

Title (en)

RAW MATERIAL CHARGING METHOD FOR BELL-LESS BLAST FURNACE

Title (de)

ROHSTOFFBESCHICKUNGSVERFAHREN FÜR GLOCKENLOSEN HOCHOFEN

Title (fr)

PROCEDE DE CHARGEMENT DE MATIERE BRUTE POUR CREUSET SANS ENTONNOIR DE COULEE

Publication

**EP 1445334 A1 20040811 (EN)**

Application

**EP 03797531 A 20030828**

Priority

- JP 0310907 W 20030828
- JP 2002250738 A 20020829
- JP 2002253432 A 20020830

Abstract (en)

A method for charging material in a bell-less blast furnace comprises the steps of : storing coke in at least one of furnace top bunkers; storing ore in at least one of furnace top bunkers; charging the stored cokes into the blast furnace while rotating a chute of the bell-less charging device and varying a inclination angle thereof; and charging the stored ore while rotating the chute of the bell-less charging device and varying the inclination angle thereof. Discharging of the stored in the at least one furnace top bunkers commences when the discharging amount of the coke stored in the at least furnace top bunker is 5 to 50 mass% relative to a coke amount of one batch. A mixed material of ore and coke is stored in one of furnace top bunkers, and the mixed material stored in the furnace top bunker is charged in the blast furnace while rotating the charging chute and changing a inclination angle of the charging chute. <IMAGE>

IPC 1-7

**C21B 7/20; C21B 5/00**

IPC 8 full level

**C21B 5/00** (2006.01); **C21B 7/20** (2006.01); **F27B 1/20** (2006.01); **F27B 11/00** (2006.01); **F27D 3/10** (2006.01); **F27D 19/00** (2006.01)

CPC (source: EP KR)

**C21B 5/00** (2013.01 - KR); **C21B 5/008** (2013.01 - EP); **C21B 7/20** (2013.01 - EP); **F27B 1/20** (2013.01 - EP); **F27B 11/00** (2013.01 - EP);  
**F27D 3/10** (2013.01 - EP); **F27D 19/00** (2013.01 - EP); **F27D 2019/0068** (2013.01 - EP); **F27M 2001/045** (2013.01 - EP);  
**F27M 2002/12** (2013.01 - EP); **F27M 2003/165** (2013.01 - EP)

Citation (search report)

See references of WO 2004027097A1

Cited by

EP2840152A4; EP2851434A4; EP2851437A4; CN106249724A; EP2851435A4; US11680748B2

Designated contracting state (EPC)

DE FR GB IT NL

DOCDB simple family (publication)

**EP 1445334 A1 20040811**; BR 0306185 A 20041019; BR 0306185 B1 20110823; CN 1596315 A 20050316; CN 1596315 B 20110323;  
KR 100704691 B1 20070410; KR 20040058021 A 20040702; TW 200404898 A 20040401; TW I239355 B 20050911;  
WO 2004027097 A1 20040401

DOCDB simple family (application)

**EP 03797531 A 20030828**; BR 0306185 A 20030828; CN 03801657 A 20030828; JP 0310907 W 20030828; KR 20047007960 A 20030828;  
TW 92123713 A 20030828