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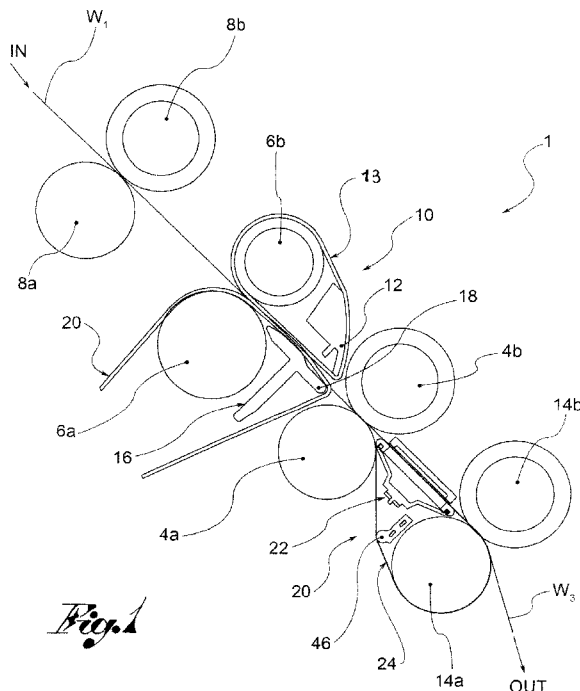
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Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

[Continued on next page]

(54) Title: DEVICE FOR COMPACTING A YARN IN A SPINNING MACHINE



(57) Abstract: A device (20) for compacting a fibre yarn (W_1) comprises a first pair of drawing cylinders (4a, 4b) and an auxiliary pair of cylinders comprising an auxiliary cylinder (14a) and a pressure cylinder (14b) in pressure contact therewith, downstream of the first pair of drawing cylinders. A suction table (22) is positioned between the first pair of drawing cylinders and the auxiliary pair of cylinders and is provided with a suction aperture (34); an auxiliary belt (24) permeable to air and passing over the suction aperture (34) slides on the suction table (22). The auxiliary cylinder (14a) is moved by the first drawing cylinder (4a).



— *of inventorship (Rule 4.17(iv))*

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16 July 2015

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INTERNATIONAL SEARCH REPORT

International application No PCT/IB2014/063557
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A. CLASSIFICATION OF SUBJECT MATTER INV. D01H5/72 ADD.		
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) D01H		
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 practicable, search terms used) EPO-Internal, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 2 333 137 A1 (TOYOTA JIDOSHOKKI KK [JP]) 15 June 2011 (2011-06-15) paragraph [0008] - paragraph [0017]; figures 1A,2B paragraph [0025]	1,4,7,10
X	DE 103 43 316 A1 (STAHLCKER GMBH WILHELM [DE]) 14 April 2005 (2005-04-14) paragraph [0017] - paragraph [0026]; figures 1-2 paragraph [0030]	1,4,6,7, 10,11
X	EP 1 911 865 A2 (TOYOTA JIDOSHOKKI KK [JP]) 16 April 2008 (2008-04-16) paragraph [0012] - paragraph [0023]; figures 1A-1B,3A	1,6,7,9, 10
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<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family 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 application or patent 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	Date of mailing of the international search report	
13 March 2015	23/03/2015	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Pollet, Didier	

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International application No
PCT/IB2014/063557

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2001/003324 A1 (BLANKENHORN PETER [DE]) 14 June 2001 (2001-06-14) paragraph [0032] - paragraph [0036]; figure 3 -----	1,4
X	DE 199 21 966 A1 (SCHURR STAHLCKER & GRILL [DE] SPINDELFABRIK SUESSEN GMBH [DE]) 16 November 2000 (2000-11-16) column 3, line 4 - line 34; figure 3 -----	1,4
X	DE 197 08 410 A1 (CSM GMBH [DE] SAURER GMBH & CO KG [DE]) 17 September 1998 (1998-09-17) column 4, line 42 - column 5, line 62; figures 1,3 -----	1,4
X	EP 1 300 495 A1 (TOYOTA JIDOSHOKKI KK [JP]) 9 April 2003 (2003-04-09) paragraph [0013] - paragraph [0021]; figures 1-3,8 column 8, line 37 - line 49 -----	1,9-12
X	WO 98/39505 A2 (CSM GMBH [DE]; REBSKE GUNTER [DE]; JENKNER TORALF [DE]; LOESCHER RAINE) 11 September 1998 (1998-09-11) page 9, paragraph 2 - page 10, paragraph 3; figure 1 page 16, line 2 - line 4; figure 12 -----	1,13,16
A	CN 201 695 123 U (CHANGZHOU TONGHE TEXTILE MACHINERY MANUFACTURE CO LTD) 5 January 2011 (2011-01-05) abstract; figure 1 -----	13
A	CN 201 220 988 Y (DONGTAI TEXTILE MACHINERY CO [CN]) 15 April 2009 (2009-04-15) abstract; figures 1-2 -----	13

