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(71) Applicant: **Outokumpu Oyj**
02200 Espoo (FI)

(72) Inventor: **Boehm, Joseph**
Oxfordshire RG9 1T5 (GB)

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(74) Representative: **Zipse + Habersack**
Wotanstrasse 64
80639 München (DE)

(54) Low intensity magnetic separator

(57) A magnetic separator apparatus for separating magnetizable particles from a continuously flowing stream of particles in a flowing stream of fluid, including a housing with a tunnel therethrough and a carrier relatively movable reciprocally through the tunnel. The carrier has spaced filter elements containing magnetizable filter media and inlet and outlet streams of particles in a flowing fluid flow into each filter. The separation continues until a filter element becomes filled with particles,

at which time the filled filter element is removed from the magnetic field and replaced with a clean element to permit the separation to continue while the filled element is emptied and cleaned to be made ready for subsequent use. The housing is formed by a pair of magnetically permeable spaced plates with magnetic elements therebetween along sides of the tunnel. The elements may be permanent magnets, electromagnets, or superconductive magnets to create a low intensity field.

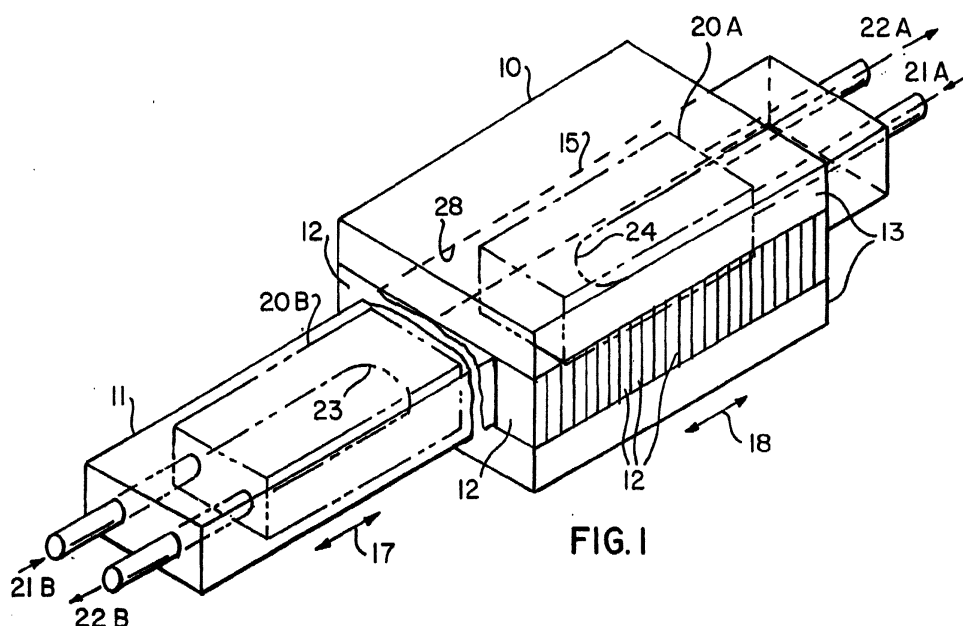


FIG. 1

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EUROPEAN SEARCH REPORT

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EP 01 10 4607

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.7)
D,Y	US 5 743 410 A (STADTMULLER ADAM ANTONI) 28 April 1998 (1998-04-28) * column 6, line 56 - column 7, line 12; claim 1; figure 9 *	1,3,5,7	B03C1/027
Y	--- A.STADTMULLER ET AL: "Developments in superconducting magnetic separation for commercial application" PAPERS OF THE 8TH "INDUSTRIAL MINERALS" INT.CONGRESS, 24 - 27 April 1988, pages 163-173, XP000444558 Boston US	1,3,5,7	
A	* page 166, column 2, paragraph 2 - page 167, column 1; figure 3 *	6	
A	--- EP 0 920 916 A (KARLSRUHE FORSCHZENT) 9 June 1999 (1999-06-09) * column 2, line 18 - line 22 * * column 3, line 49 - column 4, line 18 * * column 4, line 40 - line 48; claim 1; figures 1,5 *	1,4,6	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.CI.7)
			B03C
Place of search		Date of completion of the search	Examiner
THE HAGUE		15 May 2002	Decanniere, L
CATEGORY OF CITED DOCUMENTS		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	
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			

EPO FORM 1503 03/92 (P04C01)

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

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The members are as contained in the European Patent Office EDP file on
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15-05-2002

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5743410	A	28-04-1998	AU 679988 B2	17-07-1997
			AU 6684194 A	12-12-1994
			BR 9406449 A	02-01-1996
			WO 9426418 A1	24-11-1994
EP 0920916	A	09-06-1999	DE 29723852 U1	20-05-1999
			EP 0920916 A1	09-06-1999