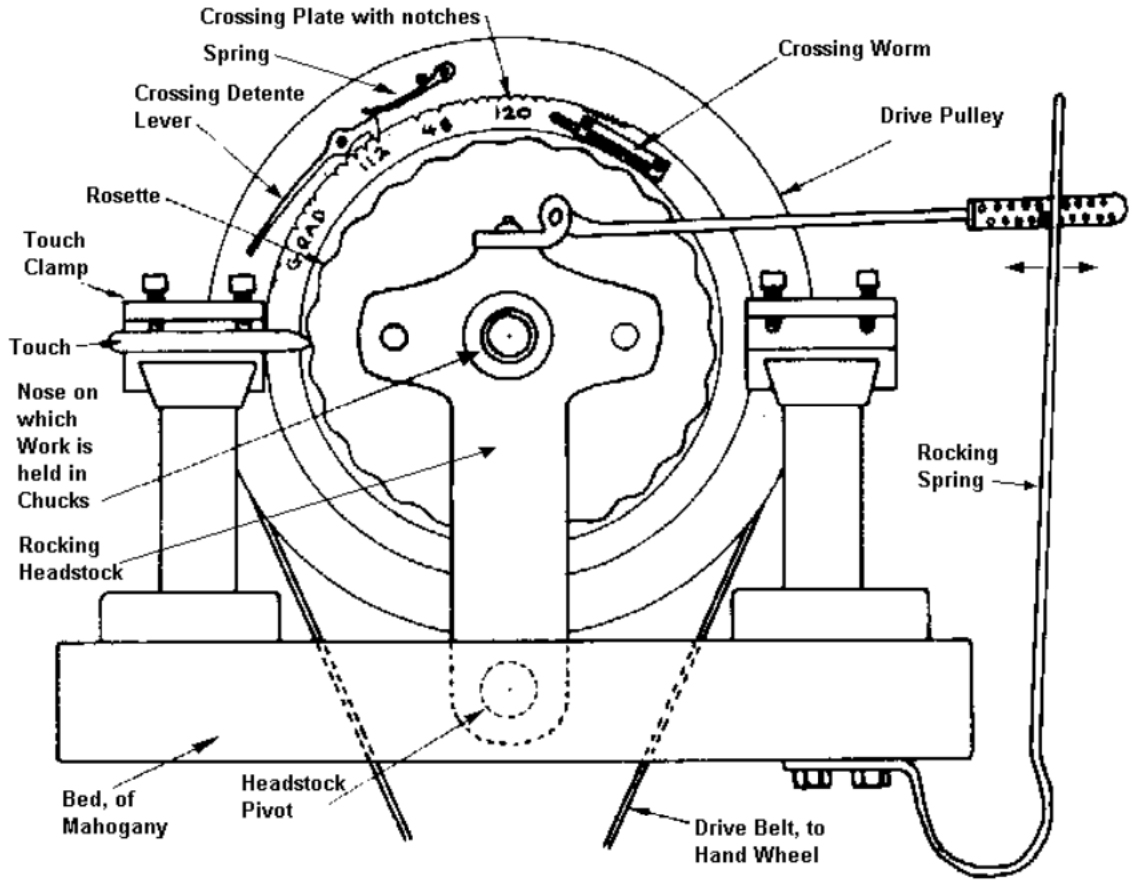
Technical Reference

The Rose Engine - Schematic Layout

The rose engine is a lathe which has a rocking and traversing headstock. The spindle carries wavy cams called rosettes, hence the term rose engine, which are used to generate wavy circular lines.



Schematic Diagram of the Rose Engine looking along the spindle axis, without the Sliderest

Arrows by the leaf spring on the right show the rocking motion of the headstock and rosette barrel. The touch and cutting tool remain stationary, the workpiece moves with the rosette which is really a wavy cam. The headstock is sprung sideways, in this case to the left, against the fixed touch.

