

Title (en)
Ink jet recording apparatus.

Title (de)
Tintenstrahlaufzeichnungsgerät.

Title (fr)
Appareil d'enregistrement à jet d'encre.

Publication
EP 0671271 A3 19960807 (EN)

Application
EP 95103252 A 19950307

Priority
JP 3873394 A 19940309

Abstract (en)
[origin: EP0671271A2] An inkjet recording apparatus comprises an inkjet head (10) having for each of one or more nozzles (4) an ink passage (7, 6) in communication with the nozzle (4) and an electrostatic actuator. The actuator includes a diaphragm (5) provided at one part (6) of the ink passage, a nozzle electrode (21) provided in opposition to the diaphragm (5) with a gap (G) in between and a vibration chamber (9) having upper and lower walls of which one wall is formed by one part of said diaphragm (5), while said nozzle electrode is attached to the other wall. The diaphragm constitutes one and the nozzle electrode (21) the other plate of a capacitor. Drive means selectively charge and discharge each actuator such as to displace its diaphragm (5) by electrostatic force, thereby to eject ink droplets from said one or more nozzles. Vibration chamber (9) is sealed to be airtight. Its volume V is such that the ratio between this volume V and the volume DELTA V displaced by the diaphragm is within the range $2 \leq V / \Delta V \leq 8$. This enables sufficient electrostatic attraction with a sealed actuator and without necessity to increase the drive voltage. <IMAGE>

IPC 1-7
B41J 2/145

IPC 8 full level
B41J 2/045 (2006.01); **B41J 2/055** (2006.01); **B41J 2/14** (2006.01); **B41J 2/16** (2006.01); **C04B 37/04** (2006.01)

CPC (source: EP)
B41J 2/14314 (2013.01); **B41J 2002/14379** (2013.01); **B41J 2202/11** (2013.01)

Citation (search report)
• [A] EP 0488113 A1 19920603 - MATSUSHITA ELECTRIC IND CO LTD [JP]
• [A] US 4459601 A 19840710 - HOWKINS STUART D [US]
• [A] PATENT ABSTRACTS OF JAPAN vol. 015, no. 225 (M - 1122) 10 June 1991 (1991-06-10)
• [A] PATENT ABSTRACTS OF JAPAN vol. 009, no. 245 (M - 418) 2 October 1985 (1985-10-02)
• [A] PATENT ABSTRACTS OF JAPAN vol. 015, no. 035 (M - 1074) 28 January 1991 (1991-01-28)
• [A] PATENT ABSTRACTS OF JAPAN vol. 008, no. 238 (M - 335) 31 October 1984 (1984-10-31)

Cited by
EP0999933A4; EP0827833A3; US8117751B2; US7628468B2; US7950773B2; US7334874B2; US7775634B2; US7472984B2; US7717542B2; US7328975B2; US7753469B2; US7753491B2; US7475965B2; US7708372B2; US7731336B2; US6786574B2; US7125102B2; US7287834B2; US7658473B2; US7410243B2; US7410250B2; US7731334B2; US7758166B2; US7497555B2; US7703890B2; US7753492B2; US8079669B2; US7527357B2; US7448728B2; US6877841B2; US6986567B2; US6986202B2; US7219982B2; US7387365B2; US7401900B2; US7934797B2; US7578582B2; US6824252B2; US7360871B2; US7699440B2; US7708381B2; US7905574B2; US7934808B2; US7992968B2; US8366243B2; US7591539B2; US7669971B2; US7125103B2; US7234795B2; US7293855B2; US7393083B2; US7401884B2; US7815290B2; US7950774B2; US7553001B2; US7631956B2; US7635178B2; US7661793B2; US7350903B2; US7364270B2; US7255424B2; US7192119B2; US7066575B2; US7086720B2; US7147792B2; US7175774B2; US7178903B2; US7275811B2; US7284837B2; US7398597B2; US7404625B2; US7416280B2; US7771018B2; US7775632B2; US7794053B2; US7914119B2; US7934806B2; US7950775B2; US7959263B2; US7540592B2; US7566113B2; US7568788B2

Designated contracting state (EPC)
CH DE FR GB IT LI NL SE

DOCDB simple family (publication)
EP 0671271 A2 19950913; **EP 0671271 A3 19960807**; **EP 0671271 B1 20000705**; DE 69517720 D1 20000810; DE 69517720 T2 20010201; JP 3329125 B2 20020930; JP H07299908 A 19951114

DOCDB simple family (application)
EP 95103252 A 19950307; DE 69517720 T 19950307; JP 4694195 A 19950307