## **GRAND TRUNK RAILWAY IMPROVEMENTS.**

The new management of the Grand Trunk Railway, since taking office about a year ago, has not allowed any time to elapse in inaugurating its policy of improving the lines and equipment of that great system.

On this page will be found drawings of a few of the passenger stations and other important buildings erected during the past season. Among those deserving of more than a passing notice are the car-heating and air-brake testing building at Bonaventure station, Montreal; car shops at London, Ont.; elevator at Portland, Maine, and the passenger station at St. Henri, P.Q.

CAR-HEATING AND AIR-BRAKE TESTING BUILDING is a brick building on stone foundations. The plant consists of two new locomotive-type boilers, mounted on cast-iron ash pans, and suitable cast-iron supports at the smoke-box end. These boilers are connected where it is connected to a Worthington automatic feed pump and receiver, which pumps the condensed water to the boilers, thereby keeping the mains free and saving feed water. In addition to the car-heating main, and in the same insulated box in front of the buffer stops, are placed air mains with suitable outlets and connections which enable the Westinghouse brakes and the air whistle signals to be charged and tested before the train is coupled to the locomotive. The compressed air is obtained from a receiver placed in the main boiler room, which is stored by a standard 8-inch Westinghouse air pump. The receiver pressure is 100 ibs, per square inch, which is again reduced through Mason valve to 70 lbs. for the air mains. The outlets to the brake testing main are controlled by specially constructed 3-way cocks, which enable the inspector to apply and release the brakes on any train without being attached to the locomotive.

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into a brick chimney 80 feet high, with a three-feet circular flue. The working pressure is 125 lbs. to the square inch. The steam from the boilers is discharged through a four-inch "Mason" reducing valve at 50 lbs. pressure, into a four-inch wrought iron steam main, placed below the ground in a suitably insulated box, immediately in front of the buffer stops at the end of the tracks running into the depot. The steam main itself is also thoroughly insulated with magnesis and asbestos pipe covering. From it, conveniently placed near the tracks, rise twelve 11 inch branches, to which are attached standard "Sewell" car-heating valves, steam hose and couplings, which engage with those attached to the cars, and admit of their being warmed from the main, in the same manner as they are from the locomotive while in transit. The condensed water is returned to the boiler house, The whistle signal testing main which leaves the boiler house, carrying 70 lbs. pressure, runs to a distributing box situated near the middle of the system, which box contains a standard Westinghouse reducing valve and air signal valve and whistle. The air, after passing through the reducing valve, is carried to the right and left of the box by two lines of pipe, which are provided with regular Westinghouse air signals, stop cocks, and hose connections to couple to the cars. The pressure in this main is 45 lbs. When coupled to a train of cars, the air signal apparatus is tested by opening any of the signal valves throughout the train, and if everything is in working order, it will cause the alarm whistle, which surmounts the testing box, to sound.

The testing box, in addition to this apparatus, contains one steam gauge, connected with the steam main; two air gauges, connected with the brake and