(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
3 March 2011 (03.03.2011)

PCT

(10) International Publication Number
WO 2011/025630 A1

(51) International Patent Classification:
C23C 30/00 (2006.01)

(21) International Application Number:
PCT/US2010/044192

(22) International Filing Date:
3 August 2010 (03.08.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12/546,944 25 August 2009 (25.08.2009) US

(71) Applicant *(for all designated States except US)*: **TDY INDUSTRIES, INC.** [US/US]; 1000 Six PPG Place, Pittsburgh, Pennsylvania 15222 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **MORTON, Craig, W.** [US/US]; 1101 Michelle Court, Nolensville, Tennessee 37135 (US). **DORTCH, Dewitt** [US/US]; 8613 Cobb Road, Christiana, Tennessee 37037 (US). **BOST, John** [US/US]; 208 Dover Place, Franklin, Tennessee 37067 (US). **WILLS, David, J.** [GB/US]; 1416 Chantilly Lane, Franklin, Tennessee 37067 (US).

(74) Agents: **VICCARO, Patrick, J.** et al.; 1000 Six PPG Place, Pittsburgh, Pennsylvania 15222 (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, 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, RO, RS, RU, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, 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 applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

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

(54) Title: COATED CUTTING TOOLS HAVING A PLATINUM GROUP METAL CONCENTRATION GRADIENT AND RELATED PROCESSES

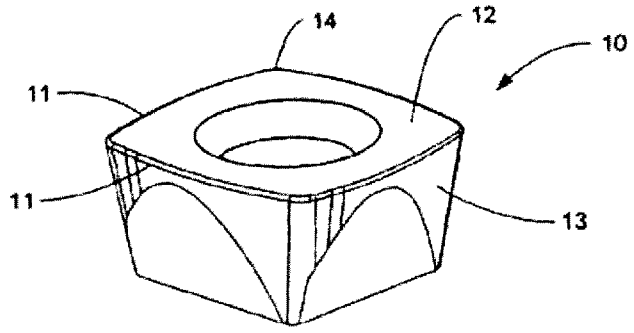


Figure 1A

(57) Abstract: The present disclosure is directed to cutting tools. The disclosed cutting tools may have a wear resistant coating on a substrate. The substrate may have hard particles cemented in a binder phase. The binder may have a near-surface concentration gradient of at least one platinum group element and/or rhenium. Processes for producing cutting tools are also disclosed.

WO 2011/025630 A1