

phorus in the mixture was above .2, the same constituents in the steel were almost eliminated, a result that it would be impossible to bring about in the regular open-hearth practice.

The writer has spent four years perfecting this process in an experimental way before these tests were made, and the results of the tests have proved beyond a doubt that the Lash process is in every respect a commercial proposition. Particularly is this so for Canada, which country is greatly blessed with numerous water powers, and an abundance of magnetic iron ore, which is just what this process requires for its developments.

#### TESTS MADE BY INDEPENDENT EXPERTS.

The tests at this plant were under the supervision of Messrs. FitzGerald & Bennie, Niagara Falls, N.Y., and Mr. Robert Turnbull, St. Catharines, Ontario. Messrs. FitzGerald and Bennie, and Mr. Turnbull stand high in their profession of metallurgical and electrical experts, and the greatest care was exercised on their part to obtain accurate results.

The following is quoted from Messrs. FitzGerald & Bennie's report:—

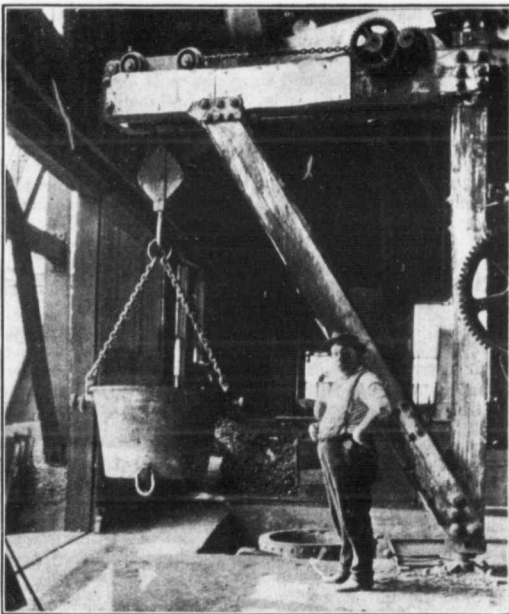


Fig. 6—Casting Crane.

"In a general consideration of the electric furnace experiments there is a reason to be satisfied. So far as the power consumption is concerned the results obtained show that no difficulty in reaching a power consumption of  $\frac{1}{4}$  h.p. year per ton of steel produced need be expected. The only serious problem which we have been faced with in the experiments is that of electrode consumption. However, if the conditions of the experiments are considered, there is reason to believe that this difficulty may be met successfully. There is one other point to be noted in this connection: the Lash process so far has been tried only in the Heroult furnace where carbon electrodes are used, and this difficulty would not have to be faced in the induction furnace of the Rochling-Rodenhauser design."

#### WHAT THE EXPERIMENTS SHOW.

Over \$30,000 was spent by the Canadian Lash Steel Process Co., Limited, in building this plant, and conducting these tests, and the results have brought forth conclusively the following:—

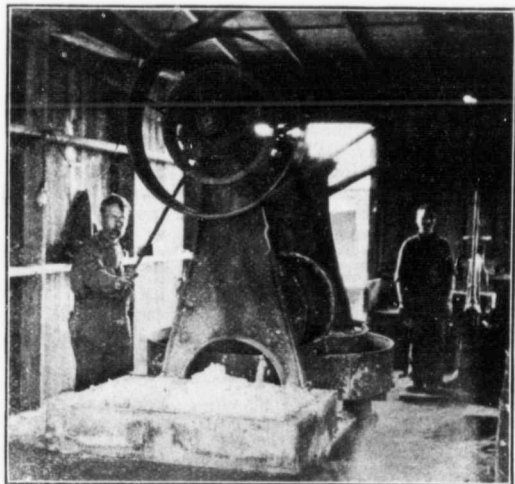


Fig. 7—The Mixing Plant.

First:—That cheaper steel can be made by this process than by the regular O.H. practice; this is owing to the reduction in the amount of pig iron required, and the fact that the rest of the metallic content is in the form of ore, which is iron in its cheapest state.

To any one familiar with the steel trade, this cost can be easily figured when the cost of ore, pig iron, carbon in any form, and water power is known. On \$3.00 ore; \$18.00 pig iron; and \$15.00 power, ingots can be made for less than the cost of the pig iron.

Second:—The quality of the steel is very much better owing to the material in the charge coming direct from its native condition.

Third:—The control of the heats and temperatures is absolute, and the trouble due to impurities in fuel is eliminated.

Fourth:—The carbon content of the bath can be brought under absolute control, as it is only necessary to slightly vary the mixture to bring out any carbon content desired.



Fig. 8—Billet Yard.