Traditional Plate Rack

Photos: Anissa Kapsales

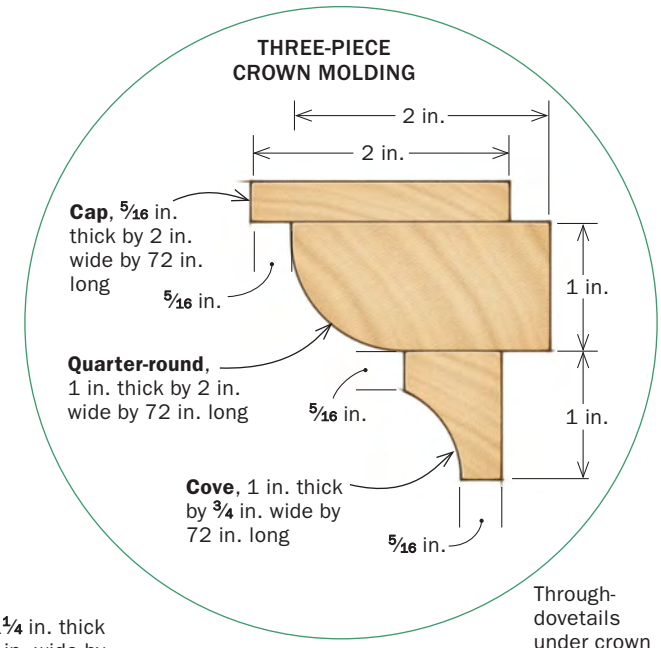
Hone your handwork skills while you update your kitchen

