

Title (en)  
METHOD AND APPARATUS FOR MAKING METAL ALLOY CASTINGS

Title (de)  
VERFAHREN UND VORRICHTUNG ZUR HERSTELLUNG VON METALL-LEGIERUNGS-GUSSTEILEN

Title (fr)  
PROCEDE ET APPAREIL DE PRODUCTION DE PIECES COULEES D'ALLIAGE

Publication  
**EP 1307308 B1 20041208 (EN)**

Application  
**EP 01960880 A 20010809**

Priority  

- GB 0103596 W 20010809
- GB 0019856 A 20000811
- GB 0019855 A 20000811
- GB 0118289 A 20010726

Abstract (en)  
[origin: US2004089437A1] A method and apparatus are provided for fabricating of continuous castings with fine and uniform microstructure, which can be used as feedstock for secondary processing routes, such as thixoforming, forging and machining or direct application in industry. An overheated liquid alloy is fed into a high shear device (for example, a twin-screw extruder) and sheared intensively to produce a sheared liquid alloy or a semisolid slurry, wherein the sheared liquid alloy is at a temperature close to its liquidus and the semisolid slurry is then transferred to a shaping device for production of continuous castings with fine and uniform microstructures through a solidification process. The shaping device is any device capable of forming continuous (i.e. infinite length) products, such as a direct chill (DC) caster (DC rheocasting) for production of continuous billets, an extrusion die (rheo-extrusion) for production of continuous bars or wires, or a twin-roll caster (twin-roll rheocasting) for producing of continuous strips. In all those cases, the cross-section of the continuous castings exhibits a microstructure in which a controlled volume fraction of fine and spherical primary particles are uniformly distributed in a fine structured matrix.

IPC 1-7  
**B22D 11/112**; **B22D 11/06**

IPC 8 full level  
**B22D 11/00** (2006.01); **B22D 11/06** (2006.01); **B22D 11/112** (2006.01); **B22D 17/00** (2006.01)

CPC (source: EP US)  
**B22D 11/00** (2013.01 - EP US); **B22D 11/0622** (2013.01 - EP US); **B22D 11/112** (2013.01 - EP US); **B22D 17/007** (2013.01 - EP US)

Cited by  
CN112371868A

Designated contracting state (EPC)  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)  
**WO 0213993 A1 20020221**; AT E284285 T1 20041215; AU 2001282273 B2 20060330; AU 8227301 A 20020225; CA 2417822 A1 20020221; CA 2417822 C 20090915; CN 1265915 C 20060726; CN 1446134 A 20031001; DE 60107690 D1 20050113; DE 60107690 T2 20051215; EP 1307308 A1 20030507; EP 1307308 B1 20041208; US 2004089437 A1 20040513

DOCDB simple family (application)  
**GB 0103596 W 20010809**; AT 01960880 T 20010809; AU 2001282273 A 20010809; AU 8227301 A 20010809; CA 2417822 A 20010809; CN 01814031 A 20010809; DE 60107690 T 20010809; EP 01960880 A 20010809; US 34420903 A 20030627