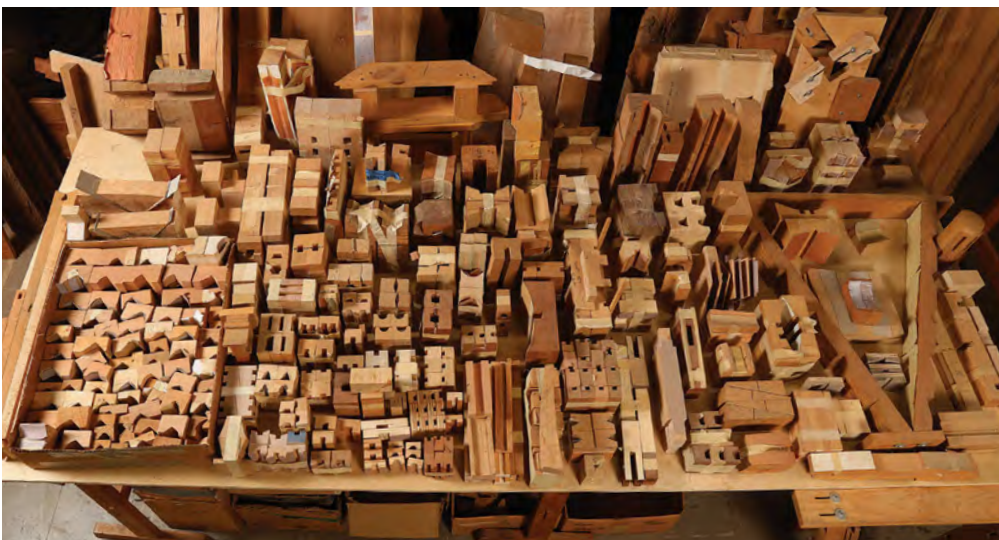


# Custom Clamping Blocks

Extra effort ensures  
glue-up success

BY RON KUHN,  
MATT GIOSSI, AND  
HANK GILPIN



Aristotle said, “The whole is greater than the sum of its parts.” Alright, Aristotle, but how do we get the parts together? Clamping blocks! The woodworking world deserves to know, or be reminded, that it’s OK to spend half a day making clamping blocks that will protect a piece of furniture that’s taken you weeks to create, blocks that will evenly distribute clamping pressure right where you need it.

Proper clamping blocks provide insurance that the piece will go together smoothly, eliminating added stress

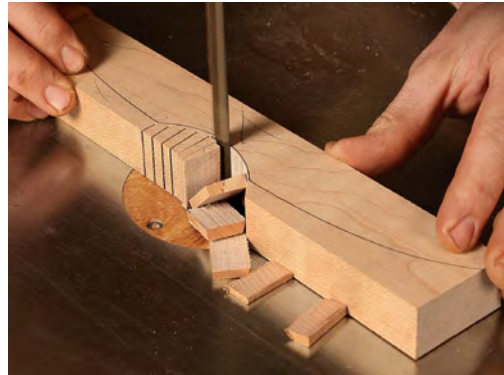


## MIRROR MIRROR IMAGES

When assembling uniquely shaped parts, create clamping blocks that mate with the pieces being clamped.



**Mimic the part.**  
To create a custom clamping block, use the part you need to clamp as a template. Secure the part to the block stock, and trace its shape.



**Cut the shape.**  
On the bandsaw, carefully cut the block to shape. For tight curves, the authors cut a series of kerfs, and then cut to the line. Slow, steady cutting yields the best results.

around a glue-up. The glue-up is the make-or-break moment in any shop, and you can't afford to risk a clumsy one. You could end up with open joinery, dented or broken parts, or a pile of expensive firewood. All these issues obviously diminish profit, value, and joy. Making the blocks can be as demanding as making the parts being assembled, so it's easy to feel like you need to rush to completion. But it's professional to understand that the way a piece of furniture is assembled is just as important as how its parts were made.



**Add cardboard.**  
Use spray adhesive to attach a layer of thin cardboard to the block. The cardboard will prevent denting.



**Tape and tighten.**  
Before clamping, tape the block to the furniture part to prevent sliding during assembly. The tape location is important. Make the block longer or wider if necessary to afford extra room for tape and to avoid getting tape in the glue joint.



## PRESSURE KEEP THE PRESSURE WHERE YOU NEED IT

This particular glue-up required curved legs to be glued to angled stretchers. The custom clamping blocks accommodated the curves and angles so the clamp jaws would remain parallel to each other.



