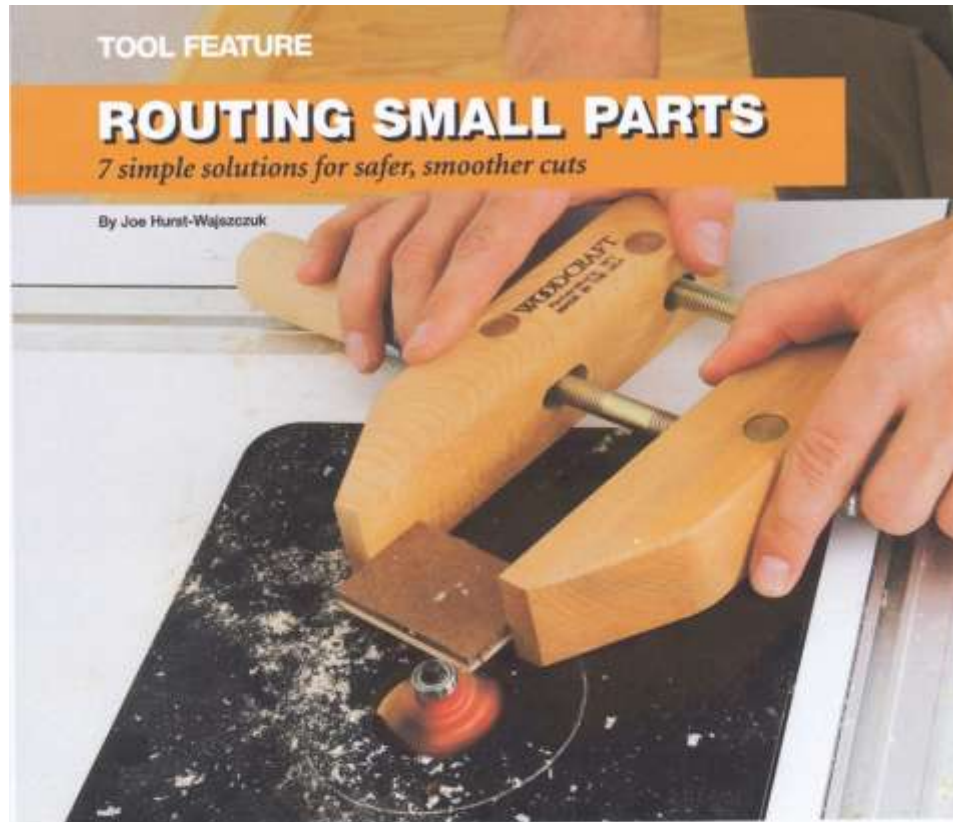


ROUTING SMALL PARTS

WHILE KEEPING YOUR FINGERS

USE A CLAMP TO HOLD THE WORKPIECE



TOOL FEATURE

ROUTING SMALL PARTS

7 simple solutions for safer, smoother cuts

By Joe Hurst-Wajszozuk

The power behind a bit spinning at 20,000 rpm is difficult to fully appreciate, that is, until an accident happens. I learned this first-hand when my router's collet assembly broke free of its armature. Before I could hit the stop button, the free-floating bit bounced around and chewed up the piece I had been trying to rout. Had it not been for a good hold down (and a little luck) this story could have ended with a 911 call.

Routers seem tame, but that little bit can take a big bite out of your work and you, just like any bigger-bladed machine. That's why when parts get really small, it helps to break out the big guns. Here's an arsenal of jigs, fixtures and sure-fire techniques you can employ to rout small pieces as

safely and smoothly as possible. We've kept them simple so you won't have any excuse not to use them, no matter how quick or small a cut might seem.

1 Handscrew keeps hands out of harm's way

Wooden clamps (shown above) excel at keeping fingers clear of the action, and they won't damage pricey carbide should they come in contact with the bit. For the best grip, tighten the front screw then loosen the back screw to wedge the wooden jaws against your workpiece. Ensure the workpiece rests flat on the table. When a piece is really thin, attach a layer of hardboard with double-faced tape to create an edge that guides against the bit's bearing.

