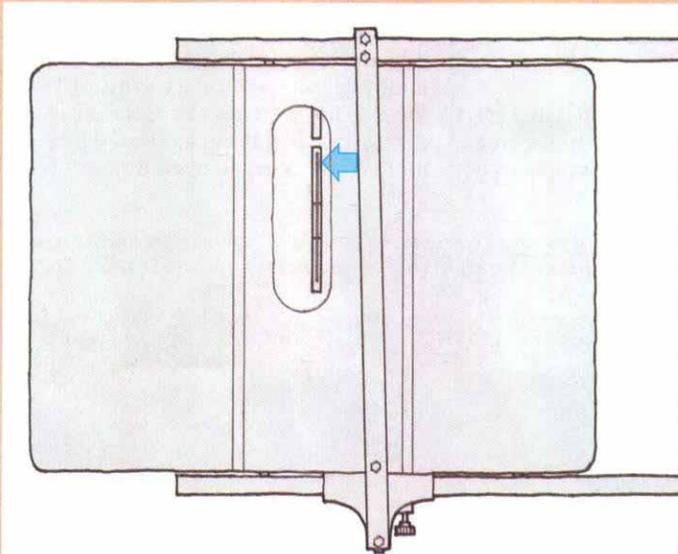


Kickback zone

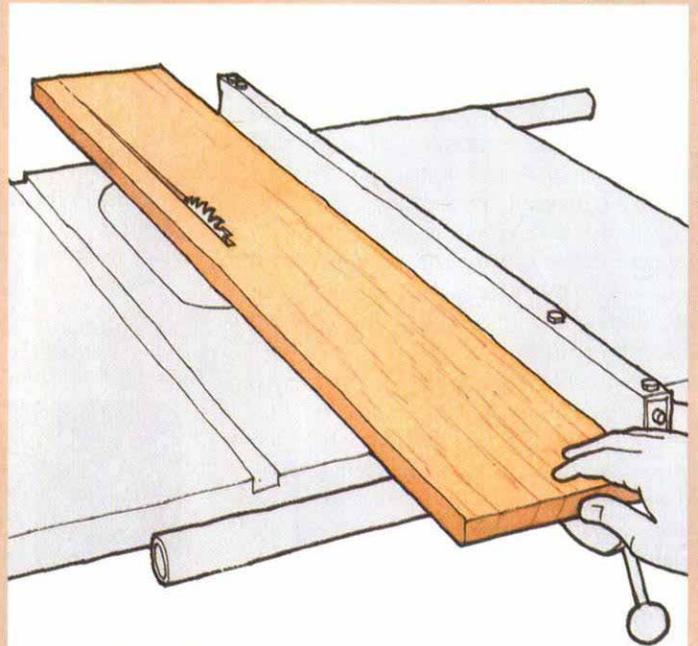
Teeth at the front of a tablesaw blade push stock down as they cut. But when the back of the blade comes into contact with the stock, it can be lifted off the table and thrown back violently at the operator.



CAUSES OF TABLESAW KICKBACK



Misaligned fence forces stock into back of blade.



Stock with internal stress can pinch into kickback zone.

Tablesaw Kickback

*Causes and prevention
of this common shop hazard*

by Kelly Mehler

One afternoon, I was cutting a stack of walnut panels, about a foot square, on my tablesaw. I was being careful, but the repetitive work was mind-numbing. My body was on autopilot, and my brain was taking a snooze. Then, wham! I was slammed in the gut, doubled over in front of the saw. There was no warning; I never saw it coming. It took a few seconds for me to realize that I had been hit by a piece of wood thrown off the tablesaw.

Later, in reconstructing what had happened, I guessed that a short piece of stock had piv-

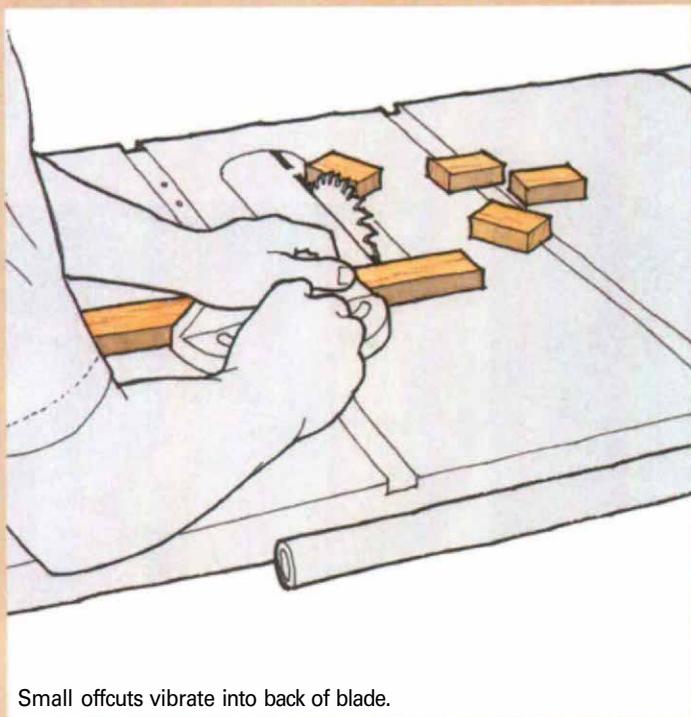
oted into the back of the blade. The result was kickback.

