



Designing With Grain

English-walnut sideboard demonstrates how grain patterns can take a piece to the next level

BY JASON ROBERTS

Have you ever looked at a piece of furniture and thought something wasn't quite right, but you couldn't put your finger on it? The craftsmanship was impeccable and the proportions were nice. But something about the design still wasn't right. Chances are, it was the way the grain of the wood was arranged in the piece, or what I call the grain graphics.

Grain can add lines to a piece of furniture and enhance your project, but if it doesn't complement the shape, it will compete with or overpower the design. Color is critical, too. If it isn't consistent, it will be distracting. It takes extra time and effort to consider grain and color carefully when buying boards and cutting them up, but the benefits are many, and they go beyond appearance. Choosing the right types of boards helps certain furniture parts

to function better, combating movement in drawers and doors, for example.

This sideboard, made from beautiful English walnut, is the perfect prop for a lesson in grain graphics. It contains most types of furniture parts: thick legs, thin panels, narrow frame pieces, a broad top, and so on. Yet I was able to build the entire exterior—all of the visible parts—using just four boards, saving money but also guaranteeing harmony.

I depended heavily on resawing to stretch this special wood, but you don't need a large bandsaw to take advantage of many of my tips.

Jason Roberts is a furniture maker in Olympia, Wash.

SHOP SMART

IT ALL STARTS WITH THE LUMBER



From the same tree. Boules, or flitches, are sets of boards that were consecutively cut from the same log, like a flitch of veneer. Lumber cut this way will have perfectly matching color and all three types of grain that furniture makers need: flatsawn, quartersawn, and riftsawn.

It's hard to turn bad materials into wonderful projects, so it is worth spending more for higher-quality lumber. Lumber selection does not have to be complicated. The best place to start is by using wood from the same tree: It will have the same color, grain, and texture. The easiest (though not least expensive) way to get matched boards is by buying boules or flitches of lumber (for a list of suppliers, go to FineWoodworking.com/extras).

It is harder to get consistent color and grain when the lumber comes from different trees. Yet there are plenty of woodworkers who do exceptional work without ever buying flitch-cut lumber. If flitch-sawn isn't available or you don't want to spend the extra money to get it, the best solution is to dig through lumber piles and select pieces that match. It's not unheard of to find boards from the same tree in a stack. Look for distinguishing characteristics like knots and dark streaks that carry through boards. Whenever possible, cut like parts out of the same board to ensure they match. For example, cut all the legs from the same board; likewise for drawer fronts, aprons, and other parts.

Matching color, grain, and texture is not limited to solid wood. You can get more out of a thicker board by resawing it for parts or by slicing it into veneers.

In this Edward Barnsley-inspired sideboard, I combined these techniques. Two of the boards are from the same tree, as you can see from the nearly identical grain pattern and color, and are used for similar, prominent parts. The other two boards, while not from the same tree, match the others in color. Read on to see how I managed to stretch the four boards to cover the entire case without sacrificing grain selection.

THREE DIFFERENT TYPES OF GRAIN

FLATSAWN

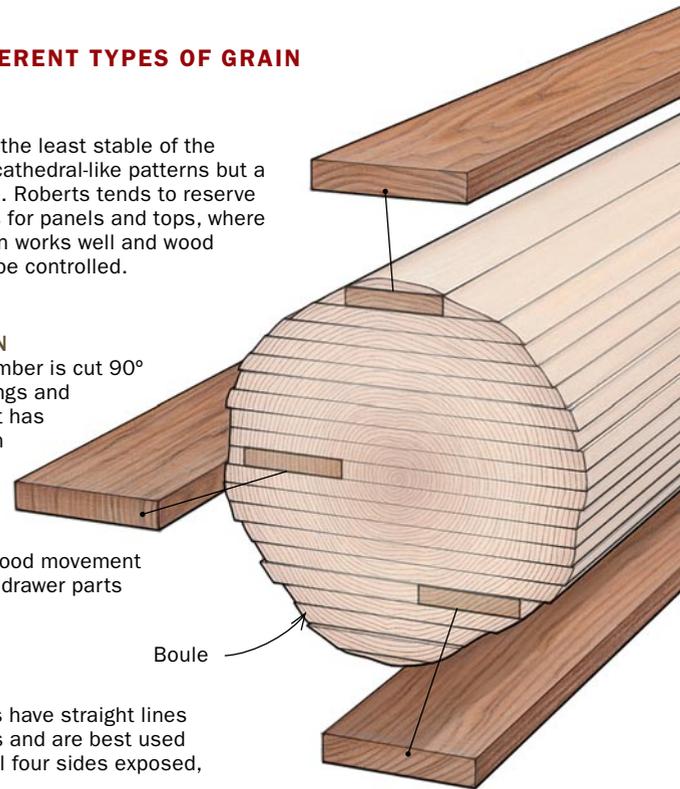
Flatsawn wood, the least stable of the three, has big, cathedral-like patterns but a tendency to cup. Roberts tends to reserve flatsawn boards for panels and tops, where the grain pattern works well and wood movement can be controlled.