PHOTOS: CHAD MOULDER

USE A HOLD-DOWN



This softwood hold-down is simple, safe, and sacrificial. For a no-slip grip, attach sandpaper to the base, or attach a few small tabs of double-faced tape. Replace the tape when it loses its tack.

2 Two-Handed Hold-Downs

Double-grip hold-downs may not be twice as safe as one-handers, but they do a better job of keeping both hands clear of the bit and offer supreme control of the workpiece. Both the all-wood (**Photo A**) and the wood/polycarbonate combo (**Photo B**) are easy to build so you can make different sizes to fit your needs. In addition, the larger footprint offers better stability. Both are easy to build so that you can quickly make a few different sizes to fit your work;

that way you won't lose control lifting and repositioning in the middle of a cut.

To make one, start with a thick piece of wood or polycarbonate and drill two holes for the 1" dowel handles. Glue the dowels in place in the wood option, or screw them up through the base with countersunk brass screws. Next, attach sandpaper or double-faced tape to the bottom of the base for a better grip. Finally, knock down sharp edges with sandpaper, but don't spend too much time on looks or finish-sanding since the jig is likely to encounter front-line combat.

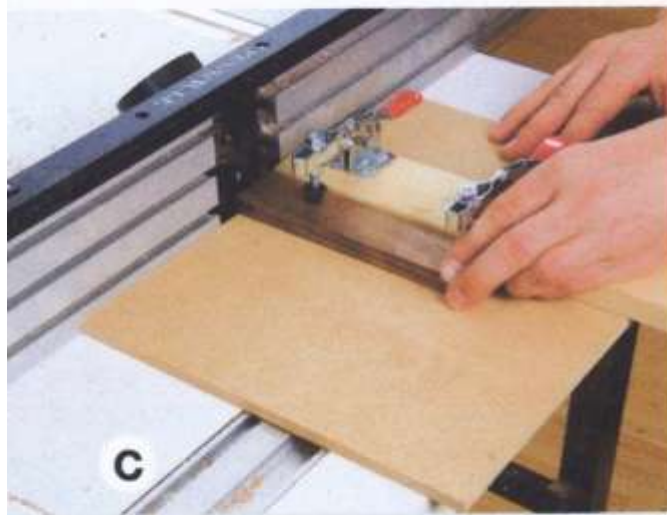


Use this see-through hold-down to view the board/bit contact. Polycarbonate costs more than acrylic, but this shatter-resistant material serves better for any jig that encounters a spinning bit. Drill shallow holes in the dowel handles and counterbored screw holes in the underside of the base bottom.

