Title (en)

COINCIDENT DROP SELECTION, DROP SEPARATION PRINTING SYSTEM

Title (de)

DRUCKSYSTEM MIT KOINZIDIERENDER TROPFENAUSWAHL UND TROPFENTRENNUNG

Title (fr)

SYSTEME D'IMPRESSION A SELECTION ET SEPARATION CONCOMITANTES DES GOUTTELETTES

Publication

EP 0765236 B1 19990728 (EN)

Application

EP 96912633 A 19960409

Priority

- AU PN230995 A 19950412
- AU PN232295 A 19950412
- AU PN232395 A 19950412
- US 9604854 W 19960409

Abstract (en)

[origin: WO9632277A1] Ink is contained under pressure in an ink reservoir. The ink travels to a nozzle, where it is retained in the nozzle by the ink surface tension. An equilibrium is created whereby no ink escapes the nozzle by ensuring that the ink pressure, plus a predetermined external electrostatic or magnetic field, is insufficient to expel the ink from the nozzle. The system can include a heater which is incorporated at the tip of the nozzle. When this heater is energized by a heater control circuit, the ink in contact with the nozzle tip is heated. Convection rapidly transports the heat over the ink meniscus. The ink is formulated so that surface tension reduces with increasing temperature. At an elevated temperature, the surface tension of the ink is reduced sufficiently that the equilibrium is broken, and ink moves out of the nozzle. At a predetermined time, the heater is turned off by the heater control circuit and the falling temperature causes the surface tension to increase. Ink continues to move out of the nozzle by its own momentum. Surface tension and the viscous flow limitation of the nozzle causes the ink drop to "neck" and separate from the body of ink. The ink drop then travels to the recording medium. The thermal drop on demand mechanism operates at low power, making construction of monolithic multiple nozzle print heads using a modified CMOS process practical. The print heads can include extensive fault tolerance to improve yield, device life, and reliability.

IPC 1-7

B41J 2/065; B41J 2/04; B41J 2/005

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CPC (source: EP KR)

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Citation (examination)

US 4737803 A 19880412 - FUJIMURA YOSHIHIKO [JP], et al

Cited by

US8014986B2; US8285530B2; US8229719B2; US8271238B2; US8285526B2; US8255194B2

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DOCDB simple family (application)

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