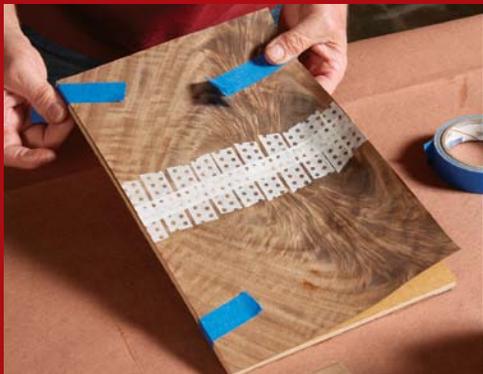


# Build an Heirloom

Book-matched veneered top makes this simple box shine



**LEARN HOW TO VENEER A PANEL  
IN THIS ISSUE'S MASTER CLASS, P. 82**



# Box

BY BOB VAN DYKE

**B**oxes are a great place to practice and hone new skills. The materials won't break the bank and you can spend as much or as little time on them as you want. This box project is a great example. With it, you can hone your dovetail skills and learn to cut tongue-and-grooves at the router table. It will also introduce you to working with veneers and bandings, two details that really bring the piece to life.

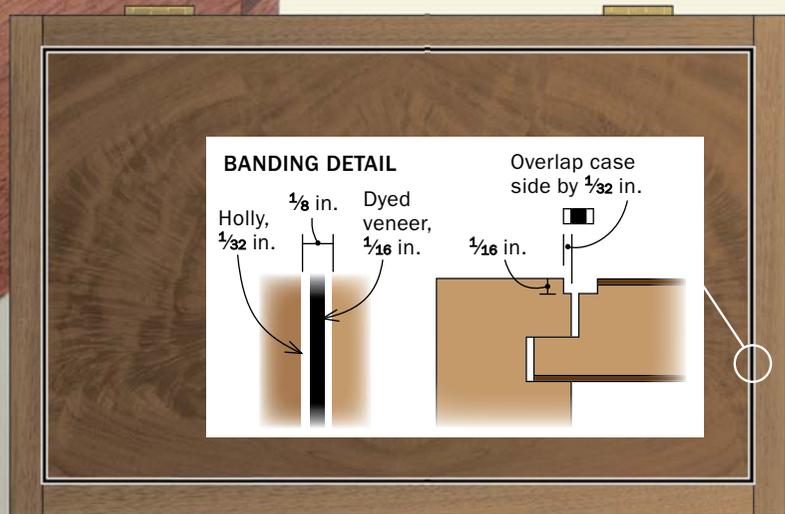
I chose walnut for the case to complement some spectacular walnut crotch veneer I had. Using that veneer for a simple book-match gave me a dramatic-looking panel for the top. Banding frames the veneer beautifully and a pine liner adds a bright, contrasting interior. I'll guide you through putting the box together and show

you some tips for getting the most out of this small project.

## Lay out dovetails around the grooves

The case for this box appears to be of basic dovetail construction, but because the top will be sawn off later at the tablesaw, you must provide for the sawkerf when laying it out.

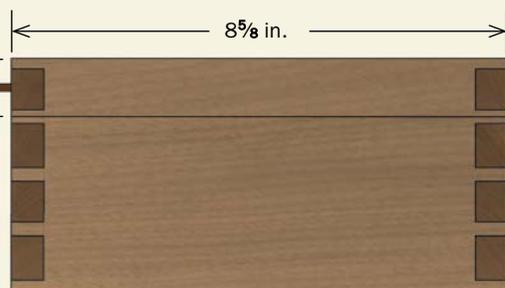
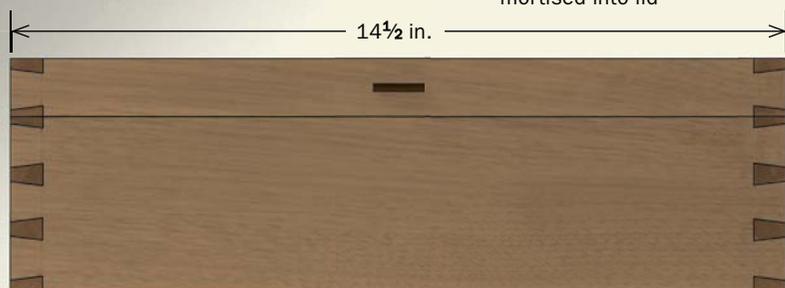
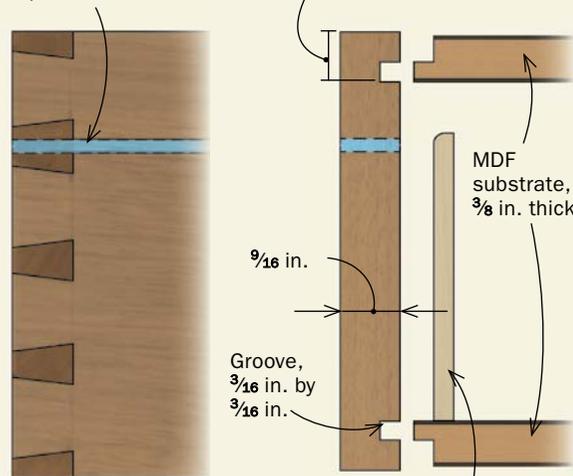
Start by flattening, planing, and cutting the stock to dimension. When laying out the dovetails, be sure to space them so that the tablesaw cut that will separate the top from the bottom falls in the center of a pin. Make that pin extra wide to accommodate the sawkerf. After cutting the dovetails, dry-fit and surface the top and bottom edges with a smoothing plane, taking extra



