

master class

Spice up your work with kumiko

BY MICHAEL PEKOVICH



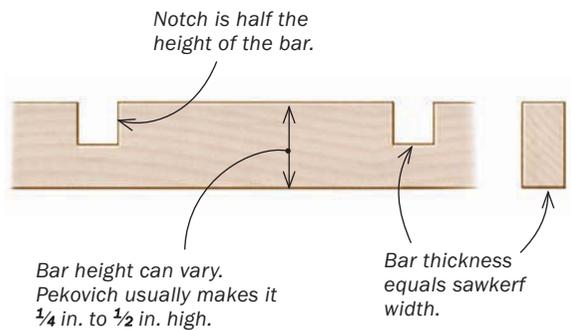


Jig makes quick work of the grid. Cut a notch in a piece of MDF, and glue in an indexing pin sized to match the dado blade. Clamp it to a cross-cut sled to dado the stock for the grid.



MAKE THE GRID

The first step is to build the grid of half-lapped pieces, called bars. The size of the grid is determined by the spacing of the notches. You can build the grid first and design around its size, or build the opening first and size the grid to fit.



The Japanese latticework technique of kumiko is traditionally found on shoji screens, but it is making its way into contemporary furniture as well. The furniture of John Reed Fox inspired me to incorporate kumiko into my own work, and I've used the technique in a number of pieces over the last two years, from boxes to cabinets to case pieces. My process has evolved over that time. I make the half-lap grid at the tablesaw and handle the rest of the work with a sharp chisel and a pair of beveled guide blocks.

Making kumiko requires precise work, but I don't find it tedious or boring. I actually look forward to the quiet bench time the process affords, and the result is always a nice addition to a project. I hope this article demystifies the process a little and encourages you to give it a try. For design inspiration and more information on shoji and kumiko, I recommend the excellent books *Making Shoji* by Toshio Odate and *Shoji and Kumiko Design* by Desmond King.

Start with a simple design

This article focuses on the *asa-no-ha*, or hemp leaf, pattern. It begins with a half-lap grid of pieces, or bars, that create four squares. Parts are then beveled to fit into the squares, creating the pattern. I make the bar grid using a finger-joint jig clamped to a tablesaw crosscut sled. The distance between the indexing pin on the jig and the sawblade determines the size of the grid.

I typically use 1/4-in.- or 1/2-in.-wide basswood or pine for the bars. Start by milling two pieces of stock to thickness. Then cut the notch for the half-lap joints in one blank before ripping both into individual bars. The bars should fit snugly into the dados. I've planed the bars to final thickness in the



Rip the bars. Pekovich uses a thin-kerf blade to maximize the yield (above). Re-join the stock as necessary to maintain a straight edge for ripping. The bars should fit snugly in the notches. When you glue up the grid, leave the parts long to make alignment easier (left).

Online Extra

To watch Michael Pekovich cut and assemble a kumiko panel, go to FineWoodworking.com/259.

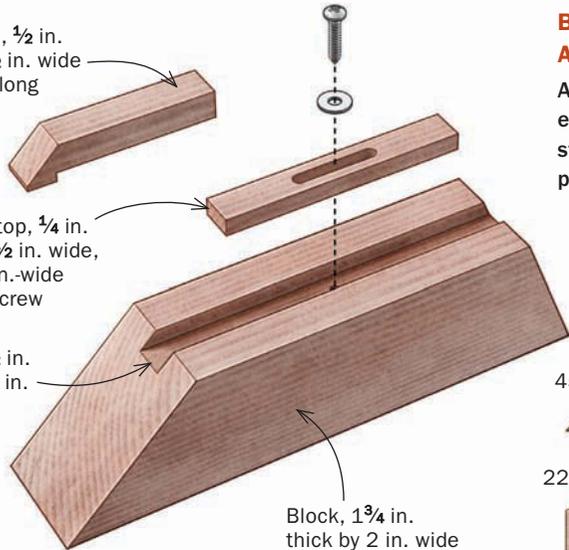
master class continued

Hold-down, $\frac{1}{2}$ in. thick by $\frac{1}{2}$ in. wide by $2\frac{1}{2}$ in. long

Sliding stop, $\frac{1}{4}$ in. thick by $\frac{1}{2}$ in. wide, with $\frac{3}{16}$ -in.-wide slot for screw

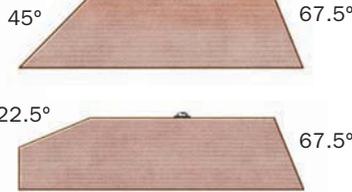
Groove, $\frac{1}{2}$ in. wide by $\frac{1}{4}$ in. deep

Block, $1\frac{3}{4}$ in. thick by 2 in. wide by 8 in. long



BEVEL BLOCKS ENSURE A PRECISE FIT

A pair of angled guide blocks equipped with adjustable stops are used to bevel the parts and cut them to length.



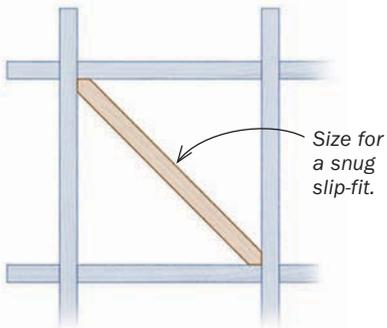
TIP



Chopsaw handles the bevels. For the 22.5° end, clamp a hold-down to the saw base to secure the block at 90° to the fence.

THE DIAGONALS FIRST

One per square is needed. Both ends are beveled at 45°.



