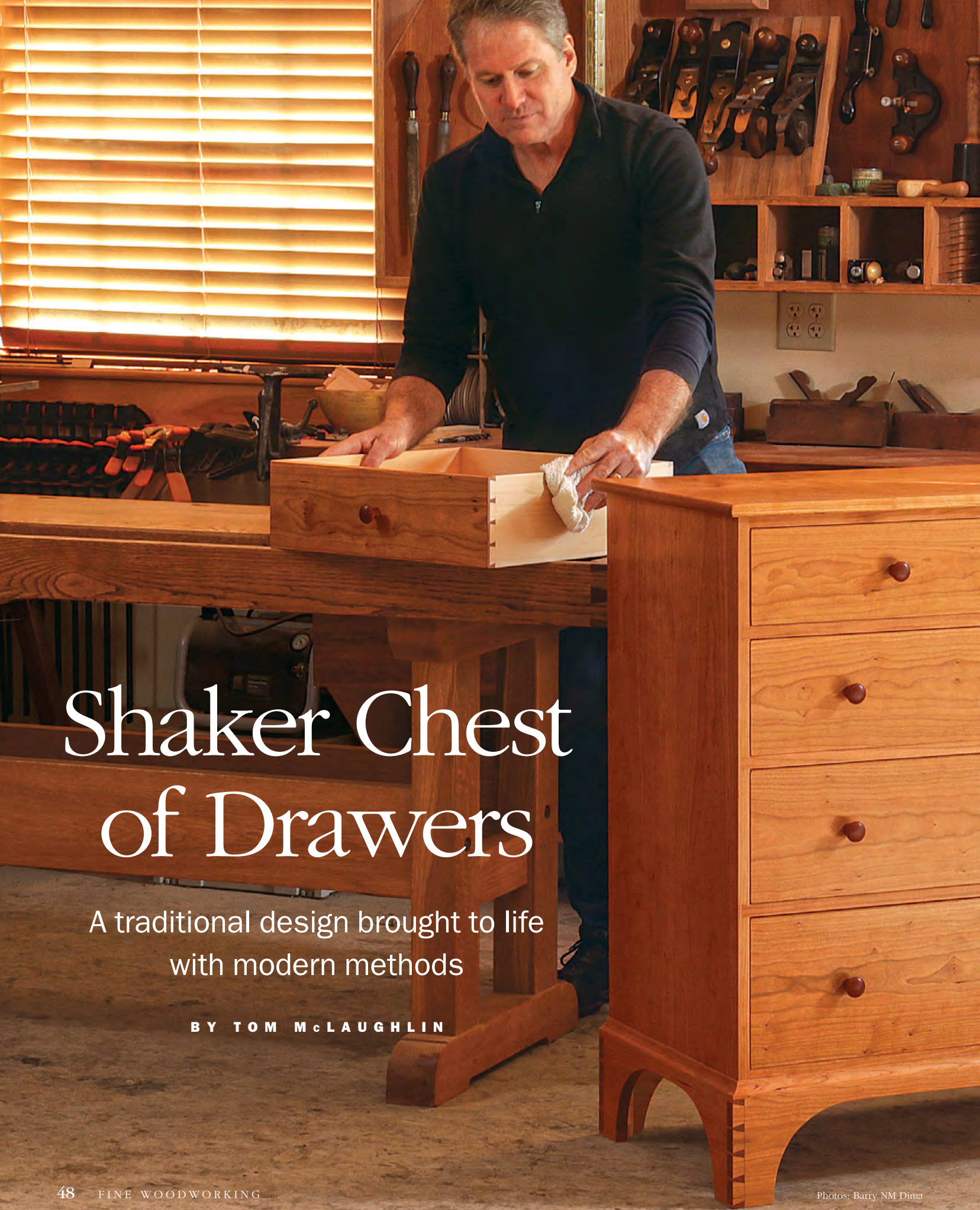


Shaker Chest of Drawers

A traditional design brought to life with modern methods

BY TOM McLAUGHLIN

Photos: Barry NM Dima

Building a dresser, or chest of drawers, is immensely satisfying. A dresser is practical, central to everyday living, and quietly anchors a bedroom's decor. And if made well, it can be passed down and enjoyed for generations. When choosing a design that will endure, it's hard to beat Shaker style. Esteemed for its minimalist simplicity and clean lines, Shaker furniture is right at home in both traditional and contemporary settings. The design of this specific dresser draws from my explorations of nearby Canterbury Shaker Village; the notebook of my mentor, P.A."Pug" Moore; and an original Shaker dresser made in Harvard, Mass., in 1844.

