



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
12.11.2003 Bulletin 2003/46

(51) Int Cl.7: **F23G 5/00**, F23G 5/50,
F23J 15/00

(43) Date of publication A2:
26.03.2003 Bulletin 2003/13

(21) Application number: **02020349.3**

(22) Date of filing: **12.09.2002**

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

(72) Inventors:
• **Goggi, Francesco**
27045 Casteggio Pavia (IT)
• **Goggi, Lorenzo**
27045 Casteggio (Pavia) (IT)

(30) Priority: **24.09.2001 IT MI20011981**

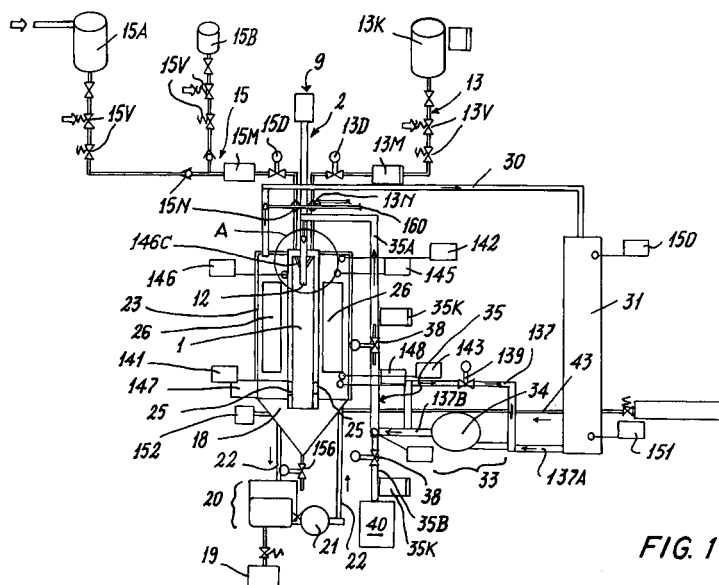
(74) Representative: **Ripamonti, Enrico, Dr. Ing. et al**
Ing. A. Giambrocono & C. s.r.l.,
19/B, Via Rosolino Pilo
20129 Milano (IT)

(71) Applicants:
• **Goggi, Francesco**
27045 Casteggio Pavia (IT)
• **Goggi, Lorenzo**
27045 Casteggio (Pavia) (IT)

(54) **Plant for treating refuse by pyrolysis and for producing energy by means of said treatment**

(57) A plant for treating solid and/or liquid refuse comprises an environment or reactor (1) in which pyrolysis of the refuse takes place, said reactor (1) being connected to and fed by refuse feed means (9), means (13) for feeding a combustion support and means (8, 8V) for feeding an oxidizing agent. The refuse feed means (9) comprise micro-disintegrating means (76, 80) and pre-

gasification means (2, 5) to enable the liquid refuse to be transformed into the gaseous phase and the solid refuse to be transformed into the liquid and/or gaseous phase before their entry into the reactor (1) and before their pyrolysis, this latter hence taking place within the entire refuse mass fed into the reactor (1). Means are provided to recover inert products of the pyrolysis and to recover gas produced by this latter.





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 02 02 0349

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	US 5 980 858 A (FUJIMURA HIROYUKI ET AL) 9 November 1999 (1999-11-09) * column 4, line 58 - line 64 * * column 9, line 20 - column 11, line 13 * * column 12, line 15 - column 13, line 13; figures 4,7 *	1,2,16, 27	F23G5/00 F23G5/50 F23J15/00
X	DE 41 07 200 A (SIEMENS AG) 10 September 1992 (1992-09-10) * column 2, line 48 - line 62 * * column 4, line 25 - column 6, line 46; figure 1 *	1,16,25	
X	BERWEIN H J ET AL: "MUELLENTSORGUNG MIT EINER SCHWEL-BRENN-ANLAGE" BWK BRENNSTOFF WARME KRAFT, VDI VERLAG GMBH. DUSSELDORF, DE, vol. 42, no. 10, 1 October 1990 (1990-10-01), pages R26-R28,R31-R3, XP000162988 ISSN: 0006-9612 * page R26, last paragraph - page R28, paragraph 1; figure 2 *	1,16,25	
A	US 5 645 616 A (MCILROY ROBERT A ET AL) 8 July 1997 (1997-07-08) * column 3, line 46 - column 4, line 51; figure 1 *	1,27	
A	GB 1 401 207 A (EBARA INFILCO) 16 July 1975 (1975-07-16) * page 1, line 10 - line 19 * * page 1, line 53 - line 55 * * page 2, line 12 - line 87; figure 1 *	1,27	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			F23G F23J
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 19 September 2003	Examiner Gavriliu, C
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

EPO FORM 1503 03 82 (P04C01)



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 02 02 0349

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)
A	US 5 592 888 A (BERWEIN HEINZ-JUERGEN ET AL) 14 January 1997 (1997-01-14) * column 5, line 3 - column 6, line 17; figure 1 * -----	1,27	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 19 September 2003	Examiner Gavriliu, C
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p>			

EPO FORM 1503 03.82 (P04C01)

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

EP 02 02 0349

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.

19-09-2003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5980858	A	09-11-1999	JP 10067992 A	10-03-1998
			US 6455011 B1	24-09-2002
			DE 69624095 D1	07-11-2002
			EP 0803562 A1	29-10-1997
			ES 2185737 T3	01-05-2003
			US 6063355 A	16-05-2000
			US 5900224 A	04-05-1999
			JP 3415748 B2	09-06-2003
			JP 10236801 A	08-09-1998
			CN 1253577 A	17-05-2000
			EP 0979262 A1	16-02-2000
			WO 9847985 A1	29-10-1998
DE 4107200	A	10-09-1992	DE 4107200 A1	10-09-1992
			CS 9200661 A3	16-09-1992
			HU 65181 A2	02-05-1994
			PL 293647 A1	07-09-1992
			SK 279573 B6	11-01-1999
			RU 2088631 C1	27-08-1997
US 5645616	A	08-07-1997	BR 9500291 A	24-10-1995
			CN 1120098 A	10-04-1996
			CZ 9500376 A3	16-10-1996
			DE 19506563 A1	31-08-1995
			ES 2136477 A1	16-11-1999
			JP 2684348 B2	03-12-1997
			JP 8081890 A	26-03-1996
			RU 2135273 C1	27-08-1999
			SK 22995 A3	05-08-1998
			US 5634950 A	03-06-1997
			US 5752994 A	19-05-1998
GB 1401207	A	16-07-1975	JP 48027582 A	11-04-1973
			JP 51022748 B	12-07-1976
			AU 444829 B2	07-02-1974
			AU 4501272 A	07-02-1974
			CA 955800 A1	08-10-1974
			DE 2234095 A1	01-03-1973
			DK 131209 B	09-06-1975
			FR 2149382 A1	30-03-1973
			IT 962691 B	31-12-1973
			NL 7210285 A	15-02-1973
US 5592888	A	14-01-1997	DE 4308551 A1	05-01-1994
			AT 154384 T	15-06-1997
			CA 2158463 A1	29-09-1994

EPO FORM P0459

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

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

EP 02 02 0349

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.

19-09-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5592888 A	WO	9421751 A1	29-09-1994
	DE	59403120 D1	17-07-1997
	DK	689574 T3	19-01-1998
	EP	0689574 A1	03-01-1996
	ES	2102845 T3	01-08-1997
	JP	8507568 T	13-08-1996

EPO FORM P0459

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