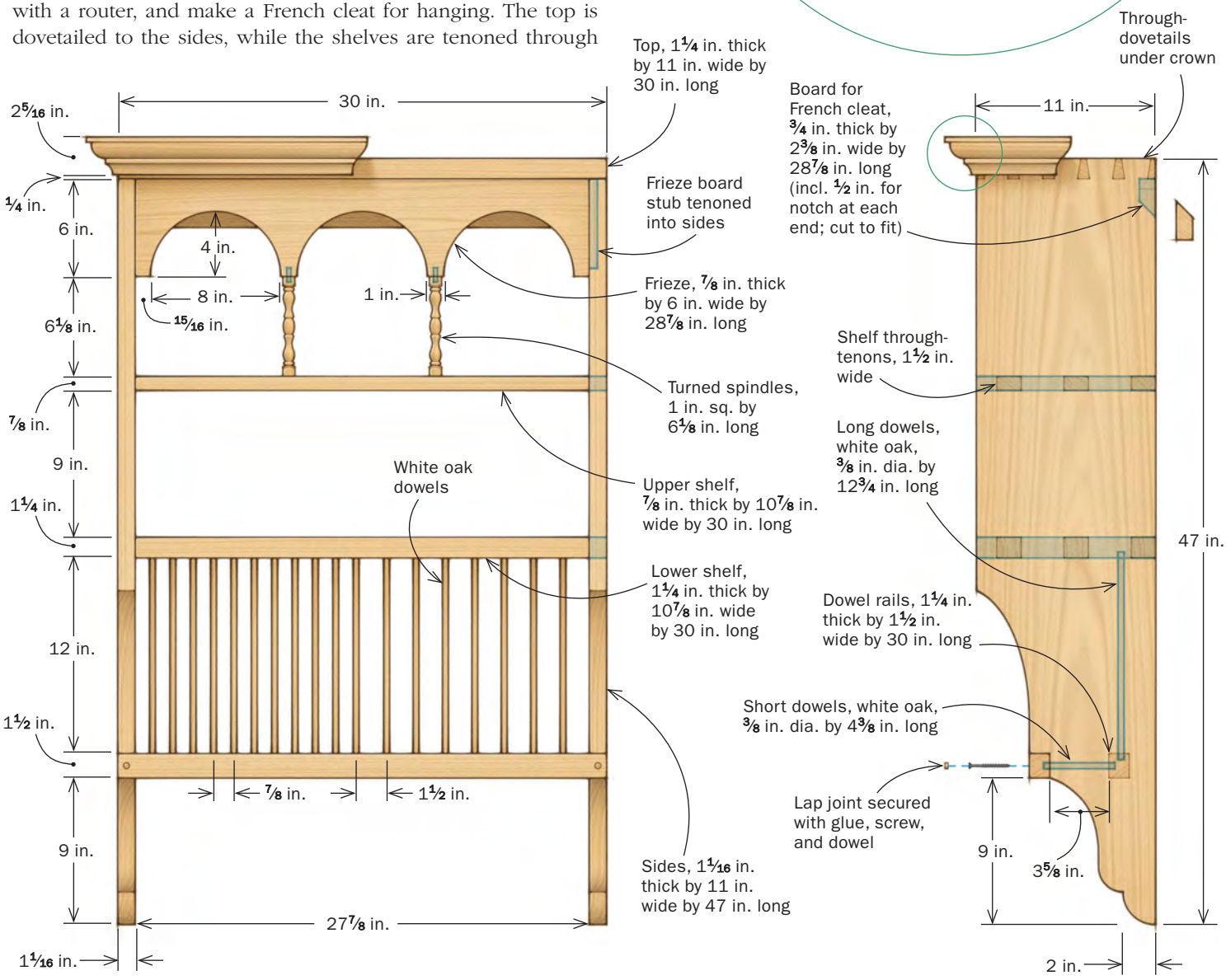
BY NANCY R. HILLER

A traditional feature of many British kitchens, plate racks provide practical and decorative storage. The basic form lends itself to customization for mugs, glasses, bowls, and other kitchenware. Plate racks can also be used to hold dishes for air drying over a sink or drain board, in which case you should use a naturally water-resistant oily hardwood such as teak for all parts that will get wet.

This plate rack is designed with a generous section for vertical storage of plates, cutting boards, and shallow soup dishes. Above this is a shelf for other dishware. At the top, three arched sections make a perfect place for decorative items.

The project offers an opportunity to practice hand-cut dovetails and mortise-and-tenon joinery, create a length of cove molding with a router, and make a French cleat for hanging. The top is dovetailed to the sides, while the shelves are tenoned through





Drawings: Christopher Mills

An abundance of joinery

This case is a practice piece for joinery options. The top and sides come together with through-dovetails, the shelves are secured to the sides with through-tenons, the dowel rails fit into notches, and the decorative frieze is joined to the sides with stub tenons into grooves. Hiller makes quick work of it all, mostly by hand.

DOVETAIL THE TOP TO THE SIDES

Tails on the sides. *Mark the top of the sides for the tails by setting a marking gauge to slightly more than the thickness of the top. Lay out and cut the tails on the tops of each side.*

Coping mechanism. *Hiller roughs out the pins with a coping saw, and then she chisels to the line.*

Transfer the tails. *With the case top held vertically in a vise (below), lay the corresponding side board onto the end and transfer the tails to the top.*

them, and the dowel rails are fitted into notches. It is also an exercise in accurately laying out and drilling holes for dowels, and incorporates a lesson on the importance of factoring in some play in the vertical fit of dowels to allow for stress-free assembly.

Customize the layout to your dishes

Plate racks are simple forms, but to do their job successfully, they require careful planning. If you intend to customize your rack to fit your dishes, you should mock up the relevant sections in scrap material to make sure you get the spacing right to ease moving things in and out.

To ensure that plates and shallow bowls are stable, the spacing between dowels should be as narrow as pos-

THROUGH-MORTISES

Mortise for the two shelves. *Use a handheld drill with a Forstner bit to waste away most of the mortise, and then clean to the lines with a chisel.*

NOTCHED MORTISES

Notch the back mortises. *The notches at the back of the cabinet (for the shelves and back dowel rail) are made with a series of handsaw kerfs followed by a chisel.*

GROOVES FOR THE FRIEZE

Get your groove on. *To attach the decorative frieze to the case, cut grooves at the top of each side using a router with a guide.*

sible while still allowing the dishware to pass between them without getting stuck. This is especially important if you plan to add a row of vertical dowels at the front, as some designs call for.

The distance between the front and back dowel rails will also affect how well the dishes are supported. The plates should drop down into the space between the rails to keep them from rolling out of the rack. But the space between the rails can't be too large, or smaller plates will fall through. Be sure also that there is enough clearance between the top of your largest plate and the shelf above that you can lift the plate over the front dowel rail as you pull it out.

Lay out and cut the joinery

Start with the dovetails that join the sides to the top. Set a cutting gauge to a hair more than the thickness of the top and mark this

TACKLE THE TENONS

Locate the tenons. *Lay the shelf directly on the case side with their back edges flush, and use the mortises to mark out exactly where the tenons will be on the shelf.*

as the baseline at the tops of the sides. Next, set the cutting gauge to a hair more than the thickness of the sides and transfer this dimension to the ends of the top.