**Negative shape holds the part.** Trace the part onto one side of the clamping block stock. On the outside of the clamping block, mark and cut out a square face to allow level clamping.

**Prepare the block.** On the bandsaw, cut out the negative space that will cradle the part and the opposite side that the clamp will rest on. Then secure thin cardboard to the block with spray adhesive and tape.

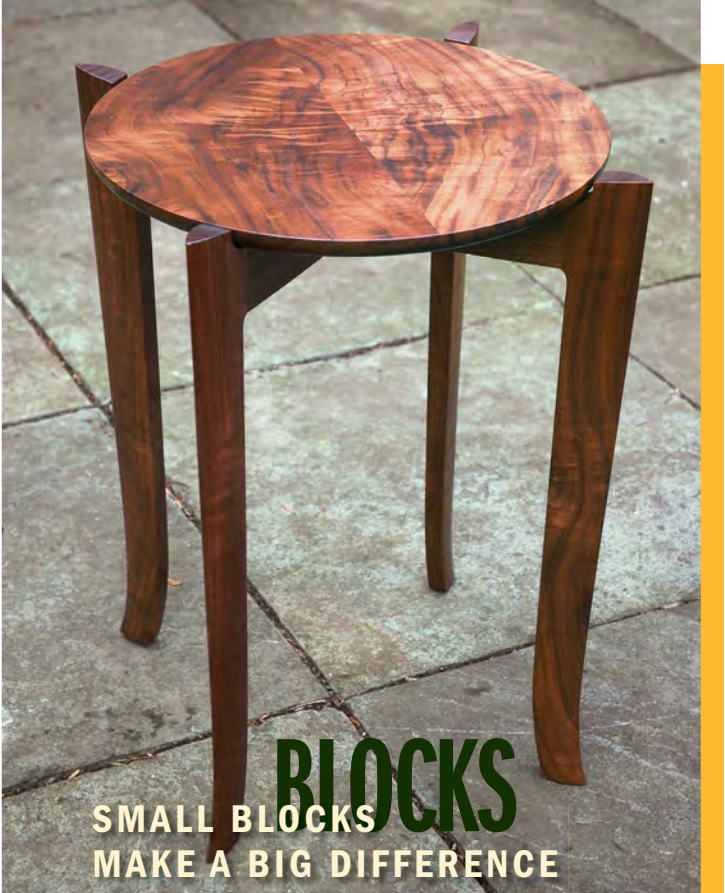


**The pressure's on.** Tape the block to the piece, making sure the tape doesn't interfere with the joint, and apply clamping pressure.



### Maximize a joint's potential

Proper clamping blocks enable you to apply as much pressure as you need exactly where you need it. Glue is activated by pressure, and with a proper clamping system you can choose to target the clamping pressure over a tenon, say, or perhaps spread the pressure across a wider surface. Either way, you can ensure that you are getting the full potential out of the clamp. We often make blocks that not only allow us to seat a mortise onto a tenon, but also give us the flexibility to position the clamp how and where we want so that we can apply an additional cross clamp over the joint. Two-way



## BLOCKS SMALL BLOCKS MAKE A BIG DIFFERENCE

Sometimes you just need a small block that straddles an oddly shaped part. The trick in making little blocks is to keep the block stock oversize until it is shaped.



**Trace the part.** These shaped legs only require clamping pressure in a small area near the top where the legs meet the stretchers. Using the top of the leg as a pattern, trace the shape onto the block stock.

pressure is the result: tight shoulder pressure, and additional surface pressure, urging the glue deeper into the grain and helping it set stronger.

It's all about making clamping blocks that fit the specific shapes being assembled so that they work to your advantage. Most commonly, in our shop, these forces are directed to seat mortise-and-tenon joints. But this focus on clamping applies to anything being assembled.

There is never a situation during assembly when we wouldn't use some sort of block, even if it's just a strip of plywood to protect a simple box assembly. A clamp placed directly on a finished piece can easily mar the surface and we all hate that.

For us, the bandsaw is the go-to tool for shaping clamping blocks, though we also use the table saw and some hand tools for compound curves.

