

Fig. No. 14 illustrates a curiosity in wheel lathes from a photograph taken from a lathe in use on a branch railroad in Mexico. The bed consists of square timbers, a main gear in halves, which is clamped to the axle at its centre, while the wheels and axle run in their own journal. Claim is made that a pair of wheels were turned in one week, which would scarcely fill the requirements of our large Canadian roads.

The subject of lathes should not be dismissed without a word on the boring and turning mill, another form of lathe construction, so arranged as to permit of the easy chucking of articles to the face-plate. This machine has also been brought to the stage of quick adjustment of rail heads and bars, all the surplus power and energy of the man being developed to increase the number of hours actually at the cutting point of the tool.

Fig. No. 15 shows a standard boring mill, as built by the Bertram Company, for the Canadian market.

Fig. No. 16 shows a Bertram tire boring mill for coach wheel tires up to 42" diameter. The construction is especially for heavy duty.

Few machines which have to do with the production of the modern locomotive have undergone such changes in size, weight, and power as the frame slotting machine. This is due to the increased size and weight of the locomotive of to-day, as compared with that of a few years ago. This, of course, causes a corresponding increase in the size of the frame to be slotted.

Fig. No. 17 will show the slotting machine, as built by the Bertram Company, until about 1898. The opening in the yoke was 34" wide and 12" high, and the bed had a length of 36'. The machine was capable of slotting one pair of forged frames in sixty hours.

Fig. No. 18 illustrates the standard three-headed slotting machine, as in use in the Canadian Pacific Railway and other railroad shops. The opening in the yoke is 48" wide and 26" high, and the length of the bed is 40', giving the machine sufficient capacity to slot four of the largest sizes locomotives frames in from 32 to 34 hours.

In Fig. No. 19 is illustrated the largest type of triple head frame slotting machine which is known. It was installed in the Montreal Locomotive Works about three years ago, the dimensions of the machine being—opening in the yoke 61" x 34", and the bed is 50' long, maximum stroke of cutter bars 32". The machine is capable of slotting six locomotive frames simultaneously, and has the power and rigidity necessary to do the work at the minimum cost under modern manufacturing conditions.

In common with most of the other large machine tools, the method of drive in the slotter has been changed and improved by