The design may be historical, but my construction methods are almost entirely contemporary, including repeatable joinery using the tablesaw and router. And some of the dresser's construction comes from observations made while studying and repairing antiques.

Mindful stock selection

When milling the parts for your dresser, consider how they will be used. For example, having chosen cherry for the primary show wood in this dresser, I selected the widest boards when gluing up the panels for the case sides and top, for the least number of glue joints and a cleaner look. To spare my good cherry, save money, and reduce weight, I took a different route for the subtop and bottom. The bottom panel will never be seen, so that's entirely white pine. The subtop is also white pine, but it gets a narrow strip of cherry glued to its front, since that edge will be exposed in the final case. The rear dividers, back boards, and dust partitions are all pine for the same reason. Poplar works well as a secondary wood, too.

This use of primary and secondary woods is common and traditional. With my drawers, though, I use a technique developed after years of seeing worn-out softwood runners and drawer sides on antiques. I future-proofed my drawers by using hard maple runners and laminating a thin strip of maple to the bottom edges of the white pine drawer sides. This gives the best of both worlds: the lightness and stability of white pine and the wear-resistance of hard maple.

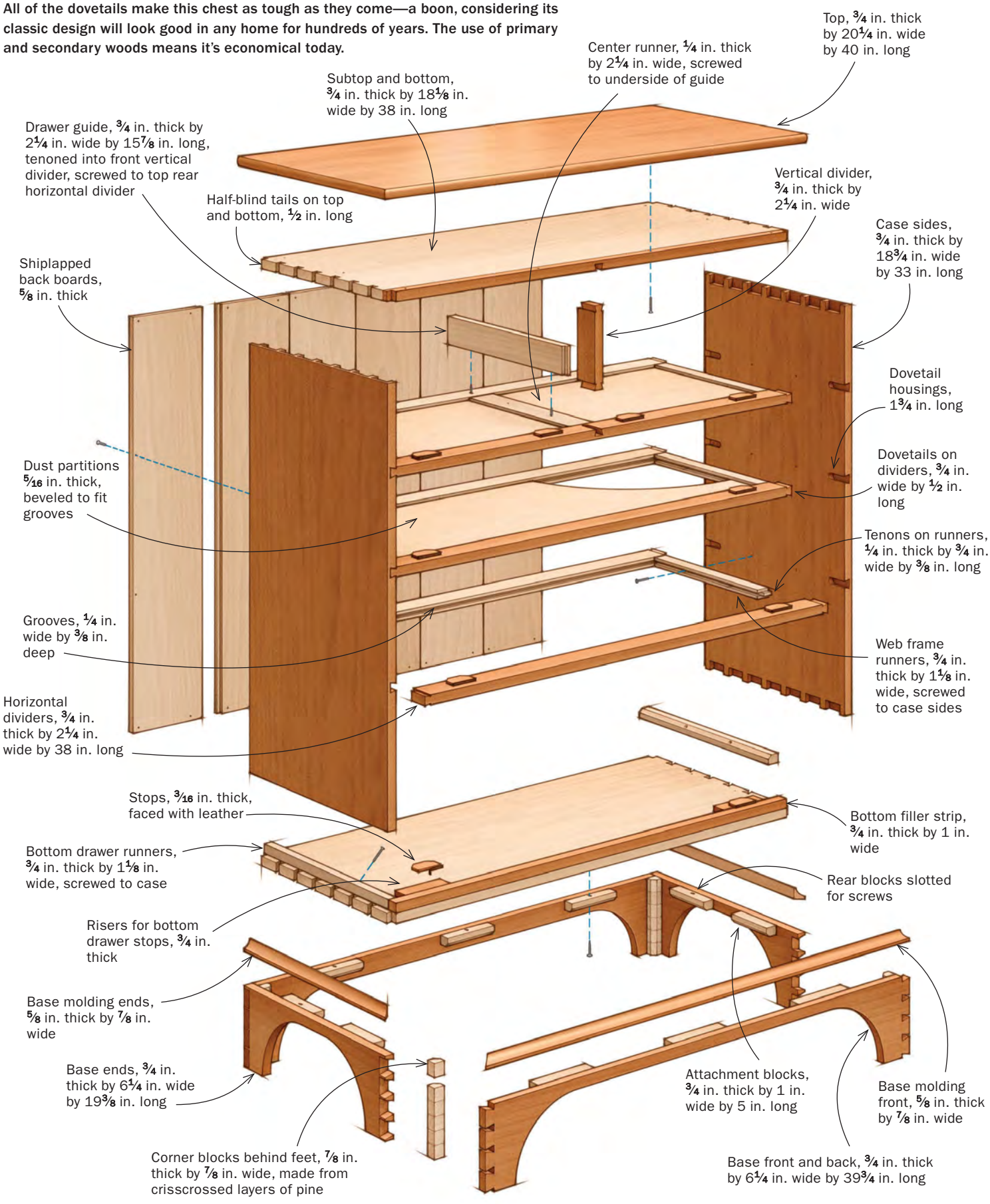
Dovetailing the case and drawer dividers

