

Japanese-Style Garden Gate

Versatile assembly can be adapted to any gate design

BY ASA CHRISTIANA

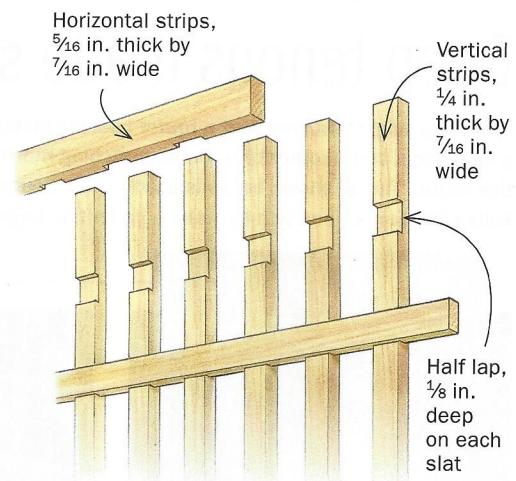
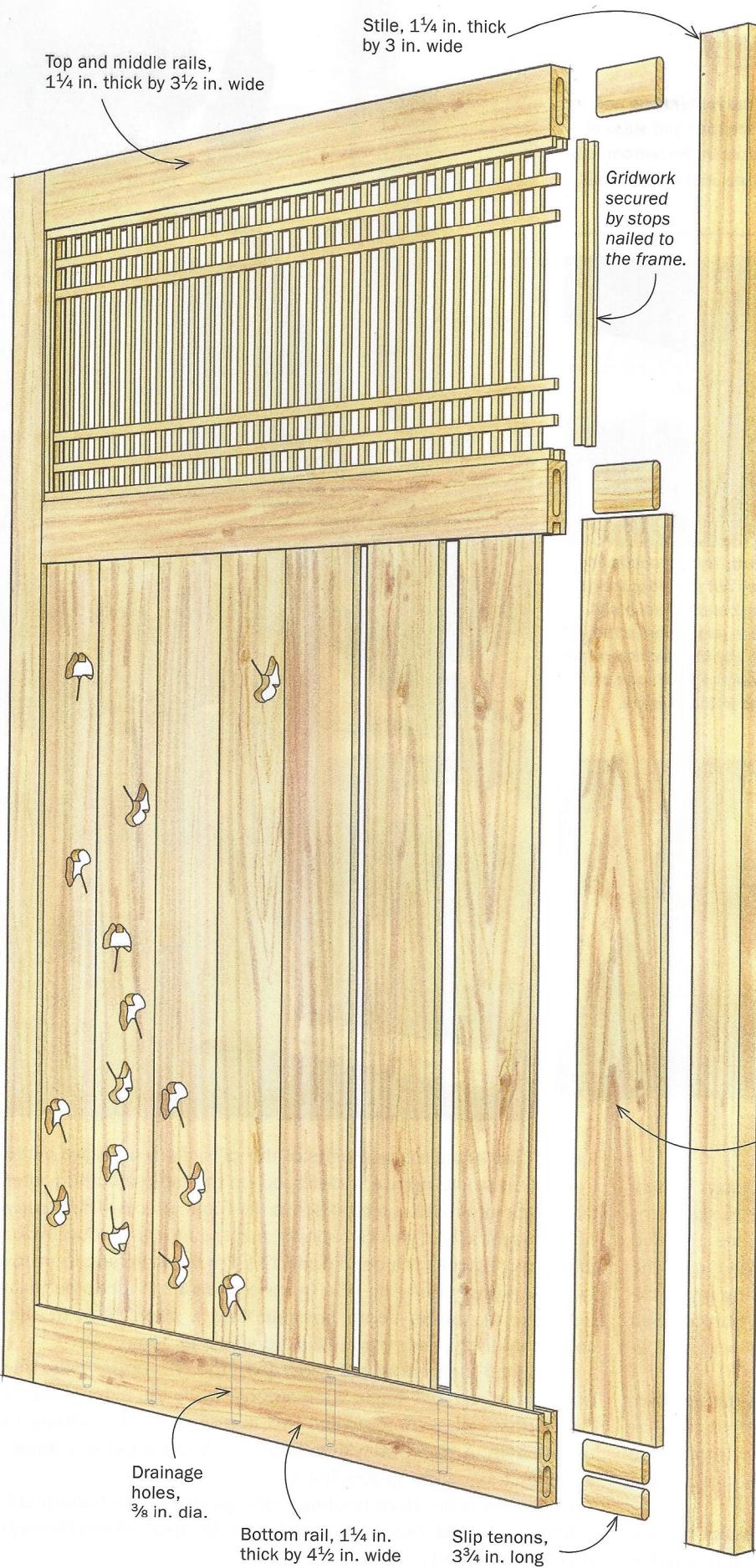
When we moved west and bought a fixer-upper in Portland, Oregon, one of my first to-do items was replacing a broken-down fence with one of my own design. I started with a Japanese-style arch over the opening, and wanted a gate in a similar style.

