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(21) International Application Number: PCT/GB98/01836 (22) International Filing Date: 23 June 1998 (23.06.98) (30) Priority Data: 9714427.3 10 July 1997 (10.07.97) GB (71) Applicant (for all designated States except US): UNOVA U.K. LIMITED [GB/GB]; 26 Temple Street, Aylesbury, Buckinghamshire HP20 2RQ (GB). (72) Inventor; and (75) Inventor/Applicant (for US only): LEADBEATER, Peter, Brian [GB/GB]; 26 Blackthorn Grove, Woburn Sands, Milton Keynes MK17 8PZ (GB). (74) Agent: KEITH W NASH & CO.; 90-92 Regent Street, Cambridge CB2 1DP (GB).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, 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, 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, ML, MR, NE, SN, TD, TG). Published With international search report.

(54) Title: GRINDING MACHINE SPINDLE

(57) Abstract

A machine tool, particularly for grinding workpieces, has a single rotatable spindle (2) carrying a fixed cup-shaped inner grinding wheel (8) and an axially slidable cup-shaped outer grinding wheel (22). A T-shaped annular piston (14) engages in a recess with the spindle to form front and rear annular chambers to each of which hydraulic oil is alternately connectable. The piston has an outer part (18) on which is mounted the grinding wheel (22), being preferably the coarser of the two wheels for use in rough grinding. A tooth-shaped location device (32) at each side of the piston (14) engages with a respective device (34) on the spindle to prevent relative rotation of the wheel (22) and to provide a driving torque when it is advanced to its working position beyond the inner wheel (8).

