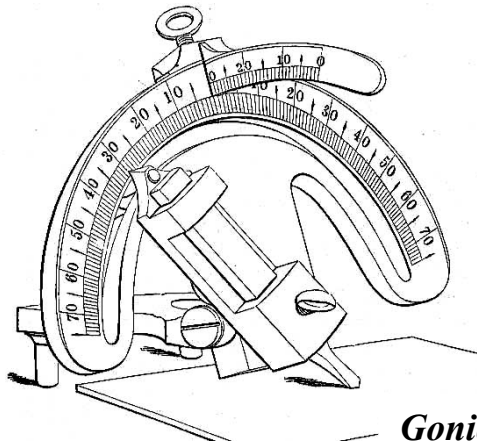


## CUTTER SHARPENING, INDEXING AND THE HEADSTOCK

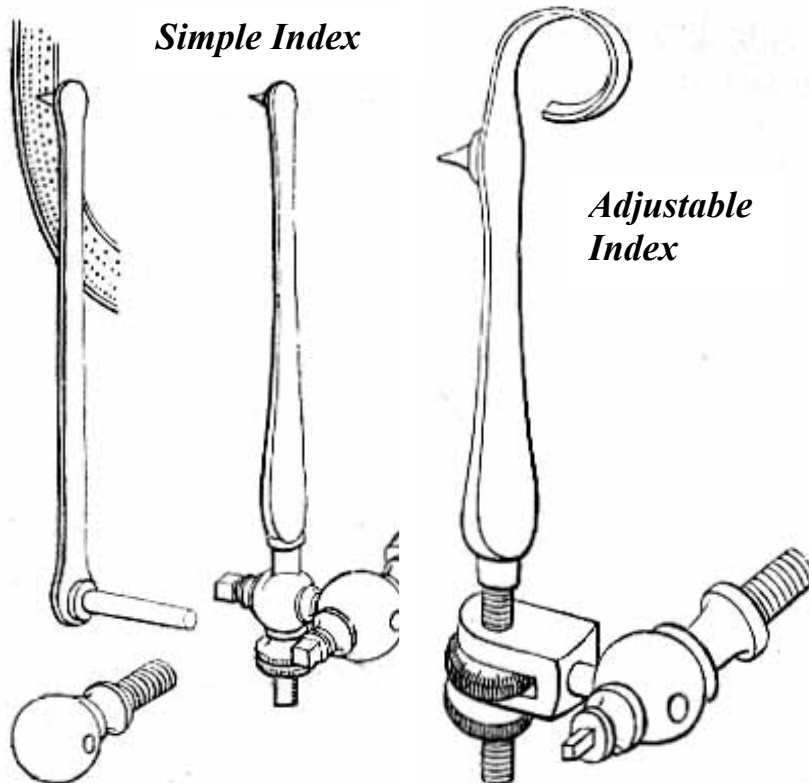
The **Goniostat** is an instrument for holding cutters at compound angles for grinding and honing. There is also a simple holder which rocks from side to side on a ball foot for honing round-nosed cutters. Ornamental cutters are sharpened as scrapers, with no top rake. Instead of the traditional



*Goniostat*



emery, oilstone powder, pumice and crocus powder, more and more modern turners are now using diamond compounds for sharpening cutters.



*Simple Index*

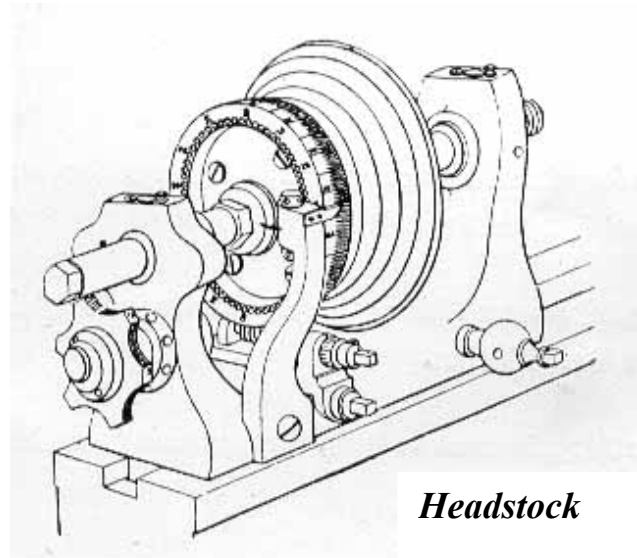
*Adjustable Index*

**Indexing** between cuts is effected by an index or detent and division plate which arrests the lathe spindle at any point in its rotation so that a cut, or a series of cuts, may be made with a cutting frame. The simple index is a pointed detent on a spring-steel blade pivoting in a ball screwed into the headstock casting. The adjustable index has the facility of being lengthened or shortened by the adjusting and

locking screws and this is useful when it is required to place a cut in a position where the simple index cannot enter conveniently into a hole on the division plate.

