



Houndstooth Dovetails

A master of this strong and snazzy joint explains its secrets

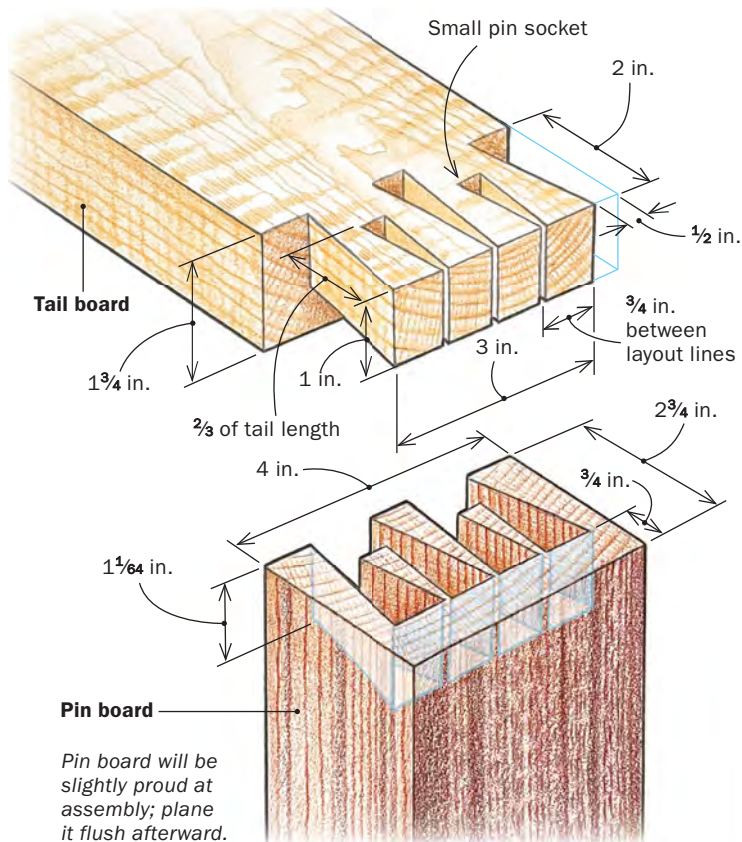
BY FRANK STRAZZA

The houndstooth is a dovetail within a dovetail; its pins, tapering to a rapier point, give an already beautiful joint another dimension of visual attraction—and they make it more challenging to create. I can't remember when I first saw houndstooth dovetails, but I loved them from the start, and I've spent years employing them in custom workbenches. I cut the joint entirely with hand tools. The handsaw is the only tool able to create the fine needlepoint pin sockets that distinguish the houndstooth. People often question the strength of the joint because of the seeming fragility of the narrow points. But in fine old English furniture, where needlepoint dovetails originated, they've stood the test of time. You can use the houndstooth on drawers and cases, but I'll demonstrate the process using the front rail and end cap of a workbench. I often use contrasting woods for this joint to heighten its graphic impact, and here I'm using curly hard maple and walnut. Using species so different in density is also advantageous because the walnut pins will compress slightly when they are fitted to the maple tail board.

A helpful rabbet

The first step is to create a rabbet on the end of the tail board. This will help locate the pin board later, but I do it mostly to reduce the thickness of the tail board so I won't have so much to cut away. With a knife and square, mark a line across the tail board's inside face and on each of its two edges 2 in. from the end. This distance will also be the full length of the tails, but don't mark it

HOUNDSTOOTH DOVETAIL SIZED FOR A WORKBENCH



on the outside face yet. Next, with a marking gauge, scribe the depth line of the rabbet.

Saw the shoulder of the rabbet with a tenon saw or dovetail saw. Then remove the waste with a chisel. You can saw out the waste, but I find it's just as quick and accurate to chisel it away. Start by splitting along the grain well above the depth line. Watch closely and make sure the split doesn't dive down past the line. If the grain is going fairly straight, you can continue closer to the line. As you approach the line, start working across the grain. I



Tails start with a rabbet

Build a little wall. To prepare for the shoulder cut, scribe the crossgrain layout line with a knife, then use a chisel to create a stop to guide your saw.



