Trouble would be experienced were the cold feed water to be fed in on the hot dry pipe, so a plate shield is mounted over

Grand Trunk Railway Pacific Type Locomotives.

The G.T.R. has recently received 19 Pacific type locomotives which exert a tractive force of 33,800 lbs., and with 146,700 lbs. on driving wheels the ratio of adhesion is 4.34. The driving wheels are 69 ins. in diameter. The proportions of the design are such as to fit the locomotives for either fast freight or heavy medium speed passenger service. The advantage of the Pacific type over the 10 wheeled for work of this character lies in the increased relative steaming capacity of the former, and in

nals. All the driving springs are underhung, and every wheel under the locomotive and tender is braked.

The tender frame is composed of 10 in. steel channels, with oak bumpers. The trucks are of the arch bar type, with steel tired wheels, cast steel bolsters and triple elliptic springs. The fuel space is closed in front with metal coal gates.

The locomotives were built by the Baldwin Locomotive Works. Their principal dimensions are as follows:—

Cylinders	23 x 28 ins.
Valves	balanced piston.
Boiler—type	straight.
“ length	96 3/4 ins.
“ width	75 1/4 ins.

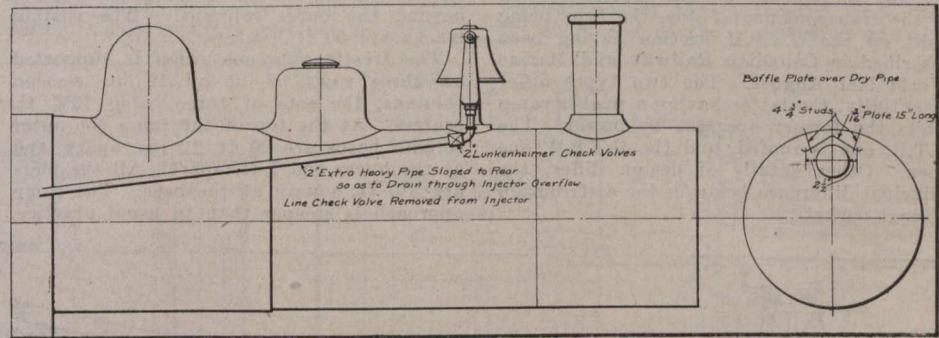
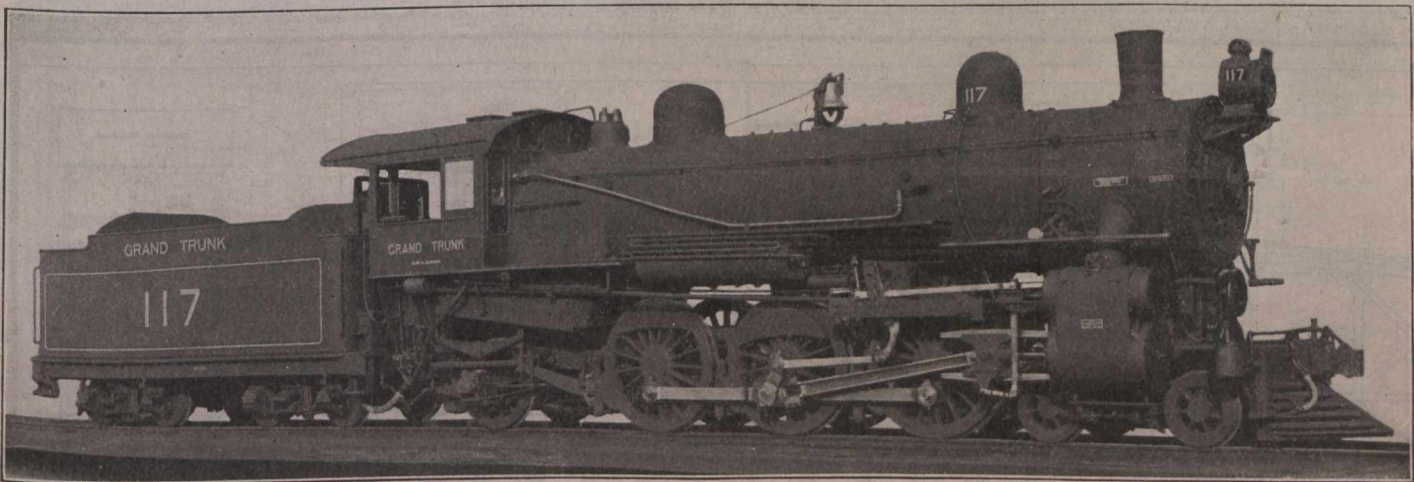


Fig. 9.—C.N.R. Standard Bell Stand Injector Arrangement.

the fact that, with a given amount of grate area, a larger furnace volume can be provided. This feature is of special value in locomotives using high volatile coal as fuel.

These locomotives are equipped with a Schmidt fire tube superheater and also with a brick arch, which is supported on four water tubes. These features have fully proved their ability to raise the efficiency of the locomotive and increase its capacity per ton of weight; and the new locomotives, as far as their proportions and construction are concerned, represent the most approved practice for engines of their type.

“ depth, front	72 3/4 ins.
“ depth, back	56 1/4 ins.
“ thickness of sheets, sides	3/8 in.
“ material	steel.
“ diameter	70 1/2 ins.
“ thickness of sheets	3/8 ins.
“ working pressure	185 lbs.
“ fuel	soft coal.
“ staying	radial.
Fire box—Material	steel.
“ thickness of sheets, back	3/8 in.
“ thickness of sheets, crown	3/8 in.
“ thickness of sheets, tube	3/8 in.
Water Space—front	5 1/2 ins.
“ sides	4 1/2 ins.
“ back	4 1/2 ins.
Tubes—material	steel.
“ thickness	0.150-0.125 ins.
“ number	24-181.
“ length	20 ft. 7 ins.



Grand Trunk Railway Pacific Type Locomotive.

the dry pipe on the inside of the boiler, shedding the water to each side. The edges of this shedding plate are bent up slightly, causing the water to spread out still further.

The foregoing examples of recent locomotive practice will give a conception of the progressive policy adopted by the C.N.R. mechanical department. They are but a few of the many examples of refinement in design, but will serve as an example of what is being done in that particular by the youngest of the great Canadian railway systems.

The details have been worked out in accordance with G.T.R. practice, and except for the changes necessary because of the application of the superheater, they are closely similar to those of engines previously built for this line. The steam pipes pass out through the sides of the smoke box and the distribution is controlled by 14 in. piston valves. These are driven by Walschaerts gear and are set with a lead of 5-16 in. The frames have single rails under the cylinder saddle, and separate rear sections which are arranged to accommodate a trailing truck with outside jour-

“ diameter	5 3/4 ins.
Heating Surface—fire box	163 sq. ft.
“ tubes	2,635 sq. ft.
“ firebrick tubes	28 sq. ft.
“ total	2,826 sq. ft.
“ grate area	50.6 sq. ft.
Driving Wheels—diameter, outside	69 ins.
“ diameter, centre	62 ins.
“ journals, main and others	9 1/4 x 12 ins.
Engine Truck Wheels—diameter, front	31 ins.
“ “ “ journals	6 1/2 x 10 1/2 ins.
“ diameter, back	49 ins.
“ “ “ journals	8 x 14 ins.
Wheel Base—driving	13 ft. 4 ins.
“ rigid	13 ft. 4 ins.
“ total engine	33 ft. 2 ins.
“ total engine & tender	62 ft. 3 1/2 ins.