Building Garden Gates

One stout frame, two ways to fill it

BY JOHN HARTMAN

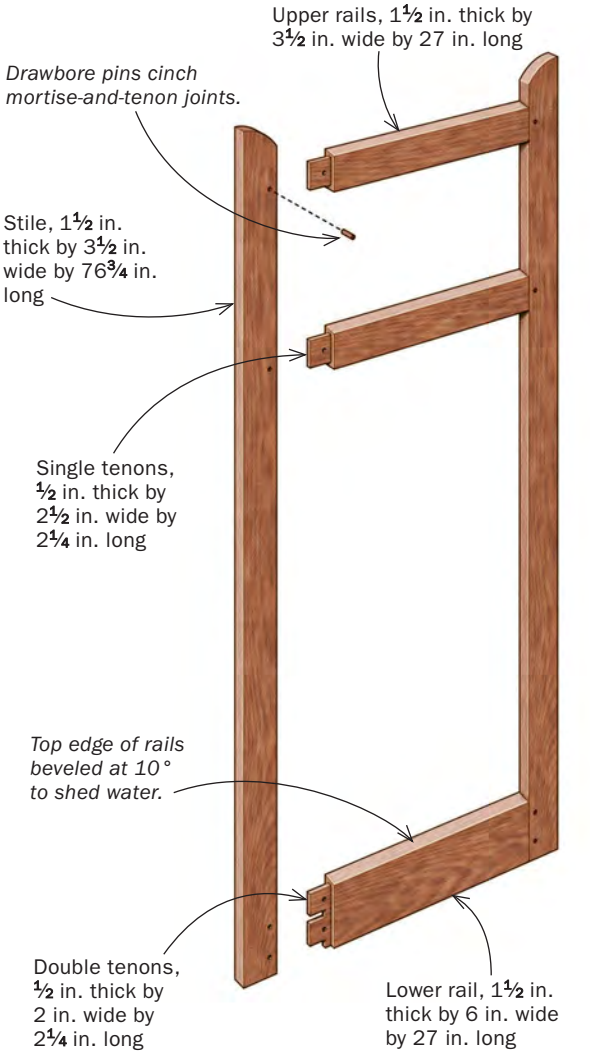
Half-lap latticework. *The author created lattice panels for this gate, built from mahogany and left unfinished. The pattern creates a partial screen but gives a hint of the garden inside.*

After my partner, Christine, and I moved to our new home, we found we seldom used the backyard. There was no privacy from the neighbors and nothing to attract the eye, and we felt uncomfortable every time we ventured out to use our grill on the sad patch of dilapidated pavers posing as a patio. Something needed to be done.

We started with a good-sized vegetable garden. Soon followed a stone terrace for entertaining and fencing for privacy. The fence had two openings: one leading in from the front yard, the other leading from the driveway through a pergola to the terrace; I turned my attention to building gates for them.

Perforated panels. *Utilizing the same heavy-duty mortise-and-tenon door frame, Hartman filled this painted gate with tongue-and-groove panels, scroll-sawing decorative cutouts between the upper slats. These panels provide more privacy.*

GATE FRAME



Frame work

Haunched double mortise in the stile. *Because the lower rail is so wide, it's best to have two tenons, rather than one wide one, which could be weakened by wood movement.*

The twin tenons. *After creating a tenon the full width of the lower rail with a dado stack on the table saw, Hartman here uses a low fence and a stop at the bandsaw to notch out the waste between the tenons and at the haunch.*

Smooth the curves. *Hartman first shaped a water-shedding curve at the top of the stile with a jigsaw, then refined the sawn surface with a block plane (above). A dry-fit of the frame (right) will be followed by a glue-up with Titebond III and drawbore pegs.*

Photos: Jonathan Binzen; drawings: John Hartman

The lattice gate

Half-lap layout. *The upper panel design, inspired by a Japanese railing, is complex enough that Hartman made a full-size drawing and used it to mark where the joints will fall on the lattice slats.*

Online Extra

To download full-size patterns of the lattice design, go to **FineWoodworking.com/304**

I used the same heavy-duty mortise-and-tenon frame for both gates, but I gave them two very different panel treatments. For the gate by the driveway, where privacy was paramount, I used leftover tongue-and-groove cedar fencing to make the panels; I painted them to unify the mismatched boards and made small decorative cutouts in the upper panels. The gate to the front yard would be visible from the street, and I wanted something there that provided a bit of privacy, an interesting pattern, and a glimpse of the garden. The latticework panels I made for it were inspired by a railing Christine found in a book of Japanese architecture.