A case piece like this dresser is an intensive in dovetailing. It has three kinds: through- and half-blind for the carcase, base, and drawers, as well as sliding dovetails for the dividers.

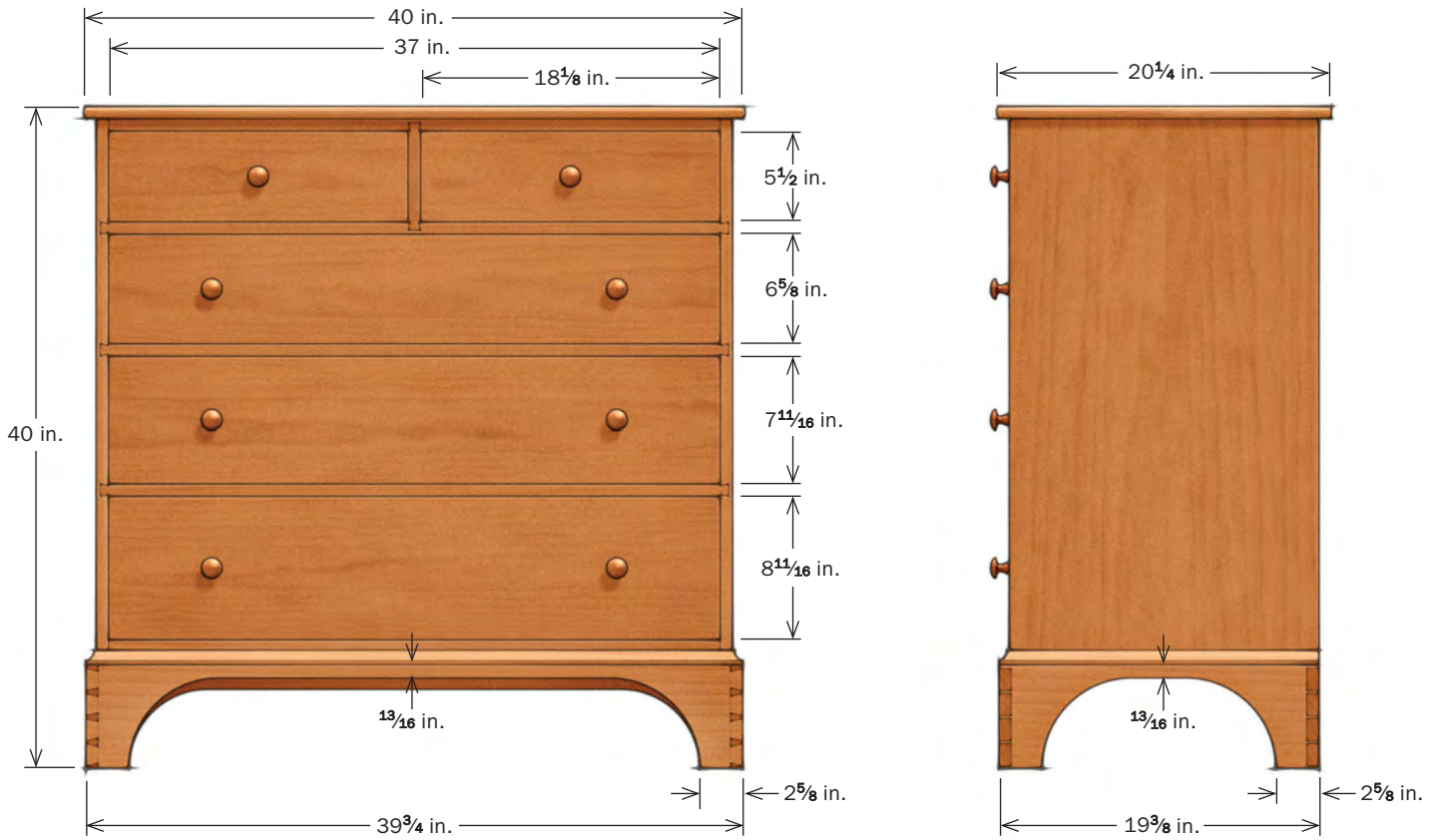
The carcase comes first. Begin with the half-blinds. A tablesaw and drill press make relatively quick work of these. After laying out the tails on the subtop and bottom, I cut the tails at the tablesaw using a specially ground blade and a crosscut sled. Next, transfer the

