



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
23.01.2008 Bulletin 2008/04

(51) Int Cl.:
B65H 49/34 (2006.01) **B65H 59/38** (2006.01)
B65H 51/20 (2006.01) **B65H 54/22** (2006.01)
B65H 54/44 (2006.01) **B65H 67/08** (2006.01)
B65H 63/08 (2006.01)

(43) Date of publication A2:
24.10.2007 Bulletin 2007/43

(21) Application number: **07105989.3**

(22) Date of filing: **11.04.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

Designated Extension States:
AL BA HR MK YU

(72) Inventor: **Todo, Yuji**
Murata Kikai Kabushiki Kaisha
Kyoto-shi Kyoto 612-8686 (JP)

(74) Representative: **Gritschneider, Martin et al**
Abitz & Partner - Patentanwälte
Hörselbergstrasse, 6
81628 München (DE)

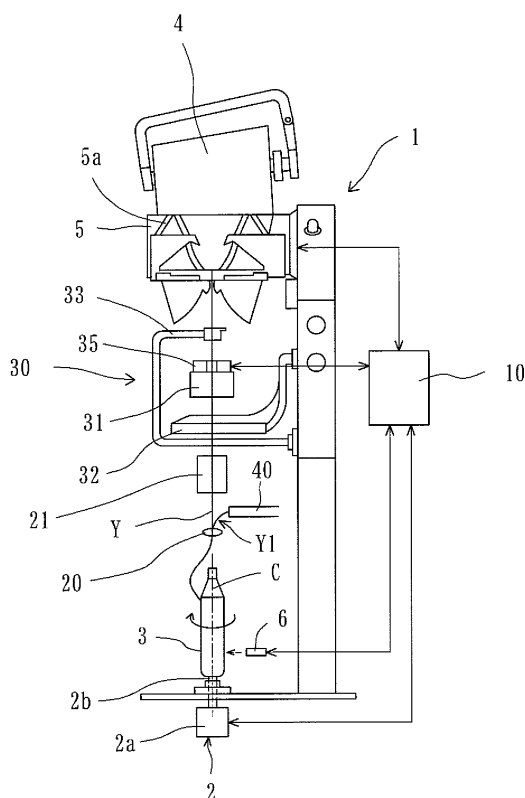
(30) Priority: **17.04.2006 JP 2006113037**

(71) Applicant: **MURATA KIKAI KABUSHIKI KAISHA**
Kyoto
Kyoto-shi (JP)

(54) **Automatic winder**

(57) The present invention provides an automatic winder capable of suppressing sloughing and fluffing even when used with yarn supply bobbins for various counts and types of yarn, including fine count yarns. The automatic winder unwinds a yarn Y from a yarn supply bobbin 3, and winds the yarn onto a package 4. The automatic winder includes rotational drive means 2 for rotationally driving the yarn supply bobbin 3 about its central axis C in the yarn unwinding direction to positively unwind the yarn Y.

FIG. 1





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 10 5989

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	CH 542 781 A (SCHWEITER AG MASCHF [CH]) 15 October 1973 (1973-10-15)	1	INV. B65H49/34
Y	* column 2, line 50 - column 3, line 14; figure 1 *	2,3	B65H59/38 B65H51/20 B65H54/22
Y	EP 1 445 227 A1 (SAURER GMBH & CO KG [DE]) 11 August 2004 (2004-08-11) * column 3, paragraph 12; figure 1 *	2	B65H54/44 B65H67/08 B65H63/08
Y	JP 02 231371 A (LOSSEV TECH CORP) 13 September 1990 (1990-09-13) * abstract; figure 1 *	3	
X	DE 212 586 C (ALLGEMEINE ELEKTRIZITÄTS-GESELLSCHAFT IN BERLIN) 26 March 1908 (1908-03-26) * page 1, line 1 - line 34 *	1 4	
X	GB 1 221 957 A (DEFONTENAY PAUL [FR]) 10 February 1971 (1971-02-10) * page 2, line 39 - page 3, line 118 *	1 4	TECHNICAL FIELDS SEARCHED (IPC)
A	US 5 188 304 A (COLLI LUIGI [IT] ET AL) 23 February 1993 (1993-02-23) * column 3, line 53 - column 4, line 54; figure 1A *	1,5	B65H
A	EP 0 995 711 A (SCHLAFHORST & CO W [DE]) 26 April 2000 (2000-04-26) * column 4, paragraph 20 - column 6, paragraph 26; figure 1 *	1,5	
A	DE 196 40 184 A1 (SCHLAFHORST & CO W [DE] SAURER GMBH & CO KG [DE]) 2 April 1998 (1998-04-02) * claim 1; figure 1 *	1,5	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 29 November 2007	Examiner Kising, Axel
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	

4
EPO FORM 1503 03.02 (P04C01)



European Patent
Office

Application Number

EP 07 10 5989

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims 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 the first ten claims.

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).



European Patent
Office

**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 07 10 5989

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: 1-3

Automatic winder for controlling the rotational speed of the yarn supply bobbin dependent on the detected yarn length on the supply bobbin.

(Object: to reduce yarn tension variation during unwinding of the yarn)

2. claims: 1,4

Automatic winder for controlling the rotational speed of the yarn supply bobbin dependent on the initial rotational speed of the package at the time of restart and its change of diameter.

(Object: To avoid yarn slack during interruption of yarn feed or change of bobbin)

3. claims: 1,5

Automatic unwinder comprising yarn detection means, yarn cutting means and yarn slack means, in which the yarn is retained at the time of yarn cutting.

(To avoid yarn slack during yarn fault repairing or splicing)

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

EP 07 10 5989

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.

29-11-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
CH 542781	A	15-10-1973	NONE	
EP 1445227	A1	11-08-2004	CN 1535912 A DE 10304366 A1	13-10-2004 05-08-2004
JP 2231371	A	13-09-1990	JP 2663293 B2	15-10-1997
DE 212586	C		NONE	
GB 1221957	A	10-02-1971	FR 1525192 A US 3441233 A	17-05-1968 29-04-1969
US 5188304	A	23-02-1993	NONE	
EP 0995711	A	26-04-2000	DE 19848881 A1 JP 2000128436 A TR 9902619 A2 US 6270033 B1	27-04-2000 09-05-2000 23-07-2001 07-08-2001
DE 19640184	A1	02-04-1998	CN 1178188 A IT MI971659 A1 JP 10109829 A US 5862660 A	08-04-1998 11-01-1999 28-04-1998 26-01-1999