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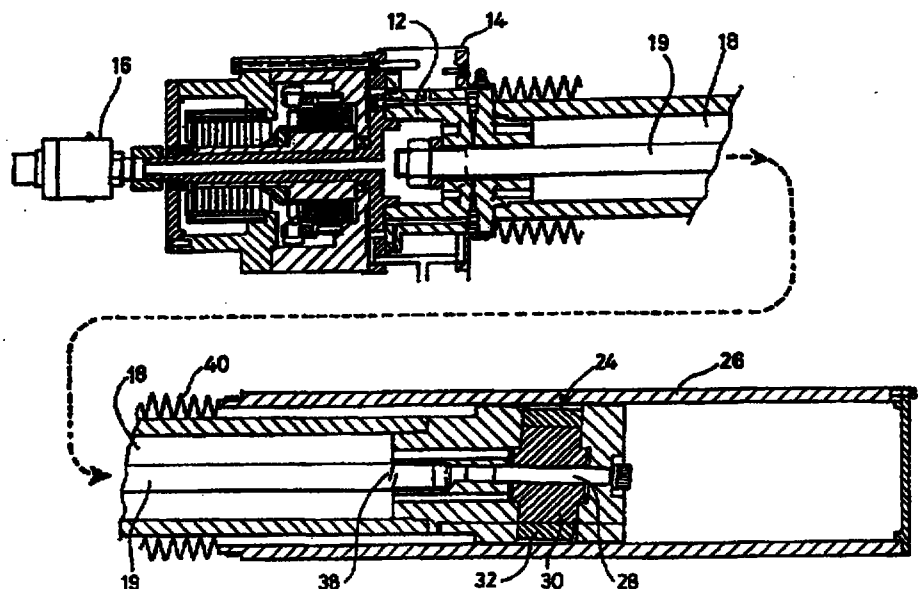
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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : F16H 19/02	A1	(11) International Publication Number: WO 98/10206 (43) International Publication Date: 12 March 1998 (12.03.98)
(21) International Application Number: PCT/GB97/01174 (22) International Filing Date: 30 April 1997 (30.04.97) (30) Priority Data: 9618642.4 6 September 1996 (06.09.96) 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): PIERSE, Michael, George [GB/GB]; 26 Castle Road, Bedford MK40 3TY (GB). (74) Agent: KEITH W. NASH & CO.; 90-92 Regent Street, Cambridge CB2 1DP (GB).		(81) Designated States: JP, KR, SG, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published With international search report.

(54) Title: TWIST ACTION FRICTION DRIVE**(57) Abstract**

A twist action roller friction drive comprises a rotating drivebar (18) which drives in rotation a roller means (30, 32) the axis of rotation of which is inclined relative to the axis of a rotationally fixed driven member (26) with which the roller means engages. The inclined roller means comprises a single annular roller (32) urged from the inside into driving contact with the driven member by one or more hydrostatic pads. The driven member is a tube (26) and the skewed annular roller is in frictional engagement with the bore of the tube. In a typical use, the tube is fixed to the carriage of a machine tool and is aligned with the machine axis. Oil for the



hydrostatic pad(s) acting on the roller is supplied through the drive bar along the axis thereof. At its trailing end, the drive bar rotationally drives a skewed roller assembly in which the annular roller is incorporated, the remote forward end of the drive bar being driven in rotation, as by an electric motor. Axial movement of the driven member is principally determined by the angle of skew of the roller so that if this angle is made very small, similarly small precise axial movements of the driven member of as little as 1 nm (nanometre) or less can be readily achieved, per revolution of the drive bar. This permits a high speed drive motor and in turn velocity feed back control.