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Speaker Stand with Hidden Storage

by Gary Wentz



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Start with Straight-Grained Wood

Wood selection makes all the difference in this project. Straight-grained pieces emphasize the stand's simple lines. Wild or angled grain is distracting, but often it's the norm in oak. No problem. If you don't mind wasting some wood, you can make your own great-looking straight-grained boards.

Begin by selecting boards for the stiles and rails. You don't need many. It doesn't matter what angle the grain runs at in these pieces, as long as some of it is straight. [\(Click here for Cutting List\)](#) Save the parts of these boards with really wild grain for the frames (**K**) and top (**P**) since their faces don't show. Rip the boards at an angle that follows the grain (**Photo 1**). Use the new edge to cut your stiles and rails.



Photo 1

Straight-grained wood complements the simple lines of this project. This simple jig with toggle clamps lets you rip straight-grained pieces from ordinary boards.

Rails, Stiles and Panels

The storage cabinet is basically four frame-and-panel assemblies with similar stiles and rails. They are grooved to hold plywood panels (**G**) and splines (**E, F**). The splines join each assembly. We'll use a standard blade to cut the grooves, rather than a dado blade, because 1/4-in. plywood is usually undersized.

1. Rip and crosscut the stiles (**A, B**) and rails (**C, D**). Hang on to your offcuts to use as trial pieces when making the grooves. Note that the stiles are two different widths. The back has two narrow stiles; the door has two wide ones. The sides have a narrow stile in front, a wide stile in back.
2. Cut the plywood panels (**G**) and use leftover scraps to make splines.
3. To make assembly easier, use sandpaper to slightly round the edges of the panels.
4. Select and mark the best-looking side of each rail and stile as its face. Place the face against the fence each time you cut a groove. That way, any slight variations in wood thickness will create uneven joints on the inside rather than the outside of the speaker stand.
5. Set your blade to 1/4-in. cutting depth and set your fence 1/4 in. from the blade. Cut one kerf in some trial pieces and every stile and rail (**Photo 2**; [Click here for Fig. A, Detail 1, left](#)). Move the fence and make a second pass in one of the trial pieces. Use a spline to check the fit of the groove. The spline should slip in easily, allowing room for glue. Adjust the fence if necessary and finish grooving all the pieces.

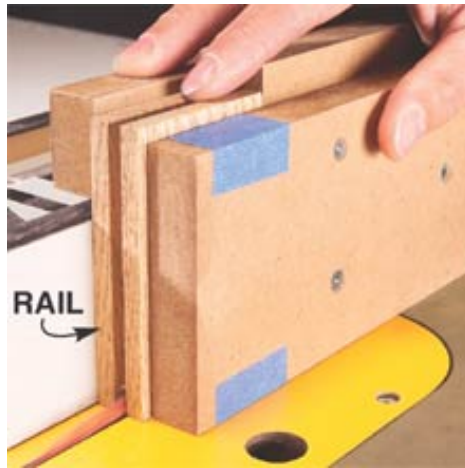


Photo 2

Cut grooves in the rails and stiles to hold plywood panels and splines. The rails are very short and unsafe to hold by themselves, so push them with a shop-made jig ([Click here for Figure B](#)).

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Assemble the Cabinet

Make a dry-run assembly to ensure everything goes together smoothly. You're assembling rails and stiles of different widths and each part has a face and a backside, so take a moment to double-check the configuration before you spread any glue. Pay special attention to the face sides when cutting biscuit slots and assembling the left and right sides of the cabinet. Otherwise, you might end up with a side that's inside out.

6. Assemble the door, sides and back of the cabinet (**Photo 3**).
7. Cut the subtop and subbottom (**H**) of the cabinet from 3/4-in. plywood. We covered the front edges of these parts (and the shelves) with 1/4-in.-thick strips of oak banding (**Q, R**).
8. Cut slots for No. 0 biscuits. Biscuits aren't vital to the strength of the cabinet, but they hold the parts in alignment and make assembly much easier.
9. Drill the holes for shelf pins before assembly (**Photo 4**).
10. Glue up the cabinet in two stages. First, glue and clamp the back to one of the sides. Immediately add the subtop and subbottom to square the assembly (**Photo 5**). When the glue has set, add the other side.



Photo 3

Glue each side of the cabinet using 1/4-in. plywood splines. The back and the door are built exactly the same way, although the back is narrower.



Photo 4

Cut biscuit slots; then drill holes in the sides for shelf supports. This jig indexes the holes and acts as a depth stop. The chuck of the drill hits the jig before the bit goes too deep.

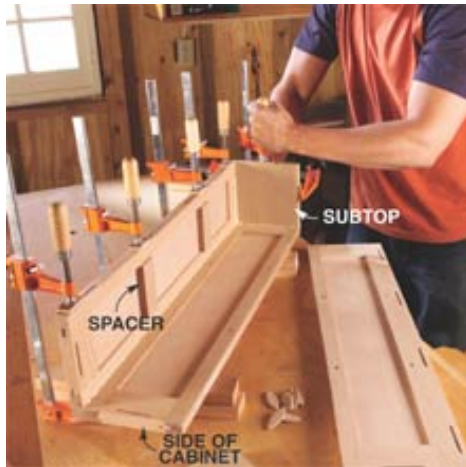



Photo 5

Assemble the cabinet using the subtop and subbottom to square the sides to the back. Place spacers between the stiles so they don't flex under clamping pressure. Biscuits make aligning the parts a no-brainer for this critical step.

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The Top and Base

The top and base are attached to identical mitered frames that are beveled to 45 degrees.

11. Miter the frame sides (**K**) and cut slots for No. 0 biscuits.
12. Glue up the frames (**Photo 6**).
13. Bevel the frames by running them over - not under - the tilted blade (**Photo 7; Fig. A, Detail 2**). If you have a right-tilt saw, move the fence to the blade's left side. If there isn't enough room, cut the bevels using a 45-degree chamfer bit in your router.
14. Cut the sides (**L**) and corner blocks (**M**) for the base.
15. Assemble the base sides and glue in the corner blocks.
16. Stick the frame and base together with double-sided carpet tape. Screw and glue them together (**Photo 8**).



Photo 6

Glue the mitered frames that go on the top and bottom of the cabinet. This awkward glue-up is a cinch with a band clamp.



Photo 7

Bevel the mitered frames with the blade tilted away from the fence. It's safer to run your workpiece over a tilted blade rather than under the blade. Plus, this leaves a cleaner cut.

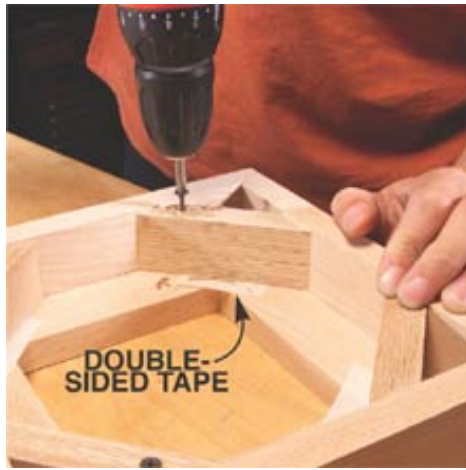



Photo 8

Attach the mitered frame to the base with double-sided tape. Drive a couple of screws and check the alignment. Back out the screws, remove the tape and reassemble using screws and glue.

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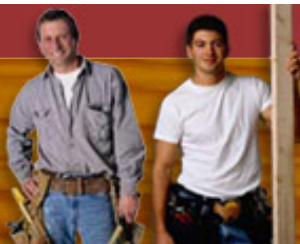
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17. Use the same tape-screw-glue method to fasten the beveled frame to the cabinet.
18. Make the top (**P**) by gluing three boards together. A single, wide board is less likely to stay flat.
19. Attach the beveled frame to the top using screws, but no glue. Drill oversize clearance holes in the frame so the top can move freely with changes in humidity.
20. Screw a scrap of 3/4-in. plywood (**N**) to the top, inside the frame, so you can screw the top to the cabinet.
21. Fasten weights to the base to stabilize the stand (**Photo 9**).

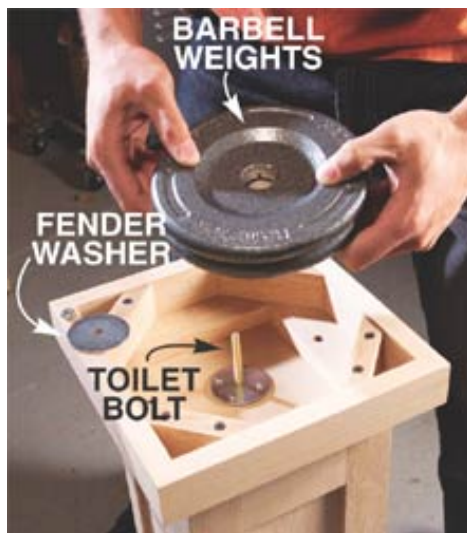


Photo 9

Mount two 5-lb. barbell weights inside the base so the stand is more stable. Make a sturdy post for the weights from a toilet bolt and a fender washer with four holes drilled in it for screws.

Hang the Door

At this point, the door is the same height as the cabinet. The top and bottom ends need to be trimmed to leave 1/8-in. gaps above and below the door. Make the trim cuts with a miter saw or tablesaw sled.

22. Trim the door just enough so that you can set it in place and check the fit. Adjust the angle of the final trim cuts to compensate if the cabinet is slightly out of square.
23. Cut a 1/8-in.-deep, 1-1/4-in.-long finger pull at the top of the door using a router and chamfer bit (**Fig. A**).
24. Hang the door using no-mortise hinges (**Photo 10**). Install a magnetic catch (not pictured) to keep the door shut.



Photo 10

Attach the door to the cabinet. First screw the hinges to the cabinet. Stick double-sided tape to the loose side of the hinges. Set the door in place and gently swing it open. Support the door with stands as you screw the hinges to the door.



Finishing Touches

25. Drill holes in the top and bottom for speaker wire. Set a speaker on the stand to determine the best hole position.
26. Finish the speaker stand with golden oak stain followed by three coats of spray-on polyurethane.
27. Stick adhesive-backed felt pads to the underside of the base.

Sources

Lee Valley, (800) 871-8158, www.leevalley.com

No-mortise hinge, 1-1/2 x 5/8-in., bronze finish, #00H51.21, \$1 ea.

Band clamp, includes 90-degree corners, #17F10.13, \$9.50

Adhesive-backed felt pads, 3/4-in.-dia., #93K86.03, \$2.50 per pack of 24.

Woodcraft, (800) 225-1153, www.woodcraft.com

Bracket-style shelf support, 1/4-in. shank, #27114, \$4.50 per bag of 25

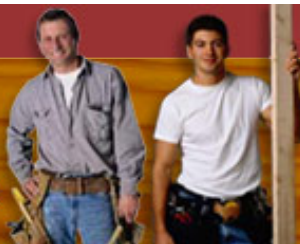
Toggle clamp, 6-1/2 x 1-3/4-in., #143993, \$10 ea.

Minwax Co. (800) 523-9299 (for dealer locations), www.minwax.com

Golden oak stain, #210B, \$8 per quart

Satin polyurethane, \$5 per 11.5-oz. spray can.

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Techniques & Skills

Techniques for Tighter, Faster, Stronger Miter Joints

Make those maddening miters more accurate.

by Gary Wentz

Miter joints provide one main advantage over other joints: A miter joint hides end grain and brings face grain neatly together. Everything else about miter joints is a hassle. They're fussy, time-consuming and easy to screw up. But there are ways to minimize those hassles.



The 60-Second Squeeze

When you're dealing with small or hard-to-clamp parts, the best clamping tools might be your hands. Simply apply glue to the parts; then rub them together to distribute and tack-set the glue. Hold the parts together on a flat surface for 30 to 60 seconds (although it may seem like 5 minutes). Watch the joint as you release pressure; if anything moves, squeeze and hold for a few more seconds. Let the assembly sit undisturbed for a half-hour before you handle it again.