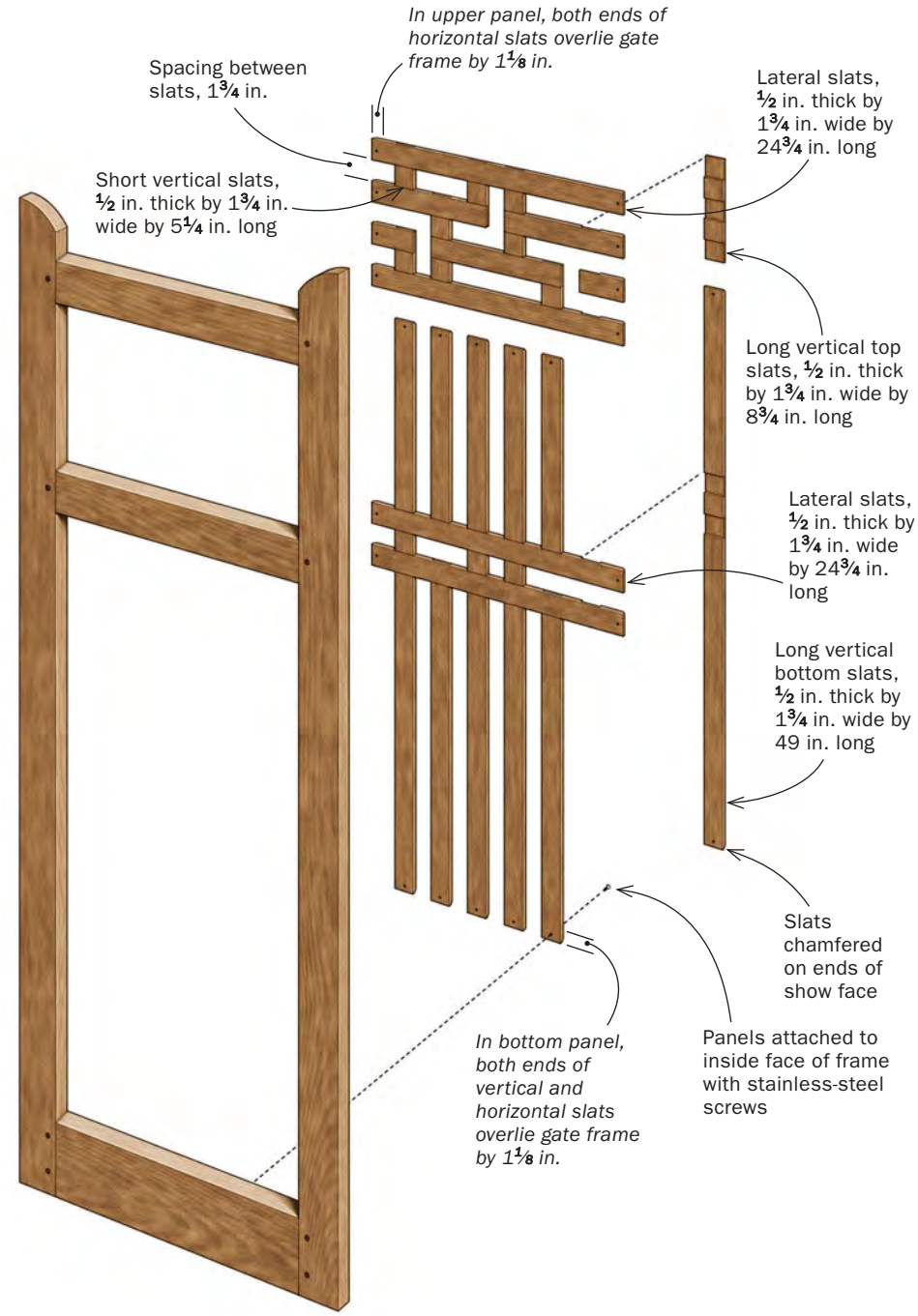
The frames come first

Double gates made sense, since one of the fence openings was 5 ft. wide and the other was 6 ft.; I thought single gates that size would have been overly heavy. Like frame-and-panel doors, these gates are, structurally, a two-part system: a strong frame that resists racking and a lighter inner structure to reduce weight while providing privacy, isolating wood movement, and opening opportunities for decoration.

I selected the wood with care, using rot-resistant African mahogany for the frames. If you'd rather not use exotic wood, there is an excellent article by Hank Gilpin, "Five Woods for Outdoor Furniture" (*FWW* #233) that provides advice on selecting domestic wood for outdoor projects.