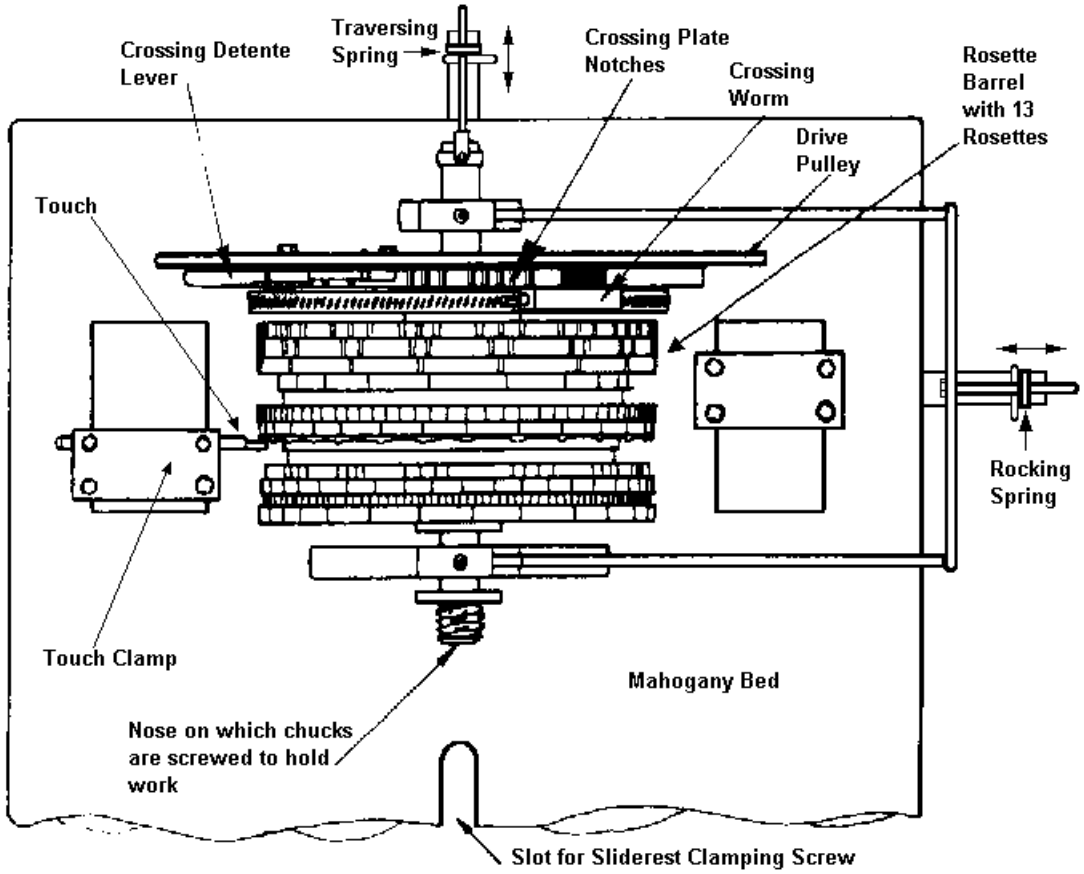
As rotation progresses, using a fixed tool a wavy circle is cut on the face of the work which is a copy of the wave on the rosette in as much as there will be the same number of waves, and the amplitude of the waves will be the same as the amplitude of the waves on the rosette regardless of the diameter at which the tool is cutting, thus at a small diameter the waves will appear very pronounced, and at a large diameter the waves will appear very shallow.

A pattern of concentric waves will appear to fade as the diameter increases. All patterns at large diameters will therefore not be as vibrant as the same thing at a small diameter. When large circular objects are cut with concentric circular waves this does tend cause a problem that the pattern does not show up enough. It is important that designers should be aware of this.

The machine is driven by a hand crank connected via two pulleys to the drive pulley by the belt shown at the bottom of the picture.

bottom of the picture.

It is possible to rotate the rosette barrel relative to the nose and workpiece in order to swirl the waves on the work. This movement is known as "crossing", and is either accomplished by using the crossing worm, or more usually by using the Crossing Plate with predetermined notches, thus the wave could spiral in to the centre, or zig zag, or change in a series of steps like a basket pattern or many other variations.



Schematic Diagram of the Rose Engine from above, again without the Sliderest which would be at the bottom of the image

In this view the touch is set against the side of the rosette for cylindrical work where the rosette barrel traverses in a pump action along it's axis, typically to cut around an object like a serviette ring. The spring at the top of the picture is brought into play, forcing the rosette against the touch to cause the oscilating movement, shown by the arrows beside the traversing spring.

The touch and tool remain stationary, the workpiece attached to the rosette moves with it against the touch as it rotates causing the cut to wave along the cylinder being cut around.

The same decreasing vibrance of pattern with increasing diameter occurs on cylindrical work as on flat circular work. The only worse problem in this category for the engine turner is where the object is in the spherical geometrical group of shapes like doghnuts etc so the action has to go from pump / traversing to rocking. at 45º you have the point at which the pattern will show up least. For this reason we usually cut hemispheres with a pump action as this evens out the difference between the relationship of the decreasing diameter and decreasing angle of usefulness of the pump / traversing motion and the fact that as the diameter decreases the pattern appears more vibrant. However, if the hemisphere is larger than 2 or 3 inches or it is a (part of a) doughnut or mudguard shape it is often better to carefully use a microscope and the judgement of years of experience to decide the right point and change from traversing to rocking at a time when the wave generated with the given touch will be the same as the wave generated by a different touch on the edge of the rosette.