Stock that's hurled by the tablesaw is pretty scary. I escaped serious injury, but I know others have not been so lucky. Recognizing the causes of kickback and its prevention is an important survival skill for any woodworker.

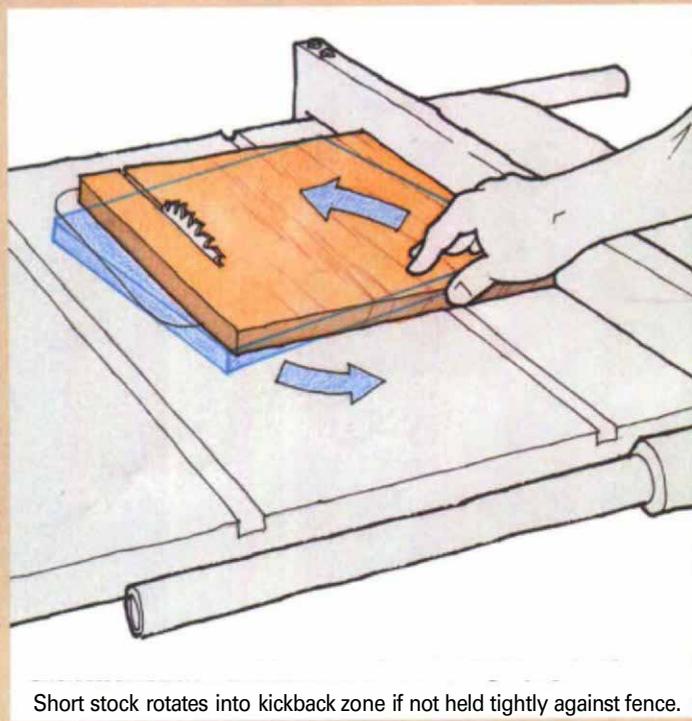
The potential for kickback is inherent with any circular saw, and on a tablesaw, kickback can occur when either ripping or crosscutting. Unlike a bandsaw, where the cutting force drives the stock into the table, a tablesaw can lift the work off the table and throw it with

tremendous force. Under normal conditions, teeth on the back of the blade, which are rising out of the table, don't encounter any resistance because they are in the kerf. Kickback results when stock comes into contact with the teeth at the back of the blade. With the outer edge of a typical 10-in. blade moving at about 100 mph, any workpiece can become a missile.

Even though tablesaw kickback is most commonly associated with ripping, it also can occur when you are crosscutting. Cutoff pieces that vibrate or are pushed into the back of



Small offcuts vibrate into back of blade.



Short stock rotates into kickback zone if not held tightly against fence.

the blade can be launched toward the operator.

A good splitter

Preventing the workpiece from contacting the back of the blade is the only foolproof solution to kickback. This is the job of the splitter. A blade guard alone does not work.

Most stock tablesaw splitters are part of a 3-in-1 unit (see the photo below left) that includes a blade guard, anti-kickback pawls and a splitter. When installed and aligned, this kind of splitter works well for ripping stock. But it must be removed from the saw when cutting grooves, tenon shoulders and

when the stock is not cut completely through. The splitter tilts with the trunnion, but it doesn't rise and fall as blade height is adjusted, so the lower the blade is set, the greater the gap from the back of the blade to the splitter. Consequently, with typical $\frac{3}{4}$ -in.-thick stock, there is a gap of

about 2 in. between the back of the blade and the splitter. Kickback can occur before the work reaches the splitter.