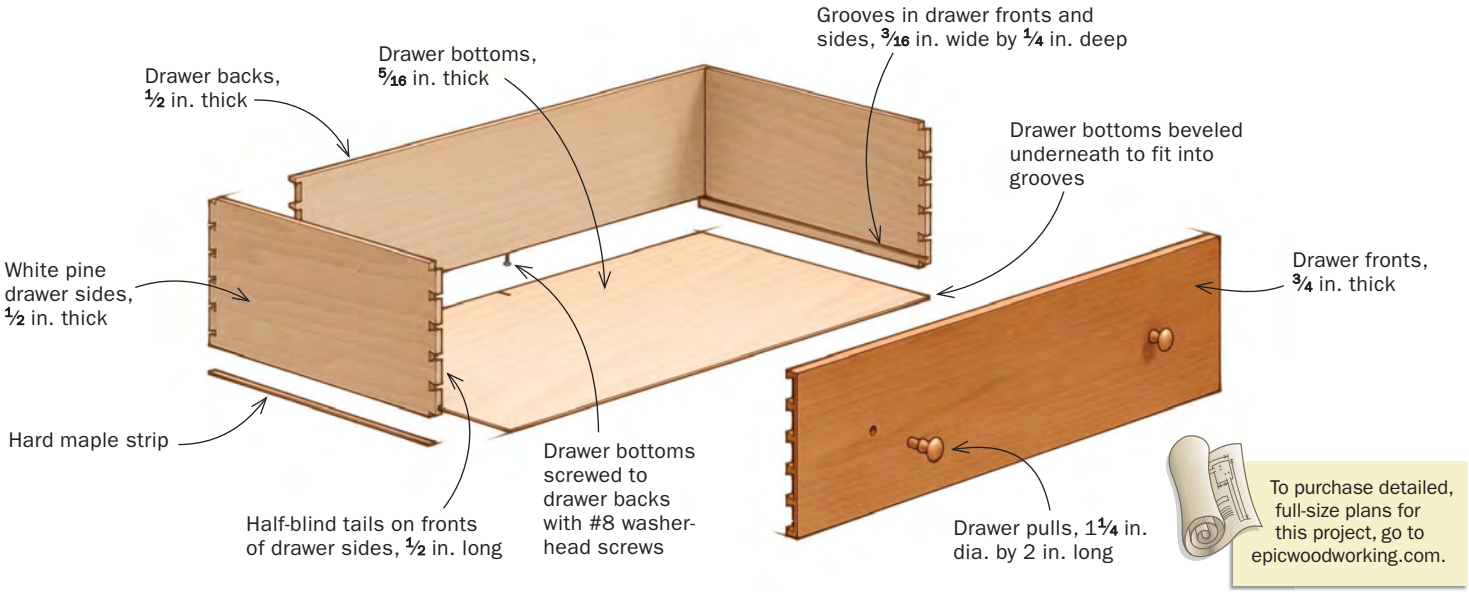
PLENTY OF DOVETAILS FOR PLENTY OF STRENGTH

All of the dovetails make this chest as tough as they come—a boon, considering its classic design will look good in any home for hundreds of years. The use of primary and secondary woods means it's economical today.