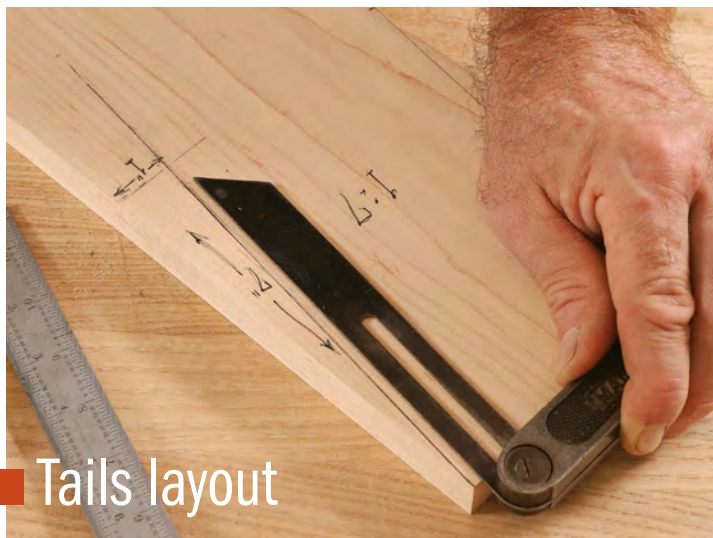
Saw the shoulder. After marking the rabbet's depth line with a cutting gauge, cut down to it with a tenon saw.



Knock out the waste. You can take out fairly large chunks at first, chopping into the end grain. When you get down near the depth line, pare across the grain to achieve an even surface.



Rabbet for the rabbet. Strazza takes a few light crossgrain passes with a rabbet block plane to flatten and smooth the surface.



Tails layout

Simple setting. Strazza likes a 1:7 ratio for the angle of houndstooth dovetails, and a quick drawing on a scrap guides the setup of his sliding bevel.

Dimensions of the double dovetail. Use dividers to find $\frac{1}{3}$ of the length of the tails; that is where the baseline of the small pin sockets will fall.



Lay down the angles. After drawing the crossgrain baseline lightly with a pencil, mark the dovetail angles for the tails and the pin sockets.



clean up the cheek of the rabbet with the appropriately named rabbet block plane.

Tails layout

The next step is to lay out the tails, which is fairly straightforward. There are two large tails, each with a small pin socket cut within it. Start by making three tick marks at the end of the board, one in the middle and the others $\frac{1}{2}$ in. from each edge; those are the only measurements you need to create the two tails. Before marking the angles, carry the baseline across the face of the board in pencil. Next, mark the angles with a sliding bevel on the face of the board. Then use a combination square to carry the angled lines square across the end of the board.

Next lay out the pin socket within each tail. I find that having the socket two-thirds the length of the large tail makes a visually pleasing joint; I use a pair of dividers to step off those thirds and mark the socket's baseline. After marking the angles and the baseline with a pencil, come back with a square and a knife to mark the baselines on these pin sockets as well as on the large tails.

Cut the tails

As you begin sawing the angled cheeks of the tails, keep in mind that these cuts must be sawn perfectly square across the end of the board or the joint will not fit. If the dovetail angles are slightly off, it won't matter as much, because they will simply be transferred to the pin board.

For consistency's sake, I make all the cuts that are angled in one direction, then reset my body position and make all the cuts angled in the other direction. To make the second cut of each pair that forms a needle point, simply put the saw in the first kerf, press your thumb against the saw plate for guidance, and cut the angle going in the other direction.

With all the angled kerfs cut, I remove the inside waste with a coping saw. It's ideal to leave a heavy $\frac{1}{32}$ in. above the baseline; if you're not comfortable cutting that close, leave more. Then move the workpiece from the vise to the bench and turn it on edge to saw off the waste on either side of the tails with a tenon saw. First deepen the existing cutting-gauge line with a knife and create a stop cut with a chisel to produce a wall for the saw to ride against.



Now it's knife time. With the angles drawn, scribe the tail and pin socket baselines—not cutting continuously across, only where waste will be removed.



Create the tails

The important angles. Strazza tilts the tail board in the vise so he can monitor the layout lines on the end and the face; then he cuts the dovetail angles with a tenon saw.

The rest of the shaping is done with chisels. Start with the baseline and aim to undercut it slightly. You'll be working from both sides of the board, so pinch the chisel tightly between your thumb and fingers, resting your pinky and ring fingers on the workpiece. This is the best way to control the chisel, as you knock it with a mallet, and keep it from going all the way through to the other side. If you hold the chisel by the handle, you won't be able to control the depth of cut. You want to undercut from both sides, which gives the shoulder a shallow V shape.

With the tails complete, I use a small dovetail square with a very narrow blade (made by Sterling Tool Works), which enables you to check between the tails to be sure the cuts are square. Ideally, you won't have to pare any material away; but if the cuts are not square, adjust them by paring with a chisel.

