

projecting from the right side of the hammer frame. This operation completes the operations on one end of the tube.

From this point the tube truck is moved some little distance further down the shop on the plated floor to a position to the left of the point in fig. 8. Here, the tubes have the other bad end heated to a working heat in the furnace on the extreme left, from which they are carried over to the saw, the table of which is in the left foreground. The tube is here placed in a cross carriage on the table, this cross carriage being counter-balanced by weights over pulleys on the front edge of the table as in the lower left hand corner of the illustration. The hot saw, revolving at a high velocity, rapidly cuts off the bad end, cutting the tube to length, the tube carriage having a gauging stop.

The tube thus cut off is passed across the machine to the machine to the right in

other end being supported in wooden blocks on a post on the rear of the carriage of the lathe, to the left of the tool post. These wooden blocks, which clamp together, act as a steadyrest. The tool post carries a cutting off tool and a marking tool, the latter to the left of the cutting off tool at a distance equal to the length of the finished ferrule. The marking tool is set back just far enough to mark the surface of the tube as the cutting off tool is through the tube. This leaves a mark for the next cut, which the operator can quickly follow, with a marked saving in time. On each ferrule being cut off, the operator supports a scraper on the end of the cutting off tool, and scrapes off the burr on the inner edge of the tube end. By this method the ferrules are quickly cut off, and the removal of the burr makes them at once usable in the firebox end of the boiler, fitting over the swedged ends of the tubes.

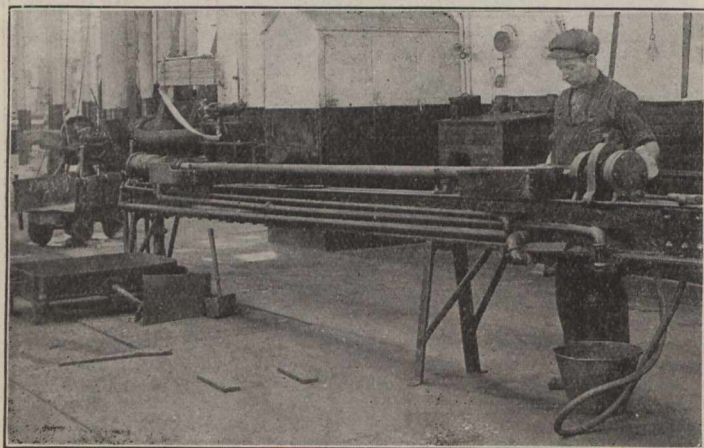


Fig. 9.—Testing Safe-ended Tube.

the illustration, a machine similar in construction to that in fig. 3, the end of the tube being here flared. The cross cylinder clamps the tube, and the end cylinder flares the end. The balance of the tube department is in the background in this illustration, fig. 8.

The tubes, with both ends thus finished out, are ready for testing in the machine in fig. 9, located a little further along the shop. The head at the far end of the machine is stationary, but that on the near end is movable, like the tailstock of a lathe, to accommodate varying lengths of tubes. The tube is placed up against a washer on the far head, and a plunger on the near end, carrying a washer face, is forced out against that end. Water is introduced under pressure through an opening in the centre of each end washer plate. It is customary first to introduce the water from the far end before closing up the near end, as this forces all air out of the tube, the bed of the machine being on an upward incline toward this end. On the filling of the tube with water, this end, which forms a differential cylinder, is closed, and air pressure introduced behind the large end of the differential piston, producing a water pressure of about 300 lbs. in the tube, the gauge on the wall to the rear indicating that pressure. Both valves are on the front of the machine bed in the position assumed by the operator. To save time in draining out the tube after testing, the large box built up of boiler plate is placed at the far end of the machine, the tubes being drained therein before placing on the truck for removal to the erecting shop, where they are again placed in the boiler.

The copper ferrules used in the firebox end of the tubes are cut off in the manner indicated in fig. 10. A long copper tube is chucked in the lathe head to the rear, the

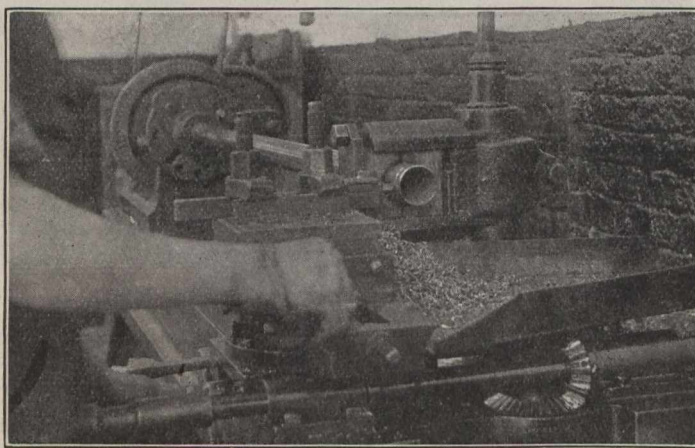


Fig. 10.—Cutting off Copper Ferrules.

