

(12)

EUROPEAN PATENT APPLICATION

(21) Application number: **88310572.8**

(51) Int. Cl.⁵: **B41J 3/04, H01L 49/02**

(22) Date of filing: **10.11.88**

(30) Priority: **13.11.87 US 120300**

(43) Date of publication of application:
24.05.89 Bulletin 89/21

(64) Designated Contracting States:
DE FR GB IT

(88) Date of deferred publication of the search report:
18.07.90 Bulletin 90/29

(71) Applicant: **Hewlett-Packard Company**
3000 Hanover Street
Palo Alto California 94304(US)

(72) Inventor: **Leban, Marzio A.**
3026 N.W. Lisa Pl.
Corvallis Oregon 97330(US)
Inventor: **Allen, Ross R.**
9945 Red Rock Ct.
San Diego, CA 92131(US)
Inventor: **Bhaskar, Eldurkar V.**
3803 N.W. Chinquapin Pl.
Corvallis Oregon 97330(US)

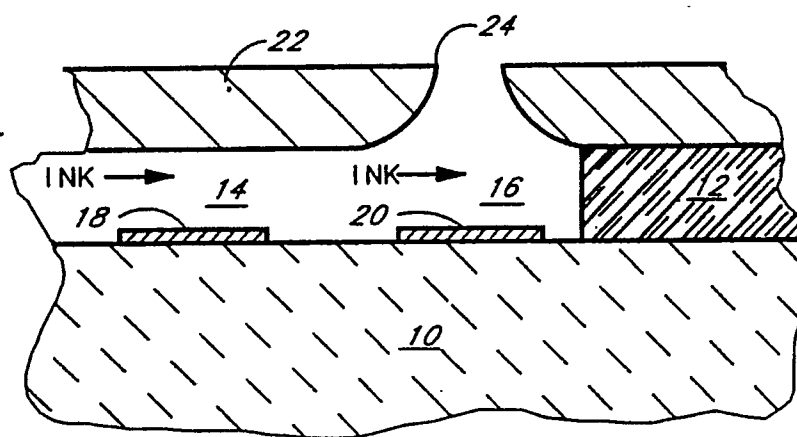
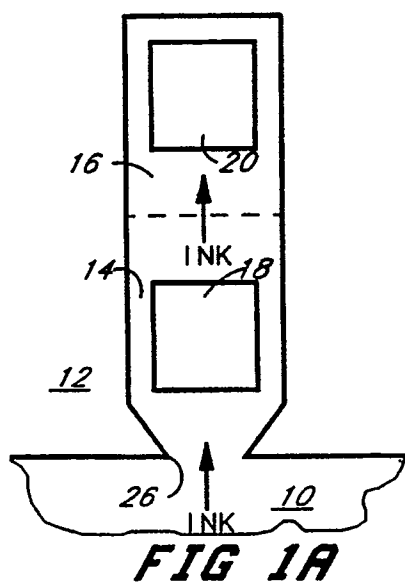
(74) Representative: **Williams, John Francis et al**
J.F. Williams & Co 34 Tavistock Street
London WC2E 7PB(GB)

(54) **Integral thin film injection system for thermal ink jet heads and methods of operation.**

(57) A novel thermal ink jet printhead and related methods of operation are described. Methods of manufacture of the printhead wherein multiple heater resistors (18,20) are connected in series between a source of ink supply (10) and an output ink ejection orifice (24). A primary heater resistor (20) is located in an ink ejection chamber (16) and adjacent an output ink ejection orifice (24). This resistor (20) propels ink away from the printhead, whereas another heater resistor (18) (or resistors) is removed

from the primary heater resistor (20) and is located in an adjacent ink injection chamber (14), and is operative to inject ink toward the primary heater resistor (20). In this manner, ink ejection operational frequency is increased and cavitation wear on the heater resistors (20) is minimized. Simultaneously, hydrodynamic back pressure in the ink ejection chamber (16) is reduced, and control over ink drop size and viscosity is improved.

EP 0 317 171 A3





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.4)
X	PATENT ABSTRACTS OF JAPAN vol. 12, no. 113 (M-683)(2960) 9 April 1988, & JP-A-62 240558 (CANON INC.) 21 October 1987, * the whole document *	1-7	B41J3/04 H01L49/02
X	PATENT ABSTRACTS OF JAPAN vol. 4, no. 187 (M-48)(669) 23 December 1980, & JP-A-55 132259 (CANON K.K.) 14 October 1980, * the whole document *	1-7	
X	US-A-4646110 (CANON K.K.) * column 9, lines 5 - 24; figure 6b *	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			B41J H01L
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 17 MAY 1990	Examiner PELSERS L.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			