Woodsmith PLANS

RIPPING JIG FOR STRAIGHT LUMBER

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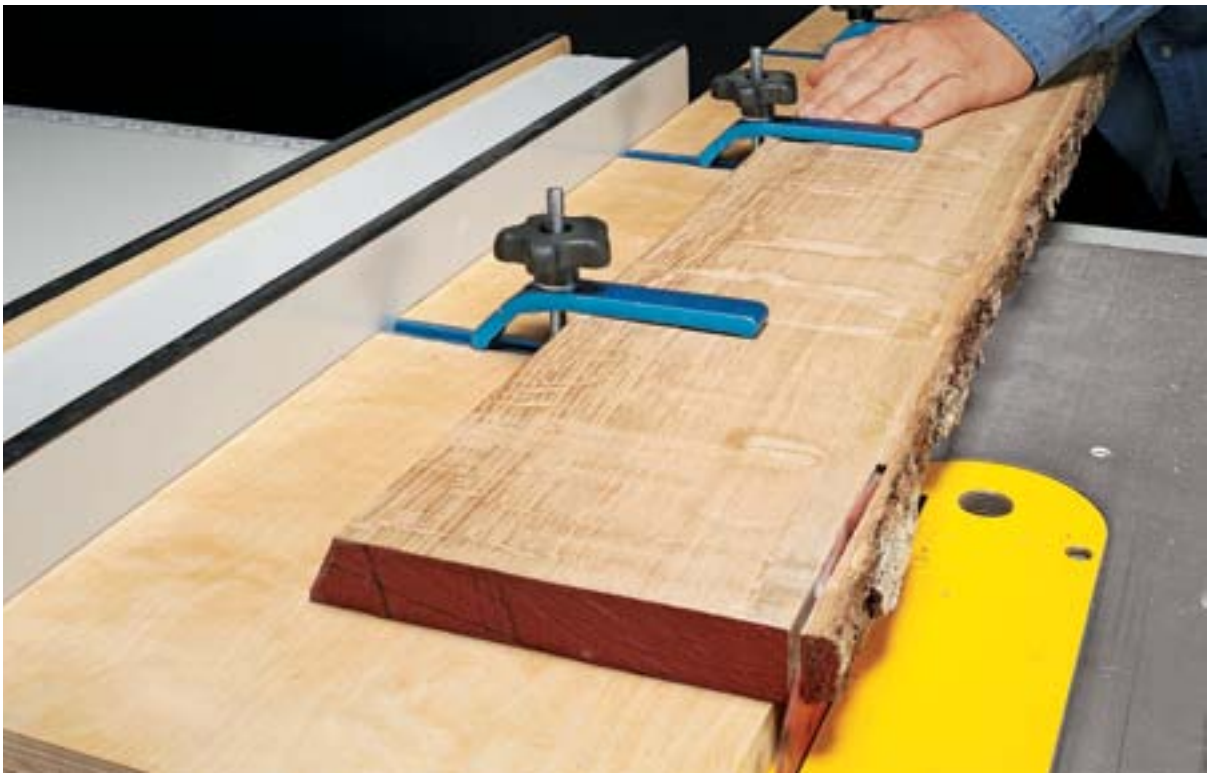
Straightening rough or crooked lumber will take time, but it's an easy task when you use your table saw and one of these handy jigs.



Buying rough lumber can save you money. But once it's in the shop, you'll have to prepare it for use. And this usually involves ripping a straight edge on the board.

Normally, I turn to the jointer to straighten a piece of stock. But with rough or severely crooked stock, this often isn't an option. Bark on the edge of rough lumber is tough on jointer knives. Plus, it's difficult to joint a long board, especially if it has a serious crook.

CARRIER BOARD. The key to turning a crooked board into a usable workpiece is to start by getting one edge straight. One of the easiest ways to do this is to use a carrier board. A carrier board is nothing more than a piece of plywood or MDF, perfectly straight on one edge. Clamps or screws hold the workpiece on top, as shown in the photo on the right.

