



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : C23C 14/00	A2	(11) International Publication Number: WO 99/63127 (43) International Publication Date: 9 December 1999 (09.12.99)
(21) International Application Number: PCT/UA99/00010 (22) International Filing Date: 4 June 1999 (04.06.99) (30) Priority Data: 98062916 4 June 1998 (04.06.98) UA (71) Applicants (for all designated States except US): UNITED TECHNOLOGY CORPORATION PRATT & WHITNEY [US/US]; 400 Main Street, East Hartford, CT 06108 (US). INTERNATIONAL CENTER FOR ELECTRON BEAM TECHNOLOGIES OF E.O. PATON ELECTRIC WELDING INSTITUTE [UA/UA]; 68 Gorky Street, Kiev, 252005 (UA). (72) Inventors; and (75) Inventors/Applicants (for US only): MOVCHAN, Marina B. [UA/UA]; Apartment 7, 7 Darwin Street, Kiev, 252004 (UA). KORZH, Alexander V. [UA/UA]; Apartment 45, 61/17 Saksaganskii Street, Kiev, 252033 (UA). RUDOY, Jury E. [UA/UA]; Apartment 42, 38 R. Okipnoy Street, Kiev, 252167 (UA). (74) Agent: GORSKAYA, Irina A.; ul. Nikolsko-Botanicheskaya, 27/29-48, Kiev, 252032 (UA).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, 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, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published Without international search report and to be republished upon receipt of that report.
(54) Title: COMPOSITION FOR PRODUCTION OF A PROTECTIVE GRADIENT COATING ON A METAL SUBSTRATE BY ELECTRON BEAM EVAPORATION AND CONDENSATION UNDER VACUUM		
(57) Abstract The invention relates to the field of electron beam technologies of production on a metal substrate of functionally gradient protective coatings with the outer ceramic layer or metal-ceramic layer by evaporation and subsequent condensation at moderate temperatures of the substrate (300 to 500 °C) of mixtures of metals and metal oxides having different melting temperature and vapour pressure at the evaporation temperature. To achieve a high strength of adhesion of the coating to the substrate at moderate temperatures (300 to 500 °C) and high hardness the proposed composition contains Sn and Cr as metals, and Al₂O₃ and Cr₂O₃ as metal oxides. To improve the adhesion strength and hardness of the coating Al and MgO can be further added to the composition.		