Pull, ebony,  $\frac{1}{8}$  in. thick by  $\frac{3}{8}$  in. wide by  $\frac{7}{8}$  in. long, mortised into lid

Add  $\frac{1}{8}$  in. to this pin for the sawkerf that will split the box later.

Distance to bottom of groove is thickness of panel plus  $\frac{1}{32}$  in.



# Dovetail the sides

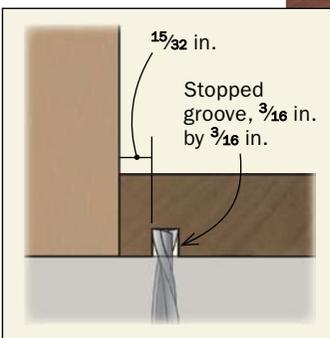
**Cut the dovetails.** Van Dyke cuts his dovetails at the tablesaw and cleans them up with a chisel. The extra space between the far right tails makes up for the kerf that will be removed later when the box is split.



**Level the edges.** With the case dry-assembled, use a smoothing plane to make sure the top and bottom edges are smooth and parallel.



**Rout the panel grooves.** The stopped grooves for the top and bottom panels are cut at the router table. Use stop blocks to control the plunge cut and to avoid routing through the tails.



care to keep them parallel. This is key, to ensure the grooves that come later are not misaligned.

## Rout the rabbets and grooves

The veneered top and bottom panels are rabbeted to fit grooves cut into the inside face of each side. Because the distance from the groove to the top edge depends on the thickness of the panel, the panel has to be made first (see Master Class on p. 82 to learn how I make a veneered panel).

To locate the groove, measure the thickness of the panel and add  $\frac{1}{32}$  in. That extra  $\frac{1}{32}$  in. will leave the solid-wood sides proud of the top, which makes it easier to level the two surfaces later. If the panel were flush with or proud of the edges, trying to level the two could destroy the thin veneer. The grooves must be stopped or they will show. To make these plunging stopped cuts safely, I use the router table with a fence and stop blocks. Square up the ends with a chisel.

With the grooves cut, dry-fit the case again and measure the inside dimensions to get the length and width of the two panels. Add  $\frac{3}{16}$  in. to each dimension to allow for the tongue that will fit in the groove.

## Fit the panels to the grooves

Now cut the top and bottom panels to size. Make sure to center the veneer seam perfectly when you cut the top. With the panels cut to size, rout the tongue around their edges (you're essentially cutting a rabbet). I cut the tongue at the router table using a  $\frac{3}{4}$ -in.-dia. spiral

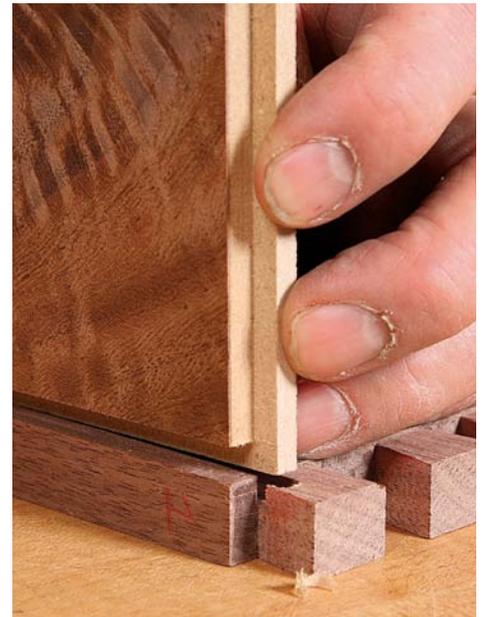
## Fit the panel



**Score before routing.** Use a cutting gauge to score the show side of the panel. This will help avoid any tearout in the veneer while routing the rabbet.



