(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 897 804 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
03.05.2000 Bulletin 2000/18

(43) Date of publication A2:
24.02.1999 Bulletin 1999/08

(21) Application number: **98303777.1**

(22) Date of filing: **14.05.1998**

(51) Int Cl.[7]: **B41J 2/21**, B41J 2/05, B41J 2/045

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **15.08.1997 US 911242**

(71) Applicant: **Xerox Corporation**
Rochester, New York 14644 (US)

(72) Inventors:
- **Xie, Yonglin**
  Webster, New York 14580 (CH)
- **Tracy, Mark D.**
  Rochester, NY 14617 (US)
- **Ferringer, Michael C.**
  Ontario, NY 14519 (US)
- **Rezanka, Ivan**
  Pittsford, NY 14534 (US)

(74) Representative:
Walker, Antony James Alexander et al
W.P. Thomson & Co.,
Coopers Building,
Church Street
Liverpool L1 3AB (GB)

(54) Liquid ink printhead

(57) A liquid ink printer including a liquid ink printhead for ejecting liquid ink drops on a recording medium to form an image thereon having reduced misting defects. A printhead includes a selection circuit (100), coupled to a plurality of transducers (92), for causing non-adjacent nozzles of an array of nozzles (50) to eject liquid ink drops substantially simultaneously. In addition, a method of reducing misting defects during printing of a line of an image by a liquid ink printhead having a plurality of transducers (92) being activatable to eject ink from an array of N nozzles (50) includes the steps of ejecting a first ink drop from a first nozzle and a second ink drop from a second nozzle substantially simultaneously to form a first portion of the line of the image, the first nozzle and the second nozzle being non-adjacent, and ejecting a third ink drop from a third nozzle of the array of nozzles to form a second portion of the line of the image, the third nozzle being located between the first nozzle and the second nozzle. Multiple ripples of the printhead nozzles are made to complete a single line of the image.

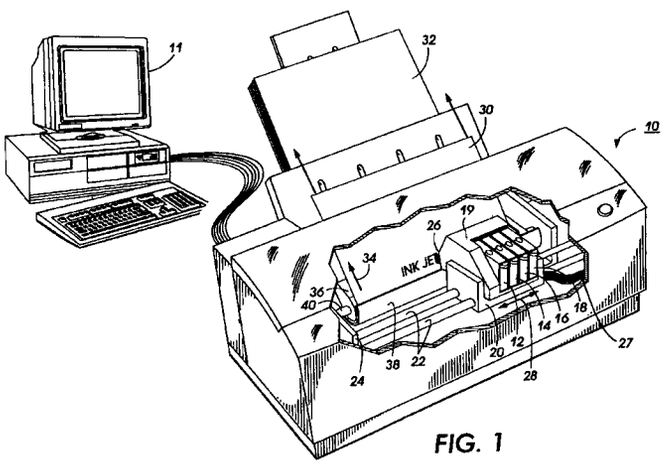

FIG. 1

EP 0 897 804 A3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 30 3777

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.6)
X	EP 0 461 939 A (CANON KK) 18 December 1991 (1991-12-18) * column 4, line 39 - column 8, line 10; figures 1,3,6 *	1-11	B41J2/21 B41J2/05 B41J2/045
X	EP 0 771 656 A (EASTMAN KODAK CO) 7 May 1997 (1997-05-07) * page 20, line 43 - page 22, line 3; figure 4 *	1-11	
X	EP 0 779 151 A (TOKYO ELECTRIC CO LTD) 18 June 1997 (1997-06-18) * page 8, line 32 - page 10, line 8; figure 5A *	1-3,6-11	
X	US 5 142 296 A (LOPEZ JUAN E ET AL) 25 August 1992 (1992-08-25) * column 2, line 54 - column 4, line 6; figure 1 *	1-3,6-11	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6) B41J

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	6 March 2000	Widmeier, W

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

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 98 30 3777

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

06-03-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0461939 A	18-12-1991	AT 137172 T	15-05-1996
		DE 69118967 D	30-05-1996
		DE 69118967 T	19-09-1996
		ES 2089134 T	01-10-1996
		JP 2984415 B	29-11-1999
		JP 4250050 A	04-09-1992
		JP 4250053 A	04-09-1992
		US 5726697 A	10-03-1998
EP 0771656 A	07-05-1997	JP 9164684 A	24-06-1997
EP 0779151 A	18-06-1997	JP 10146969 A	02-06-1998
		SG 68604 A	16-11-1999
US 5142296 A	25-08-1992	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82