

MULTIPURPOSE SMALL PARTS SLED



Multipurpose Small Parts Sled

Cutting a wide range of small parts accurately and safely on the table saw has never been easier. This handy sled takes care of the details.

The table saw is the shop workhorse for cutting workpieces to size. But for small workpieces, this can be a tricky operation. It becomes difficult to hold the piece securely and at times, the cutoff goes flying across the shop. This sled is scaled down to make cutting small parts easier.

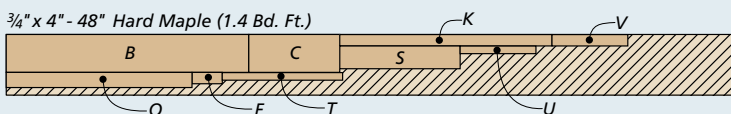
As a foundation, there's the basic sled you see on the opposite page. Like most sleds, adjustable runners on the bottom ensure a smooth, sliding fit in the miter slots on your table saw. The sled features a simple fence with a stop block for making square, repeatable crosscuts.

The real beauty of this simple design is the ability to add attachments for cutting miters, ripping thin stock, and cutting tiny parts to length. If your woodworking is on a smaller scale, this sled is an easy weekend project that's sure to see a lot of use in your shop.

Materials, Supplies & Cutting Diagram

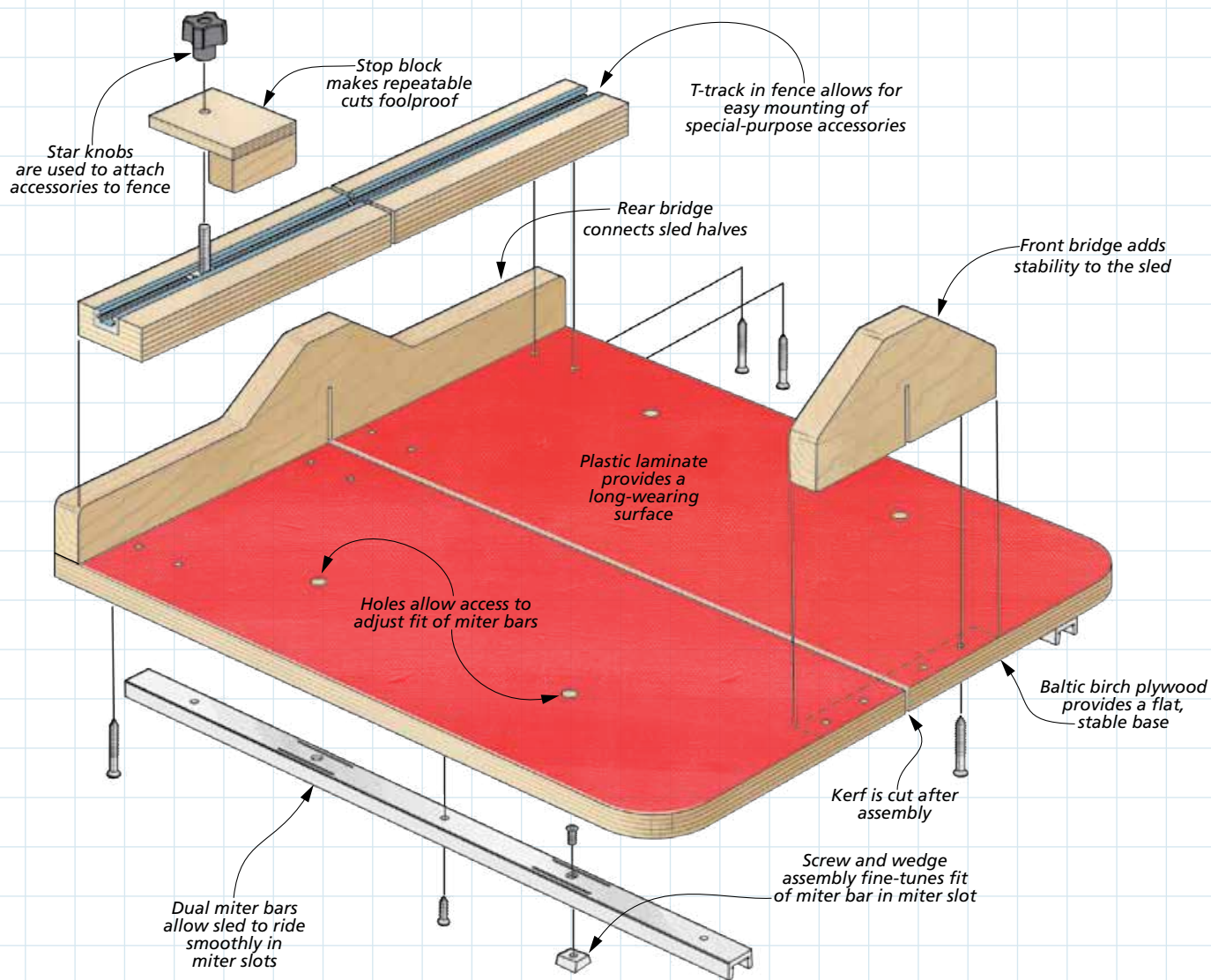
A Sled Base (1)	$\frac{1}{2}$ ply. - 16 x 18	L Holddown (1)	$\frac{1}{4}$ Hdbd. x $1\frac{3}{4}$ x 14	W Tray Top (1)	$\frac{1}{4}$ ply. - $7\frac{15}{16}$ x $2\frac{7}{8}$
B Rear Bridge (1)	$\frac{3}{4}$ x $2\frac{1}{2}$ - 16	M Fence Base (1)	$\frac{3}{4}$ ply. - 7 x $7\frac{15}{16}$	• (2) 24" x 24" Plastic Laminate	