Drawings: Christopher Mills





To purchase detailed, full-size plans for this project, go to epicwoodworking.com.

tails to the sides with a sharp marking knife. It's a good idea to scribble on the waste afterward so you don't mistakenly saw on the wrong side of the lines. After building furniture for three decades, I still do this scribble. To minimize paring and fitting, the handsaw cuts here should barely touch the knife line.

The traditional method for removing the waste between the kerfs is to chop it all out, but I have a shortcut: a drill press and a ⅝-in. Forstner bit. After drilling out most of the waste, you need only a little chiseling to cleanly and crisply work to the knife lines.

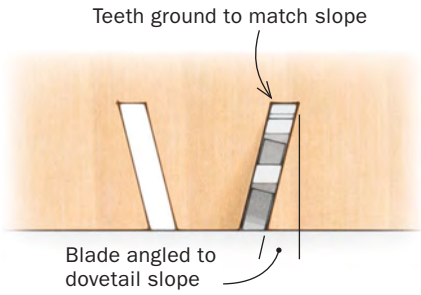
The dividers are joined to the case with sliding dovetails. To cut the horizontal dividers' housings efficiently and accurately, I use a homemade jig paired with a router, a ⅝-in. guide bushing, and a ¾-in.-wide 14° dovetail bit. The jig, with cleats to reference on the case, creates evenly spaced and parallel slots 90° to the edges. I use a similar jig to rout the housings for the vertical divider, which separates the top drawer opening into two compartments.

With all the slots routed, you can work on the dividers themselves. First, determine their length by dry-fitting the case. After trimming the dividers accordingly, dovetail their ends at the router table using the same dovetail bit you used for the case. It is important to fit these tails so they go together easily (but not sloppily) because if they're too tight, they'll bind during glue-up.

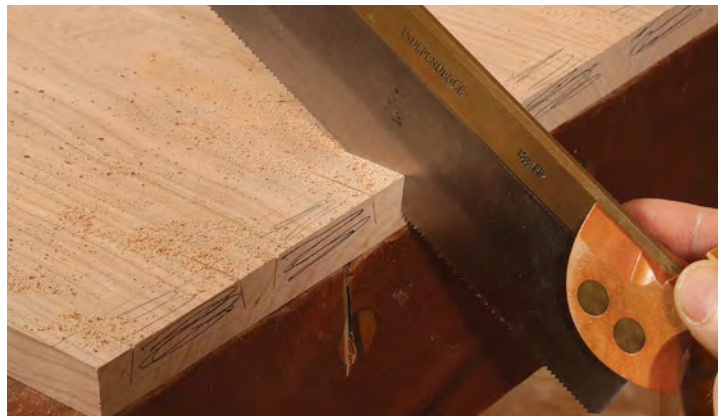
TAILS TOP AND BOTTOM

Tablesawn dovetails are fast, easy, and accurate. *After cutting the carcase's rabbet and laying out the tails, McLaughlin uses a specialty blade that's ground to the dovetail angle and a dedicated crosscut sled. His sled's fence is higher in the middle, creating extra bearing surface.*

Two cuts for the walls before removing the waste between. *Because the blade tilts in only one direction, flip the board to cut every other tail wall. With both walls cut, saw out the rest of the waste. A zero-clearance kerf in the sled's base helps McLaughlin line up each cut.*



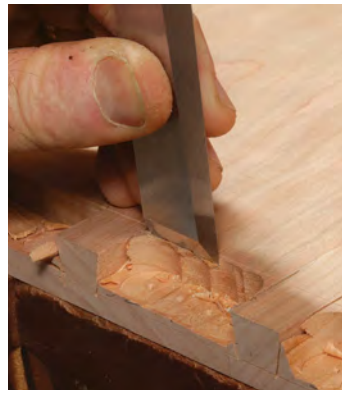
HALF-BLIND PINS ON THE SIDES



Cut the pin walls. *First transfer the tails to the pin board and mark the waste. It's OK to saw past your baselines inside the case. It will never be seen, it's period correct, and it will speed up removing the waste.*

