



- (51) International Patent Classification:
C22F 1/00 (2006.01)
- (21) International Application Number:
PCT/US2014/018846
- (22) International Filing Date:
27 February 2014 (27.02.2014)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
13/843,748 15 March 2013 (15.03.2013) US
- (71) Applicant: **ATI PROPERTIES, INC.** [US/US]; 1600
N.E. Old Salem Road, Albany, Oregon 97321 (US).
- (72) Inventors: **VAN DOREN, Brian**; 3819 Firwood Circle
SE, Albany, Oregon 97322 (US). **SCHLEGEL, Scott**;
2586 NW Orchard Heights Avenue, Albany, Oregon 97321
(US). **WISSMAN, Joseph**; 2505 Slate Drive, Huntsville,
Alabama 35803 (US).
- (74) Agents: **GROSSELIN, John E., III** et al.; 1000 Six PPG
Place, Pittsburgh, Pennsylvania 15222 (US).
- (81) Designated States (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,

HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR,
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM,
ZW.

- (84) Designated States (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a
patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the
earlier application (Rule 4.17(iii))*

Published:

- *without international search report and to be republished
upon receipt of that report (Rule 48.2(g))*

(54) Title: THERMO-MECHANICAL PROCESSING OF NICKEL-TITANIUM ALLOYS

(57) Abstract: Processes for the production of nickel-titanium mill products are disclosed. A nickel-titanium alloy workpiece is cold worked at a temperature less than 500 C. The cold worked nickel-titanium alloy workpiece is hot isostatic pressed (HIP'ed).



WO 2014/189580 A2