

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
20 February 2003 (20.02.2003)

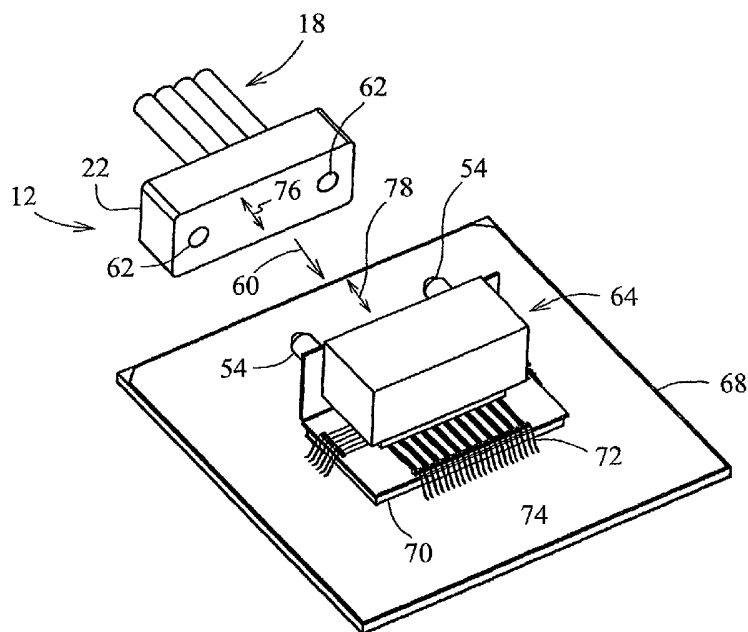
PCT

(10) International Publication Number
WO 03/014772 A3

- (51) International Patent Classification⁷: **G02B 6/36**
- (21) International Application Number: PCT/US02/24766
- (22) International Filing Date: 6 August 2002 (06.08.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/310,660 7 August 2001 (07.08.2001) US
- (71) Applicant: **CORONA OPTICAL SYSTEMS, INC.**
[US/US]; 450 Eisenhower Lane, Lombard, IL 60148 (US).
- (72) Inventors: **KUNKEL, Ronald**; 20361 County Highway, Jim Falls, WI 54748 (US). **BARNESON, David**; 25881 Mondovi Street, Eleva, WI 54738 (US). **NOVACEK, Jane, E.**; 7137 Kern Drive, Eau Claire, WI 54701 (US). **NELSON, Steven, C.**; 1697 E. Park Creek Road, Fall Creek, WI 54742 (US). **WICKMAN, Randy, W.**; 8046 223rd Street, Cadott, WI 54727 (US). **MADHAV, Jagdish, T.**; 9120 McVicker Avenue, Morton Grove, IL 60053 (US).
- (74) Agents: **GARRETT, John, R.** et al.; Welsh & Katz, LTD., 120 South Riverside Plaza, 22nd Floor, Chicago, IL 60606 (US).
- (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, UZ, VN, YU, ZA, ZM, ZW.
- (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, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report

[Continued on next page]

(54) Title: ASSEMBLY FOR ALIGNING AN OPTICAL ARRAY WITH OPTICAL FIBERS



(57) Abstract: An electro-optical converter assembly is described. The electro-optic converter includes an optically transparent substrate (88) with a plurality of alignment apertures (106) and an optical device (100) disposed on a first planar surface of the optically transparent substrate in alignment with the plurality of alignment apertures so that an axis of transmission of the optical device passes directly through the optically transparent substrate.



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

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.

(88) Date of publication of the international search report:

10 April 2003

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/24766

A. CLASSIFICATION OF SUBJECT MATTER												
IPC(7) : G02B 6/36												
US CL : 385/88, 89, 90, 91, 92												
According to International Patent Classification (IPC) or to both national classification and IPC												
B. FIELDS SEARCHED												
Minimum documentation searched (classification system followed by classification symbols) U.S. : 385/88, 89, 90, 91, 92												
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched NONE												
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) NONE												
C. DOCUMENTS CONSIDERED TO BE RELEVANT												
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
X,P ---	US 6,318,909 B1 (GIBONEY et al) 20 November 2001 (20.11.2001), column 5, lines 5-53; column 7, lines 51-65; Figures 1B, 1F, 2A-2C, 3A-3C, 5, 7, 9.	1-13, 17-27 -----										
A,P		14-16										
X ---	US 6,056,448 A (SAUTER et al) 02 May 2000 (02.05.2000), column 4, lines 16-48; Figures 3, 5.	1-5, 17-25 -----										
A		14-16										
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.												
* Special categories of cited documents: <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E" earlier application or patent published on or after the international filing date</td> <td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention											
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone											
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art											
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family											
"P" document published prior to the international filing date but later than the priority date claimed												
Date of the actual completion of the international search 20 November 2002 (20.11.2002)		Date of mailing of the international search report 13 FEB 2003										
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230		Authorized officer Alessandro Amari Telephone No. (703) 306-0533 