TIP

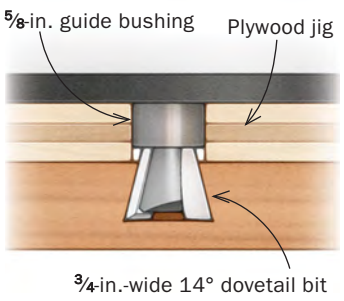
A Forstner bit and rough chops tackle most of the waste. *Rather than chop away all of the waste, McLaughlin sets up a fence on his drill press and drills with a ⅝-in. Forstner bit. Then he uses a chisel to quickly remove the remaining fragile webbing.*



Chisel cleanly to your baseline and floor. *Now's the time for methodical chisel work and clean cuts. Start by incrementally chopping toward the scribed baseline (above). When that's done, pare the sockets to final depth (below).*

Nifty jigs for dovetailed dividers

Same jig handles front and rear housings. *Because of the jig's cleats, it will make perfectly mirrored housings for all of the dividers, greatly simplifying positioning and installing the runners later on. On the back edge, the jig registers off the rabbet's shoulder.*



The bushing rides the plywood jig while the bit routs the slot. *To ensure smooth walls, keep the bushing tight to the plywood. McLaughlin takes one pass, spins his router 180°, and takes another, guaranteeing the housings are centered even if his bit and bushing are not.*

After setting up the cut with a test piece, I fit each tail individually with the case disassembled. If the case was still dry-fitted, I'd be trying to fit two tails at once just to determine if one was off.

When the dividers fit their sockets, set them aside and glue up the case. I use white pine cauls to fully seat the tails, since the soft wood gives way to the harder cherry under clamping pressure. When the glue is dry, plane the pins flush. Groove the dividers and runners for the dust partitions, then glue in the front dividers. The rear dividers don't get installed until the very end of the build.

Filling out the interior

With the skeleton done, move on to the runners and guides. These are designed and installed with wood movement and repairability in mind—more lessons learned from studying antiques.

The parts for the bottom drawer opening are the simplest. There's a cherry filler strip press-fitted and glued on in front. Behind that are two runners, which are attached to the case with screws driven at an angle, similar to toe-nailing. Set these runners back 1/16 in. from the cherry strip to accommodate wood movement. The filler and runners should be the same thickness.

The web frames and vertical divider need grooves and stub

Assemble from the outside in

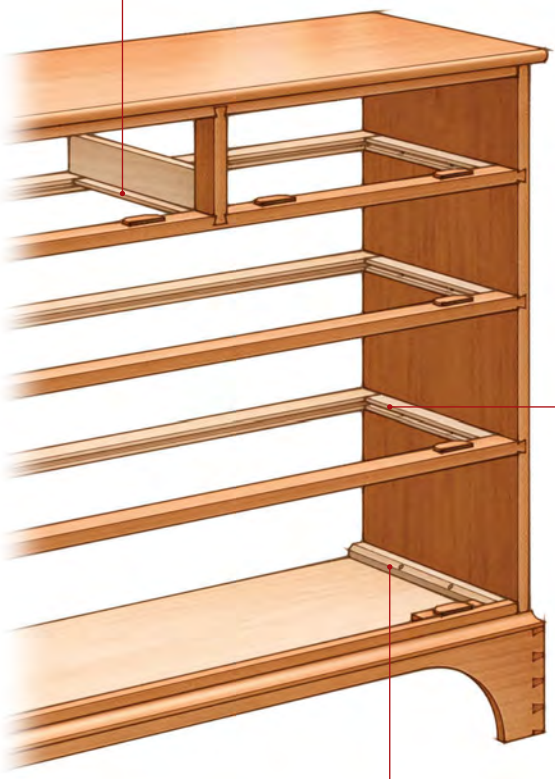
A stick with a nail checks for square. *It's critical to glue up the case square. To ease checking a workpiece this size, McLaughlin uses a long stick with a nail in one end. The nail goes in one corner (above), and he makes a pencil mark on the stick at the opposing corner (left). When the pencil mark lines up on both sides, the case is square.*

