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60/833,175 25 July 2006 (25.07.2006) US
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**Declaration under Rule 4.17:**

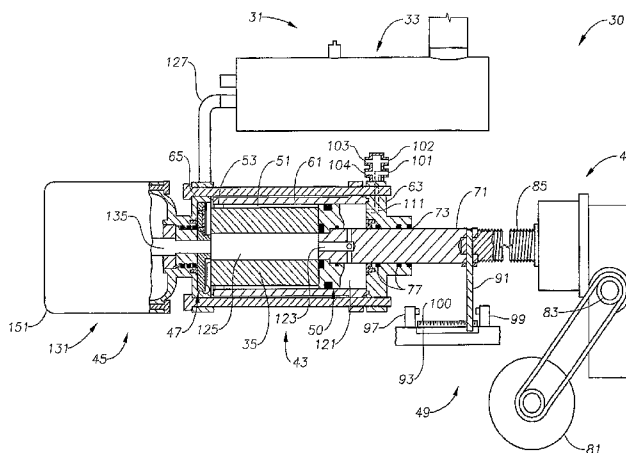
— as to the identity of the inventor (Rule 4.17(i))

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: SYSTEM, APPARATUS AND METHOD FOR COMBUSTION OF METAL AND OTHER FUELS



(57) Abstract: A system (30), apparatus and method for the combustion of metals and other fuels are provided. The system (30) can include: a fuel combustion apparatus (31) including a combustor (33) having a combustion chamber (223) for burning ground particles from a fuel charge (35), and a fuel supply apparatus (41, 41') for supplying the ground particles of fuel from the fuel charge (35) to the combustor (33). The fuel supply system (30) can include a fuel charge holder assembly (43, 43') to house and store the fuel charge (35), a grinder assembly (45) including a grinder (47) housed within the charge holder assembly (43, 43') and configured to pulverize the fuel charge (35) to produce a combustible fuel to be consumed in the combustion chamber (223), and a fuel charge linear feed assembly (49) including a piston (50) in contact with the fuel charge (35) within the charge holder assembly (43, 43') to selectively bias the fuel charge (35) into the grinder (47) to thereby a control consumption rate of the fuel charge (35). Exhaust from the combustion chamber (223) can be used in the incineration of radioactive, chemical and mixed hazardous materials, and in the propulsion of a vehicle in both an air or water environment.

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**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/US2007/016710

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> INV. F23B99/00 F23K1/00				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b>				
Minimum documentation searched (classification system followed by classification symbols) F23B F23R F23K				
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 practical, search terms used)  EPO-Internal				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	US 4 550 563 A (MARCHAND WILLIAM C [US]) 5 November 1985 (1985-11-05) the whole document -----	8,9, 14-17,22		
X	DE 29 44 863 A1 (DAIMLER BENZ AG [DE]) 27 May 1981 (1981-05-27) the whole document -----	8,9, 14-16,22		
A	US 4 019 319 A (ODA NORIYUKI ET AL) 26 April 1977 (1977-04-26) the whole document -----	1-7, 31-35		
A	US 3 991 559 A (ODA NORIYUKI ET AL) 16 November 1976 (1976-11-16) the whole document -----	1-7, 31-35		
A	US 3 606 866 A (LAESSIG RUDOLF R ET AL) 21 September 1971 (1971-09-21) the whole document -----	1-7, 31-35		
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <span style="margin-left: 200px;"><input checked="" type="checkbox"/> See patent family annex.</span>				
* Special categories of cited documents :				
<table style="width:100%; border:none;"> <tr> <td style="width:50%; border:none;">                     *A* document defining the general state of the art which is not considered to be of particular relevance                      *E* earlier document 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                 </td> <td style="width:50%; border:none;">                     *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.                      *&amp;* document member of the same patent family                 </td> </tr> </table>			*A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document 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
*A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document 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  <p align="center">12 December 2007</p>		Date of mailing of the international search report  <p align="center">15/02/2008</p>		
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016		Authorized officer  <p align="center">Coli, Enrico</p>		

**INTERNATIONAL SEARCH REPORT**

International application No.  
PCT/US2007/016710

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

- 1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
- 2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
- 3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This international Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

- 1.  As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
  
- 2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
  
- 3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
- 4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see annex

**Remark on Protest**

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-22, 31-35

System, apparatus and method for combustion of pulverized (metal) fuel  
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2. claims: 23-30

Pulverized (metal) fuel supply apparatus and metal charge holder assembly  
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2007/016710
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Patent document cited in search report	Publication date	Publication date	Patent family member(s)	Publication date
US 4550563	A	05-11-1985	NONE	
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