Once you have the carrier board attached to your workpiece, all you need to do is run the carrier board against the rip fence of your table saw to make the edge straight.

CLAMPING CARRIER BOARD. If you have several boards to straighten, you can make a clamping carrier jig, like the one in the main photo.

This jig is simple to make (drawing on page 2). It's just a piece of ¾" plywood cut with a perfectly straight edge. T-track is installed in dadoes and the hold-down clamps keep the lumber in place as you make the cut to straighten the edge. You use this jig in the same way as the carrier board. An added benefit of this jig is that it can be used for cutting a taper on a workpiece.

▲ *The fastest way to get a straight edge on rough lumber is to fasten it to a carrier board.*

To cut a taper with this jig, just line up the tapered edge you want to cut with the edge of the jig, and clamp the workpiece in place.

FACTORY MADE FIXTURE. A third option for ripping a straight edge on a board is the *General Tools' E-Z Jointer Clamp Kit* that you see in the photos at right (available through GeneralTools.com, #846). This fixture allows you to attach a guide board to the edge of your workpiece.

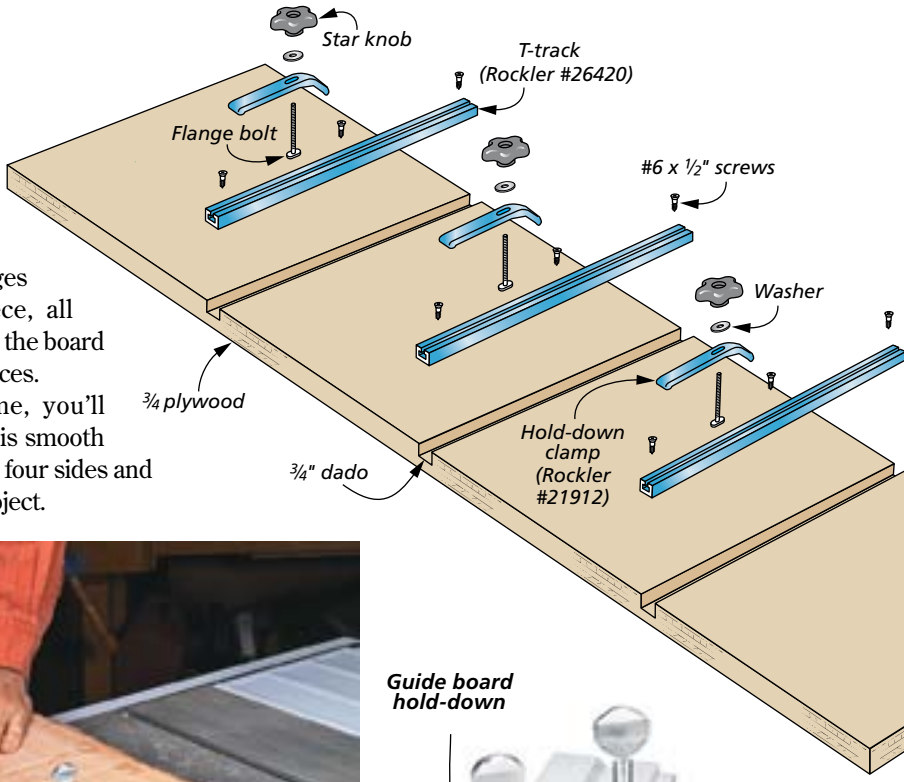
One side of the fixture clamps to a guide board, and the other side clamps to the workpiece, as shown in the right photo. Then you just set the fence to the correct distance and rip a straight edge.

A SECOND STRAIGHT EDGE. Once you have one edge on a rough sawn board, it's easy to get a second edge. Even if the board is crooked on both edges, you can turn the straight edge you've created to the rip fence and straighten the opposite edge.

