

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

(19) World Intellectual Property Organization
International Bureau



G00002



(43) International Publication Date
19 September 2002 (19.09.2002)

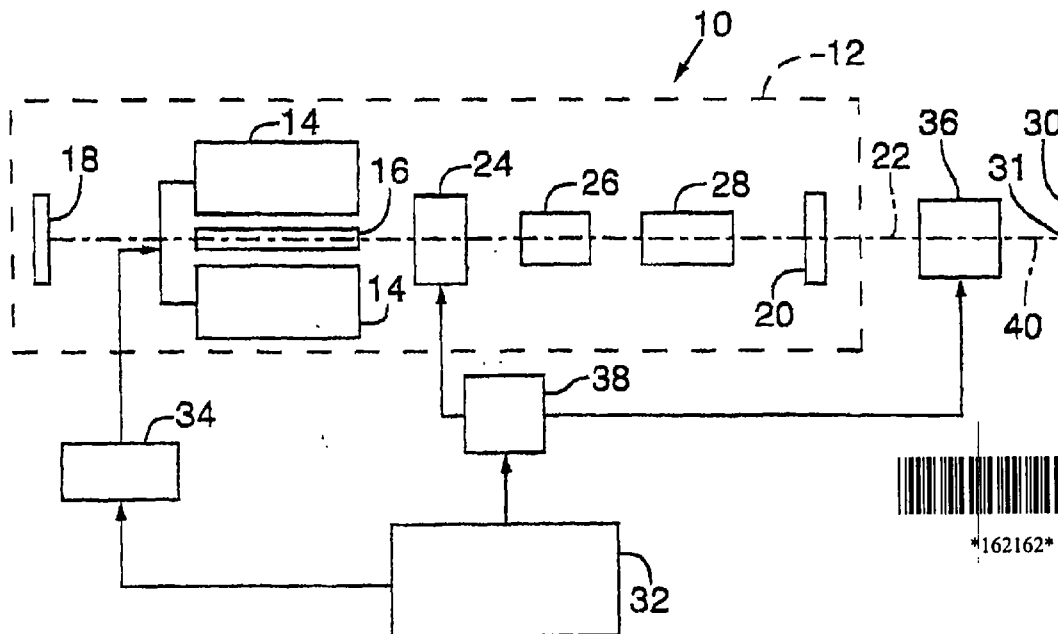
PCT

(10) International Publication Number
WO 02/073322 A1

- (51) International Patent Classification⁷: **G05B 15/00**, G06F 19/00, B23K 26/00 (74) Agent: LEVINE, Michael, L.; Stoel Rives LLP, 900 SW Fifth Avenue, Suite 2600, Portland, OR 97204-1268 (US).
- (21) International Application Number: PCT/US02/07486 (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 12 March 2002 (12.03.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/275,246 12 March 2001 (12.03.2001) US
- (71) Applicants (*for all designated States except US*): **ELECTRO SCIENTIFIC INDUSTRIES, INC.** [US/US]; 13900 NW Science Park Drive, Portland, OR 97229-5497 (US). **HARRIS, Richard, S.** [US/US]; 16155 NW Canterwood Way, Portland, OR 97229 (US).
- (72) Inventor; and
- (75) Inventor/Applicant (*for US only*): **SUN, Yunlong** [US/US]; 7679 SW 194th Terrace, Beaverton, OR 97007 (US).
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
— with amended claims

[Continued on next page]

(54) Title: QUASI-CW DIODE-PUMPED, SOLID-STATE UV LASER SYSTEM AND METHOD EMPLOYING SAME



162162

(57) Abstract: A quasi-CW diode- or lamp-pumped, A-O Q-switched solid-state UV laser system (10) synchronizes timing of the quasi-CW pumping with movement of the positioning system (36) to reduce pumping while the positioning system (36) is moving from one target area (31) to the next target area (31) to form multiple vias in a substrate at a high throughput. Thus, the available UV power for via formation is higher even though the average pumping power to the laser medium (16), and thermal loading of the laser pumping diodes (14), remains the same as that currently available through conventional CW pumping with conventionally available laser pumping diodes (14). The quasi-CW pumping current profile can be further modified to realize a preferred UV pulse amplitude profile.

WO 02/073322 A1



Date of publication of the amended claims: 20 February 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.