Install the horizontal and vertical dividers. *Notch the backs of these workpieces before gluing them in place. You may need to clamp across the case to close any gaps.*

Three kinds of runners

Upper drawers need a guide. *This piece has a small tenon that fits into a centered groove behind the vertical divider. For rigidity, glue this tenon in place.*

Screw the central runner to the guide now, and the guide to the rear divider later. *This runner is wide enough to support both drawers. Do not screw the guide to the rear divider until putting the latter in place during final assembly.*



Dry-fit the rear dividers when installing the middle runners. *Temporarily install the rear dividers, since their grooves help accurately locate the runners and their stub tenons.*

Two screws secure these runners. *Don't glue these runners to the sides or dividers. Locate the screws close together so they don't interfere with wood movement. Install the runners with a 1/16-in. gap between dividers.*

Bottom drawer gets a cherry filler strip in front. *This strip lifts the drawer above the molding, creating a little visual separation and making space for hardwood runners.*

Add two maple runners behind. *To accommodate wood movement, screw, but don't glue, these in place. Similarly, set them back 1/16 in. from the cherry strip. Driving the screws at an angle ensures the runners are tight to the case side and bottom.*

Bracket base elevates the case

Bandsaw the arch after cutting the dovetails. *McLaughlin bandsaws close to the line before refining the cut with a sanding drum and a scraper.*

Glue up the base. *The tails are wide enough that McLaughlin can apply pressure directly to them rather than using cauls.*

tenons. These joints are all the same size and centered. This simplifies cutting them; it also means the runners should be milled to the same thickness and at the same time as the drawer dividers.

When installing the web frame's runners, dry-fit the rear dividers to help with positioning. Don't glue the runners' stub tenons into the grooves in the front and back dividers. Rather, simply screw the runners to the case sides with two screws in the grooves. Like the bottom runners, set these with a 1/16-in. gap to the front.

The drawer guide and runner in the top center use different construction. The guide's stub tenon is glued into the vertical divider. Later, at final assembly, you'll fix the guide at the back end with a washer-head screw up through a slotted groove in the rear divider. This will keep the guide centered side to side without constricting wood movement. The runner is then simply screwed to the underside of the guide.

With a square case and well-built internals, you'll be set up to build drawers that slide well and have even reveals.

Bracket base

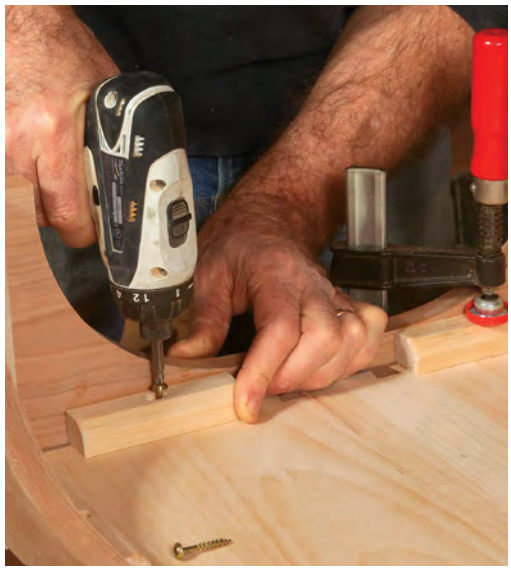
The bracket base means more dovetails. After cutting and fitting these joints, cut the arches. Last, glue up the base.

To strengthen the base, I glue support posts to the inside corners of the feet. These posts are made from cross-grain blocks of pine so they expand and contract with the base.

To prepare for attaching the base to the case, I glue attachment blocks to the base flush to its top edge. Then, when I attach the base to the case, I keep wood movement in mind, using glue only on those attachment blocks along the front edge and at the front of the sides. This directs movement to the back and keeps the reveals consistent in the front. To the same end, having milled slotted holes in the blocks along the rear edge and at the back of the sides, I screw but don't glue them.

