



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 911 166 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
15.12.1999 Bulletin 1999/50

(51) Int. Cl.⁶: **B41J 2/105**, B41J 2/09

(43) Date of publication A2:
28.04.1999 Bulletin 1999/17

(21) Application number: **98203345.8**

(22) Date of filing: **05.10.1998**

(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: **17.10.1997 US 955562**

(71) Applicant: **EASTMAN KODAK COMPANY**
Rochester, New York 14650 (US)

(72) Inventors:
• **Chwalek, James Michael**
Rochester, New York 14650-2201 (US)
• **Anagnostopoulos, Constantine Nicholas**
Rochester, New York 14650-2201 (US)

(74) Representative:
Lewandowsky, Klaus, Dipl.-Ing. et al
Kodak Aktiengesellschaft,
Patentabteilung
70323 Stuttgart (DE)

(54) **Continuous ink jet printer with electrostatic drop deflection**

(57) Apparatus and process for controlling ink in a continuous ink jet printer in which a continuous stream (60) of ink is emitted from a nozzle includes an ink stream generator (50) which establishes a continuous flow of ink in a stream, the stream breaking up into a plurality of droplets (67) at a position spaced from the ink stream generator. A stream deflector adjacent to the stream between the ink stream generator and the position whereat the stream breaks up into droplets controls the direction of the stream between a print direction and a non-print direction. The apparatus may further include charging apparatus associated with the ink delivery channel to electrically charge the ink stream. The stream deflector includes at least one deflection electrode (65) and a deflection control circuit (13) adapted to selectively apply to the deflection electrode an electrical potential of a potential to deflect droplets from one of the print and non-print directions to the other of the print and non-print directions.

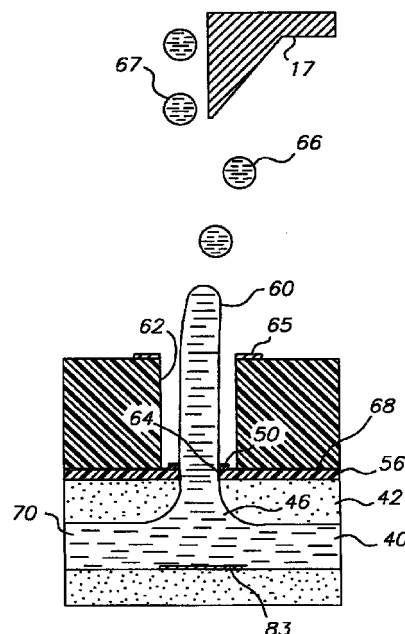


FIG. 2A

EP 0 911 166 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 20 3345

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,D	US 3 878 519 A (EATON JAMES H) 15 April 1975 (1975-04-15) * column 2, line 3 - column 3, line 25 * * column 4, line 36 - column 5, line 21 * * column 5, line 31 - column 6, line 27 * * claims 1,2; figures 1,3,4 *	1-3,5-10	B41J2/105 B41J2/09
X	US 4 274 100 A (POND STEPHEN F) 16 June 1981 (1981-06-16) * column 2, line 49 - column 3, line 27 * * column 3, line 55 - column 4, line 65 * * claims 1,9,12,18 *	1-3,6-10	
A	---	4	
X	US 5 070 341 A (WILLS LESLIE J ET AL) 3 December 1991 (1991-12-03) * column 3, line 53 - column 4, line 52 * * column 5, line 51 - column 6, line 48 * * column 8, line 52 - line 59 * * column 10, line 27 - column 11, line 27; figure 1 *	1,3,6-10	
A	---	2	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	US 5 001 497 A (WILLS LESLIE J ET AL) 19 March 1991 (1991-03-19) * column 2, line 54 - column 3, line 52 * * column 4, line 39 - column 5, line 35 * * claims 1,2; figures 2,3 *	1,3,6,7, 9,10	B41J
A	PATENT ABSTRACTS OF JAPAN vol. 005, no. 068 (M-067), 8 May 1981 (1981-05-08) & JP 56 019763 A (CANON INC), 24 February 1981 (1981-02-24) * abstract *	1,2,7,8	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 25 October 1999	Examiner Papastefanou, E
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 20 3345

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.

25-10-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3878519 A	15-04-1975	CA 1013019 A	28-06-1977
		DE 2460913 A	07-08-1975
		FR 2259647 A	29-08-1975
		GB 1452866 A	20-10-1976
		IT 1027657 B	20-12-1978
		JP 980904 C	18-12-1979
		JP 50110230 A	30-08-1975
		JP 54013783 B	02-06-1979
US 4274100 A	16-06-1981	CA 1129932 A	17-08-1982
		EP 0004737 A	17-10-1979
		GB 2042983 A, B	01-10-1980
		IT 1149219 B	03-12-1986
		JP 54136833 A	24-10-1979
		NL 7915014 A	30-06-1980
		NL 7915014 T	30-06-1980
		SE 444139 B	24-03-1986
		SE 8002979 A	21-04-1980
US 5070341 A	03-12-1991	AT 95760 T	15-10-1993
		AU 593140 B	01-02-1990
		AU 7918187 A	24-03-1988
		WO 8801572 A	10-03-1988
		DE 3787807 D	18-11-1993
		DE 3787807 T	10-02-1994
		EP 0323474 A	12-07-1989
US 5001497 A	19-03-1991	AT 105238 T	15-05-1994
		AU 602760 B	25-10-1990
		AU 1398488 A	26-09-1988
		WO 8806525 A	07-09-1988
		DE 3889450 D	09-06-1994
		DE 3889450 T	29-09-1994
		EP 0348422 A	03-01-1990
		JP 2502897 T	13-09-1990
JP 56019763 A	24-02-1981	NONE	