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/IB2014/063557

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2333137	A1	15-06-2011	CN 102094267 A 15-06-2011
			EP 2333137 A1 15-06-2011
			JP 5251855 B2 31-07-2013
			JP 2011122273 A 23-06-2011

DE 10343316	A1	14-04-2005	CN 1600912 A 30-03-2005
			DE 10343316 A1 14-04-2005
			ES 2259880 A1 16-10-2006
			JP 2005082956 A 31-03-2005

EP 1911865	A2	16-04-2008	CN 101270516 A 24-09-2008
			EP 1911865 A2 16-04-2008
			JP 4844336 B2 28-12-2011
			JP 2008095233 A 24-04-2008

US 2001003324	A1	14-06-2001	DE 19959563 A1 13-06-2001
			US 2001003324 A1 14-06-2001

DE 19921966	A1	16-11-2000	DE 19921966 A1 16-11-2000
			IT MI20000745 A1 08-10-2001
			MX PA00004457 A 08-03-2002
			US 6272834 B1 14-08-2001

DE 19708410	A1	17-09-1998	NONE

EP 1300495	A1	09-04-2003	CN 1443883 A 24-09-2003
			DE 60222355 T2 29-05-2008
			EP 1300495 A1 09-04-2003
			JP 3820951 B2 13-09-2006
			JP 2003113540 A 18-04-2003
			KR 20030029015 A 11-04-2003
			TW 592223 U 11-06-2004

WO 9839505	A2	11-09-1998	AU 6917998 A 22-09-1998
			EP 0964945 A2 22-12-1999
			TR 9902118 T2 22-01-2001
			WO 9839505 A2 11-09-1998

CN 201695123	U	05-01-2011	NONE

CN 201220988	Y	15-04-2009	NONE

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2014/063557

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 all searchable 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 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.:

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: 1-10

Device for compacting a yarn comprising a first pair of cylinders (4a, 4b), an auxiliary pair of cylinders (14a, 14b), a suction table (22) and an air permeable belt (24) travelling around the suction table and the bottom auxiliary cylinder (14a). (see Fig. 1)

2. claim: 11

Compacting assembly of a fibre yarn comprising a first pair of cylinders (4a, 4b), an air suction compacting device comprising an auxiliary pair of cylinders (14a, 14b) and gear drive means (400) for moving the bottom auxiliary cylinder (14a). (see Fig. 18)

3. claim: 12

Spinning machine comprising a lower cylinder (4a) in pressure contact with a plurality of pressure cylinders (4b), a plurality of coaxial auxiliary cylinders (14a) in pressure contact with a plurality of pressure cylinders (14b), and a plurality of modular suction groups (50) each comprising a suction table (22) and an air permeable belt (24) travelling around the suction table and the respective auxiliary cylinder wherein the auxiliary cylinders (14a) are axially separate for the fitting of replacement auxiliary belts. (see Figs. 6 and 8)

4. claims: 13-16

Spinning machine comprising a lower cylinder (4a) in pressure contact with a plurality of pressure cylinders (4b), a plurality of coaxial auxiliary cylinders (14a) in pressure contact with a plurality of pressure cylinders (14b), a plurality of modular suction groups (50) each comprising a suction table (22), and a suction apparatus (300) comprising a single main collecting duct (308), a plurality of secondary collecting ducts (304) and a plurality of end suction ducts (302). (see Fig. 10)