Make Micro Adjustments with a Disc Sander

No tool can tweak a miter's fit as easily as a disc sander can. You can shorten the workpiece a hair with a quick touch of the disc. You can also adjust the angle by a fraction of a degree. Instead of fussing with the miter gauge, make tiny adjustments by sticking a paper shim between the gauge and the workpiece.

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Knock-Off Blocks for Long Mitters

Long miters are a nightmare to clamp, but adding temporary triangular blocks makes it a snap. The key is to use paper from a grocery bag. Dab some wood glue on both sides of the paper, stick the blocks wherever you need them and let the glue set overnight. When you're done clamping, remove each block with a hammer blow. The paper creates a weak spot in the glue bond, so the blocks break away without damage to the wood. Use hot water to soften any paper or glue left on the wood, then scrape it away and sand as usual.



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Customize a Drafting Square

Drafting squares are inexpensive, accurate and great for tool or jig setup. Because they're plastic, you can easily customize them to suit the job. We filed notches in this square to keep the saw teeth from interfering with setup. Drafting squares are available in various sizes for \$4 to \$10 at art and office supply stores.



Guides for Perfect Edging

Mitered guides clamped in place let you perfect the length and angle of mitered edging. Use the edging stock itself to guide the fit of each piece. Clamp the guides precisely in place and work your way around the tabletop, gluing each perfected piece in place as you go. After you glue and clamp a section of banding, remove the adjoining guides immediately so you don't accidentally glue them in place.



The Touch Test


When you're building a box or frame, the opposite sides must be precisely the same length. Otherwise, even the most perfect miters won't form a tight joint. To compare lengths, hold the parts together on a flat surface and feel the ends. Your finger can detect differences your eyes can't.



Stop Cutting Creep

When you're cutting miters on a miter saw, the spinning blade tends to push or pull the workpiece along the fence. A hold-down clamp will stop the creeping, but molded stock can be hard to clamp. In that case, dampen the back side of the wood. Moistened wood is less slippery and easier to hold in place.

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Notched Blocks for No-Rush Glue-Up

Getting all four corners of a box or frame aligned and clamped before the glue sets can be a frantic rush. Four notched blocks lower the frustration level by letting you tackle glue-up in manageable steps. Start by joining two corners to form the two halves of the box or frame. Allow those first two glue joints to cure for 30 minutes or so. Then rotate the notched blocks and complete the assembly by gluing the two halves together.



Join Miters First, Rout Later

Flat, square stock is easier to miter, align and clamp than shaped parts, so you'll often get better results by routing edges after assembly. To avoid splintering at corners, make a few light passes instead of one full-depth cut. Most importantly, start each pass on a side, not at a corner.



Grain Match Matters

It takes more than a precision fit to make a miter joint look good; the wood's grain and color should match, too. Using a single board to band a tabletop or build a picture frame makes color matching easier. Straight-grained boards are easier to match than those with wavy patterns. When matching wavy grain, try this: Miter one piece and then use it to find a matching area on the piece that will adjoin it.

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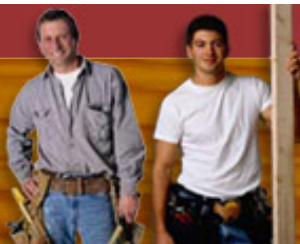
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Shop Projects

Small Shop Solutions Great ideas from space-challenged woodworkers just like you.

by Sue Brunclik, Ernest Blair, Tim Johnson



Sliding Wall-O-Tools

I built this 8-ft.-long shelf system to take advantage of the narrow space in the corner of my garage. When the unit is "closed," I've got ready access to the tools hanging on both doors. By sliding one or both doors, I can get to every inch of shelf space behind them. I got everything I needed to build this unit at the home center for about \$175.

The key was to mount the pegboard doors at least 5 in. apart, so I could load the back door with tools and still have it pass behind the front door. I bought two sliding-door hardware kits so each door could slide on its own track. Each kit contains a single length of track designed to hold both doors, two pairs of door hangers and a tracking guide designed to keep both doors in line at the floor.

How I Built It

I installed the shelves first, leaving enough room underneath to store my lawn mower and other garage essentials (see above photo). All three shelves came from a single sheet of plywood. The upper shelves are 11 in. wide and the bottom one is 20 in. I used 11-in. double-mount brackets for the upper shelves and 14-in. double-mount brackets with support arms for the wide bottom shelf.

I mounted the sliding-door tracks on a 2x10 header that I anchored directly above the wide shelf with lengths of slotted angle extending from both the ceiling and wall (**Photo 1**).

To make the sliding doors, I cut a single sheet of pegboard in half and framed both pieces with 1x2 stock (each door has four vertical stiles for rigidity). I suspended each door from four hangers (**Photo 2**) and fastened the tracking guides, one per door, on the wide plywood shelf (**Photo 3**). After installing the doors, I blocked the open end of the tracks with a stop.

Sue Brunclik

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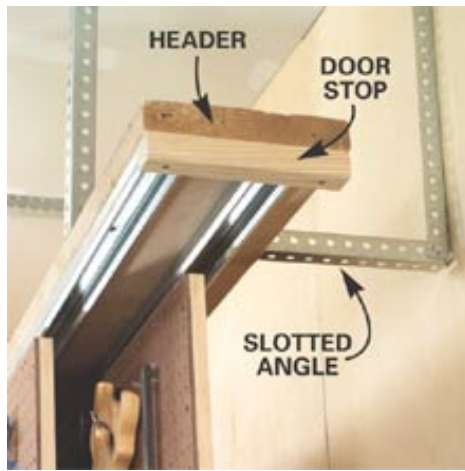


PHOTO 1:

The doors hang from widely spaced tracks mounted on a 2x10 header. Lengths of slotted angle hold the header securely in place.



PHOTO 2:

The doors glide smoothly on roller-equipped hangers. Each track has two grooves, so you can easily change the spacing between the doors and shelves, if necessary.



PHOTO 3:

Each door has its own tracking guide. My system uses two sliding-door hardware kits. Each kit contains one guide designed for two doors. I customized them with a hacksaw.

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Pantry Door Tool Cabinet

Inspired by the pantry cabinet in the kitchen of our new house, I built this compact version for my workshop. It has the same deep double-hinged doors that make everything inside easy to reach. I used 3/4-in.-thick stock so I could use screws to hang tools inside. The thick back made it easy to fasten the cabinet to the wall. I used less than a sheet of 3/4-in.-thick plywood and two 4-ft.-long continuous hinges to build my cabinet. I got everything I needed at the local home center. Including the latch and magnetic catches, my total cost was \$75.

Ernest Blair




Build It

[Click here for Cutting List and Exploded View](#)

1. Cut the cabinet frame pieces to size. Rabbet the sides (A) for the ends (B) and the back (C). Rabbet the ends for the back, too.
2. Glue the cabinet frame and back simultaneously. Make sure the assembly is square before you drive the nails and screws.
3. Install the shelves (D). Drill holes for router bits and other accessories before

- installation. Bevel the shelves' back edges to match the slope that works best for you. Screw the shelves from the back and nail them from the side.
4. Cut the door frame pieces. Rabbet the door sides (E and H) for the ends (F and J).
5. Cut or rout grooves in the inner door frame pieces (E and F) for the dividers (G).
6. Assemble the inner doors. Make sure they're square.
7. Round over the edges and rout rabbets around the outer door faces (K).
8. Assemble the outer doors. Make sure they're square.
9. Cut the hinges to length with a hacksaw.
10. Lay the cabinet on its back to install the doors. Clamp the inner doors in position on top of the cabinet. Then attach the hinges.
11. Clamp the outer doors on the inner doors and attach the remaining hinges.
12. After hanging the doors, install magnetic catches and mount the latch.

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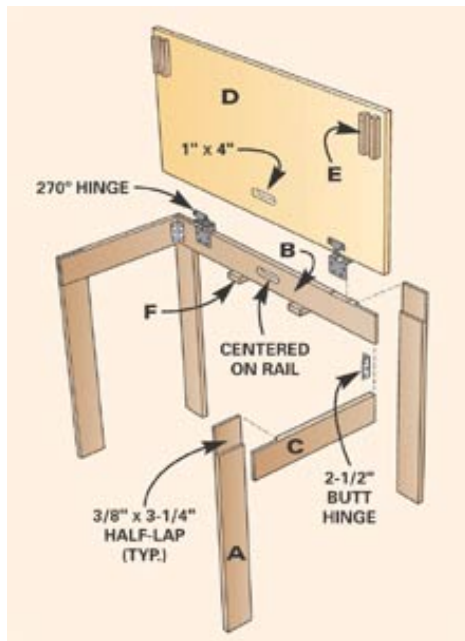


Instant Surface

In my compact shop, everything has to be portable and stowable, including my work surfaces. Whenever I need tabletop space for processing parts, milling boards or even assembling a project, I whip out this little gem. It's easy to maneuver because it folds flat for storage and weighs less than 25 lbs. It sets up in seconds and is surprisingly rigid.

I used half-lap joints on the base and heavy-duty 270-degree hinges on the top (see Sources, below). When the table is folded, cleats extending from the back rail hold the hinged legs, and hand holes in the top and back rail align to form a comfortable grip. When the table is set up, the swing-leg assemblies butt against the back rail and are firmly captured by cleats attached to the bottom of the top.

Tim Johnson



Build It

[Click here for Cutting List](#)

1. Cut the legs (A) and rails (B and C) to size.
2. Cut the hand hole and mortises for the 270-degree hinges in the back rail.
3. Cut half-lap joints in the legs and rails.
4. Lay the back assembly on your bench and clamp the swing-leg assemblies on top of it in the open position. Make sure the top edges and outside faces of the swing-leg rails (C) are flush with the top and outside edges of the back rail (B).
5. Screw on the butt hinges.
6. Install the 270-degree hinges and fasten the top (D).
7. Transfer the location of the hand hole from the back rail to the top and cut it out.
8. Turn the table upside down, swing the legs wide open (so they bear against the back rail) and fasten the cleats (E and F).



Source

Woodworker's Hardware, (800) 383-0130, www.wwhardware.com
C374 Full overlay 270-degree hinge, \$4 each (2 required).



Belt Sanding Block

I do most of my sanding by hand, so I made this convenient wooden sanding block to fit 3-in. x 21-in. sanding belts. The block is split for two-thirds of its length, and the belt is tensioned with a removable dowel. A softer wood, such as poplar or white pine, gives the best results. If the belt stretches and becomes loose, insert a slightly larger dowel.

Bill McCarthy / Riegelsville, Penn.

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Workshop Tips

Bottoms-Up Glue Cup

by Paul Lee

Whenever I need a small amount of glue, I reach for a paper cup. And since I visit the neighborhood coffee shop every morning, I always have a supply of used cups! But instead of filling the cup with glue, I turn it upside down. The indentation on the bottom holds enough glue for small glue-ups, and the inverted cup is very stable. When the job is done, I just throw the cup away.



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Workshop Tips

Pencil Lines Tell You When To Stop

by Eric Smith

There's nothing worse than sanding right through a veneer. Pencils lines are a great way to gauge sanding progress. I always draw lines on plywood where it meets a solid hardwood edge. The lines will start to disappear when the hardwood edge is flush with the plywood. That's when you know it's time to stop. Pencil lines work on glued-up boards, too. The boards aren't even until all the lines are gone.



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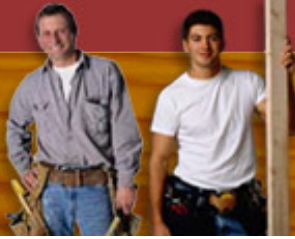
Classy Face Frames

I make a lot of traditional face frame cabinets and it's always a problem covering the raw edge of the plywood at the corners. A normal face frame is very obtrusive when viewed from the side. My solution is to attach rabbeted edging, as shown. This gives a finished look and the corner can sustain minor damage without marring the veneer. With a little easing of the corner, the face frame joint is almost invisible. You do have to cut the top and dividers so they are set back from the sides by the depth of the rabbet.