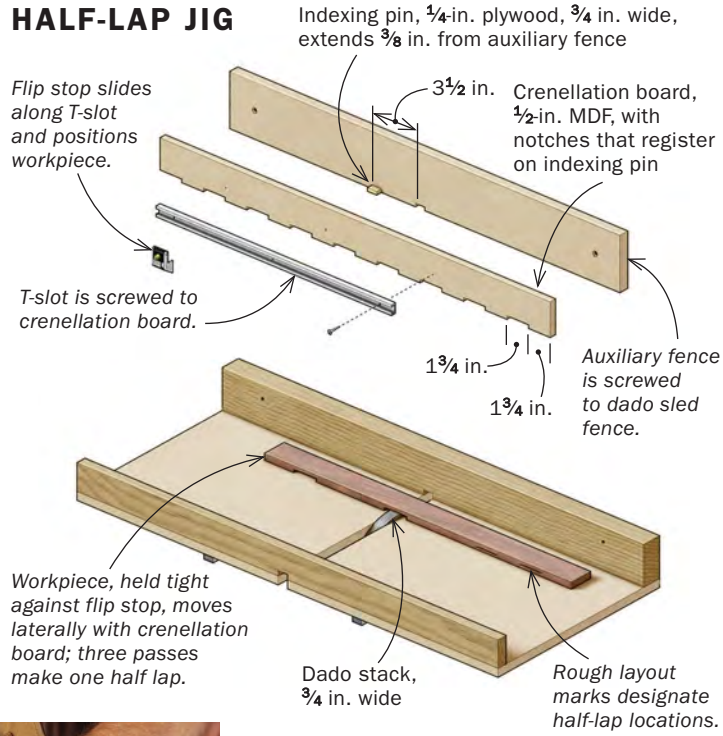
For extra strength I built the gate frames with three rails and hung them on three hinges. I located the rails in line with the lateral members of the fencing. On each

LATTICE PANELS



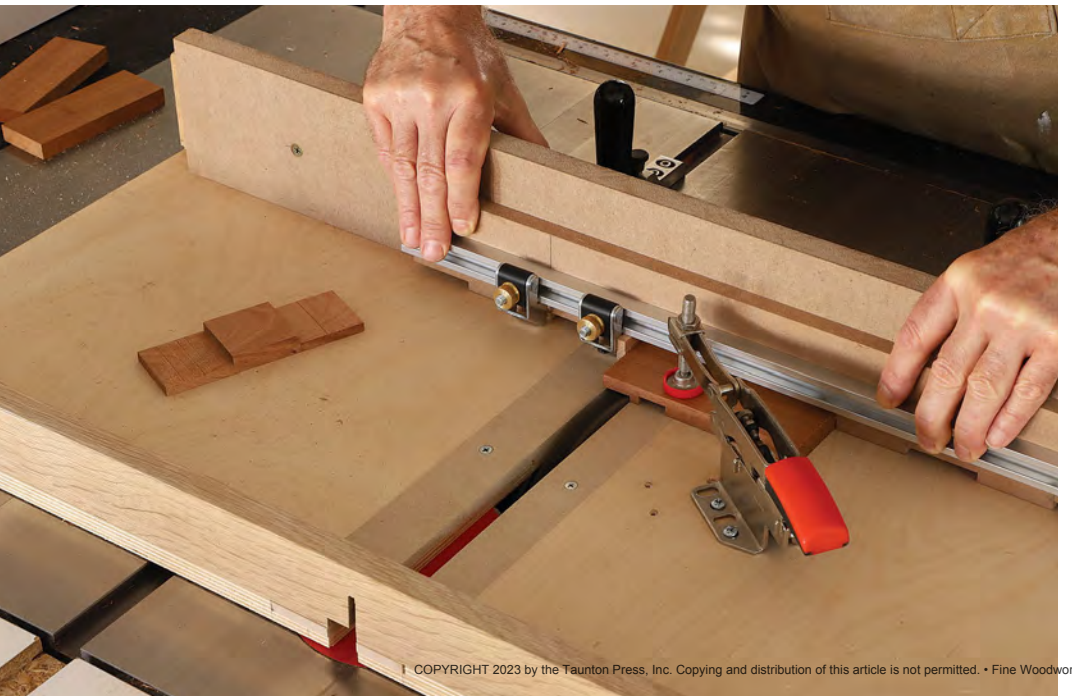
Upper level box joints. *To cut the half-laps, Hartman made a variation on a box-joint jig, with an indexing pin to control the cuts. But his jig has a "crenellation board" with wide notches in the bottom edge and a stop on the front. The workpiece moves laterally with the crenellation board, and the notches fit over the pin. Each half-lap is cut in three passes.*

HALF-LAP JIG



Sweet stop. *A flip stop riding in a T-slot controls the position of the workpiece on the crenellation board.*

