

Title (en)

Nozzle chamber with paddle vane and externally located thermal actuator

Title (de)

Düsenkammer mit Paddelschaukel und externem thermischen Betätigungselement

Title (fr)

Chambre de buse avec pagaie et actuateur thermique en dehors

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Application

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- AU PO805297 A 19970715
- AU PO794897 A 19970715
- AU PO795197 A 19970715
- AU PO807497 A 19970715
- AU PO794197 A 19970715
- AU PO805197 A 19970715
- AU PO804597 A 19970715
- AU PO795297 A 19970715
- AU PO804697 A 19970715
- AU PO804297 A 19970715
- AU PO804097 A 19970715
- AU PO805797 A 19970715
- AU PO805697 A 19970715
- AU PO800197 A 19970715
- AU PO803897 A 19970715
- AU PO793797 A 19970715
- AU PO800297 A 19970715
- AU PO806897 A 19970715
- AU PO806297 A 19970715
- AU PO803497 A 19970715
- AU PO803997 A 19970715
- AU PO803797 A 19970715
- AU PO804397 A 19970715
- AU PO806497 A 19970715
- AU PO794697 A 19970715
- AU PO794397 A 19970715
- AU PO800697 A 19970715
- AU PO800797 A 19970715
- AU PO800897 A 19970715
- AU PO801097 A 19970715
- AU PO794497 A 19970715
- AU PO794797 A 19970715
- AU PO794597 A 19970715
- AU PO803397 A 19970715
- AU PO801197 A 19970715
- AU PO850397 A 19970811
- AU PO939097 A 19970923
- AU PO939397 A 19970923
- AU PO939297 A 19970923
- AU PO938997 A 19970923
- AU PO939197 A 19970923
- AU PP087397 A 19971212
- AU PP089397 A 19971212
- AU PP088897 A 19971212
- AU PP089197 A 19971212
- AU PP089097 A 19971212
- AU PP089497 A 19971212
- AU PP088997 A 19971212
- AU PP087297 A 19971212
- AU PP088297 A 19971212
- AU PP087497 A 19971212
- AU PP087597 A 19971212
- AU PP089297 A 19971212
- AU PP139898 A 19980119
- AU PP139698 A 19980119
- AU PP259398 A 19980325
- AU PP259298 A 19980325
- AU PP259198 A 19980325
- AU PP399198 A 19980609
- AU PP398398 A 19980609
- AU PP398598 A 19980609

- AU PP398998 A 19980609
- AU PP398798 A 19980609
- AU PP399098 A 19980609
- AU PP398698 A 19980609
- AU PP398498 A 19980609

#### Abstract (en)

An inkjet nozzle arrangement is provided. The nozzle arrangement comprises a nozzle chamber having a fluid ejection nozzle in a wall of the chamber, a movable paddle vane configured to cause ejection of fluid out of said chamber via the fluid ejection nozzle and a thermal actuator device located externally of the nozzle chamber and attached to the paddle vane.

#### IPC 8 full level

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#### Citation (applicant)

- US 1941001 A 19331226 - HANSELL CLARENCE W
- US 3596275 A 19710727 - SWEET RICHARD G
- US 3373437 A 19680312 - SWEET RICHARD G, et al
- US 3946398 A 19760323 - KYSER EDMOND L, et al
- US 3683212 A 19720808 - ZOLTAN STEVEN I
- US 3747120 A 19730717 - STEMME N
- US 4459601 A 19840710 - HOWKINS STUART D [US]
- US 4584590 A 19860422 - FISCHBECK KENNETH H [US], et al
- GB 2007162 A 19790516 - CANON KK
- US 4490728 A 19841225 - VAUGHT JOHN L [US], et al
- US 4899181 A 19900206 - HAWKINS WILLIAM G [US], et al
- US 5208604 A 19930504 - WATANABE TAKASHI [JP], et al
- J MOORE: "OUTPUT HARD COPY DEVICES", 1988, article "Non-Impact Printing: Introduction and Historical Perspective", pages: 207 - 220
- HEWLETT-PACKARD JOURNAL, vol. 36, no. 5, 1985, pages 33 - 37
- HEWLETT-PACKARD JOURNAL, vol. 36, no. 5, 1985, pages 33 - 37
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- TANS: "Individual single-wall carbon nano-tubes as quantum wires", NATURE, vol. 386, April 1997 (1997-04-01), pages 474 - 477
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- T. ROSENMYER; H. WU: "PTFE nanoemulsions as spinon, low dielectric constant materials for ULSI applications", ADVANCED METALLISATION FOR FUTURE ULSI, MRS, vol. 427, 1996, pages 463 - 468
- BERENSCHOT: "Thermally assisted Ion Beam Etching of polytetrafluoroethylene: A new technique for High Aspect Ratio Etching of MEMS", PROCEEDINGS OF THE NINTH ANNUAL INTERNATIONAL WORKSHOP ON MICRO ELECTRO MECHANICAL SYSTEMS, February 1996 (1996-02-01)
- J.K. BHARDWAJ; H. ASHRAF: "Advanced Silicon Etching Using High Density Plasmas", SPIE PROCEEDINGS IN MICRO MACHINING AND MICRO FABRICATION PROCESS TECHNOLOGY, vol. 2639, pages 224
- J.K. BHARDWAJ; H. ASHRAF: "Advanced Silicon Etching Using High Density Plasmas", SPIE PROCEEDINGS IN MICRO MACHINING AND MICRO FABRICATION PROCESS TECHNOLOGY, vol. 2639, pages 224
- J.K. BHARDWAJ; H. ASHRAF: "Advanced Silicon Etching Using High Density Plasmas", SPIE PROCEEDINGS IN MICRO MACHINING AND MICRO FABRICATION PROCESS TECHNOLOGY, vol. 2639, pages 224
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND
- SPIE (INTERNATIONAL SOCIETY FOR OPTICAL ENGINEERING, vol. 2642 AND

#### Citation (search report)

- [A] EP 0506232 A1 19920930 - VIDEOJET SYSTEMS INT [US]
- [A] US 4864824 A 19890912 - GABRIEL KAIGHAM J [US], et al
- [A] US 4553393 A 19851119 - RUOFF CARL F [US]
- [A] PATENT ABSTRACTS OF JAPAN vol. 013, no. 340 (M - 857) 31 July 1989 (1989-07-31)
- [A] PATENT ABSTRACTS OF JAPAN vol. 016, no. 370 (M - 1292) 10 August 1992 (1992-08-10)

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