Michael Kurtz / Toledo, Ohio

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Convenient Benchtop Protection

by Gerry Casiello

My workbench is beautiful and I want to keep it that way, so I cover the top with builder's paper (\$7/140-ft. roll at my local home center) whenever I'm gluing or staining. But the heavy roll was hard to handle and a nuisance to store until I devised this simple holder made from 4-in. PVC drain pipe (10-ft. length, \$3).

The holder is no wider than the roll, so there aren't any protruding hangers or rods. Using my chop saw, I cut the PVC pipe and the roll of paper to the width of my workbench. Then, on my tablesaw, using the fence, and with the blade set just high enough to cut through the pipe, I carefully cut a lengthwise slot.

I screwed the pipe to the end of my bench, using the drain holes for access. Then I slid in the roll of paper. It was a tight fit at first, because the new roll was the same diameter as the pipe, but once I'd covered the bench a couple times, the paper pulled out easily.



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Dual-Grit Disc Sanding

by Dan Reeve

My disc sander is indispensable for both quick wood removal and final smoothing. I got tired of changing and wasting discs every time I needed a different grit, though, so I made one disc out of two. To make the dual-grit disc, I lay two 12-in. discs together, one coarse and one fine grit. Then I cut a 6-in circle out of the middle of them with a utility knife. This gives me two sets of dual-grit discs and nothing goes to waste. When I mount them to the disc sander, it's just like putting the doughnut hole back in the doughnut.



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Fender Washers for Mounting Pictures

by Larry Jenkins

I enjoy making picture frames but always found it a pain to use tacks or staples to hold the picture in place. Plus tacks and staples are hard to remove when you want to change the picture. That's why I developed this method for holding the picture, glass, matting, and backing board in the frame. I use 1-in.-diameter fender washers and #6 by 3/8-in. pan head screws. I drill the recess for the washer with a Forstner bit and make the recess deep enough so the washer will bear against the backing board to hold everything snug.



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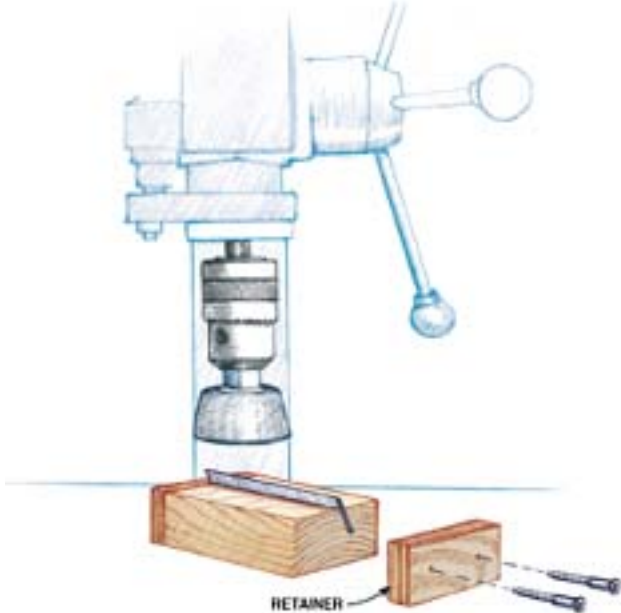
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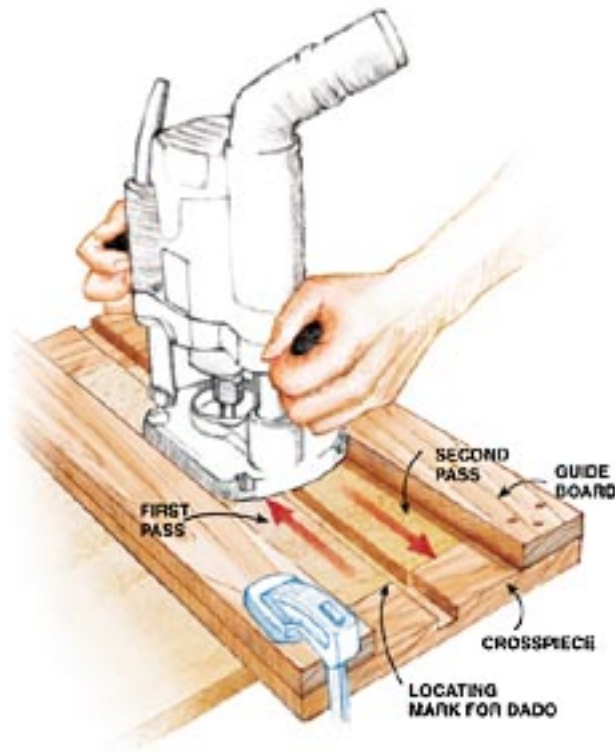


Grind Your Own Knives

With this simple jig, a drill press and a cup grinder, I can sharpen any jointer or planer knife. First I make a hardwood block and cut it to 1/16 in. less than the length of the knives. Then I add a retaining piece at each end, as shown. Install a medium-grit cup grinder in the drill press and set the speed at the high end of its range. Lower the grinding wheel until it just touches the blade, then lock the quill. Continue grinding until all the nicks in the knife are removed. Use the same procedure to grind the remaining knives, then hone them on an oil or waterstone in the usual way.

Arthur Chism / Hot Springs, Ark.

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Jig for Router Dados

For fast and accurate dados, this jig is hard to beat. The trick is to run the router against one guide, then back against the other. This allows you to use a 1/2-in. bit, for example, to cut a dado that's 13/16-in. wide or less, to get a perfect fit with plywood. Because the dado is cut in the end of the jig, you can simply line up the jig with one mark. This makes it hard to goof up by having the dado on the wrong side of the mark. For greatest accuracy, make a dedicated jig to fit one router and one bit. Note: The jig will only cut one size dado.

Eliot Ehrich / Chatham, N.J.

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Jointing With A Planer

by Mike Hofer

I came across some wonderful oak boards for a small table I wanted to build. The problem was the boards were too wide for my jointer and I didn't want to rip them any narrower. I solved my dilemma with this planer sled that allows me to use my planer as a jointer. The trick is to keep the board from rocking during planing. A wood shim under the high corner is all it takes. I add hot-melt glue to the shim and all four corners of the board to keep them from shifting on the sled during planing. Once I have one side planed flat I take the board off the sled, flip it over and plane the other side. The boards for my table were only 4-ft. long and the sled is about 6-in. longer. This technique works equally well for longer boards although you will need a longer sled and you may need additional shims along the sides.

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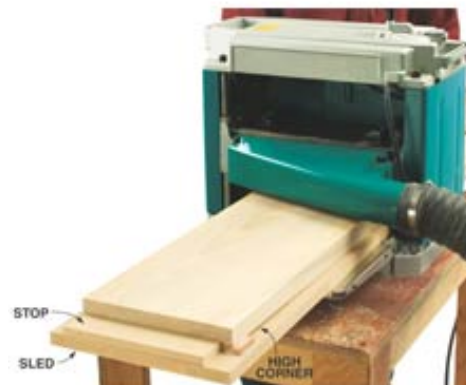
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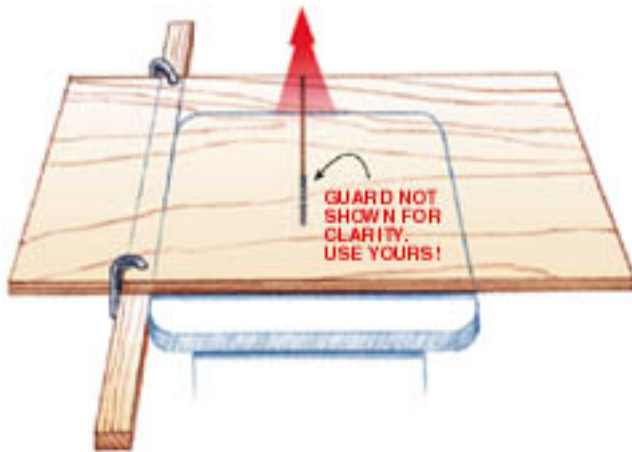
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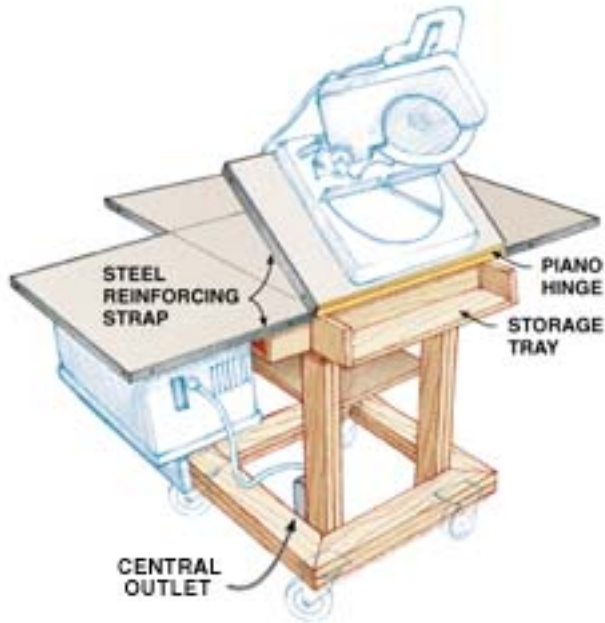


Large Sheet Crosscutting

Crosscutting large sheets of plywood on the table saw can be difficult, and I usually end up binding the blade, burning the wood, or worse. To get around this, I clamp a board under the plywood, and use it as an auxiliary fence which rides against the left edge of the table saw top.

Amy Kendall / Milwaukee, Wisc.

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Mobile Machine Caddy

My shop space is so limited-only 12 feet square-that I designed this system to house four machines: belt-disc sander, miter saw station, drill press and planer. Each machine has an accessory storage tray below. With all the machines down I have a clear working surface above. Each machine is wired to a central outlet so it's always ready for use.

Stephen Vogt / Ludington, Mich.

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Repair Ripped Belts

Sanding belts can rip at the worst possible moment — such as when you're out on a jobsite with no spares. When this happens I remove the belt, turn it inside out and cut the torn spot into a diamond-shaped hole with a utility knife. This adds life to the belt without affecting its performance.

Rodney Baker / Dalton, N.Y.

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Raised-Panel Tablesaw Jig

by Pat Hunter

Rather than buy a set of raised-panel router bits, I use this tall fence on my tablesaw. It's simply a plywood box that slides on the rip fence. I use two bar clamps to hold my 3/4-in.-thick panel to the fence. The stop at the back of the jig also keeps the panel from shifting. To saw the bevel, I set the saw blade at 15 degrees and raise it 1-1/2 in. high. I use a scrap board to test the setting and adjust the rip fence so the beveled edge of the panel ends up slightly less than 1/4 in. thick. This permits the panel's beveled edge to fit snugly into the slot in the rails and stiles of my project. I also adjust the blade height so it creates a 1/8-in.-wide shoulder on the inner edge of the bevel.



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Rock-Solid Bench Support

by Dave McNeely

The face vise on my workbench didn't hold long boards rigidly enough until I added this adjustable "bench slave." And it only cost about \$30.

First I milled a board to attach to the leg, making sure it was thick enough to fit flush with the front edge of the benchtop. Then I cut a dado right down the middle of the board, to house a piece of T-track (slotted aluminum track that accepts T-bolts; see Sources, below). When I installed the T-track, I left a gap at the top for installing and removing the support block. Next I drilled two centered holes in the support block, one large enough for the T-bolt to slide through freely, the other small enough for the T-bolt to thread into. I attached a T-style knob to the free-sliding bolt and fastened a toggle clamp (see Sources, below) over the threaded-in T-bolt.

Installing and removing the support block is easy, thanks to a small gap for the T-bolts at the top of the T-track.