Be sure the offset between the base and case, where the molding will go, is the same along the front and sides.

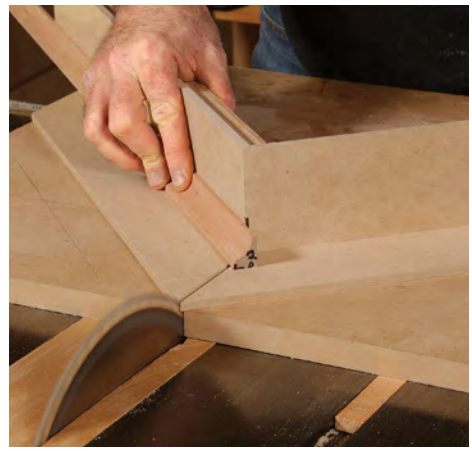
Posts with cross-grain layers strengthen the base's dovetailed corners. *These reinforce the feet and act as support posts at each corner of the dresser. McLaughlin crisscrosses each layer's grain to balance strength and stability.*



Glue the front attachment blocks to the case; screw on the back ones. *These blocks secure the base to the case. Gluing the front ones to the case and using slotted screws on the back ones directs wood movement to the back, keeping the reveal on the front even year-round.*

Cove molding

Rout and rip each molding strip from one overwide blank. *After routing the cove molding, scrape and sand the profile before ripping it free. This method is much safer and easier than trying to work each narrow piece individually.*



Zero-clearance miter sled creates clean corners. *The zero-clearance kerf both prevents chipout and helps line up the cuts accurately.*

Glue on the front molding with a side piece temporarily clamped in place. *The miter on the side molding helps position the front molding. Glue the whole front piece to the base and the case (right). Then attach the side moldings. Glue these to the whole base but, to allow for seasonal movement, glue them only to the first 7 in. of the case.*

Cove molding

The cove molding provides a calm, pleasant transition between the base and the case. It also conceals the pine bottom. If possible, make the cove molding from the same material you used for the base. This creates a more uniform appearance between the two.

Thickness the molding stock to match the base-case offset. But for safety while cutting the cove, keep the blank plenty wide. At the router table, use a cove bit to shape the stock. Scrape and sand the cove, then rip the molding from the blank.

To apply the molding, first miter and glue the front in place. Then miter the side pieces, cut them to length, and install them. All three pieces can be glued to the base. The whole front piece can be glued to the case, but to accommodate wood movement, only the front 7 in. of the sides should be glued.

Last, install the top, dust partitions, rear dividers, and shiplapped back boards. I don't glue in the rear dividers. The sliding dovetail, plenty strong without glue, can then be disassembled for repairs, another way to ensure this chest will last lifetimes.

Finishing touches

I prefer oil-based wiping varnishes when finishing cherry. They're easy to apply and produce a pleasing richness as the patina deepens over time. I finish all exterior cherry surfaces and both sides of the top with two to three coats of Waterlox original sheen before adding a final topcoat of Waterlox satin sheen.

For a traditional touch, I use a scrub plane to subtly scallop the outside faces of the back boards before installing them, leaving a tactile surprise whenever someone runs their hand there.

All interior surfaces, the back boards, and the underside of the dresser are sealed and finished with two thin coats of clear shellac. (The interior is easy to finish with the rear dividers removed.) Drawer interiors and sides also get clear shellac, lightly sanded with 320-grit sandpaper, and buffed with paste wax. □

Tom McLaughlin builds this chest of drawers in FineWoodworking.com's series Master Class.

Top and back

Rout the top's radius. *This profile is an arris curve. It's a curved edge profile that meets the surface with a hard corner.*

Set the overhang and attach the top. *The top has a ¾-in. overhang in back, which lets it clear any baseboard and sit flat against a wall. Attach the top with countersunk screws up through the subtop.*

Install the dust partitions and rear dividers. *The dust partitions are a traditional touch, so McLaughlin takes the traditional route by beveling their undersides to fit into the web frames' grooves. After those are in, slide the rear dividers in place dry, and screw the top one to the drawer guide.*

Shims help space shiplapped backboards. *Starting on one end and moving over, install the boards with screws. Temporarily placing 1/16-in. shims between each keeps them evenly aligned.*