



# The Backsaw Makes a Comeback

A sharp backsaw won't just make you a better woodworker; it will turn you into a surgeon

BY ZACHARY GAULKIN

There is an old truth buried under mountains of machine-made sawdust—the best way to sever wood is with a thin, sharp blade. This is the beauty of the backsaw. With its swaged metal spine, a backsaw can carry the thinnest of blades, allowing it to slice wood with minimum waste and maximum control. No one can deny the aggressive speed of a tablesaw or a sliding chopsaw, but for joinery (and quiet pleasure) it's hard to beat the backsaw's surgical precision.

Another great thing about this most critical hand tool is that it is a whole lot cheaper than a screaming armada of cutting machines. A backsaw is one of the cheapest tools you can buy, especially if you plan to do lots of joinery by hand. Best of all, it doesn't take much to master. True, it involves some practice, but success with a backsaw is not so much about skill as it is about choosing the right saw and keeping it sharp.

## Rips and crosscuts seldom come in one package

All wood saws do two things and two things only: they rip along the grain and crosscut across it. Follow the direction of the grain and you're ripping. Cut a board perpendicular to the grain and you're crosscutting. You might think a simple saw can do both with equal ease, and sometimes it can. But the rip saw that seemed like a scalpel cutting dovetail pins might leave a crosscut, such as a tenon shoulder, looking a little chewed up.

A saw's ability to rip or to crosscut lies in the geometry of its teeth—the size, shape and set, or the amount they are bent away from the blade. Rip teeth usually are bigger than crosscut teeth, their cutting faces are nearly straight up and down and flat across, and they have a small amount of set. The big teeth shave away material fast, and the deep gullets (the valleys between the teeth) give the shavings a place to go so the saw won't bind. The small set on a rip tooth creates a narrow kerf, making it less likely to wander.

Crosscut teeth have more set, giving the body of the blade (sometimes called the plate) a wider path. The teeth are raked back (they don't have the steep leading edge of a rip tooth), and they are beveled to a point like an incisor, rather than filed straight across. These points enable a crosscut saw to score and sever the grain cleanly, without tearout.

## A THIN BLADE NEEDS A STRONG BACK

The secret of the backsaw lies in its metal spine, which allows it to carry a thin blade. Whether you choose a European backsaw (left) or a Japanese *dozuki* (right), the backsaw is an essential hand tool for any woodworking shop.



Because backsaws are made for joinery and not for carpentry, the teeth tend to be small. The teeth still are filed for ripping or crosscutting, but the differences are not as noticeable as they are on big panel saws. So depending on your wallet and the level of perfection you hope to achieve, backsaws can be somewhat interchangeable. (In fact, most catalogs don't make a distinction between rip and crosscut backsaws; you have to ask.) It's certainly possible to rip with a crosscut backsaw (everybody does it), but it

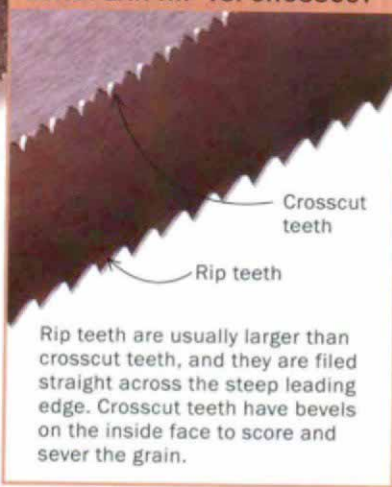
**Push vs. pull technology.**

European saws cut on the push stroke, so they must be thick enough not to buckle or bend. Japanese saws can be thinner because they cut on the pull stroke, when the blade is in tension.

**A good backsaw handles smoothly.** The handle should be comfortable, whether it's a handmade pistol-grip (left) or a rattan-wrapped handle that provides a good grip for the dozuki's pull stroke (right).

**Some blades you sharpen; others you just throw out.** Japanese backsaw blades can be removed from their handles for sharpening. Most cheaper saws come with replaceable blades, so you don't have the hassle of sharpening.

**EUROPEAN RIP VS. CROSSCUT**

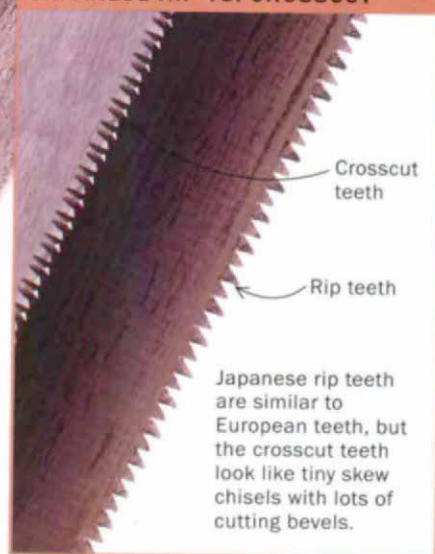


**A backsaw has life until there's no metal left.** As long as the blade isn't bent or broken and rust hasn't invaded the steel, an old backsaw can be sharpened or retooled to its original condition.

