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(11)

EP 0 903 238 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
08.11.2000 Bulletin 2000/45

(51) Int Cl.7: **B41J 2/175**

(43) Date of publication A2:
24.03.1999 Bulletin 1999/12

(21) Application number: **98306329.8**

(22) Date of filing: **07.08.1998**

(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: **18.08.1997 US 914832**

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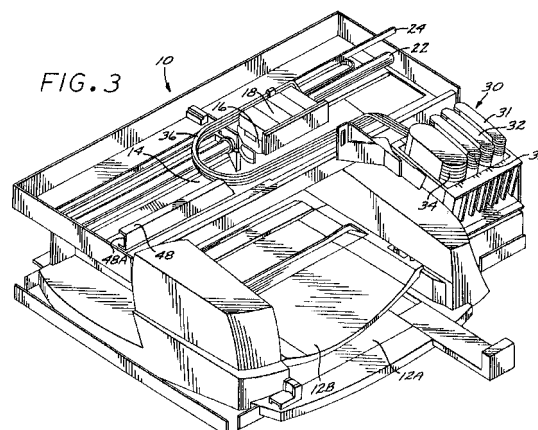
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(54) Ink delivery system for ink-jet printer

(57) An off-axis printing system (10) with high performance tubing. The printing system includes a media transporting system for transporting a print medium along a medium path to a print area (14), a scanning carriage (16) for holding a printing structure (18) including a printhead, and a scanning apparatus (22, 24) for scanning the carriage along a scanning axis transverse to the media path at the print area. The system further includes a fixed ink supply station (30) including an ink reservoir. A fluid conduit interconnects between the ink reservoir of the fixed ink supply station and the printing structure, the fluid conduit including a length of hollow flexible tubing routed such that a flexible loop is formed therein. The tubing includes a tubing material having an oxygen permeability characteristic of less than 100 cc•mil/(100 in²•day•atm), at 23°C, 0% RH. The tubing material has a tensile modulus characteristic value which is less than 300,000 pounds per square inch (psi), and a water vapor transmission rate of less than one g•mil/(100 in²•day), at 10% RH, 100°F. Particular tubing materials suitable for the purpose include polyvinylidene chloride copolymer, polychlorotrifluoroethylene copolymer, and ethylenechlorotrifluoroethylene.



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EUROPEAN SEARCH REPORT

Application Number
EP 98 30 6329

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)
A	EP 0 666 178 A (HEWLETT PACKARD CO) 9 August 1995 (1995-08-09) * the whole document *	1,13-15	B41J2/175
A	US 5 640 184 A (ADAMS-BRADY DAVID ET AL) 17 June 1997 (1997-06-17) * column 13, line 38 - line 56; figure 14 *	1,13-15	
A	PATENT ABSTRACTS OF JAPAN vol. 014, no. 327 (M-0998), 13 July 1990 (1990-07-13) & JP 02 111555 A (FUJITSU LTD), 24 April 1990 (1990-04-24) * abstract *	1	
A	PATENT ABSTRACTS OF JAPAN vol. 017, no. 291 (C-1067), 4 June 1993 (1993-06-04) & JP 05 017712 A (SEIKO EPSON CORP), 26 January 1993 (1993-01-26) * abstract *	1	
A	PATENT ABSTRACTS OF JAPAN vol. 004, no. 025 (M-001), 5 March 1980 (1980-03-05) & JP 55 002054 A (CANON INC), 9 January 1980 (1980-01-09) * abstract *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6) B41J
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 18 September 2000	Examiner Adam, 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.**

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The members are as contained in the European Patent Office EDP file on
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18-09-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0666178 A	09-08-1995	US 5751300 A JP 7251507 A	12-05-1998 03-10-1995
US 5640184 A	17-06-1997	US 5659346 A US 5771052 A US 5701148 A US 5605659 A CA 2163369 A DE 69509986 D DE 69509986 T EP 0699137 A EP 0896879 A EP 0896880 A JP 11058741 A JP 2868622 B JP 8506540 T WO 9525637 A	19-08-1997 23-06-1998 23-12-1997 25-02-1997 28-09-1995 08-07-1999 30-09-1999 06-03-1996 17-02-1999 17-02-1999 02-03-1999 10-03-1999 16-07-1996 28-09-1995
JP 02111555 A	24-04-1990	NONE	
JP 05017712 A	26-01-1993	NONE	
JP 55002054 A	09-01-1980	NONE	