Sources

Woodcraft, (800) 225-1153 www.woodcraft.com
28219 36" Mini-Track (T-track); \$13
130435 1/4"-20 1-3/4"-L T-bolts (10 pack); \$6
85J95 1/4"-20 Phenolic T-style knob; \$2.

Highland Hardware, (800) 241-6748 www.highlandhardware.com
166105 Toggle clamp; \$7.

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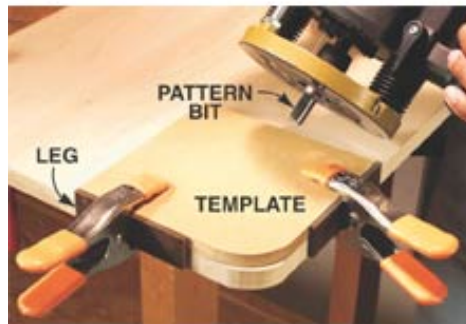


Workshop Tips

Rounded Corners In A Jiffy

by Randy Johnson

Getting rounded corners that match is a cinch with this template. Legs fastened to both sides automatically center the template on the workpiece. Once the template is in position, only spring clamps are needed to hold it in place. When you install the template on top of the workpiece, rout the profile with a top-bearing pattern bit. If you install the template on the bottom, rout with a regular flush-trim bit.



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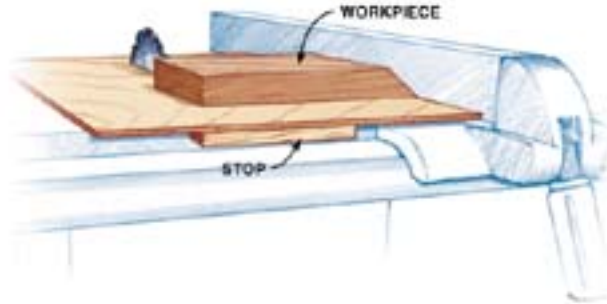
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Slipping Edges

Sharp edges and thin laminates have a way of slipping under the tablesaw fence and ruining a project—or worse. My answer is to lay a piece of 1/4-in. hardboard or plywood up against the fence. A stop at the back prevents the assembly from sliding forward as I push the work past the saw blade.

Mike Hofer / Rosetown, Sask.

NOTE: Blade guard above is not shown for clarity. Use Yours!

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Surefire Marking Gauge

by Jacques Paquette

Screwing plywood pieces with drywall-type screws is quick and easy, but drilling holes in a straight line can be tricky. That's why I made this handy little marking gauge that allows me to quickly and accurately mark a line on my plywood for drilling screw holes. To make it, simply cut a 3/8 in. by 3/8-in. rabbet into a board that is about 1-in. wide by 8-in. long. You now have a marking gauge to make a line that will put your screws exactly in the centered edge of your 3/4-in. plywood.



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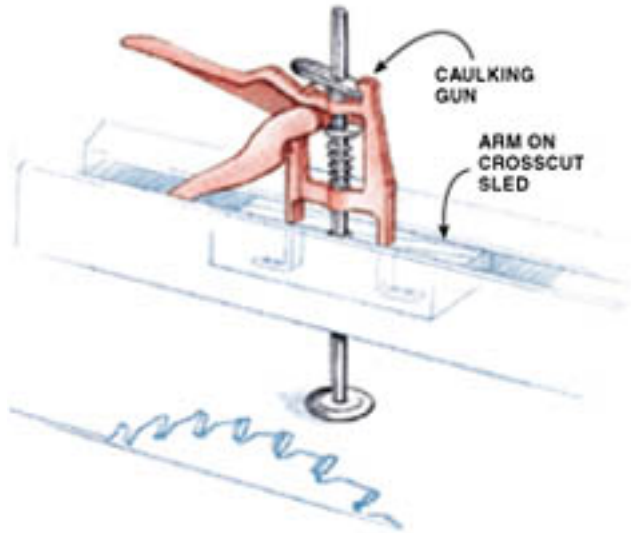
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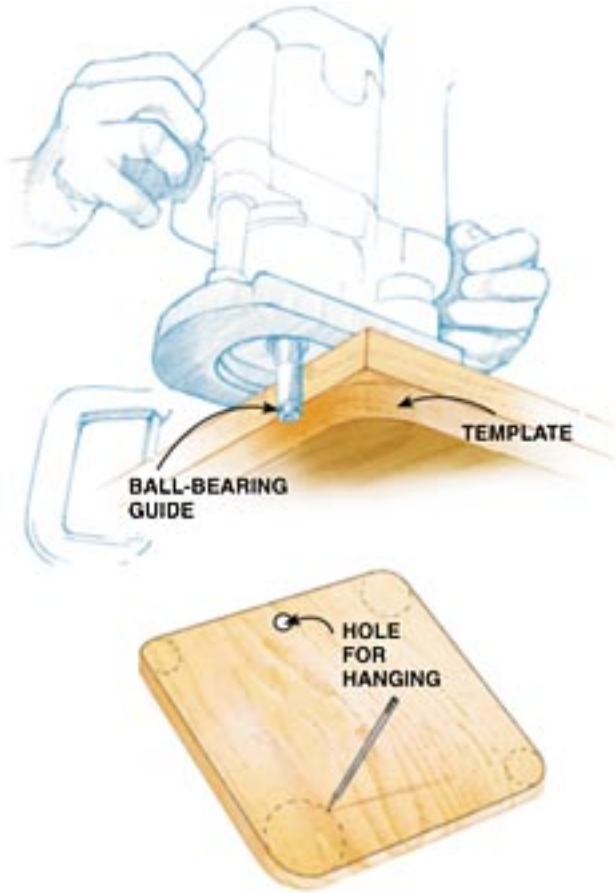


Tablesaw Jig Clamp

I added this hold-down to my tablesaw's sliding cutoff jig and find it a great convenience, because the height of the clamp is easily changed. This clamp uses a standard bar-type caulking gun, cut in half, as shown. The mounting block slides to apply clamping pressure where needed, and I covered the plunger with rubber so it wouldn't mar the workpiece. One squeeze of the handle and the work is locked in position — and all for less than \$3!

Rusty Bentzinger / Leighton, Iowa

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Template for Rounded Corners

This guide takes only a minute to make and helps you make perfect corners in four different diameters.

Steve Robertson / Durango, Colo.

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Wall-Hung Storage Bins

by Larry Jenkins

I recently bought a big stack of plastic storage bins at a flea market. I got a great deal on them, but they didn't come with any hanger strips. I came up with my own hanger by using a piece of colonial-style base molding attached with the good side toward the wall. The bins hang perfectly from the thin top edge. Boy, now my hardware is going to finally be organized!



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12 TIPS FOR BETTER SHARPENING

By Ed Krause

Get better results in less time with these great tips.

Hand tools are a joy to use, but only when they're sharp. Just as learning to walk is the prerequisite to running, successful sharpening is the key to "unplugged" woodworking. Try these tips and you'll be surprised at the strides your sharpening skills take and by the quiet satisfaction you get from your hand tools.



Homemade Angle Checker

This angle checker, made from a plastic lid, is a simple (and free) way to check the bevel on your chisels and planes. It only takes a few minutes to make.



No More Waterstone Mess

There's no getting around it—waterstones are messy. Here's a simple tip for keeping that mess contained: Pick up a heavy-gauge, 13 in. by 19-in. cookie sheet (about

Simply cut a 4- to 6-in. diameter plastic lid in half. Then, using a protractor, mark the desired angles on a piece of paper. Cut out the triangles and use them as a template to mark the angles on the lid. Cut out the angles on the lid with a pair of scissors. Drill a hole at the top and hang it on the wall near your grinder.



Dress for Success

Ever lose your temper? I mean your chisel's temper. Don't get burned by a clogged, uneven grinding wheel. Dressing your grinder wheels periodically to keep them clean and flat helps prevent the excess heat that leads to bluing and loss of temper(s).

Single-point diamond wheel dressers do a great job but they're difficult to use freehand. Try a flat-tip diamond dresser instead. It has 36-grit diamond stone particles imbedded in a 1/2-in. wide by 3/4-in.-long face. Simply place it on your grinder's tool rest and make contact with the wheel.

Flat-tip diamond dressers are available from Woodcraft Supply, (800) 225-1153, #124670, \$18.

\$7) at the grocery store, hardware store— wherever. It's large enough to easily hold three stones. Use a 3/4-in. board pushed against the stones and clamp down the board and the cookie sheet on your bench. When you're done, just wipe the cookie sheet dry and hang it on the wall.



Surefire Scraper Filing

You've probably heard other woodworkers talk about what a great tool the scraper is, but maybe you've never had much luck with one yourself. Using them is easy; getting a good edge on them is the tough part. The hardest step in sharpening a scraper is the first one— filing the edge square and flat. Start off right with this easy-to-make file holder:

Cut a kerf equal to the thickness of an 8-in. mill file in a 1-1/4-in. thick by 4-in. wide by 6-in.-long piece of wood. The kerf should be a little deeper than half the width of the file. This allows you to set the file at different depths to avoid dulling it in one spot. Clamp the scraper in a wood-jaw vise. Push the scraper firmly against the holder while filing for a perfectly square edge.



Custom Gouge Strop

Getting a mirror finish on the contoured profiles of carving gouges can be a real hassle. The curved surfaces don't lend themselves to polishing on a flat stone or strop. Making a custom strop is easy. Use the chisel to cut its own contour in a piece of poplar or basswood. Rub chromium oxide polishing compound in the contour and you have a custom-made strop.

Chromium oxide is available from Lee Valley & Veritas, (800) 871-8158, #05MO8.01, \$7.



Easy Knife Sharpening

Don't keep your sharpening skills confined to your shop tools. Why not tackle that dull set of kitchen knives you've been crushing tomatoes with? Here's a great tip: Go to any office supply store and buy one of those loose-leaf folders with a plastic spline (about 40 cents). Cut and trim the spline to fit over the back of the knife. The spline raises the back of the knife just enough to put a consistent bevel on the cutting edge. Now your knives will glide right through those tomatoes!

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Spend Less Time Sharpening

Less time sharpening means more time woodworking. Isn't that what we all want? Honing guides get the job done fast, but setting the blade in the guide to get the right bevel angle can be time consuming.

Here's a quick trick: Mark the appropriate blade extension for each bevel angle on your benchtop, or a wood scrap, for convenient reference. Hold the edge of the blade to the desired bevel mark, butt the guide to the edge of the bench and tighten. The side-clamp honing guide, shown above, automatically squares the blade and prevents it from rocking or shifting in the jig. This guide is available from Garrett Wade, (800) 221-2942, Item # 10M0701, \$12.



The Right Angle Every Time

Chisels and planes have bevel angles from 25 to 35 degrees depending on their intended use. You can buy a jig for grinding these angles, or make your own angle blocks at no cost!

Make one block for each angle. Glue up a block 2-1/2 in. deep by 4-in. wide by 10-in. tall. Mark the desired angle on the top of one side. Drill a 1-in. hole through the side of the block at the halfway point of your angle mark. Then cut the angle on your tablesaw. The remaining groove makes an excellent guide for your fingers. Cut the block to length so the top is equal to the center height of your wheel. To secure the block, drill a 1-1/4-in. hole near the bottom of the block for a bar clamp.



Fine Edge On Your Scraper

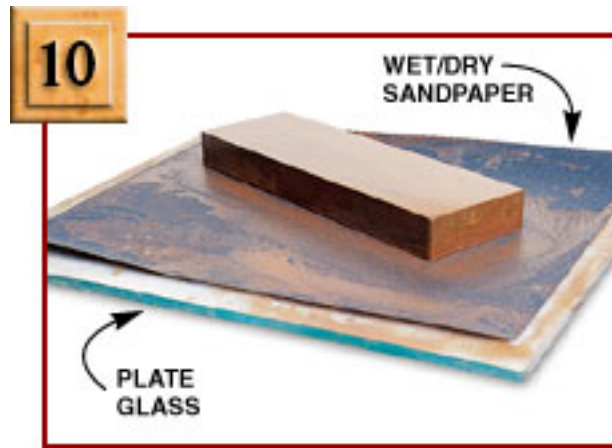
The edge left after filing a scraper is a little rough for fine work. Use a piece of wood to align the scraper when moving it against the stone and you'll retain the square edge you achieved with your file jig.