C Front Bridge (1)	$\frac{3}{4}$ x $2\frac{1}{2}$ - 6	N Fence Top (1)	$\frac{1}{4}$ ply. - $7\frac{15}{16}$ x $8\frac{7}{8}$	• (2) 18" Incra Miter Bars	
D Fence (1)	$\frac{3}{4}$ ply. - 2 x 16	O Small Parts Fence (1)	$\frac{3}{4}$ x 1 - $12\frac{1}{4}$	• (1) 24" T-Track	
E Stop Block Top (1)	$\frac{1}{4}$ ply. - 2 x $2\frac{5}{8}$	P Stop Top (1)	$\frac{1}{4}$ ply. - $\frac{3}{4}$ x 3	• (4) $\frac{1}{4}$ "-20 x 1" Flange Bolts	
F Stop Block (1)	$\frac{3}{4}$ x $\frac{3}{4}$ - 2	Q Stop (1)	$\frac{1}{8}$ ply. - $1\frac{1}{4}$ x 3	• (4) $\frac{1}{4}$ "-20 Star Knobs	
G Miter Fence Block (1)	$\frac{3}{4}$ ply. - 16 x $8\frac{3}{16}$	R Tray Base (1)	$\frac{1}{4}$ ply. - $7\frac{15}{16}$ x 7	• (3) $\frac{1}{4}$ "-20 Threaded Inserts	
H Miter Fence Top (1)	$\frac{1}{4}$ ply. - 16 x $10\frac{1}{16}$	S Tray Back (1)	$\frac{3}{4}$ x $1\frac{1}{2}$ - $7\frac{15}{16}$	• (3) $\frac{1}{4}$ "-20 x $\frac{3}{4}$ " Knurled Thumbscrews	
I Rip Fence Block (1)	$\frac{3}{4}$ ply. - 6 x 14	T Tray Front (1)	$\frac{3}{4}$ x $\frac{1}{2}$ - $7\frac{15}{16}$	• (8) #8 x 1" Fh Woodscrews	
J Rip Fence Top (1)	$\frac{1}{4}$ ply. - 6 x $15\frac{7}{8}$	U Tray Side (1)	$\frac{3}{4}$ x $\frac{1}{2}$ - 5	• (6) #6 x $\frac{1}{2}$ " Rh Woodscrews	
K Hold-down Bar (1)	$\frac{3}{4}$ x $\frac{3}{4}$ - 14	V Tray Ramp (1)	$\frac{3}{4}$ x $\frac{3}{4}$ - 5	• (8) #8 x $1\frac{1}{4}$ " Fh Woodscrews	

$\frac{3}{4}$ " x 4" - 48" Hard Maple (1.4 Bd. Ft.)