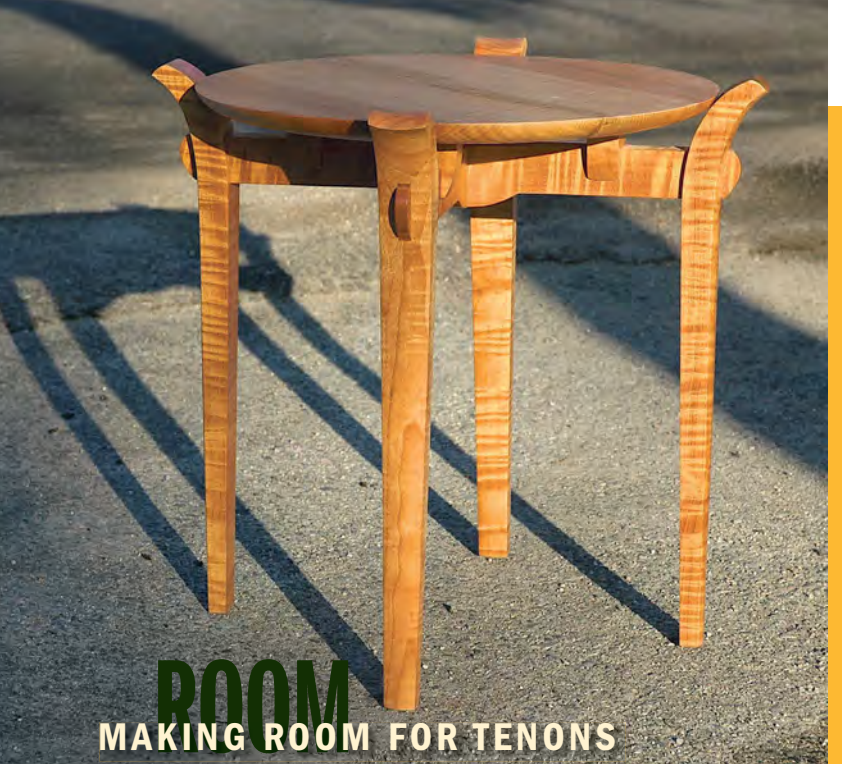
Each piece of furniture we make is unique, and therefore we can't say do this one thing all the time. But we can



**Start large.** Working with a small block isn't safe or stable, so make your small block from a large blank. Bandsaw the tight radius of the leg shape with a series of kerfs, and then cut those out. After you've cut the shape, cut the block from the oversize blank.



**As always, cardboard and tape.** Line the inside of the block with thin cardboard, and make sure to tape the block to the workpiece before applying glue to the joint.



## ROOM MAKING ROOM FOR TENONS

When you make proud through-tenons you can't clamp on them. Instead, you must apply clamping pressure around them to seat the joint properly. Shape your clamping blocks accordingly.



**Cut a groove.** On the table saw, take multiple rip cuts to create a groove wide enough to straddle the tenon.



**Accommodate curves.** If the parts are straight and square just cut a groove for the tenons, but if the parts are shaped then you'll have to use the workpiece or a template to trace that shape onto the grooved block, cut the shape out, and refine it.

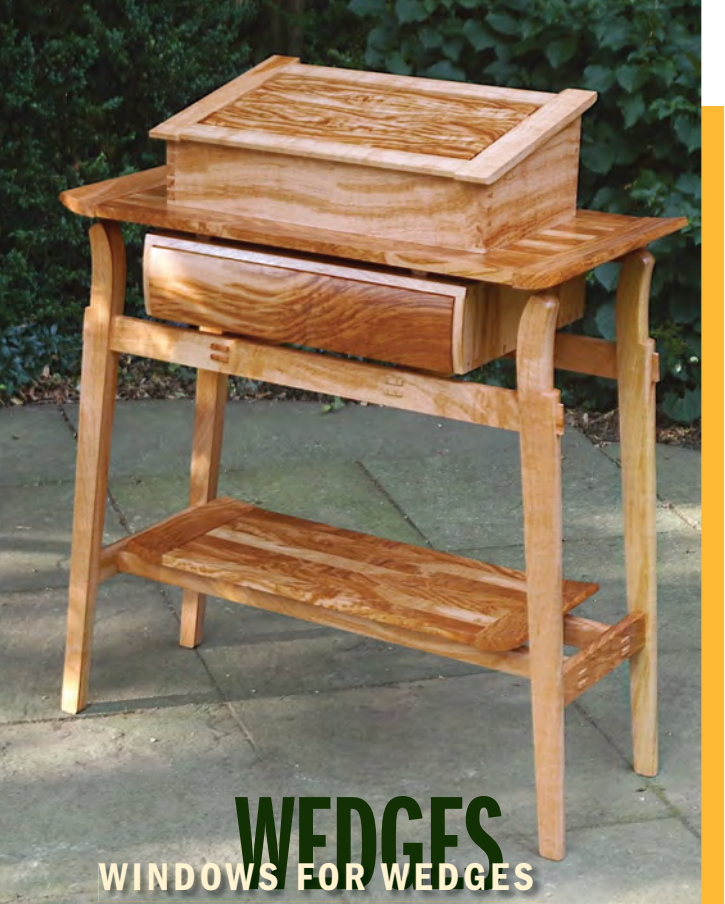
show you a few examples of what we've done on specific pieces and you can adapt our methods to your work.