USE A SLED

3 Routing Sleds Hold Their Own

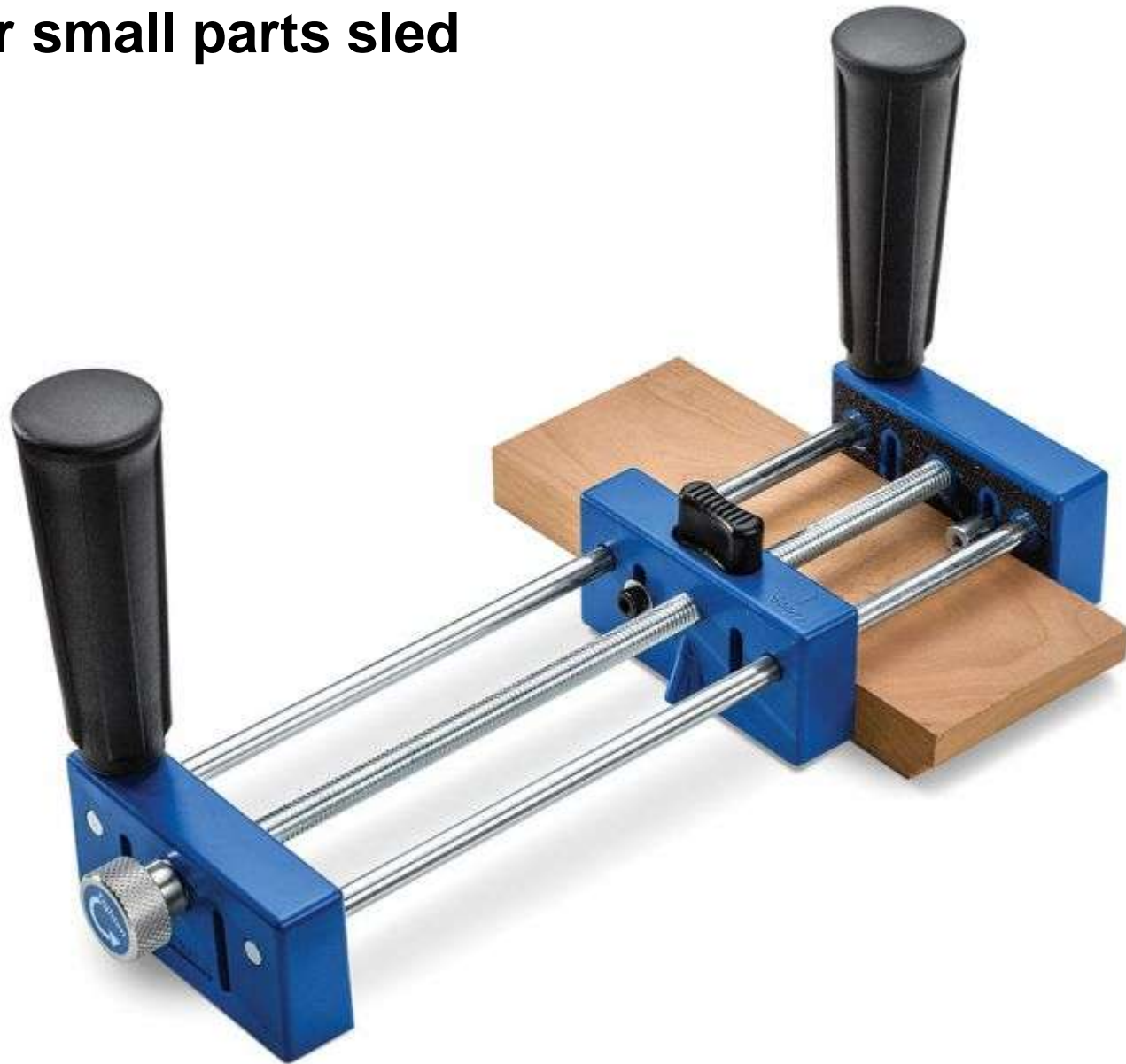
The only disadvantage with hold-downs is that if you press down too hard to get more control, you could stall your effort to slide the stock past the bit. Avoid this by directing the clamping pressure to a hardboard sled that rides (and “glides”) in the table’s slot as shown in **Photo C**. The jig includes a hold-down clamp that allows for a rock-



A sled helps small workpieces behave like bigger ones. Cut the base slightly oversize and attach the fence near the center as shown. This provides even support of the workpiece along the full length of the fence during the cut.

solid grip on the workpiece. Better still, the oversized base bridges the bit opening in the fence, eliminating the problem of having a handheld small board tip into the bit at the beginning of a cut or having the bit catch the back edge and gouge it. The jig’s backer board—another plus—prevents splintering the workpiece when the bit exits the cut.