QUARTERSAWN

Quartersawn lumber is cut 90° to the growth rings and is very stable. It has straight lines on two opposite faces. Roberts usually uses quartersawn boards where wood movement is a concern, in drawer parts for example.

RIFTSAWN

Riftsawn boards have straight lines on all four sides and are best used for parts with all four sides exposed, such as legs.



Mix and match. If you can't purchase a boule, sort through stacks for boards that are similar in color. In this situation, Roberts checks the grain to make sure he gets the type he is looking for. If the dealer allows, he uses a block plane (below) to reveal characteristics in the grain that can prove two boards are from the same log.



USE WOOD WISELY

CUT SIMILAR PARTS FROM THE SAME BOARD

This English-walnut sideboard demonstrates the ideal use of grain direction. I started by laying out everything, deciding which parts to cut from each section of the board. By resawing thicker lumber,

I was able to maintain continuity of color and grain throughout the piece, more so than if I had used a greater number of thinner boards. In the end, I got all the solid pieces and veneers for the project out of four boards.

Two of the boards came from the same log. I resawed the first into three pieces. I got six stiles from one, two stiles and all three drawer fronts from the second, and the veneers for the faces of all the vertical divid-

ers and aprons from the third (it's fine to laminate veneers onto solid wood). The second board produced all four legs and all eight rails.

Another, bigger slab was from a different tree with a similar color. I used it for the top and the veneers for the side panels. The fourth board was a crotch slab, similar in color to the rest. It was thick, so I was able to resaw eight slices for the fronts and backs of the door panels, laminating them onto a Baltic-birch core.



