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(71) Applicant: **ITW Limited**
Windsor Berkshire SL4 3BD (GB)

(72) Inventors:

- **Green, Michael Cameron**
Worth, Crawley RH10 4SL (GB)

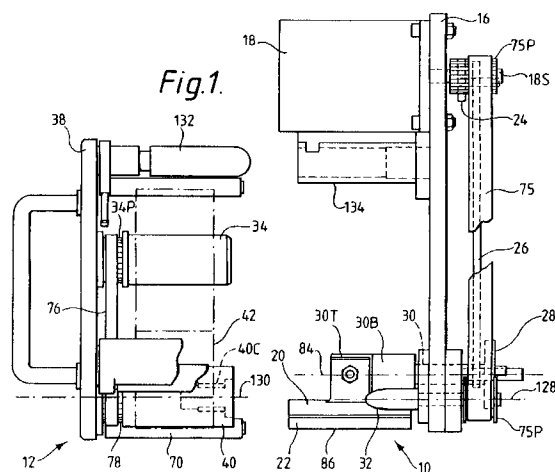
- **Palmer, Anthony James**
Redhill, Surrey RH1 2AR (GB)
- **Hall, Alan**
Woking, Surrey GU21 5EH (GB)

(74) Representative: **Blatchford, William Michael et al**
Withers & Rogers
4 Dyer's Buildings
Holborn
London EC1N 2JT (GB)

(54) **A printer for printing on a continuous print medium**

(57) A thermal printer for printing on a continuous print medium by ink transfer from a thermal print ribbon has a print head which is pivotally mounted and which is driven in an oscillatory nodding motion by means of a stepper motor so as repeatedly to bring a linear array of energisable printing elements to bear against a platen roller. Both the element array and the platen extend transversely to respective paths of travel of the print medium and the ribbon. The print medium is fed through the printer from an inlet region, between the platen and print head, and thence to an outlet region. The instantaneous rate of travel of the print medium past the print head is substantially the same as the rate of feed of print medium to the printer. Typically this rate is of the order of 250 to 400 mm per second. The ribbon also travels between the print head and the platen, overlying the print medium and is driven in such a manner that it travels at the same rate as the print medium during each printing operation. This is achieved by driving the ribbon with a motor the speed of which is controlled according to the sensed speed of travel of the print medium, e.g. by coupling the motor to processing circuitry which takes an input signal from a shaft encoder associated with the platen roller. Alternatively, the ribbon may be driven by frictional contact with the print medium. These methods of driving the ribbon have the advantage that the ribbon speed can be varied to take account of different print medium speeds, e.g. due to the requirements of differing packaging processes, and also in response to transient variations in print medium speed during each print-

ing operation.





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EUROPEAN SEARCH REPORT

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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	PATENT ABSTRACTS OF JAPAN vol. 010, no. 281 (M-520), 25 September 1986 & JP 61 102277 A (MITSUBISHI ELECTRIC CORP), 20 May 1986, * abstract *	1,15,21	B41J17/04 B41J3/28
X	--- PATENT ABSTRACTS OF JAPAN vol. 010, no. 100 (M-470), 16 April 1986 & JP 60 236779 A (FUJI XEROX KK), 25 November 1985, * abstract *	1-8, 13-15, 18-22	
A	--- PATENT ABSTRACTS OF JAPAN vol. 009, no. 139 (M-387), 14 June 1985 & JP 60 018363 A (FUJI XEROX KK), 30 January 1985, * abstract *	1-26	
A	--- EP 0 249 212 A (CASIO COMPUTER CO LTD) 16 December 1987 * the whole document *	1-26	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	--- US 5 093 675 A (KOURMURA NOBORU ET AL) 3 March 1992 * the whole document *	1-26	B41J
A	--- EP 0 138 444 A (TOSHIBA K.K.) * the whole document *	1-26	
A	--- US 4 933 867 A (ISHIGAKI) * the whole document *	1-26	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 11 September 1997	Examiner Joosting, T
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 I : document cited for other reasons & : member of the same patent family, corresponding document			

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