



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**30.03.2011 Bulletin 2011/13**

(43) Date of publication A2:  
**12.05.2010 Bulletin 2010/19**

(21) Application number: **09173899.7**

(22) Date of filing: **23.10.2009**

(51) Int Cl.:  
**B65H 51/06** (2006.01) **B65H 54/20** (2006.01)  
**B65H 57/04** (2006.01) **B65H 57/08** (2006.01)  
**B65H 54/28** (2006.01) **D01D 10/00** (2006.01)  
**D01D 13/00** (2006.01)

(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 MK MT NL NO PL PT RO SE SI SK SM TR**  
Designated Extension States:  
**AL BA RS**

(30) Priority: **06.11.2008 JP 2008284990**

(71) Applicant: **TMT Machinery, Inc.**  
**Osaka-shi, Osaka 541-0041 (JP)**

(72) Inventor: **Hashimoto, Kinzo**  
**Kyoto (JP)**

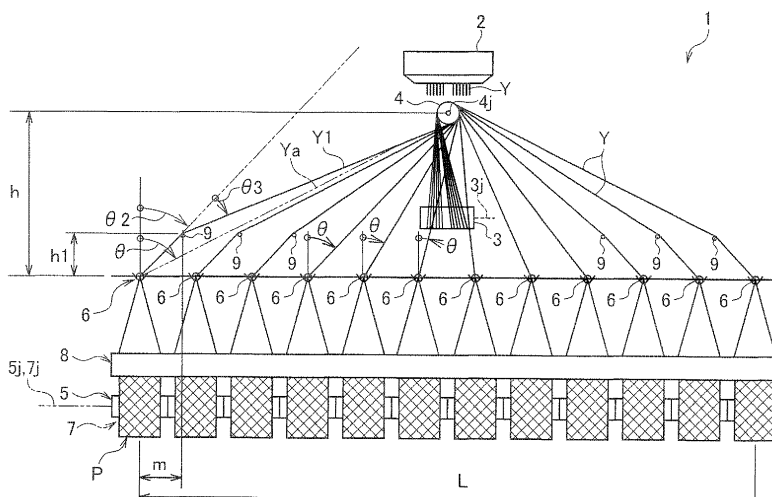
(74) Representative: **HOFFMANN EITLE**  
**Patent- und Rechtsanwälte**  
**Arabellastraße 4**  
**81925 München (DE)**

(54) **Take-up winder**

(57) An object of the present invention is to set a bend angle  $\theta$  equal to or smaller than a management upper-limit bend angle  $\theta_k$  and to reduce the need to install a second godet roller at a higher position without the need to increase the number of guides. A take-up winder 1 includes a spinning section 2, a first godet roller 3 and a second godet roller 4 arranged in order along yarn paths of yarns Y spun by the spinning section 2, a bobbin holder 5 supporting a plurality of take-up bobbins 7 around which the respective yarns Y fed from the second godet roller 4 are wound, and a plurality of traverse support point

guides 6 each configured to set a traverse support point for traversing of the corresponding one of the yarns Y fed from the second godet roller 4. The plurality of winding bobbins 7 are coaxially supported by the bobbin holder 5. The axial direction 4j of the second godet roller 4 is set to be orthogonal to the axial direction 7j of the take-up bobbins 7. Each of the yarns Y bent at the respective traverse support point guides 6 by more than the management upper-limit bend angle  $\theta_k$  is bent by a close guide 9 provided upstream of and close to the corresponding traverse support point guide 6.

**FIGURE 3**





## EUROPEAN SEARCH REPORT

Application Number  
EP 09 17 3899

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	DE 102 35 936 A1 (BARMAG BARMER MASCHF [DE]) 19 February 2004 (2004-02-19) * paragraphs [0037] - [0038]; figure 5 *	1	INV. B65H51/06 B65H54/20 B65H57/04 B65H57/08 B65H54/28 D01D10/00 D01D13/00
X	WO 2004/074155 A1 (SAURER GMBH & CO KG [DE]; KIRCHHOFF BERND [DE]; ARETZ BERND [DE]) 2 September 2004 (2004-09-02) * figure 1 *	1	
A,D	JP 61 027875 A (TORAY INDUSTRIES) 7 February 1986 (1986-02-07) * abstract; figure 1 *	1	
A	WO 2006/126413 A1 (TMT MACHINERY INC [JP]; WEN RUIMING; NAKAGAWA OSAMU) 30 November 2006 (2006-11-30) * figure 2 *	1	
A	WO 2007/085274 A1 (SAURER GMBH & CO KG [DE]; SCHROETER MICHAEL [DE]; WEIGEND HELMUT [DE]) 2 August 2007 (2007-08-02) * figure 5 *	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65H D01D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 11 February 2011	Examiner Pussemier, Bart
<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 &amp; : member of the same patent family, corresponding document</p>			

 1  
EPO FORM 1503 03.82 (P04C01)

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

EP 09 17 3899

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.

11-02-2011

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 10235936 A1	19-02-2004	AU 2003266247 A1	25-02-2004
		CN 1671894 A	21-09-2005
		WO 2004015173 A1	19-02-2004
		EP 1527217 A1	04-05-2005
		JP 4204548 B2	07-01-2009
		JP 2005534825 T	17-11-2005
		KR 20050048591 A	24-05-2005
		MX PA05001020 A	23-11-2005
		US 2005129799 A1	16-06-2005
-----	-----	-----	-----
WO 2004074155 A1	02-09-2004	CN 1764585 A	26-04-2006
		EP 1594785 A1	16-11-2005
		US 2006003037 A1	05-01-2006
-----	-----	-----	-----
JP 61027875 A	07-02-1986	JP 1621045 C	09-10-1991
		JP 2041490 B	18-09-1990
-----	-----	-----	-----
WO 2006126413 A1	30-11-2006	CN 101166851 A	23-04-2008
		JP 4491017 B2	30-06-2010
-----	-----	-----	-----
WO 2007085274 A1	02-08-2007	CN 101336316 A	31-12-2008
		EP 1979513 A1	15-10-2008
		JP 2009524746 T	02-07-2009
		KR 20080090533 A	08-10-2008
		US 2009022833 A1	22-01-2009
-----	-----	-----	-----