I've learned not to rush the design stage, so I visited the Portland Japanese Garden, took pictures of every door and gate I found there, and did some digging online. This gate, with falling ginkgo leaves pierced through the lower panel and traditional Japanese gridwork at the top, is the result.

Water, weather, and weight are tough on gates, and over the years they tend to sag. The usual solution is a diagonal rod, surface-mounted and tightened with a turnbuckle. But in my research, I didn't see any Japanese carpenters resorting to such contrivances. Like them, I relied on the right materials and robust joints to keep the gate square and swinging smoothly. After more than a year, it hasn't sagged a bit.

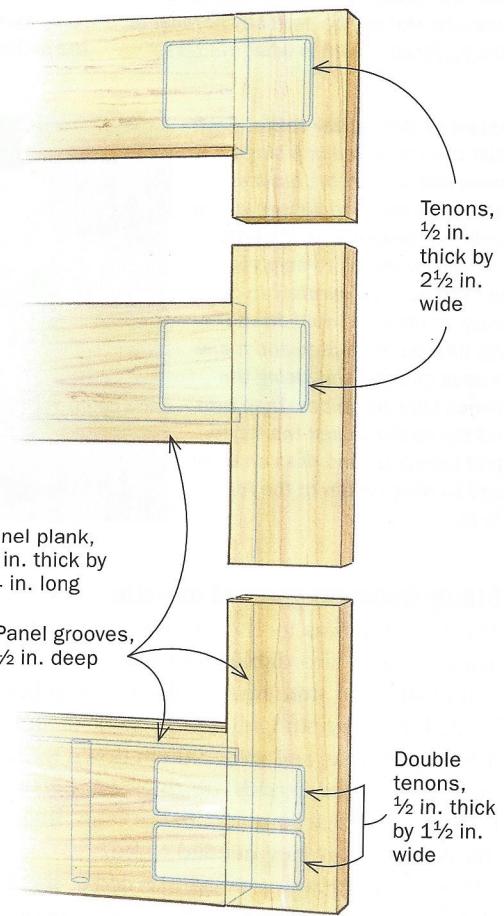
Pretty path to the backyard.
This cedar gate is more like a big passage door, with deep tenons to keep it square and sag-free.





SAG-RESISTANT ASSEMBLY

I dimensioned the parts to look good and weigh as little as possible while accommodating deep tenons. The lower tenons are doubled up because seasonal wood movement will wreak less havoc on two smaller tenons than one very wide one. The lower panel boards are held in grooves while the upper gridwork is held by strips similar to glass stops.



Online Extra

Download SketchUp models of this gate and the jig used to cut the gridwork joinery at FineWoodworking.com/Outdoor.

Deep tenons made simple

This simple jig, combined with a router bushing installed in the router base and a long upcut spiral router bit, creates matching mortises in the rails and stiles of this frame. The jig shown below is used for the double mortises in the bottom rail. Follow the same approach to make a jig for the single mortises in the upper rails.

