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- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for all designations
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

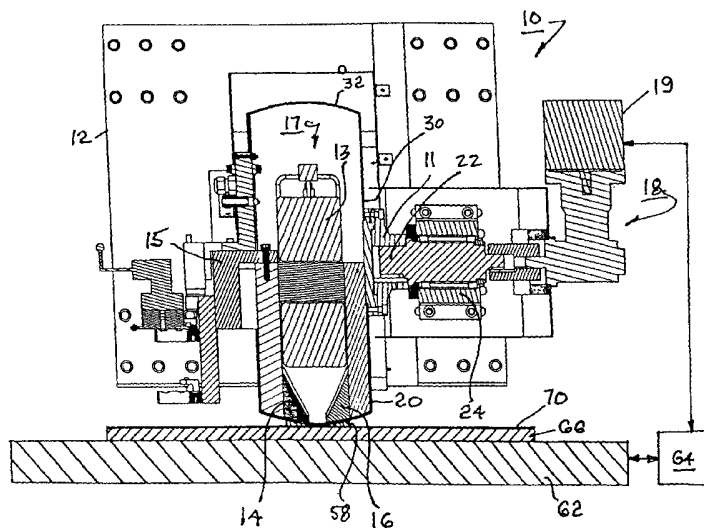
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(54) Title: UNIFORM THIN FILMS PRODUCED BY MAGNETORHEOLOGICAL FINISHING



(57) Abstract: An improved method for producing a thin layer having highly uniform thickness, which layer may be pre-coated on an undulating surface of a substrate element. A working layer of the material is formed having a thickness greater than the final thickness desired. An areal (XY) determination of working layer thickness is made by ellipsometry, laser interferometry, or x-ray diffraction, or other known means. A map of thicknesses to be removed from the free surface of the working layer is entered into the control system of a magnetorheological finishing apparatus. The working layer is mounted on a workpiece holder of the apparatus and correctly indexed to the machine. The machine then removes material by magnetorheological finishing as instructed by the control system to leave a residual layer having a very high degree of thickness uniformity at a nominal average thickness and a very high surface integrity.

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INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B24B 49/00

US CL : 451/36, 5, 8, 41, 60, 285

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 451/5, 8, 36, 41, 56, 60, 72, 87, 93, 109, 111, 113, 178, 221, 242, 285, 721; 137/92

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,616,066 A (JACOBS et al) 01 April 1997 (01.04.1997), see entire document.	1-7
A	US 5,839,944 A (JACOBS et al) 24 November 1998 (24.11.1998), see entire document.	1-7
A	US 5,951,369 A (KORDONSKI et al) 14 September 1999 (14.09.1999), see entire document.	1-7
A, P	US 6,506,102 B2 (KORDONSKI et al) 14 January 2003 (14.01.2003), see entire document.	1-7

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

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