On to the pins

To transfer the tails, clamp the pin board vertically in a vise and lay the tail board on top with the rabbet's shoulder tight against the inside face of the pin board. Use a sharp, thin knife to mark along the sides and the wide ends of the tails. Mark as much as you can reach between the tails, and make tick marks at the needlepoint openings. Then remove the tail board and use dividers to transfer the baseline of the pin sockets to the pin board. Mark the inside



Coping mechanism. With the tail board still in the vise, Strazza removes most of the waste with a coping saw. He cuts to within $\frac{1}{32}$ in. of the scribed baseline.



Saw the sides. After most of the waste is removed from between the tails, Strazza saws off the large chunks on either side.



End-grain cleanup. To cut halfway through from each face, hold the chisel by the blade with a finger or two on the work to act as a brake. That grip lets you control the depth of cut. Slightly undercut this and other end-grain surfaces for an easier fit.



Skinny square. The precise angle of the dovetail kerfs is not vital, since you will mirror the angles when you transfer to the pins. But the kerfs must be square to the face of the board. To check them, Strazza uses a special square with a skinny blade.



Transfer the tails

Knifing the outline. After clamping the pin board vertically in a vise, place the tail board on top, registered on its rabbet. Then scribe along the outside angles and the end of the tails.

angles using the sliding bevel set to your dovetail angle. Next mark the depth of cut with a cutting gauge set to the thickness of the tails plus just a hair. Carry the angled lines straight down to the depth line using a square and a pencil.

Since these are half-blind dovetails, they must be cut with the saw's toe angled upward. It can be tricky trying to follow the dovetail angles while cutting straight down and holding the saw at an angle. The key here is to stay on the waste side of the line. When you have sawn as far as you can without touching the baseline and the depth line, it's time to start removing the waste with chisels.

The first step is to remove all the waste above the small houndstooth pins. After establishing a little wall against the baseline, hold the chisel against the end grain with the bevel down and make a good strong mallet hit; the chip will be forced up and toward the wall. Then set the back of the chisel against the knife wall on the baseline and give it another good whack, reinforcing the baseline and creating a stop cut; this sequence is important for each subsequent cut. Get as close as you can to the top of the little pin, then flip the chisel over and pare to the line.

Next remove the waste between the little pins. In those narrow spaces, I chisel straight down with a $\frac{1}{4}$ -in. chisel with the bevel out and slowly work backward.

As you get closer to the baseline, lighten up on the chiseling and pare to the line with the bevel up. Once you are within about $\frac{1}{32}$ in. of the scribed line, slide the chisel into it and push; this should give you a nice clean cut along the line. You can undercut this surface, but don't remove any wood along the outer edge. There is little glue strength on end-grain surfaces, so you can undercut these areas to ease fitting and reduce the potential for gaps.

Fitting the houndstooth

Fitting can be a bit time consuming. I start by hammering home the tail board with a rubber mallet. If it's too tight, back it out. You



Tick marks at the needle points. After marking as much as you can between the tails, make short knife marks at the narrow openings.



Extending the angles. With the tail board removed, use the bevel gauge, set to the dovetail angle, and complete the knife lines from the needlepoint tick marks to the baseline.



How deep are the pins? To scribe the depth line for the pins, set a marking gauge to a hair over the full thickness of the tails. This will produce pins that are just slightly proud when the joint is assembled.



Cut the pins

The houndstooth is half-blind. With the saw's toe tilted upward, saw as far as you can without cutting into the baseline and the depth line.



Clean out the top first. Strazza begins waste removal by fully chiseling out the area above the houndstooth pins.



Going deeper. Next, he chops (far left) and then pares (left) to clean out the recesses on either side of the houndstooth pins.

Putting the houndstooth to bed. Strazza fits the joint by partially assembling it and examining the pins for dark or shiny spots where the grain has been compressed. Then he pares gently in those spots.

can often see where it's too tight by the bruising of the fibers. I usually pare the pin board, as the access is easier.

When you are happy with the fit, it's time to glue it up. I use hot hide glue, which tends to lubricate the joint, making assembly easier. It also fills minor gaps. If you have large gaps, you can make little wedges, add glue, and tap them in. To fill small gaps, you can use the old glue and sawdust trick. If you've tried this with yellow glue, you may have been disappointed with the results. But if you mix a bit of sawdust with hot hide glue, it makes the best wood filler in existence; it scrapes and sands beautifully. □

Frank Strazza works wood in Bandera, Texas, and teaches across the country.

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