Title (en)

MOLTEN STEEL FLOW-STATE ESTIMATING METHOD AND FLOW-STATE ESTIMATING DEVICE

Title (de)

VERFAHREN ZUR SCHÄTZUNG EINES GESCHMOLZENEN STAHLFLUSSSTATUS UND VORRICHTUNG ZUR SCHÄTZUNG EINES FLUSSSTATUS

Title (fr)

PROCÉDÉ D'ESTIMATION DE L'ÉTAT DE FLUIDITÉ DE L'ACIER FONDU, ET DISPOSITIF D'ESTIMATION DE L'ÉTAT DE FLUIDITÉ

Publication

EP 3167976 A4 20180502 (EN)

Application

EP 15819360 A 20150703

Priority

- JP 2014139302 A 20140707
- JP 2015069338 W 20150703

Abstract (en)

[origin: EP3167976A1] A molten steel fluidity estimation method estimates fluidity of molten steel in a casting mold of a continuous casting machine in such a manner that a CPU 113 calculates, at positions where thermocouples 41 are arranged in the casting mold of the continuous casting machine, an error between temperature distribution of the molten steel that is measured by using the thermocouples 41 and temperature distribution of the molten steel that is calculated by using a physical model; applies an external force in the vicinity of a discharge opening of a nozzle that discharges the molten steel into the casting mold; and calculates the fluidity of the molten steel in a state in which the external force adjusted to compensate the error is applied.

IPC 8 full level

B22D 11/115 (2006.01); **B22D 11/16** (2006.01)

CPC (source: EP KR)

B22D 11/057 (2013.01 - EP); **B22D 11/115** (2013.01 - EP KR); **B22D 11/16** (2013.01 - EP KR); **B22D 11/202** (2013.01 - EP)

Citation (search report)

- [A] EP 1166921 A1 20020102 - NIPPON KOKAN KK [JP]
- [A] WO 2010069306 A2 20100624 - FORSCHUNGSZENTR DD ROSSENDORF [DE], et al
- [A] WO 2012043624 A1 20120405 - JFE STEEL CORP [JP], et al
- See references of WO 2016006559A1

Cited by

US11890671B2

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

DOCDB simple family (publication)

EP 3167976 A1 20170517; **EP 3167976 A4 20180502**; **EP 3167976 B1 20181031**; JP 2016016414 A 20160201; JP 5935837 B2 20160615; KR 101993969 B1 20190627; KR 20170013360 A 20170206; WO 2016006559 A1 20160114

DOCDB simple family (application)

EP 15819360 A 20150703; JP 2014139302 A 20140707; JP 2015069338 W 20150703; KR 20167037070 A 20150703