

Lathe Steady Rest

Charles D. Hepler

August, 2009

Long spindles, in particular rear chair posts, may vibrate in response to the pressure from the chisel while being turned. A steady rest can damp or eliminate this vibration.

This shop-made steady rest is my copy of a design by Ernie Conover, as shown on a video he made for Fine Woodworking. It is simply a holder and a piece of wood with a bird's mouth (square notch) cut in one side. The holder is clamped to the lathe bed.

The rest rotates to engage the spindle being turned. It is held in place by a wedge. The spindle being turned rides in the birds mouth. Conover said that he made many balusters for his home using a steady rest like this.

The main advantage of this shop-made jig is that it is cheaper than the \$150 (more or less) that a commercial one would cost. The main disadvantage is that it is not very adjustable. The position of the pivot hole in the holder can be moved. Otherwise, it seems to me that one would need different sized rests (with different sized birds mouths) for spindles of different diameters.

The holder should be stiff enough to resist vibration but flexible enough not to break (or break the spindle). I made mine out of hardwood plywood and $\frac{3}{4}$ " pine scrap pieces. It consists of five parts: two sides, a back, a base and a clamp. The base has a block glued to the bottom that runs between the rails of the bed, to prevent the holder from rotating horizontally.

You can't see it in the sketch, but a $\frac{1}{4}$ " machine screw runs from the base of the holder down to the clamp. The holder is narrow, not wide enough to accommodate a wrench, so I used a slotted screw, and a wing nut on the bottom.

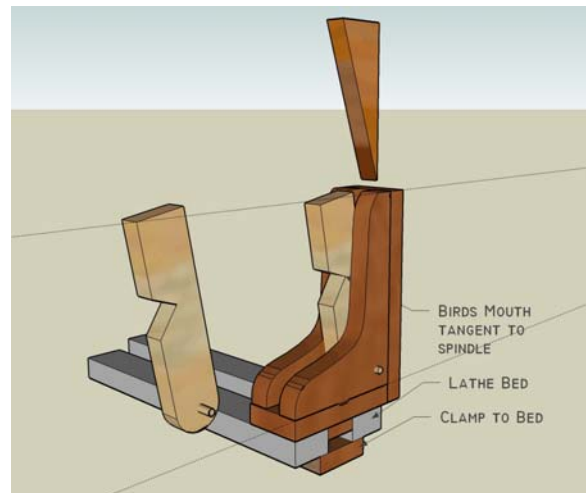


Figure 1 Lathe Steady Rest

The actual steady rest is a piece of $\frac{3}{4}$ " oak or maple with a bird's mouth notch cut in it. It pivots on an axle (just another $\frac{1}{4}$ " bolt). The sides of the bird's mouth should be tangent to the circumference of the spindle, so the geometry has to be fairly close.

Make the holder first, and cut out the blank for the steady rest. Put the blank in place and drill the pivot hole. Install the rest in the holder and clamp the holder on the bed. Then move the tailstock (with the tail center in place) against the steady rest. Rotate the steady rest against the tail center, to scratch out an arc.

With a compass, draw a *semicircle* centered on the scratch. Then draw two lines at right angles to each other, tangent to the semicircle. They should intersect on the scratch line. (Conover said he used a center finder to bisect the arc but I drew them by eye.) Cut along these lines to make the birds mouth.

When you reassemble the steady rest both sides of the birds mouth should touch the

spindle. To hold the steady rest in position, place a wedge between the rest and the holder as shown in the figure. Some vibration is inevitable. Conover recommends that you lock that wedge in place with another wedge placed between the *side* of the holder and the first wedge.

This steady rest, surprisingly, does not burn the spindle, especially if you use a bit of wax or graphite where the rest meets the spindle. It does leave a burnished ring around the turning, but that can easily be sanded away before the turning is removed from the lathe.

