15/10/02
20020064863

162162

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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
8 November 2001 (08.11.2001)

PCT

(10) International Publication Number
WO 01/83026 A1

(51) International Patent Classification[7]: A61N 1/18

(21) International Application Number: PCT/US01/14015

(22) International Filing Date: 1 May 2001 (01.05.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/564,841 4 May 2000 (04.05.2000) US

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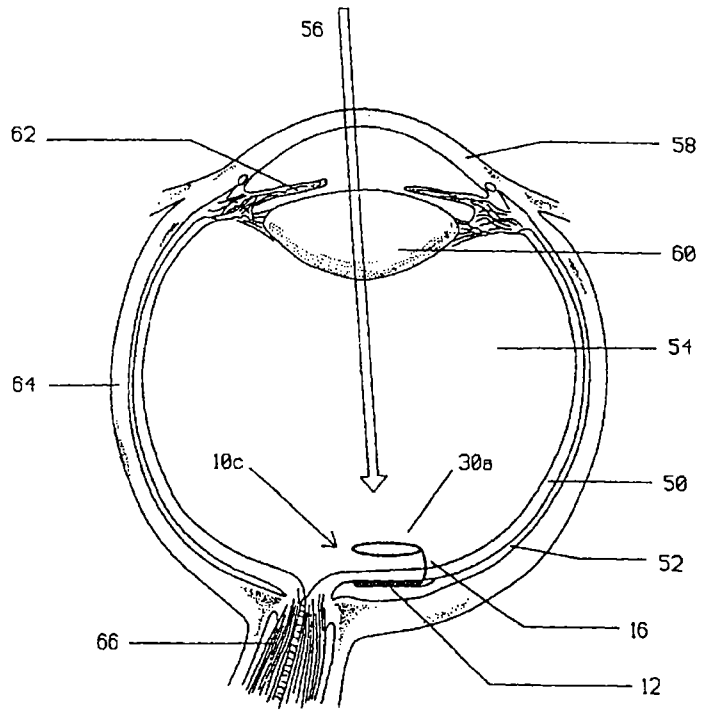
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(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 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, GW, ML, MR, NE, SN, TD, TG).

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.

(54) Title: ARTIFICIAL RETINA DEVICE WITH STIMULATING AND GROUND RETURN ELECTRODES DISPOSED ON OPPOSITE SIDES OF THE NEURORETINA AND METHOD OF ATTACHMENT



(57) Abstract: An artificial retinal device (10), implanted in the subretinal space of the eye in persons with certain types of retinal blindness, induces artificial vision by electrical stimulation of the remaining viable cells of the retina. The artificial retina device (10) includes a stimulation electrode unit (12) preferably placed in the subretinal space and a tail-like extension (30) housing a distant electrode ground electrode unit (16) that may be placed in the vitreous cavity. The stimulating electrode unit includes an array of electrode subunits (22). Each electrode subunit (22) includes one or more microphotodiodes (23a) electrically connected, for example, in series to provide increased voltage and current to the microelectrode. The stimulation electrode unit (12) and the ground return electrode (14) of the ground return electrode unit (16) are preferably disposed on opposite sides of the neuroretina to allow for efficient and high resolution transretinal electrical stimulation of the neuroretinal cells.

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