

Title (en)  
FORGING METHOD FOR PRODUCING A PISTON OR PISTON SHAFT

Title (de)  
SCHMIEDEVERFAHREN ZUR HERSTELLUNG EINES KOLBENS BZW. KOLBENSCHAFTS

Title (fr)  
PROCÉDÉ DE FORGEAGE POUR LA FABRICATION D'UN PISTON OU D'UNE JUPE DE PISTON

Publication  
**EP 2723516 B1 20160720 (DE)**

Application  
**EP 12730876 A 20120620**

Priority  
• DE 102011078145 A 20110627  
• EP 2012061827 W 20120620

Abstract (en)  
[origin: WO2013000789A1] The invention relates to a forging method for producing a piston or piston shaft (1) that has two shaft walls (2) and two box walls (3) that connect the shaft walls (2), wherein - using a first forging die (5), the shaft walls (2) are forged at least slightly conically outwards and the box walls (3) are forged with a hub inner face (7) that is substantially parallel or slightly slanted outwards with respect to the piston axis (6) and with a hub outer face (8) that points at least slightly inwards towards the free end, - using a second forging die (9), the box walls (3) are shaped such that the box wall hub outer face (8) runs substantially parallel with respect to the piston axis (6) or outwards in a slanted manner and the box wall hub inner face (7) run outwards towards the free end, and - while the box walls (3) are being shaped by means of the second forging die (9), the shaft walls (2) are simultaneously drawn into a position that is approximately parallel with respect to the piston axis (6). In this manner, the piston shaft (1) can be produced in a comparatively inexpensive and weight-optimized manner.

IPC 8 full level  
**B21K 1/18** (2006.01); **F02F 3/00** (2006.01)

CPC (source: EP KR US)  
**B21K 1/18** (2013.01 - EP KR US); **F02F 3/00** (2013.01 - KR); **F02F 3/00** (2013.01 - EP US); **F02F 2200/04** (2013.01 - EP US); **Y10T 29/49249** (2015.01 - EP US)

Designated contracting state (EPC)  
AL 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 RS SE SI SK SM TR

DOCDB simple family (publication)  
**DE 102011078145 A1 20121227; DE 102011078145 A8 20130307**; BR 112013032612 A2 20170124; CN 103596711 A 20140219; CN 103596711 B 20160831; EP 2723516 A1 20140430; EP 2723516 B1 20160720; JP 2014519987 A 20140821; JP 5982477 B2 20160831; KR 20140048152 A 20140423; US 2013036608 A1 20130214; US 8904634 B2 20141209; WO 2013000789 A1 20130103

DOCDB simple family (application)  
**DE 102011078145 A 20110627**; BR 112013032612 A 20120620; CN 201280027439 A 20120620; EP 12730876 A 20120620; EP 2012061827 W 20120620; JP 2014517600 A 20120620; KR 20137034471 A 20120620; US 201213533604 A 20120626