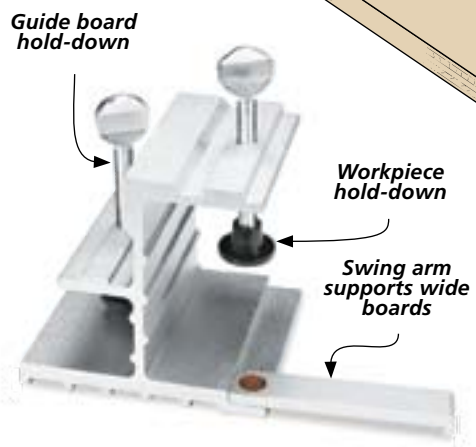
If the saw blade leaves marks on the newly created straight edge, just clean it up on the jointer. If you don't have a jointer, your table saw will do the job, too. The simple process is described in the How-To box below.

Once you're done cleaning up any saw marks on the edges of your workpiece, all that's left to give the board smooth and flat faces.

In a short time, you'll have lumber that is smooth and straight on all four sides and ready for your project.



▲ *Jointing clamps are made specifically for obtaining a straight edge on rough lumber. They clamp to the workpiece and a guide board.*



JOINTING ON A TABLE SAW

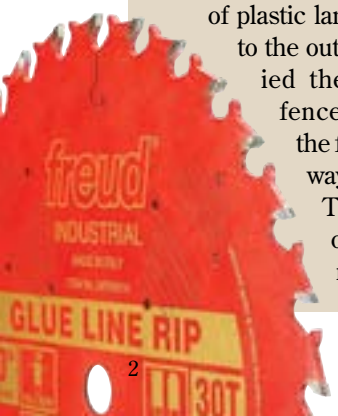
Once you've removed the edge from your rough lumber, you may find some saw marks left by the rip blade. If you don't have a jointer, you can use your table saw to smooth the edge.

You can see in the photo at right how I've set up my table saw to joint an edge. It's just a MDF auxiliary fence with a piece of plastic laminate attached to the outfeed side. I buried the blade in the fence by clamping the fence about halfway over the blade. Then I just turned on the saw and raised the blade to its full height to make a clearance space for the blade. You'll want the laminated outfeed side of the fence flush with the outside edge of the saw blade, just as the outfeed side of a jointer is higher than the infeed side.

When using my table saw as a jointer, I like to use a *Freud Glue Line* rip blade because this blade leaves a smooth surface. If you don't have this particular blade, you can use any sharp rip or combination saw blade.

Once the auxiliary fence is set up, pass the board over the table saw holding the edge firmly against the fence. Moving steadily, you'll remove blade marks.

▲ *Using a table saw as a jointer takes a minimum amount of setup. An auxiliary fence with laminate attached can be clamped to the rip fence.*



Woodsmith PLANS

PUSH BLOCK AND PUSH STICK

PUSH BLOCK

A push block doesn't have to be a simple scrap piece that you throw away after one use. This version is designed with a comfortable, practical handle and a replaceable body.

Using a push block on a table saw is just good sense: it keeps the workpiece under control and it provides a protective barrier between your hand and the saw blade.

Unlike most push sticks that stay behind the workpiece and offerslittle control over longer boards, this push block keeps the workpiece under control through the entire cut. (Shopt Note: For an improved push stick design, see page 5.)

The size and angle of the handle make it comfortable and practical to use, but that's not the only reason for the distinctive shape. It's designed to exert forward pressure to push the workpiece through the blade, as well as downward pressure to prevent chattering. The 2x4 body rides on edge to put extra inches of solid wood between your fingers and the blade.

REPLACEABLE BODY. Ordinary push blocks get chewed up after being run over the saw blade. This one is designed so the body and the heel can be replaced as often as needed.

