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(54) **METHOD FOR RETROFITTING AN EXISTING IDLER ASSEMBLY**

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1,990,806 A	6/1931	Watson et al.
2,827,339 A	3/1958	Zunich
3,580,345 A	5/1971	Brown et al.
3,773,393 A	11/1973	Story et al.
3,993,356 A	11/1976	Groff et al.
4,141,598 A	2/1979	Cline
4,406,641 A	9/1983	Mallet
4,448,273 A	5/1984	Barbieri
4,527,039 A	7/1985	Fuwesi
4,582,153 A	4/1986	Shinsen
4,695,102 A	9/1987	Crotti

(Continued)

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(52) **U.S. Cl.** **29/402.08**; 29/402.09; 29/401.1; 29/402.12; 29/402.13; 29/402.14; 29/402.16

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,443,556 A	1/1923	Beal et al.
1,796,533 A	3/1931	Pearson

OTHER PUBLICATIONS

International Search Report dated Aug. 22, 2007 for PCT Application No. PCT/US2006/040495, 4 pages.

(Continued)

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(57) **ABSTRACT**

A method for retrofitting a piece of equipment having a flexible track assembly is disclosed and may include disassembling an existing idler shaft from an idler gear and from at least one bearing block attached to the piece of equipment. The method may also include attaching a sleeve within the opening of the idler gear. A new idler shaft may then be positioned within an opening of at least one of the bearing blocks and within an opening in the sleeve. The new idler shaft and idler gear being configured such that the new idler shaft, idler gear, and sleeve rotate together. The method may then include placing at least one bushing liner within the opening of at least one bearing block and attaching a retaining device to at least one end of the new idler shaft to retain the new idler shaft axially.

19 Claims, 14 Drawing Sheets

