

(12) International Application Status Report

Received at International Bureau: 22 March 2012 (22.03.2012)

Information valid as of: 31 July 2012 (31.07.2012)

Report generated on: 16 October 2012 (16.10.2012)

(10) Publication number:

WO2012/110717

(43) Publication date:

23 August 2012 (23.08.2012)

(26) Publication language:

French (FR)

(21) Application Number:

PCT/FR2012/000061

(22) Filing Date:

16 February 2012 (16.02.2012)

(25) Filing language:

French (FR)

(31) Priority number(s):

11/00505 (FR)

(31) Priority date(s):

18 February 2011 (18.02.2011)

(31) Priority status:

Priority document received (in compliance with PCT Rule 17.1)

61/444,274 (US)

18 February 2011 (18.02.2011)

Priority document received (in compliance with PCT Rule 17.1)

(51) International Patent Classification:

C22C 21/00 (2006.01); **C22B 9/02** (2006.01); **C22F 1/04** (2006.01); **B22D 1/00** (2006.01)

(71) Applicant(s):

CONSTELLIUM FRANCE [FR/FR]; 40-44 Rue Washington F-75008 Paris (FR) *(for all designated states except US)*
JARRY, Philippe [FR/FR]; 22, Quai Perrière F-38000 Grenoble (FR) *(for US only)*

(72) Inventor(s):

JARRY, Philippe; 22, Quai Perrière F-38000 Grenoble (FR)

(74) Agent(s):

BUTRUILLÉ, Jean-Rémi; Constellium CRV 725, Rue Aristide Bergès BP 27 F-38341 Voreppe (FR)

(54) Title (EN): SEMI-FINISHED PRODUCT MADE OF ALUMINIUM ALLOY HAVING IMPROVED MICROPOROSITY AND MANUFACTURING PROCESS

(54) Title (FR): DEMI-PRODUIT EN ALLIAGE D'ALUMINIUM À MICROPOROSITÉ AMÉLIORÉE ET PROCÉDÉ DE FABRICATION

(57) Abstract:

(EN): The invention relates to a manufacturing process that makes it possible to obtain an unwrought semi-finished product having at mid-thickness a density of micropores having a size greater than 90 µm of less than 50% and preferably of less than 20% of the density of micropores having a size greater than 90 µm obtained by a process according to the prior art. The process according to the invention comprises, in particular, an ultrasound-treatment step of the bath of liquid metal in a furnace and/or in a cell using a submerged device comprising at least one ultrasound emitter. The semi-finished products obtained by the process according to the invention are particularly advantageous for the manufacture, by rolling, of sheets intended for the aeronautical industry for the production of longerons, ribs, lower surfaces and upper surfaces and for the manufacture, by extrusion, of sections intended for the aeronautical industry for the production of stiffeners.

(FR): L'invention concerne un procédé de fabrication permettant d'obtenir un demi -produit non corroyé présentant à mi-épaisseur une densité de micropores de dimension supérieure à 90 µm inférieure à 50 % et de préférence inférieure à 20% de la densité de micropores de dimension supérieure à 90 µm obtenue par un procédé selon l'art antérieur. Le procédé selon l'invention comporte notamment une étape de traitement par ultrasons du bain de métal liquide dans un four et/ou dans une cuve à l'aide d'un dispositif immergé comportant au moins un émetteur d'ultrasons. Les demi-produits obtenus par le procédé selon l'invention sont particulièrement avantageux pour la fabrication par laminage de tôles destinées à l'industrie aéronautique pour la réalisation de longerons, de nervures, d'intrados et d'extrados et pour la fabrication par filage de profilés destinés à l'industrie aéronautique pour la réalisation de raidisseurs.

International search report:

International Report on Patentability (IPRP) Chapter II of the PCT:

Not available

(81) Designated States:

AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, 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, IS, JP, KE, KG, KM, 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, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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

European Patent Office (EPO) : 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

African Intellectual Property Organization (OAPI) : BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

African Regional Intellectual Property Organization (ARIPO) : BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW

Eurasian Patent Organization (EAPO) : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

Declarations:

Declaration made as applicant's entitlement, as at the international filing date, to claim the priority of the earlier application, where the applicant is not the applicant who filed the earlier application or where the applicant's name has changed since the filing of the earlier application (Rules 4.17(iii) and 51bis.1(a)(iii))

Declaration of inventorship (Rules 4.17(iv) and 51bis.1(a)(iv)) for the purposes of the designation of the United States of America