

(19) World Intellectual Property Organization
International Bureau



162162

(43) International Publication Date
17 January 2002 (17.01.2002)

PCT

(10) International Publication Number
WO 02/05345 A1

(51) International Patent Classification⁷: **H01L 21/768**,
B23K 26/04, 26/06

[US/US], 18250 S Clark Lane, Oregon City, OR 97045
(US) **NILSEN, Brady** [US/US], 14245 S W Walker #13,
Beaverton, OR 97005 (US). **LO, Ho, W.** [US/US], 14275
N W Whistler Lane, Portland, OR 97229 (US)

(21) International Application Number: PCT/US01/21851

(22) International Filing Date: 11 July 2001 (11 07 2001)

(74) Agent: **LEVINE, Michael, L.**, Steel Rives LLP, Suite
2600, 900 S W Fifth Avenue, Portland, OR 97204-1268
(US)

(25) Filing Language: English

(26) Publication Language: English

(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, PL, PT, RO, RU, SD, SE, SG, SI, SK,
SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA,
ZW

(30) Priority Data:
60/217,746 12 July 2000 (12 07 2000) US

(71) Applicant (*for all designated States except US*): **ELEC-
TRO SCIENTIFIC INDUSTRIES, INC.** [US/US].
13900 N W Science Park Drive, Portland, OR 97229-5497
(US)

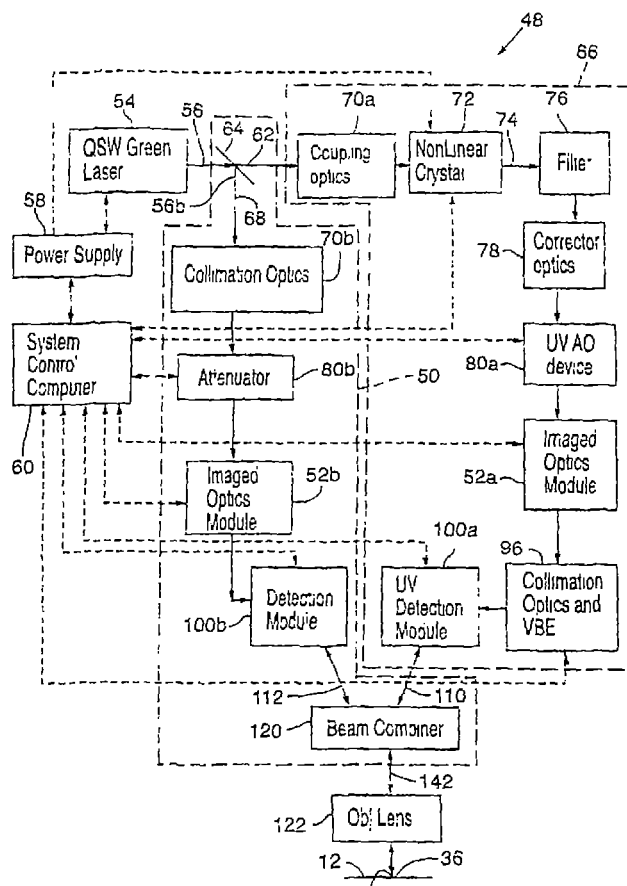
(72) Inventors; and

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW). Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European

(75) Inventors/Applicants (*for US only*): **BAIRD, Brian, W.**

[Continued on next page]

4) Title: UV LASER SYSTEM AND METHOD FOR SINGLE PULSE SEVERING OF IC FUSES



(57) Abstract: A Q-switched, diode-pumped, solid-state (DPSS) laser (54) employs harmonic generation through nonlinear crystals (72) to generate UV light (74) for both link processing and target alignment. The type and geometry of the nonlinear crystals (72) are selected, and their temperatures are precisely controlled, to produce focused spot sizes with excellent beam quality for severing of IC fuses. A fraction of the laser output (56) can be utilized in a secondary target alignment system (50). An imaging optics module (52) may be employed to further enhance the shape quality of either or both of the secondary and primary beams. Each beam passes through a detection module (100) that measures the incident and reflected light. The two beams pass through a common combiner to facilitate calibration and alignment of the beams and subsequent link processing.

WO 02/05345 A1



patent (AL, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IL, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

Published:

— with international search report

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