Rockler small parts sled



Rockler coping sled



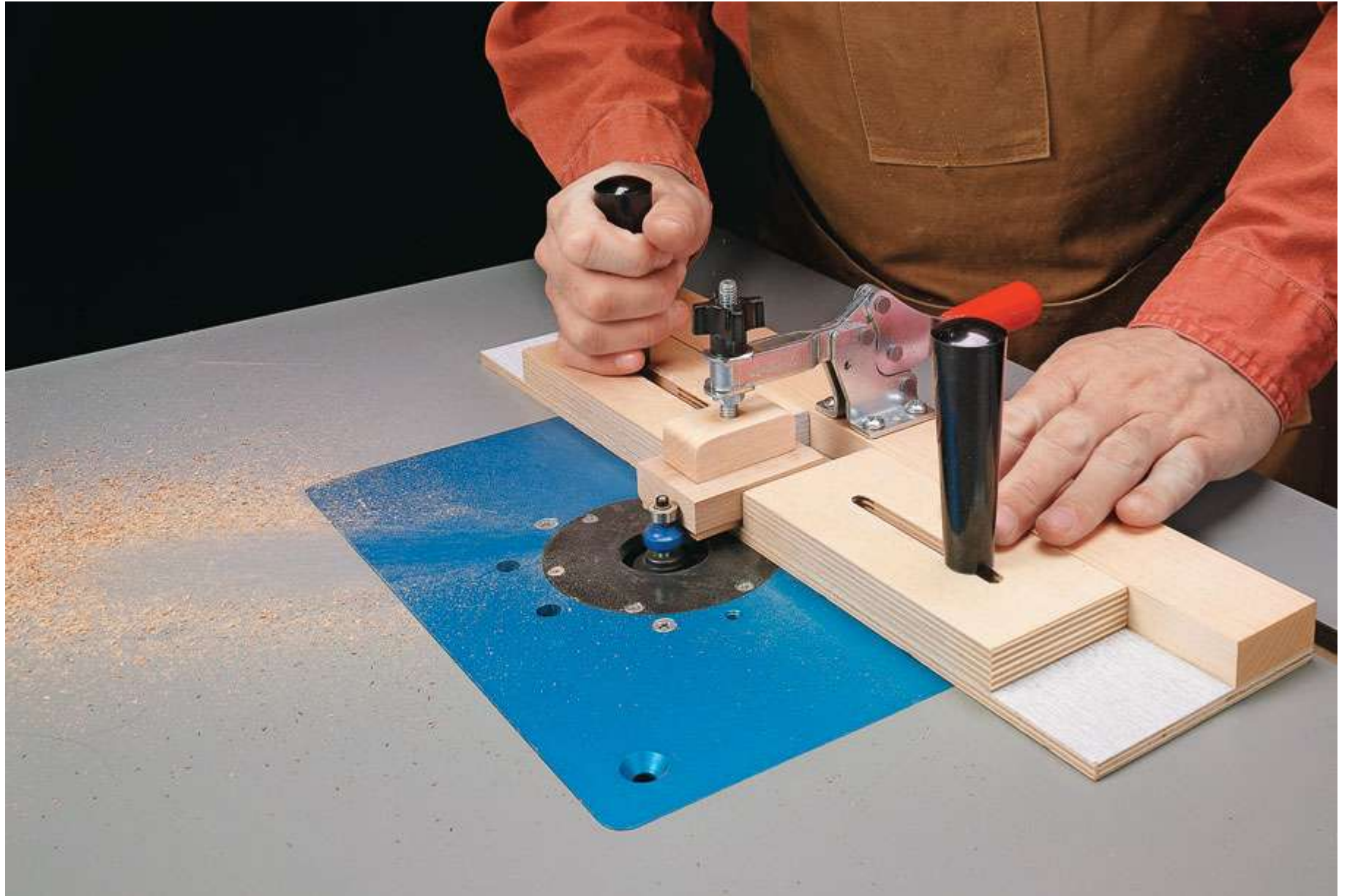
Sherwood coping sled



DIY small parts sled



Woodsmith small parts jig



TEMPLATE ROUTING SLED



USE WIDER STOCK, THEN RIP TO SIZE

4 Strip Routing

When tackling the nerve-fraying task of routing the edges of thin strips, think strategy first. Wider is better, whether you're profiling edges or routing a groove. If possible, rout the needed edges on wider stock as shown in **Photo D**; then rip the pieces to width on a table saw. Be sure to dimension the wider stock a

few inches longer to avoid machining issues at either end of the workpiece. Finally, crosscut the pieces to final length.



