(11) **EP 1 452 632 A3**

(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**

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

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

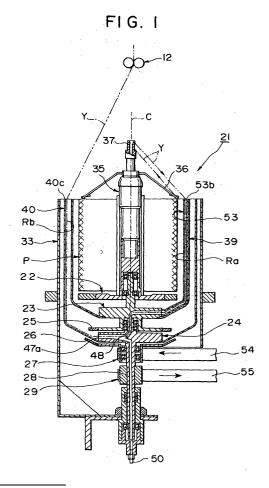
(71) Applicant: MURATA KIKAI KABUSHIKI KAISHA Minami-ku Kyoto-shi Kyoto 601 (JP)

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

(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)

(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).



EP 1 452 632 A3



EUROPEAN SEARCH REPORT

Application Number EP 04 00 8829

Category	Citation of document with indication of relevant passages	on, where appropriate,	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)
Α	PATENT ABSTRACTS OF JAR vol. 1996, no. 02, 29 February 1996 (1996- & JP 07 268732 A (TEIJI 17 October 1995 (1995-1 * abstract *	02-29) N SEIKI CO LTD),	5,8	D01H7/88
A	PATENT ABSTRACTS OF JAF vol. 1996, no. 02, 29 February 1996 (1996- & JP 07 268731 A (TEIJI 17 October 1995 (1995-1 * abstract *	02-29) N SEIKI CO LTD),	5,8	
Х	EP 0 611 841 A (TEIJIN 24 August 1994 (1994-08 * column 5, line 24 - 1	3-24)	L	
A	US 4 222 221 A (LENORAK 16 September 1980 (1986 * the whole document * 		5,8	TECHNICAL FIELDS SEARCHED (Int.CI.7) D01H
	The present search report has been di		····	Examiner
Place of search Berlin		Date of completion of the search 28 September 2004	Date of completion of the search 28 Sentember 2004 Tan	
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 ui E: earlier patent docum after the filing date D: document cited in th L: document cited for c	shed on, or	

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	Α	17-10-1995	NONE			
JP 07268731	Α	17-10-1995	NONE			
EP 0611841	Α	24-08-1994	JP EP	6240523 0611841		30-08-199 24-08-199
US 4222221	А	16-09-1980	CS DD DE FR IT JP	197692 139729 2848784 2408670 1100941 54082448	A1 A1 A1 B	30-05-198 16-01-198 17-05-197 08-06-197 28-09-198 30-06-197

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