An extra-fine (1,200) diamond stone is a good choice for this because the scraper won't wear a groove in the stone. You can get one from Trend-lines, (800) 767-9999, Item # DM6E, \$45.



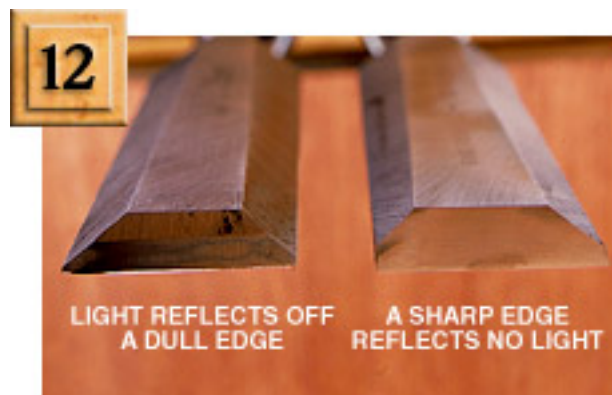
Flatten Blade Backs Fast

It would be great if chisels and planes



Keeping Waterstones Dead Flat

Waterstones are great for sharpening bench tools, but their soft binder makes them prone to dishing out and grooving. Fortunately, flattening them is no big deal. An 11 in. by 12-in. piece of 1/4-in. plate glass and a sheet of 180-grit wet/dry sandpaper provide a cheap, perfectly flat abrasive surface for flattening all your waterstones. The glass will cost you about six bucks (be sure to have the edges sanded) and the wet/dry sandpaper about 70 cents a sheet. Both are available at hardware stores. Use water to hold the paper on the glass and to flush away the slurry.



3 Ways to Test for Sharpness

1. If you can see light on the edge, it's not sharp. A sharp edge is too fine to reflect light.

came from the factory ready to use, but they don't. A perfectly flat, mirror-like finish on the back is essential for a truly sharp edge. Flattening always requires a large dose of elbow grease and patience. The fastest method is to use an extra-coarse diamond stone. It won't dish out the way oilstones and waterstones do and it can easily be clamped in a vise.

Once you have a flat surface, move on to finer stones until your chisels and planes shine like a mirror.

Extra-coarse diamond stones are available from Lee Valley & Veritas, (800) 871-8158, 8" x 2-5/8," Item #70M04.01, \$66.



2. A sharp edge catches easily on the side of a plastic pen barrel. A dull edge slides right off.

3. A sharp blade slices softwood end grain cleanly (left). A dull blade tears the end grain (right).



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FRAME & PANEL HOPE CHEST

Mortise and tenon joinery the easy way.

By Tom Caspar

I used to struggle with mortise and tenon joinery. I tried every new system that came along, but they all seemed way too complicated. One day a friend of a friend walked into my shop, said “Throw away those fancy jigs!” and showed me an elegant way to make these classic joints. This blanket chest is the ideal project to showcase this technique. One of the ways I used to get into trouble with joinery was to constantly measure everything. No more. Whenever possible, I use “the thing itself” to guide my cuts, especially in mortise and tenon work. That is, I use an object, not a ruler, to measure directly from one thing to another. Settle on the most important sizes first, make the pieces and then everything else falls into place.

You’ll see how fool-proof the system is in building this blanket chest. The design utilizes a form of frame and panel construction that goes back hundreds of years. This joinery has proved to be durable and reliable, so if you’re thinking of making an heirloom project, here’s one that will last many generations.



THE TENONS of this chest line up exactly with the grooves that hold the panels. This simplifies laying out the joints. Cut the grooves first and the rest naturally follows.

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HOPE CHEST

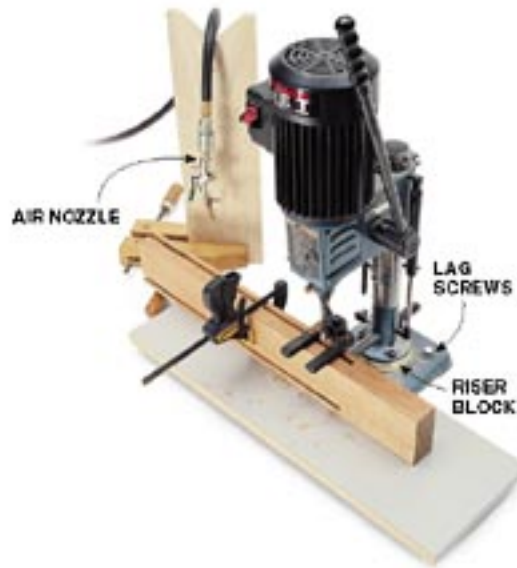
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TOOLS & MATERIALS

You should have some experience milling rough lumber straight and square before tackling this project. You'll need a jointer and a planer to prepare the wood, a carbide-tipped stack dado set to cut grooves and tenons and a miter gauge you can trust to make square cuts. I prefer a mortising machine for its speed and accuracy, but you can use a plunge router or a drill press to cut mortises.

You'll need three different thicknesses of rough hardwood. I used Pennsylvania cherry, which is easy to work and available in both rift and plain sawn boards (see [Sources](#)). The legs are made of 8/4 stock and require about 10 board feet of lumber. The rails and stiles come from 5/4 stock and you'll need about 30 board feet. I used the straight grain of rift-sawn wood in the legs, rails and stiles to offset the plain-sawn top and panels, which required about 20 board feet of 4/4 wood. I used about 12 board feet of white pine for the bottom boards and back panels partially for economy, but mainly because I like the smell. Using rift-sawn wood, the total lumber cost is about \$400.

Begin by milling all the legs and rails to thickness, width and length (see Cutting List). Be sure to cut the rails to their overall length, which includes both tenons. Mill the stiles to thickness and width, too, but leave them a bit long for now. Make a few extra short rails to use as test pieces down the road.



5 ways to soup up your Mortiser
These machines can cut accurate mortises incredibly fast. Here are some tips to make a good machine even better for any project:

- **Install a wider and longer support table.**
- **Fasten the machine to your workbench.**
- **Add a homemade riser block to the machine to accommodate wide legs and rails.**
- **Lock the work in place with a quick-action clamp.**
- **Blow out the chips with compressed air.**

Cutting List

Part	Qty.	Name	Material	Dimensions	Comments
A	1	TOP	4/4 Cherry	13/16 x 19 x 48	
B	4	LEGS	8/4 Cherry	1 ³ / ₄ x 3 ³ / ₄ x 25 ³ / ₄	
C	2	TOP LONG RAILS	5/4 Cherry	1 x 3 ³ / ₄ x 40-7/8	Tenon Length 1-1/8" Between Shoulder 38-5/8"
D	2	BOTTOM LONG RAILS	5/4 Cherry	1 x 4 ¹ / ₂ x 40-7/8	Tenon Length 1-1/8" Between Shoulder 38-5/8"
E	2	TOP SHORT RAILS	5/4 Cherry	1 x 3 ³ / ₄ x 16 ³ / ₄	Tenon Length 1-1/8" Between Shoulder 14 ¹ / ₂ "
F	2	BOTTOM SHORT RAILS	5/4 Cherry	1 x 4 ¹ / ₂ x 16 ³ / ₄	Tenon Length 1-1/8" Between Shoulder 14 ¹ / ₂ "
G	4	STILES	5/4 Cherry	1 x 3 ³ / ₄ x 14 ¹ / ₂	Tenon Length ³ / ₄ " Between Shoulder 13"
H	3	FRONT PANELS	4/4 Cherry	5/8 x 11-1/16 x 13-11/16	OPENING IS 10-3/8"W 13"L
J	3	BACK PANELS	4/4 Pine	5/8 x 11-1/16 x 13-11/16	
K	2	SIDE PANELS	4/4 Cherry	5/8 x 15-3/16 x 13-11/16	OPENING IS 14 ¹ / ₂ "W 13"L
L	1	BOTTOM	4/4 Pine	³ / ₄ x 6 x 44-13/16	OVERALL WIDTH OF BOTTOM IS 16-11/16"W, TONGUE AND GROOVE IS 3/8" DEEP
M	1	BOTTOM	4/4 Pine	³ / ₄ x 5-11/16 x 44-13/16	
N	1	BOTTOM	4/4 Pine	³ / ₄ x 5-5/8 x 44-13/16	

HARDWARE

2	HINGES	BRASS	2"H x 1½" OPEN WIDTH
1	DOWEL ROD	CHERRY	3/8"DIA. 24"L
2	LID SUPPORTS		

SOURCES

LUMBER:

Pennsylvania cherry: Groff and Groff
Lumber, (717) 284-0001

Cherry dowel rod, #50B02; \$1.50:
Woodcraft Supply, (800) 225-1153

Router bits, 1/2-in. shank size:
3/4-in. dia. Round-nose, #747; \$17
Round-over, #655; \$17
Tongue and groove, #7844; \$40:
MLCS, (800) 533-9298

HARDWARE:

Hinges: 01B01.07; \$22/pr.
Lid Support: 03K20.06; \$4:
Lee Valley, (800) 871-8158
(Be sure to ask for installation
instructions.)

Tools:

Flush-cutting saw, #126296; \$16:
Woodcraft Supply, (800) 225-1153

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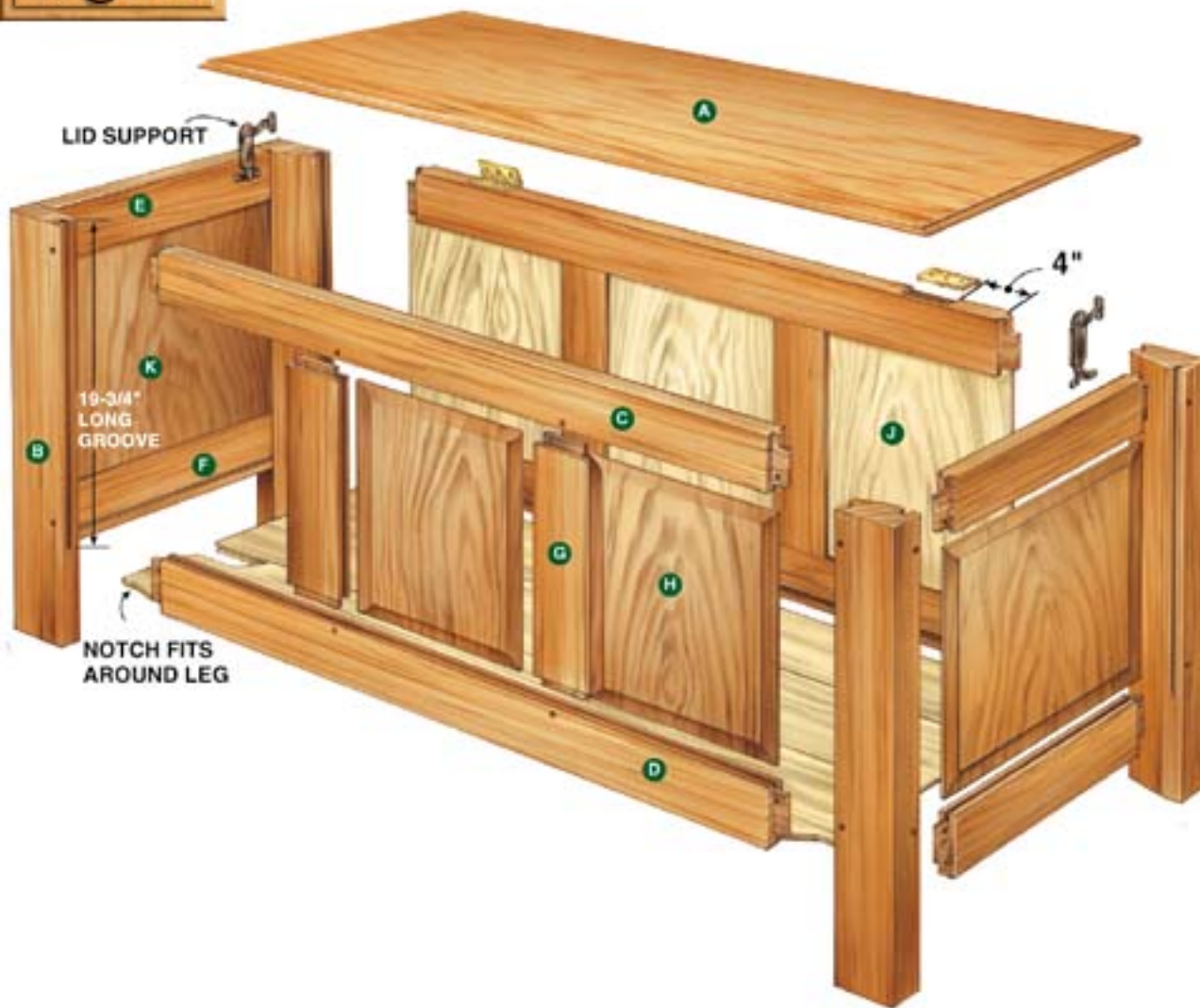
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EXPLODED VIEW OF HOPE CHEST

