

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
28 February 2008 (28.02.2008)

PCT

(10) International Publication Number  
**WO 2008/024685 A3**

- (51) International Patent Classification:  
B65G 43/00 (2006.01)
- (21) International Application Number:  
PCT/US2007/076227
- (22) International Filing Date: 17 August 2007 (17.08.2007)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
60/839,980 24 August 2006 (24.08.2006) US
- (71) Applicant (for all designated States except US): **FROST LINKS, INC.** [US/US]; 2900 Northridge Drive, N.W., Grand Rapids, Michigan 49544 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **RATHBUN, Jonathan M.** [US/US]; 2001 Meek Drive NE, Belmont, Michigan 49306 (US). **MELTON, Joseph S.** [US/US]; 3303 Pinoak Court SE, Grand Rapids, Michigan 49546 (US).
- (74) Agent: **VAN DYKE, GARDNER, LINN & BURKHART, LLP**; Timothy A. Flory, 2851 Charlevoix Drive SE, P.O. Box 888695, Suite 207, Grand Rapids, Michigan 49508-8695 (US).

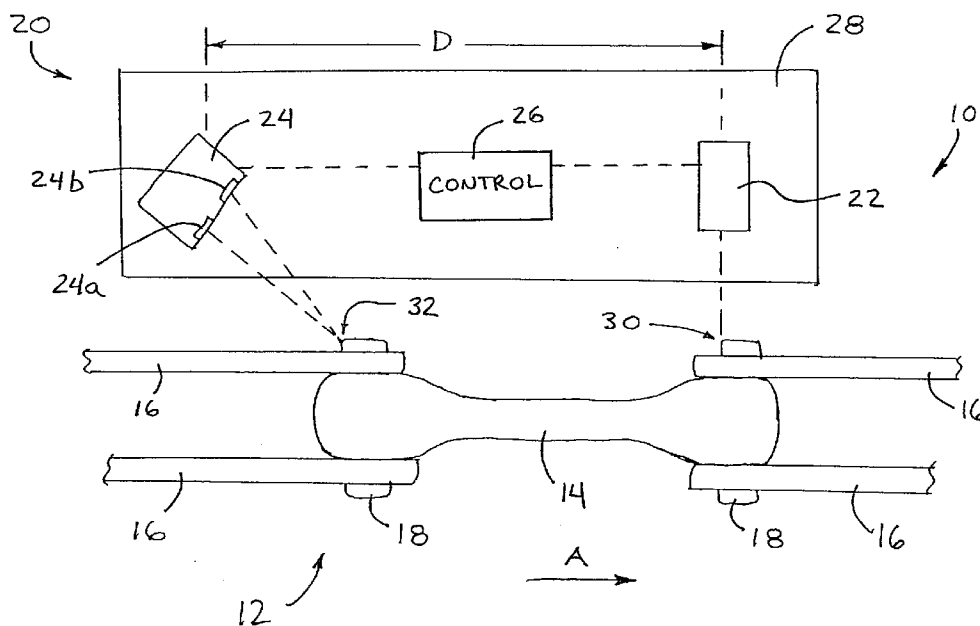
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) Title: CHAIN WEAR MONITORING DEVICE



(57) Abstract: A conveyor system (10) and method of measuring chain wear includes first and second sensign devices (22, 24) positioned at a conveyor line or path and directed toward a conveyor chain (12) that is movable along the conveyor path. The first sensing device (22) senses the presence of a first chain portion of the conveyor chain (12) at a predetermined location as the conveyor chain moves along the conveyor line. The second sensing device (24) is operable to sense a location of or distance to the second chain portion or may capture an image of the second portion. A controller (26) is operable to determine a degree of wear of a section of chain extending between the first and second chain portions in response to the second sensing device.

WO 2008/024685 A3



— *of inventorship (Rule 4.17(iv))*

(88) **Date of publication of the international search report:**  
31 July 2008

**Published:**

— *with international search report*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US07/76227

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC: **B65G 43/00( 2006.01)**  
  
 USPC: 198/810.01,810.02  
 According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
 U.S. : 198/810.01, 810.02, 810.03, 810.04, 502.1, 502.4

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
 NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
 NONE

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,865,955 B2 (Nassar et al.) 15 March 2005 (15.03.2005).	----- -----
A	US 2007/0056379 A1 (Nassar et al.) 15 March 2007 (15.03.2007).	----- -----
A	US 3,963,115 (Teske et al.) 15 June 1976 (15.06.1976).	----- -----
A	US 3,998,317 (Stinnett) 21 December 1976 (21.12.1976).	----- -----
A	US 2004/0226805 A1 (Lodge) 18 November 2004 (18.11.2004).	----- -----

Further documents are listed in the continuation of Box C.  See patent family annex.

* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search  
 28 April 2008 (28.04.2008)

Date of mailing of the international search report  
**03 JUN 2008**

Name and mailing address of the ISA/US  
 Mail Stop PCT, Attn: ISA/US  
 Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 Facsimile No. (571) 273-3201

Authorized officer  
 James R. Bidwell *[Signature]*  
 Telephone No. 571-272-3600