



(51) International Patent Classification:

C30B 15/00 (2006.01) *C30B 29/06* (2006.01)
C30B 15/20 (2006.01) *H01L 31/18* (2006.01)
C30B 15/26 (2006.01)

49 Old Laxfield Road, Shrewsbury, MA 01545 (US). **YA-MARTINO, Stephen** [US/US]; 12 Davelin Road, Wayland, MA 01778 (US).

(21) International Application Number:

PCT/US2011/054175

(74) Agents: **SUNSTEIN, Bruce, D.** et al.; Sunstein Kann Murphy & Timbers LLP, 125 Summer Street, Boston, MA 02110-1618 (US).

(22) International Filing Date:

30 September 2011 (30.09.2011)

(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, 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.

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/388,924 1 October 2010 (01.10.2010) US

(71) Applicant (for all designated States except US): **EVER-GREEN SOLAR, INC.** [US/US]; 138 Bartlett Street, Northborough, MA 01752 (US).

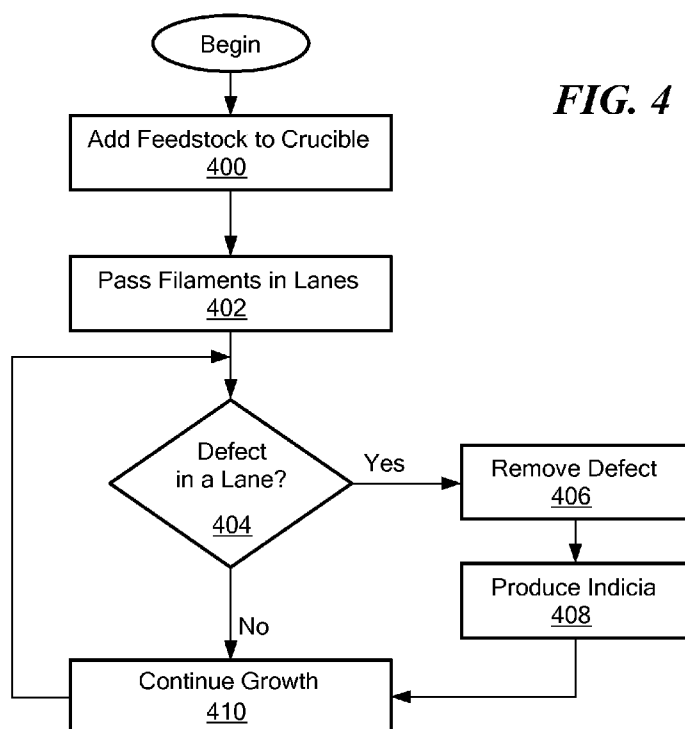
(72) Inventors; and

(75) Inventors/Applicants (for US only): **VAN GLABBEEK, Leo** [NL/US]; 8 Pearly Lane, Franklin, MA 02038 (US). **SIMPSON, JR., Gerald A.** [US/US]; 10 Eddy Street, Auburn, MA 01501 (US). **HAMMA, Soumana** [NE/US];

(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, MD,

[Continued on next page]

(54) Title: SHEET WAFER DEFECT MITIGATION



(57) Abstract: A method of forming a sheet wafer melts feedstock material in a crucible that is part of a crystal growth furnace, and passes a plurality of filaments through the crucible to form a (un-separated) sheet wafers. A plurality of sheet wafers may be formed in different lanes in the crucible. One or more vision systems is used, during growth, to determine if a sheet wafer has a defective condition. If a defect is detected, then any of a variety of corrective actions may be taken, such as activating a cutting device to remove at least a portion of the sheet wafer, assessing the defect and grading a portion of the sheet wafer (e.g., for sorting based on grade), and/or producing an indicia. In a multiple-lane embodiment, a defect may be attended to in one lane while sheet growth continues in one or more other lanes.



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, ML, MR, NE, SN, TD, TG).

Published:

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