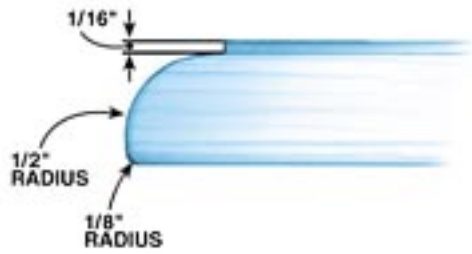
26½”H 48½”L 18¾”D

Fig. A



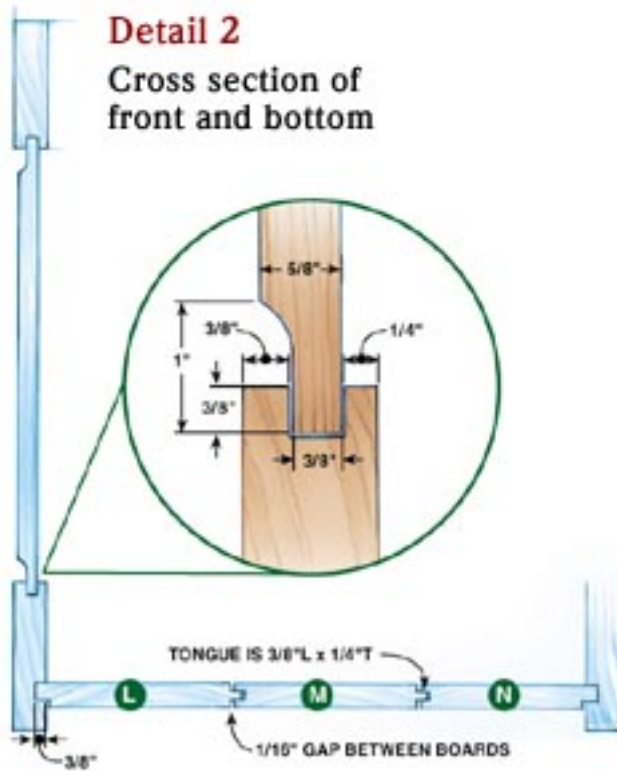
Detail 1

Elevation of top



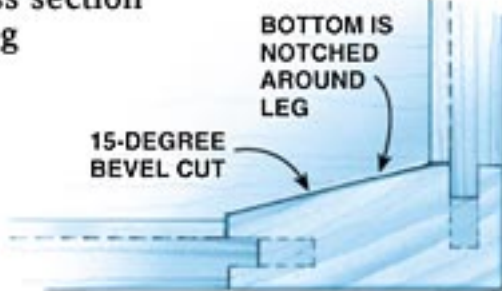
Detail 2

Cross section of front and bottom



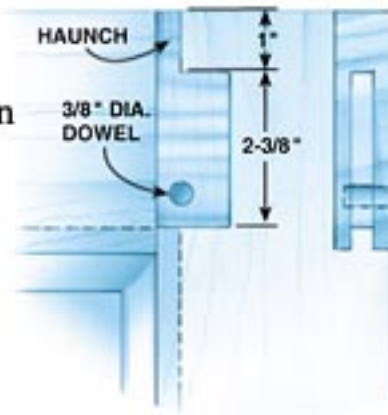
Detail 3

Cross section of leg



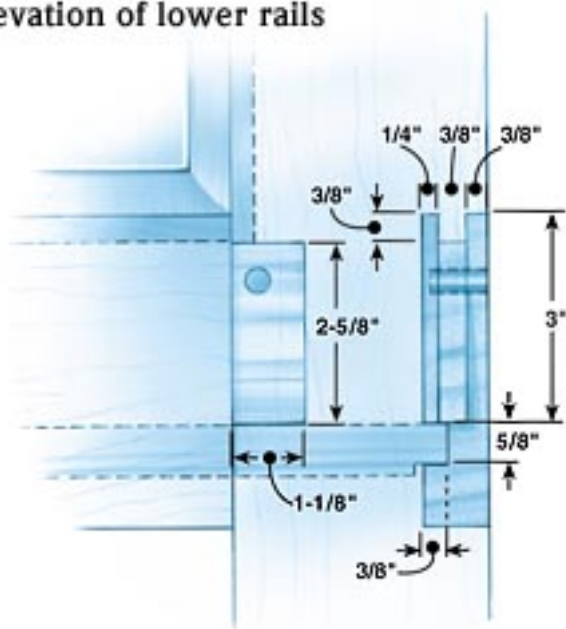
Detail 4

Front and side elevation of top rails



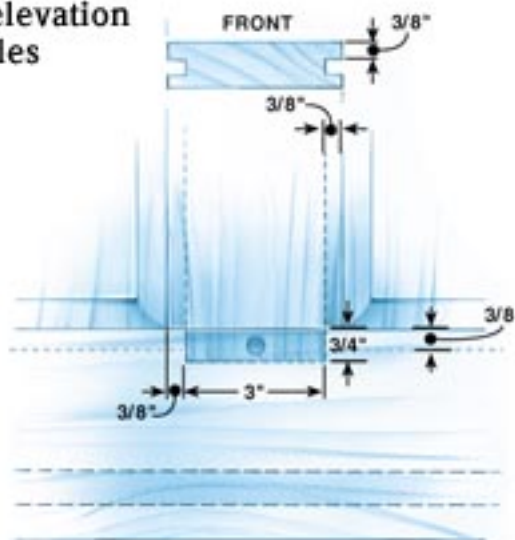
Detail 5

Front and side elevation of lower rails



Detail 6

Cross section and elevation of stiles



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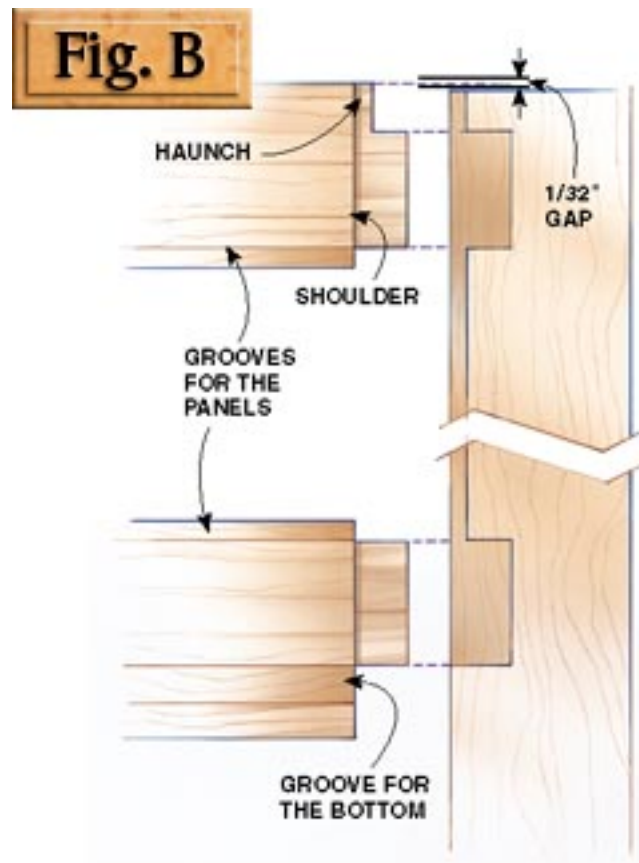
THE GROOVES

I've learned the hard way that it's best to make the mortises first, then size the tenons to fit them. Begin mortising by making the grooves, because they define the sides of the mortises. In addition, the depth of the grooves defines one end of the mortises (see [Fig. B](#)). Notice how the bottom of the groove becomes the edge of a tenon ([see photo](#)). In this project, the groove is "the thing itself" that'll guide your cuts.

Make the grooves on the tablesaw with a dado set. It's a simple set-up: the groove is 3/8-in. wide, 3/8-in. deep and 3/8-in. wide from the fence ([Fig. A, Detail 2](#)). Mark the face side of each piece before you begin to cut. The face side always goes up against the fence. Groove one edge of all the rails, including the test pieces, and both edges of the stiles.

Cut one stopped groove in each leg ([Photo 1](#)). You'll have to limit the length of the groove because it stops at the bottom edge of the lower mortise ([Fig. A](#)). Clamp a stop block to a long auxiliary fence board.

Reset the fence to the left side of the saw blade to cut the other groove in each leg. Use one of the legs as a measuring tool to position the fence. Unplug the saw, nestle the grooved edge of a leg right on top of the dado set (face side pointing to the left) and snug up the fence. Run the other face of each leg up against the fence when you cut the groove ([Photo 2](#)).



LEG AND RAIL JOINTS

These grooves define the width of both the tenon and the mortise. The haunch is the part of a tenon that fills in the groove.

Next, cut the wider groove that holds the bottom in place ([Fig. A, Detail 5](#)). It will become the lower edge of a tenon. Use the top of the rail as your reference edge. The tenons on these lower rails fit exactly between the two kinds of grooves you've made ([Fig. B](#)).

THE MORTISES

Deepening parts of the grooves creates the mortises. Where exactly do the mortises go? Pick up any rail and you've got the information right in your hand.

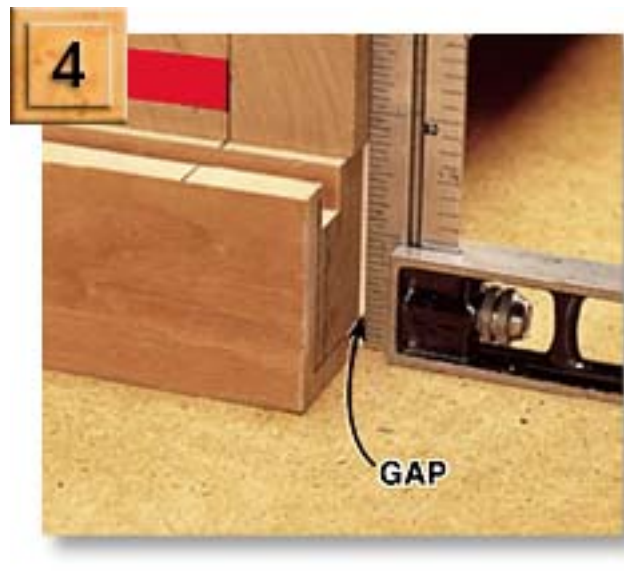
Lay the top rail on a leg and you'll be using "the thing itself" ([Photo 3](#)). Place the rail so it barely hangs over the leg ([Photo 4](#)). Just follow the lines down from the grooves ([Fig. B](#)). Cut a piece of wood the length of the panel opening ([Cutting List](#)) to precisely position the lower rail.