**Subtlety can be pricey.**

Handcrafted dozukis can be filed, set and tensioned for different wood species and for specific applications. But they can be expensive and must be sent back to the maker for sharpening.

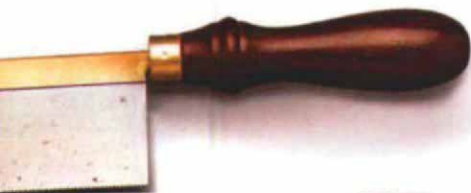
**JAPANESE RIP VS. CROSSCUT**





## GET A GRIP

Backsaws come in many shapes and forms. Although the handles may differ, their defining characteristic is the metal back that supports and stiffens the thin blade. Unlike carpentry saws, backsaws have finer teeth and are used mainly for joinery.



### TURNED HANDLE

A backsaw with a turned handle is often called a gent's saw. It can be used for dovetailing or cutting short tenons because the blades are usually narrow.



### PISTOL GRIP

The wider, pistol-style handle (open or closed) provides more stability and a wider blade. These saws can be small, for dovetailing, or large, for mitering, crosscutting and deep tenons.



### REVERSIBLE HANDLE

The offset handle and spine on this reversible backsaw allows it to double as a flush-cutting saw. The teeth are filed on both sides to cut in either direction.



### JAPANESE HANDLE

The rattan-wrapped handles provide a secure grip for the pull-cutting action and can be used with replaceable blades that lock into a recess inside the handle.

will take you longer, the teeth will probably get clogged with sawdust and the kerf might be a little ragged. You can miter or cut a tenon shoulder with a backsaw ground for ripping, but you'll probably have to clean up a shaggy edge with a plane or a chisel.

The most common backsaws you will find are European or Western in style. They cut on the push stroke, and they come in many styles: rip and crosscut, pistol grips and turned handles, long and short, brass-backed, and even reversible (see the photos at left). They can have more or less set, and the teeth can be big, aggressive ones or small, fine ones. More teeth per inch (tpi) generally mean that you will get a finer, slower cut. (Backsaws range from 12 tpi to more than 20 tpi.)

Wil Neptune, an instructor at the North Bennet Street School in Boston, suggests that if you only want one European-style backsaw, it makes sense to get one that can rip well. That's because most joinery cuts—tenon cheeks and dovetails—are made along the grain, not across it. With a steady hand and sharp teeth, you can slice your dovetails without having to clean up the ripcuts with a chisel. (You'll still have to chisel the shoulder, of course.) For crosscuts, such as tenon shoulders, you can get away with using the same saw by cutting to the waste side of the line and cleaning up the edge with a chisel. As Neptune points out, you rarely try to get a finished crosscut surface off the saw anyway.

## Japanese saws give new meaning to severance pay

The variety of European backsaws is nothing compared with the Japanese equivalent, called a *dozuki*. What's the difference? There are many, but chief among them is that Japanese saws cut on the pull stroke, when the blade is in tension and won't buckle or bend. This means a Japanese saw can carry a thinner blade than its European counterpart (although the difference, again, is less apparent on backsaws than on saws made for carpentry).

There is also a dental difference: Rip teeth on a Japanese saw closely resemble a Western rip tooth. The cutting edge is nearly perpendicular to the blade, and the tooth comes to a point. But Japanese crosscut teeth are quite different from their Western counterparts. They have an angled top (the profile sort of resembles a skew chisel), and each facet is beveled. "They've got bevels

## It's no crime to leave the sharpening to a professional

Using a backsaw is a pleasure. Sharpening one is another story. Some people try, but few can do it well. Most woodworkers don't even think about it until the thing just refuses to cut anymore. Sharpening your own saws is a valuable skill (see *FWW* #125, pp. 44-47), but for most of us, it makes more sense to seek out professional help. A good sharpening service, though sometimes hard to find, can turn a rusty antique into a precision instrument or customize a new saw right out of the package.

If you're not sure whether your saw needs sharpening, it probably does. Even new saws need to be touched up. New backsaws

generally come with punched teeth (one side of the saw is rolled over, and the other side has a slight burr) and, therefore, cut more aggressively on one side. Filing, either by hand or machine, cleans up the edges and solves the problem.