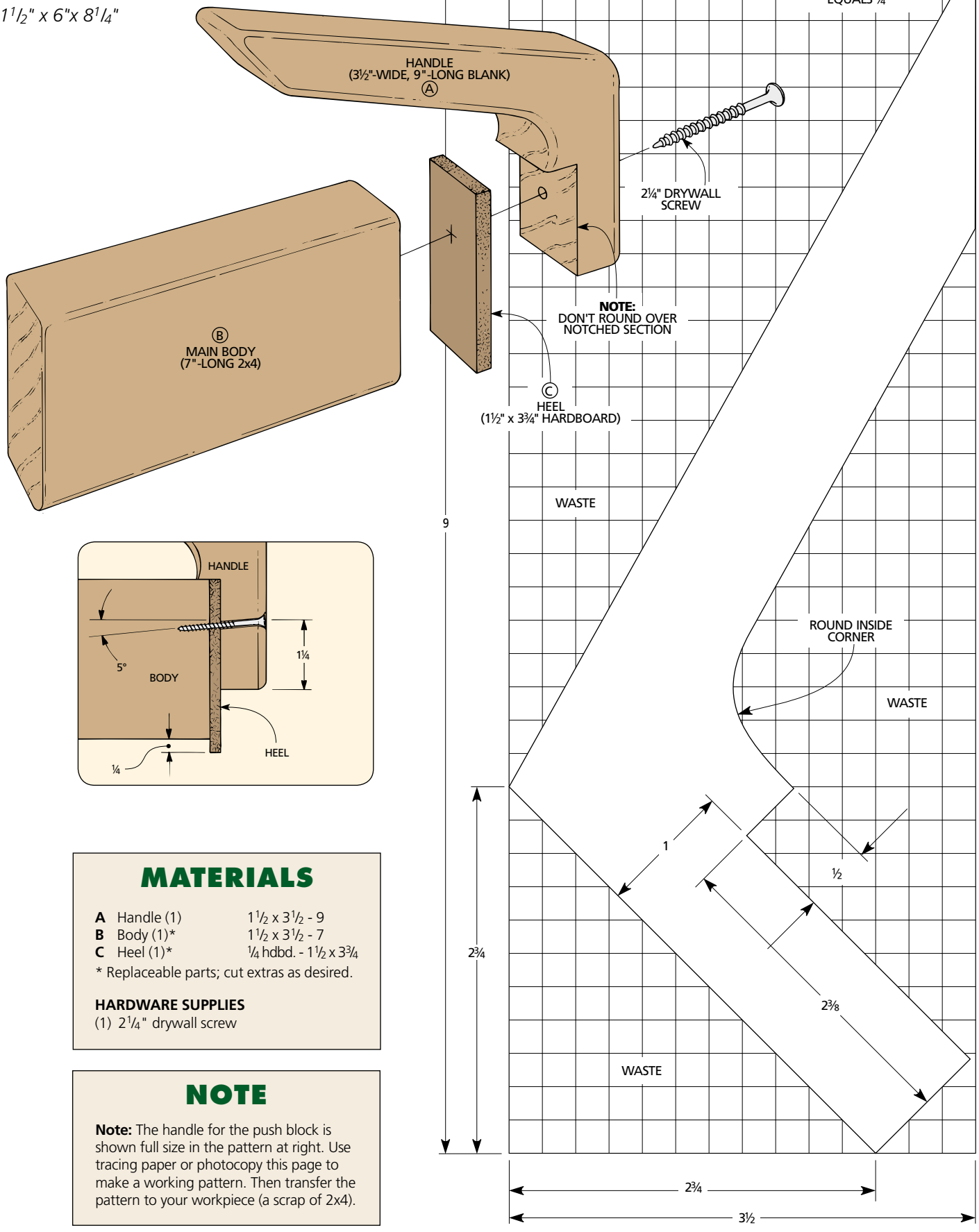
This push block is particularly useful for ripping thin strips, because the heel pushes both the workpiece and the waste completely past the blade without the danger of kickback (see "Using the Push Block" on page 4). If you need to cut lots of narrow stock, you may prefer a block specifically designed for the purpose. You'll find one in the Shop Tip box on page 4.

MATERIALS. The body is nothing more than 2x4 scrap, and the heel is cut from hardboard. I cut the handle out of 2x4 scrap as well. However, since the handle is the part that will last a long time, you could also make it out of hardwood, if there's a suitable piece in your scrap bin.

While you're making this push block, it's worth taking time to cut several extra bodies and heels. This way you will always have replacements on hand whenever you need them.

