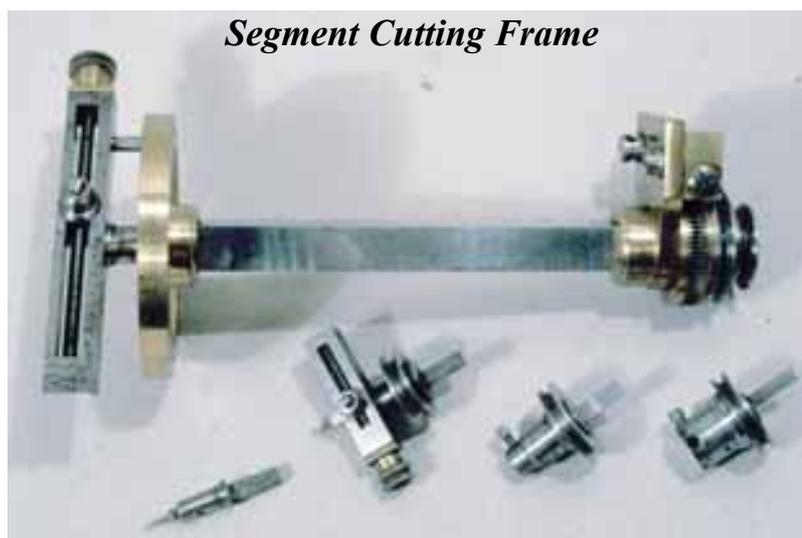
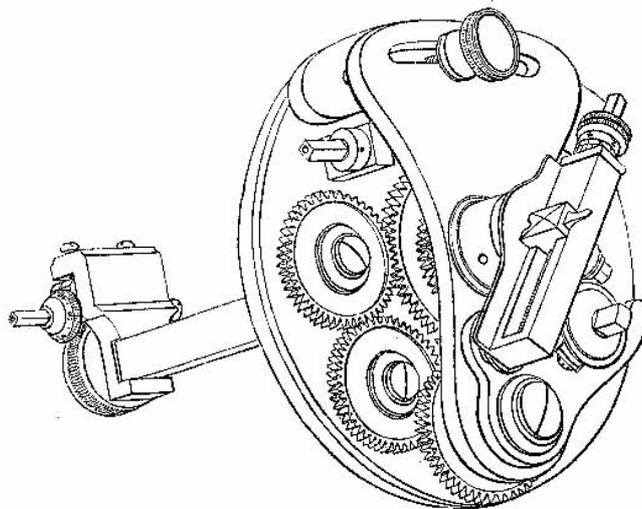
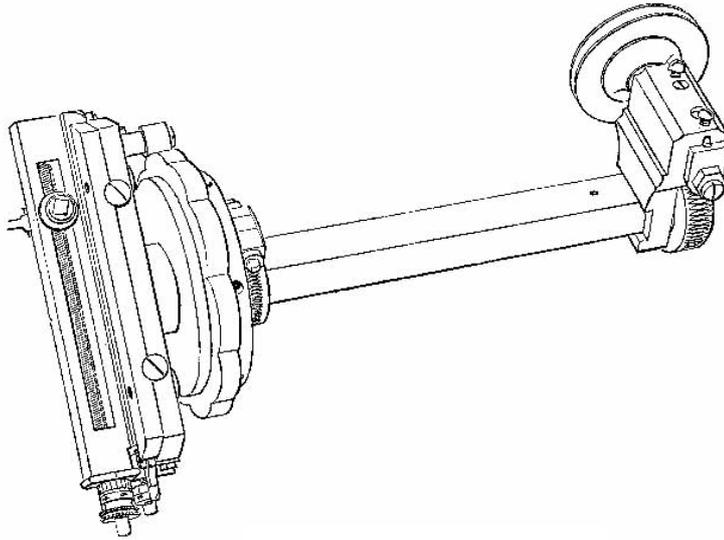


**The Epicycloidal Cutting Frame** is a later development of the Ellipse Cutting Frame having an extended gear train with change-wheels so that the cutter may be made to describe an epicycloidal path (rolling circle) thus producing a series of looped figures according to the ratios of the available gear combinations.