Once you've marked one leg, clamp all the legs together and transfer the mortise marks from the first leg to the others. Make the mortises 1/8-in. deeper than the length of the tenons ([Photo 5](#)).



THE GROOVE'S THE THING. Its size and location determine where the mortises will go, so here's the place to start.

SAW ONE STOPPED GROOVE in each leg with a dado set. The end of the leg is marked with lines identifying the two face sides. Put the face side against the fence. Re-set the fence to the other side of the saw blade to cut the second groove.



PUT AWAY YOUR RULER and lay out the mortises directly from the rails. This is much easier and more accurate than using a bunch of numbers. Sketch in the tenon on the end of the rail and extend lines down onto the leg. To position the bottom rail, make a spacer that's the exact length of the panel opening and place it between the rails.

THE TOP RAIL should extend about 1/32-in. above the leg. This makes your life a whole lot easier because after glue-up you are able to plane the rail to meet the leg, rather than trying to plane the end grain of the leg.



MORTISE THE LEGS. A mortising machine with a tuned-up bit and chisel makes short work of these deep mortises. The groove locks in the chisel, producing a mortise with perfectly straight walls.

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THE TENONS

Having made the mortises, cut the tenons to fit them. You won't have to measure. Simply use the parts you've got so far. To get started, install the dado set with all its chippers and raise the blade the height of the outer wall of the groove ([Photo 6](#)). This is the same distance as the tenon's shoulder, because this is a flush joint.

Try this dado setting on a test piece ([Photo 7](#)). Adjust the height of the dado set until the face of the tenon is exactly in line with the groove ([Photo 8](#)). Then cut both ends of all the long and short rails. You'll be revisiting this setting later, so improvise a simple paper indicator to record it ([Photo 9](#)).

Cutting the opposite face of the tenon requires lowering the dado set. Leave the fence where it is. Place a rail with its face side up next to the blade. Lower the blade until it lines up with the bottom wall of the groove, just as you did before. Cut a test piece and try it in the mortise ([Photo 10](#)). This is a finicky setting, so it will take a number of attempts to get it right. Record this blade height, too.

Saw each haunch on the bandsaw ([Photo 11](#)). Lay it out directly from the mortise ([Fig. A, Detail 3](#)). The haunch serves three purposes: It fills in the groove; adds more gluing surface; and widens the tenon to fight racking of the case. It's great. I use a haunched joint in table legs, too.

Finish the legs by beveling the inside



SET THE DADO BLADE HEIGHT for cutting the tenons. It should be even with the groove in a leg. Fine-tune the setting by trial and error. It's best to start out low and work your way up.

corners ([Fig. A, Detail 3](#)). Tilt the blade away from the fence at a 15-degree angle. Clean up the saw marks on the jointer.



CUT A CHEEK on the face side of a test piece. Set the saw's fence to the length of the tenon. Take two passes across the tenon's face to remove all of the waste. Make sure the end of the rail is tight against the fence during the second pass.

CHECK THE ACCURACY of your cut by holding a tight-fitting stick of wood in the groove. Run your finger across the tenon and stick. They should be perfectly even.

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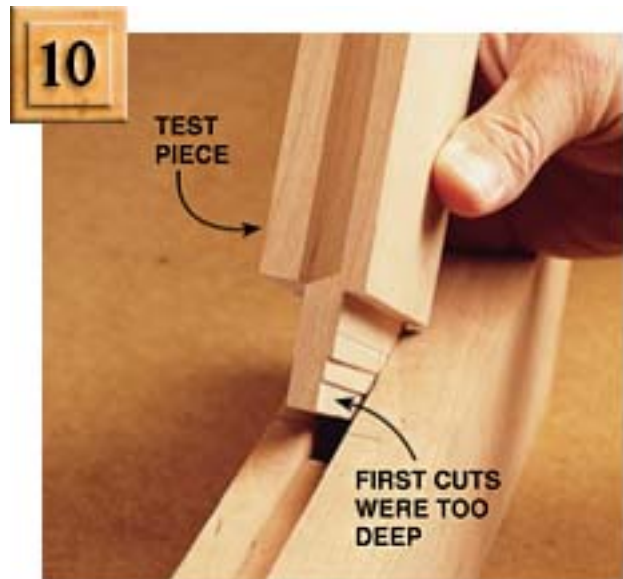
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THE TENONS (CONT.)



SAVE THIS SETTING! You'll need it for cutting tenons on the stiles. Mark the position of your hand wheel to record the height of the dado set. Then lower the dado set and cut the back side of each tenon.



SIZE THE TENON by inserting the test piece into the mortise. If it takes a mallet to get the tenon into the mortise, the fit is too tight. If the tenon drops into the mortise with ease, it's too loose. The correct fit is somewhere in between. Adjust the height of the dado blade to find that fit, then cut the back side of all the tenons.



BANDSAW THE NOTCH that forms the haunch. A fence helps keep the cut straight, but you can also cut freehand, following a pencil line. Clamp a board onto the fence and raise it above the bandsaw's table. When the waste piece falls out of the notch, it will slide underneath the board and won't get trapped between the blade and the fence.



OOPS!

We accidentally cut off the haunch on one tenon. Here's an easy fix: You can insert a new one! Cut a dado right in line with the tenon and glue in another haunch.

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THE STILES
& PANELS

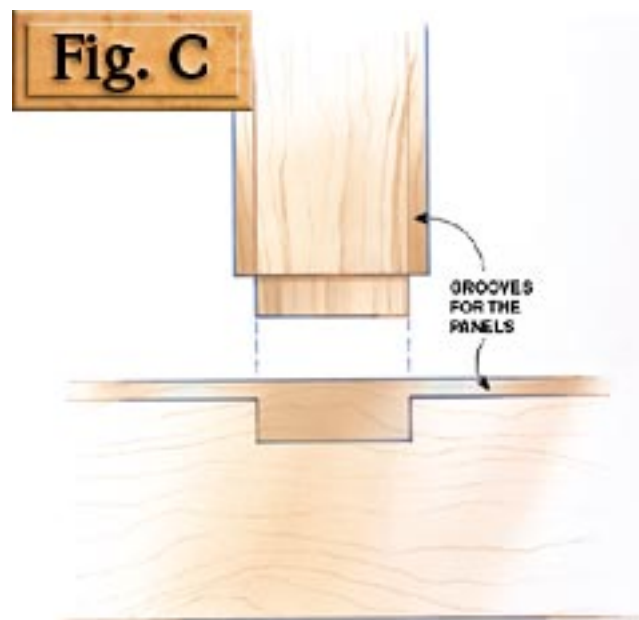
There's one more fussy operation to do, and that's fitting the stiles between the rails. You might think this is asking for trouble, but it only takes a minor adjustment of your fence to get it right.

The first thing to figure out is the exact length of the stile, which includes two tenons. Assemble the front of the chest, without glue, by clamping together two long rails and two legs. Measure the opening and add the length of the two tenons ([Fig. A, Detail 6](#)). You can do this without a ruler by marking directly on a stile.

Cutting the opposite face of the tenon requires lowering the dado set. Leave the fence where it is. Place a rail with its face side up next to the blade. Lower the blade until it lines up with the bottom wall of the groove, just as you did before. Cut a test piece and try it in the mortise ([Photo 10](#)). This is a finicky setting, so it will take a number of attempts to get it right. Record this blade height, too.

Cut all the stiles to length. Then cut a complete tenon on one end of each stile. Because you recorded the two heights of the dado set to make a tenon, this should be easy. If you use all the dado chippers, add a wooden face to your fence.

Fit the stiles to the opening when you cut the tenons on the other end. You can fine-tune the stile's length between its

**JOINTS BETWEEN STILE AND RAIL**

This tenon is captured between two grooves.

shoulders by moving the saw's fence.

Now you can precisely mark the mortises directly from the tenons ([Fig. C](#) and [Photo 12](#)). Take the front apart and make three spacers the width of the panel openings. Mark alongside the tenons on one rail, then clamp all the rails together and transfer these marks across them. Cut the mortises.

You can size the panels by another method of direct measurement using "pinch sticks" ([Photo 13](#)). They're two narrow sticks, each a bit shorter than the opening. Reassemble the front with the stiles in place. Butt one end of each stick into opposite grooves and pinch them together with a small spring clamp. Wiggle the pinch sticks out of the opening and you've got another "thing itself."

Cut the panels 1/16-in. smaller in width and height than the length of the pinch sticks. Shape the panels with a 3/4-in.-dia. round-nose bit on a router table equipped with a tall fence ([Fig. A, Detail 2](#)). Also see AW #73, p. 39 for more information on raising panels and Sources, at right for the bit). Sand and apply a finish to the outside of the panels before you glue up the case.

THE TOP & BOTTOM

The bottom is notched around the legs. Don't mess around with measuring angles to make the notches. Here's a direct method:

Put the whole chest together without glue to figure out exactly how big the bottom

needs to be. Measure from the bottom of one groove to the opposite groove as you did for the panels. Make the bottom from three loose boards connected by tongue and groove joints (Fig. A, Detail 2). Cut the bottom boards to length and width, put them together on a flat surface and place the chest on top of them. Scribe around the legs onto the bottom, remove the bottom from under the chest and cut out a notch in each corner on the bandsaw (Fig. A).

Glue up the top and cut it to fit the chest. Rout a molding on the front edge and ends, but not the back (Fig. A, Detail 1).



LAY OUT THE MORTISES in the long rail directly from the stiles. Cut spacers that are the width of the panel opening and place them between the stiles. Then draw a pencil line along the side of each tenon.



PINCH STICKS DIRECTLY MEASURE the size of the panels. Misreading a ruler can get you in trouble, but these sticks are always accurate.

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ASSEMBLY

Glue up the front and back. Plane down the top rails so they're even with the legs ([Photo 14](#)). Cut the double-deep mortises for the hinges on the back rail ([Fig. D](#)). Set in the dowel pins and cut them off flush ([Photo 15](#)). Plane, scrape or sand all the joints flush.

Glue up the entire case ([Photo 16](#)). Plane the top of the side rails even with the legs. To install the hinges, lay the case on its back supported by boards that are the same thickness as the top. Butt the top up to the back rail and mark the positions of the hinges ([Photo 17](#)). Install the top and add spring-loaded lid supports (see [Sources](#), below) to prevent the top from squashing a kid's fingers as it closes.

Cherry naturally darkens with age, especially under a thin finish. Patience, rather than stain, will yield the best results. If you oil your chest it will turn a beautiful deep color in a year or two. You can leave the interior of your chest unfinished, or use shellac or wax to avoid unpleasant odors.



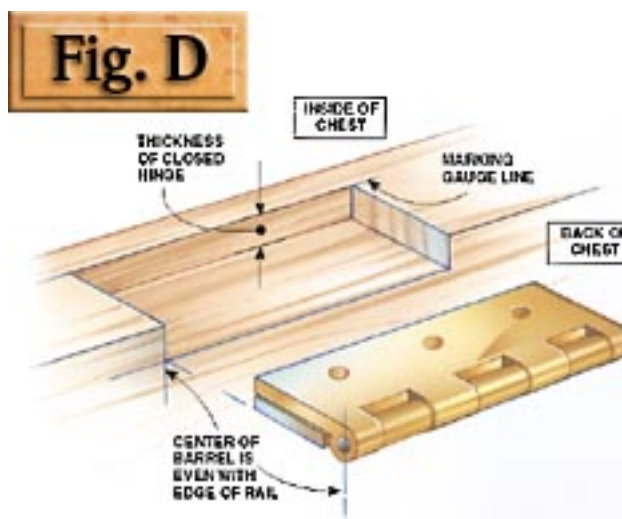
PLANE THE TOP RAIL flush with the leg after you glue up the chest's front and the back. This beats planing down the end of a leg to meet a rail!