Safe laps in short stock. *To make end laps in short slats, Hartman adds a hold-down clamp to the sled. A flip stop with a small block of wood magnetically attached lets him register right to the dado blade.*



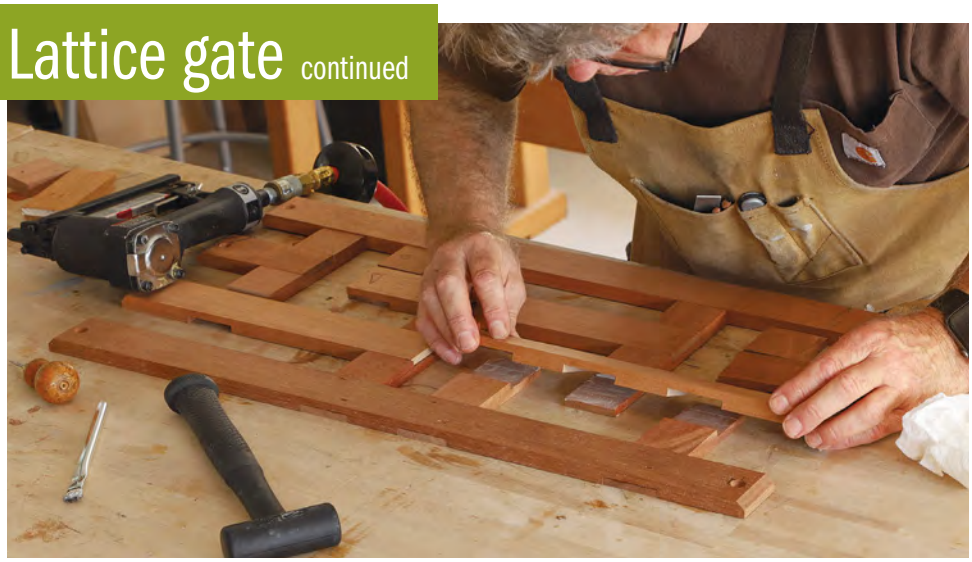
gate the wide bottom rail got two tenons to avoid the wood movement problem with a single wide tenon. I used the table saw with a dado head to cut the tenon cheeks and the bandsaw to remove the waste between the tenons and to define the haunch at the bottom.

To help the gates shed rainwater, I beveled the top edge of each rail at 10° and rounded the top end of the stiles. After scroll-sawing the curved tops of the stiles, I fitted the joinery and glued up the frame, using drawbore pins to cinch the joints.

Latticework panels

The lattice panels are made from strips of mahogany half-lapped and glued together, then screwed to the back of the gate frame. Any simple rectangular lattice would suffice here, and we chose a fairly plain design for the lower panels, but we went a bit further with the Japanese-inspired pattern in the upper panels. The upper and lower lattices share the same grid pattern, so they remain in harmony with each other.

To cut the half-laps precisely, I built a jig for my table saw. It works much like a box-joint jig, with an indexing pin protruding from the fence of a dado sled. But my jig adds an extra element, a piece of MDF that I call the "crenellation board," which is notched along the bottom edge. It's this board, instead of the workpiece, that registers on the indexing pin and controls the



Assemble the lattice. *Hartman glues and staples the lattice one slat at a time. The lattice panel will be face-screwed to the gate frame, and before assembly he drills and countersinks for screws, and chamfers the ends of the slats.*

The lower lattice. *Hartman uses his crenellation jig to cut the half-laps for the lower panels as well. With the laps cut, he glues and staples them on a flat assembly table, then lets them cure.*

location and width of the half laps. On a box-joint jig, the indexing pin fits precisely between adjacent fingers in the joint; but here, the notches in the crenellation board are almost three times wider than the dado stack, and I cut the full width of the half-lap in multiple passes.

On this jig, unlike a box-joint jig, the indexing pin doesn't directly control the position of the workpiece. So I attached a T-slot to the crenellation board and added a flip stop (Woodcraft #163898). The stop keeps the workpiece properly oriented as you move the crenellation board side-to-side while cutting the half-laps. The crenellation board acts as a moving template, keeping the half-lap joints perfectly spaced even if you are leaving some of them out.

Attached on the inside. *The lattice panels overlap the gate frame on the inside and get screwed to it.*

Hanging the gates

Supports and spacers. *When hanging the gates, Hartman clamps a block to each post to support the gate at the correct level. Then he clamps the hinge stile to the gatepost, inserting a spacer between them to set the gap.*

I attached a hold-down clamp to the dado sled to cut the smallest pieces safely.

