



- (51) International Patent Classification:  
*F16D 49/14* (2006.01)
- (21) International Application Number:  
PCT/US2012/023640
- (22) International Filing Date:  
2 February 2012 (02.02.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
13/020,848 4 February 2011 (04.02.2011) US
- (71) Applicant (for all designated States except US): **EATON CORPORATION** [US/US]; 1111 Superior Avenue, Cleveland, Ohio 44114 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **SIMONS, Philip, N.** [US/US]; Lorain, Ohio 44053 (US). **WHITLING, Kurtis, G.** [US/US]; Broadview Heights, Ohio 44147 (US).
- (74) Agent: **JOHNSTON, Roger, A;** Fay Sharpe LLP, The Halle Building, 5th Floor, 1228 Euclid Avenue, Cleveland, OH 44115-1843 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, 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, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report (Art. 21(3))
- with information concerning one or more priority claims considered void (Rule 26bis.2(d))

(88) Date of publication of the international search report:  
17 April 2014

(54) Title: PNEUMATIC CONSTRICTING DRUM BRAKE ASSEMBLY

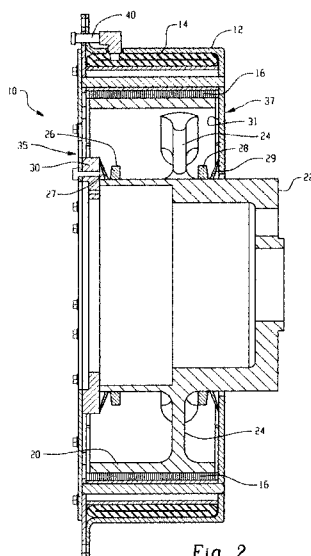


Fig. 2

(57) Abstract: The present disclosure describes a pneumatically operated constricting drum brake with rotary seals provided for the hub of the rotating drum on axially opposite sides of the hub for sealing the interior of the hub of the rotating drum from exterior contaminants such as moisture, brake dust, and foreign matter. The brake assembly of the present disclosure has the central region provided with rotary seals on opposite sides of the housing. Both seals may be accessed for replacement from the one side of the housing, opposite the input shaft, by removal of the side plate and the brake drum, without removal of the hub from the input shaft.



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2012/023640

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(8) - F16D 49/14 (2012.01) USPC - 188/77W According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC(8) - F16D 49/14 (2012.01) USPC - 188/71.1, 77W, 301, 327, 329, 334, 336; 277/355 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PatBase, Google Patents		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---	US 2010/0236883 A1 (SZPAK et al) 23 September 2010 (23.09.2010) entire document	1, 4-5, 7-10, 13-14
Y		2, 11
Y	US 6,416,057 B1 (ADAMS et al) 09 July 2002 (09.07.2002) entire document	2, 11
A	US 3,795,292 A (KELLER JR) 05 March 1974 (05.03.1974) entire document	1-14
A	US 6,799,664 B1 (CONNOLLY) 05 October 2004 (05.10.2004) entire document	1-14
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "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) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "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 "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 "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 "&" document member of the same patent family		
Date of the actual completion of the international search 02 May 2012		Date of mailing of the international search report <b>10 MAY 2012</b>
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: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774