CUT OFF THE DOWEL PINS that lock the joints with a Japanese-style flush-cutting saw (see [Sources](#), below). Its teeth have no set, so they won't cut into the wood around the pins. Glue the pins in the front and back assemblies and saw them flush before you glue up the entire case.



SLIP IN THE BOTTOM BOARDS during the final glue up. They fit in a groove that goes all the way around the inside of the chest. Tongue and groove joints hold the boards together so you don't have to glue them to each other.



POSITION THE HINGES on the top and mark the screw holes with an awl. Each hinge sits snugly in a mortise that's as deep as the thickness of a doubled-over hinge, so there's no need to mortise the top.

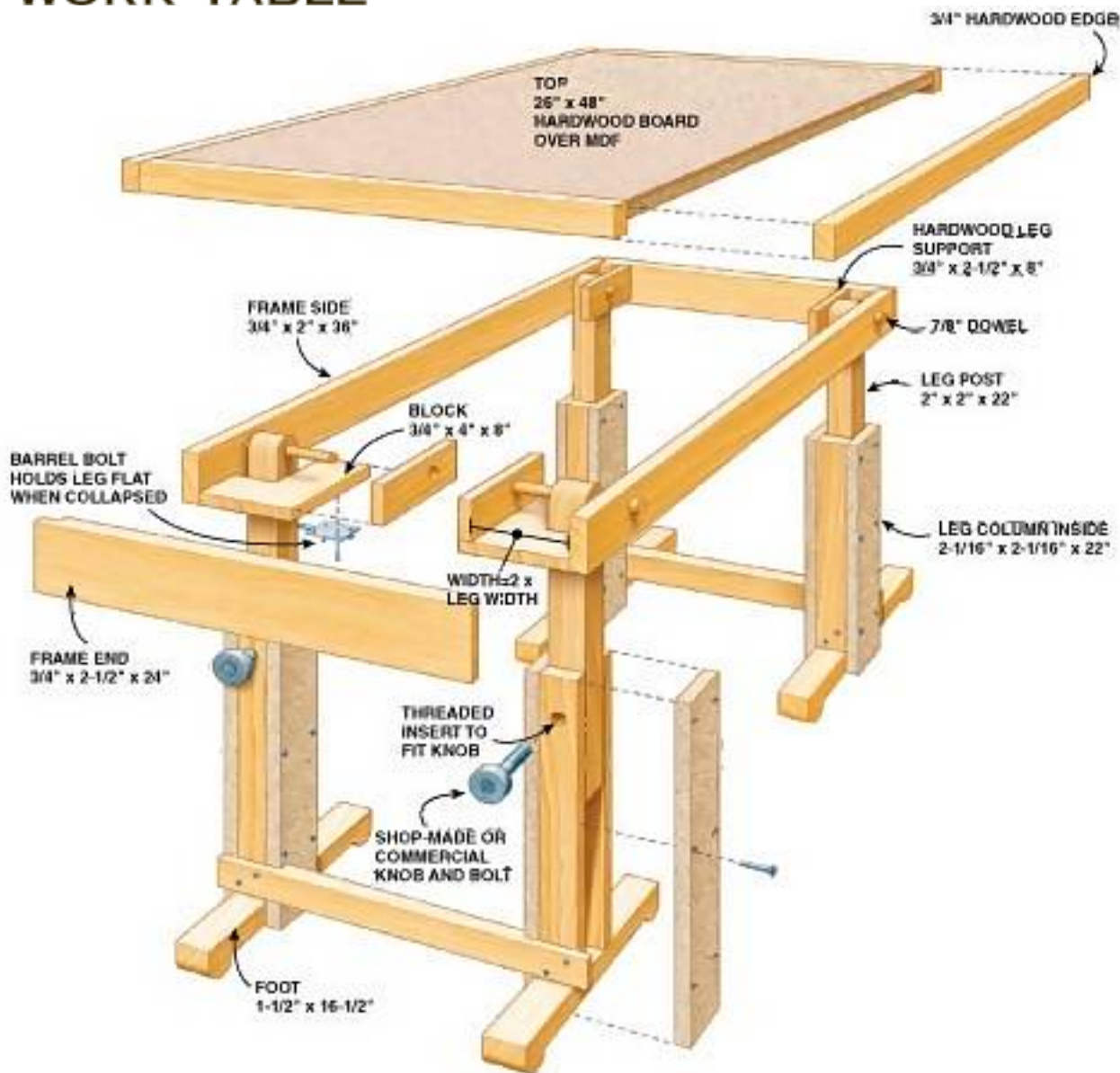
**DETAIL OF HINGE MORTISE
The mortise is as deep as a closed hinge.**

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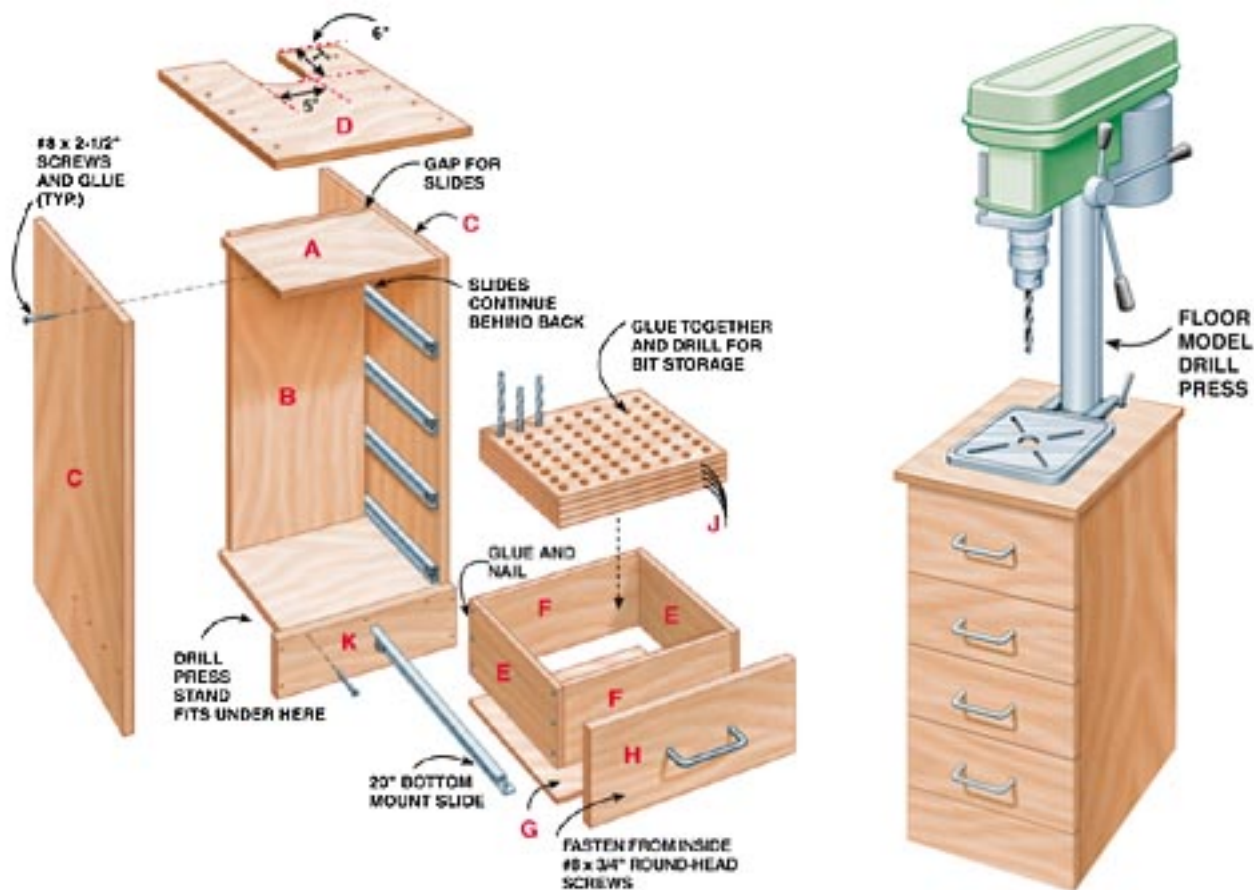
COLLAPSIBLE WORK TABLE



Every shop needs a work table or two. In cramped shops, it's great to have the table the right height for assembly, as well as infeed and outfeed support for power tools. Here's a unit that has adjustable height, compensates for uneven floors, and even stores easily. Much of it can be made from scrap hardwood that's lying around your shop.

This shop solution was submitted by Michael and Christine Powell, Bellingham, Wash.

DRILL PRESS CABINET



Turn wasted space into storage space.

In my cramped little shop, every square foot counts. With that in mind I designed this cabinet to fit in the wasted space under the table of my floor-model drill press. The top drawer holds (vertically) all the twist bits and brad-point bits a person could ever accumulate, and the lower drawers hold sanding drums, spade bits (horizontally), plug cutters and all the rest of the drill press paraphernalia. If you ever need to drill into something 4-ft. thick, the cabinet slides out easily.

I based the design on the “Roll-Around Shop Cabinet” that appeared in AW #72, p. 79. An important feature of this cabinet is the drawers that have extra-long slides to give you full-extension. I sized my cabinet to fit my Delta 17-in. drill press, model 17-900 and made it all from birch plywood. The total cost was \$75.

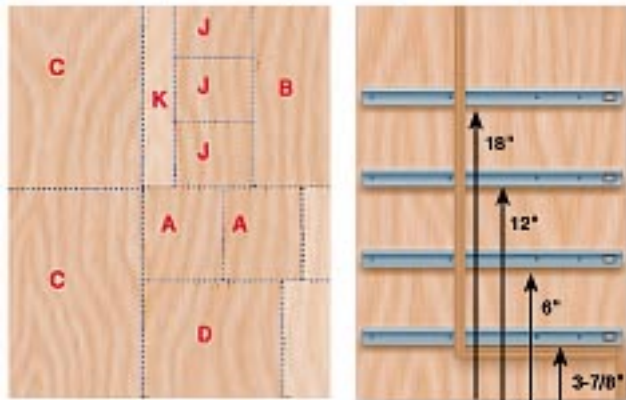
To build the cabinet, cut all parts, including the top cutout. Then screw and glue parts A and B. Screw on the sides, then attach slides and top. Nail and glue together the drawer boxes, then nail on the bottoms to square them up. Now attach the slides and install them in the cabinet. Using double-stick tape, attach the drawer fronts so there is a uniform gap all around. Screw on the fronts, attach pulls and bingo, you’ve got storage space.

Submitted by Jean Bartholome, Dundas, South Dakota.

CUTTING LIST

Overall Dimensions: 151/2" x 21" D x 32" H

PART	NAME	QTY	DIMENSIONS
A	Inner brace	2	3/4" x 14" x 12"
B	Back	1	3/4" x 11-1/2" x 28-1/4"
C	Side	2	3/4" x 20" x 31-1/4"
D	Top	1	3/4" x 17-1/2" x 21"
E	Drawer side	8	1/2" x (7, 5, 5, 5)** x 11"
F	Drawer end	8	1/2" x (7, 5, 5, 5)** x 12"
G	Drawer bottom	4	1/4" x 11" x 13"
H	Drawer front	4	1/2" x (8, 6, 6, 6)** x 15-1/2"
J	Bit rack	4	3/4" x 11-3/4" x 9-3/4"
K	Toe-kick	4	3 7/8" x 15-1/2"



All parts plywood or MDF

*Four drawers are required: three smaller ones and one larger one.

MATERIALS LIST

3/4" Birch plywood or MDF 63" x 48"

1/2" Birch plywood or MDF 62" x 27"

1/4" Birch plywood or MDF 14" x 45"

HARDWARE

Eight 20" single-extension bottom-mount drawer slides; e.g. Alfit 878-197; \$6.25/pr. from Woodworker's Supply (800) 645-9292.

2-1/2" utility screws, brads, four drawer pulls, eight #8 x 1" round-head screws