**Rabbet it.** To make the tongue on the panel, you need to cut a rabbet all around. Use a router table and a  $\frac{3}{4}$ -in.-dia. spiral bit for this cut.



**Check the fit.** The panel must have a tight, friction fit in the groove. The top edge of the side will be just proud of the panel. The sides will be flushed to the panel later.

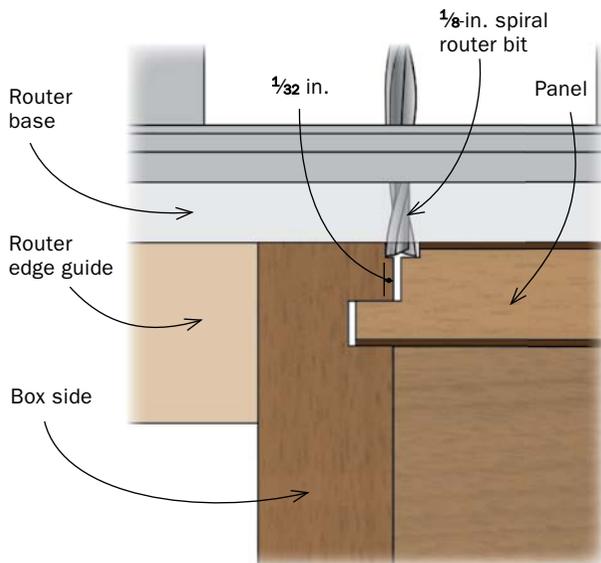
## Assemble the case



**Softwood cauls are key.** Van Dyke uses soft pine cauls placed directly over the tails to protect the box as clamping pressure is applied (left). The softwood will indent around the pins, applying pressure directly on the tails. With the box glued up and dry, rout the sides flush with the top panel (above) using a bearing-guided, flush-trimming bit at the router table.

# Add the banding

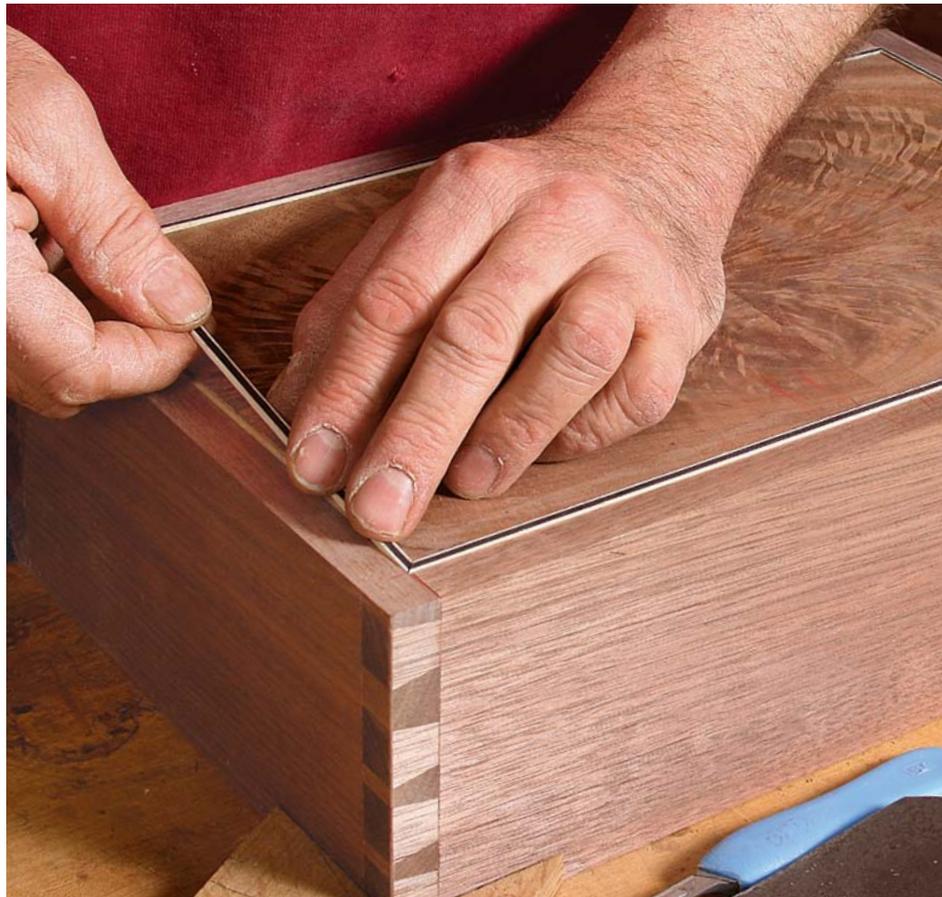
**Two-pass routing.** After making the banding, rout the groove for it in two steps. The first cut establishes the exterior edge and must fall at least  $\frac{1}{32}$  in. on the walnut sides to provide support for the banding. The second cut establishes the interior edge.



