

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
25 November 2004 (25.11.2004)

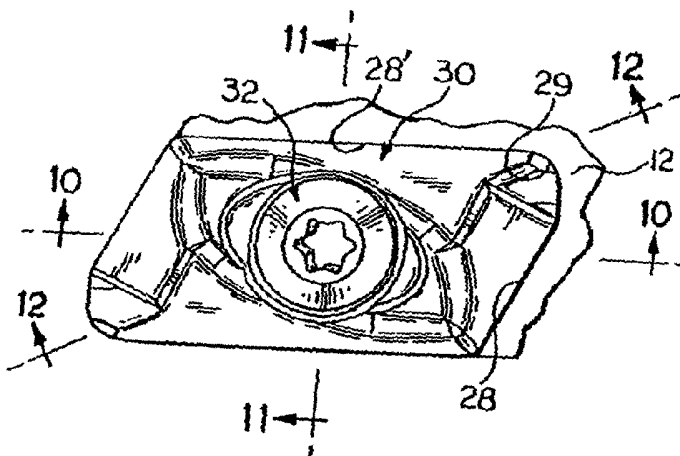
PCT

(10) International Publication Number
WO 2004/102013 A3

- (51) International Patent Classification⁷: **B23P 15/28**, B26D 1/00, 3/00, 1/12, F16B 43/02
- (21) International Application Number: PCT/US2004/012532
- (22) International Filing Date: 21 April 2004 (21.04.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
10/435,062 9 May 2003 (09.05.2003) US
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- (81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: INSERT RETENTION SCREW AND TOOL BODY AND INSERT THEREWITH



(57) Abstract: An insert retention screw (32) comprises a head (50) with a radius that is a sufficient size to fit within a mounting hole (48) of a cutting insert (30) and seat within a seating plane within the mounting hole that is generally perpendicular to the axis of the insert when the screw is at an angle in a range of about 0-15 degrees. The retention screw (32) is provided for holding a cutting insert (30) in the pocket (26) of a tool body (12). The pocket (26) is partially defined by a floor (27) and a seating surface. A threaded hole (34) is at an angle that is taken with reference to the pocket floor (27). The insert (30) has a mounting hole (48) passing therethrough. The retention screw (32) passes through the mounting hole (48) and threads into the threaded hole (34) so as to draw the insert (30) against the seating surface. A method for orienting the insert retention screw (32) at an angle comprises the steps of selecting a tool body (12) and a cutting insert (30), determining the frictional force between the tool body (12) and cutting insert (30), determining an angle for the retention screw, wherein a force component of the retention screw is greater than or equal to the frictional force between the tool body and the cutting insert.

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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

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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

9 September 2005

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/12532

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B23P 15/28; B26D 1/00, 3/00, 1/12; F16B 43/02

US CL : 407/40,42,48,53,61,62,103,104,113; 408/713; 411/537, 538

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)

U.S. : 407/40,42,48,53,61,62,103,104,113; 408/713; 411/537, 538

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P ---	US 6,579,042 B1 (SHIRAIWA) 17 June 2003, see entire document.	1
Y		11
X ---	US 5,199,828 A (FORSBERG ET AL.) 06 April 1993, see entire document.	2-8, 10, 12-17, 21, 22
Y		9, 11, 18-20, 23-25
Y	US 5,800,100 A (KRENZER) 01 September 1998, see entire document.	18-20, 23, 24
Y	"Determining the Coefficient of Friction" (KURTUS) revised 15 December 2002, www.school-for-champions.com/science/frictioncoeff.htm .	9, 25
A, E	US 2004/0101384 A1 (SCHILLING ET AL.) 27 May 2004, see entire document.	
A, P	US 2004/0071515 A1 (ARVIDSSON ET AL.) 15 April 2004, see entire document.	
A	US 2,598,581 (MCKENNA ET AL.) 27 May 1952, see entire document.	



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"P"	document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search

21 June 2005 (21.06.2005)

Date of mailing of the international search report

12 JUL 2005
Authorized Officer

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