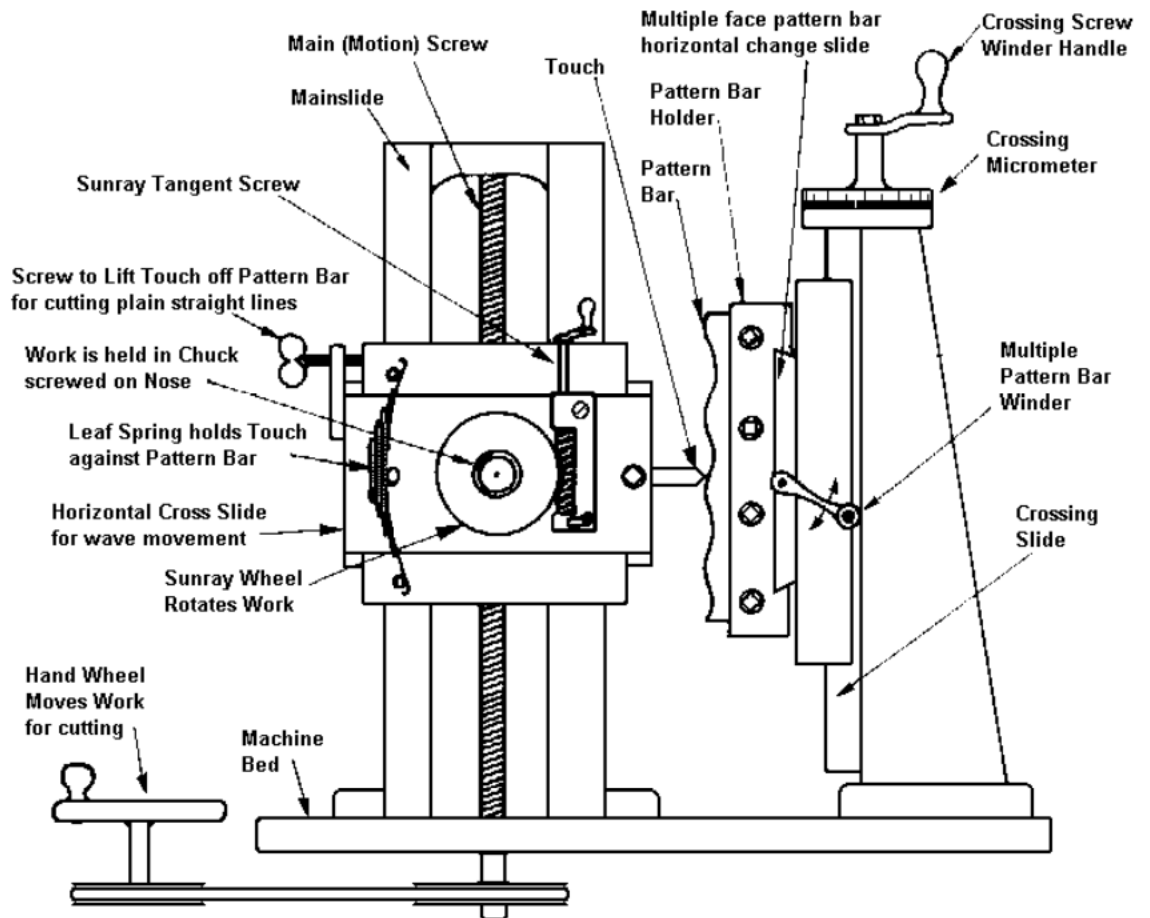


Technical Reference

The straight Line Machine

Schematic diagram of a Straight Line Engine Turning Machine, without the Sliderest or Workpiece/chuck.



This diagram is intended to show how the workpiece can move vertically on the machine, thus driving a horizontal oscillation generated from the pattern bar

The workpiece held in its chuck which would be screwed onto the nose has been omitted, and also the sliderest, which would be in the foreground and obscure the view. The position of the tool would be about half way up the diagram, able to move from left to right by about 12 inches or 300mm, but stationary in the X-Y axes as viewed here during cutting.

The movement of the work is driven by hand using the handle at bottom left. It is driven in a downward direction against the stationary tool to produce a cut.

The Horizontal Cross Slide is sprung towards the right by the leaf spring in order to force the touch against the pattern bar, thus the path of the nose follows a profile similar to the profile of the pattern bar. The fixed tool, not shown here, will produce a mirror image of this motion on the work. For More information see patterns and touches.

Note: The leaf spring is used in this illustration for clarity of explanation. Most designs use adjustable coil springs behind the cross slide which are less easily understood in schematic view.

The Crossing Slide is used to move the pattern bar vertically as required to vary the pattern for zig zags, baskets and drapes etc.

The Horizontal Multiple Pattern Bar Change Slide which acts in the Z axis of this diagram presents different pattern bar profiles to the touch thus varying the pattern further.

The Sunray wheel allows the work to be rotated by use of the sunray tangent screw between cuts instead of using the sliderest to index the cuts so that the pattern fans out from a point which may be either on or off the actual workpiece. Most straight line machines have either a ratchet or a set of indexing wheels with notches on the sunray tangent screw to regulate the even division of the sunray with various numbers of cuts.