**Keep things square.** Once the routing is done, use a chisel to square up the corners of the groove.



**Simple means of mitering.** A wooden jig allows miters to be cut with a sharp chisel and a steady hand. A wide chisel and a thin strip of wood keep the banding pressed firmly to the block, providing pinpoint accuracy.



**Dry-fit first.** To avoid glue-up mishaps, it's important to check the banding's fit before getting the glue. Remove the banding by carefully lifting out the corners with the tip of a marking knife.

bit. Use an offcut from the panel to set up the cut. Once the test piece fits, cut the tongue on the real panels. To prevent the show veneer from chipping during routing, I score a line in the veneer with a sharp cutting gauge. I set the gauge to the width of the rabbet in the test piece. After scoring the lines, rout the rabbet all the way around the show face of both panels.

### Test-fit and glue-up

Test-fitting the panels gives you the chance to adjust the fit with a shoulder plane if need be and develop a sound strategy for glue-up, which is always slightly nerve-wracking. When dry-fitting the box, don't put the top and the bottom in at the same time or you might not get the box apart again without hammering.

Do your final surface-prep on all parts and glue up the box, including the top and bottom panels, which don't float. I suggest liquid hide glue for this project because it offers a longer open time and it lets the top and bottom panels slide around in their grooves for adjustment. Yellow glue swells the joints and grabs too quickly. After the glue has dried, level the dovetails using a handplane and then set up a bearing-guided, flush-trimming bit in the router table to level the solid-wood sides that were left proud of the veneered surface.

### Banding adds flair, hides gaps

The visible seam between the solid-wood sides and the panel will disappear when you install the decorative banding around the panel. Any banding will work, but I recommend learning to make your own following the simple techniques Steve Latta used

in "Federal Details Transform a Simple Table" (*FWW* #246, p. 67). Set up a trim router to cut the groove for the banding.

Set the depth of cut so the banding sits just a little proud when it's glued in. Position the fence for the first pass so that the bit cuts about  $\frac{1}{32}$ -in. into the solid-wood sides and the rest into the veneered top. The second, fitting cut will lie in the veneer surface only. To prevent chipout, I set a cutting gauge to the outside of this final cut and score a line all the way around the top of the box, exactly where the router will be cutting. Test the settings for both the cutting gauge and router on a scrap to be sure the thickness of the groove and its distance from the edge of the work and the outside edge of the banding groove are dialed in correctly. Once I'm satisfied with the banding's fit in the test piece, I rout both passes on the box itself and get ready to install the banding.