45° 45°

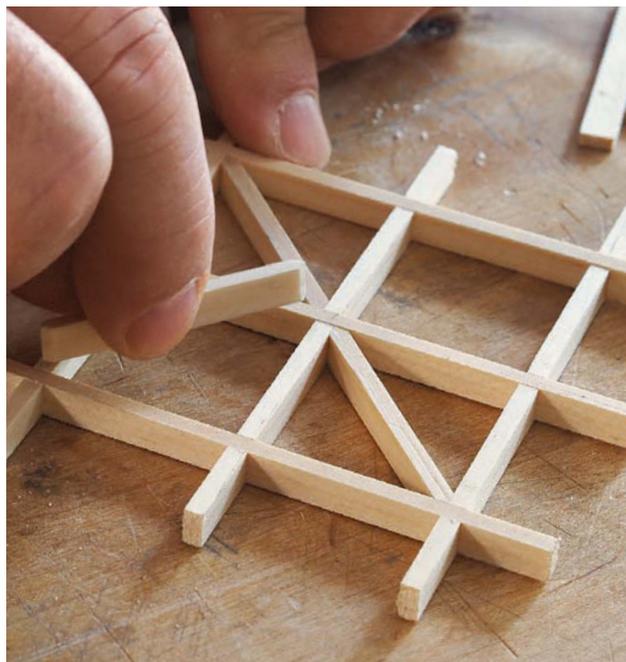


past, but I find that a sharp thin-kerf blade leaves a clean surface that doesn't require sanding or planing.

Guide blocks are the key to accurate chisel work

While the design looks complex, it consists of only three uniquely sized parts. The key is repeatability when making them. The ends of each part must be beveled at a specific angle, and the parts must be of consistent length. To tackle the job, I use a pair of beveled guide blocks with ends cut to various angles. A groove along the top holds the stock, and an adjustable stop sets the length of each part.

I start by making the long diagonal in each square using the 45° end of the bevel block. You'll need four plus a couple more for test-fitting. Cut the pieces slightly overlong, and set the stop block for a slightly longer piece than you think you need. Use a sharp chisel to make the first bevel, then turn over the stock and finish the end, creating a centered point. Then place the beveled end against the stop



Sneak up on the fit. Set the sliding stop to cut the diagonal a little longer than needed (above left). Place the stock against the stop and use a chisel to bevel one end (above). Flip the stock to create a center point. Rotate the stock and bevel the opposite end. Check the fit of the workpiece. It should fit snugly into the grid (left).

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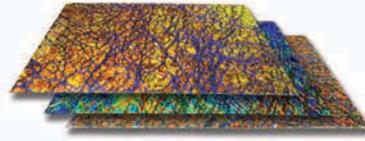
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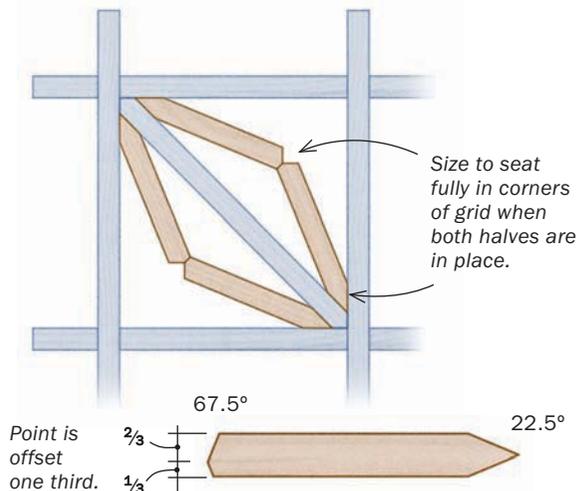
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ADD THE WINGS

You'll need four of these funky pieces per square. Each is beveled 22.5° on one end, and 67.5° on the other.



to bevel the opposite end. Check the fit in the grid, and adjust the stop as needed. You want a snug fit.

Next make the wings on either side of the diagonal. These parts are the most complex and numerous. You'll need a total of 16 to complete the design. Make at least four extra parts for test-fitting. The wings have a centered 22.5° bevel on the outer end, and an off-center 67.5° bevel where the parts meet. I start with the off-center bevel, using the 67.5° end of each block. Again, start with parts that are slightly oversize. Set one stop block to cut a bevel on one end. Then set the stop on the second block to cut a shorter bevel, creating a point that is roughly one-third the width of the stock. Bevel one end of all the pieces this way before using the 22.5° block to bevel the opposite end. To determine the correct length, make two pieces and fit them in place so their ends meet. Then look at how the outside ends are seated. They should fit snugly in the corner of the square. If there's a gap at the bottom of the joint, the pieces are too long. A gap at the top means they're too short.

Finally, complete the design with short diagonals that lock the wings in place. You can leave the parts dry-fitted, but for parts that see a lot of action like doors and box tops, I glue them in place. To do this, I slip the parts out one square at a time, maintaining their orientation. Then I reassemble them in the same order, using a sharpened stick to place a drop of glue at each intersection as I go. Once the glue is dry, trim off the tabs and level the assembly by rubbing it on a piece of 220-grit sandpaper on a flat surface. I leave the kumiko unfinished. □

Michael Pekovich is FWW's executive art director.



The wings get multiple angles. Use a pair of blocks with slightly different stop settings to cut the 67.5° off-center bevel on all of the parts (above). Then cut a 22.5° bevel on the opposite ends (above right). Adjust the stop so that the parts fully seat in the corners when the wings are butted together (right).



LAST PIECE LOCKS IT ALL IN PLACE



You'll need two short diagonal pieces per square. Each end is beveled at 45°. Size for a snug fit; this piece secures all the pieces in the square.

