



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
30.12.2009 Bulletin 2009/53

(51) Int Cl.:
B65H 59/22 (2006.01)

(43) Date of publication A2:
01.10.2008 Bulletin 2008/40

(21) Application number: **08004414.2**

(22) Date of filing: **10.03.2008**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR
Designated Extension States:
AL BA MK RS

(72) Inventor: **Shimizu, Ryo**
Fushimi-ku
Kyoto-shi
Kyoto (JP)

(74) Representative: **Liedl, Christine et al**
Hansmann & Vogeser
Albert-Rosshaupter-Strasse 65
81369 München (DE)

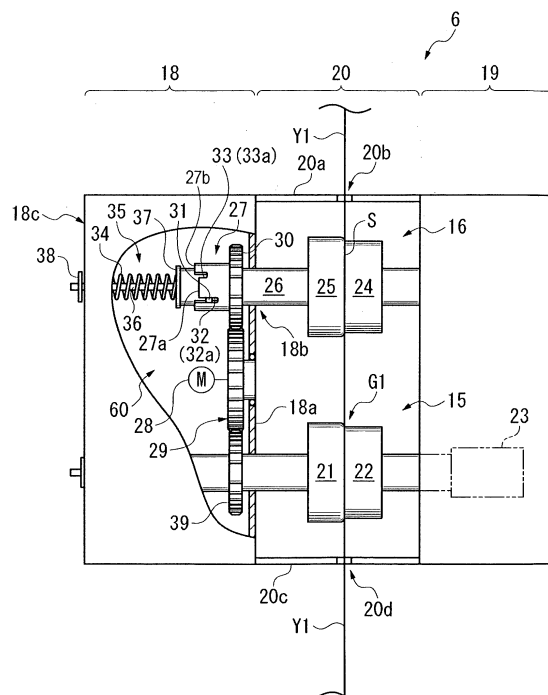
(30) Priority: **30.03.2007 JP 2007091765**

(71) Applicant: **Murata Machinery, Ltd.**
Kyoto 601 (JP)

(54) **Tension applying device**

(57) A tension applying device has a fixed disc 24 and a movable disc 25 provided close to the fixed disc 24, and includes a plurality of tension applying portions 15, 16 that slide a traveling yarn Y1 between the fixed disc 24 and the movable disc 25 to apply tension to the yarn Y1. At least any one of the plurality of tension applying portions 15, 16, for example, the tension applying portion 16, includes a compression coil spring 34 on the movable disc 25 side and is configured such that action of the compression coil spring 34 biases said movable disc 25 toward said fixed disc 24. The tension applying device further includes a switching means 60 for switching the tension applying portion 16 between an operative state in which the tension applying portion 16 applies tension to the yarn Y1 and an inoperative state in which the tension applying portion 16 applies no tension to the yarn Y1 (Fig.2).

FIGURE 2





EUROPEAN SEARCH REPORT

Application Number
EP 08 00 4414

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 99/52806 A1 (SUCKER MUELLER HACOPA GMBH [DE]; KREMER HUBERT [DE]; ALDER GUENTER [DE] 21 October 1999 (1999-10-21) * page 10, lines 14-25 * * page 13, lines 8-16 * * page 14, line 22 - page 15, line 12; figures *	1-3	INV. B65H59/22
X	US 3 181 569 A (CARROLL WILLIAM J) 4 May 1965 (1965-05-04) * column 1, line 56 - column 2, line 36; figures *	1-3	
A		6	
X	US 4 157 722 A (HOSONO ISAMU [JP]; OGAWA MIKIYOSHI [JP]; OHNISHI KIMIMASA [JP]; TOJO A) 12 June 1979 (1979-06-12) * column 4, lines 7-32; figures *	1-3	
A		6	
X	BE 1 004 027 A3 (PICANOL NV) 8 September 1992 (1992-09-08) * figures 1,2 *	1-3	
X	JP 08 060500 A (TERUMITSUKU KK) 5 March 1996 (1996-03-05) * abstract; figures *	1-3	TECHNICAL FIELDS SEARCHED (IPC) B65H
X	CH 183 431 A (SCHWEITER AG MASCHF [CH]) 15 April 1936 (1936-04-15) * the whole document *	1-3	
A	EP 1 167 592 A1 (VOLKMANN GMBH [DE]) 2 January 2002 (2002-01-02) * paragraphs [0007] - [0013]; figures *	4	
A	DE 15 10 860 B1 (PALITEX PROJECT CO GMBH) 29 June 1972 (1972-06-29) * column 5, line 27 - column 6, line 33; figures *	4-5	
		-/--	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 20 November 2009	Examiner Lemmen, René
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	