### Block material is important

We almost never make a block with a wood denser than the piece of furniture we're assembling is made of, as intense pressure while clamping can create dents. Make the block out of the same material or something a bit softer and pay attention to the pressure you're applying. Even with a less dense material, we commonly glue thin cardboard to the block to further diminish possible imprinting.



**Tape and go.** Once you shape the block, add some thin cardboard, tape the block over the tenons, and add glue and clamping pressure.

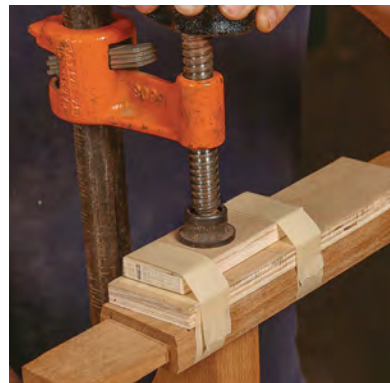


## WEDGES WINDOWS FOR WEDGES

A grooved block won't work with wedged tenons. Instead, you need a two-block system that lets you apply clamping pressure and still have access to wedge the tenons.



**Notch the block.** Cut a notch out of the primary clamping block. The notch should closely surround the tenons but not cover them.



**Add a secondary block.** Once you add cardboard, tape the notched block to the workpiece. Then add a flat block over the notched one, covering the notch and overlapping the sides. With both blocks in place, glue and clamp the assembly, applying pressure directly over the secondary block, firmly seating the parts.

Another consideration is the grain direction of the block. Hank tends to design wildly tapered parts. For example, see the legs on the table (p. 47). If you run a long-grain block over some of these wedge-like shapes, the block will likely split under force. On the same table, notice the clamping block is oriented and cut so the cross grain is perpendicular to the point of the leg.

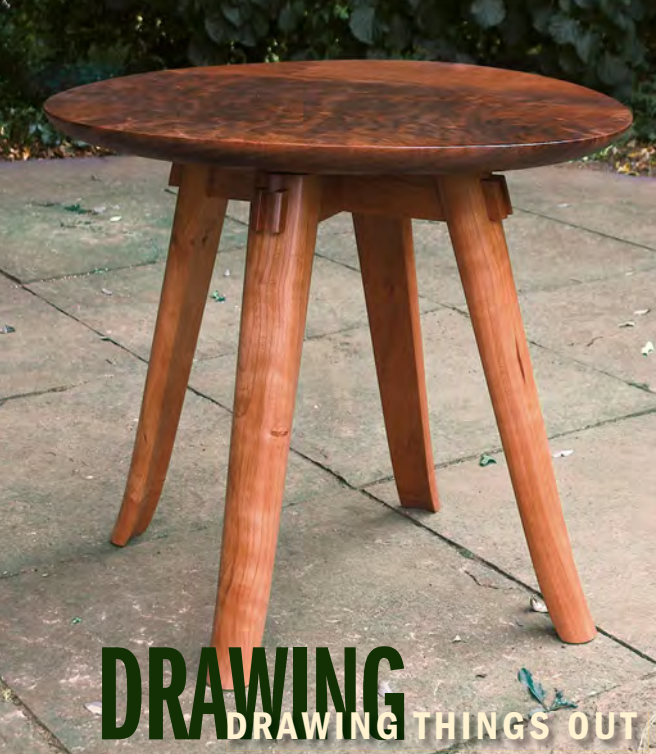
### Proper padding

As we resolve the overall shape and function of each block, we consider the surface it will push against and how to minimize cleanup after the glue-up is complete. We often attach cardboard and 240-grit sandpaper to our blocks with spray adhesive. The sandpaper may leave a little scuff, but it really helps prevent the block from sliding, keeping the pressure where you need it, especially on pieces with steep angles.

