

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
10 May 2001 (10.05.2001)

PCT

(10) International Publication Number
WO 01/33648 A1

(51) International Patent Classification⁷: **H01L 41/09,**
41/22

(21) International Application Number: **PCT/US00/18025**

(22) International Filing Date: **29 June 2000 (29.06.2000)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:
09/430,677 29 October 1999 (29.10.1999) **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, 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, MY, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

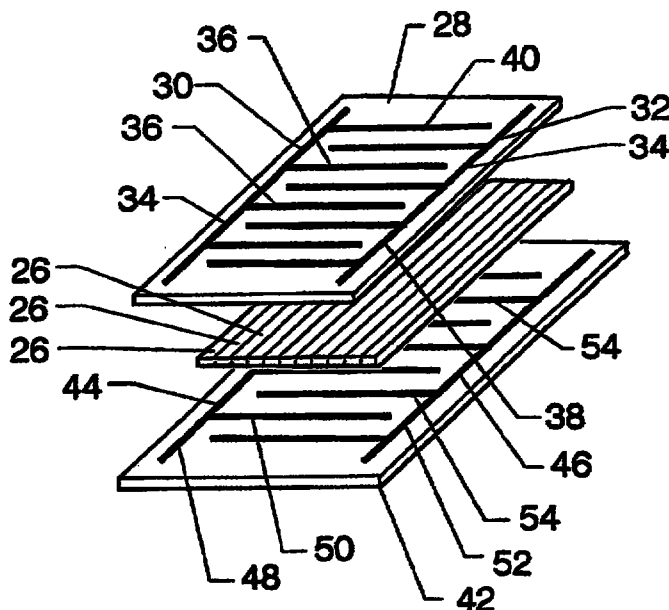
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

- With international search report.
- With amended claims.

[Continued on next page]

(54) Title: **PIEZOELECTRIC MACRO-FIBER COMPOSITE ACTUATOR AND MANUFACTURING METHOD**



(57) Abstract: A method for fabricating a piezoelectric macro-fiber composite actuator comprises providing a piezo-electric material (20) which has a first side and a second side. The method further comprises cutting the piezoelectric material to provide a plurality of piezoelectric fibers (26) in juxtaposition. Two electrically conductive films (28, 42) are then adhesively bonded to the two sides of the piezo-electric material. The first film (28) has first and second conductive patterns (30, 32) formed thereon which are electrically isolated from one another and in electrical contact with the piezo-electric material. The first and second conductive patterns of the first film each have a plurality of electrodes to form a pattern of interdigitated electrodes. In one embodiment, the second film does not have any conductive patterns. In another embodiment, the second film (42) has a pair of conductive patterns (48, 52) similar to the conductive patterns of the first film. In another embodiment, the piezoelectric macro-fiber composite actuator further comprises a pair of anisotropically conductive

sheets (210, 212) each positioned between one of the electrically conductive films and one side of the piezoelectric material.

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