

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

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
12 August 2004 (12.08.2004)

PCT

(10) International Publication Number
WO 2004/068179 A3

(51) International Patent Classification⁷: **G02B 5/30**,
5/20, G02F 1/1335

PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(21) International Application Number:
PCT/US2004/001832

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(22) International Filing Date: 23 January 2004 (23.01.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/442,440 24 January 2003 (24.01.2003) US
10/465,083 18 June 2003 (18.06.2003) US

(71) Applicant (for all designated States except US): **OPTIVA INC.** [US/US]; 377 Oyster Point Boulevard, #13, South San Francisco, CA 94080 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **PAUKSHTO, Michael, V.** [RU/US]; 820 Pearry Lane, Foster City, CA 94404 (US). **SILVERSTEIN, Louis, D.** [US/US]; 9695 E. Yucca Street, Scottsdale, AZ 85260-6201 (US).

(74) Agents: **TEST, Aldo, J.** et al.; 4 Embarcadero Center, Suite 3400, San Francisco, CA 94111 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, 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, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, 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, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Declaration under Rule 4.17:

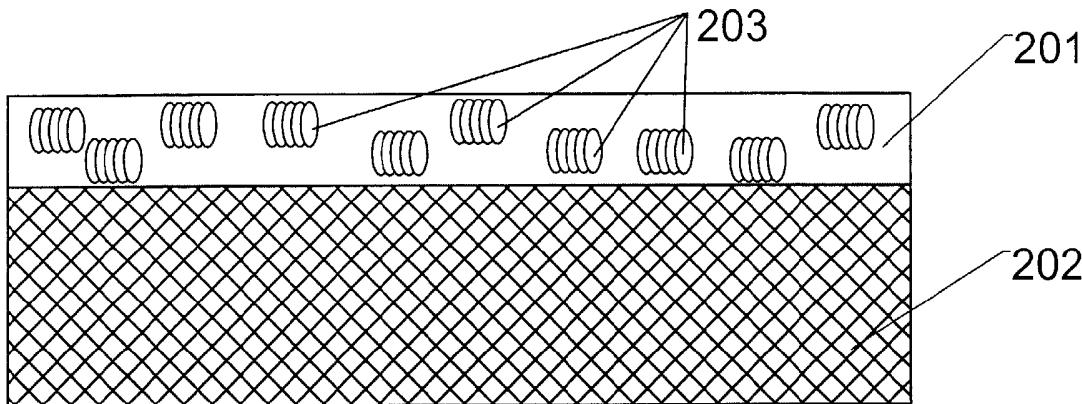
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, 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, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, 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: COLOR CORRECTING POLARIZER



WO 2004/068179 A3

(57) Abstract: A color-correcting polarizer is provided comprising a polarizer layer and at least one discotic film layer. The discotic film layer is optically transparent within the range of visible wavelength. The discotic film layer works as a polarizer in the wavelength ranges at least from 380 to 500 nm and/or from 600 to 780 nm. A liquid crystal cell comprising the color correcting polarizer is also disclosed.



(88) Date of publication of the international search report:
11 November 2004

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.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/001832

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G02F1/1335 G02B5/30 G02B5/20

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)
IPC 7 G02B G02F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EPO-Internal, COMPENDEX, INSPEC, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KHAN I G ET AL: "Ultra thin LCD polarizers with high dichroic ratio based on lyotropic dichroic dyes" 22ND INTERNATIONAL DISPLAY RESEARCH CONFERENCE; NICE, FRANCE OCT 2-4 2002, 2002, pages 573-575, XP009033776 SID Conf Rec Int Display Res Conf; SID Conference Record of the International Display Research Conference 2002 the whole document ---	1-9, 17-31
Y	US 2002/167632 A1 (ISHIKAWA TOMOHIRO ET AL) 14 November 2002 (2002-11-14) paragraphs '0006!-'0030! figures 1-5 ---	1-9, 17-31 -/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *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)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *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
- *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
- *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.
- *&* document member of the same patent family

Date of the actual completion of the international search 16 July 2004	Date of mailing of the international search report 26/07/2004
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Michalitsch, R

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/001832

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 1 014 119 A (OPTIVA INC) 28 June 2000 (2000-06-28) examples 3,4 page 3-6 ---	1-9, 17-31
Y	US 6 399 166 B1 (BOBROV YURI A ET AL) 4 June 2002 (2002-06-04) abstract column 1, line 30 -column 2, line 45 column 3, line 6 -column 4, line 12 figures 1-10 ---	1-9, 17-31
Y	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 06, 22 September 2000 (2000-09-22) & JP 2000 089188 A (NIPPON HOSO KYOKAI <NHK>), 31 March 2000 (2000-03-31) abstract ---	1-9, 17-31
Y	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 23, 10 February 2001 (2001-02-10) & JP 2001 166138 A (NITTO DENKO CORP), 22 June 2001 (2001-06-22) abstract ---	1-9, 17-31
Y	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 21, 3 August 2001 (2001-08-03) & JP 2001 100038 A (FUJI PHOTO FILM CO LTD), 13 April 2001 (2001-04-13) abstract ---	1-9, 17-31
Y	PATENT ABSTRACTS OF JAPAN vol. 2002, no. 09, 4 September 2002 (2002-09-04) & JP 2002 148441 A (NITTO DENKO CORP), 22 May 2002 (2002-05-22) abstract ---	1-9, 17-31
A	US 6 488 866 B1 (VOGEL KIM M ET AL) 3 December 2002 (2002-12-03) abstract figures 2-5 column 1, line 51 -column 5, line 28 ---	1-41
A	US 6 245 399 B1 (VOGEL KIM M ET AL) 12 June 2001 (2001-06-12) column 3, line 16 -column 9, line 20 column 2, line 29-63 abstract ----	1-41

INTERNATIONAL SEARCH REPORT

Information on patent family members

Internati	plication No
	PCT/US2004/001832

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002167632	A1 14-11-2002	US 6411354 B1 WO 02093243 A1	25-06-2002 21-11-2002
EP 1014119	A 28-06-2000	RU 2124746 C1 EP 1014119 A1 JP 2001512845 T CN 1109903 B WO 9908140 A1	10-01-1999 28-06-2000 28-08-2001 28-05-2003 18-02-1999
US 6399166	B1 04-06-2002	RU 2120651 C1 AU 2659197 A CN 1218557 A ,B EP 0894282 A1 JP 2001504238 T WO 9739380 A1	20-10-1998 07-11-1997 02-06-1999 03-02-1999 27-03-2001 23-10-1997
JP 2000089188	A 31-03-2000	NONE	
JP 2001166138	A 22-06-2001	NONE	
JP 2001100038	A 13-04-2001	NONE	
JP 2002148441	A 22-05-2002	NONE	
US 6488866	B1 03-12-2002	AU 3250602 A EP 1332198 A1 JP 2004514018 T TW 555836 B WO 0238698 A1 US 2003071243 A1	21-05-2002 06-08-2003 13-05-2004 01-10-2003 16-05-2002 17-04-2003
US 6245399	B1 12-06-2001	AU 2867599 A CN 1141605 C DE 69914362 D1 EP 1129372 A1 JP 2002527786 T TW 552301 B WO 0022463 A1	01-05-2000 10-03-2004 26-02-2004 05-09-2001 27-08-2002 11-09-2003 20-04-2000