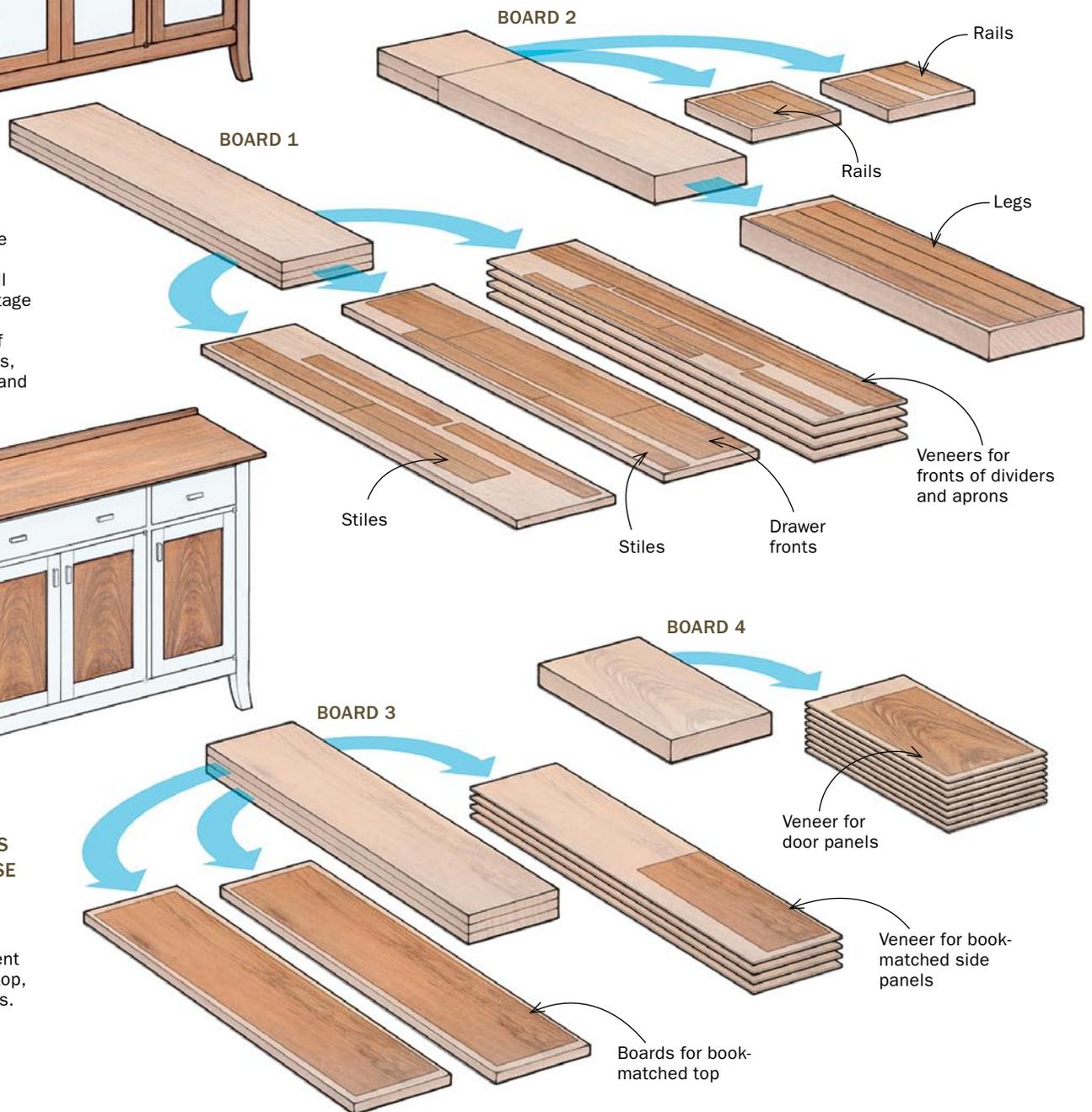
TWO BOARDS FROM ONE TREE

Lumber from the same tree guarantees that the grain and color will match. To take advantage of that, Roberts used these boards for all of the similar parts—legs, rails, stiles, dividers, and drawer fronts.



TWO MORE BOARDS COMPLETE THE CASE

The final two boards match the first two in color and are used in places that complement the other parts—the top, sides, and door panels.





STRAIGHTEN THE GRAIN

CORRECT THE ANGLE AS YOU MILL



Need to resaw? Do it first. Roberts resawed this thick plank into the three thinner boards (left) before marking out individual parts and straightening the grain. He works this way because the grain can vary throughout the thickness of a board.

Sometimes the grain lines don't run straight down a board but instead drift off on an angle or curve. Known as runout, it's one of the biggest grain problems you'll see in furniture, yet many people don't bother to fix it. But it is easy to correct by drawing a straight line with the grain, bandsawing to the line, and then jointing the board straight. You need extra room in your stock to accommodate the unusable wedge that gets cut away. If you have a long board but only need 10 in. for rails, cut off the rail stock before correcting the runout, so you don't create a lot of waste.

Also, if you are working with a too-thick board, you should resaw before you get rid of the runout, as the grain pattern can change throughout the thickness of the board.



More than one straight line. To mark out the eight stiles and three drawer fronts on these two boards, it was necessary to correct for wayward grain more than once, creating multiple wedges of waste wood.



Joint a clean edge and rip. After bandsawing away the angle, use the jointer to clean that edge (left). The jointed edge will ride the tablesaw fence as you rip the part to size (right).

RESAWING TIP If boards are too wide to resaw on your 14-in. bandsaw, consider adding a riser block to extend the saw's height capacity. You can also rip the board to a manageable height, resaw the pieces, and glue them back together, but that is less than ideal. If you try this, take care to rematch the grain.

