



(51) International Patent Classification:
B01J 2/04 (2006.01)

(21) International Application Number:
PCT/CA2015/050923

(22) International Filing Date:
21 September 2015 (21.09.2015)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
62/053,170 21 September 2014 (21.09.2014) US

(71) Applicant: **HATCH LTD.** [CA/CA]; 2800 Speakman Drive, Mississauga, Ontario L5K 2R7 (CA).

(72) Inventors: **FAUCHER, Santiago**; 219 Elderwood Trail, Oakville, Ontario L6H 5W2 (CA). **MOSTAGHEL, Sina**; 231 Fort York Boulevard, #1903, Toronto, Ontario M5V 1B2 (CA). **SO, Lai Chi**; 30 Glencoyne Crescent, Toronto, Ontario M1W 2Z2 (CA). **CRAMER, Matthew**; 247 Jelinik Terrace, Milton, Ontario L9T 7M7 (CA).

(74) Agent: **RIDOUT & MAYBEE LLP**; 250 University Avenue, 5th Floor, Toronto, Ontario M5H 3E5 (CA).

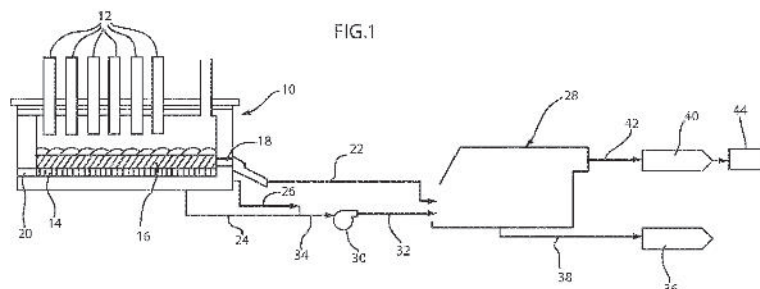
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AF, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BI, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GI, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, 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, ST, 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).

Published:

— with international search report (Art. 21(3))

(54) Title: GAS ATOMIZATION OF MOLTEN MATERIALS USING BY-PRODUCT OFF-GASES



(57) Abstract: Metallurgical processes and systems for gas atomization of molten slag and/or molten metals from a metallurgical furnace are integrated with off-gas handling processes and equipment, such that the off-gases are fed to the gas atomization plant for atomizing the molten slag and/or molten metal. The use of by-product off-gases for atomizing molten slag and/or molten metals provides a number of benefits, including elimination of off-gas handling and treatment equipment, centralization and upgrading of heat via atomization to improve heat recovery, prevention of oxidation of granular products of atomization, and reduction of CO₂ emissions. A process for preparing a granular product comprises: feeding a molten material and a by-product off-gas to a dispersion apparatus; and contacting the gas with the molten material in the dispersion apparatus, whereby the molten material is dispersed and solidified by contact with the gas to form the granular product.