

Title (en)

MICROWAVE HEATING METHOD AND APPARATUS FOR IRON OXIDE REDUCTION

Title (de)

MIKROWELLENERHITZUNGSVERFAHREN UND -VORRICHTUNG FÜR DIE REDUKTION VON EISENOXID

Title (fr)

PROCÉDÉ DE CHAUFFAGE MICRO-ONDES ET APPAREIL DE RÉDUCTION DE L'OXYDE DE FER

Publication

**EP 2089549 A4 20110302 (EN)**

Application

**EP 07839202 A 20071003**

Priority

- US 2007021254 W 20071003
- US 84909806 P 20061003
- US 86567206 P 20061114

Abstract (en)

[origin: WO2008051356A2] A method and apparatus for reducing iron oxides using microwave heating in a furnace chamber which is sealed against the entrance of air reduces the energy required and produces a low temperature reduction and allows the recovery of combustible synthetic gas as a byproduct of the process. Avoidance of the reduction of sulfur, phosphorus and silica is also insured, as is the need to reduce the silica content of the feed material prior to reducing the ore. A continuous rotary hearth furnace, a rotary kiln, a linear conveyor and vertical shaft furnace chamber configurations are described. A secondary heating zone can also be included to process the reduced iron into iron nuggets or liquid metallic iron.

IPC 8 full level

**C21B 11/00** (2006.01)

CPC (source: EP)

**C21B 13/0046** (2013.01); **C21B 13/08** (2013.01); **C21B 13/105** (2013.01); **C21B 13/143** (2013.01); **C21C 5/567** (2013.01); **F27B 7/34** (2013.01); **F27B 9/16** (2013.01); **F27B 9/36** (2013.01); **C21B 2100/42** (2017.04); **C21B 2100/66** (2017.04); **Y02P 10/122** (2015.11); **Y02P 10/134** (2015.11)

Citation (search report)

- [X] WO 0246482 A1 20020613 - TESLA GROUP HOLDINGS PTY LTD [AU], et al
- [XA] WO 8904379 A1 19890518 - WERNER HOWARD KNOX [AU]
- [XI] WO 2005118480 A1 20051215 - ATRAVERDA LTD [GB], et al
- [X] JP 2003183716 A 20030703 - NIPPON STEEL CORP
- See references of WO 2008051356A2

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