

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
19 February 2004 (19.02.2004)

PCT

(10) International Publication Number
WO 2004/014657 A3

(51) International Patent Classification⁷: **H01J 9/24**

(21) International Application Number:
PCT/US2003/022867

(22) International Filing Date: 23 July 2003 (23.07.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/214,769 9 August 2002 (09.08.2002) US

(71) Applicant: **SCIENCE APPLICATIONS INTERNATIONAL CORPORATION** [US/US]; 10260 Campus Point Drive, San Diego, CA 92121 (US).

(72) Inventors: **GEORGE, E. Victor**; 42305 Via Nortada, Temecula, CA 92590 (US). **GREEN, Albert M.**; 7574 Woodstown Drive, Springfield, VA 22153 (US). **WYETH, N. Convers**; 3234 History Drive, Oakton, VA 22124 (US).

(74) Agent: **MARCOU, George**; Kilpatrick Stockton LLP, 607 Fourteenth St., N.W., Suite 900, Washington, DC 20005 (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, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, 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, 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).

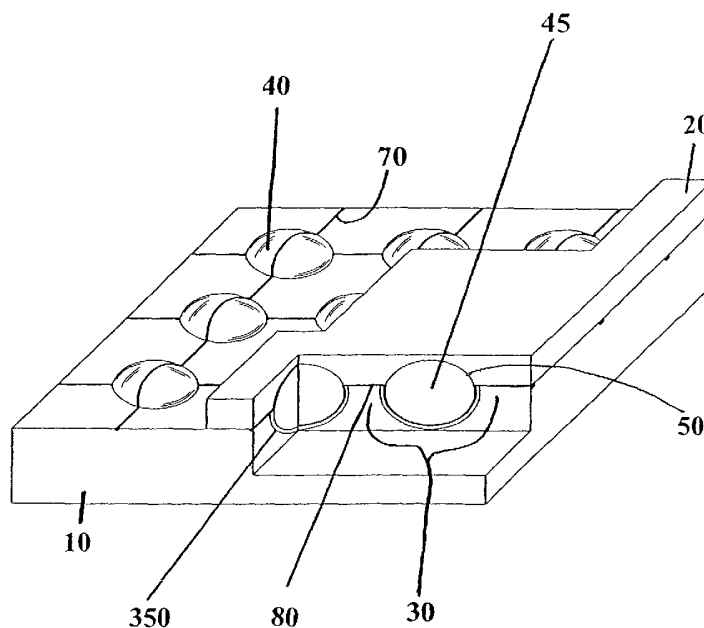
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
29 December 2004

[Continued on next page]

(54) Title: USE OF PRINTING AND OTHER TECHNOLOGY FOR MICRO-COMPONENT PLACEMENT



(57) Abstract: An improved light-emitting panel having a plurality of micro-components sandwiched between two substrates is disclosed. Each micro-component contains a gas or gas-mixture capable of ionization when a sufficiently large voltage is supplied across the micro-component via at least two electrodes. An improved method of manufacturing a light-emitting panel is also disclosed, which uses a web fabrication process to manufacturing light-emitting displays as part of a high-speed, continuous inline process.



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/US03/22867

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01J 9/24
US CL : 445/24, 3, 25

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. : 445/24, 3, 25

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.
A	US 3,848,248 (MACINTYRE, JR.) 12 November 1974 (12.11.1974), entire document	1-29
A	US 4,035,690 (ROEBER) 12 July 1977 (12.07.1977), entire document	1-29
A	US 5,514,934 (MATSUMOTO et al.) 07 May 1996 (07.05.1996) entire document	1-29
A	US 5,815,306 (SHERIDON et al.) 29 September 1998 (29.09.1998) entire document	1-29
A	US 5,917,646 (SHERIDON) 29 June 1999 (29.06.1999), entire document	1-29
A	US 6,312,304 B1 (DUTHALER et al.) 06 November 2001 (06.11.2001), entire document	1-29
A	US 6,570,335 B1 (GEORGE et al.) 27 May 2003 (28.05.2003), entire document	1-29
A	US 6,612,889 B1 (GREEN et al.) 02 September 2003 (02.09.2003), entire document	1-29
A	US 6,620,012 B1 (JOHNSON et al.) 16 September 2003 (16.09.2003), entire document	1-29

☐ Further documents are listed in the continuation of Box C.

☐ See patent family 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 application or patent 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

29 March 2004 (29.03.2004)

Date of mailing of the international search report

12 NOV 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Joseph Williams

Telephone No. (571) 272-2465

Jean Proctor
Paralegal Specialist