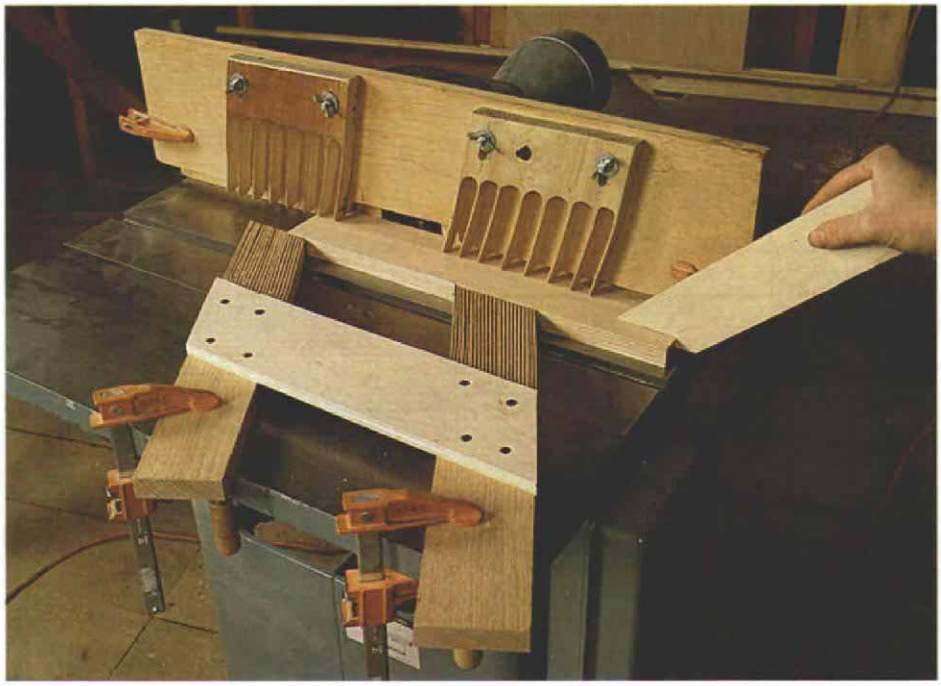
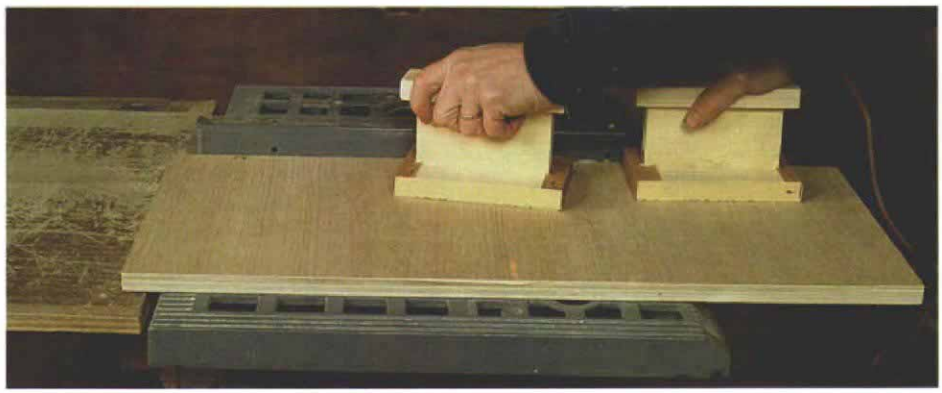
Safety Fixtures for Table Saws and Shapers

Push sticks, push blocks and featherboards keep work on the table and against the fence, with your fingers at a safe distance

by Stephen Winchester



Featherboards and a push stick protect your hands. A push stick should be angled to exert force on the workpiece down and forward. This setup includes hold-ins that hold the stock against the fence and a hold-down fixture that keeps the workpiece flat on the table.



Push blocks safely apply pressure over the cutter. When you need to hold a workpiece firmly on the table and to apply pressure directly over the blade or the cutter, push blocks do the job. Sandpaper on the push blocks provides grip without marring the surface.

