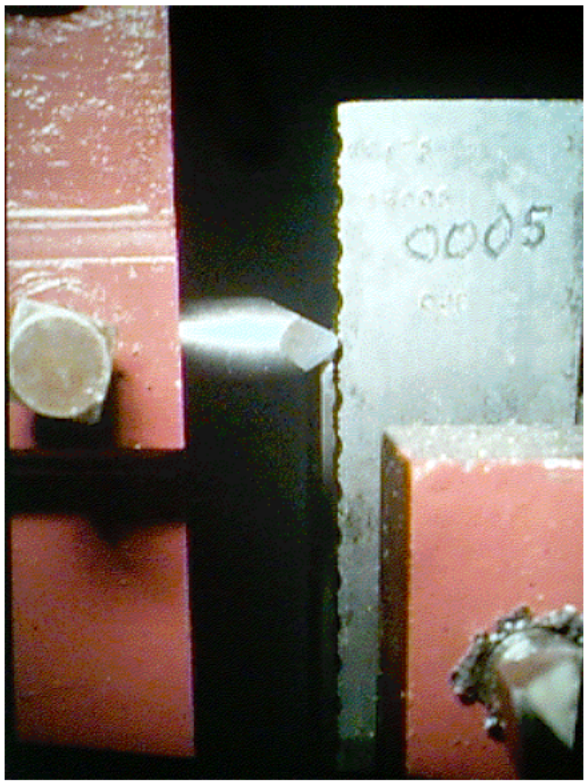
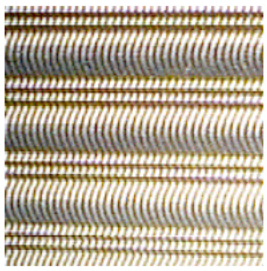
2. Cutting Lines: The basis of all engine turning

Patterns and Bars - Infinite Variety

This is a particularly interesting area. From one pattern bar, a huge number of patterns can be created just by changing the sequence and way that the bar is moved, relative to the workpiece and machine, after each cut. **Everything on this page is cut with the same pattern bar and touch**, and we could have filled a large book with patterns from just the one bar and touch. Changing the touch changes the wave profile as well so those options haven't been even touched here.

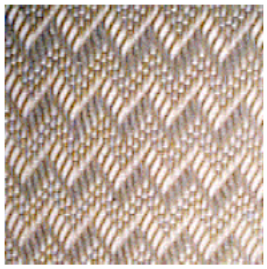


1 003 "Fancy Basket" pattern bar in place on the machine with the touch engaged This one, like many others, was designed and made using an engine turning machine, from mild steel, case hardened



The Basic Pattern What you get with it, with repeated parallel cuts and no vertical relative movement of the pattern bar between cuts Notice that since it is the work that moves, the tool traces a mirror image of the

pattern bar profile seen in the image above, modified by the radius of the roundness of the end of the touch sliding along the pattern bar

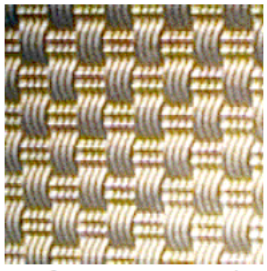


Zig zag moves, 5 up and 5 down about 0 5mm each on the crossing slide The Pattern Bar was moved once after each cut, vertically, in relation to the rest of the machine

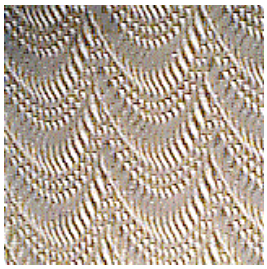
A moiré, made by reducing the vertical move at each end of the zig-zag There are numerous variations on this theme, which works well on many objects

By taking the bottom of the moiré and repeating it,a drape is created To create the curve, as with the moiré, the movement of the pattern bar is reduced gradually each cut until reaching to the bottom of the curve and then gradually increased in the opposite direction using the same numbers The movement of the pattern bar vertically is called "crossing" the pattern

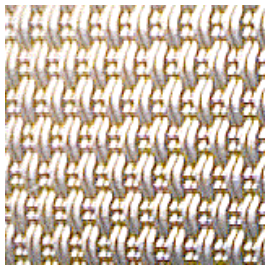
In this examp straight lines were added and changed the drape shape by altering the crossing figures



Here, four cuts were made, then crossed the pattern by half it's overall wavelength to make a fancy basket pattern

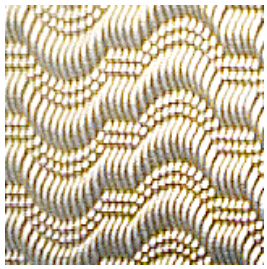


By varying the crossing, the shape of the drape can be altered pretty well infinitely This is just another example Often a drape is created especially to fit onto an object so that the pattern fits with complete drapes into the area designated, no half drapes left over

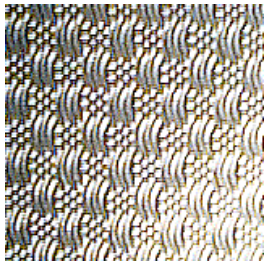


A fancy basket crossed after just two cuts For some reason, nearly all engine turners make errors while cutting this type of pattern where two lines are cut and then cross; the larger the piece the greater chance of an error!

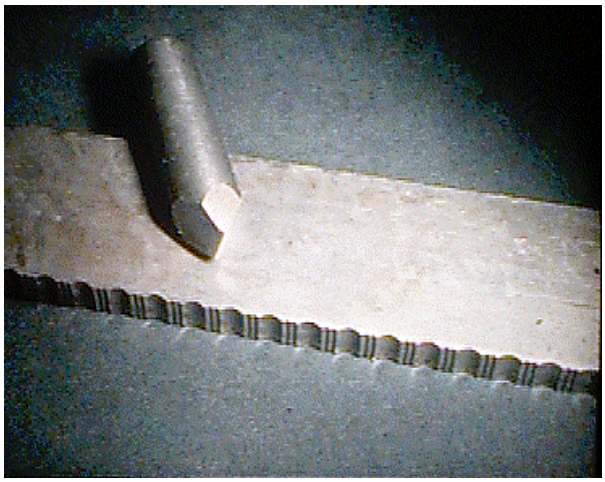
A double drape pattern, using two curve sequences of crossing numbers



A sort of staggered moiré where a drape is cut, then four cuts with no crossing, then the drape is inverted to create the other half of the moiré



A fancy basket in which the short waves are half-crossed in the manner of barley on each cut, and then after four cuts, a long cross is made to create the basket effect This is known as double crossed Fancy Basket



The 1 003 Pattern Bar and a Single Touch used with it that created all the patterns on this page Different touches used on the same bar will alter the pattern, though in this case only one size is normally used

Some pattern bars laid out