the frame, as shown, each side of the clamp containing a turnbuckle to tighten the tractor back into place. This tractor is found most useful.

Turntable Tractor Control in Grand Trunk Railway Toronto Yards.

No G.T.R. locomotives are held over in Toronto, the Mimico locomotive house, west of the city, being used for all locomotives that must remain over. The motive power facilities in the city are in consequence very limited, consisting principally of a coaling plant, and plant for turning the locomotives, the turntable in the accompanying illustration serving that purpose.

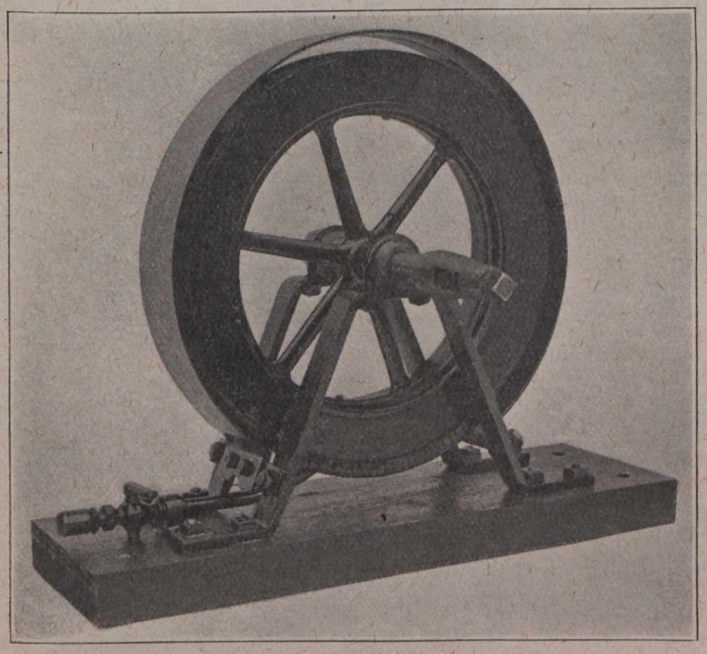
This turntable has an air operated tractor, of a type recently described in these columns. Briefly, it consists of a heavy cast iron plate, for weight, mounted on a wheel running on the outside turntable track, the whole attached to the turntable by a hinge connection. The air operating mechanism consisting of a couple of air cylinders, connecting through a train of gears with the track wheel, is mounted on the back of the cast iron frame.

The air connection from external sources comes to the turntable through its centre bearing, and thence to the air motor. The turntable is arranged as to enable operation from either end. Along the side of the turntable there runs a rod, with vertical levers at each end. This rod is broken at the centre, the two portions being connected together through the system of levers shown in the small illustration, which transmit the motion from the one rod to the other in an opposite direction. The object desired in so arranging this rod was that the turntable might be operated positively in either direction, there being no uncertainty as to which direction the table will move when the control lever is swung over. In this arrangement, the swinging of the lever away from the operator at either end causes the table to move in the direction the lever points.

During August, three men were killed and three were injured in the course of railway construction throughout the Dominion. During the same month, 16 were killed and 107 were injured in steam railway service.

Machine for Grinding Angle Cocks at Grand Trunk Railway Port Huron Shops.

In the G.T.R. shops at Port Huron, Mich., there is a small air power machine for grinding in the valves of angle cocks, which is said to be in use in other shops on the system as well. This machine is shown in the accompanying illustration. The propelling means closely resembles the construction of the rotors on impulse turbines. On the periphery of a small wheel there are projecting blades of thin plate, held in place at the sides by annular plate rings secured to the side of the wheel rim. This forms chambers, into which the air blast from the pipe on the left end of the base is directed, this blast striking the forward radial blade, propelling the wheel. Between the supporting members on the wooden base of the machine, there is a section of thin plate, closely fitting up under the rotating wheel, retaining the air blast in the impinging cavity without dissipating. Beyond the end of this piece, and around the balance of the circumference, the rim is protected with a guard strip, as shown.



