



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:  
**17.11.2004 Bulletin 2004/47**

(51) Int Cl.7: **D01H 7/88**

(43) Date of publication A2:  
**01.09.2004 Bulletin 2004/36**

(21) Application number: **04008829.6**

(22) Date of filing: **18.12.1997**

(84) Designated Contracting States:  
**DE IT**

(72) Inventor: **Nagao, Isao**  
**Omihachiman-shi Shiga (JP)**

(30) Priority: **24.02.1997 JP 3896297**  
**25.02.1997 JP 4071997**

(74) Representative: **Vogeser, Werner, Dipl.-Ing. et al**  
**Patent- und Rechtsanwälte**  
**Hansmann, Vogeser, Dr. Boecker,**  
**Alber, Dr. Strych, Liedl**  
**Albert-Rosshaupter-Strasse 65**  
**81369 München (DE)**

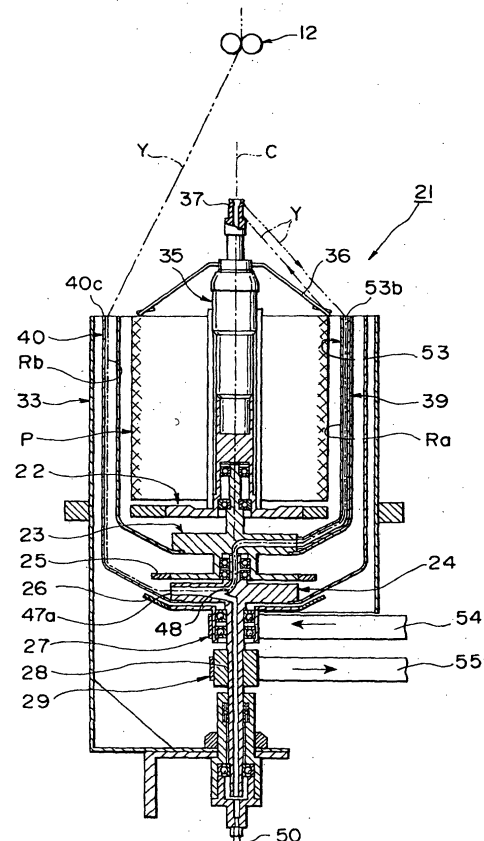
(62) Document number(s) of the earlier application(s) in  
accordance with Art. 76 EPC:  
**97122447.2 / 0 863 234**

(71) Applicant: **MURATA KIKAI KABUSHIKI KAISHA**  
**Minami-ku Kyoto-shi Kyoto 601 (JP)**

(54) **Four-for one twister**

(57) The present invention relates to a four-for-one twister provided with a package supporting member which supports a supply package (P) in a stationary position on a center line, an inner yarn path (Ra) formed in a vertical direction outside of the supply package, an outer yarn path (Rb) formed in a vertical direction outside of the inner yarn path. In order to regulate the increase in tension of the yarn rotating at high speeds and to protect against yarn entanglement and to reduce, therefore, a yarn breakage the inner yarn path (Ra) is formed in an inner guiding member (39) revolving around the center line (Fig. 1).

FIG. 1





European Patent  
Office

EUROPEAN SEARCH REPORT

Application Number  
EP 04 00 8829

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 02, 29 February 1996 (1996-02-29) & JP 07 268732 A (TEIJIN SEIKI CO LTD), 17 October 1995 (1995-10-17) * abstract *	5,8	D01H/88
A	----- PATENT ABSTRACTS OF JAPAN vol. 1996, no. 02, 29 February 1996 (1996-02-29) & JP 07 268731 A (TEIJIN SEIKI CO LTD), 17 October 1995 (1995-10-17) * abstract *	5,8	
X	----- EP 0 611 841 A (TEIJIN SEIKI CO LTD) 24 August 1994 (1994-08-24) * column 5, line 24 - line 26 *	1	
A	----- US 4 222 221 A (LENORAK FERDINAND) 16 September 1980 (1980-09-16) * the whole document *	5,8	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			D01H
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Berlin		28 September 2004	Tamme, H-M
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 (P/MC01)

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

EP 04 00 8829

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.

28-09-2004

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 07268732	A	17-10-1995	NONE	
-----				
JP 07268731	A	17-10-1995	NONE	
-----				
EP 0611841	A	24-08-1994	JP 6240523 A	30-08-1994
			EP 0611841 A1	24-08-1994
-----				
US 4222221	A	16-09-1980	CS 197692 B1	30-05-1980
			DD 139729 A1	16-01-1980
			DE 2848784 A1	17-05-1979
			FR 2408670 A1	08-06-1979
			IT 1100941 B	28-09-1985
			JP 54082448 A	30-06-1979
-----				