



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 995 496 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
04.07.2001 Bulletin 2001/27

(51) Int Cl.7: **B04B 1/00**, B04B 1/08,
B04B 5/00, B04B 7/08

(43) Date of publication A2:
26.04.2000 Bulletin 2000/17

(21) Application number: **99308286.6**

(22) Date of filing: **20.10.1999**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(72) Inventors:
• **Herman, Peter K.**
Cookeville, Tennessee 38506 (US)
• **Weston, Donald**
Algood, Tennessee 38501 (US)

(30) Priority: **20.10.1998 US 175981**

(74) Representative:
Everitt, Christopher James Wilders et al
fJ CLEVELAND
40/43 Chancery Lane
London WC2A 1JQ (GB)

(54) **A centrifugal separator**

(57) A centrifugal separator (20) for removing particulate matter from a fluid includes a base (30) defining inlet (41), an outer shell (31) assembled to the base (30), a stationary centertube (34) assembled to the base (30), and a rotor assembly (20a) which is mounted onto the centertube (34) and positioned within the outer shell (31). The rotor assembly (20a) is bearingly mounted to the centertube (34) for rotation about the centertube (34). The rotor assembly (20a) includes a rotor shell (26), a cone-stack assembly (24), and a retention-medium sleeve (21) positioned between the cone-stack assembly (24) and the rotor shell (24) and the rotor shell (26) for receiving and retaining particulate matter which is centrifugally from the fluid being "processed" by the centrifugal separator (20). A water-absorbent material is included as part of the retention-medium sleeve (21), whose preferred material is a high-void medium of at least 70 per cent. An additional retention-medium member formed into a coil-like shape is positioned between the cone-stack assembly (24) and the base (30). The base (30) includes a pair of tangential flow jet nozzles (50,51) which are used for driving the rotor assembly (20a).

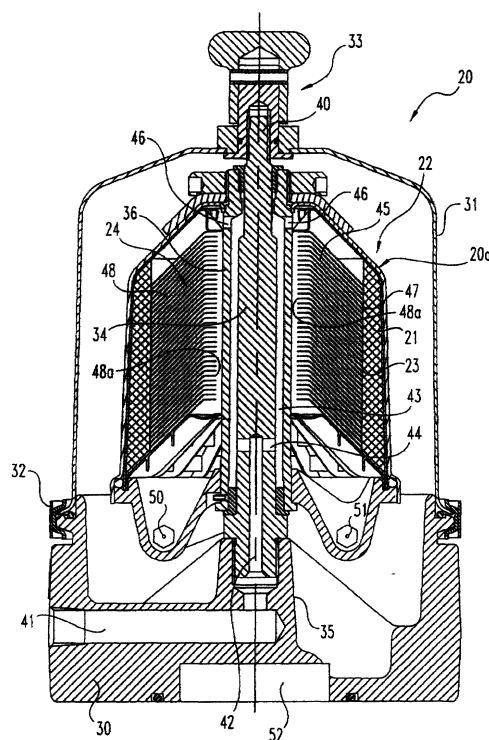


Fig. 1

EP 0 995 496 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 30 8286

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	DE 40 07 304 A (HENKEL KGAA) 12 September 1991 (1991-09-12) * column 1, line 45-51; figure 2 *	1-9	B04B1/00 B04B1/08 B04B5/00 B04B7/08
A	---	10	
X	US 5 690 814 A (HOLT EARL THOMAS) 25 November 1997 (1997-11-25) * column 2 - column 3; figure 1 *	1,2,6-8	
Y	* column 3, line 17-27 *	3-5,9,10	
Y	US 5 637 217 A (HERMAN PETER K ET AL) 10 June 1997 (1997-06-10) * claim 1; figure 2 *	3-5,9,10	
X	US 3 572 582 A (SEIELSTAD HAROLD DOUGLAS JR) 30 March 1971 (1971-03-30) * column 3, line 43 - column 4, line 8 *	1,2,6-9	
A	* column 5, line 12-40; figures *	3-5,10	
X	US 3 385 517 A (CARMON RICHARD L) 28 May 1968 (1968-05-28) * column 5, line 59 - column 6, line 9; figures *	1,2,6-9	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
A	---	3-5,10	B04B
X	US 5 707 519 A (BURROWS J W ET AL) 13 January 1998 (1998-01-13) * column 1, line 22-28 *	1,2,6-9	
A	* column 2, line 62 - column 3, line 6; figures *	3-5,10	
X	US 4 017 397 A (COPELAND SHANNON B) 12 April 1977 (1977-04-12) * column 4, line 21-27; claim 1; figures *	1,2,9	
A	---	3-8,10	
	--- -/--		
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 15 May 2001	Examiner Herry, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 30 8286

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 0 812 609 A (FRAM EUROP) 17 December 1997 (1997-12-17) * column 2, line 56 - column 3, line 25; claims 1-4; figures *	1,2,6	
A	---	3-5,7-10	
X	US 2 750 107 A (D. MORE) 12 June 1956 (1956-06-12) * column 2, line 9 - column 3, line 9; figures * -----	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
Place of search MUNICH		Date of completion of the search 15 May 2001	Examiner Herry, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03.02 (P04001)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 8286

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

15-05-2001

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 4007304	A	12-09-1991	NONE	
US 5690814	A	25-11-1997	NONE	
US 5637217	A	10-06-1997	US 5575912 A	19-11-1996
			AU 688201 B	05-03-1998
			BR 9606794 A	30-12-1997
			EP 0806985 A	19-11-1997
			US 5795477 A	18-08-1998
			AU 4758596 A	14-08-1996
			WO 9622835 A	01-08-1996
US 3572582	A	30-03-1971	NONE	
US 3385517	A	28-05-1968	NONE	
US 5707519	A	13-01-1998	GB 2324055 A,B	14-10-1998
US 4017397	A	12-04-1977	NONE	
EP 0812609	A	17-12-1997	GB 2314036 A	17-12-1997
			JP 10066805 A	10-03-1998
			US 5785849 A	28-07-1998
US 2750107	A	12-06-1956	GB 723279 A	02-02-1955
			FR 1076565 A	27-10-1954

EPO FORM P0489

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82