Another splitter, like the one in the top right photo below, has anti-kickback pawls and is used with a separate blade guard. It mounts to the saw's trunnion and shares the same



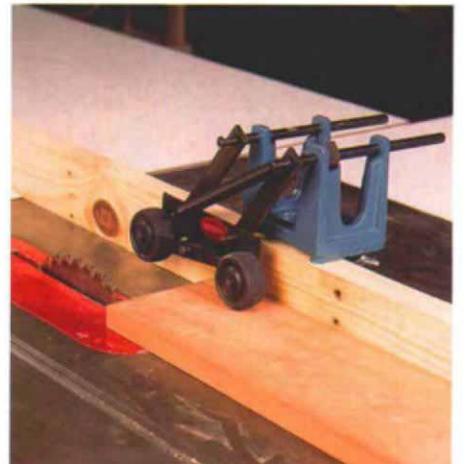
A splitter helps prevent kickback, but this one, with anti-kickback pawls and a guard, must be removed when not cutting completely through the stock.



This splitter is more likely to be used because it dismounts and remounts easily.



The best splitter closely hugs the back of the blade and can be left in place for all cutting operations.



Anti-kickback wheels drive the stock against the fence.

shortcomings as the 3-in-1 unit. The real advantage of this design is that it dismounts and remounts quickly, eliminating one of the chief complaints with the 3-in-1 design.

The best design, one that comes closest to totally eliminating kickback, is the splitter that rises and falls with the blade (see the center right photo on the facing page). As far as I know, this splitter is available only on some European tablesaws. Because it attaches to the arbor assembly, it can be set close to the blade teeth and below the top of the blade. This is handy because the splitter does not have to be removed when stock isn't cut all the way through.

A throat-plate-mounted splitter is another option. It's a thin, hardwood fin glued into a shopmade, wooden throat plate just behind the blade. Because this splitter does not rise or tilt, you may have to make several of them, so you have one suited to the stock thickness you're working with. (For more on this, see *FWW*#115, pp. 70-75.)

Other precautions

Besides a good splitter, other commercial and shop-built fixtures can help prevent kickback. Your strongest ally may be care and common sense. The tablesaw is an easy tool to take for granted, especially when you're tired or in a hurry.

Equipment you can buy or make—A fence that angles toward the blade encourages kickback, so make sure the fence is parallel to the blade or angled away from it slightly. For crosscutting, a crosscut box or a fence attached to the miter gauge keeps cutoffs away from the blade (see the bottom photo at right).

A well-designed push stick is a must for keeping your hand out of danger. A good push stick holds down the work on the saw's table and allows you to steer the work against the fence (see the photo at right). The type that I prefer is shaped like a shoe and is much better than a stick with a bird's mouth in the end.

There are several types of fence-mounted, anti-kickback wheels (see the bottom right photo on the facing page), but they all operate on the same principle. The wheels only allow rotation in the feed direction, and they lock when the stock is pushed toward the operator. The wheels are angled so that they force stock against the rip fence. The wheels only allow rotation in the feed direction, and they lock when the stock is pushed toward the operator. The wheels are angled so that they force stock against the rip fence.

A featherboard clamped to a table is a low-tech but effective way of preventing kickback (see the photo at right). The featherboard has a series of closely spaced kerfs cut into one end. The spring-like fingers hold the work tightly against the fence, and they act like a pawl to prevent the stock from being pushed backward.

Shop practices help, too. A sharp blade cuts with less resistance, reducing the chances of kickback, so it's a good idea to check your blade regularly. Don't stand directly in line with the blade. By standing off to the side, you'll be out of the way if the blade catches a piece of stock and throws it. And it pays to know when to quit. When you're tired or when someone breaks your concentration, it's time to turn off the machine. Kickback happens instantly and seldom when you're expecting it. □

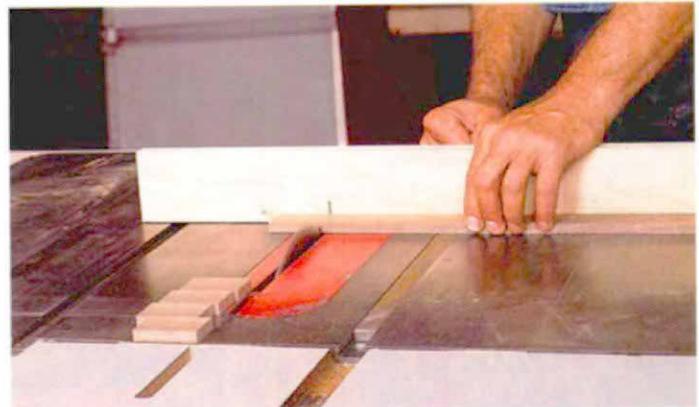
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Large push stick keeps stock against fence and holds it on the table. Note that the author is not standing in line with the blade.



A featherboard holds the stock against the fence, reducing the chance of kickback. Mount featherboard in front of the blade.



Miter-gauge fence prevents kickback by pushing cutoffs away from the blade and providing more support to the stock.