



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
14.10.2015 Bulletin 2015/42

(51) Int Cl.:
B65H 54/10 (2006.01) B65H 54/38 (2006.01)

(43) Date of publication A2:
05.12.2012 Bulletin 2012/49

(21) Application number: **12156893.5**

(22) Date of filing: **24.02.2012**

(84) Designated Contracting States:
AL 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 RS SE SI SK SM TR
 Designated Extension States:
BA ME

(72) Inventor: **Muta, Katsufumi**
Kyoto-shi, Kyoto 612-8686 (JP)

(74) Representative: **Stöckeler, Ferdinand et al**
Schoppe, Zimmermann, Stöckeler
Zinkler, Schenk & Partner mbB
Patentanwälte
Radtkoferstrasse 2
81373 München (DE)

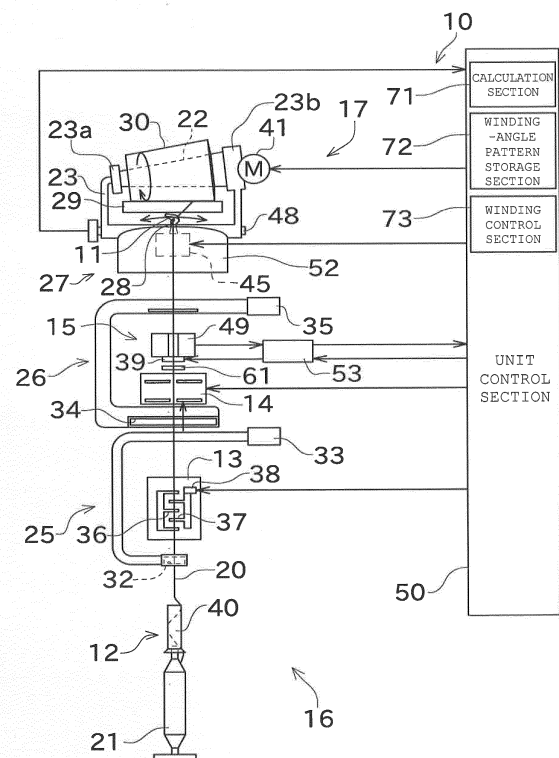
(30) Priority: **02.06.2011 JP 2011124660**

(71) Applicant: **Murata Machinery, Ltd.**
Minami-ku
Kyoto-shi
Kyoto 601-8326 (JP)

(54) **Yarn winding device**

(57) A yarn winding device includes a winding section (17), a winding-angle pattern storage section (72), and a winding control section (73). The winding section is adapted to wind a yarn (20) around a winding bobbin (22) to form a conical package (30). The winding-angle pattern storage section is adapted to store a winding-angle pattern that associates a thickness of a yarn layer of the package with a winding-angle. The winding control section is adapted to control the winding section so as to wind the yarn with the winding-angle determined in accordance with the winding-angle pattern stored in the winding-angle pattern storage section.

FIG. 2





EUROPEAN SEARCH REPORT

Application Number
EP 12 15 6893

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	EP 1 321 412 A2 (SCHLAFHORST & CO W [DE]) 25 June 2003 (2003-06-25) * paragraphs [0021], [0027]; figures * -----	1-7	INV. B65H54/10 B65H54/38
Y,D	JP 3 288769 A (-) 18 December 1991 (1991-12-18) * abstract; figures * -----	1-7	
A	EP 1 300 356 A1 (ASAHI CHEMICAL IND [JP]) 9 April 2003 (2003-04-09) * paragraphs [0043] - [0045] * -----	1-7	
A	JP H07 61708 A (TOYO BOSEKI) 7 March 1995 (1995-03-07) * abstract; figures * -----	1-7	
A,D	JP 2007 204191 A (MURATA MACHINERY LTD) 16 August 2007 (2007-08-16) * abstract; figures * -----	1-7	
A	JP H05 116847 A (TEIJIN LTD) 14 May 1993 (1993-05-14) * abstract; figures * -----	1-7	TECHNICAL FIELDS SEARCHED (IPC) B65H
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 7 September 2015	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	

EPO FORM 1503 03.82 (P04/C01)

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

EP 12 15 6893

5

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.

07-09-2015

10

15

20

25

30

35

40

45

50

55

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1321412	A2	25-06-2003	CN 1426947 A	02-07-2003
			DE 10162778 A1	03-07-2003
			EP 1321412 A2	25-06-2003
			US 2003116673 A1	26-06-2003

JP 3288769	A	18-12-1991	-----	
EP 1300356	A1	09-04-2003	AT 305891 T	15-10-2005
			AU 6945801 A	21-01-2002
			BR 0112153 A	10-02-2004
			CN 1440362 A	03-09-2003
			DE 60113845 T2	06-07-2006
			EP 1300356 A1	09-04-2003
			ES 2246329 T3	16-02-2006
			JP 3683251 B2	17-08-2005
			KR 20030020310 A	08-03-2003
			MX PA02012566 A	22-09-2003
			TW 505712 B	11-10-2002
			US 2003161979 A1	28-08-2003
			WO 0204332 A1	17-01-2002

JP H0761708	A	07-03-1995	NONE	

JP 2007204191	A	16-08-2007	EP 1813563 A2	01-08-2007
			EP 1947046 A1	23-07-2008
			EP 1947047 A1	23-07-2008
			JP 2007204191 A	16-08-2007

JP H05116847	A	14-05-1993	JP 2851464 B2	27-01-1999
			JP H05116847 A	14-05-1993

EPO FORM P0459

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