 3
EPO FORM 1503 03.82 (P04C01)



EUROPEAN SEARCH REPORT

Application Number
EP 08 00 4414

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	FR 1 497 288 A (PALITEX PROJECT CO GMBH) 6 October 1967 (1967-10-06) * figures 2,3 *	4	
A	WO 87/02393 A1 (MURATA MACHINERY LTD [JP]) 23 April 1987 (1987-04-23) * figures *	4	
A	EP 0 620 301 A1 (PALITEX PROJECT CO GMBH [DE]) 19 October 1994 (1994-10-19) * figures 3,4,4a,4b,4c *	5	
A	US 2 587 114 A (CHAPMAN MARION P) 26 February 1952 (1952-02-26) * column 3, lines 12-23; figures *	6	
A	DE 101 07 311 A1 (IRO PATENT AG BAAR [CH]) 29 August 2002 (2002-08-29) * figure 3 *	6	
A,D	JP 07 033982 U (-) 23 June 1995 (1995-06-23) * abstract; figures *	1	TECHNICAL FIELDS SEARCHED (IPC)
A,D	JP 10 297825 A (MURATA MACHINERY LTD) 10 November 1998 (1998-11-10) * abstract; figures *	1	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 20 November 2009	Examiner Lemmen, René
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

 3
EPO FORM 1503 03.82 (P04C01)



Application Number

EP 08 00 4414

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

EP 08 00 4414

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-4

Tension applying device with switching means for switching a tension applying portion between an operative state and an inoperative state wherein the switching means comprises a rod with a projection inserted in a cylinder with a bias allowing groove and a bias regulating groove.

2. claims: 1-3, 5, 7

Tension applying device with switching means for switching a tension applying portion between an operative state and an inoperative state wherein the switching means comprises a rod with teeth and a bias transmitting rod interposed between said rod with teeth and an elastic body.

3. claims: 1-3, 6-7

Tension applying device with switching means for switching a tension applying portion between an operative state and an inoperative state wherein the switching means comprises a spring rod and a slip-out preventing member and an interposing member insertable between a housing and the slip-out preventing member.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 00 4414

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-11-2009

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9952806	A1	21-10-1999	BR 9906354 A	19-09-2000
			CN 1263509 A	16-08-2000
			DE 29806739 U1	02-09-1999
			EP 0989951 A1	05-04-2000
			ES 2161565 T3	01-12-2001
			TR 9903078 T1	21-11-2000
			US 6283399 B1	04-09-2001

US 3181569	A	04-05-1965	NONE	

US 4157722	A	12-06-1979	CS 198282 B2	30-05-1980
			DE 2801056 A1	05-10-1978
			FR 2384876 A1	20-10-1978
			GB 1564246 A	02-04-1980
			JP 1182590 C	27-12-1983
			JP 53119365 A	18-10-1978
			JP 58013659 B	15-03-1983
			NL 7714485 A	28-09-1978

BE 1004027	A3	08-09-1992	NONE	

JP 8060500	A	05-03-1996	NONE	

CH 183431	A	15-04-1936	NONE	

EP 1167592	A1	02-01-2002	CN 1333392 A	30-01-2002
			CZ 20012393 A3	13-02-2002
			DE 10032141 A1	17-01-2002
			HK 1043815 A1	03-12-2004
			JP 2002068596 A	08-03-2002
			TR 200400026 T4	23-02-2004
			US 2002002814 A1	10-01-2002

DE 1510860	B1	29-06-1972	GB 1107290 A	27-03-1968

FR 1497288	A	06-10-1967	NONE	

WO 8702393	A1	23-04-1987	DE 3580919 D1	24-01-1991
			EP 0240566 A1	14-10-1987
			US 4782653 A	08-11-1988

EP 0620301	A1	19-10-1994	CN 1109115 A	27-09-1995
			CZ 9400579 A3	19-10-1994
			DE 4408262 A1	20-10-1994
			US 5487263 A	30-01-1996

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 00 4414

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

20-11-2009

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 2587114	A	26-02-1952	NONE	

DE 10107311	A1	29-08-2002	AU 2002234633 A1	04-09-2002
			CN 1535336 A	06-10-2004
			WO 02066354 A2	29-08-2002
			EP 1401751 A2	31-03-2004

JP 7033982	U	23-06-1995	JP 2606024 Y2	11-09-2000

JP 10297825	A	10-11-1998	CN 1197761 A	04-11-1998
			JP 2904183 B2	14-06-1999
