United States Patent Office.

DAVID P. WEBSTER, OF NEW YORK, N. Y.

Letters Patent No. 76,679, *dated April* 14, 1868.

IMPROVEMENT IN SMELTING LEAD ORES.

The Schedule referred to in these Letters Patent and making part of the same.

TO WHOM IT MAY CONCERN:

Be it known that I, DAVID P. WEBSTER, of New York, in the county of New York, and State of New York, have invented certain new and useful Improvements in Smelting Lead Ores; and I hereby declare the following to be a full, clear, and exact description of the same.

In Letter Patent of the United States, granted to Alexander H. Everett, on the 3d May, 1864, for improvement in smelting lead ores, is described and claimed a process of smelting sulphuretted lead ores, which consists in subjecting the ore, mingled with a certain proportion of refuse scraps of "tin plate," to a heating in a reverberatory furnace, in the manner hereinafter described. I have found by careful experiments that this process is also adapted to the treatment of phosphurets and phosphates of lead, such as are found in the vicinity of Phœnixville, Pennsylvania; and my present invention consists in smelting or in reducing the lead from such ores by the process referred to.

To enable those skilled in the art to understand and use my invention, I will now proceed to describe the manner in which the same is or may be carried into effect.

The furnace employed may be the ordinary reverberatory for smelting lead, and needs, therefore, no particular description.

In treating phosphurets or phosphates of lead by the process referred to, the furnace is first heated to a red heat, and two hundred and fifty (250) pounds of scraps of "tin plate" are then spread evenly over the bed. The doors are next closed for a few minutes, until the scraps have attained a bright red heat, after which they are again opened, and two thousand (2,000) pounds of phosphurets or phosphates of lead, in a pulverized state, are evenly spread over the heated "tin-plate" scraps. When this has been done, the doors of the reverberatory are reclosed, and so remain until the ore has become heated to nearly a dull red heat, when they are again opened, and two hundred and fifty (250) pounds more of the "tin-plate" scraps are carefully and evenly spread over the heated surface of the ore. The doors are reclosed, and the whole mass is brought to a bright red heat. The doors are still kept closed for about fifteen minutes, and care is exercised to keep the heat of the reverberatory at a constant temperature during this time. When the fifteen minutes have expired, the doors are again opened, and the whole mass is raked and well stirred for two or three minutes, while care is exercised to keep the mass at as uniform a thickness as practicable.

The stirring-operation should be repeated every fifteen minutes for about two hours.

At the expiration of two hours the whole mass will have assumed the fluid state, when the whole of the lead will have been reduced. The tap at the side of the reverberatory is then drawn, and the lead is ready to be cast into ingots.

The furnace is next cleared of the slags, and the operation just described repeated.

The advantages attending the use of "tin-plate" scraps in this process have been fully set forth in the patent above named; and need not be recited.

I have named definite proportions of "tin-plate" scraps and phosphurets or phosphates of lead. They have been found in practice to yield the best results, but it is obvious that the proportions may be varied, according to the nature of the ore to be treated. I do not, therefore, confine myself to any particular proportions, but

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

The improved process herein described for smelting or reducing phosphurets or phosphates of lead.

In testimony whereof, I have signed my name to this specification before two subscribing witnesses.

D. P. WEBSTER.

Witnesses:

MARCELLUS BAILY,

A. POLLOK.