



# New Spin on Fan Inlays

Add pop to tops and other surfaces with handsome fans

BY GARRETT HACK

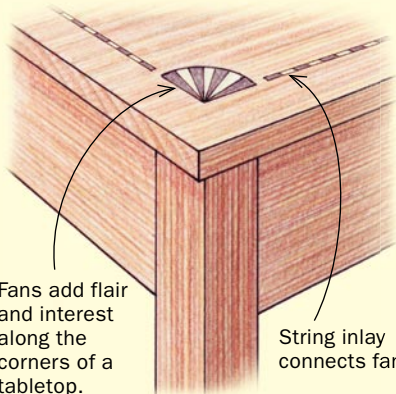
Most furniture makers aspire to have their work stand out, to be original in some way. That's what inspired me to start using various forms of inlay in my work, from traditional cuff bandings to original Morse-code signatures in black-and-white stringing. They've all added uniqueness—and lots of fun—to my furniture.

One of my favorites is the quarter-circle fan, made from ebony and holly rays. These fans appear frequently on 18th-century Federal furniture, where makers used them to brighten the façade of a piece with contrasting flourishes in the corners of drawers and doors, to adorn and connect the corners of a tabletop, or to decorate the back splat of a chair. I've used fans in



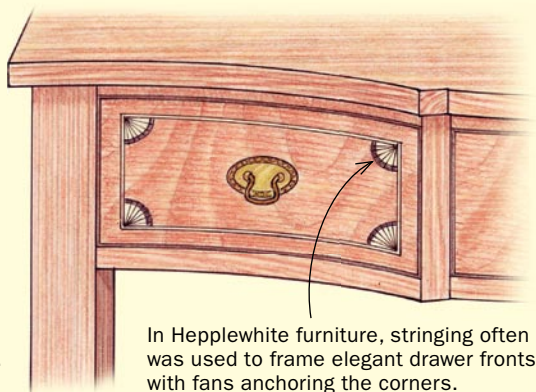
## STRINGING TIES FANS TOGETHER

Historically, fans were inlaid into corners of doors, drawers, and tabletops and often were connected with stringing. But your fans don't have to be stuck in the corner. They can take a more prominent role in the design.

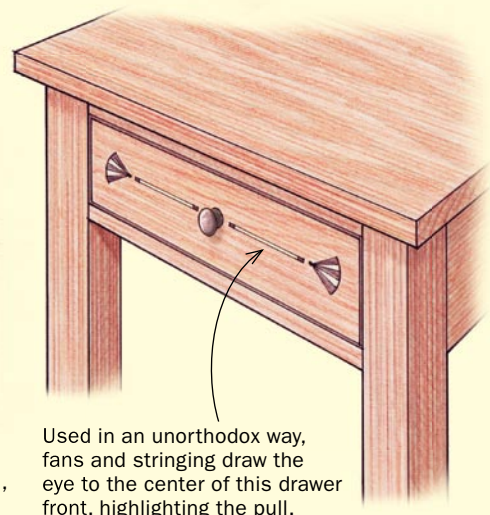


Fans add flair and interest along the corners of a tabletop.

String inlay connects fans.



In Hepplewhite furniture, stringing often was used to frame elegant drawer fronts, with fans anchoring the corners.



Used in an unorthodox way, fans and stringing draw the eye to the center of this drawer front, highlighting the pull.





# Recipe for fan sandwiches

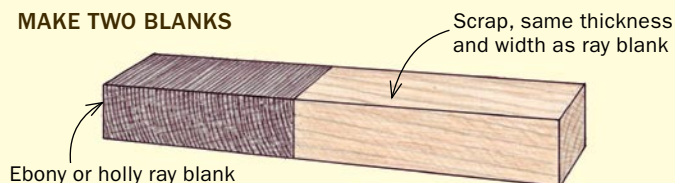


Traditionally, fan inlays were made from veneers and inlaid into a shallow mortise one ray at a time. Hack's method is efficient and ensures uniformity. He cuts all the rays at the same time, glues them up into a sandwich, then saws off slices.