**Slow headstock drive:** a tangent screw and worm-wheel may be engaged to drive the headstock slowly so that a cutting frame may cut a swathe on the work. The wormwheel which has 180 teeth, provides an alternative means of indexing and the tangent screw also gives the facility of locking the lathe spindle more securely than is possible with the index and division plate.

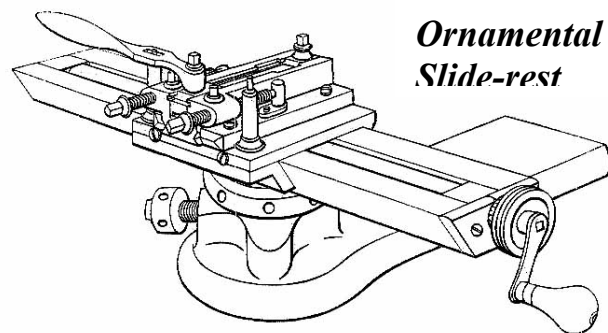
**Headstock Segment apparatus:** so that swathe cuts may be constrained to a pre-determined segment or segments of a rotation, there is a pillar with adjustable stops next to the worm-wheel; rotation of the spindle may be stopped within any segment by taper pins placed in any two the series of 72 holes drilled in the rim of the worm-wheel; fine adjustment is effected by stop screws.



**Headstock**

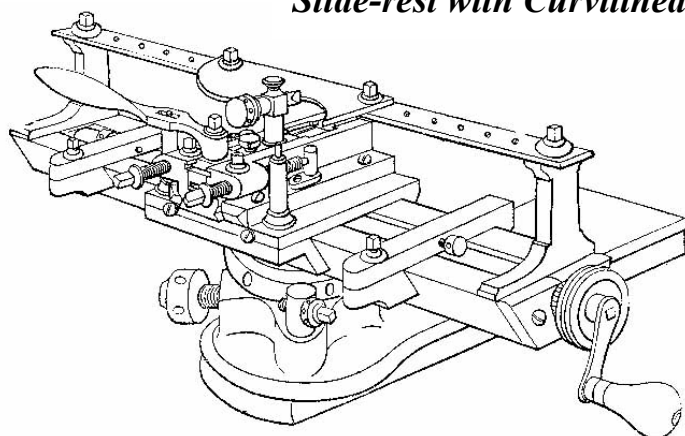
### SLIDE-RESTS

**The Ornamental Slide-Rest** is like a compound slide but with angular adjustment to the main slide and an adjustable stop screw on the tool-slide for fast and accurate cutting of a series of cuts to a fixed depth. The tool-slide may be advanced by a guide screw or, the guide-screw may be released and the slide advanced by a hand-lever.



