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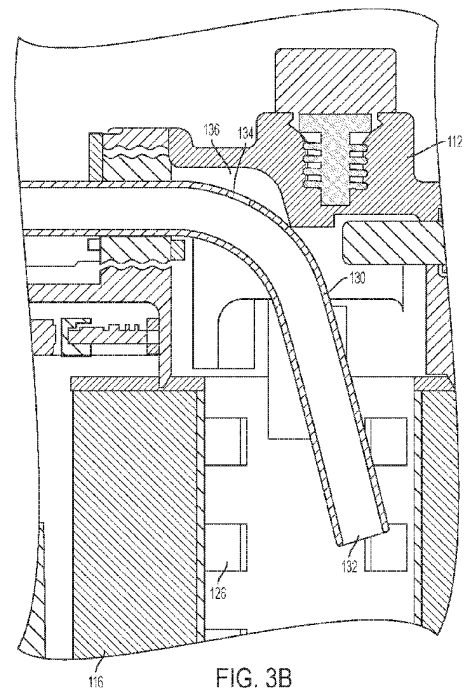
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(54) **AQUEOUS FLUID FILTER ASSEMBLY WITH AERATION MITIGATION**

(57) An aqueous fluid filter assembly with aeration mitigation includes a cap, a bowl engaging the cap and defining a filter volume, and a filter element disposed in the filter volume. The filter element is sealed against an interior of the cap and an interior of the bowl to provide an unfiltered volume and a filtered volume. An inlet is in fluid communication with the unfiltered volume and an outlet is in fluid communication with the filtered volume via a pickup section. The pickup section has a pick-up section inlet extending into the filtered volume and an air-metering orifice, wherein the air-metering orifice has a diameter less than 30% of the diameter of the pick-up section inlet and the pick-up section inlet is located below the air-metering orifice.



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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2008/210618 A1 (KIEDAISCH STEFFI [DE] ET AL) 4 September 2008 (2008-09-04)	1-5, 9-11	INV. B01D29/11
Y	* paragraph [0022]; figure 1 * -----	6-8	B01D29/15 B01D29/54
A	WO 2010/139706 A1 (MANN & HUMMEL GMBH [DE]; KLEIN MARTIN [DE] ET AL.) 9 December 2010 (2010-12-09) * paragraph [0005] * * paragraph [0030]; figure 2 * -----	1-11	B01D35/30 F02M37/22 F02M37/54
Y	US 5 904 844 A (STONE WALTER H [US]) 18 May 1999 (1999-05-18) * claim 1; figure 4 * -----	6	
Y	US 2011/056961 A1 (AMTMANN MARKUS [DE] ET AL) 10 March 2011 (2011-03-10) * paragraph [0017]; figure 3 * -----	7, 8	

TECHNICAL FIELDS SEARCHED (IPC)

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The present search report has been drawn up for all claims

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Place of search Munich	Date of completion of the search 9 April 2024	Examiner Zebst, Marc
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CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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09-04-2024

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2008210618 A1	04-09-2008	CN 102389666 A	28-03-2012
		EP 1933968 A1	25-06-2008
		EP 2062634 A1	27-05-2009
		EP 2471587 A1	04-07-2012
		ES 2393975 T3	03-01-2013
		JP 2009503314 A	29-01-2009
		KR 20080037657 A	30-04-2008
		PL 1933968 T3	31-01-2013
		PL 2062634 T3	30-09-2013
		US 2008210618 A1	04-09-2008
WO 2007010037 A1	25-01-2007		
WO 2010139706 A1	09-12-2010	CN 102458601 A	16-05-2012
		DE 102009023951 B3	05-01-2011
		EP 2437865 A1	11-04-2012
		US 2012132582 A1	31-05-2012
		WO 2010139706 A1	09-12-2010
US 5904844 A	18-05-1999	US 5547572 A	20-08-1996
		US 5622623 A	22-04-1997
		US 5904844 A	18-05-1999
US 2011056961 A1	10-03-2011	CN 202036861 U	16-11-2011
		DE 102009039567 A1	03-03-2011
		EP 2299079 A1	23-03-2011
		PT 2299079 E	09-01-2013
		US 2011056961 A1	10-03-2011