Construction Details

Overall Dimensions:
1 1/2" x 6"x 8 1/4"



MATERIALS

A	Handle (1)	1 1/2 x 3 1/2 - 9
B	Body (1)*	1 1/2 x 3 1/2 - 7
C	Heel (1)*	1/4 hdbd. - 1 1/2 x 3 3/4

* Replaceable parts; cut extras as desired.

HARDWARE SUPPLIES
(1) 2 1/4" drywall screw

NOTE

Note: The handle for the push block is shown full size in the pattern at right. Use tracing paper or photocopy this page to make a working pattern. Then transfer the pattern to your workpiece (a scrap of 2x4).

This push block has only three parts: a replaceable body (made from a scrap of 2x4), a ¼" hardboard heel that hooks over the end of the workpiece (the heel is also replaceable), and a handle.

HANDLE. The handle (A) is the key to the whole design of this push block system, so it's worth making a good one. I cut the handle out of a scrap piece of 2x4, but any 1½"-thick stock will do.

Start by cutting the handle blank 3½" wide by 9" long (see the full-size pattern on page 2).

Now, lay out the pattern shown in the diagram on the blank. Then cut the handle to shape using a band saw or a jig saw.

After cutting out the shape, round over the sharp edges of the handle by filing and sanding them smooth.

DRYWALL SCREW. Attach the handle to the 2x4 body through the heel with a 2¼"-long drywall screw (see the detail drawing on page 9).

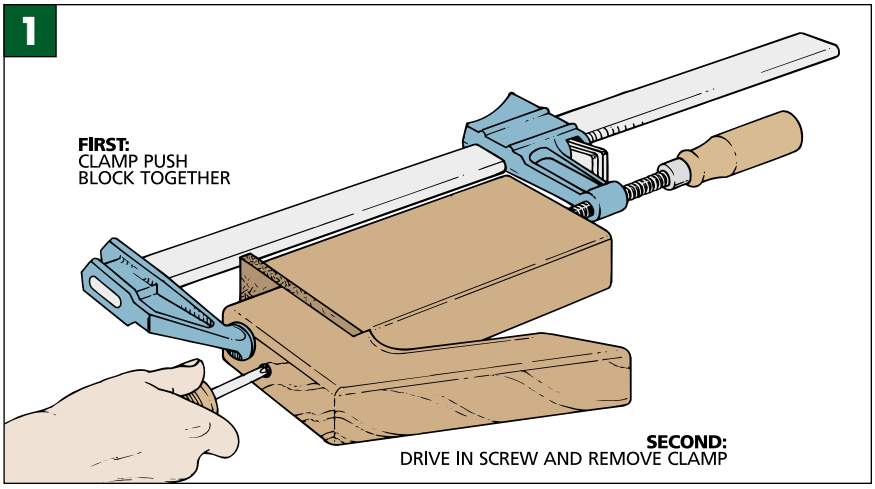
Drill a shank hole for this screw at a slight angle (about 5°). This way, when the screw is tightened down it will pull the body and heel tight into the notch in the handle.

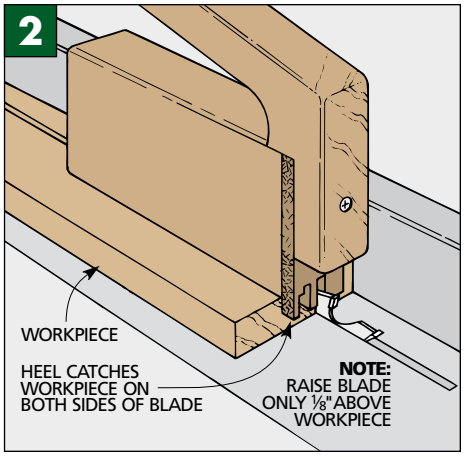
BODY AND HEEL. When the handle is complete, the next step is to cut out the body of the push block.

For the body (B), cut a scrap piece of 2x4 to a length of 7". You could also use any other type of 1½"-thick stock, but since the body will be replaced several times, you will probably want to use inexpensive material.