Routing then ripping sidesteps the small-part problem. When ripping, position the profiled edge on the free side of the blade; trapping the strip between the blade and fence can cause kickback.

USE A TUNNEL JIG

TOOL FEATURE

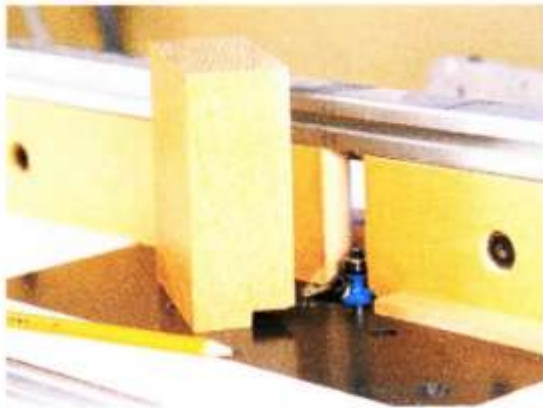
5 Two-Cut Tunnel Jig

Sometimes you just don't have enough material to rout then rip. In this case, you need a way to keep narrow strips against the bit without tipping. Enter the tunnel jig shown

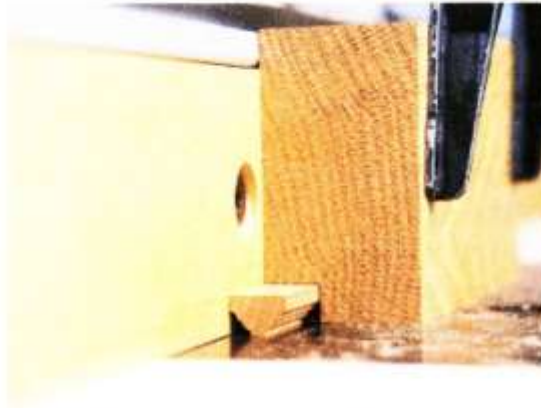
in **Photo E**. This jig is not only simple to make, it also prevents strips from tipping and safely shrouds the bit. Unlike feather boards, the tunnel jig doesn't press stock into the bit, reducing the likelihood of mid-cut burn marks. Cut an extra strip to serve as a pushstick when running workpieces through the tunnel.

The tunnel jig is a piece-specific jig, made from a 6-8"-long piece of scrapwood. Mark the height and width of the strip on one corner of the block, then remove that corner at the table saw (creating a sized rabbet). Clamp the block to the router table fence as shown.

E



Make the block large enough to clamp to the router table fence, and mark the size of the notch directly from the stock to be milled.



Because the piece is surrounded by the notched block, it can't twist or roll, even though very little wood remains on the table surface.



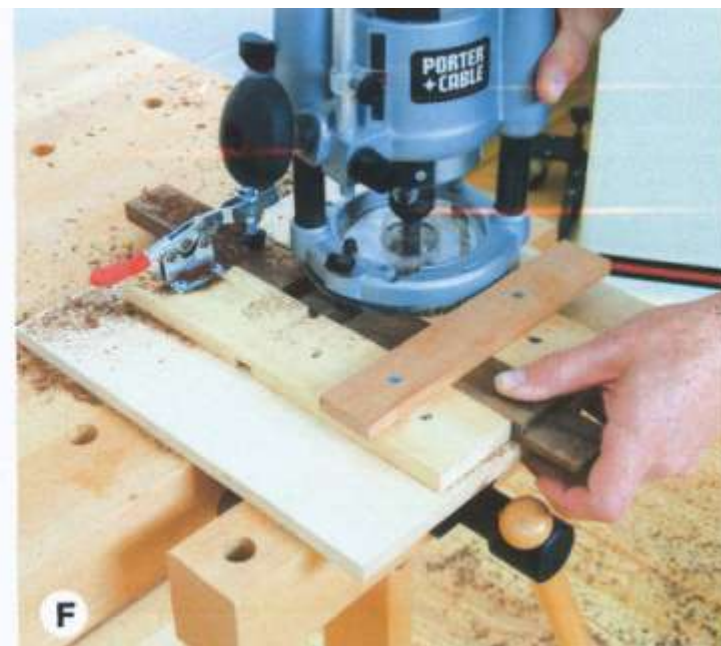
The wood to be milled should slide easily through the notch. Hand pressure on each side ensures an accurate cut.

