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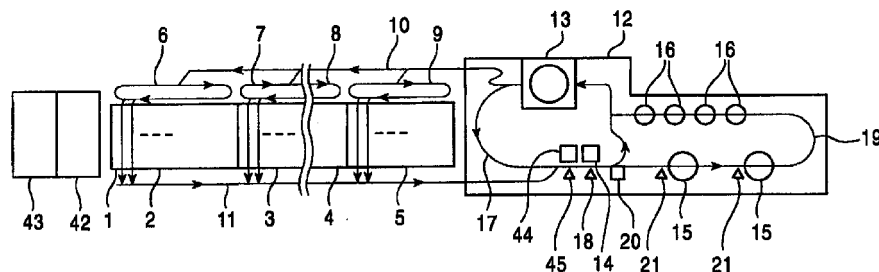
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(54) **Tray transfer system and tray storage apparatus**

(57) To store unwanted empty trays that may occur on a transfer path, as required to facilitate lot changes and to enable the number of trays to be adjusted optimally depending on the yarn count number or the winding speed. In a tray transfer system that supplies bobbins to an automatic winder composed of a plurality of winding units installed in parallel, a tray storage apparatus 15 for stacking a plurality of empty trays for stor-

age is located in the middle of an empty tray transfer path 19 in a bobbin processing section 12. When the lack of an installed bobbin in a bobbin installation apparatus 16 is detected, the tray storage apparatus 15 is activated to store all trays for a particular yarn type, these trays being transferred along the empty tray transfer path 19.

FIG. 1





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EUROPEAN SEARCH REPORT

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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.6)
Y	US 4 913 373 A (UEDA YUTAKA) 3 April 1990 (1990-04-03) * column 5, line 51 - column 6, line 42 *	1-3	B65H67/06 D01H9/18
Y	PATENT ABSTRACTS OF JAPAN vol. 1995, no. 08, 29 September 1995 (1995-09-29) -& JP 07 125847 A (MURATA MACH LTD), 16 May 1995 (1995-05-16)	1-3,5	
X	* abstract; figures *	4	
Y	PATENT ABSTRACTS OF JAPAN vol. 012, no. 179 (M-701), 26 May 1988 (1988-05-26) & JP 62 290635 A (MATSUSHITA ELECTRIC IND CO LTD), 17 December 1987 (1987-12-17) * abstract *	5	
P,X	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 08, 30 June 1998 (1998-06-30) -& JP 10 059543 A (MURATA MACH LTD), 3 March 1998 (1998-03-03) * abstract; figures *	4	TECHNICAL FIELDS SEARCHED (Int.Cl.6) B65H D01H
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 14 February 2000	Examiner David, P
CATEGORY OF CITED DOCUMENTS		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	
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			

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

EP 98 10 4818

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.

14-02-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4913373 A	03-04-1990	JP 1104575 A	21-04-1989
		JP 1911836 C	09-03-1995
		JP 6033135 B	02-05-1994
		DE 3835634 A	03-05-1989
		GB 2211518 A,B	05-07-1989
		IT 1224783 B	18-10-1990
JP 07125847 A	16-05-1995	NONE	
JP 62290635 A	17-12-1987	JP 2039440 C	28-03-1996
		JP 7072024 B	02-08-1995
JP 10059543 A	03-03-1998	NONE	