Except for my tonsils, I've still got all of my body parts, including ten whole fingers. I took extra time and effort to fashion some simple safety fixtures that not only keep my fingers away from blades and cutters but also improve the quality of my work.

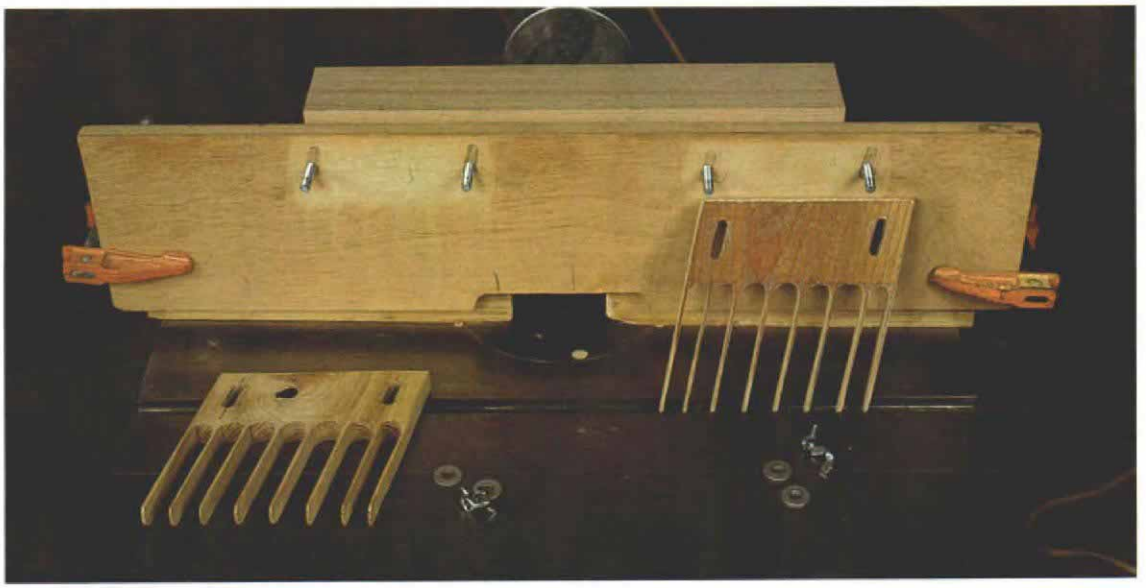
The way I see it, if a few simple fixtures provide a better finished product and leave you with all ten fingers to show for it, then it's worth it for me to explain how to make and use these fixtures. You still have to be careful; these fixtures won't keep anyone from sawing their fingers off, but they definitely make working with tools such as table saws and shapers a lot safer.

Push sticks send stock past blades—The basic tool for keeping your fingers a respectable distance from a blade or a cutter is the push stick (photo top left). This simple tool nudges the end of a board past a spinning sawblade, which is a real comfort when ripping narrow strips on a table saw, for example, or pushing that last piece of molding through the shaper.

Everyone's got a push-stick design; mine is a thin block of scrap—maybe ⅜ in. thick by 10 in. long—that's angled on one end and rounded on the other. The angled end has a square notch that locks onto the end of the stock. I angle the end of the push stick so that I can push down and forward, keeping the workpiece on the table and moving right along.

I keep a push stick on the saw table on the opposite side of the fence, where it's handy. Then, as I'm ripping stock, I grab the stick to push through the last foot or so. When ripping long stock, I support the outfeed end with a table or roller stand.

Push blocks can be made from scraps—Push blocks (photo bottom left) hold stock firmly on the table, reducing the chances that the stock will take off and leave your hands in harm's way. Push blocks are especially useful when you have to put pressure on a workpiece directly over a blade or a cutter, such as when jointing a board or cutting dadoes on a table saw. You can buy



Featherboards on this hold-down fixture are adjustable. A pair of ash featherboards is mounted on carriage bolts in a plywood auxiliary fence. Cut on a bandsaw, the featherboards feature adjustment slots that allow for up-and-down movement without unclamping the auxiliary fence from the saw fence.

manufactured push blocks with rubber contact surfaces, but I make my own from blocks of scrap and sandpaper (photo center right). Like manufactured push blocks, my push blocks grip the workpiece without damaging it. But if mine wear out, I replace the sandpaper, and the push block is full of grip and ready to rip.

