

The Development of the Lash Process for Making Soft Steel in the Electric Furnace.

In our February 1st, 1908, issue we published a description of the Lash Process for making steel, and outlined in a general way what The Canadian Lash Steel Process Co., Ltd., was undertaking in the way of the development of this process in the electric furnace, and promised our readers a report of the results after

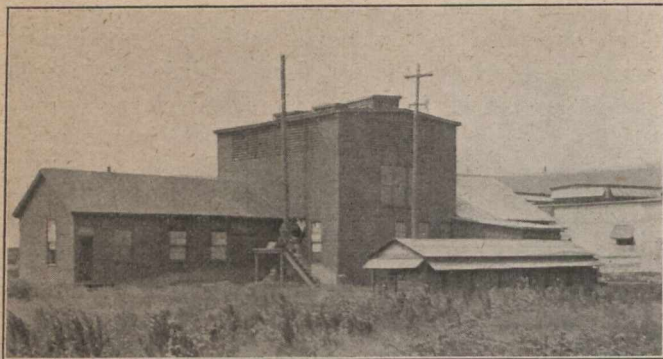


FIG. 1—BUILDINGS—CANADIAN L. S. P. CO.

the plant was in operation. This company having built their plant, and completed their test runs, we give below a description of the same, and the results of these runs. A brief description of the process is as follows:—

The Lash Process consists of making a mixture of concentrated magnetic ores, or iron ore sands, granulated pig iron and carbon, and charging the same into either an electric or open hearth furnace and producing steel. It is not a direct process in the strict sense of the word, but is an ore and pig process, the ore, however, being greatly in excess of the amount of pig iron used, and practically eliminating the scrap, using only such scrap as is made in the regular operation of a steel works.

The amount of pig iron required to make a ton of steel is less than one-half of what is required in regular open hearth practice when the mixture is used in an electric furnace, on account of its non-oxidizing atmosphere; this feature, coupled with the fact that the rest of the mixture is iron ore, which is, of course, the cheapest source of metallic iron, helps to produce a ton of steel ingots at a price much lower than they are produced in regular practice, either in the United States or Canada, figuring the electric power required at its regular market price as sold in large quantities.

Figure No. 1 gives a view of the plant, which is located in Niagara Falls, N.Y., corner 28th Street and Buffalo Avenue.

Figure No. 2 gives a view of the furnace just before starting the plant, which furnace is of the Heroult type of 1,000 horsepower capacity, and is capable of making 4 to 5 tons of steel in one heat.

Figure No. 3 shows the same furnace in operation, and was taken during the making of the twentieth heat.

Figure No. 4 shows the hydraulic tilting mechanism of the furnace, and the back of the furnace in a tilted position while pouring.

Figure No. 5 shows the transformers, which were made by the General Electric Company, and are of 750 k.w. capacity.

Figure No. 6 shows the casting crane with the slag ladle hanging thereon, and a view into the pit, where

the casting was done. (All ingots cast at this plant were bottom poured in groups, and were 6x6 inches square, weighing on an average 500 pounds each.)

Figure No. 7 shows the mixing plant, in which the material was mixed that was charged into the furnace, the ore, granulated pig iron or cast iron borings, and carbon in the form of coke, charcoal or anthracite coal, being put into this plant and thoroughly mixed with a small proportion of slacked lime, the slacked lime being used to keep the material in bond.

The operation of this plant was as follows: A mixture of 67 per cent. of magnetic iron ore, 23 per cent. of cast iron borings or granulated pig iron, 10 per cent. of coke dust was put into the mixing pan in batches of about 500 pounds and allowed to thoroughly mix for 10 or 15 minutes, when about 4 per cent. of the slacked lime was added. After this material was thoroughly mixed and a sufficient quantity had been accumulated, a sufficient amount of the same to make 4 tons of steel was charged into the electric furnace; about 100 pounds of steel scrap was scattered over the top of the same, and a small bar was put into the furnace to form an arc for the electrodes; the electrodes were then lowered into

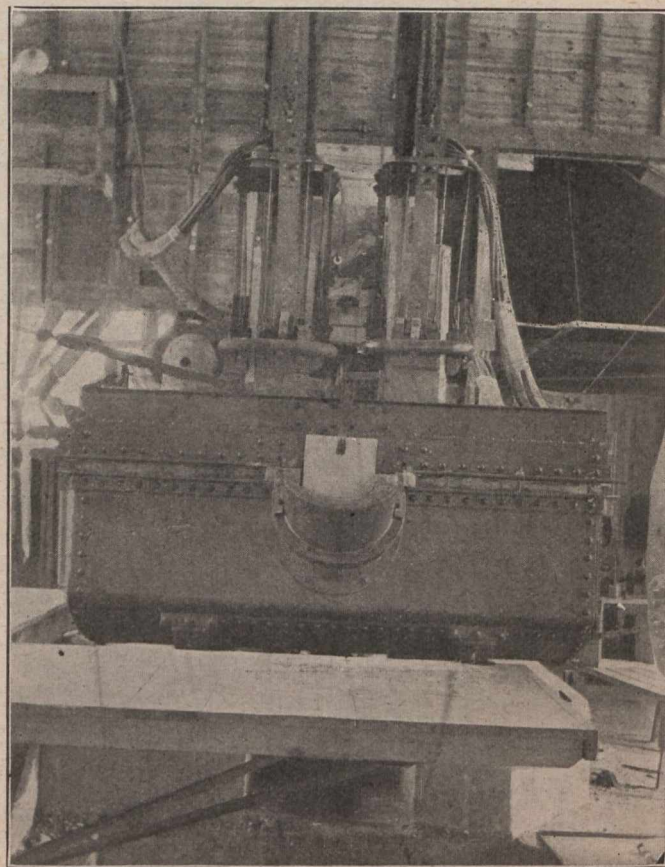


FIG. 2—ELECTRIC FURNACE, 100 H.P. CAPACITY.

position, the current turned on, the furnace closed up tight, and the entire batch of material was melted. After the same was thoroughly melted, the slag was poured off into the slag ladle, and a refining slag put into the furnace for the final refining of the metal; on completion of this operation, the metal was poured into