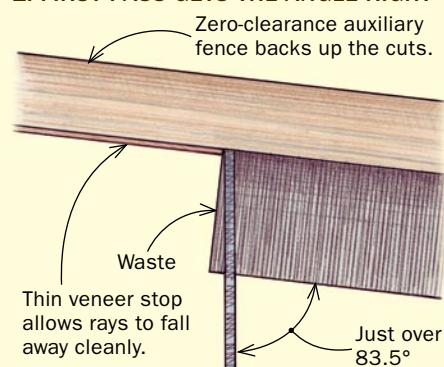
**Get the most out of valuable wood.** For a better hold on the ebony and holly stock, glue each to a piece of scrap, using a backer to align the pieces.

## MAKE TWO BLANKS

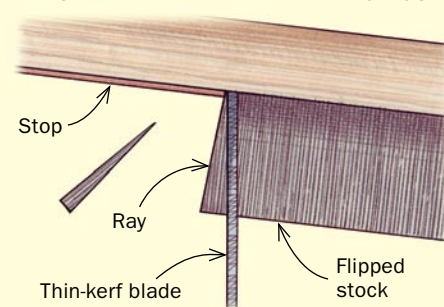


**Slice the rays.** Use a thin-kerf blade to reduce waste and a zero-clearance insert to prevent rays from falling into the saw cabinet or getting jammed in the insert slot. For a seven-ray 90° fan, set the miter gauge to just under 6½° and make test cuts in scrap to dial in the setting. Rotate the blank after each cut.

## 1. FIRST PASS GETS THE ANGLE RIGHT

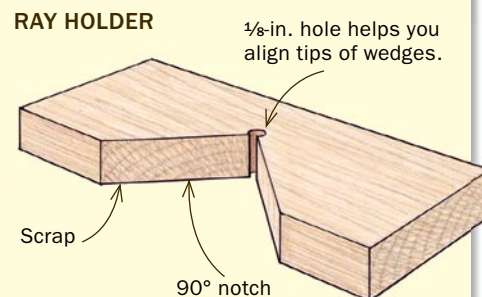


## 2. ROTATE THE BLANK AFTER EACH CUT



**Glue up quickly.** Use a notched board to stabilize the rays as you assemble them. Jam the rays into the notch, rubbing the glue surface of each new ray against the previous one, so that the rays come to an even point at the tip. Hold the assembly in place for a few minutes.

## RAY HOLDER







**Get rid of the crust.** Clean up the sandwich faces using a block plane.

these traditional ways, but I like to push the envelope, inlaying fans in surprising places, like backsplashes and table aprons. I've also altered the design and construction a bit. Traditionally, fan inlays were created with veneers of contrasting colors (whether shaded, dyed, or of a different species) cut and inset into a shallow mortise one ray at a time. The outer radii of these traditional fans often were scalloped.

My modern approach to making and installing fans is efficient and ensures uniformity. I use thicker stock, with rays cut and assembled in bunches, and fans then sliced off the bundle and glued into a router-cut recess. Each fan has a smooth outer radius. For fun and flair, I add a small ebony dot at the tip. Wood movement is rarely a concern with these small fans, but their orientation should always be face grain—never weak end grain.

### How to make a fan sandwich

When it comes to fans, I like the extreme contrast of white holly and black ebony, because both colors will contrast with most woods. Generally, the most appealing and balanced fan has an odd number of rays, beginning and ending with the dark ebony in lighter-colored woods or with the white holly in darker woods.

Making a fan sandwich sounds simple, but it takes considerable effort to assemble the small wedges accurately. Any slight mismatch of the rays is very noticeable.

**Cut rays on the tablesaw**—The fans shown here are delicately sized, so you don't need a lot of material. Start by crosscutting 1-in.-thick blanks of ebony and holly about 1½ in. long. Blanks that are 4 in. to 6 in. wide should yield plenty of ray stock for four or more fans, with room to toss any damaged pieces.