I crosscut all the workpieces to exact length before cutting the half-laps. On the lower panel it was fairly simple to map out the half-laps. Using the crenellation board as a template, I made quick marks on the edge of the workpiece where the half-laps would go. The upper lattice was more complicated, and I made a full-scale drawing of both the right and left sides to help me lay out the half-laps (to download these full-size patterns, go to FineWoodworking.com/304).

When I had all the half-laps cut, I drilled and countersunk the ends of the lattice pieces that would overlap the back of the gate frame. Then I glued up the lattices with Titebond III, securing each joint with stainless-steel staples. When the glue had cured, I screwed the lattice panel to the back of the frame with stainless-steel screws.

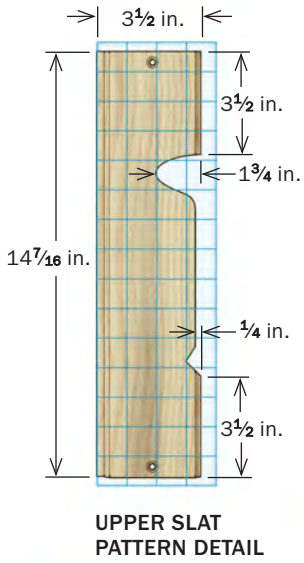
Tongue-and-groove panels

I had some tongue-and-groove cedar planks left over from the fence job, and I thought they could make attractive (and thrifty) gate panels. Because the wood was mismatched, I decided that after fitting the panels I would paint them with a solid stain. Just what color they turned out to

A move to the middle. *With both gates supported and clamped at the bottom, Hartman adjusts the gap between them with shims and adds clamps at the top.*

On with the hinges. *Once he has all the gaps shimmed and clamped and the halves of the gate in the same plane, Hartman mounts the hinges. To counteract anticipated sag, he pushes the strap downward before drilling pilot holes centered in the screw openings.*

The tongue-and-groove gate



UPPER SLAT PATTERN DETAIL

be—green? blue?—remains a matter of dispute between Christine and me.

To hold the tongue-and-groove panels in place I screwed stops around the openings on the back of the gate frame. After cutting the tongue-and-groove slats to length (beveling them at 10° on the bottom end), I screwed them to the back stops, leaving a ⅛-in. gap at the bottom to avoid trapping water. Once I had all the slats fitted, I unscrewed them and removed them for painting.

To add a little decorative detail to the doors, I sawed cutouts between the upper slats. I made a template of the pattern and traced it on the slats during the dry-fit. Then I removed the slats and cut out the shape at the scroll saw. When all the pieces were painted, I screwed them back in place and nailed small stops around them on the front side. To keep from trapping water, I didn't use stops at the bottom of the slats.

Installing the gates

On our fence, the 5x5 posts that define each gateway stand about 8 ft. tall above ground. The pair of 2x8s connecting them at the top adds a lot of strength. It's easy to create a pergola of sorts by outfitting this top structure with cross beams and attaching climbing plants.

Back stops. *After painting the frame and the panel slats, Hartman screws back stops around both openings in the gate frame. He'll screw the slats to the stops.*

Panel parts. *Mating panel slats get cutouts sawn on the scroll saw.*

To hang the gates, I first clamped wood blocks to the posts for the gates to rest on. They support the gate and establish its elevation. Working with one door of the gate at a time, I mounted it on its block and clamped its hinge stile to the post with a ¼-in. MDF spacer inserted between the two. With both doors in place, I clamped short pieces of 2x4 across them at the bottom and top rails to keep the doors in plane.

After fiddling with shims to make sure the doors had even reveals of between ¼ in. and ½ in. at the sides and the center, I installed the hinges. I first screwed the short leaves to the post, making certain all three hinges were in line with each other. (Don't trust the posts to be straight, they are usually somewhat bent.) There was some play in the strap hinges I used, so I stressed them to simulate the weight of the doors by pushing the straps downward as I drilled for the hinges and screwed them in place. After removing the clamps, I checked to see if the hinges needed to be shimmed forward to get the two doors of the gate coplanar. If the hinges needed adjustment, I used ⅛-in.-thick white oak shims with pre-drilled holes. With the hinging complete, I installed a cane bolt on one of the doors and a latch on the other. □

Creating the cutouts. *Hartman sets the scroll-sawn tongue-and-groove slats in place, adding spacers on either side to even the spacing, if necessary.*

Front stops. *Hartman pin nails front stops around the sides and top of the panels to help hold them in place. To avoid trapping water, he doesn't place a stop at the bottom.*

John Hartman works wood in West Springfield, Mass. His talent as an illustrator can be seen regularly in the pages of FWW.