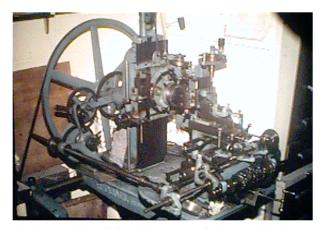
## 11. Beyond Simple Geometry: Low Relief and CAD CAM

Low Relief before CAD CAM - Hand Operated Brocade Machines

Low Relief or Brocade engine turning is the only example apart from spotting where the tool can move during the cut in any way other than in unison with the guide in following the surface of an undulating workpiece.



A hand operated low relief machine. Master cylinders containing the pattern to be reproduced rotate in relation to the workpiece. Unlike normal engine turning some scaling of the design is possible by varying the gearing of rotation of the cylinder and the movement across it of the stylus in relation to the movement of the work and the traversing of the sliderest. Tremendous skill is required to produce high quality work with this type of machine especially if the work is large.



A selection of Brocade Borders cut by hand from master rollers.



Pattern rollers, mostly made to order for bespoke engine turning designs. The design owners are variously marked where known.



Some of the pattern rollers that produced the patterns illustrated in the silver sample above, mostly suitable for borders and edges.



Pattern rollers, mostly with repeating designs or otherwise for general use, rather than borders.