The heel (C) is cut from a piece of ¼"-thick tempered hardboard. It's the same width as the body, or slightly less. It needs to be narrow enough not to catch on the rip fence, but also wide enough to catch the workpiece steadily on either side of the blade when ripping thin strips (refer to Fig. 2). It should extend ¼" below the bottom edge of the body.

Note: Since the body and the heel are eventually going to get chewed up, it's a good idea to cut several of each of these pieces. This way, you'll be sure to have plenty on hand as replacements.





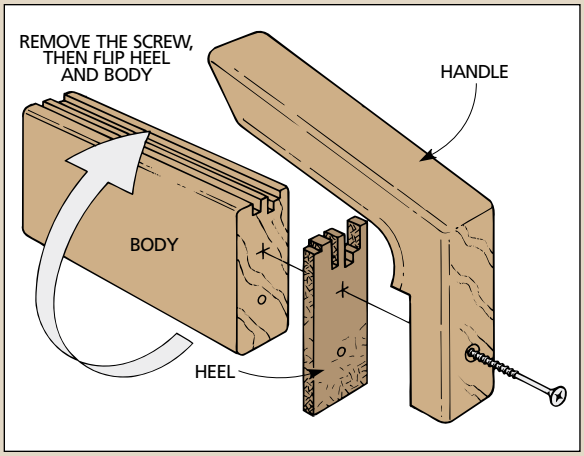
ASSEMBLY. To assemble the push block, clamp the parts together on a flat surface (Fig. 1). Then drive a drywall screw through the shank hole in the handle and into the body.

REUSING THE BODY

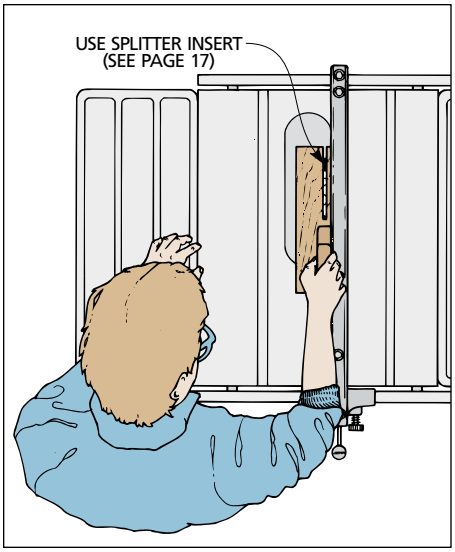
When I was assembling the push block (see above), I decided to use a drywall screw rather than a standard woodscrew. The reason is that the threads of a drywall screw don't require a pilot hole.

This is especially handy when it comes time to replace the heel and body of the push block after they've become too chewed up to use. Drilling a new pilot hole for the screw every time would defeat half the purpose of having a conveniently replaceable body.

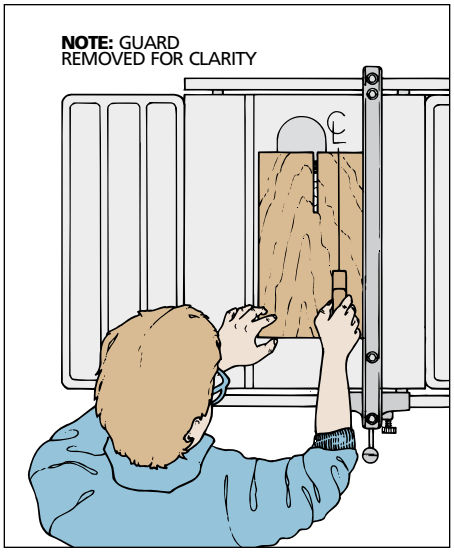
When the body and heel of the push block first get chewed up, you don't even have to replace them with new pieces. Instead, just flip both parts around and you're ready to go with a fresh edge (see drawing).



