(19) World Intellectual Property Organization International Bureau



(43) International Publication Date 14 March 2002 (14.03.2002)

PCT

(10) International Publication Number WO 02/20284 A3

(51) International Patent Classification⁷: B60B 35/18, 35/16, 27/00

(21) International Application Number: PCT/US01/42040

(22) International Filing Date:

6 September 2001 (06.09.2001)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

09/656,569

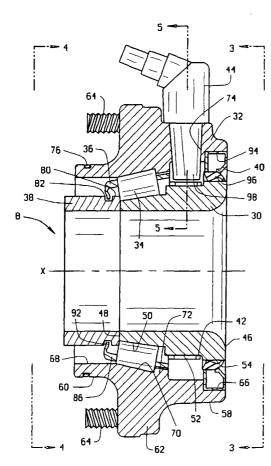
7 September 2000 (07.09.2000) U

- (71) Applicant: THE TIMKEN COMPANY [US/US]; 1835 Dueber Avenue, S.W., Canton, OH 44706-0930 (US).
- (72) Inventors: MOORE, W., Norman; 3995 Marjess Drive, Uniontown, OH 44685 (US). RYBKOSKI, Thomas, J.; 2931 State Street, N.W., Uniontown, OH 44685 (US).

- (74) Agent: SOIFER, Jonathan, P.; Polster, Lieder, Woodruff & Lucchesi, L.C., 763 South New Ballas Road, St. Louis, MO 63141 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

[Continued on next page]

(54) Title: BEARING UNITIZED FOR HANDLING



(57) Abstract: A single row tapered roller bearing (B) enables an axle shaft (S) to rotate in an axle housing (H) and further confines the shaft axially with respect to the housing. The bearing includes a cup (32) that is fitted into the housing and a cone (30) that is fitted around a bearing seat (2) on the shaft and also tapered rollers (34) located between raceways (50, 70) on the cup and cone. Radial loads and thrust loads in one axial direction are transferred to the rollers at the raceways. The backing collar (38, 100) fits over the bearing seat on the shaft with an interference fit and captures the cone on the bearing seat. The bearing also has a cage (36) provided with pockets (90) which receive the rollers, and the cage at its small ends has tabs (92) which project behind a rib on the backing collar and interlock the cage and the collar, so that prior to installation on the shaft the backing collar remains with the cup, cone and rollers.

70 02/20284 A

WO 02/20284 A3



Published:

with international search report

(88) Date of publication of the international search report: $$27\ \mathrm{June}\ 2002$

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

Inter anal Application No PC1/US 01/42040

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 B60B35/18 B60B35/16 B60B27/00							
According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED							
ocumentation searched (classification system followed by classific	cation symbols)						
IPC 7 B60B F16C							
tion searched other than minimum documentation to the extent the	at such documents are included in the fields se	earched					
ata base consulted during the international search (name of data	base and, where practical, search terms used	1)					
ta, PAJ, EPO-Internal							
ENTS CONSIDERED TO BE RELEVANT							
Citation of document, with indication, where appropriate, of the	Relevant to claim No.						
	N	1 2 0 15					
	1-3,8,15						
column 3, line 49 -column 7, li							
		1.0.15					
	1,8,15						
column 1, line 51 -column 2, line 33;							
figure 1		_					
	SPENCE)	1,8,15					
column 4, line 1 - line 21; fig							
Further documents are listed in the continuation of box C. Patent family members are listed in annex.							
ategories of cited documents:	*T* later degument published after the inte	arnational filing date					
A document defining the general state of the art which is not or priority date and not in conflict with the application but cited to understand the principle or theory underlying the							
E earlier document but published on or after the international *X* document of particular relevance; the claimed invention							
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another 'y' document of particular relevance; the claimed invention							
ent referring to an oral disclosure, use, exhibition or	document is combined with one of mo	ore other such docu-					
other means Priodocument published prior to the international filling date but later than the priority date claimed "8" document member of the same patent family							
Date of the actual completion of the international search Date of mailing of the international search report							
5 March 2002	25/03/2002						
mailing address of the ISA	Authorized officer	Authorized officer					
NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo ⊓l.	Vanneste M						
	binternational Patent Classification (IPC) or to both national class SEARCHED cumentation searched (classification system followed by classific B60B F16C ion searched other than minimum documentation to the extent the ata base consulted during the international search (name of data ta, PAJ, EPO-Internal ENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the EP 0 864 868 A (TIMKEN CO) 16 September 1998 (1998–09–16) column 3, line 49 -column 7, lifigure 1 US 5 603 554 A (MONROE DAVID A 18 February 1997 (1997–02–18) column 1, line 51 -column 2, lifigure 1 US 6 017 097 A (WEIR III ROBERT 25 January 2000 (2000–01–25) column 4, line 1 - line 21; figure triated to be of particular relevance column 1 - line 21; figure 2 - line 2 - lin	printernational Patent Classification (IPC) or to both national classification and IPC SEARCHED cumerination searched (classification system followed by classification symbols) BOB F16C consequence of the international search (name of data base and, where practical, search terms used ta, PAJ, EPO—Internal ENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages EP 0 864 868 A (TIMKEN CO) 16 September 1998 (1998—09-16) column 3, line 49 -column 7, line 51; figure 1 US 5 603 554 A (MONROE DAVID A ET AL) 18 February 1997 (1997–02-18) column 1, line 51 -column 2, line 33; figure 1 US 6 017 097 A (WEIR III ROBERT SPENCE) 25 January 2000 (2000–01-25) column 4, line 1 - line 21; figure 3 The defining the general state of the art which is not learned to be dispatcular relevance in the state of the international state in the pronty date claimed interplaced to the international search in the pronty date claimed The document of particular relevance in the art which is proposed to the international search into pronty date claimed The document of particular relevance in the art which is proposed to the international search into pronty date claimed The document of particular relevance in the art which is combined on or after the international search into the pronty date claimed The document of particular relevance in the art which is combined on the international search into the pronty date claimed The document of particular relevance in the cannot be considered novel or cannot incomplete in the art which is combined with one or me in the art which is combined with one or me in the art which is combined with one or me in the art which is combined with one or me in the art which is combined with one or me in the art which is combined to a which					

INTERNATIONAL SEARCH REPORT

formation on patent family members

Inter onal Application No
PC1/US 01/42040

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 0864868	A	16-09-1998	US EP JP	5735612 A 0864868 A1 10260196 A	07-04-1998 16-09-1998 29-09-1998
US 5603554	Α	18-02-1997	NONE		
US 6017097	A	25-01-2000	NONE		