

Title (en)

METHOD AND APPARATUS FOR VIBRATING A CONTINUOUS CASTING MOULD FOR METALS

Publication

EP 0403411 B1 19930929 (FR)

Application

EP 90470033 A 19900607

Priority

FR 8907839 A 19890612

Abstract (en)

[origin: EP0403411A1] The invention relates to a method for the continuous casting of metals, of the type according to which ultrasound vibrations are applied to the wall (2) of the casting mould (1), characterised in that the said vibrations comprise, at the same time, a component oriented parallel and a component oriented perpendicularly to the axis of the casting mould. This method is implemented preferably by applying at least one ultrasound emitter (12) against a surface (11) integral with one of the ends of the casting mould (1) and presenting an angle of tilt relative to the axis of the latter. The invention applies principally to the continuous casting of steel products in all formats. <IMAGE>

IPC 1-7

B22D 11/04; B22D 11/06

IPC 8 full level

B22D 11/04 (2006.01); **B22D 11/053** (2006.01); **B22D 11/06** (2006.01); **B22D 11/10** (2006.01); **B22D 11/12** (2006.01); **B22D 11/14** (2006.01); **B22D 11/16** (2006.01)

CPC (source: EP KR US)

B22D 11/04 (2013.01 - KR); **B22D 11/0401** (2013.01 - EP US); **B22D 11/053** (2013.01 - EP US); **B22D 11/06** (2013.01 - KR)

Cited by

AU662854B2; EP0674958A3; FR2747062A1; US6050324A; EP0684098A3; CN1063367C; CN108348993A; WO9737793A1; WO9412300A1; EP4212264A1

Designated contracting state (EPC)

AT BE CH DE DK ES GB GR IT LI LU NL SE

DOCDB simple family (publication)

EP 0403411 A1 19901219; EP 0403411 B1 19930929; AT E95092 T1 19931015; BR 9002745 A 19910820; CA 2018684 A1 19901212; CA 2018684 C 20020910; DE 69003600 D1 19931104; DE 69003600 T2 19940331; DK 0403411 T3 19940207; ES 2044517 T3 19940101; FR 2648063 A1 19901214; FR 2648063 B1 19940318; JP H0366449 A 19910322; JP H0741374 B2 19950510; KR 910000267 A 19910129; KR 970005364 B1 19970415; US 5355935 A 19941018

DOCDB simple family (application)

EP 90470033 A 19900607; AT 90470033 T 19900607; BR 9002745 A 19900611; CA 2018684 A 19900611; DE 69003600 T 19900607; DK 90470033 T 19900607; ES 90470033 T 19900607; FR 8907839 A 19890612; JP 15381990 A 19900612; KR 900008538 A 19900611; US 2117893 A 19930222