The through-tenons will be laid out with the same setting, so after you've gauged those baselines for the dovetails and pins, mark the same measurement on the ends of the shelves and dowel rails. Even though the dowel rails will not be tenoned, but instead let full-size into notches, it's helpful to have these "shoulder" markings when you lay out the dowel positions.

Lay out the tails with a dovetail template and cut them, then remove the waste with a coping saw and chisels. Decide which end of the top to cut first, and place it in the vise, inside face toward the bench. Set its mating side on the end to transfer the tails onto the pin board, then cut the pins with saws and chisels.

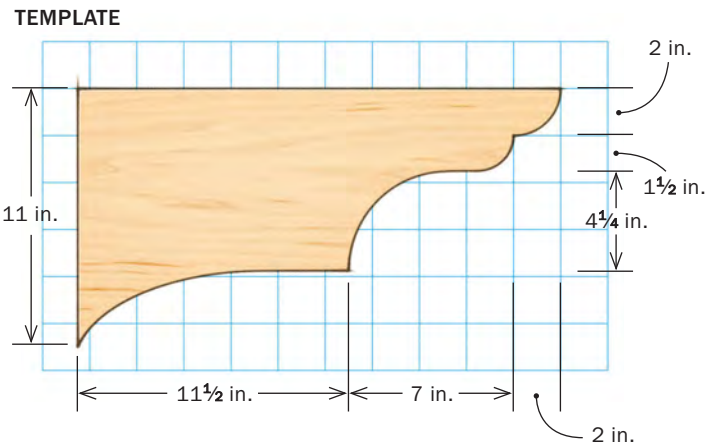
Next, lay out the locations of the through-mortises and notches on the sides. I start with the vertical marks, then move on to the horizontal ones (referencing from the back edge of each side). Mark the outside faces of the sides first, then transfer the relevant marks to the inside face with a square and gauges. Mark the locations in pencil first, then use a knife to score across the grain and a marking gauge to define the edges of the mortises and notches that are parallel with the grain.

Cope, chisel, and saw. *To cut the tenons, first cope out most of the waste on the inside tenons. For the tenons on the front and back edges, use a handsaw to cut near the layout lines, and then fine-tune all the tenons to the line with a chisel.*

Shaping it up

Once all the joinery except the notch for the front dowel rail is complete, you can shape the sides. After shaping, cut that final bit of joinery.

Trace the pattern. *Use the same pattern, flipping it for each side, to trace the shape onto the bottom of the sides.*



Template rout. *First use a jigsaw to cut close to the line. Clamp the pattern to the side piece and use a router with a bearing-guided bit to cut the final shape on the sides. Go in afterward with a chisel to clean up any tight corners the router wasn't able to reach.*

Final bit of joinery. *With a handsaw and chisel, notch for the front dowel rail. Hiller references from the back edge when marking it out just in case the front isn't parallel with the back.*

Start the mortises by drilling out most of the waste, then use a chisel and mallet to clean up the edges. Cut the tenons with a back saw, coping saw, and chisels, then test the fit.

Shape the sides before the last bit of joinery

To determine the location of the notches for the front dowel rail, first cut the decorative profile on each side with a jigsaw, then clean up with a router and pattern-cutting bit. Clean up the inside corner of the quirk with a chisel and mallet.

Now you can lay out the notch for the front dowel rail. Place the rail in its final orientation (with the longer cross-sectional dimension parallel with the length of the plate rack's side). Use a rule or tape measure to

Decorative frieze

The arched frieze with turned spindles adds visual interest and compartmentalizes the area in the top shelf.

Stub tenon. *Cut the stub tenon on each end of the frieze with multiple passes on the tablesaw.*

Shape the arches. *As with the shape of the sides, rough out close to the line, and template rout the final shape of the arches on the frieze.*

Drill dowel holes for the spindles. *Mark the center point on the top of the spindles and on the squares at the bottom of the center arch. Then drill holes for the dowels that will join the spindles to the center arch. Spindles turned by Julie Jackson (surclewood.com).*

ensure consistent distance from the back edge of the side. Trace the rail with a pencil, then use a steel rule to mark the lines with a knife. Cut the notch with a saw.

Dowels

It's fine to modify the length of the dowels and the other vertical spacings to fit your dishes; just be sure to be consistent on all of the parts. And if you're going to alter the vertical spacing for your dishes, be sure you lay out the mortises described in the steps above with these modified locations in mind, not per the drawing that fits *my* dishes.

