

Title (en)

DIE FOR FORGING ROTOR MATERIAL AND METHOD FOR FORGING ROTOR MATERIAL

Title (de)

GESENK ZUM SCHMIEDEN VON ROTORMATERIAL UND VERFAHREN ZUM SCHMIEDEN VON ROTORMATERIAL

Title (fr)

EMPREINTE ET PROCÉDÉ DE FORGEAGE D UN MATÉRIAU POUR ROTOR

Publication

**EP 2306025 B1 20180808 (EN)**

Application

**EP 09770179 A 20090624**

Priority

- JP 2009061467 W 20090624
- JP 2008164327 A 20080624
- JP 2009044372 A 20090226

Abstract (en)

[origin: EP2306025A1] To produce a rotor material efficiently. The present invention is directed to a die assembly having a lower die 10 and an upper die 30 for applying forming loads and configured to forge a cylindrical columnar rotor material having a center hole 3 and a vane groove 4. The lower die 10 has a vane groove forming vane portion 13 protruded in a forming hole, and a center hole forming center pin 16 to be arranged in a center of the forming hole. The upper die 30 has an upper die body 31 for applying a main load to portions other than the center pin 16 and the vane portion 13 of the lower die 10, a back-pressure pin 40 fitted in a center pin corresponding hole 35 formed in the upper die body 31 in an advanceable and retractable manner, the back-pressure pin being configured to apply a first sub-load to the center pin 16, and a back-pressure plate 41 fitted in a vane portion corresponding hole 36 formed in the upper die body 31 in an advanceable and retractable manner, the back-pressure plate being configured to apply a second sub-load to the vane portion 13. A tip end face of the vane portion is arranged so as to coincide with or distance from an opening face of the vane portion corresponding hole 36 at the time of die matching.

IPC 8 full level

**F04C 18/344** (2006.01); **B21J 5/00** (2006.01); **B21J 5/02** (2006.01); **B21K 3/00** (2006.01); **B23P 15/00** (2006.01); **F01C 21/08** (2006.01); **F04C 2/344** (2006.01); **F04C 29/00** (2006.01)

CPC (source: EP)

**B21J 5/02** (2013.01); **B21K 3/00** (2013.01); **F01C 21/08** (2013.01); **F04C 2/344** (2013.01); **F04C 2230/10** (2013.01); **F04C 2230/25** (2013.01); **F04C 2240/20** (2013.01)

Designated contracting state (EPC)

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 SE SI SK TR

DOCDB simple family (publication)

**EP 2306025 A1 20110406**; **EP 2306025 A4 20121121**; **EP 2306025 B1 20180808**; CN 102076964 A 20110525; CN 102076964 B 20140226; JP 5468541 B2 20140409; JP WO2009157469 A1 20111215; KR 101627878 B1 20160607; KR 20110027709 A 20110316; MY 153554 A 20150227; PT 2306025 T 20181115; WO 2009157469 A1 20091230

DOCDB simple family (application)

**EP 09770179 A 20090624**; CN 200980124304 A 20090624; JP 2009061467 W 20090624; JP 2010518032 A 20090624; KR 20107028951 A 20090624; MY PI20105881 A 20090624; PT 09770179 T 20090624