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(54) Iron ore sintering process with reduced emissions of toxic gases by waste gas recirculation

(57) A method of sintering iron ore in a sinter strand comprises providing a sinter feedstock and depositing said feedstock onto a travelling grate, igniting said feedstock using a sinter strand burner(s), and combusting said feedstock by drawing air through the feedstock with a plurality of wind boxes situated along the length of the strand, to produce sintered products rich in iron and

waste gases. Waste gases from only those wind boxes whose temperature exceeds a predetermined level (200-250°C) are recycled to provide combustion feed air for the feedstock or air for the sinter strand ignition burner(s), thereby substantially reducing or eliminating the production and/or emission of dioxins.

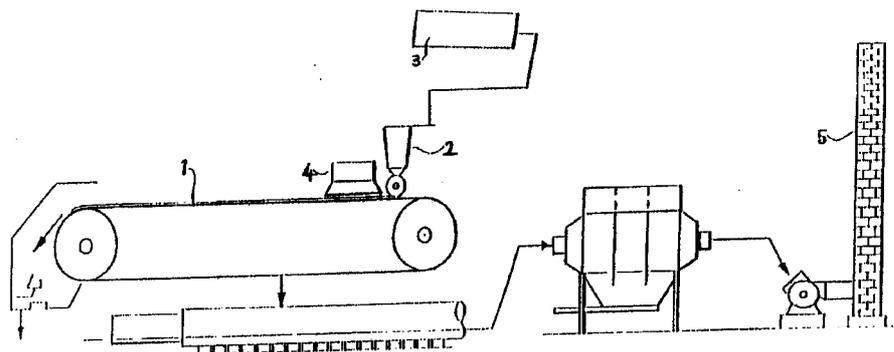


FIGURE 3

EP 1 038 980 A3



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EUROPEAN SEARCH REPORT

Application Number
EP 00 30 1900

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	BE 877 216 A (CENTRE RECH METALLURGIQUE) 24 December 1979 (1979-12-24)	1-3,6,15	C22B1/20
A	* page 3; claims 1-3; tables I,,II * ---	4,5	
X	GB 707 583 A (METALLGESELLSCHAFT AG) 21 April 1954 (1954-04-21)	1,15	
X	* page 1, line 13 - line 68; figure 1 * ---	1-6,15	
	FR 2 444 720 A (DELATTRE LEVIVIER) 18 July 1980 (1980-07-18)		
	* claim 4; figure 1 * -----		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 June 2000	Examiner Bombeke, 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	

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EP 00 30 1900

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-6, 15



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-6,15

Method of sintering iron ore in a sinter strand characterised by recycling waste gases from those wind boxes whose temperature exceeds a predetermined level to provide combustion feed air for the feedstock or ignition burners in order to reduce or eliminate production of dioxins.

2. Claims: 7-14

Method of sintering iron ore in a sinter strand characterised in that waste gases from the sinter strand which have a temperature greater than about 200°C are rapidly cooled below 200°C to reduce or eliminate the production of dioxins.

Recycling of waste gases in a sinter strand according to the method (claims 1-6) and apparatus (claim 15) of subject 1 is already known from any one of the three X-citations.

Hence there is no common inventive concept (Rule 30 taken in combination with Article 82 EPC) linking the subject 1 invention with the invention of subject 2 which concerns a completely different method of handling/treating the waste gases from the sinter strand.

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

EP 00 30 1900

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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23-06-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
BE 877216 A	24-12-1979	LU 82539 A	24-10-1980
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82