WIDEN THE ROUTING SURFACE

6 Cross-Grain Routing Base

Rabbets, dadoes, and tenons all require cross-grain cuts. Here's a jig you can use to rout rabbets and grooves when you don't have much wood to work with. By sandwiching your workpiece between two boards, the jig provides a wider platform for the router's base to slide across. These same sides also protect your work from bit tear-out, and the guide fence offers a reliable straightedge.

To make the jig, cut two sides the same thickness as the workpiece. Position the workpiece between the sides to ensure a tight fit, then screw the sides to the plywood base. Now attach the fence across the sides to serve as a straightedge guide for your router. Cut and fit a stop to slip between the sides and screw on a toggle clamp to secure the stop or your workpiece, depending on the operation. Install a bit in your router and rout a shallow test dado to show the exact location of the cut and for cutline alignment. As shown in **Photo F**, we clamped the jig to a bench vise, but you could also set it on a non-slip bench mat.



F

To rout half laps, clamp a stop between the sides so that the notch lines up with your shoulder line on your workpiece. Butt the piece against the stop, make the first cut, and gradually pull it away from the stop, moving the router back and forth against the fence as you go.

To rout dadoes, align the cutline with the notch, clamp the piece, then make the cut. For wider dadoes, reposition the piece and rout the opposite shoulder. Now rout out the waste.

