

Title (en)

INK JET HEAD AND MANUFACTURING METHOD THEREOF, DISCHARGE OPENING PLATE FOR HEAD AND MANUFACTURING METHOD THEREOF AND INK JET APPARATUS WITH INK JET HEAD

Publication

EP 0367541 A3 19901114 (EN)

Application

EP 89311199 A 19891030

Priority

- JP 740389 A 19890113
- JP 740989 A 19890113
- JP 741089 A 19890113
- JP 747089 A 19890113
- JP 918189 A 19890118
- JP 918489 A 19890118
- JP 1807989 A 19890128
- JP 27579488 A 19881031
- JP 27579788 A 19881031
- JP 27580088 A 19881031

Abstract (en)

[origin: EP0367541A2] The present invention relates to a method for manufacturing an ink jet recording head having an ink path communicated with a discharge opening, a discharge energy generating element (100) disposed in the ink path and a discharge opening plate on which the discharge opening is formed and being attached to an end surface of the ink path. The discharge opening is formed by irradiating an excimer laser (210) light on the discharge opening plate.

IPC 1-7

B41J 2/16

IPC 8 full level

B41J 2/14 (2006.01); **B41J 2/16** (2006.01)

CPC (source: EP)

B41J 2/14024 (2013.01); **B41J 2/1433** (2013.01); **B41J 2/1604** (2013.01); **B41J 2/1606** (2013.01); **B41J 2/162** (2013.01); **B41J 2/1623** (2013.01); **B41J 2/1631** (2013.01); **B41J 2/1632** (2013.01); **B41J 2/1634** (2013.01); **B41J 2/1637** (2013.01); **B41J 2/1642** (2013.01); **B41J 2/1645** (2013.01); **B41J 2/1646** (2013.01); **B41J 2002/14379** (2013.01)

Citation (search report)

- [XP] EP 0309146 B1 19930113
- [AD] US 4459600 A 19840710 - SATO YASUSHI [JP], et al
- [X] PATENT ABSTRACTS OF JAPAN vol. 6, no. 201 (M-163)(1079) 13 October 1982, & JP-A-57 107848 (TAKUROU SEKIYA) 05 July 1982,
- [A] PATENT ABSTRACTS OF JAPAN vol. 10, no. 189 (M-494)(2245) 03 July 1986, & JP-A-61 032761 (ISAO KAGATANI) 15 February 1986,
- [A] LASER FOCUS. vol. 23, no. 5, May 1987, TULSA US pages 54 - 70; ZNOTINS, THOMAS A. ET AL: "EXCIMER LASERS: AN EMERGING TECHNOLOGY IN MATERIALS PROCESSING"
- [A] PATENT ABSTRACTS OF JAPAN vol. 8, no. 69 (M-286)(1506) 31 March 1984, & JP-A-58 217368 (TAKUROU SEKIYA) 17 December 1983,

Cited by

US5852460A; US5297331A; EP0931655A1; US5703631A; US5300959A; CN1067632C; US6089698A; SG92596A1; US5442384A; DE4223707A1; US5754202A; US5450113A; US5378137A; US5417897A; EP0624471A3; EP0500110A1; US5594479A; US5796415A; US5420627A; EP0495663A3; US5361087A; US5959643A; US5736998A; US5291226A; US5408738A; EP0564120A3; US5956054A; US5278584A; US5953029A; EP0564102A3; US5469199A; EP0913259A3; EP0739739A3; EP0538842A3; US5657539A; US5930895A; US5305015A; EP0564101A3; US6502915B1; CN1121947C; EP0629504A3; US5786832A; EP0471157A1; US5305018A; US6361145B1; US6259463B1; US6193345B1; US6193347B1; WO9322141A1; WO9117051A1; WO9608375A1; US6387575B2; US6583382B2; US6261742B1; US6234613B1; US8789928B2; US9283761B2; US9782970B2

Designated contracting state (EPC)

DE ES FR GB IT NL

DOCDB simple family (publication)

EP 0367541 A2 19900509; EP 0367541 A3 19901114; EP 0367541 B1 19941005; DE 68918663 D1 19941110; DE 68918663 T2 19950316; DE 68929489 D1 20031113; DE 68929489 T2 20040819; EP 0602021 A2 19940615; EP 0602021 A3 19940831; EP 0937579 A2 19990825; EP 0937579 A3 19991103; EP 0937579 B1 20031008; ES 2060789 T3 19941201; ES 2207908 T3 20040601

DOCDB simple family (application)

EP 89311199 A 19891030; DE 68918663 T 19891030; DE 68929489 T 19891030; EP 94200483 A 19891030; EP 99200740 A 19891030; ES 89311199 T 19891030; ES 99200740 T 19891030