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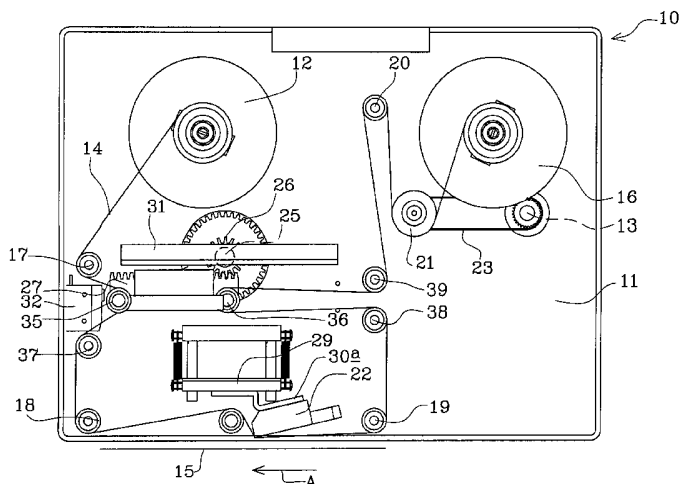
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- Published:**
- with international search report
 - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: IMPROVEMENTS IN OR RELATING TO PRINTING APPARATUS



(57) Abstract: A printing apparatus (10) includes a carrier ribbon supply tool (12) and a carrier ribbon take-up spool (16), a print head (22) having a plurality of heating elements which are individually addressable and energisable selectively to remove pixels of marking medium from the carrier ribbon (14) during a printing operation, a first motor (13) which when the printing apparatus (10) is operated in a first configuration, moves the print head (22) during a printing operation relative to a substrate (15) on which an image is to be printed and when the (10) is operated in a second configuration, the first motor (13) moving the carrier ribbon (14) relative to the print head (22) during a printing operation, and there being a second motor (25) which is operative when the printing apparatus (10) is operated in the first and second configurations to advance carrier ribbon (14) from which pixels of marking medium have been removed in a previous printing operation, onto the carrier ribbon take-up spool (16), the printing apparatus (10) being configurable to either of the first and second printing apparatus (10) being configurable to either of the first and second configurations.



(88) Date of publication of the international search report:

7 October 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

Int. Application No
PCT/GB 03/00123

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 B41J33/04 B41J33/14 B41J2/325

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B41J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 975 777 A (NELSON MICHAEL ROBERT ET AL) 2 November 1999 (1999-11-02) column 5, line 6 - column 7, line 19; figures 1,2	1-9
A	EP 0 945 273 A (MARKEM TECH LTD) 29 September 1999 (1999-09-29) column 4, line 24 - line 42	1-9
A	US 4 621 270 A (MIZUTANI MINORU ET AL) 4 November 1986 (1986-11-04) the whole document	1-9

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

9 May 2003

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25.08.2004

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 03/00123

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 11, 13, 15, 17, 18, 19
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-9

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/ GB 03/00123

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9

A printing apparatus being configurable to either a first or a second configuration, wherein in the first configuration a first motor moves the print head relative to a substrate and in the second configuration the first motor moves the carrier ribbon relative to the print head during a printing operation.

2. claims: 10, 12, 16

A printing apparatus wherein a first motor is provided to move the carrier ribbon relative to the print head during a printing operation and the carrier ribbon is moved past the print head inbetween printing operations to advance used ribbon onto the take-up spool in a direction opposite to the direction the ribbon is moved during a printing operation, and inbetween printing operations, a carrier ribbon length is advanced past the print head generally equal to the length of carrier ribbon used in the preceding printing operation plus the length of carrier ribbon to be used for the next printing operation.

3. claim: 14

A printing apparatus wherein the movement of the print head towards and away from the carrier ribbon is achieved as the print head is moved by a first motor via mechanical guide means including a cam and track.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/ GB 03/ 00123

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 11, 13, 15, 17, 18, 19

Present claims 11, 13, 15 and 19 relate to an extremely large number of possible apparatus. In fact, the claims contain so many options that a lack of clarity within the meaning of Article 6 PCT arises to such an extent as to render a meaningful search of the claims impossible.

The subject-matter according to claims 17 and 18 do not comprise any explicit features. Claims 17 and 18 do not meet the requirements of Rule 6.2(a) PCT.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Information on patent family members

Inte Application No

PCT/GB 03/00123

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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