

UNITED STATES PATENT OFFICE.

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METHOD OF SMELTING ORES.

No. 913,655.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Original application filed February 18, 1908, Serial No. 416,616. Divided and this application filed October 6, 1908.
Serial No. 456,435.

To all whom it may concern:

Be it known that I, JAMES TAYLOR CARRICK, geologist, subject of the King of Great Britain, residing at the New Club, Johannesburg, Transvaal, have invented new and useful Improvements in Methods of Smelting Ores, of which the following is a specification.

The present invention relates to the smelting of copper or copper nickel or other ores in the reverberatory furnace.

The object of the invention is to avoid the cooling of the furnace which usually occurs during the tapping off of the smelted products, which cooling is injurious to the furnace fabric and causes serious waste of fuel and loss of time by reason of the furnace having to be heated up again to the proper temperature after each tapping.

A further object of the invention is to enable highly infusible and viscous products to be run without choking of the tapping apertures and thus, when desirable, to enable the composition of the smelting products to be varied within wider limits than heretofore. For example where it is desired to retain as much as possible of the iron contents of the ore in an available form, it may be passed into the matte and the acidity of the slag correspondingly increased without danger.

The present application is a division from application Serial No. 416616 filed February 18th, 1908.

According to the present invention the reverberatory furnace in which the smelting

is effected is furnished with a regulating damper in the flue, and with means for injecting gaseous, vaporous or finely comminuted solid fuel, together with the air for the combustion of the same, under pressure. Immediately before and during tapping the additional fuel supply is put into operation and the draft is checked. This prevents the entrance of cold air and causes some flame or heated gases to issue from the tap aperture along with the molten material, thereby maintaining the fluidity of the latter and preventing its freezing about the tap aperture or lowering of the furnace temperature.

What I claim and desire to secure by Letters Patent is:

In ore smelting processes, the step which consists in burning gaseous or finely comminuted solid fuel under pressure in the reverberatory furnace at the time of tapping the smelting products, and simultaneously checking the draft, whereby flame or heated gas is caused to issue with the smelting products and access of cold air during tapping is prevented.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES TAYLOR CARRICK.

Witnesses:

J. WILSON,
WESLEY E. JOHN.