370

to a vacuum, followed by the immersion in oil. Only seasoned ties are treated in this plant, and the retorts are not arranged for steaming timber, this being considered injurious to it. Each retort is supplied with heated coils in the bottom between the rails, which keep the oil heated to the proper temperature when in the retort. The charging



Retort filled with ties-door ready to close.

tanks and storage tank are all likewise provided with heating coils to prevent congealing of the creosote oil.

To illustrate the growth of the timber preserving industry it may be stated that the Allis-Chalmers Company has furnished nearly fifty of these retorts during the past few years, representing the most modern equipment in this line.

## N. N. N.

## THE DOMINION ROLLER BEARING A SUCCESS.

The above illustration shows a C.P.R. hand-car, fitted with Dominion roller bearings, and now doing twelve miles service each day in section gang work from Toronto Junction eastwards. The bearings are 13%" dia. x 31%" long, and consist of 9 x 9 rollers, 1/2" diameter. A like set of bearings have been installed in a G.T.R. hand-car doing service between Toronto and Hamilton, and the general roadmaster (Mr. H. Ferguson) reports August 20th thus: "We have tested the hand-car that has been fitted up with roller bearings and find it works very satisfactorily, and is a



Hand-car with Roller Bearing.

great improvement to the old pattern." Since the reorganization of the company, which originally put the Henderson roller bearing on the market, an entirely new management, with a thoroughly competent engineer (Mr. Joseph Dove-Smith) in charge, have greatly improved the manufacture of these bearings, rendering it a still more effective frictionsaving appliance. We recently visited the well-equipped plant of the Dominion Henderson Bearings, Limited, Toronto, and inspected all the varied operations of manufacturing and testing, beside witnessing experiments with the hand-car, now in active service on the Grand Trunk Railway. The impression made upon us was that the device is sound in principle and a manifest power-saver when properly constructed. The latest success of this roller bearing on the two principal railways of Canada is evidence of its utility, and we wish Dr. J. Frank Adams and the new management a prosperous future.

## \*\*\*

## THE PITTSBURGH VISE.

The form of vise illustrated is made so as to combine convenience and adaptability with strength and durability. The slide-bar and front jaw is made of a round steel casting, and the screw is made from a solid steel forging. The vise may be revolved upon a vertical axis, and in addition, in the case of a double-swivel vise, the jaws may be revolved in a complete circle about a horizontal axis; notwithstanding these facilities, the vise is not encumbered with pins, levers, screws, or bolts for clamping it against swiveling, since the operation of tightening the jaws upon the piece of work at the same time automatically locks the vise and prevents its swiveling. In working upon pieces where it is necessary to change their position periodically, the changes can be made without removing the work from the vise. The swivels are



Fig. 1.-Double Swivel Vise.

graduated so that the amount of swivel movement can be closely determined. The vise may be converted to a stationary one if so desired by turning two screws, which lock both swivels, and by this means also, friction on the swivel may be varied. The sectional view, Fig. 1, shows the construction of the double swivel vise. The base is formed with an annular seat for the body, which latter is made in two halves or yokes. It will be seen from the cut that these two halves do not make contact with one another over the whole of their adjacent surfaces, but are so made that when their upper ends are placed towards one another as the result of



Fig. 2.-Single Swivel Vise.

screwing up the vise on the work, their lower ends are forced slightly apart, and thus press on the inner cylindrical circle of the base and lock the vise fast against swiveling.

Within the upper ends of the two yokes may be rotated the rear jaw-piece, Fig. 1, about a horizontal axis. The bearing in the front yoke is of a larger diameter than that in the rear yoke. The slide-bar of the front jaw is thus allowed to extend through the rear jaw. A sleeve or nut extends through the bore of the front jaw, and has at its