In its basic form it can only cut fine line patterns of no great depth but, for deeper cutting it may be used with miniature cutting heads which are driven by a separate band from the overhead and these facilitate the cutting of deeper patterns without unacceptable strain on the instrument. A selection of miniature cutting heads is shown below with:

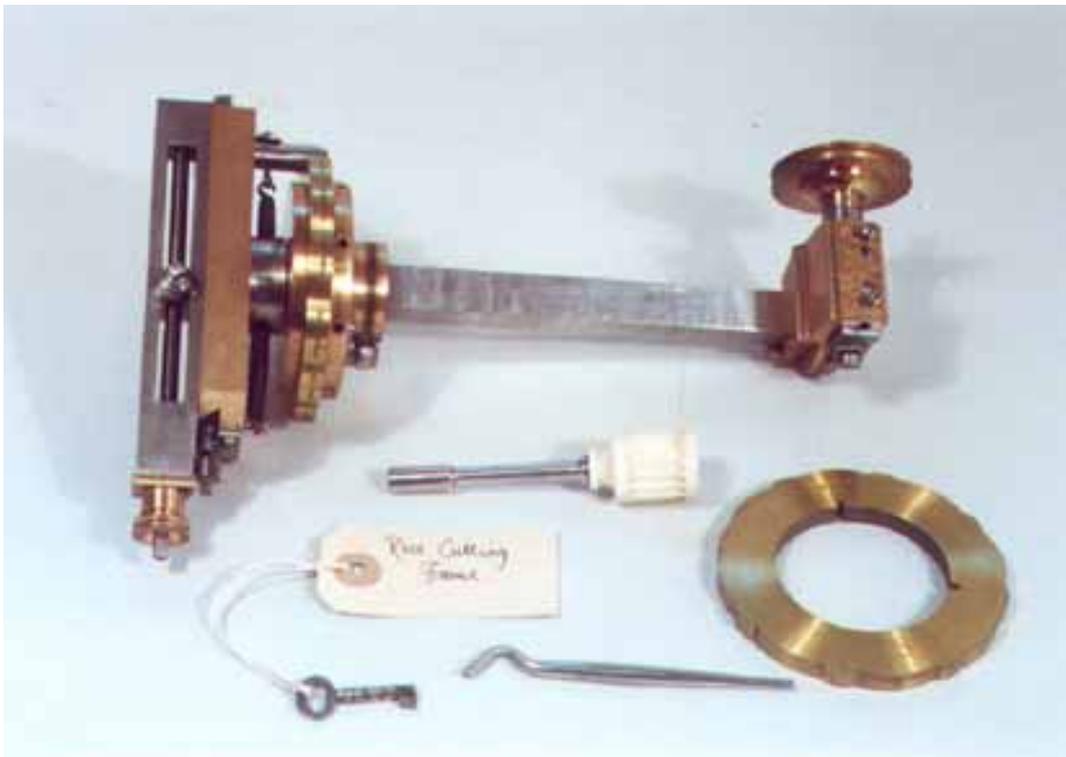
**The Segment Cutting Frame**, an instrument similar to the Eccentric Cutting Frame but with a ring of segment stops to terminate the cut to an arc. A fixed cutter in this instrument can only scratch a fine line but the miniature heads allow deep cuts to be made. The heads illustrated are: a stylus, an eccentric cutter, a drill and an internal cutter.





*Rose Cutting Frame*

**The Rose Cutting Frame** works on a similar principle to the Eccentric, Ellipse etc. Cutting Frames but its head runs in a slide against the force of a spring and at one end of the head is fixed a rod passing through the back of the slide with a rubber on the end which presses onto a rosette so that as the



head is rotated it oscillates, following the profile of the rosette. A pulley-driven worm-and-wheel at the back rotates the head by the main spindle which passes through the square shaft. Phasing of cuts in a series may be effected by a second worm-and-wheel at the front end by which the rosette carrier is attached to the shaft.



*Miniature Horizontal Cutting Head*

On its own the Rose Cutting Frame has limited use because it can only cut fine line patterns; cutting of any depth is not possible because of its slow speed. However, like the previous cutting frames, this one may also be used with a miniature cutting head to provide the necessary speed for deep cutting. A miniature Horizontal Cutting Head has been developed by Fred Armbruster of the U.S.A. and, with the aid of this excellent addition, the Rose Cutting Frame can place rose patterns at any position on a workpiece of any shape.

The following example is an (unfinished) egg shape in Pink Ivory wood on which rose pattern have been cut at regular intervals over the surface by the Rose Cutting Frame with the miniature Horizontal C/H. This technique can only be duplicated on a proper Rose Engine with a complex circular chuck which allows rotation on several planes; such a chuck is used by jewellers when making Fabergé style ornamented eggs.