BUILD THE JIG

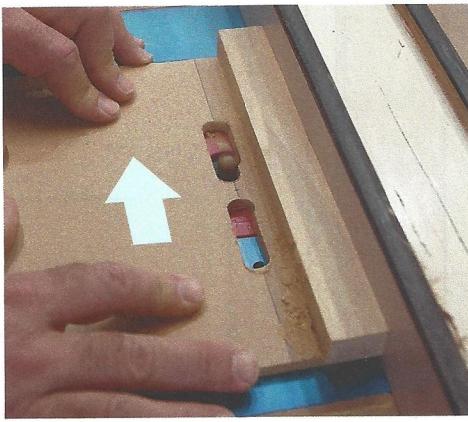


Nail on the plate. It can be difficult to get the wood fence flush with the $\frac{1}{4}$ -in. MDF. Instead, attach it so that it sticks out a little. Because the jig's fence will ride the router fence when you cut the slot, the slot will be perfectly parallel to the jig fence, which is what matters.



Get ready to rout. This jig needs two mortise slots. Lay out the slots, marking the centerline and ends of each slot, and then drill $\frac{3}{4}$ -in.-dia. holes at the left end of each slot. For the middle and top rails, make a similar jig with one slot for the single tenons in those joints.

Head to the router table. Each slot can be routed in a single pass with a $\frac{3}{4}$ -in. bit, but it's safer to make two passes with a $\frac{1}{2}$ -in. bit. Drop one of the drilled holes over the bit to help you set the fence accurately to one edge of the hole. Hold down the jig, turn on the router, and make a pass on each slot, using the pencil lines as guides. Then turn off the router, adjust the fence, and take a second pass on each slot to widen them to the full $\frac{3}{4}$ in.



Sturdy frame for gates of any size

The first step was to choose the wood, which was easy. Widely available and affordable, western red cedar offers an excellent combination of strength, weight, and weather resistance. I started by picking very straight, $1\frac{1}{2}$ -in.-thick decking boards out of the lumberyard pile, and milled them down to $1\frac{1}{4}$ in. using my thickness planer. The boards are thick enough to resist warping and bowing, and to accommodate the $\frac{1}{2}$ -in.-thick tenons, without being heavier than they needed to be.

When using a softer wood like cedar, the walls of the mortises should be at least $\frac{3}{8}$ in. thick to have enough strength to resist flexing out when the tenons are inserted. Avoid boards that have sections of cream-colored sapwood in them. That part of a cedar log is far more prone to rot.

As for the deep tenons, I used slip-tenon (or loose-tenon) joinery, an approach that makes a traditional joint much simpler.

Rather than being integral parts of the rails, the tenons are made from other stock, ripped and shaped on the tablesaw and router table to fit into matching mortises in the frame pieces. The beauty of this approach is you can simply run the tenons through your thickness planer to achieve a perfect fit. For the matching mortises I used a plunge router jig. The mortises are all 2 in. deep because that's the maximum depth possible with a standard $\frac{1}{2}$ -in.-dia. spiral router bit; each tenon is just under 4 in. long.

