

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
7 November 2002 (07.11.2002)

PCT

(10) International Publication Number
WO 02/088837 A3

(51) International Patent Classification⁷: **G02F 1/15**,
C09K 9/02, G02F 1/361

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(21) International Application Number: PCT/US02/13275

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(22) International Filing Date: 25 April 2002 (25.04.2002)

(81) Designated States (*national*): JP, KR, SG.

(25) Filing Language: English

(84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

(26) Publication Language: English

(30) Priority Data:
09/844,862 27 April 2001 (27.04.2001) US

Published:
— with international search report

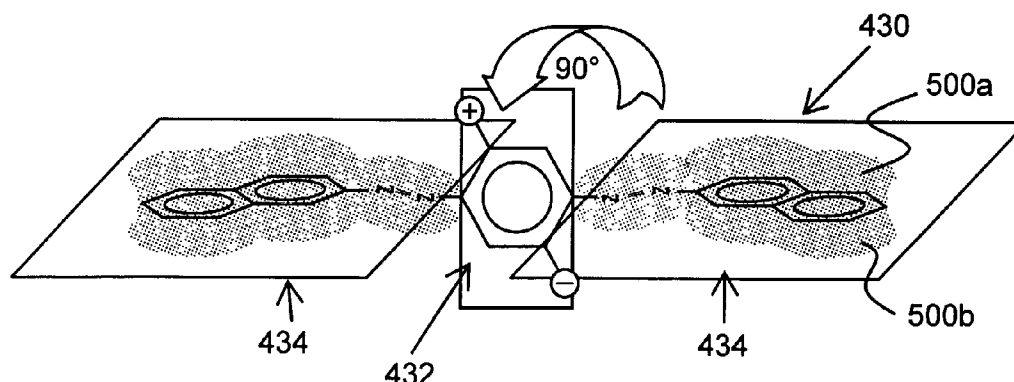
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(88) Date of publication of the international search report:
21 August 2003

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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: MOLECULAR MECHANICAL DEVICES WITH A BAND GAP CHANGE ACTIVATED BY AN ELECTRIC FIELD FOR OPTICAL SWITCHING APPLICATIONS



(57) Abstract: Molecular systems (430, 630, 630', 730) are provided for electric field activated switches, such as optical switches (101, 205, 207, 209). The molecular system (430, 630, 630', 730) has an electric field induced band gap change that occurs via one of the following mechanisms: (1) molecular conformation change; (2) change of extended conjugation via chemical bonding change to change the band gap; or (3) molecular folding or stretching. Nanometer-scale reversible optical switches are thus provided that can be assembled easily to make a variety of optical switches (101, 205, 207, 209) are thus provided that can be assembled easily to make a variety of optical devices, including optical displays (100, 200, 300).



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