When the basic joinery is done, lay out the locations for the dowel holes, marking each on center. Be sure you take the diameter of the dowels into account, adding the diameter to the width your dishes require. Carefully transfer the marks from the dowel rail to the underside of the shelf. Drill the holes.

Assemble the plate rack

After pre-sanding all the interior parts, set the dowels dry in the dowel rails.

Assemble the plate rack

The plate rack portion is made with dowels that connect the bottom shelf to the back dowel rail. Shorter dowels connect the two dowel rails to each other. No glue is used to set the dowels.

Many holes. *Hiller lays out the center points of the dowel holes on the insides of both dowel rails, on the top of the back dowel rail, and on the underside of the lower shelf, at the back. She uses a Forstner bit and drills ½ in. deep, providing a little extra depth to help during assembly.*

Starting at one end, ease the dowels into the holes on the underside of the shelf. The rest of the assembly is far easier with someone helping, because the dowels, not being glued, have a tendency to pop out of their holes. That said, I manage the assembly solo. Apply glue to the dovetail pins and tenons on one side, then fit those joints together. Add glue to the other side and clamp. Check for square and for twist.

Make and mount the crown molding

The compound crown is made in three parts, then glued together. I use pins to hold the parts together during glue-up. Select a board wide enough to produce all three of the separate elements and long enough to make the entire length of molding. This helps to ensure the profile is consistent and the miters will come together cleanly. Rout the quarter-round on one edge of the blank, then rip that off. Next, rout the cove and rip that off. Finally, rip off the rectangular cap. Sand all the parts, taking care to keep their edges crisp, and glue

Connect the dowel rails. *Start by setting the short dowels between the two dowel rails. No glue is necessary; it will only make your life harder.*

Add the dowel rails to the shelf. *With the longer dowels, connect the first dowel assembly to the bottom of the lower shelf.*

Assemble

Bringing it all together

With the dowel assembly fitted together dry, it's time to glue up the case. It's a large piece with lots of joinery, and it can't be broken down into different stages. Hiller uses yellow glue, but you can use a slower setting option.

First side first. *Begin with the dovetails on one side. Glue them and connect the top to the side.*

Finish up the first side. *Next add the upper shelf, then the dowel rails and lower shelf assembly to the first side.*

Add the frieze and spindles. *Insert one end of the frieze into the first side. Put the second side in place and knock the joinery home. Then add the spindles. They are doweled into the arch, press fit onto the upper shelf, and secured with pin nails from below.*

Set your clamps. *Make sure to apply pressure to the top and bottom of all the joints. Check for square and adjust if needed.*

Final construction details

Secure the front dowel rail with a screw and install the French cleat.

Reinforce the front dowel rail. *Because the front dowel rail sits in a notch that's open at the bottom, Hiller reinforces the joint with a screw and plugs it.*

Add a hanging cleat. *Hiller installs the French cleat in the case after glue-up. She notches the ends of the cabinet cleat, mortises the sides of the case, and glues it in. She reinforces the glue with a countersunk screw.*

them together, using spacers to ensure consistency. While the glue dries, you can hold the parts together with masking tape or pins.

Miter the crown, being mindful that the quarter-round portion will sit on top of the plate rack, and secure the molding to the case. The miters are pinned and glued, but there's no glue holding the crown to the sides.

French cleat

A French cleat, with its interlocking bevels, is a strong, simple means to hang cabinetry. One mitered piece goes on the cabinet, the other mitered piece on the wall. To make the two cleats, mill a board, then rip it in half with the blade at 45°.

Cut the wall cleat to the interior width of the plate rack. The cabinet cleat will be notched into the back edges of the sides. Lay out the position of the notch on each side with a marking gauge or knife, then cut the cabinet cleat to length. Next, remove the beveled section from each end. Cut the notches with a saw and chisel and test the fit. Now glue the cabinet cleat to the notches.

Screw the wall cleat into studs or with proper wall anchors and lift the plate rack onto the cleat. I finished my plate rack with Osmo 3041 oil. □

Frequent contributor and FWW ambassador Nancy R. Hiller runs NR Hiller Design in Bloomington, Ind.

Install the cleat. *Secure the mating part of the cleat to the wall and hang the finished plate rack on it.*

To purchase expanded plans and a complete parts list for this plate rack and other projects, go to FineWoodworking.com/PlanStore.