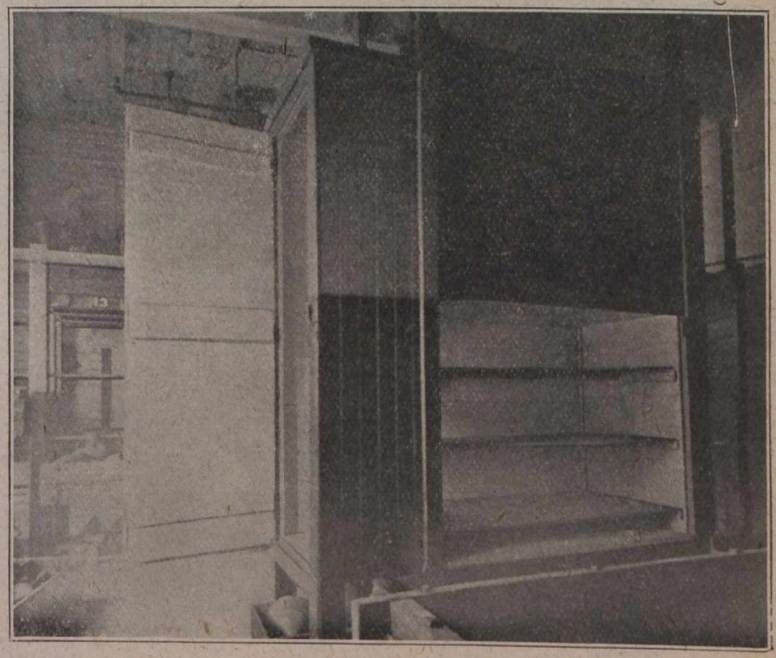
Machine for Grinding in Angle Cocks.

The valve of the angle cock to be ground is mounted on the end of the air motor shaft, in the manner indicated, and the high speed of the machine rotates the valve in the body of the cock in the usual manner, customarily done by hand or in the lathe.

Lacquer Bake Oven at Canadian Pacific Railway West Toronto Car Shops.

In the passenger car department of the C.P.R. West Toronto Shops, H. R. Naylor, General Foreman, it was necessary recently to build a new lacquer bake oven. As it was required to have the oven of such size as to be able to accommodate all sizes of work, the problem was how to build it to handle all classes of work economically, especially when the major portion of the work is small stuff, requiring small oven space. Consideration had to be given to the best size that would handle all classes of work.

The largest piece that will require to be handled is the long parcel rack over the car seat. These form a very small portion of the total work to be handled. The oven shown in the accompanying illustration is the solution of the problem. On the right is the main oven, lined with galvanized iron, and heated with steam coils in the bottom. The work to be baked is carried on shelves made of smoke box netting. The door is of the vertically sliding type, counterbalanced by weights. For the general run of articles, this small, almost square, oven meets all requirements. To have made it long enough to hold the racks mentioned would have given a greater length than that normally required. To accommodate these long racks, a vertical oven section was built on the left end of the oven as shown, with a swing door in front. This section has no heating coil, but between the main oven and this part there are two sliding doors, which are removed when the long oven is required. This gives a combined oven capable of holding all classes of work, and, at the same time one that requires very little room in proportion to the volume.



Lacquer Bake Oven for General Work, with Vertical End Section for Long Parts.

A Railway Speeder for Fire Protection is in use by the U.S. Forest Service on the San Joaquin & Eastern Rd., which runs through the Sierra National Forest, California. The speeder is a Ford roadster with a wooden rear seat and flanged wheels. It is used to transport fire fighters and fire fighting equipment, as well as supplies from one part of the forest to another. It is also used for patrol purposes. The ranger, or fire guard, who runs the speeder, carries with him an axe, hoe and rake. If he discovers an incipient fire along the right of way of the railway he puts it out by beating the flames or digging a trench surrounding the burning area. Other equipments of this sort may possibly be used in the national forests later on, but there is particular need for the speeder in the Sierra Forest because of the difficulty of transporting fire apparatus by trails and roads there.

The Associated Boards of Trade of Western Canada, meeting at Winnipeg, recently, passed a resolution urging Parliament to take steps to prevent the renewal of charters for the building of railways to companies which did not do a reasonable amount of construction within a specified time, and making it impossible to obtain the renewal of a charter if the line was not put in operation within five years.