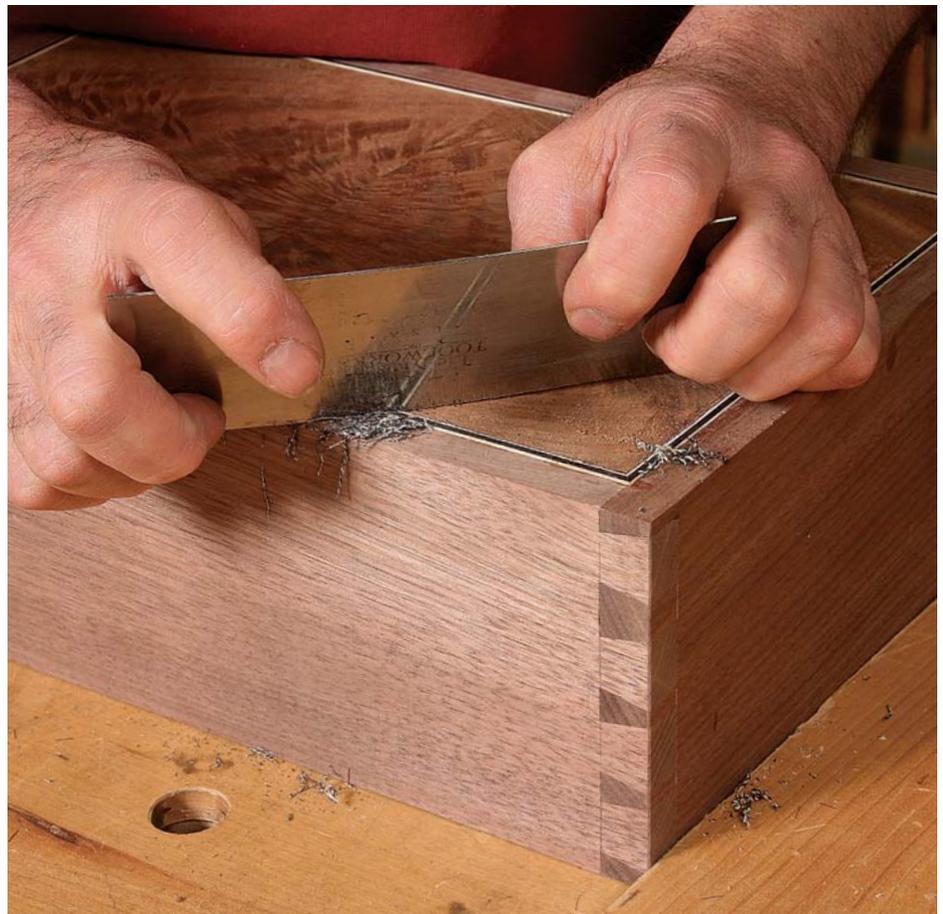
The banding pieces are mitered. Rather than overcomplicate this, I use a sharp chisel and a miter block to get accurate joints. Miter the banding strips all the way around the box. To ensure tight miters, I leave each piece a little long so there is a very slight belly in the banding when I install it. When the banding is pushed into its groove, that little bit of extra length will push into the miter, ensuring a tight fit. When it fits perfectly, glue in the banding with liquid hide glue in the order it was fitted. After the glue is dry, level the banding with a card scraper. Now it's time to open up the box.

### Separate the top and add hinges

There are many ways to cut the lid off a box. I use the tablesaw, because it leaves fewer blade marks to clean up. I use a thin-kerf blade set a little higher than the thickness of the box sides. I set



**Burnish and level the banding.** After applying glue to the groove and installing the banding sections, work the belly out of the banding with the back of a chisel (above), smoothing from the center toward each miter. This pressure will close up the miters for a seamless joint. After the glue dries, a card scraper makes quick work of leveling the proud banding with the rest of the box top (right) without harming the book-matched panel.



## Cut away the lid



**Off with the top.** Van Dyke prefers using the tablesaw to remove the lid because it leaves behind a clean, square surface (above). Once three of the four sides are sawn, place a spacer whose thickness matches the blade width halfway down (right). Squeeze the top side of the box as it passes the blade. When the cut is complete, the lid will pop off the bottom.



the fence so the blade will cut right in the middle of the wide pin near the top. Before I make the cuts, I make a wood spacer a little longer than the length of the box and a hair thinner than the width of the kerf the sawblade will make.

Cut three faces of the box. Before cutting the last, put the spacer into the kerf about halfway down the box. Because the lid is squeezed during the last cut, as soon as it's free the spacer forms a fulcrum point and the top snaps out of the way of the blade, preventing any scarring from the blade's teeth.

Clean up any sawmarks with a handplane or card scraper and then lap the edges on sandpaper glued to a piece of glass to make the mating surfaces flat and straight. This will ensure that there are no gaps when the lid and base are put together.

I prefer the stop hinges from Brusso. They hold the top at a slight angle past vertical and are an excellent quality. Take extreme care to mortise accurately for the hinges. Sloppy hinge installation will skew the top when the box is closed.

A mitered wood liner finishes off the inside of the box. I use  $\frac{3}{16}$ -in.-thick pine and rip the stock about  $\frac{1}{4}$ -in. wider than the depth of the box. The liners are not glued, but held in place by a friction fit. Once they're fitted, round over the outside top edge with a small roundover bit buried in a router table fence. This way the fragile mitered ends don't get damaged.

The finish is up to you, but I find that these boxes are a perfect place to learn or practice traditional French-polishing techniques with shellac. After a final rubout, your box is ready to hold any number of treasures. □

*Bob Van Dyke is the director of the Connecticut Valley School of Woodworking.*



**Hinges and liner.** Brusso brass hinges and a mitered pine liner finish off the box. The liner is held in by a friction fit and left unglued.