



PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : B23G 5/20	A1	(11) International Publication Number: WO 96/07502 (43) International Publication Date: 14 March 1996 (14.03.96)
(21) International Application Number: PCT/US95/11440 (22) International Filing Date: 6 September 1995 (06.09.95) (30) Priority Data: 08/301,329 6 September 1994 (06.09.94) / US Not furnished 5 September 1995 (05.09.95) / US (71) Applicant: LEBLOND MAKINO MACHINE TOOL COMPANY [US/US]; 7680 Innovation Way, P.O. Box 8003, Mason, OH 45040 (US). (72) Inventors: HYATT, Gregory, Aaron; 8245 Fox Knoll Court, West Chester, OH 45069 (US). WEIDMER, Stanley, C.; 8336 Meeting Street, West Chester, OH 45069 (US). (74) Agent: ROTMAN, Phillip, A., II; Dinsmore & Shohl, 255 East Fifth Street, 1900 Chemed Center, Cincinnati, OH 45202 (US).		(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> <i>RTMP's copy + IPER + Annexes</i>

(54) Title: **IMPROVED INTEGRAL BORING AND THREADING TOOL AND METHOD**

(57) Abstract

A unitary bore forming and threading tool for producing a variety threaded bores having chamfers and counterbores without a need for tool changes. The improved tool preferably includes a shaft of predetermined axial length and having proximal and distal ends, a shank located adjacent the proximal end, a holmaking element located adjacent the distal end, and a threadmill portion located axially between the bit and the shank. The holmaking element further includes a chamfering surface and an end cutting surface. The disclosed tool and method enable creation of a variety of bores such as chamfers, counterbores, and threaded bores by producing bore portions of selectively determined distinct diameters by sequentially axially feeding the tool into the workpiece along distinct tool paths without changing tools. If desired, one ore more of the bore portions can be threaded with the threadmill by moving the threadmill in a selectively determined helical or nonhelical path.