Glue each blank to a scrap block the same thickness and length, and about 4 in. or so long (see drawing, facing page). The scrap



**Thin slices, please.** Use a dovetail saw to cut the ⅛-in.-thick slices. An L-shaped block, tacked to a scrap clamped in a vise, acts as a bench hook to hold the small pieces.



**Smooth the outside and make a home for the dot.** Fair the curved surface using a file (left) or sandpaper, then use a ⅛-in.-dia. file to form a shallow recess in the point of the fan (right).



block will keep your fingers a safe distance from the blade as you cut the rays and will allow you to use as much of the valuable holly and ebony stock as possible.

I slice the wedges on the tablesaw. The miter-gauge angle depends on the number of rays you want to cut and on the angle of the fan sides. This fan is 90° and has seven rays, so angle the miter gauge to just under 6½°. As you flip the blank, you effectively double the angle, creating wedges just under 13°. For rays of uniform size, tape a thin stop to the auxiliary fence.

Now make a bunch of test pieces to check the overall 90° fan and the stop settings, using stock that's the same dimension as the inlay material. It's critical that the rays end with a knife edge. Any thickness here and the tips will be hard to line up to a single



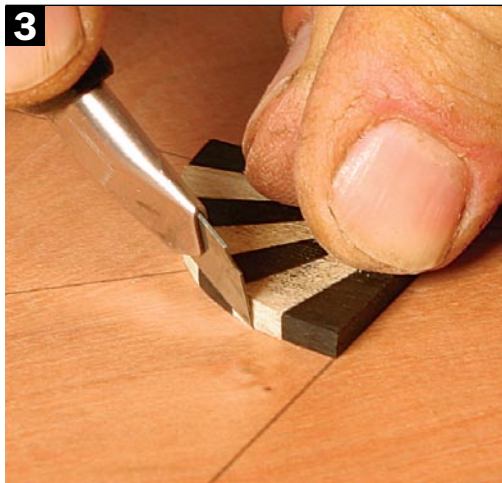
# Cut the recess and plug in the fan

Once the fan is made, you can use it to lay out its recess, which is cut with a router and cleaned up with gouges and chisels.

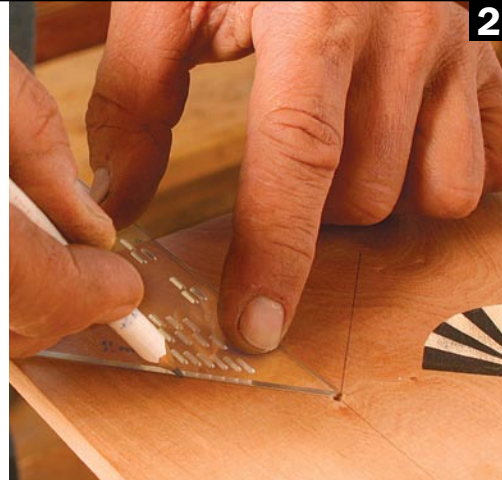
**Dot mortise serves two purposes.** Lay out the centerline of the fan through its point, and drill a hole for the inlaid dot at the tip of the fan. The hole also becomes a reference point for the rest of the fan layout.



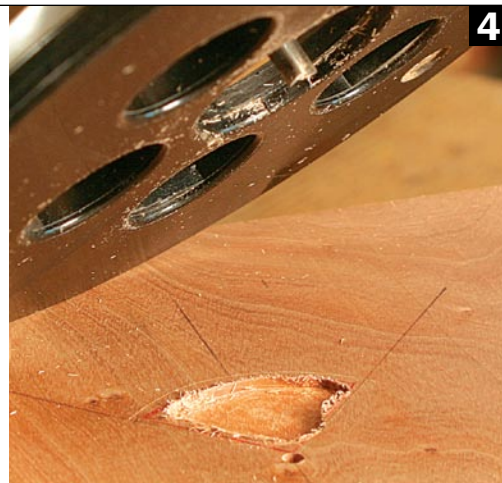
**Knife around the fan.** Hold the fan firmly. Make the first pass very light, and then bear down a bit more during subsequent passes.



