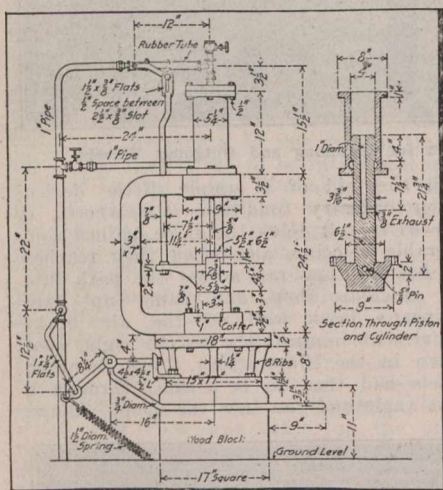


Air Hammer at Grand Trunk Pacific Railway Shops.

The G.T.P.R. shops at Rivers, Man., operate under conditions peculiarly their own, for the motive power repairs of a system that already extends over upwards of 2,000 miles and is rapidly increasing in both mileage and volume of traffic, are all handled at this point, which has only been equipped as a divisional point, with only the small buildings to be found at such a point on a line that has no branch lines emanating from the divisional point. The equipment of the shop has of course been increased beyond that contemplated for the divisional shop, but at the same time, the equipment added has only been that absolutely necessary to carry on the work. In consequence, considerable ingenuity on the part of the different foremen has been necessitated to handle the motive power repairs with the machines at their disposal.

In the blacksmith shop, one of the most essential of all the tools found in the usual railway repair shop was missing, viz., a steam hammer. The foreman, S. Lewis, realized that one must be had, and not seeing one coming in the usual channel, set about making one, the hammer shown



Air Hammer Made of Scrap Material.

in the accompanying illustration being the result.

All the parts that enter into the construction are taken from the scrap pile, and represent old parts from locomotives. The frame of the hammer is an old locomotive drawbar, with the ends bent around parallel to each other; the base is an old locomotive buffer centre casting, with the drawbar bolted thereto and the whole standing on a wooden block; the cylinder at the top is the end of a locomotive axle, turned with flange and bored out parallel the full length. It will thus be seen that the major portion of the hammer parts are such as may be found on almost any shop scrap pile. The plunger rod is almost the full diameter of the cylinder, with a forged block at the lower end for the hammer head.

To the upper and lower ends of the cylinder, there are air connections, leading from a common air pipe up the rear of the machine, in which there is a valve operated by a treadle extending around the wood base for the convenience of the operator. Once the air is turned on by the pressing of this treadle, the hammer continues automatically, stopping on the release of the foot treadle.

The manner of the automatic operation is as follows: Through the centre of the plunger rod, there is a 1 in. hole, near the lower end of which a radial $\frac{3}{8}$ in. hole com-

municates with the outside. A rod fastened to the rear of the hammer head, connects with an air valve in the pipe connection to the upper end of the cylinder, the upper end of the rod being slotted, for reasons to be explained. With the hammer in its lower position, the upper end valve is held closed. On pressing the foot treadle, the air enters the annular space around the bottom of the cylinder, the exposed surface being slightly more than sufficient to raise the dead weight of the hammer. On rising, the upper end air valve remains closed until the plunger has travelled the length of the slot, when the valve commences to open; and by the time the plunger is at the upper end of its stroke, the air is on full, forcing the hammer down smartly, adding impetus to the hammer above that given it by gravity. The downward plunge is against the force of the air acting under the hammer, but the latter is so slight as to be negligible.

As the hammer descends, the $\frac{3}{8}$ in. opening in the side of the plunger rod becomes exposed below the bottom of the cylinder, the pressure relieving itself from the upper end of the plunger almost instantly by the escape through this hole. As the plunger still further descends the slotted rod at the rear closes the valve at the top. After striking, the operation repeats itself automatically.

The stroke of the hammer is $6\frac{1}{2}$ ins., and the air pressure is normally 70 lbs. Any refinements in the intensity of the force at which the hammer descends may be simply regulated by the foot treadle. From the fact that the stroke is so short, it is not possible to work very heavy material, but it is a common practice to weld pieces up to $1\frac{1}{2}$ in. diameter.

Birthdays of Transportation Men in December.

Many happy returns of the day to:—

E. T. Agate, M. Can. Soc. C.E., District Engineer, Canadian Northern Ontario Ry. Sudbury-Port Arthur Line, Sudbury, born at Pittsford, N.Y., Dec. 7, 1874.

E. Alexander, Assistant Secretary, C.P.R., Montreal, born in Yorkshire, Eng., Dec. 8, 1862.

J. H. Barber, Engineering Department, C.P.R., Montreal, born at Cobourg, Ont., Dec. 20, 1856.

H. E. Bissell, Right of Way and Claims Agent, Grand Trunk Pacific Ry., Winnipeg, born near Noyan, Que., Dec. 31, 1867.

N. E. Brooks, Division Engineer, C.P.R., Calgary, Alta., born at Sherbrooke, Que., Dec. 25, 1866.

Harold Browning, steamship agent, etc., Windsor, Ont., born at Stamford, Lincolnshire, Eng., Dec. 2, 1864.