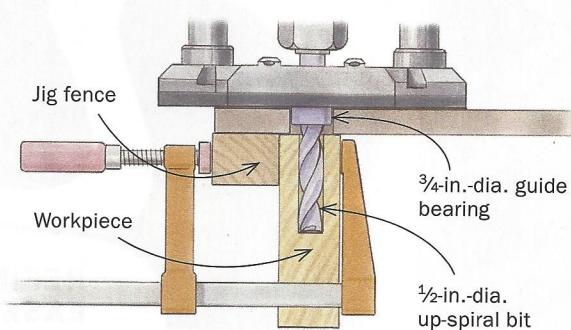
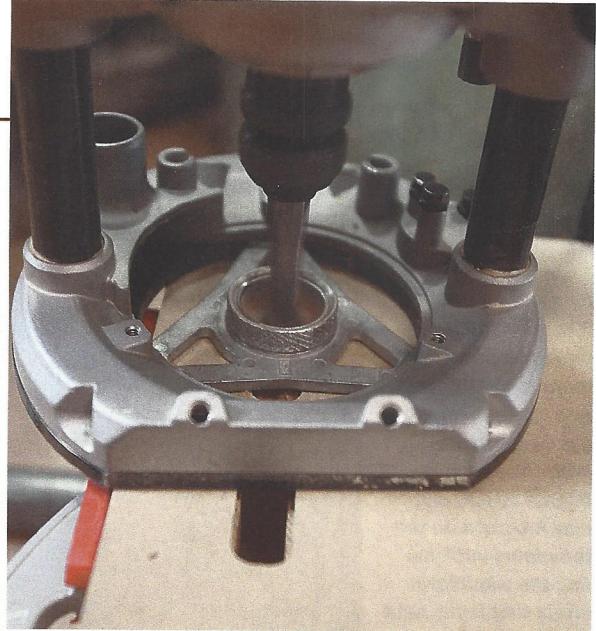
I designed the bottom rail wider than the two upper rails. The upper rails each get single wide tenons, while the extra width of the bottom rail accommodates two narrower tenons, adding to the strength. A wider bottom rail also just looks good in a frame-and-panel assembly, grounding it.

To prevent water from pooling in the groove of the bottom rail, I drilled $\frac{3}{8}$ -in.-dia. holes, spaced about 6 in. apart, down through it before assembly.

ROUT THE STILES AND RAILS



Mortise the stiles. Measure to determine where the center of the jig goes, then clamp it on the edge of the workpiece. Set your router to use the bit's full cutting depth (around 2 in.) and rout each mortise with a series of shallow passes. Upcut spiral bits remove some of the chips; stop and vacuum the chips out if they get packed in. A $\frac{3}{4}$ -in. guide bearing keeps the $\frac{1}{2}$ -in. bit centered in the jig and on the workpiece, leaving $\frac{3}{8}$ in. of material on either side of each mortise.



Mortise the rails. As with the stiles, measure and mark where the center of the jig goes, and clamp the jig on the workpiece. Use the same router setup used to mortise the stiles to mortise the rails, again making a series of shallow passes. Be mindful that the top rails each get one mortise per end, while the bottom rail gets two mortises per end.

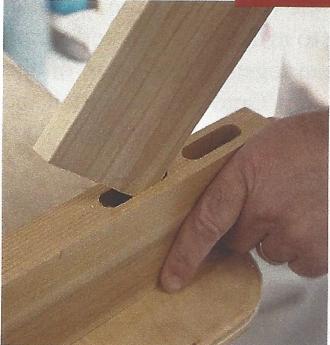


Foolproof results. Vacuum out the last of the wood chips, and the mortises are done. Note the long clamps used to hold the workpiece vertically against the edge of the workbench.



Matching mortises. It's critical to make the mortises in the correct locations on each piece to keep the gate square. The jig's job is to ensure that the mortises match.

MILL PERFECT-FITTING TENONS



Plane a board to a snug fit. Run a board through your planer until it will slip into the mortises with hand pressure.



Rip and rout. Rip the board on the tablesaw to just narrower than the width of the mortises, then use a $\frac{1}{4}$ -in. roundover bit to rout all four edges.



Chop and bevel. Cut the tenons a little short to leave room at the bottom of the mortises for the glue that will be pushed down there during assembly. Then bevel the ends a little to make it easier to insert the tenons.