My push blocks also are practically free; I make them from stuff that's lying around. I screw together three pieces of scrap—a 3½-in. wide by 6-in. long bottom piece, a 1½-in. wide by 6-in. long handle and a 2½-in. wide by 4½-in. long stretcher between the handle and the bottom-countersink the screws and" staple or glue some medium-grit sandpaper to the bottom.

Keeping stock against the fence—Used to hold stock down on the table or against the fence, featherboards not only help keep fingers away from the blade or the cutter, but they also reduce the possibility of kickback, a situation in which the blade catches the workpiece and throws it off the table.

Featherboards that hold stock against a rip fence are called hold-ins. I make mine from a piece of ¾-in. scrap that's at least 3 in. wide and maybe a foot long (photo bottom right). I use oak or ash because they're springy, although any hardwood that isn't brittle makes a good featherboard. I cut an angle on one end anywhere from about 15° to about 45°, depending on where a particular setup allows for space to clamp the featherboard on the saw table.

The feathers in the featherboard are 3-in. long to 6-in. long kerfs cut about ⅛ in. apart in the angled end. I use a bandsaw to cut kerfs. Shorter kerfs make for a stiffer featherboard; longer kerfs are more flexible and make it easier to send warped boards through the blade or the cutter.

When ripping wood on a table saw, I clamp a hold-in to the table at the infeed side of the blade. When shaping molding or rabbeting an edge, I screw a wood bracket to a pair of featherboards, and I clamp the apparatus so that the featherboards hold the stock against the fence at both the infeed and outfeed sides of the cutter. The featherboards' angled and kerfed ends press against the stock and keep it from moving backward and kicking back.

Keeping stock flat on the table—A featherboard that prevents stock from lifting off the table is called a hold-down. The one I use on my shaper consists of a pair of 6½-in. wide by 7-in. long ash featherboards fastened to a ¾-in. plywood auxiliary fence (photo above). The auxiliary fence is 6½ in. high by 30 in. long with a small cutout for clearance around the cutter.

I cut the featherboards on the bandsaw. Each feather is 4 in. long, 3/32 in. thick, and is cut at a 12° angle. The angled feathers keep stock from kicking back. The greater the spacing between the feathers, the more flexible the feathers become. My ¾-in. spacing makes the feathers flexible enough so that pushing warped stock under the featherboards isn't a problem.

The featherboards have adjustment slots so that they can be moved up or down without unclamping the auxiliary fence. To make the adjustment slots, I drilled ⅜-in. holes 1½ in. apart and connected the holes with a jigsaw. Then I mounted each featherboard to the auxiliary fence with two 2-in. by 5/16-in. carriage bolts, 5/16-in. flat washers and wing nuts. The wing nuts let me adjust the featherboards snug to the stock by hand. I also can take the featherboards off the auxiliary fence and turn them around, which allows me to run the stock through the shaper in either direction.

Using the hold-down fixture is simple. After placing the stock on the shaper table, I clamp the hold-down auxiliary fence to the shaper fence with the featherboards on the stock. I tighten the wing nuts and, without turning the shaper on, push the stock under the featherboards to see if they're putting enough pressure on the stock. Once I've adjusted the featherboards so that the stock passes easily but firmly beneath them, I'm ready to shape or joint a board.

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Sandpaper provides grip and is replaceable. The author made his own push blocks easily and cheaply from three pieces of scrap screwed together. The blocks are made in pairs, one for each hand.

Kerf length affects stiffness. Longer kerfs make more flexible feathers, which make it easier to push bowed stock past the cutter. Different angles allow each featherboard to be clamped to a different area of the table.