



(51) International Patent Classification:
B23K 26/062 (2014.01) *B23K 26/08* (2006.01)

(21) International Application Number:
PCT/US2022/016320

(22) International Filing Date:
14 February 2022 (14.02.2022)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
63/157,229 05 March 2021 (05.03.2021) US

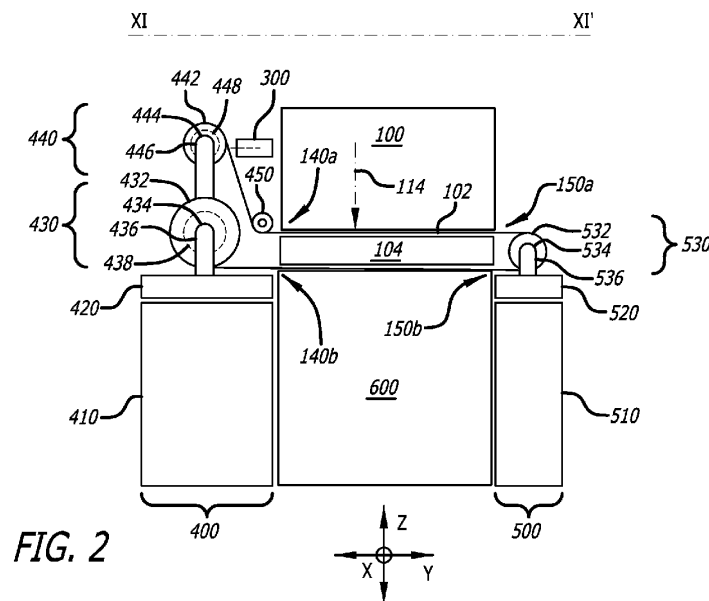
(71) Applicant: **ELECTRO SCIENTIFIC INDUSTRIES, INC.** [US/US]; 14523 SW Millikan Way, Beaverton, OR 97005 (US).

(72) Inventors: **NEUFELD, Corie**; 14523 SW Millikan Way, Beaverton, OR 97005 (US). **KOSMOWSKI, Mark**; 14523 SW Millikan Way, Beaverton, OR 97005 (US). **UNRATH, Mark**; 14523 SW Millikan Way, Beaverton, OR 97005 (US).

(74) Agent: **TRASK, Edward, Scott**; 1791 Deere Avenue, Irvine, CA 92606 (US).

(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, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, 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, ST, SV, SY, TH, TJ, TM,

(54) Title: LASER-PROCESSING APPARATUS, METHODS OF OPERATING THE SAME, AND METHODS OF PROCESSING WORKPIECES USING THE SAME



(57) Abstract: Numerous embodiments are disclosed. In one, a laser-processing apparatus includes a workpiece handling system having an unwind assembly including an unwind spindle operative to support an unwind material roll of a workpiece, and a rewind assembly including a rewind spindle operative to support a rewind material roll of the workpiece and receive the workpiece from the laser-processing apparatus. In another, a laser-processing apparatus includes a workpiece handling system having a web handling assembly attached to an upper structure configured to support an unwind spindle supporting an unwind material roll of a workpiece, wherein the web handling assembly is positioned within a space above the fixture. The laser-processing apparatus further includes a web tensioner assembly configured to apply a biasing force on the tensioning roller to maintain the workpiece in a desired state of tension.

[Continued on next page]

TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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))