

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
23 May 2013 (23.05.2013)



(10) International Publication Number
WO 2013/071382 A8

(51) International Patent Classification:

F04B 35/04 (2006.01) *F04B 53/00* (2006.01)
F04B 39/12 (2006.01) *F16C 29/02* (2006.01)

(21) International Application Number:

PCT/BR2012/000448

(22) International Filing Date:

14 November 2012 (14.11.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

PI1105473-5 16 November 2011 (16.11.2011) BR

(71) Applicant: **WHIRLPOOL S.A.** [BR/BR]; Av. das Nações Unidas, 12.995, 32° andar Brooklin Novo, CEP-04578-000 - São Paulo - SP (BR).

(72) Inventors; and

(71) Applicants : **BRÜGGMANN MÜHLE, Henrique** [BR/BR]; Rua Quinze de Novembro, 1687, CEP-89201-602 Joinville, SC (BR). **LILIE, Dietmar Erich Bernhard** [BR/BR]; Rua Orestes Guimarães 904, CEP-89204-060 Joinville, SC (BR).

(74) Agent: **DANNEMANN, SIEMSEN, BIGLER & IPAN-EMA MOREIRA**; Caixa Postal 2142, Rua Marquês de Olinda, 70, Botafogo, CEP-22251-040 - Rio de Janeiro - RJ (BR).

(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, BN, 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, PA, 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, 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,

[Continued on next page]

(54) Title: FLOW RESTRICTOR AND GAS COMPRESSOR

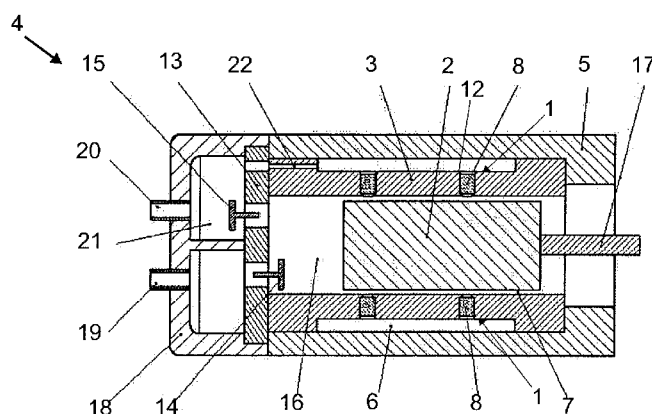


Fig. 1

(57) Abstract: The present invention refers to a flow restrictor (1) for application in bearing formation between a piston (2) and a cylinder (3) of a gas compressor (4). Such gas compressor (4) comprises at least a pad (5) externally surrounding the cylinder (3). Additionally, the gas compressor (4) also comprises at least an inner cavity (6), arranged between the pad (5) and the cylinder (3), fluidly fed by a discharge flow arising from a compression movement exerted by the piston (2) within the cylinder (3). Additionally, the gas compressor (4) further comprises at least a bearing formation gap (7) separating a piston outer wall (2) and an inner cylinder wall (3). Further, the gas compressor (4) also comprises at least a flow restrictor (1) provided with a housing (12) fluidly associating the inner cavity (6) to the bearing formation gap (7). Such flow restrictor (1) comprises at least a porous element (8), associated to the housing (12), provided with at least a restrictor part provided with a porosity sized to limit the gas flow flowing from the inner cavity (6) to the bearing formation gap (7). The present invention also refers to a sealing existent between the porous element (8) and the housing (12), the filtering features of the porous element (8) and to a gas compressor (4) comprising a flow restrictor (1) as described above.



TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

(48) Date of publication of this corrected version:

26 June 2014

Published:

— *with international search report (Art. 21(3))*

(15) Information about Correction:

see Notice of 26 June 2014

(88) Date of publication of the international search report:

1 August 2013