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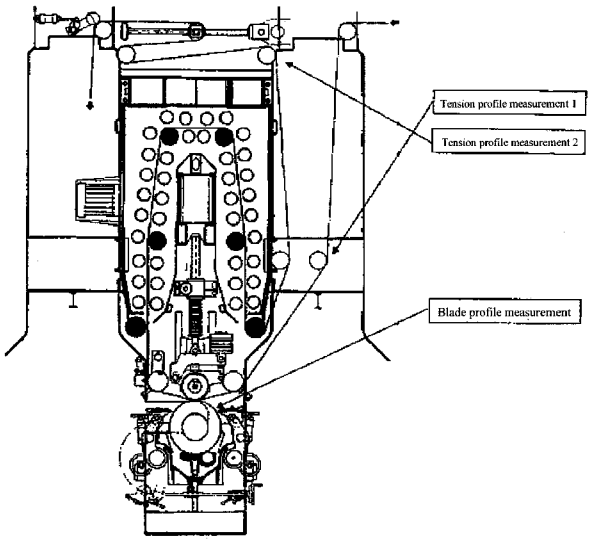
[Continued on next page]

(54) Title: METHOD AND ARRANGEMENT FOR MEASURING THE NIP PRESSURE AND/OR PRESSURE PROFILE IN THE NIP OF A PRINTING UNIT OF A PRINTING PRESS

FIG 1.



(57) Abstract: The invention relates to a method and an arrangement for measuring the nip pressure and/or pressure profile in the nip of a printing unit of a printing press. A force and/or pressure sensor, such as a pressure sensitive film, for example, an EMFi film sensor, is installed on the counter roller, rubber roller or roller forming the nip of a printing unit which participates in the printing unit in transferring printing ink onto the paper, plastic or other thin sheet-like material surface, wherein the pressure sensitive film is adapted to produce, in connection with a deformation of the force and/or pressure sensor, an electrical signal corresponding to the magnitude of the deformation. The rollers forming the nip are caused to rotate in relation to one another such that the nip pressure of the nip causes a deformation of the force and/or pressure sensor producing an electrical signal corresponding to the deformation of the nip. The nip pressure and/or pressure profile of the nip is calculated by using the electrical signal produced by the deformation of the force and/or pressure sensor.

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TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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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)
B41F

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 62 191148 A (MITSUBISHI HEAVY IND LTD) 21 August 1987 (1987-08-21) the whole document	1-14
X	JP 62 165135 A (MITSUBISHI HEAVY IND LTD) 21 July 1987 (1987-07-21) the whole document	1-14
X	EP 0 867 281 A (SCHIAVI SPA [IT]) 30 September 1998 (1998-09-30) column 4, line 47 - column 5, line 13 column 8, line 8 - line 18; figure w	1-14
X	EP 1 772 266 A (WIFAG MASCHF [CH]) 11 April 2007 (2007-04-11) paragraphs [0024], [0025] paragraphs [0029] - [0032], [0040]; claims	1-14

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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"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

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
7 September 2009	12/10/2009

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Haaken, Willy

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 477 315 A (KOENIG & BAUER AG [DE]) 17 November 2004 (2004-11-17) paragraph [0014] - paragraph [0027]	1-14
X	EP 1 493 565 A (KOENIG & BAUER AG [DE]) 5 January 2005 (2005-01-05) paragraph [0008] - paragraph [0037]; figures	1-14
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INTERNATIONAL SEARCH REPORT

International application No
PCT/FI2009/050103

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
L	DE 10 2007 028157 A1 (KOENIG & BAUER AG [DE]) 23 April 2009 (2009-04-23) paragraph [0007]	
A	EP 1 707 360 A (KOENIG & BAUER AG [DE]) 4 October 2006 (2006-10-04) paragraph [0037] - paragraph [0040]	15
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P,X	WO 2008/028516 A (METSO PAPER INC [FI]; BOGA WAYNE [US]) 13 March 2008 (2008-03-13) abstract; claims 1,2; figures	15

INTERNATIONAL SEARCH REPORT

International application No.
PCT/FI2009/050103

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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.:
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:

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 No. III Observations where unity of invention is lacking (Continuation of item 3 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 allsearchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers 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.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-14

A method for measuring the nip pressure and/or pressure profile in the nip of a printing press, wherein in a force and/or pressure sensor, such as an electromechanical film sensor, for example, an EMFi film sensor, is installed on the counter roller, rubber roller or roller forming the nip of a printing unit which participates in the printing unit in transferring printing ink onto the paper, plastic or other thin, sheet-like material surface, wherein the pressure sensitive film is adapted to produce, in connection with a deformation of the force and/or pressure sensor, an electrical signal corresponding to the magnitude of the deformation, that the rollers forming the nip are caused to rotate in relation to one another
such that the nip pressure of the nip causes a deformation of the force and/or pressure sensor producing an electrical signal corresponding to the deformation of the nip, and that the nip pressure and/or pressure profile of the nip is calculated by using the electrical signal produced by the deformation of the force and/or pressure sensor and related arrangement.

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2. claim: 15

A method for adjusting a rotary printing press, characterized in that the crosswise profile of tension in the machine direction of the printing substrate used in the rotary printing press is measured from some process site roller and/or the nip pressure and/or pressure profile is measured from at least one roller forming the nip which participates in the printing unit in transferring printing ink onto the substrate, such as paper, plastic or other thin web-like material surface, and adjusting the angle of detachment between the web-like printing substrate and the roller transferring ink on
the basis of the information obtained.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/FI2009/050103

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Information on patent family members

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