LEGS

END GRAIN HOLDS THE KEY

The best type of lumber for legs is riftsawn with no runout. You should orient the blank so the end grain runs diagonally across the top of the leg, not parallel to the sides. Even when the end grain runs diagonally across the blank, the runout on the face may still need to be corrected. For legs, you may have to straighten out parallel sides, and then straighten the other set of parallel sides. Also, I oriented the grain to follow the subtle curve of the sideboard's legs. If there is any curved grain left in your leg blanks, it will be less obtrusive at the top of the legs than at the bottom.

STRAIGHT OR TAPERED LEGS

NO

End grain that runs parallel to the sides of the leg will yield two straight-grained faces and two flatsawn faces.



YES

To achieve straight grain on all four sides of a straight or tapered leg, look at the end. The grain should run diagonally across the leg instead of parallel to the sides of the leg.



CURVED LEGS

NO

Oriented this way, the grain runs out at the bottom of the leg instead of following the subtle curve.



YES

Make sure the diagonal runs in the direction of the outer corners (in their final positions, the grain of all four legs should be oriented in an X-pattern).



1



2



3



4

Take time to straighten the grain. Begin by marking a new edge, aligned with the grain. Bandsaw close to the line, joint the board, and then finally rip the blanks to width (1), referencing off the jointed side to get parallel cuts. The first step leaves two parallel sides with straight grain, but the other two parallel sides still might have runout. So repeat the process, beginning by marking a straight line with the grain (2). Once it is marked, bandsaw the wedge off the leg blank (3), and then clean up that side on the jointer. Finally, rip the opposite side parallel (4). This leaves a blank with four sides of straight grain and little or no runout.

TOP

SHOW OFF CONSISTENT GRAIN AND COLOR

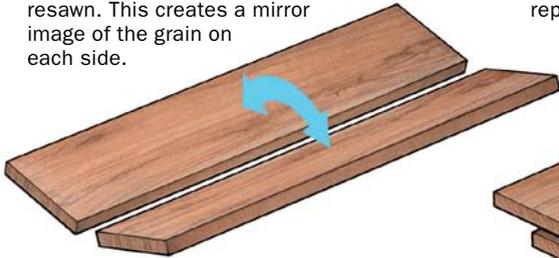
The best choices for a top are a single wide plank, a book-match, or a slip-match. These options look the best because the color and grain are consistent. I use either quartersawn or flatsawn boards for tops, depending on what works best with a particular design. The added expansion of flatsawn boards isn't a concern if the top is attached correctly so that it can expand and contract with changes in humidity. For the top of this sideboard, I used a book-matched piece of quartersawn English walnut. If you don't have a board wide enough for the top or thick enough to resaw, and you need to glue several boards together, be sure to choose pieces that match as closely as possible in color and figure. Try to keep flatsawn sections next to flatsawn and straight grain next to straight grain.



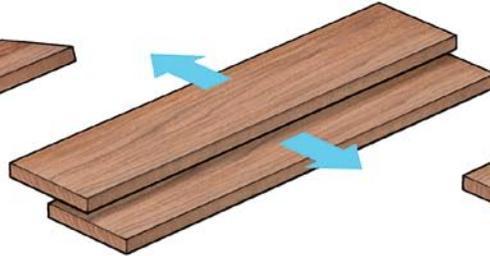
The trouble with book-matching. Although it isn't a problem with walnut, with some woods, like maple, one side of the book-match may look darker than the other because of the way they reflect the light. This can be prevented by slip-matching. Also, when planing book-matched boards, one board may plane better in one direction, the other in the opposite direction.