T. C. Burpee, Engineer of Maintenance of Way, Intercolonial Ry., Moncton, N.B., born at Sheffield, N.B., Dec. 11, 1852.

W. W. Butler, Vice President, Canadian Car and Foundry Co., Montreal, born at Danville, Ohio, Dec. 9, 1862.

M. M. Campbell, C.E., Building Inspector, G.T.R., Montreal, born at Bridgeton, N.B., Dec. 17, 1879.

J. A. Carroll, Road Foreman of Locomotives, District 1, Canadian Northern Ry., Rainy River Ont., born at Chilton, Wisc., Dec. 14, 1865.

A. H. Chave, Purchasing Agent and Assistant to First Vice President, Canadian Car and Foundry Co., Montreal, born at Williamsbridge, N.Y., Dec. 26, 1872.

J. E. Entwistle, acting Superintendent, District 2, Western division, Canadian Northern Ry., Saskatoon, Sask., born at Streetsville, Ont., Dec. 1, 1859.

H. H. Gildersleeve, Manager, Northern Navigation Co., Sarnia, Ont., born at Kingston, Ont., Dec. 15, 1865.

W. H. Gardiner, City Freight Agent, C.P.R., and District Freight Agent, Esquimalt and Nanaimo Ry., Victoria, B.C., born there Dec. 6, 1859.

A. S. Goodeve, member Board of Railway Commissioners for Canada, born at Guelph, Ont., Dec. 15, 1860.

A. J. Gorrie, ex-General Superintendent, Canadian Northern Quebec Ry., now Receiver, Quebec and Lake St. John Ry., Quebec, born at Raith, Kirkcaldy, Scotland, Dec. 10, 1868.

W. H. Grant, Manager of Construction, Mackenzie, Mann and Co., Ltd., Toronto, born at Acton, Ont., Dec. 8, 1858.

F. P. Gutelius, M. Can. Soc. C.E., ex-General Superintendent, Eastern Division, C.P.R., Montreal, born at Mifflinburg, Pa., Dec. 21, 1864.

D. B. Hanna, Third Vice President, Canadian Northern Ry., Toronto, born at Thornliebank, Scotland, Dec. 20, 1858.

S. P. Howard, ex-General Freight Agent, Eastern and Lake Superior Divisions, C.P.R., Montreal, born there, Dec. 30, 1865.

A. J. Isbester, Assistant District Engineer, Port Arthur district, Canadian Northern Ry., Port Arthur, Ont., born at Ottawa, Dec. 18, 1879.

R. Johnson, Locomotive Foreman, C.P.R., White River, Ont., born at Quebec, Que., Dec. 24, 1863.

B. B. Kelliher, Chief Engineer, Grand Trunk Pacific Ry., Winnipeg, born in Ireland, Dec. 26, 1862.

J. T. McGrath, ex-Superintendent of Motive Power and Equipment, Chicago and Alton Rd., Bloomington, Ill., born at Toronto, Dec. 6, 1869.

A. T. McKean, City Freight Agent, C.P.R., Winnipeg, born at St. John, N.B., Dec. 18, 1886.

L. Macdonald, Division Freight Agent, G.T.R., Toronto, born at Montreal, Dec. 10, 1871.

J. Niblock, ex-Superintendent, C.P.R., Victoria, B.C., born in York county, Ont., Dec. 21, 1849.

A. Price, General Superintendent, Alberta Division, C.P.R., Calgary, born at Toronto, Dec. 6, 1861.

G. D. Robinson, Assistant Export and Import Freight Agent, C.P.R., Toronto, born at St. John, N.B., Dec. 7, 1877.

C. Schreiber, C.M.G., Consulting Engineer, Department of Railways and Canals, Ottawa, Ont., born at Bradwell, Essex, Eng., Dec. 14, 1831.

F. P. Smith, Secretary, Richelieu and Ontario Navigation Co., Montreal, born there, Dec. 23, 1873.

C. E. E. Ussher, Passenger Traffic Manager, C.P.R., Montreal, born at Niagara Falls, Ont., Dec. 29, 1857.

H. H. Vaughan, Assistant to Vice President, C.P.R., Montreal, born at Forest Hill, Essex, Eng., Dec. 26, 1868.

R. C. Vaughan, Assistant to Third Vice President, Canadian Northern Ry., Toronto, born there, Dec. 1, 1883.

W. Wood, Locomotive Foreman, C.P.R., Megantic, Que., born at Montreal, Dec. 6, 1863.

A Laundry Car has been introduced on the Russian government railways for the use of the Imperial troops. The car is 9 ft. 10½ ins. wide and 13¾ ft. high outside at centre from rail, and is built according to the Russian standard 5-ft. gauge. The equipment includes steam boiler, condensing tank, feed pump, injector, steam engine, cold and hot water tanks, soda cleansing medium, washing machine, draining box, centrifugal dryers, mangle, fans, ventilator, and disinfector, together with ironing board, with heaters at the finishing end, the central portion being used for drying and storing the linen.