



(51) International Patent Classification:
E01C 23/12 (2006.01)

(21) International Application Number:
PCT/US2017/023724

(22) International Filing Date:
23 March 2017 (23.03.2017)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
15/078,581 23 March 2016 (23.03.2016) US

(71) Applicant: **CATERPILLAR PAVING PRODUCTS INC.** [US/US]; 9401 85th Avenue North, Brooklyn Park, MN 55445-2199 (US).

(72) Inventor: **PERSANO, Mario**; Via Italia 22, 44028 Poggio Renatico (IT).

(74) Agent: **SOMOGY, Derek, J.** et al.; Caterpillar Inc., 100 NE Adams Street - AH9510, Peoria, IL 61629-9510 (US).

(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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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.

(54) Title: LOCKING SYSTEM TO PREVENT ROTATION OF TOOLHOLDER

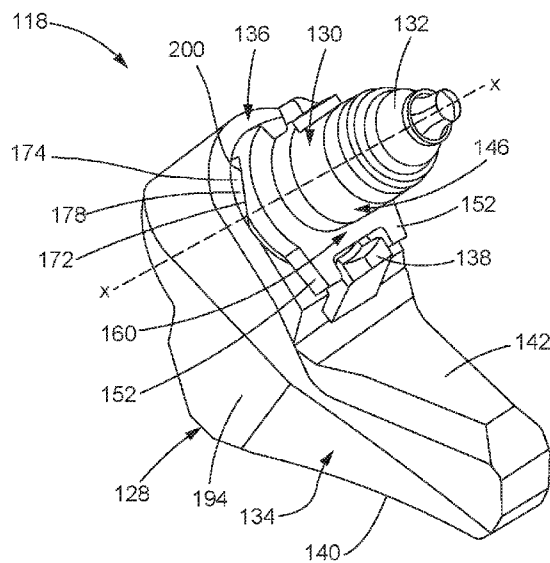


FIG. 2

(57) Abstract: A mounting block assembly (118) and method for assembling is disclosed. The mounting block assembly (118) may comprise a mounting block (128) and a toolholder (130). The mounting block may include a flanging portion (134), a mounting portion (136) and a protrusion (138). The mounting portion (136) defines a first bore (144) that is configured to receive a toolholder (130). The toolholder includes a generally cylindrical sidewall (146) that defines an axis (X) and defines a second bore (148) that is configured to receive a stem (150) of a cutting bit (132). The sidewall (146) includes a pair of radially outward extending prongs (152) that define a first recess (154) between the prongs (152). The first recess (154) is configured to interlockably receive the protrusion (138) when the toolholder (130) is disposed in the mounting portion (136), wherein the interlocked configuration of the toolholder (130) and the mounting block (128) inhibit rotational movement of the toolholder (130) about the axis (X).



(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, ST, 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, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

(88) Date of publication of the international search report:

23 August 2018 (23.08.2018)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2017/023724**A. CLASSIFICATION OF SUBJECT MATTER****E01C 23/12(2006.01)i**

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)

E01C 23/12; E21B 10/00; E21C 35/197; E21C 35/18; E21C 25/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: toolholder, milling drum, mounting block, protrusion, recess, cutting bit

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 8770669 B2 (WACHSMANN et al.) 08 July 2014 See column 4, line 5 - column 6, line 11, claim 1, and figures 3-5.	1-10
Y	US 4632463 A (STERWERF, JR., LESTER J.) 30 December 1986 See column 3, line 61 - column 4, line 4, column 5, lines 34-42, and figure 12.	1-10
Y	US 6176552 B1 (TOPKA, JR. et al.) 23 January 2001 See column 3, line 39 - column 4, line 33 and figures 1-5.	5-7
A	US 2007-0152495 A1 (SOLLAMI, PHILLIP A.) 05 July 2007 See paragraphs [0033]-[0036] and figures 1-3.	1-10
A	US 6644755 B1 (KAMMERER, KARL) 11 November 2003 See column 2, line 38 - column 3, line 32 and figure 1.	1-10



Further documents are listed in the continuation of Box C.



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

23 June 2017 (23.06.2017)

Date of mailing of the international search report

23 June 2017 (23.06.2017)

Name and mailing address of the ISA/KR

International Application Division

Korean Intellectual Property Office

189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea



Facsimile No. +82-42-481-8578

Authorized officer

LEE, Chang Ho

Telephone No. +82-42-481-8288



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2017/023724

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 8770669 B2	08/07/2014	CN 102310488 A CN 102310488 B DE 102010026106 A1 EP 2405098 A2 US 2012-0068526 A1	11/01/2012 04/02/2015 05/01/2012 11/01/2012 22/03/2012
US 4632463 A	30/12/1986	None	
US 6176552 B1	23/01/2001	AU 1999-64963 A1 DE 69912631 T2 EP 1127213 A2 EP 1127213 B1 WO 00-20722 A2 WO 00-20722 A3	26/04/2000 29/07/2004 29/08/2001 05/11/2003 13/04/2000 12/04/2001
US 2007-0152495 A1	05/07/2007	AU 2005-211693 A1 AU 2005-211693 B2 CA 2517533 A1 CA 2517533 C DE 102005042663 A1 MX PA05010322 A SE 0502097 A SE 530610 C2 US 2006-0071538 A1 US 7229136 B2 US 7780242 B2	13/04/2006 03/06/2010 28/03/2006 24/02/2009 30/03/2006 30/03/2006 29/03/2006 15/07/2008 06/04/2006 12/06/2007 24/08/2010
US 6644755 B1	11/11/2003	DE 19856916 C1 EP 1137863 A1 EP 1137863 A4 WO 00-34625 A1	31/08/2000 04/10/2001 06/03/2002 15/06/2000