ALSO NEEDED: One 24" x 24" sheet of $\frac{3}{4}$ " Baltic birch plywood, one 24" x 24" sheet of $\frac{1}{2}$ " Baltic birch plywood, one 24" x 48" sheet of $\frac{1}{4}$ " Baltic birch plywood, one 12" x 12" sheet of $\frac{1}{8}$ " Baltic birch plywood, one 12" x 24" sheet of $\frac{1}{4}$ " hardboard

Construction Overview / OVERALL DIMENSIONS: 16"W x 3³/₈"H x 18"D



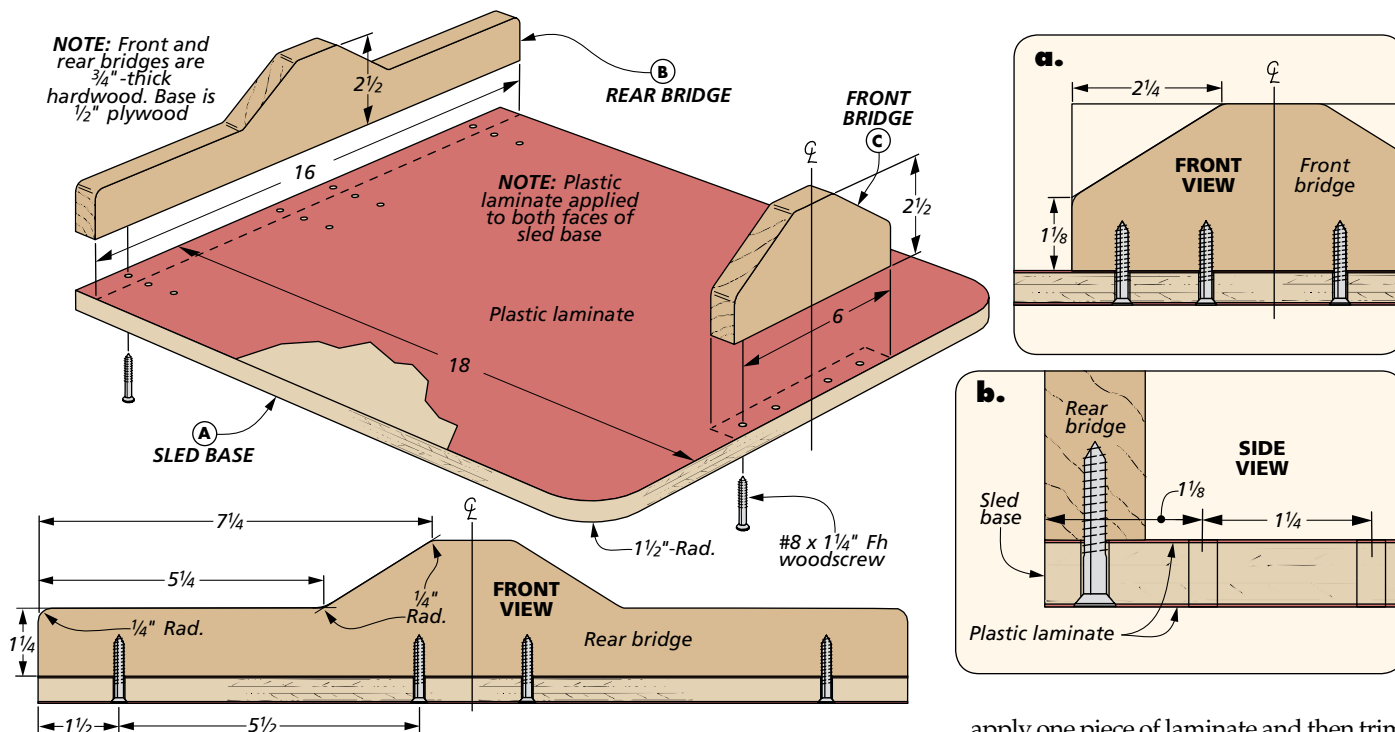
▲ Cutting miters on small frame parts is a snap with a pair of auxiliary miter fences.



▲ Rip narrow, thin stock safely using the rip fence attachment with a built-in hold-down.



▲ A simple fence with a stop block makes square crosscuts on small parts a sure thing.



start with a BASIC SLED

This sled isn't too much different than most table saw sled designs, but it's scaled down to make cutting small parts simple. Two miter bars under the laminated plywood base register the sled on the saw for smooth operation through the cut. A fence with T-track and a stop ensure consistency in the precision of each cut on duplicate parts.

LAMINATED BASE. I started by building the base out of $\frac{1}{2}$ " Baltic birch plywood.

