

Title (en)
METHOD FOR MANUFACTURING SUPER-REFRACTORY NICKEL-BASED ALLOY AND SUPER-REFRACTORY NICKEL-BASED ALLOY

Title (de)
VERFAHREN ZUR HERSTELLUNG EINER HOCHFEUERFESTEN LEGIERUNG AUF NICKELBASIS UND HOCHFEUERFESTE LEGIERUNG AUF NICKELBASIS

Title (fr)
PROCÉDÉ DE FABRICATION D'UN ALLIAGE À BASE DE NICKEL SUPER-RÉFRACTAIRE ET ALLIAGE À BASE DE NICKEL SUPER RÉFRACTAIRE

Publication
EP 3772544 A4 20211208 (EN)

Application
EP 19764769 A 20190225

Priority
• JP 2018039400 A 20180306
• JP 2019006991 W 20190225

Abstract (en)
[origin: US2020377987A1] A method for manufacturing a super-refractory nickel-based alloy with a constituent composition such that the gamma-prime average precipitation quantity at 700° C. is at least 35 mol % includes a preparation step in which a material with a crystal grain diameter of 200 µm or less is manufactured by hot extrusion and a processing step in which this material is subjected to cold plastic processing with a processing rate of at least 30%. The cold plastic processing can be performed a plurality of times with a cumulative processing rate of at least 30%, and heat treatment is not performed between instances of cold plastic processing. The super-refractory nickel-based alloy can have a linear organization of a gamma phase and a gamma-prime phase or can include a carbide aggregated in an isometric crystal organization that includes a gamma phase and a gamma-prime phase.

IPC 8 full level
C22F 1/10 (2006.01); **B21C 23/00** (2006.01); **B21C 37/04** (2006.01); **C22C 1/02** (2006.01); **C22C 19/05** (2006.01); **C22F 1/00** (2006.01)

CPC (source: EP US)
B21C 23/001 (2013.01 - EP); **B21C 23/002** (2013.01 - EP); **B21C 37/04** (2013.01 - EP); **B21C 37/045** (2013.01 - EP); **C22C 1/023** (2013.01 - EP); **C22C 19/056** (2013.01 - EP US); **C22C 19/057** (2013.01 - EP US); **C22F 1/10** (2013.01 - EP US)

Citation (search report)
• [X] US 3639179 A 19720201 - REICHMAN STEVEN H, et al
• [X] US 4481047 A 19841106 - WINFREE JULES P [US], et al
• [XY] EP 3023509 A1 20160525 - MITSUBISHI HITACHI POWER SYS [JP]
• [XY] JP 2015187304 A 20151029 - SEIKO INSTR INC, et al
• [XI] US 5413752 A 19950509 - KISSINGER ROBERT D [US], et al
• [X] US 4957567 A 19900918 - KRUEGER DANIEL D [US], et al
• [Y] EP 3287209 A1 20180228 - HITACHI METALS LTD [JP]
• [XP] WO 2018155446 A1 20180830 - HITACHI METALS LTD [JP] & EP 3587606 A1 20200101 - HITACHI METALS LTD [JP]
• See references of WO 2019172000A1

Designated contracting state (EPC)
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US 2020377987 A1 20201203; CN 111868287 A 20201030; EP 3772544 A1 20210210; EP 3772544 A4 20211208; JP 2019218632 A 20191226; JP 6610846 B1 20191127; JP 6889418 B2 20210618; JP WO2019172000 A1 20200416; WO 2019172000 A1 20190912

DOCDB simple family (application)
US 201916970498 A 20190225; CN 201980017214 A 20190225; EP 19764769 A 20190225; JP 2019006991 W 20190225; JP 2019146634 A 20190808; JP 2019538269 A 20190225