

Title (en)
Microfabricated elastomeric valve and pump systems

Title (de)
Elastisches Mikropumpen- oder Mikroventilsystem

Title (fr)
Système de micropompes ou soupapes flexibles

Publication
EP 1195523 A3 20030108 (EN)

Application
EP 01128819 A 20000627

Priority
• EP 00305389 A 20000627
• US 14150399 P 19990628
• US 14719999 P 19990803
• US 18685600 P 20000303

Abstract (en)
[origin: EP1195523A2] A method of fabricating an elastomeric structure, comprising: forming a first elastomeric layer on top of a first micromachined mold, the first micromachined mold having a first raised protrusion which forms a first recess extending along a bottom surface of the first elastomeric layer; forming a second elastomeric layer on top of a second micromachined mold, the second micromachined mold having a second raised protrusion which forms a second recess extending along a bottom surface of the second elastomeric layer; bonding the bottom surface of the second elastomeric layer onto a top surface of the first elastomeric layer such that a control channel forms in the second recess between the first and second elastomeric layers; and positioning the first elastomeric layer on top of a planar substrate such that a flow channel forms in the first recess between the first elastomeric layer and the planar substrate. <IMAGE>

IPC 1-7
F04B 43/04; **F15C 5/00**

IPC 8 full level
F04B 43/04 (2006.01); **F15C 5/00** (2006.01)

CPC (source: EP US)
F04B 43/043 (2013.01 - EP US); **F15C 5/00** (2013.01 - EP); **F04B 43/14** (2013.01 - EP US)

Citation (search report)

- [XA] US 5346372 A 19940913 - NARUSE YOSHIHIRO [JP], et al
- [XY] EP 0779436 A2 19970618 - HARTLEY FRANK T [US]
- [X] US 5836750 A 19981117 - CABUZ CLEOPATRA [US]
- [A] US 5660370 A 19970826 - WEBSTER MILO E [US]
- [A] US 5088515 A 19920218 - KAMEN DEAN L [US]
- [A] EP 0703364 A1 19960327 - FRAUNHOFER GES FORSCHUNG [DE]
- [PXA] EP 0999055 A2 20000510 - SAMSUNG ELECTRONICS CO LTD [KR]
- [XA] POL VAN DE F C M ET AL: "A THERMO-PNEUMATIC ACTUATION PRINCIPLE FOR A MICROMINIATURE PUMP AND OTHER MICROMECHANICAL DEVICES", SENSORS AND ACTUATORS, ELSEVIER SEQUOIA S.A. LAUSANNE, CH, vol. 17, no. 1/2, 3 May 1989 (1989-05-03), pages 139 - 143, XP000038020
- [DXAY] DUFFY, D. C. ET AL.: "Rapid Prototyping of Microfluidic Systems in Poly(dimethylsiloxane)", ANAL. CHEM., vol. 70, 1998, pages 4974 - 4984, XP002149044
- [X] DUFFY D C ET AL: "PATTERNING ELECTROLUMINESCENT MATERIALS WITH FEATURE SIZES AS SMALL AS 5 MUM USING ELASTOMERIC MEMBRANES AS MASKS FOR DRY LIFT-OFF", ADVANCED MATERIALS,DE,VCH VERLAGSGESELLSCHAFT, WEINHEIM, vol. 11, no. 7, 7 May 1999 (1999-05-07), pages 546 - 552, XP000849014, ISSN: 0935-9648
- [XAY] XIA, Y., WHITESIDES, G. M.: "Soft Lithography", ANGEW. CHEM. INT. ED., vol. 37, 1998, pages 550 - 575, XP002149045
- [YA] BRYZEK J ET AL: "MICROMACHINES ON THE MARCH", IEEE SPECTRUM,US,IEEE INC. NEW YORK, vol. 31, no. 5, 1 May 1994 (1994-05-01), pages 20 - 31, XP000456261, ISSN: 0018-9235
- [X] QIN D ET AL: "ELASTOMERIC LIGHT VALVES", ADVANCED MATERIALS,DE,VCH VERLAGSGESELLSCHAFT, WEINHEIM, vol. 9, no. 5, 1 April 1997 (1997-04-01), pages 407 - 410, XP000683891, ISSN: 0935-9648
- [A] RAPP R ET AL: "LIGA MICROPUMP FOR GASES AND LIQUIDS", SENSORS AND ACTUATORS A,CH,ELSEVIER SEQUOIA S.A., LAUSANNE, vol. A40, no. 1, 1994, pages 57 - 61, XP000434539, ISSN: 0924-4247

Cited by
AU2015224384B2; EP2116988A1; EP2614802A1; US9039993B2; US11021586B2; US7411331B2; US7621317B2; US7362889B2; US9163277B2; US9615970B2; US11154864B2; US11819851B2

Designated contracting state (EPC)
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)
EP 1195523 A2 20020410; **EP 1195523 A3 20030108**; **EP 1195523 B1 20050302**

DOCDB simple family (application)
EP 01128819 A 20000627