

Chelsea Mills, 47,790; Eaton's Chute, 24,508; Cascades, 14,000; Wakefield, 12,000; Pangan Falls, 73,500. There are on this same river, further up, the falls of Maniwaki, of La Montagne, of Castor Blanc, Betobee, Big Eddy and several others, which form water-powers of enormous capacity.

But all this is eclipsed by the water-powers of the Nottaway and the Rupert rivers, in the Abitibi territory. On the first sixty miles of the Nottaway, from its source at the Height of Land, there are several water-powers varying from 250 to 750 horse-power, and ten miles lower, at Red Flower Hill Portage, there are cataracts of 66 feet, terminating in a steep fall of 14 feet, of a total capacity of 30,000 horse-power. Ten miles below this, the superb falls of Kiask Sebee, 30 feet in height, can furnish 13,000 horse-power, and a couple of miles further down, there is another power equal to 4,000 horse-power. The outlet of Gull Lake, about 155 miles from the Height of Land, would give by a single damming a force of 85,000 horse-power. After leaving Lake Mattagami, the Nottaway forms, by its falls and great cataracts, the following water-powers: At 150 miles from the Height of Land, 50,000 horse-power; at 175 miles, 106,000 horse-power; at 200 miles, 275,000 horse-power; at 330 miles, 400,000 horse-power. As may be seen, on this stretch of about a hundred miles, the water-powers of the Nottaway have a collective force of nearly 1,000,000 horse-power.

On the Rupert, the falls of Smoky Hill are situated at the head of tide-water. They have a height of 52 feet and a capacity of 300,000 horse-power. In the next fifty miles there are on this great river the following water-powers: Falls of Cat Portage, 74 feet high, 419,025 horse-power; Falls of the Four Portages, one of 63 feet, 340,000 horse-power; one of 80 feet, 453,000 horse-power; one of 32 feet, 177,000 horse-power. Some twenty miles further up there are the Falls of Oatmeal Portage, 18 feet high, 100,000 horse-power, and about twenty miles still higher, a fall of sixty feet and 329,818 horse-power. Those water-powers are spread over a space of about fifty miles, and have a collective force of 1,128,843 horse-power.

On the East Main river, which runs parallel to the Rupert, some fifty miles more to the north, there are water-powers as numerous and as powerful.

All those water-powers, except on the St. Lawrence and Richelieu, are on rivers where spruce for the manufacture of pulp exists in exhaustless quantity, which shows the possibilities of the Province of Quebec as regards the pulp and paper industry.

PREMIER WHITNEY ON WATER POWER.

"The water power at Niagara should be as free as air, and, more than that, I say, on behalf of the Government, that the water power all over this country shall not in future be made the sport and prey of capitalists, and shall not be treated as anything else but as a valuable asset of the people of Ontario, whose trustees the Government of this Province are. It should be provided that when a Government enters into an agreement with capitalists relating to any, of the great resources of the country, such agreement should have to pass through the crucial discussion of this House, and be ratified by the representatives of the people before the capitalists should have the right to take the benefit of it. Yet the late Government deliberately repealed that law, and capitalists and Government ran riot through the Province of Ontario. However, the law was re-introduced, and is now on the statute book. You will not find this Government doing anything like their predecessors in this respect, and the power at Niagara shall be as free as air. How? Free in this way: That monopolists shall not have control, but that every man, every British subject, and every ratepayer of the Province of Ontario shall, under proper conditions, be free to utilize the power which God has given to the Province."

Fort Frances town council will build a combined town and fire hall.

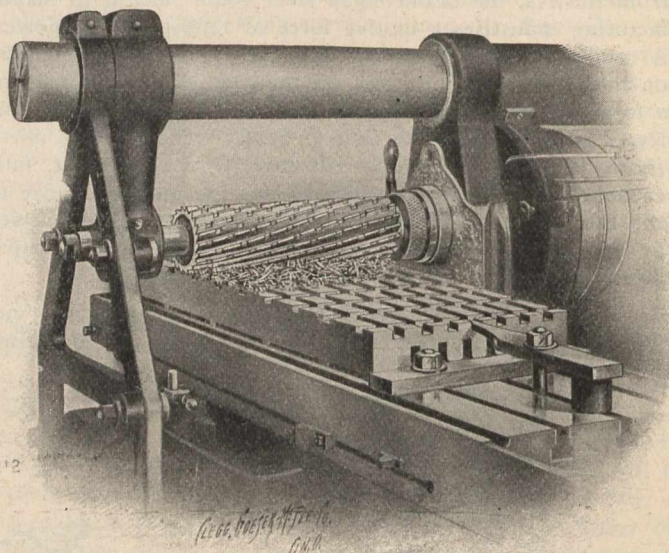
MACHINE SHOP NOTES FROM THE STATES.

BY CHAS. S. GINGRICH, M.E.

XV.

I have the pleasure of showing you this month the process in use in the shops of the General Railway Signal Co., Buffalo, N.Y., for machining parts for railway signals. These parts consist of cast iron plates 12-in. wide and have grooves cast into the faces.

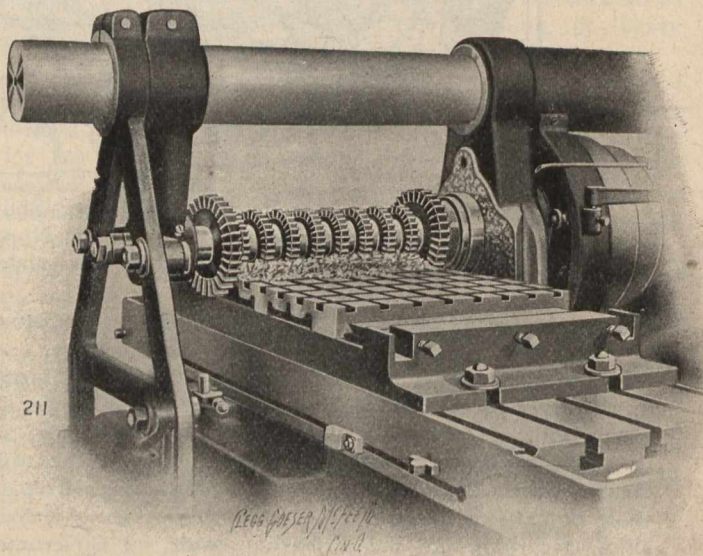
These pieces must first be roughed off on top, then the



grooves are finished out to size, and the edges of the piece are squared up. R. P. Deardorff, who had charge of this work at the time the photographs were taken, stated that the chief thing about the plates is the accuracy required, it being highly desirable that the plates go together accurately without any hard-fitting.

This work had been done on the planer at considerable expense, the allotted time having been approximately eighteen hours for finishing up one plate, and even then there was considerable hand-fitting required to make them go together.

The illustrations show a No. 4 Plain Cincinnati Miller at



work on these pieces as they are finished now. The actual time required is two hours for each plate, just one-ninth of the time formerly required, and when the pieces leave the miller, they are accurate and go together nicely.

This job seems of particular interest at this time, when in the majority of work not only accuracy, but rapidity is essential in order to successfully meet competition, throwing, as it does, additional light on the possibility of making great gains by replacing older tools and methods by modern machinery and up-to-date methods, wherever possible.