

Title (en)

Method of operating an ink jet to achieve high print quality and high print rate.

Title (de)

Verfahren zum Betrieb eines Farbstrahls zum Erreichen einer hohen Druckqualität und einer hohen Druckrate.

Title (fr)

Méthode de commande d'un jet d'encre pour réaliser une haute qualité d'impression et un haut débit d'impression.

Publication

EP 0575204 A3 19941207 (EN)

Application

EP 93304838 A 19930621

Priority

US 90609192 A 19920619

Abstract (en)

[origin: EP0575204A2] A drop-on-demand ink jet print head has an ink chamber coupled to a source of ink, and an ink drop orifice with an outlet. An acoustic driver produces a pressure wave in the ink and causes the ink to pass outwardly through the ink drop orifice and outlet. The driver is driven with bipolar drive pulses having a refill pulse component and an eject pulse component of a polarity which is opposite to the refill pulse component. The refill and eject pulse components are separated by a wait period. The drive pulses may be adjusted to minimize their energy content at a frequency corresponding to the dominant acoustic resonance frequency of the ink jet print head. This will accelerate drop breakoff, optimize drop shape and minimize drop speed variations over the range of drop printing rates. The size of the ink drops may be varied, such as by driving the acoustic driver with varying drive signals, preferably utilizing individual or combinations of a plurality of bipolar drive pulses. The ink jet printer of the present invention may be used to print with a wide variety of inks, including phase change (hot melt) inks to achieve high print quality at high print rates. <IMAGE>

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Citation (search report)

- [DXDA] EP 0467656 A2 19920122 - TEKTRONIX INC [US]
- [A] US 4491851 A 19850101 - MIZUNO TSUNEO [JP], et al
- [A] US 4734705 A 19880329 - REZANKA IVAN [US], et al
- [A] US 4523200 A 19850611 - HOWKINS STUART D [US]
- [A] EP 0194852 A2 19860917 - EXXON PRINTING SYSTEMS INC [US]
- [A] EP 0437062 A2 19910717 - TEKTRONIX INC [US]
- [A] PATENT ABSTRACTS OF JAPAN vol. 12, no. 294 (M - 730) 11 August 1988 (1988-08-11)
- [A] PATENT ABSTRACTS OF JAPAN vol. 12, no. 332 (M - 738) 8 September 1988 (1988-09-08)
- [A] "Unimorph Drop Generator for an Ink Jet Printer", IBM TECHNICAL DISCLOSURE BULLETIN., vol. 24, no. 2, July 1981 (1981-07-01), NEW YORK US, pages 939 - 941

Cited by

EP0816081A3; CN102145581A; EP1695826A3; US5592203A; US5802687A; US5933168A; EP0787589A3; US6155671A; DE4403042A1; EP0845357A3; US6106092A; EP2255968A1; US6161912A; US5714078A; US5825382A; US6957884B2; EP1176014A1; CN107443917A; US6193343B1; US6672700B2; US10232632B2; US10336088B2

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