



- (51) **International Patent Classification:**
F02M 35/00 (2006.01) *B0W 25/00* (2006.01)
- (21) **International Application Number:**
PCT/IB2015/052538
- (22) **International Filing Date:**
8 April 2015 (08.04.2015)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
1301/MUM/2014 8 April 2014 (08.04.2014) IN
- (71) **Applicant:** **FILTRUM FIBRETECHNOLOGIES PRIVATE LIMITED** [IN/IN]; Kirloskar House, 100 Anand Park, Aundh, Pune 411007 (IN).
- (72) **Inventor:** **PAYYAPPILLY, Thomas Antony**; A-201, Orange County, Phase 1, Baner-Pashan Link Road, Sus Road, Pune 411021 (IN).
- (74) **Agent:** **DEWAN, Mohan**; R. K. Dewan & Co., Podar Chambers, S.A. Brelvi Road, Fort, Mumbai 400001 (IN).
- (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, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, 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, SA, 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, ST, 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, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to the identity of the inventor (Rule 4.1 7(i))
- of inventorship (Rule 4.17(iv))

Published:

- with international search report (Art. 21(3))

(88) **Date of publication of the international search report:**
7 January 2016

(54) **Title:** FILTER MEDIA CONSTRUCTION

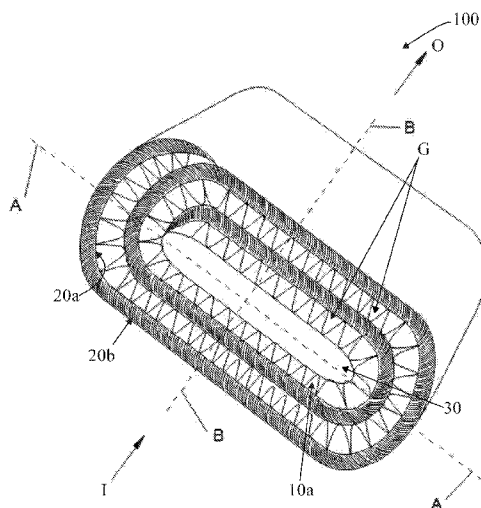


FIGURE 1

(57) **Abstract:** The present disclosure discloses a filter media construction wherein at least two layers of a substantially open spacer and at least two layers of a filter media/material are combined in an alternating sequence and coiled around a core to form at least two distinct, continuous or segmented, coil-shaped fluid flow channels that are contiguous but separated by the filter media in radial direction and extend axially from an inlet side to an outlet side of the filter media construction preventing direct fluid flow between the clean and dirty sides of the filter media construction. The spacer maintains substantially uniform width of flow channels in flow direction providing substantially uniform fluid flow. One flow channel is closed to fluid flow at the inlet side forming the clean side and the other flow channel is closed to fluid flow at the outlet side forming the dirty side of the filter media construction.



INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB2015/052538

A. CLASSIFICATION OF SUBJECT MATTER
F02M35/00, B01D25/00 Version=2.015.01

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)

F02M, B01D

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 Series used)

IPO Internal Database, Patseer

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document , with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4773990 A1, (Filmax, Inc.) 27 Sep 1988. see the claims and abstract.	1,9,12, 15, 18
Y	WO1987001301 A1, (Eastman Kodak Co.) 12 Mar 1987. see the claims and abstract.	2,3,5,10,13,19
Y	US 5084178 A, (Pall Corporation.) 28 Jan 1992 see claim-2.	2,3
Y	US 20110042295 A1, (Baldwin Filters, Inc.) 24 Feb 2011 see the claims and abstract.	4,6,16
Y	US 8088190 B2, (Mann + Hummel GmbH.) 03 Jan 2012 see the claims and abstract.	7
Y	US 8506668 B2, (Baldwin Filters, Inc.) 13 Aug 2013 see page-1, para-6.	8
Y	US 7323105 A1, (Fleetguard, Inc.) 29 Jan 2008 see claim-5.	17,20

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

"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

22-09-2015

Date of mailing of the international search report

22-09-2015

Name and mailing address of the ISA/

Indian Patent Office
Plot No. 32, Sector 14, Dwarka, New Delhi-110075
Facsimile No.

Authorized officer

Ashfaque Ahemad

Telephone No. +91-1125300200

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/IB2015/052538

Citation	Pub. Date	Family	Pub. Date
WO 1987001301 A1	12-03-1987	EP 0236425 A1	16-09-1987
		AU 6229486 A	24-03-1987
us 5084178 A	28-01-1992	EP 0347188 A2	20-12-1989
		DE 68914722 T2	04-08-1994
		CA 1321552 C	24-08-1993
us 20110042295 A1	24-02-2011	EP 2286890 A1	23-02-2011
		JP 2011041942 A	03-03-2011
		CA 2713215 A1	19-02-2011
us US 8088190 B2	03-01-2012	FR 2935099 A1	26-02-2010
		DE 102009037081 A1	11-03-2010
us 8506668 B2	13-08-2013	EP 2414069 A2	08-02-2012
		JP 2012521882 A	20-09-2012
		CA 2755649 A1	14-10-2010