But there's one thing I need to mention before you turn on the saw. Take some extra time to ensure your saw is tuned up for making square cuts. It's important that the side edges of the base are square to the back edge. When you're ready, cut the base to size. After this, round off the two front corners and sand them smooth, as shown above.

Plastic laminate adds a tough, long-wearing surface to the top and bottom of the base. I used spray contact adhesive to attach oversized pieces of laminate to both faces of the base. To trim the laminate flush, you might find it easier to

apply one piece of laminate and then trim it flush before applying the other piece.

FRONT & REAR BRIDGES. You'll be cutting through the base of the sled the first time you use it. To keep the sled together, the bridge pieces connect the two halves of the sled, as illustrated above.

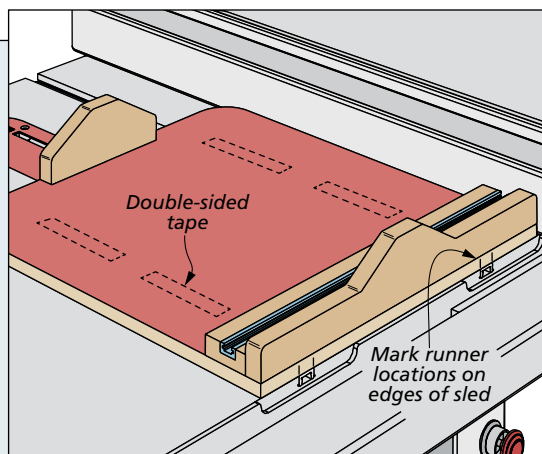
Both bridges are cut to size from $\frac{3}{4}$ "-thick stock. After shaping them, use screws through countersunk holes to fasten them to the base from the bottom, as shown in details 'a' and 'b.'

While you're at it, drill the holes used to attach the fence you'll make later. Then you can install the bridges, taking the time to ensure they're flush with the front and back edges of the base. It's important that the rear bridge is square to the edge

