

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
17 July 2025 (17.07.2025)



(10) International Publication Number
WO 2025/149561 A1

(51) International Patent Classification:

B23K 26/082 (2014.01) *B23K 26/70* (2014.01)
B23K 26/146 (2014.01) *H01L 21/78* (2006.01)
B23K 26/38 (2014.01) *B23K 103/00* (2006.01)
B23K 26/402 (2014.01)

(21) International Application Number:

PCT/EP2025/050410

(22) International Filing Date:

09 January 2025 (09.01.2025)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2400467.3 12 January 2024 (12.01.2024) GB

(71) Applicant: **AQUALASE LIMITED** [GB/GB]; Crown House, 27 Old Gloucester Street, London, WC1N 3AX (GB).

(72) Inventors: **RABANI, Amir**; Flat 1602, Gooch House, 2 Telcon Way, LONDON Greater London SE10 0XL (GB).
BUTLER-SMITH, Paul William; Pine Ridge Pound

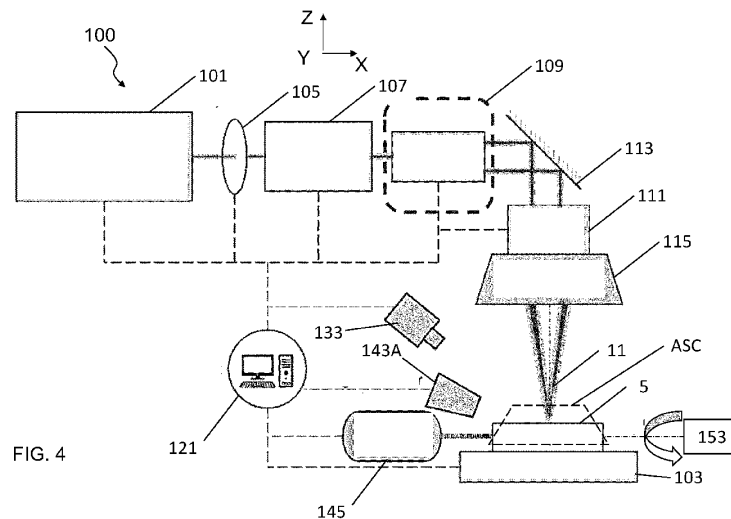
Lane, Knockholt, SEVENOAKS Kent TN14 7NE (GB).
NASROLLAHI, Vahid; 24 York Street, Harborne, Birmingham West Midlands B17 0HG (GB).

(74) Agent: **BALDWIN, Mark**; Firebird IP, 27 Old Gloucester Street, London WC1N 3AX (GB).

(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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, MG, MK, MN, MU, 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, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UY, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ,

(54) Title: LASER DRILLING AND CUTTING METHOD AND APPARATUS



(57) Abstract: The present disclosure relates to a method for processing a wafer (5) using a laser beam (11). The method comprises cutting a surface of the wafer (5) with the laser beam (11). The wafer (5) is cooled during the or each cutting operation to reduce thermal loads. The present disclosure also relates to corresponding control unit and cutting apparatus (100) for cutting a wafer (5).

[Continued on next page]

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, ME, 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))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*
- *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*