



(43) International Publication Date
22 November 2012 (22.11.2012)

- (51) **International Patent Classification:**
E21C 27/22 (2006.01) *E21C 31/08* (2006.01)
E21C 35/12 (2006.01)
- (21) **International Application Number:** PCT/IB2012/052358
- (22) **International Filing Date:** 11 May 2012 (11.05.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
20201 1050143.4 16 May 2011 (16.05.2011) DE
- (71) **Applicant (for all designated States except US):** CATERPILLAR GLOBAL MINING EUROPE GMBH [DE/DE]; IndustriestraBe 1, 44534 Lunen (DE).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** STEINBERG, Jens [DE/DE]; Falkenweg 23, 44534 Lunen (DE). RASCHKA, Joachim [DE/DE]; Zur Waldschmiede 23, 44805 Bochum (DE). HERRMANN, Frank [DE/DE]; FeudelstraBe 13, 09125 Chemnitz (DE). MOHE, Hartmut [DE/DE]; Rosenparksiedlung 10, 09487 Schlettau (DE).
- (74) **Agents:** ALTHAUS, Arndt et al; Buschhoff Henricke Althaus, Postfach 19 04 08, 50501 Koln (DE).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM,

AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(in))

Published:

- with international search report (Art. 21(3))

- (88) **Date of publication of the international search report:**
27 June 2013

(54) **Title:** MINING INSTALLATION FOR EXTRACTING SEAM-TYPE OR MASS-DEPOSIT MINERAL MATERIALS, AND MINING MACHINE FOR THE SAME

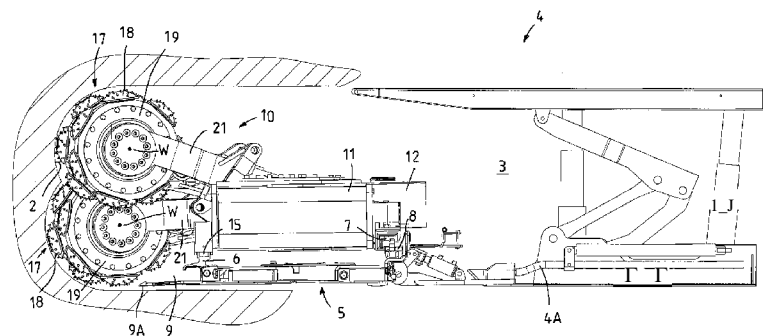
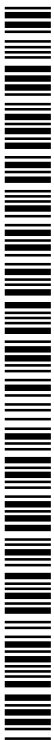


Fig. 1

(57) **Abstract:** The invention relates to a mining machinery and mining installation for extracting seam-type or mass-deposit mineral materials, comprising a conveyor device for carrying away mined material, and comprising a mining machine 10 that can be moved along the conveyor device 5 and that comprises at least one drum 19, which is equipped with extracting tools 17, is rotatable about its drum axis W and is adjustable in height relative to a machine frame 11 by means of a swivel arm 21. In order to provide a mining installation, and also a mining machine, by means of which high extraction capacities can be achieved with, at the same time, reduced tool wear, the invention proposes that the drum axis W of the drum 19 is substantially parallel to the direction of travel of the mining machine 10, the extracting tools 17 being mounted in groups on tool carriers 18, which are disposed on the circumference of the drum 19 so as to be rotatable about rotation axes disposed transversely in relation to the drum axis W.



INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2012/052358

A. CLASSIFICATION OF SUBJECT MATTER INV. E21C27/22 E21C35/12 E21C31/08 ADD.		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) E21C		
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 practicable, search terms used) EPO-Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 3 711 160 A (MENNEKES W ET AL) 16 January 1973 (1973-01-16) the whole document -----	1-20
Y	US 2010/001574 AI (BECHEM ULRICH [DE]) 7 January 2010 (2010-01-07) cited in the application the whole document -----	1-20
Y	US 5 924 222 A (STOETZER ERWIN [DE]) 20 July 1999 (1999-07-20) figure 1 -----	8
Y	US 2008/116734 AI (BECHEM ULRICH [DE] ET AL) 22 May 2008 (2008-05-22) paragraph [0064] ----- - / - -	10
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents :		
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent 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 25 March 2013	Date of mailing of the international search report 05/04/2013	
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Garri do Garcia, M	

INTERNATIONAL SEARCH REPORT

International application No PCT/IB2012/052358

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	DE 27 46 647 C2 (EICKHOFF GEB) 16 June 1982 (1982-06-16) column 5 , lines 5-18 -----	12-17
A	DE 28 03 519 A1 (HALBACH & BRAUN) 2 August 1979 (1979-08-02) the whole document -----	1-20

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2012/052358

Patent document cited in search report	Publication date	Patent family member(s)	Publication date			
US 3711160	A	16--01--1973	BE 757376 AI 16-03-1971			
			CA 930751 AI 24-07-1973			
			DE 2000370 AI 22-07-1971			
			ES 384264 AI 01-05-1973			
			FR 2065383 A5 23-07-1971			
			GB 1303718 A 17-01-1973			
			JP S4936841 BI 03-10-1974			
			NL 7014840 A 09-07-1971			
			US 3711160 A 16-01-1973			
			ZA 7007943 A 25-08-1971			

us 2010Q01574	AI	07--01--2010	AU 2007291529 AI 06-03-2008			
			CA 2661476 AI 06-03-2008			
			CN 101512101 A 19-08-2009			
			DE 102006040881 AI 06-03-2008			
			EP 2057348 AI 13-05-2009			
			ES 2399766 T3 03-04-2013			
			JP 2010501753 A 21-01-2010			
			PsU 2009111590 A 10-10-2010			
			US 2010001574 AI 07-01-2010			
			Wo 2008025555 AI 06-03-2008			
			ZA 200902146 A 31-03-2010			

			us 5924222	A	20--07--1999	AT 196336 T 15-09-2000
CN 1185508 A 24-06-1998						
DE 19652835 CI 26-03-1998						
EP 0849403 AI 24-06-1998						
HK 1010899 AI 12-04-2002						
ID 19690 A 30-07-1998						
JP 2971425 B2 08-11-1999						
JP H10183681 A 14-07-1998						
KR 100248603 BI 15-03-2000						
MY 120217 A 30-09-2005						
SG 77616 AI 16-01-2001						
TW 384334 B 11-03-2000						
US 5924222 A 20-07-1999						
ZA 9710949 A 15-06-1998						

us 2008116734	AI	22--05--2008	AT 476581 T 15-08-2010			
			AU 2006208641 AI 03-08-2006			
			BR PI0607363 A2 01-09-2009			
			CA 2595326 AI 03-08-2006			
			CN 101111662 A 23-01-2008			
			DE 102005003840 AI 10-08-2006			
			EP 1841949 AI 10-10-2007			
			ES 2350402 T3 21-01-2011			
			JP 4698682 B2 08-06-2011			
			JP 2008528833 A 31-07-2008			
			RU 2358104 CI 10-06-2009			
			US 2008116734 AI 22-05-2008			
			Wo 2006079536 AI 03-08-2006			
ZA 200706150 A 28-05-2008						

DE 2746647	C2	16-06-1982	NONE			

DE 2803519	AI	02-08-1979	NONE			
