

Title (en)

METHOD OF FORMING PRECURSOR INTO A TI ALLOY ARTICLE

Title (de)

VERFAHREN ZUR VERARBEITUNG EINES VORPRODUKTS EINER TI-LEGIERUNG ZU EINEM ARTIKEL

Title (fr)

PROCÉDÉ DE FABRICATION D'UN ARTICLE EN ALLIAGE DE TI

Publication

**EP 3878997 A1 20210915 (EN)**

Application

**EP 20275056 A 20200311**

Priority

EP 20275056 A 20200311

Abstract (en)

A method of thermomechanically forming, for example forging, rolling, extruding or drawing, an article from a precursor thereof, is described. The method comprises: providing the precursor, for example an ingot, a forging stock, a forging, a bar, a billet or a plate, comprising, substantially comprising, essentially comprising and/or consisting of an  $\alpha + \beta$  Ti alloy having a beta transus temperature  $\beta_{\text{transus}}$ , wherein the precursor defines a set of portions including a first portion; and thermomechanically forming the article from the precursor by heating the first portion and deforming the heated first portion by a total true strain  $\epsilon_{1,\text{total}}$ , wherein the total true strain  $\epsilon_{1,\text{total}}$  is greater than a predetermined threshold true strain  $\epsilon_{\text{threshold}}$ ; wherein thermomechanically forming the article from the precursor comprises i iterations of: (a) heating the first portion to a temperature  $T_i$  during a time  $t_i$ , wherein the temperature  $T_i$  is at most the beta transus temperature  $\beta_{\text{transus}}$ ; (b) deforming the heated first portion by a true strain  $\epsilon_{1,i}$ , wherein the true strain  $\epsilon_{1,i}$  is at most the predetermined threshold true strain  $\epsilon_{\text{threshold}}$ ; and (c) repeating steps (a) and (b) until the cumulative true strain  $\epsilon_{1,\text{cumulative}} = \sum \epsilon_{1,i}$  is the total true strain  $\epsilon_{1,\text{total}}$ , wherein i is a natural number greater than or equal to 2.

IPC 8 full level

**C22F 1/18** (2006.01)

CPC (source: EP)

**C22F 1/183** (2013.01)

Citation (search report)

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- [X] EP 2596143 A1 20130529 - ATI PROPERTIES INC [US]
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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

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