**Ornamental Slide-rest**

### **Slide-rest with Curvilinear**

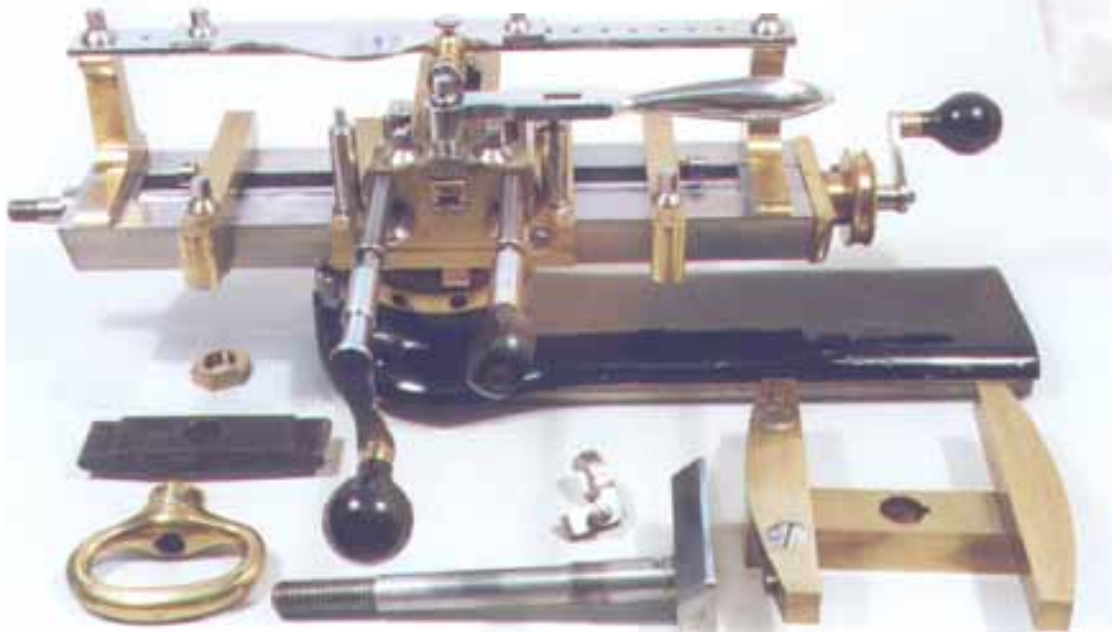


**The Curvilinear apparatus** is for profile copying. It comprises a pair of standards on which is mounted a template bar. The tool-slide guide screw is released and the slide is advanced and retracted by the hand-lever under the control of an adjustable follower or rubber which rubs along the profile of the template. The follower is

positioned at a high spot on the template and the main leadscrew of the slide-rest is rotated by the winch handle so the carriage may pass back and forth while light pressure on the hand-lever causes the cutter to penetrate the work. By cutting progressively 'down-hill' the work may be reduced to the same profile as the

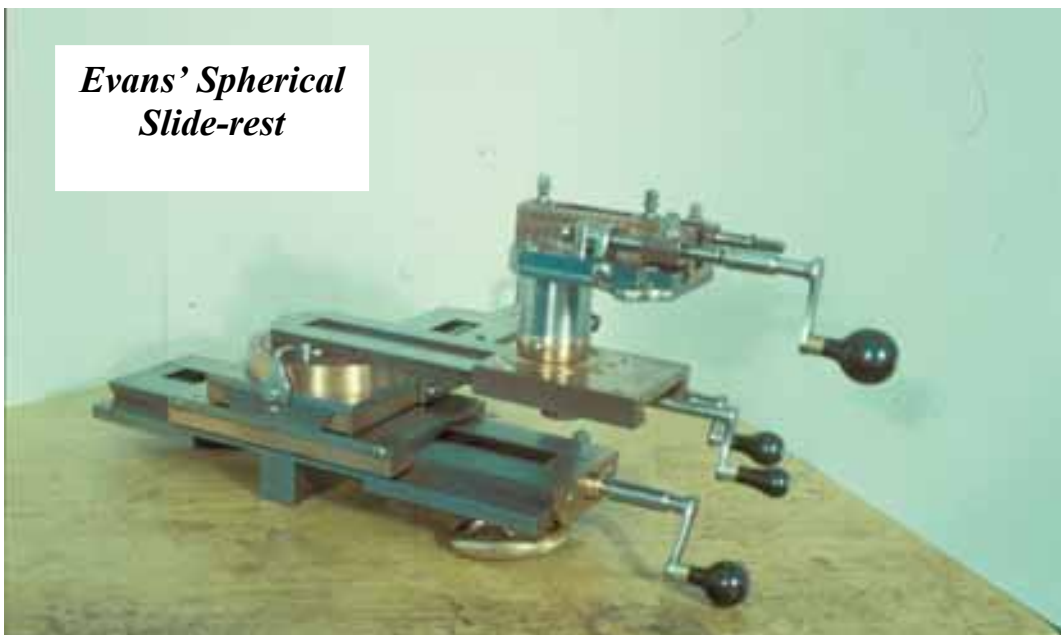
template. A final, finishing cut is taken after fine adjustment to the depth of the follower.

### *Holtzapffel's Ornamental Slide-rest*



**The Spherical Slide-rest** has  $x$  and  $y$  axis slides, a main slide that rotates on a wormwheel and a tool-slide that runs on the main slide. The  $x$  and  $y$  slides are used to position the centre of rotation (the centre of the wormwheel). When the tool-slide is positioned on the main slide so that the point of the cutter is behind the centre of rotation a convex curve will result; and when the point of the cutter is in front of the centre of rotation a concave curve will result. To turn a true hemisphere it is necessary to place the centre of rotation exactly on the axis of the lathe spindle.

### *Evans' Spherical Slide-rest*



These Tazzae in Lignum Vitae and Mopane were made using the Spherical slide-rest. The double-curve flutes were cut with a long double quarter bead cutter cutting horizontally, one curve being the radius of the cutter and the second curve the radius of the slide-rest.

