

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
25 May 2023 (25.05.2023)



(10) International Publication Number
WO 2023/091611 A1

(51) International Patent Classification:
A61N 1/04 (2006.01) *A61N 1/36* (2006.01)

(21) International Application Number:
PCT/US2022/050319

(22) International Filing Date:
17 November 2022 (17.11.2022)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
63/281,558 19 November 2021 (19.11.2021) US

(71) Applicant: **I-LUMEN SCIENTIFIC, Inc.** [US/US]; 3800 American Boulevard West - Suite 1500, Bloomington, Minnesota 55431 (US).

(72) Inventors: **MASKO, Marshall T.**; 3800 American Boulevard West - Suite 1500, Bloomington, Minnesota 55431 (US). **VELURE, John C.**; 3800 American Boulevard West - Suite 1500, Bloomington, Minnesota 55431 (US). **MINOGUE, Conor M.**; Croshua, Kinvara, Co. Galway (IE).

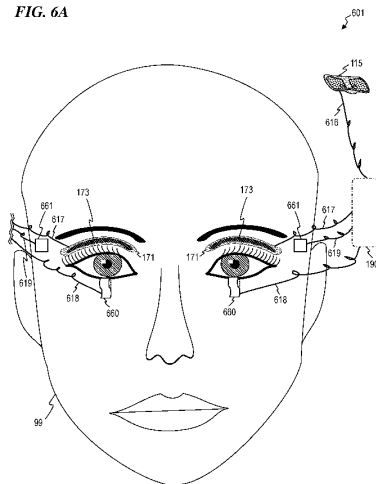
(74) Agent: **RIXEN, Jonathan M.** et al.; Lemaire Patent Law Firm, 14565 Grand Avenue, Burnsville, Minnesota 55306 (US).

(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, 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, 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, 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, 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, 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).

(54) Title: METHOD AND SYSTEM FOR EYE TREATMENT

FIG. 6A



(57) Abstract: Methods and systems including a first electrode substrate having one or more stimulation electrodes that are configured to apply electrical stimulation signals to a patient's first eye; a plurality of sensor electrodes configured to detect electrical activity from neural cells of the patient during delivery of an electrical-stimulation therapy, wherein the plurality of sensor electrodes includes a first sensor electrode and a second sensor electrode; a first return electrode configured to be placed in a location on the patient such that an electrical current is formed between at least one of the one or more stimulation electrodes and the first return electrode; and a stimulation controller configured to control the electrical current formed between the at least one of the one or more stimulation electrodes and the first return electrode such that the electrical current passes through a retina of the patient's first eye and delivers the electrical-stimulation therapy.

[Continued on next page]

Published:

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