A professional sharpener can also reduce or increase the set, depending on what kind of use you have in mind. (Many woodworkers say new backsaws come with far too much set.)

Sharpeners can file the teeth on old backsaws, or they can do much more, as long as the steel is solid and the blade isn't bent or warped. They can change the angle and set of the teeth or even retool the saw entirely. —Z.G.



*Sharpening a backsaw is a skill. A single pass will sharpen the teeth on this dovetail saw. Each stroke has to be even to keep the teeth uniform.*



## My favorite backsaw:

*If you could have just one, which would it be?*

### ▶ WIL NEPTUNE'S ORANGE-HANDLED BEAUTY IS A BARGAIN

What saw does cabinetmaker and teacher Wil Neptune reach for to cut a dovetail or tenon by hand? "That's easy," he says. "It's the cheesy one with the blue blade and the painted orange handle." It costs \$9.95 and has become a staple in the student toolboxes at the North Bennet Street School in Boston, where Neptune teaches woodworking. The saw comes from the factory a little rough. So he shows his students how to file the teeth and press out some of the set by sandwiching the blade between two old jointer knives and clamping it in a machinist's vise. "If you totally screw it up, throw it in a drywall bucket for site work, and buy a new one." The Eberle saw and file is available from J.I. Joseph Co. (617-723-2323).

### ▶ A HANDMADE DOZUKI CAN TRACK A LINE LIKE A BLOODHOUND

John Reed Fox, a furnituremaker in Acton, Mass., has a simple philosophy about tools. If you are at all serious, buy the best you can afford. That's one of the reasons his favorite backsaw is a handmade *dozuki* crafted to his specifications. His *dozukis*, which he sends back to Japan every year or so for sharpening, are a dream to use. With a little camellia oil (a traditional Japanese saw lubricant), it can follow a line like bloodhound tracking a scent. Fox recently let a class of novice woodworking students use one of his *dozukis* to cut dovetails. "People were nailing the cuts right on the line, and they were rank beginners," he says. "Everybody was astonished." A similar handmade saw is available for about \$100 from Misugi Design (510-549-0805).

### ▶ THE ANTIQUE MITER SAW REVIVED FOR RIPPING

Allan Breed doesn't even know where his favorite backsaw came from. It's an old Henry Taylor, one of about a dozen backsaws he owns. After Breed reground the teeth for ripping, it has become his favorite dovetail saw, perfect for his unusual tail-cutting technique: With the workpiece flat on a bench, he dangles the saw from his pinkie with the teeth pointing away from his body. This plumbs the saw, guaranteeing a square cut across the end grain. He plunges through each cut in two or three swipes (still hanging on by his pinkie finger) and moves onto the next one. "I can see what I'm doing, and it's more comfortable," he says. "I also wax my saws a lot, especially if there isn't a ton of set in them. It makes it a lot easier." For a good used saw, look around at yard sales and used-tool suppliers. —Z.G.



all over the place," says John Reed Fox, a cabinetmaker in Acton, Mass., who uses Japanese handsaws almost exclusively.

You can go crazy choosing a *dozuki*, especially if you have an unlimited budget. A good Japanese saw smith can take into account things like wood density and moisture content, and can even tailor a saw to match the idiosyncrasies of a single woodworker's stroke. Subtlety comes at a price, though. Fox spends more than \$100 for his handmade *dozukis*, which he sends back to Japan for sharpening. If you can't justify investing in a handmade saw, you can buy factory-made Japanese backsaws with replaceable blades for \$50 or less. When the blade gets dull or breaks, just buy a new one. According to those who swear by them, even cheap *dozukis* outperform good European-style saws.

### A saw's true worth is measured in decibels

When is a whispering backsaw better than a power saw? It depends on whom you ask. Wil Neptune can cut a perfect tenon with a backsaw and chisel in minutes, leaving a thimbleful of sawdust.

But he does so only on occasion. Machines are just too efficient if you have to make more than one, he says, "and when do you ever make something with one tenon?" But if he needs to miter something quickly or if an unusual joint requires lots of set-up time on a machine, a backsaw can be quite handy.

Dovetails are another story. Allan Breed, a Maine cabinetmaker, does all his dovetails by hand, racing through the cuts with an old miter saw reground for ripping. "I'll cut dovetails with anything as long as it's sharp," he says. Breed doesn't use handsaws for some romantic thrill. He does it for ergonomics and efficiency. Power saws and routers are loud, and you have to haul around a lot of metal. And on the kind of high-style reproductions that Breed makes, tooling up with machines hardly ever makes sense. For Fox, handsaws are a critical part of the work itself. With a handsaw, he can cut perfect dovetails less than an eighth of an inch apart, something no machine has yet been able to accomplish. □

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