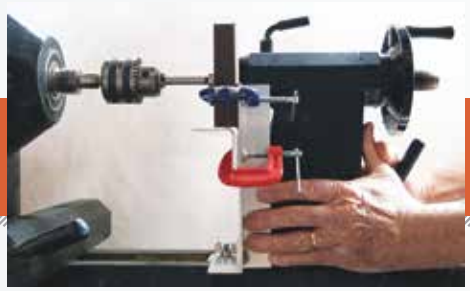


Lathe Drilling Jig

Michael Hamilton-Clark

Recently, I wanted to make a clock with separate barometer and temperature gauges, all mounted in a slice of natural-edged maple burl. I would need to drill three recesses 2½" (6cm) in diameter and ¾" (19mm) deep—clearly a job for Forstner bits. I could not use my post drill, as its table did not provide enough maneuvering room nor a speed slow enough for a drill bit of this size. I realized that if I could make a wood-holding jig to fit on the lathe bed, I could drive the drill chuck in the headstock, which offers a turning speed as low as 100 rpm.

The jig (*Photo 1*) offers adjustable height, holds the wood securely, and slides along the bed ways with stabilizing support from the tailstock. Using the jig and tailstock together, the wood is pushed by hand into the spinning drill bit.

Construction and use

To make the jig, I used aluminum angle, as it is easy to cut and drill. In order for it to slide easily yet provide lateral guidance, the top slide plate should be sized for a cozy but non-binding fit in the gap between the bed ways. Likewise, the bottom slide plate must slide easily but without excess play under the gap in the bed ways (*Photo 2*). Center the clamping bolt and wing nut through both slide plates and base crosspiece. Tighten the wing nut so that the jig will be restrained but still slide smoothly along the lathe bed.

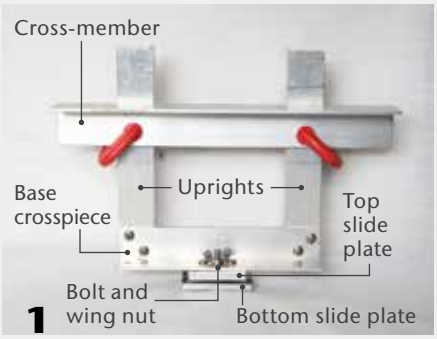
The tailstock quill supports the back of the workpiece. This may require winding the quill in or out to just make contact with the wood. Depending on the shape of the front of your tailstock, a wood spacer might be needed to fill the gap at the toe.

The workpiece sits upon the cross-member, which is clamped at the required height to the uprights. Ensure that the cross-member is level, and clamp the workpiece to the uprights as well (*Photo 3*).

Start drilling with a small Forstner bit and increase the bit sizes with successive passes up to your final drilling diameter (*Photo 4*). The lathe speed should be around 150 rpm or slower if smoke/burning occurs.

You might wonder, why not lock the tailstock to the bed and advance the quill? Although the quill is in line with the drill bit, advancing it would tend to cause the jig to tilt forward, which could cause the bit to jam in the wood. By pushing the entire tailstock forward, the jig will remain vertical. ■

Michael Hamilton-Clark, a retired civil engineer, has been turning wood for fourteen years. He lives in the Fraser Valley, British Columbia, and uses mostly locally available woods from felled trees, branch trimmings, and mill offcuts to produce a variety of items. He is a member of the Fraser Valley Woodturners Guild, the AAW, and the Craft Council of British Columbia. For more, visit alberystudiowoodturnings.com.



Jig parts

(*1*) Size the drilling jig according to your lathe/tailstock capacity.

(*2*) Viewed from the tailstock end, the jig's two slide plates are custom fit for smooth sliding without binding or excess play. The top plate rides between and the bottom plate fits under the bed ways.

Secure, adjustable holding

Both the cross-member and workpiece are clamped to the uprights during drilling. Adjust the cross-member up or down, and move the workpiece left or right to achieve your desired alignment with the drill bit.

Start small

Begin with a smaller drill bit and increase bit sizes successively, rather than drilling the large, final size all at once.

Completed project