Door decoration

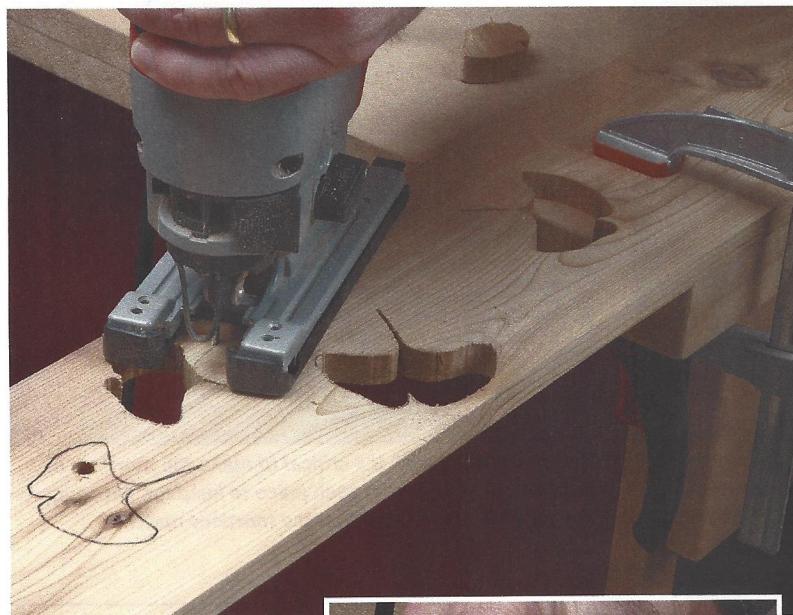
The ginkgo leaf is featured prominently in Japanese design and culture, so I decided to cut a series of those shapes into the lower panel boards.

Arrange by eye.

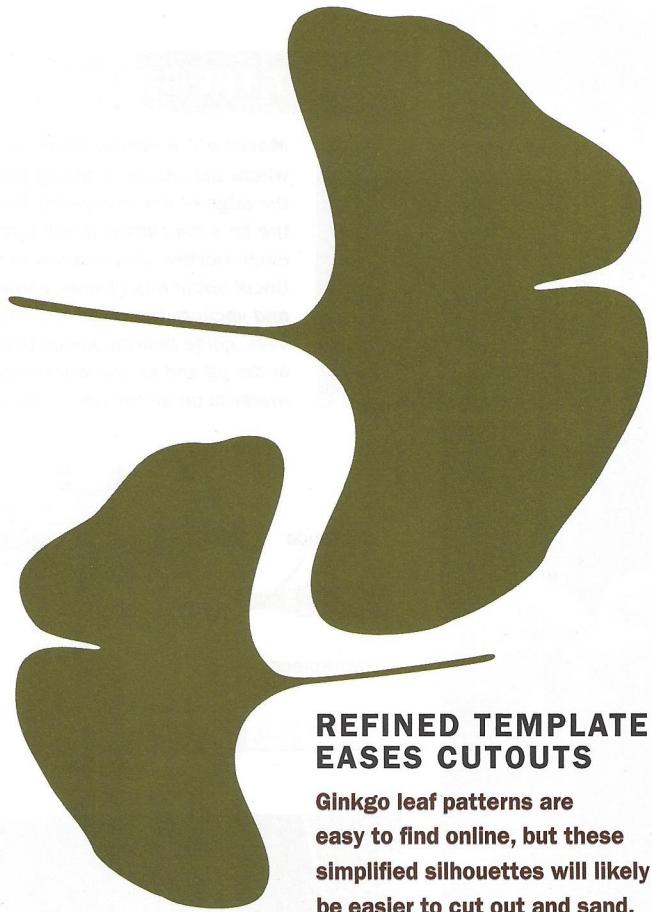
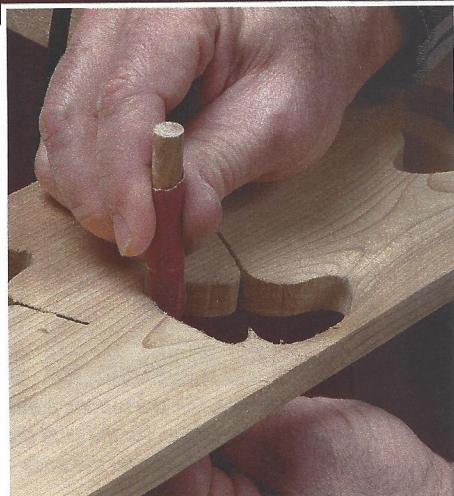
After printing ginkgo leaves on paper, glue them to cardboard

and cut them out to use as templates.