Birthdays of Transportation Men in November.

Many happy returns of the day to—

J. O. Apps, General Baggage Agent, C.P.R., Montreal, born at Tara, Ont., Nov. 9, 1877.

A. B. Atwater, Assistant to President, lines west of Detroit and St. Clair rivers, G.T.R., Detroit, Mich., born at Sheffield, Ohio, Nov., 1845.

G. B. Burchell, General Manager, Maritime Coal Ry. and Power Co., Joggins Mines, N.S., born at Sydney, N.S., Nov. 1, 1877.

J. R. Cameron, Assistant General Manager, Canadian Northern Ry., Winnipeg, born at Truro, N.S., Nov. 5, 1865.

L. D. Chetham, City Passenger Agent, C.P.R., and District Passenger Agent, Esquimalt and Nanaimo Ry., Victoria, born at Matlock, Eng., Nov. 5, 1869.

F. H. Clendenning, District Freight Agent, B.C. Coast Service and Trans-Pacific Steamships, C.P.R., Vancouver, B.C., born at Montreal, Nov. 9, 1881.

F. Conway, acting General Superintendent, Kingston and Pembroke Ry., Kingston, Ont., born at Ernestown, Ont., Nov. 19, 1850.

A. S. Cook, Inspecting Engineer, National Transcontinental Ry., Ottawa, born at Penobscus, N.B., Nov. 20, 1873.

W. L. Crighton, Advertising Agent, Intercolonial Ry., Moncton, N.B., born at Derby, Eng., Nov. 9, 1871.

W. Cuthbert, Fuel and Tie Agent, G.T.R., Montreal, born at Longueuil, Que., Nov. 9, 1856.

W. Downie, General Superintendent, Atlantic Division, C.P.R., St. John, N.B., born at Rock Currie, Ireland, Nov. 12, 1850.

Jos. Dubrule, jr., Manager, Canadian Pacific Car and Passenger Transfer Co., Prescott, Ont., born at Spencerville, Ont., Nov. 14, 1872.

R. L. Fairbairn, General Passenger Agent, Canadian Northern Ry., Toronto, born at Stillwater, Minn., Nov. 24, 1880.

Grant Hall, Assistant General Manager, Western Lines, C.P.R., Winnipeg, born at Montreal, Nov., 1863.

John L. Hodgson, Master Car Builder, Western Division, G.T.R., Port Huron, Mich., born at Simcoe, Ont., Nov. 15, 1858.

J. McGillivray, Superintendent, Inverness Ry. and Coal Co.'s lines, Inverness, N.S., born at Nairn, Scotland, Nov. 13, 1867.

T. E. Martin, Local Freight Agent, C.P.R., Quebec, Que., born at Beauharnois, Que., Nov. 23, 1852.

C. Murphy, General Superintendent of Transportation, Eastern Lines, C.P.R., Montreal, born at Prescott, Ont., Nov. 20, 1865.

W. J. Quinlan, District Passenger Agent, Grand Trunk Pacific Ry., Winnipeg, born at Montreal, Nov. 21, 1883.

H. P. Sharpe, General Agent, Dominion

Express Co., Toronto, born at Brockville, Ont., Nov. 24, 1864.

G. H. Shaw, General Traffic Manager, Canadian Northern Ry., Toronto, born at Smiths Falls, Ont., Nov. 25, 1859.

F. M. Spaidal, General Superintendent, Canadian Northern Quebec Ry., and Quebec and Lake St. John Ry., Quebec, born at Gananoque, Ont., Nov. 13, 1858.

J. Sparks, Assistant General Baggage Agent, Western Lines, C.P.R., Winnipeg, born in London, Eng., Nov. 25, 1874.

H. P. Timmerman, Industrial Commissioner, Eastern Lines, C.P.R., Montreal, born at Odessa, Ont., Nov. 6, 1856.

H. E. Whittenberger, Superintendent, Middle Division, G.T.R., Toronto, born at Peru, Ind., Nov. 9, 1864.

C. G. Washbon, Resident Engineer, C.P.R., Winnipeg, born at Morris, N.Y., Nov. 27, 1887.

Proposed Electrification in Chicago.—A conference of operating officials representing 30 railways and engineering staff of the Chicago Association of Commerce committee on smoke abatement and electrification was held recently to consider the mechanical difficulties presented in substituting electrical for steam operation. Each representative was requested to present his own views on the subject, based upon the operating conditions on his lines. In discussing the question of using a third rail in yards some of those present said that the network of track is already so complicated that the addition of an extra rail would increase materially the danger to yard employees and at the same time decrease the efficiency of the service. The use of the overhead trolley instead of third rail was thought also to be unsatisfactory as it would endanger the life of men on the roofs of cars.