

Title (en)

BLAST FURNACE IRREGULARITY ASSESSMENT DEVICE, BLAST FURNACE IRREGULARITY ASSESSMENT METHOD, BLAST FURNACE OPERATION METHOD, AND MOLTEN PIG IRON PRODUCTION METHOD

Title (de)

VORRICHTUNG UND VERFAHREN ZUR BEURTEILUNG DER UNREGELMÄSSIGKEIT EINES HOCHOFENS, VERFAHREN ZUR BEURTEILUNG DES BETRIEBS EINES HOCHOFENS UND VERFAHREN ZUR HERSTELLUNG EINES GESCHMOLZENEN ROHEISENS

Title (fr)

DISPOSITIF D'ÉVALUATION D'IRRÉGULARITÉ DE HAUT FOURNEAU, PROCÉDÉ D'ÉVALUATION D'IRRÉGULARITÉ DE HAUT FOURNEAU, PROCÉDÉ DE FONCTIONNEMENT DE HAUT FOURNEAU ET PROCÉDÉ DE PRODUCTION DE FONTE BRUTE FONDUE

Publication

EP 3985132 A4 20220907 (EN)

Application

EP 20853668 A 20200819

Priority

- JP 2019151653 A 20190822
- JP 2020031287 W 20200819

Abstract (en)

[origin: EP3985132A1] [Object] An object is to provide an anomaly determining apparatus and method capable of detecting not only a state anomaly, but also a premonitory sign of state anomaly in a blast furnace.[Solution] An anomaly determining apparatus 10 detects an anomaly in a blast furnace 1 using a plurality of sensors S1 to Sn installed at different positions of the blast furnace 1. The anomaly determining apparatus 10 includes an evaluation value calculating unit 11 configured to calculate an evaluation value from a plurality of pieces of measurement data D1 to Dn detected by the plurality of sensors S1 to Sn, and an anomaly detecting unit 12 configured to detect an anomaly in the blast furnace 1 on the basis of the evaluation value EV calculated by the evaluation value calculating unit 11 using an anomaly threshold EVref1 and an anomaly premonitory sign threshold EVref2 smaller than the anomaly threshold EVref1. If the evaluation value EV is greater than the anomaly threshold EVref1, the anomaly detecting unit 12 determines that there is an anomaly, and if a period during which the evaluation value EV is greater than the anomaly premonitory sign threshold EVref2 continues for a set period PT or longer, the anomaly detecting unit 12 determines that there is a premonitory sign of anomaly.

IPC 8 full level

C21B 5/00 (2006.01); **C21B 7/24** (2006.01); **F27B 1/28** (2006.01); **F27D 21/00** (2006.01)

CPC (source: CN EP KR)

C21B 5/00 (2013.01 - CN KR); **C21B 5/006** (2013.01 - EP); **C21B 7/24** (2013.01 - CN EP KR); **F27D 21/00** (2013.01 - EP); **F27D 21/0028** (2013.01 - KR); **C21B 2300/04** (2013.01 - EP); **F27D 2021/0007** (2013.01 - EP)

Citation (search report)

- [X] JP 2018009224 A 20180118 - KOBE STEEL LTD
- [XI] JP S63210223 A 19880831 - KOBE STEEL LTD
- [AD] JP 2017128805 A 20170727 - JFE STEEL CORP
- See also references of WO 2021033721A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

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DOCDB simple family (application)

EP 20853668 A 20200819; BR 112022003100 A 20200819; CN 202080058401 A 20200819; JP 2020031287 W 20200819; JP 2021516499 A 20200819; KR 20227005502 A 20200819; TW 109128422 A 20200820