With the panel boards all laid out, play around with the templates until you find the windblown effect that looks right to your eye. There will likely be some erasing involved, but it's easier to erase pencil lines than a hole in the wrong spot.



Jigsaw does the job. Drill holes inside the perimeter of each leaf outline to make a place to start each cutout. Then put a curve-cutting blade in your jigsaw (I used a Bosch T119BO blade), and get to sawing and sanding. Smooth the shapes. Wrap 80-grit sandpaper around a dowel and smooth away the bumps and wood whiskers.



REFINED TEMPLATE EASES CUTOUTS

Ginkgo leaf patterns are easy to find online, but these simplified silhouettes will likely be easier to cut out and sand.

The details are up to you

Once you know how to make a big, sturdy frame, you can design any gate you like. I filled the lower frame with ½-in.-thick cedar boards, and the upper one with Japanese-style gridwork.

The thin lower boards are lightweight and easy to pierce with the ginkgo leaf shapes I had planned. To prevent big gaps from appearing between the boards as they shrink and expand over the years, I fired a single brad through the rail into the ends of each board, both top and bottom. This allows the wood to shrink and expand without splitting, and will prevent the boards from moving relative to one another in the frame.

For the gridwork, the key is to drop it in separately after the gate is assembled. I cut the pieces to fit the opening, and then used a tablesaw jig to make the little interlocking notches I needed to join them together (For more on the jig, visit Finewoodworking.com/Outdoor). To install the gridwork, I simply nailed thin wood strips on both sides of it, like glass stops.

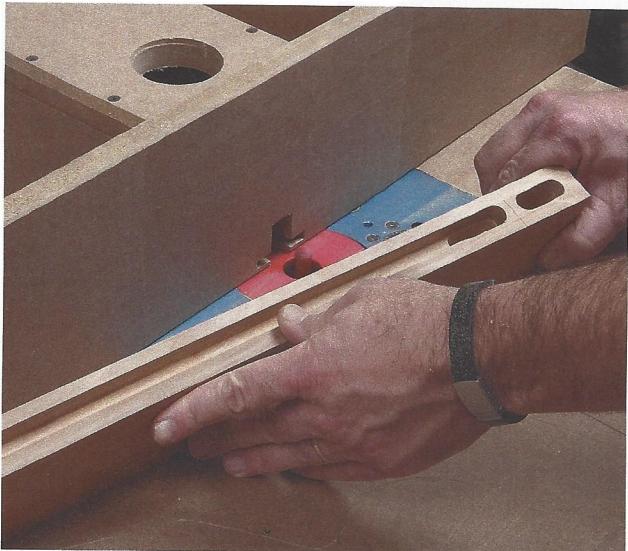
As for the finish, I didn't use any. The cedar will eventually turn gray, as will the pressure-treated wood, blending with the color of the galvanized panels over time.

Before hanging the door, I trimmed its outside edges a little to fit the opening. For hardware, I used a self-closing gate kit from Everbilt, which included spring-loaded hinges and a matching latch. □

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Assembly time

I recommend Titebond III wood glue, which is waterproof for outdoor use and allows ample time for assembly before it starts to cure and seize up.



Don't forget the grooves. Cut all the panel grooves on the router table with a $\frac{1}{2}$ -in. bit, using two passes to reach the full depth. To groove the lower sections of the vertical frame parts, start the bit in one of the mortises, and rout until you reach the next one. The grooves on the rails run straight through, so they are even easier.



Always do a dry fit first. Once you're sure all of the joints will close nicely, take the opportunity to round all the inside corners with a router.



Assemble in stages. Start by inserting the panel boards into the lower and middle rail, with no glue—but fire a single brad through the rail into each board to keep it roughly in place. Then apply glue to all of the mortises and tenons and add the top rail and stiles. I used bar clamps to draw the joints home, as they get pretty snug once glue is on them.



Glue goes on mortises and tenons. Put most of the glue in the mortises, using a brush to spread it. Glue on the tenons tends to get scraped off and squeezed out during assembly, so use only a light coat there.