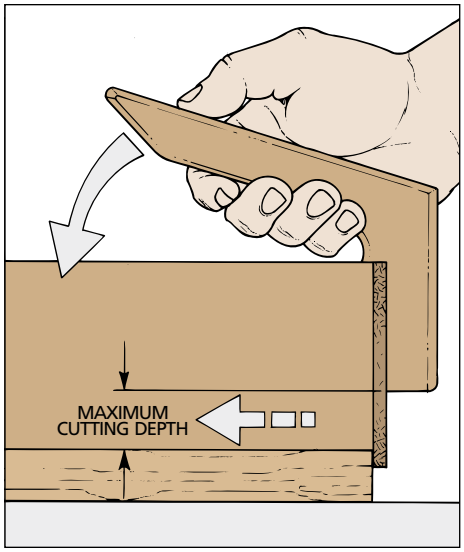
Using the Push Block



Ripping Thin Strips. *This push block can be very helpful when ripping thin strips on the table saw. The body keeps the thin strip steady, while the heel pushes the thin strip smoothly through the blade without kickback.*



Preventing Pull. *To prevent a workpiece from pulling away from the rip fence during a cut, center the push block between the blade and fence. Then apply gentle pressure toward the fence throughout the cut.*



Two-Way Fence. *The angled handle not only provides a comfortable grip for your hand, but also force in two directions. It allows you to push straight ahead and also press the workpiece down (to prevent chattering).*

THIN STRIP PUSH BLOCK

Sometimes when ripping thin, narrow strips from wider stock, I don't feel altogether comfortable using a push block that's designed mainly for wider stock. And it's nice having more than one option in the workshop. So I also built a special thin strip push block that straddles my rip fence (refer to Fig. 2).

This version is made from two face pieces of ¼" hardboard and a spacer. And for different thicknesses of stock, I cut stair-step notches on the front end of the hardboard face nearest the blade.

To make this push block, start by cutting a ¾"-thick spacer to width to match the thickness of your rip fence. The width is critical because the push block should fit snugly over the rip fence, but not so tight that it binds.

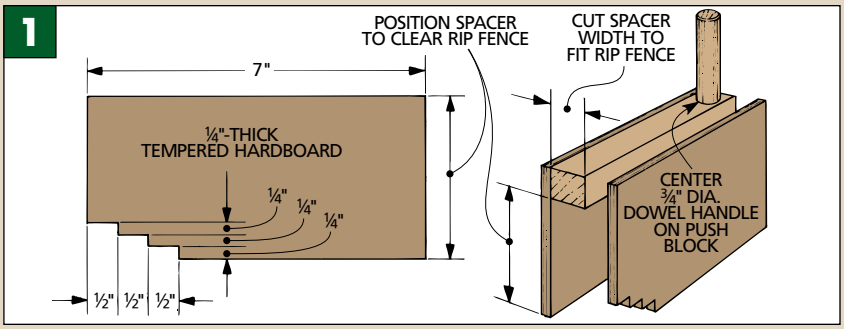
Cut the two hardboard face pieces 7" long and high enough to clear any adjustment bolts on the top of the rip fence, plus ¾" for the thickness of the spacer (Fig. 1).

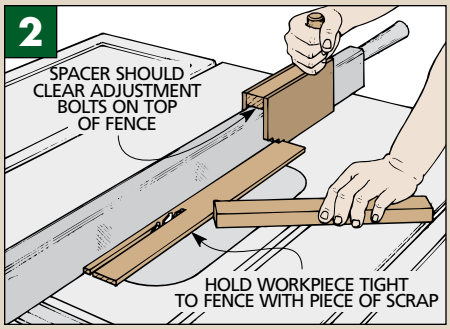
To cut the stepped cuts on the piece that faces the saw blade, lay out and cut a stair-stepped design. Each step is ¼" high and ½" wide. (I cut mine using the band saw.)

Next, glue the face pieces to the spacer so the bottom edges ride on top of the saw table and the spacer clears the top of the rip fence. Then, to get a secure grip on the push block, I drilled a ¾"-dia. hole near the back of the spacer for a dowel.

To use this push block to rip narrow stock, first set it over the fence with the notch on the push block over the workpiece.

To help hold the stock tight against the fence, you can use a featherboard or just hold a piece of scrap against the piece while cutting (Fig. 2).





Push Stick Pattern