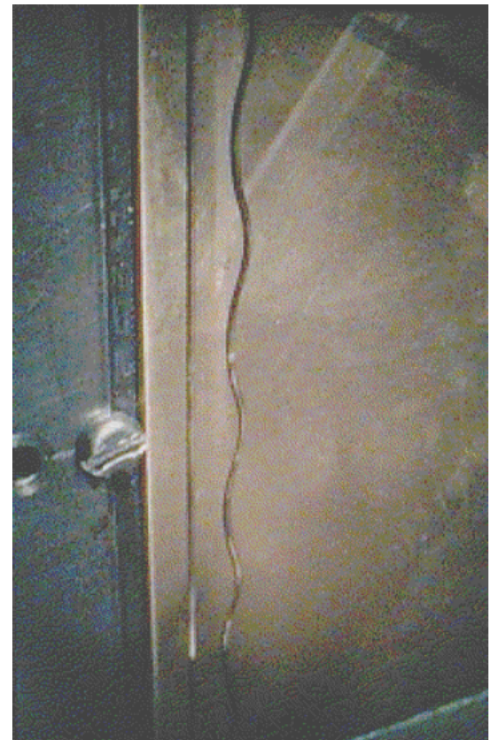
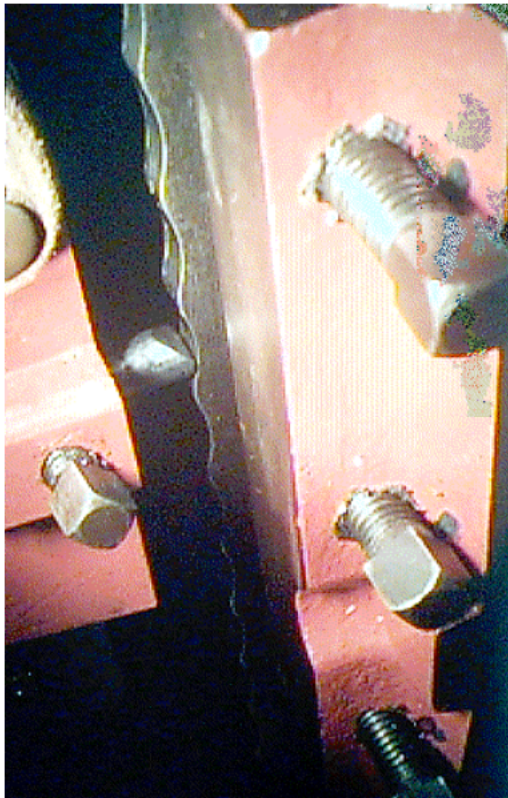


2. ***Cutting Lines: The basis of all engine turning***

Cutting Wavy Lines

The next stage is to deviate from the straight line to make a wave or zigzag or other profiled line. The profile may be quite complex, but is usually a simple repeat of a wave or zig zag. Pattern bars can be made for specific needs.



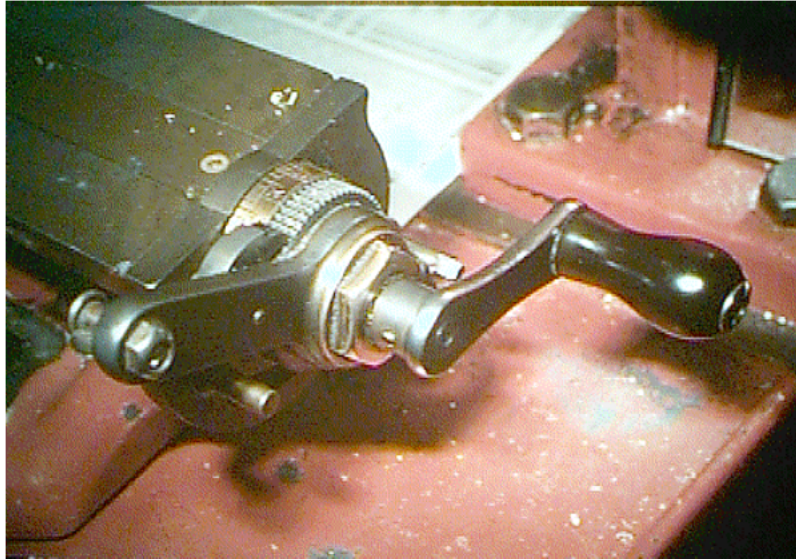
By guiding the vertical path of the workpiece away from a straight line to a wave with a wavy pattern bar we can ...