MATCHING OPTIONS

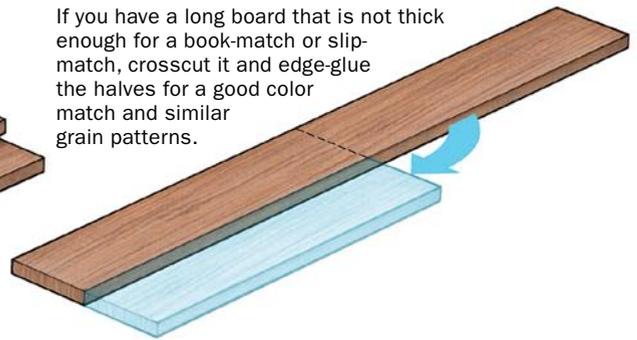
Book-matched boards are hinged open, like a book opening, as they are resawn. This creates a mirror image of the grain on each side.



Slip-matched boards are placed side by side as they are resawn, creating a repeating grain pattern.



If you have a long board that is not thick enough for a book-match or slip-match, crosscut it and edge-glue the halves for a good color match and similar grain patterns.



DRAWERS

CONSIDER BOTH LOOKS AND MOVEMENT

If you are building inset drawers, solid drawer fronts can bind as they expand from changing humidity. The narrower the drawer front, the less of an issue this is. If your drawer fronts are tall and you are worried about movement, quartersawn lumber is best (at 5½ in. tall, these drawers were borderline, so I used quartersawn). If you want to use figured wood on the fronts, you

should veneer it onto something more stable, such as quartersawn lumber. Sides and bottoms also should be of quartersawn lumber, so they don't expand and contract much across the grain. This will help the drawer function at its best in any season. Bottoms should expand toward the back, which means that the grain should run parallel to the face.

All three drawer fronts are from one board, so the grain runs continuously from one to the next.



PANELS

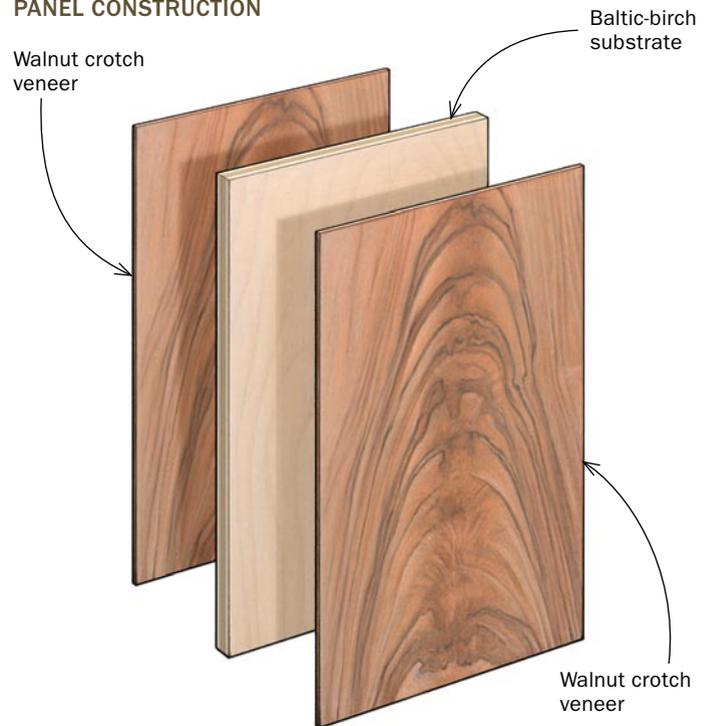
CONSIDER USING VENEER

Although I didn't have to use veneers for the door panels (the frame-and-panel construction allows for the expansion and contraction of solid wood), I chose to because I wanted to extend a gorgeous piece of walnut crotch across the inside and outside of the door panels. To do this, I resawed the board into eight slices, one for each side of the four doors.



Veneers maximize a beautiful board. Roberts decided to show off a nice piece of figured wood in his door panels. To stretch the one board he had, he resawed it and glued the veneers to a substrate. To prevent warping, both sides of the substrate should be veneered at the same time.

PANEL CONSTRUCTION



DOOR FRAMES

GRAIN DIRECTION IS ESSENTIAL

Use riftsawn or quartersawn lumber for door frames. Not only does the straight grain look the best, but it also expands and contracts far less across its grain than flatsawn, an important characteristic that helps avoid binding in inset doors. If the grain isn't perfectly straight and you don't have the option of straightening it, orient the curves or angles so they move into the panel, accentuating the framing action.