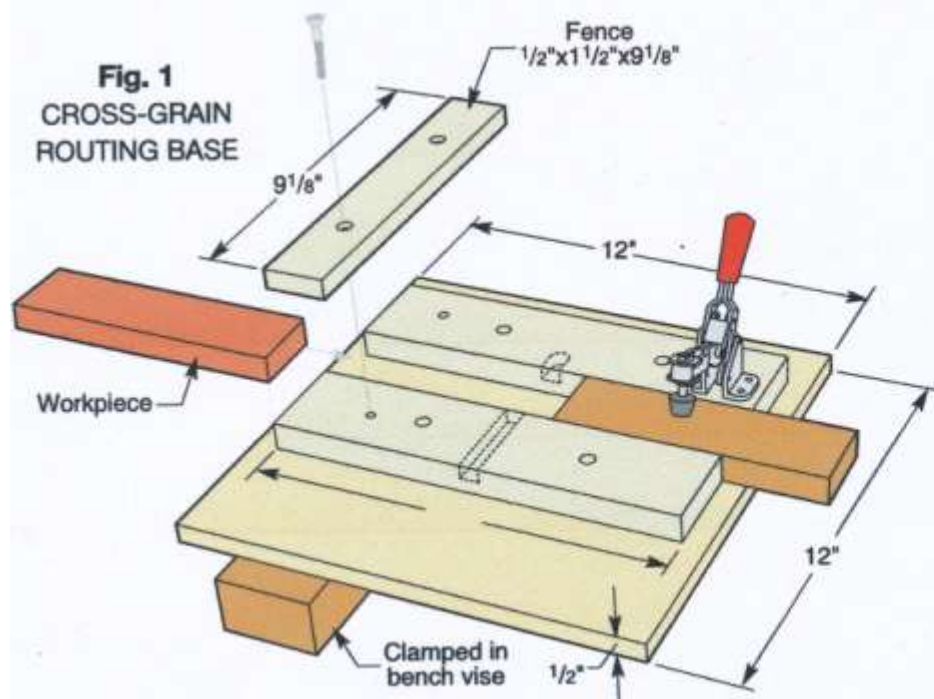


Fig. 1
CROSS-GRAIN
ROUTING BASE

MAKE A ZERO CLEARANCE AUXILIARY FENCE AND BASE

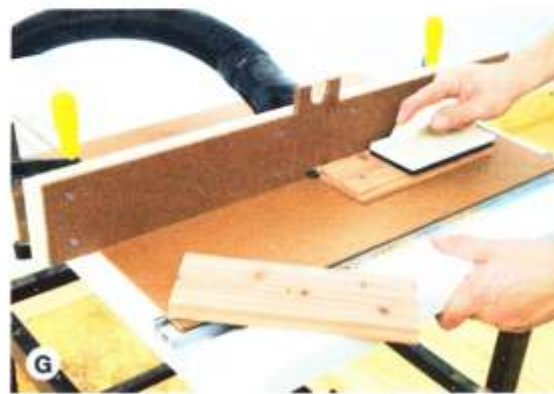
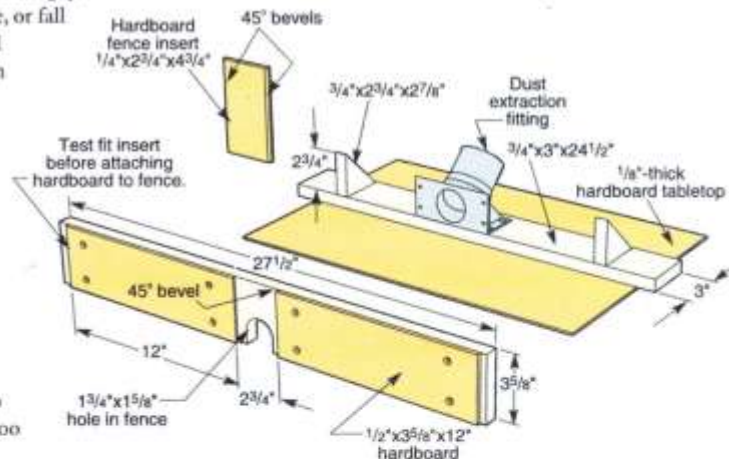
7 Shop-Made Zero-Clearance Router Fence

Small pieces can easily slip and tip into the gap between the bit and the infeed or outfeed fence, or fall into the opening in the tabletop. This doctored fence and auxiliary top combination solve both problems. Use **Figure 2** as a guide, but adjust the sizes given to fit your router table.

The fence is a basic plywood L with an added $\frac{1}{4}$ "-thick hardboard face as shown in **Photo G**. The best thing about it is the bevel-edged, replaceable, zero-clearance insert. Because it's sacrificial, this insert provides more complete support than any metal fence. You can usually use the bit to cut its own custom hole, either by raising it from below or carefully sliding the fence into the bit. If the bit has a bearing, you will have to pre-drill a clearance hole. When the hole gets too big, simply flip, trim, or replace.

The zero-clearance base isn't always needed, but it can be a part saver when the pieces get small or if you don't own a set of base-plate inserts. To make the base, cut a strip of $\frac{1}{8}$ "-thick hardboard sized to your router table. Lower the bit below the table and position the hardboard under your fence to secure it to the table. Now raise the bit. To create a fresh zero-clearance hole, just shift the hardboard a few inches over.

Fig. 2
ZERO-CLEARANCE ROUTING FENCE



A $\frac{1}{4}$ " hardboard fence and $\frac{1}{8}$ "-thick hardboard tabletop can make any router table zero-clearance. Reverse or replace the beveled hardboard fence insert when the opening gets too wide.

Convenience-PLUS BUYING GUIDE

| | ITEM | WOODCRAFT # | PRICE |
|----|---|-------------|---------|
| 1. | Double-faced (or sided) Tape 1"x36 yards | 15028 | \$14.99 |
| 2. | Clear Polycarbonate Stock, $\frac{1}{8}$ "x12"x12" | 16L72 | \$20.50 |
| 3. | 2"x4" Vertical Handle, 200 lb. capacity | 143934 | \$11.99 |
| 4. | Dust Extraction Fitting, Fence Adapter, 2 1/2" | 147788 | \$4.99 |

Above items are available at Woodcraft stores, woodcraft.com or by calling (800) 225-1153. Prices subject to change without notice.