... cut a wavy line The straight line previously cut is seen to the left

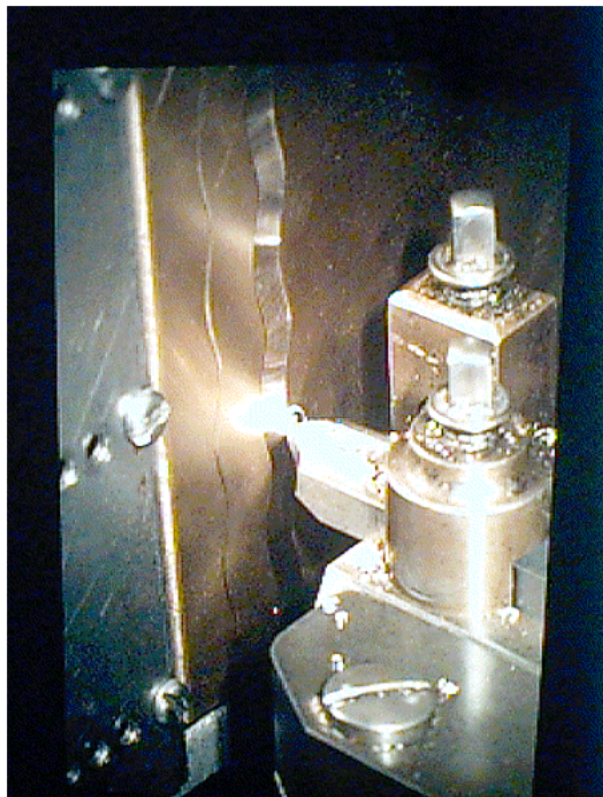
The touch, shown in the left photo is sprung against the pattern bar so that the cross slide moves as the touch follows the bar. The form of the wave depends on the shape of both the bar and the touch.

To create a pattern, we need to cut many lines. To facilitate this in an even way, we usually use a ratchet on the sliderest mainscrew which advances the tool a set distance to the right for the next cut.

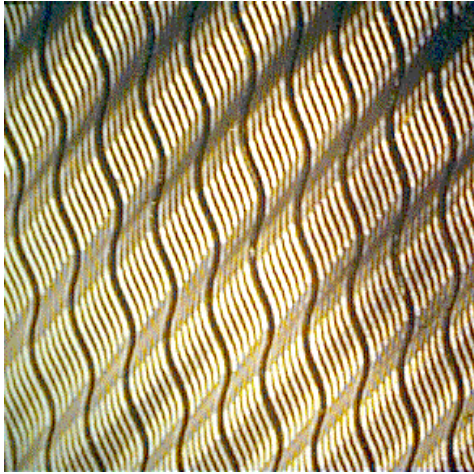
On a Plant machine, the ratchet has 64 teeth and the sliderest mainscrew is 14 TPI. This is similar on Lienhard machines, made in Switzerland before metrification.



Using the ratchet on the sliderest we can move the tool a little to the right at a time to achieve a series of parallel cuts ...



... as shown here In this case we have left the pattern bar in the same position for each cut, but if we move it after each cut ...



If we move the pattern bar vertically with relation to the workpiece and the machine, in this case 6 times a small amount, then a gap and repeat, we get a diagonal progression

By moving the pattern bar vertically in different increments and progressions, thousands of patterns can be created with just one bar using parallel cuts on a straight line machine.



This image shows practical use of moving the pattern bar an even amount each cut, with deep cuts on a cufflink with a shape that compliments the engine turning. The design is carried over the edges by very careful filing, to complete the design and show off the weight of the gold used