When all that's needed is straight-on clamping force, we'll often use pieces

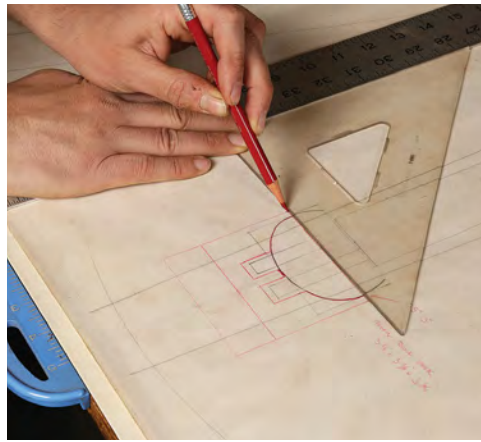


**Add wedges.** Once the joint is fully seated, move the clamps from directly over the sides, releasing the top block. Now you can tap the wedges in place.

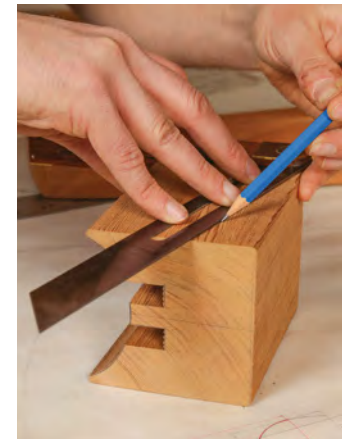


# DRAWING DRAWING THINGS OUT

Giossi, Kuhn, and Gilpin have been known to incorporate clamping blocks in their drawings, as with those for this curved, angled, through-tenoned leg.



**Cutting curves.** Transfer the shapes and dimensions from the drawing to the clamping block blank. Then cut the grooves for the tenons on the table saw and the curves on the bandsaw.



**Transfer the angle.** Using a bevel gauge to grab the angle off the drawing, transfer it onto the clamping block and cut it on the bandsaw.



**Easy clamping.** Taking the extra time to make the proper clamping block turns a complicated glue-up into a simple one.

of Homasote to protect the surfaces being clamped.

### Reverse engineering

When designing a piece of furniture, we are already considering how it will go together. There have been instances where instead of shaping a part to completion and then making an overly complicated block, we will leave a clamping notch on a part, or perhaps leave a portion square to the joint in question, and then shape it off after assembly. The point of all this is efficiency, and this particular strategy can save a lot of time. Think about the assembly as you design. Sometimes, instead of tossing the offcuts of a part, you can quickly turn them into the clamping blocks you need because they already have the required angle, thickness, or shape. That's an advanced move!

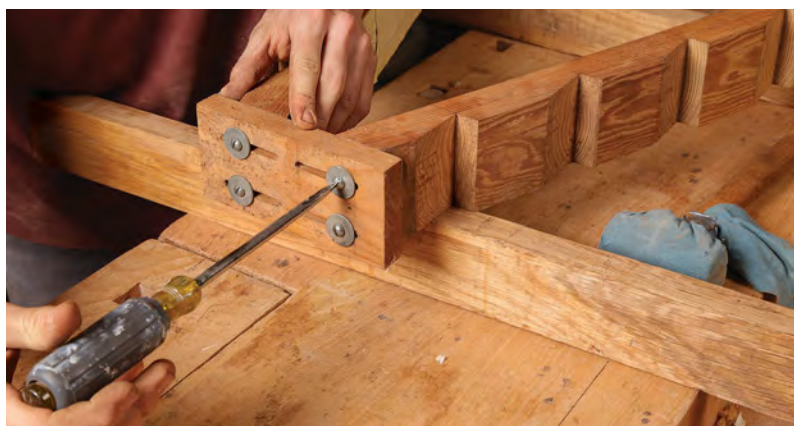
Last, we often reference our full-scale drawing of the project to make clamping blocks, and sometimes we even sketch our blocks right on the drawing to help us determine the angles or limitations of size and other details. A lot of the information you need to make a custom block is right there. □

*Ron Kuhn, Matt Giossi, and Hank Gilpin work together to make furniture in Rhode Island.*



## FRAME CLAMPING FRAME

It's not often that you'll need to clamp a triangular bank of drawers, but the clever clamping frame the authors devised for this desk demonstrates how important custom clamping solutions can be.



**Adjustability is key.** The basic shape of the frame accommodates the triangular carcass. Grooves at the top and bottom with washers and screws allow adjustability when you have the parts in place.



**Notches provide parallel purchase.** The parts were glued and assembled outside the frame, then inserted and clamped. Angled notches in the sides of the frame create a place for the jaws of the clamps to rest parallel to each other and apply even pressure.