**Radiate lines outward.** Align a drafting triangle with the centerline and the dot hole, and scribe lines to frame the straight edges of the fan.



**Rout a recess.** Highlight the scribed lines with a colored pencil, then rout the recess freehand, staying within the lines. Use a 3/16-in.-dia. straight bit with the depth slightly less than the fan thickness.



**Clean up, then glue up.** Use a curved gouge and chisels to clean up the recess to the scribed lines (left). Then glue the fan in place (above), using a small scrap block as a caul.



point when gluing. Once the saw is set up correctly, cut the rays, flipping the blank after each pass.

**Assemble and slice the fans**—The fans are hard to glue up, so I use a notched board to stabilize the rays. Work quickly and carefully, positioning the rays so they come to an even point. Clamping is difficult, but rubbing the rays as you assemble them helps with adhesion so that you usually can just hold the assembly in place with your fingertips for a few minutes.

After letting the assembly cure, clean up the faces of the fan sandwich with a block plane and then use a handsaw to slice off 1/8-in.-thick sections. Fair the outer radius with a file or sandpaper.

Now make the shallow recess for the dot at the point of the fan using an 1/8-in.-dia. round file. Once that's done, you're ready for installation.

### Use the fan as a template for its recess

One advantage of making the fans as complete slices is that you can use them as templates during layout.

Regardless of how the fan will be oriented, you need to draw a centerline through its axis, or point. Drill a 1/8-in.-dia. hole at the point of the fan for the dot inlay. I've tried drilling the hole for the dot after the fan is installed, but it's difficult to drill the small hole into the ends of the rays and background wood without the bit wandering or the wood tearing out. Drilling the hole first also allows you to fit the fan so that it's centered exactly on the dot.

Now draw two lines that meet at the hole at 90°. Hold the fan between those lines and knife around its perimeter. Then rough out the recess with a router.

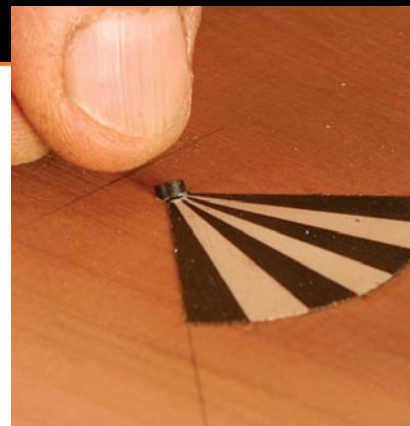
Clean up to the knifed lines with gouges and chisels and then glue in the fan (I use yellow glue). Now make the dot and glue it in place.

### Finishing tips

Sanding inlays can cause problems, with ebony dust fouling the bright white holly, so my first choice is to plane inlaid surfaces, first with a block plane to bring them flush, then with a smoothing plane to refine the entire surface. If I have any problems with tearout, I resort to a card scraper.

When it comes to finishing, penetrating oil-based topcoats such as varnish, oil-varnish mixes, and straight oils can discolor the white holly as you build up the finish, dulling the contrast you've worked so hard to create. So if you plan to use a penetrating finish, seal the fans first with a thin washcoat of de-waxed shellac (see photo, p. 77). Zinsser Bullseye SealCoat will work. □

*Garrett Hack is a contributing editor.*



**Dots are easy to make.** Chuck a narrow blank of ebony into a drill and use a file to shape the blank into a 1/8-in.-dia. rod (left). Slice off a 1/8-in.-thick section and glue it into the tip of the fan (right).

### Online Extra

To help fans relate to one another, Hack inlays segmented stringing of holly and ebony between their points. You can learn the basics of installing stringing at [FineWoodworking.com/extras](http://FineWoodworking.com/extras).



**Plane everything smooth.** Use a block plane to level the inlay, then work the entire surface with a smoothing plane and/or scraper.