(11) **EP 1 314 803 A3**

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: 13.08.2003 Bulletin 2003/33

(51) Int CI.⁷: **D01H 5/82**, D01H 1/22, D01H 13/20

- (43) Date of publication A2: **28.05.2003 Bulletin 2003/22**
- (21) Application number: 02026353.9
- (22) Date of filing: 22.11.2002
- (84) Designated Contracting States:

 AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
 IE IT LI LU MC NL PT SE SK TR
 Designated Extension States:

 AL LT LV MK RO SI
- (30) Priority: 26.11.2001 JP 2001359039
- (71) Applicant: Kabushiki Kaisha Toyota Jidoshokki Kariya-shi, Aichi-ken (JP)

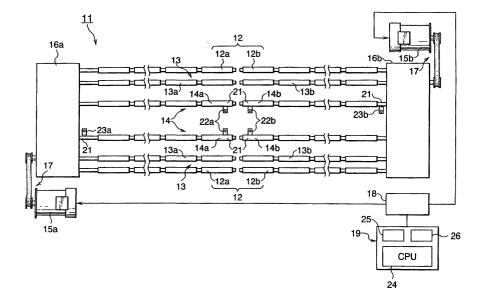
- (72) Inventors:
 - Fujii, Yoshimasa, K.K. Toyota Jidoshokki Aichi-ken (JP)
 - Shinozaki, Yutaka, K.K. Toyota Jidoshokki Aichi-ken (JP)
 - Niimi, Kiwamu, K.K. Toyota Jidoshokki Aichi-ken (JP)
- (74) Representative: HOFFMANN EITLE Patent- und Rechtsanwälte Arabellastrasse 4 81925 München (DE)

(54) Device for detecting looseness in drafting rollers of spinning machine

(57) Each of the bottom rollers 12 through 14 of a drafting device 11 is divided into two line shafts 12a through 14a and 12b through 14b and driven by driving motors 15a and 15b from the ends of the machine base. Each line shaft consists of a plurality of roller shafts 21 connected to each other through threaded engagement of screw portions 21a and 21b formed at the ends there-

of. Proximity switches 23a and 23b are provided at positions corresponding to those roller shafts 21 of the line shafts 14a and 14b of the back bottom roller 14 which are situated at the driving side ends, and proximity switches 22a and 22b are provided at positions corresponding to those roller shafts 21 situated at the ends on the side opposite to the driving side.

FIG. 1





EUROPEAN SEARCH REPORT

Application Number EP 02 02 6353

Category	Citation of document with indication of relevant passages	n, where appropriate,	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)		
A	US 4 561 152 A (KINOSHIT 31 December 1985 (1985-1 * column 5, line 41 - co figures 1-5 *	12-31)	1-8	D01H5/82 D01H1/22 D01H13/20		
A	PATENT ABSTRACTS OF JAPA vol. 008, no. 279 (C-25) 20 December 1984 (1984-1 & JP 59 150123 A (TOYODA SEISAKUSHO KK), 28 August 1984 (1984-08- * abstract *	7), 12-20) A JIDO SHOKKI	1			
A	DE 27 35 799 A (ZINSER 1 GMBH) 22 February 1979 (* page 4, line 24 - page figures 1-5 *	(1979-02-22)	1			
				TECHNICAL FIELDS SEARCHED (Int.Ci.7)		
				D01H		
	The present search report has been dra					
Place of search THE HAGUE		Date of completion of the search 20 June 2003	Hen	examiner ningsen, 0		
X : part Y : part docu	ATEGORY OF CITED DOCUMENTS icularly relevant if taken alone icularly relevant if combined with another ument of the same category inological background	T : theory or princip E : earlier patent do after the filling da D : document cited L : document cited	ble underlying the ocument, but publicate in the application for other reasons	invention ished on, or		
A : technological background O : non-written disclosure P : intermediate document			&: member of the same patent family, corresponding document			

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

EP 02 02 6353

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.

20-06-2003

Patent document cited in search report		Publication date		Patent family member(s)		Publication date	
US	4561152	A	31-12-1985	JP JP JP DE IN KR	100000	B A A1 A1	13-08-1993 26-10-1992 28-08-1984 16-08-1984 23-05-1987 07-12-1985
JP	59150123	Α	28-08-1984	NONE			
DE	2735799	A	22-02-1979	DE BR CH FR GB IT JP JP	629262 2391297 1599118 1094988 1274598	A A5 A1 A B C	22-02-1979 26-12-1978 15-04-1982 15-12-1978 30-09-1981 10-08-1985 31-07-1985 22-12-1978 09-12-1982

FORM P0459

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