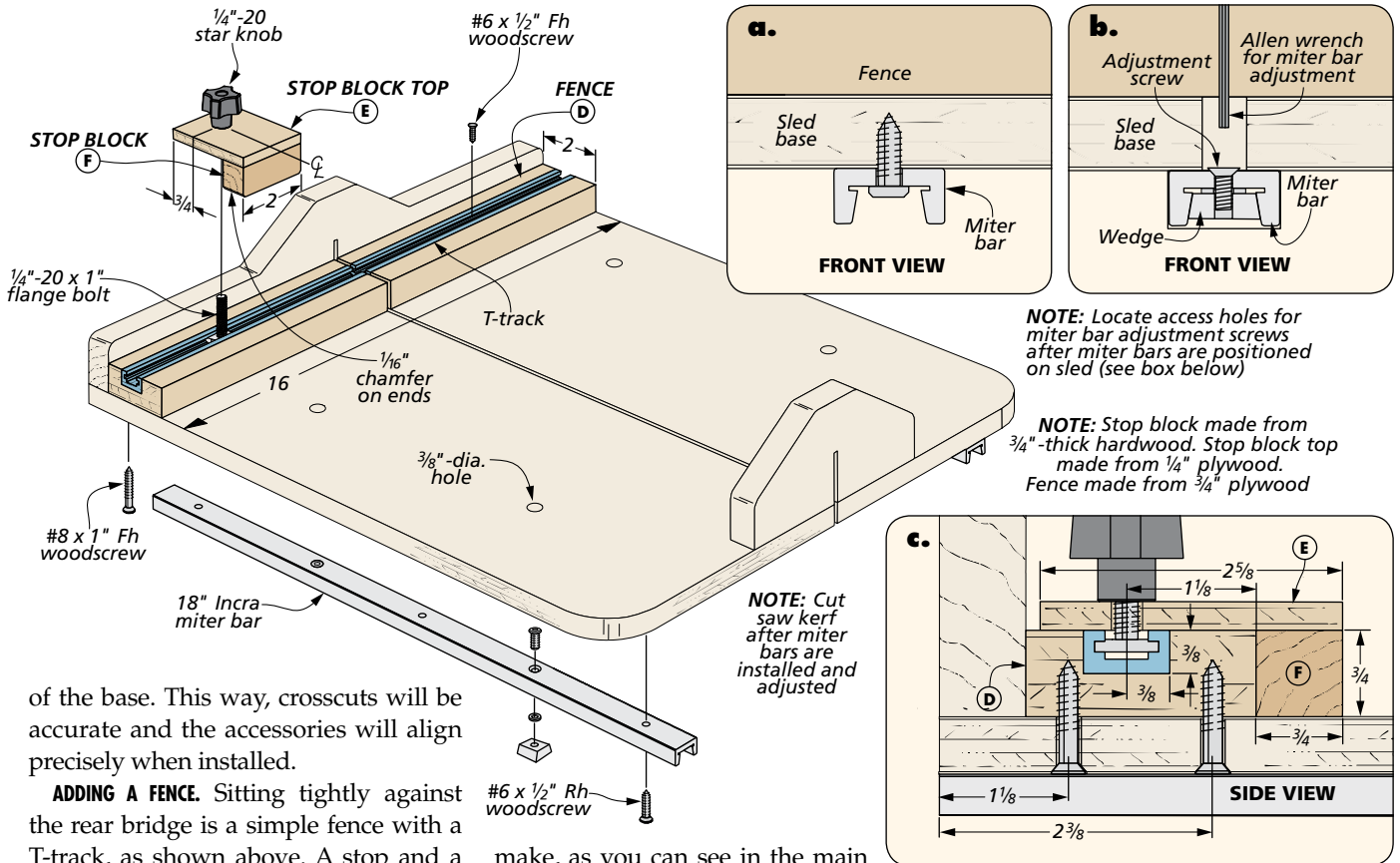
How-To: MITER BAR INSTALLATION

The *Inkra* miter bar shown on the left features a simple mechanism for adjusting the bar to obtain a perfect fit in the miter slot. A screw pulls a wedge against the tapered sides of the miter bar to expand them slightly. The illustrations on the right step you through the process of locating and installing the miter bars so that the sled is centered on the blade.

It starts by placing the sled against the rip fence and adjusting the rip fence to center the sled. Use double-sided tape on top of the miter bars to temporarily position them for locating the screw and access holes. Then you can mark and drill the holes.



Locating the Bars. Align the ends of the miter bars and sled with the back edge of the saw before lowering the sled onto the miter bars.



of the base. This way, crosscuts will be accurate and the accessories will align precisely when installed.

ADDING A FENCE. Sitting tightly against the rear bridge is a simple fence with a T-track, as shown above. A stop and a variety of accessories can be attached to the fence depending on the type of cuts you need to make.

The fence body is made from $\frac{3}{4}$ " Baltic birch plywood. Before you cut the groove for the T-track, take a look at detail 'c.' You'll notice that the track is offset from the centerline of the fence. After installing the T-track, clamp the fence tight to the bridge and base before installing screws from the underside of the sled.

ADJUSTABLE STOP. A sliding stop makes repeatable crosscuts accurate and easy. The two-part construction is simple to

make, as you can see in the main drawing above and in detail 'c.' Install the stop in the T-track with a flange bolt and knob.

INSTALLING THE MITER BARS. When using the sled, its centerline should be aligned with the table saw blade. This means the location of the miter bars depend on where your saw's miter slots are positioned in relation to the blade. The box below steps you through the process of centering the sled on the blade, plus locating and installing the miter bars.

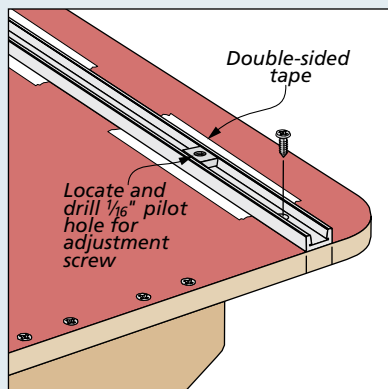
I used a pair of miter bars to make sure the sled runs straight in the miter slots.

NOTE: Locate access holes for miter bar adjustment screws after miter bars are positioned on sled (see box below)

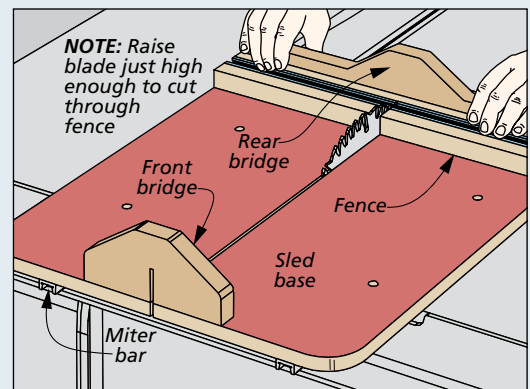
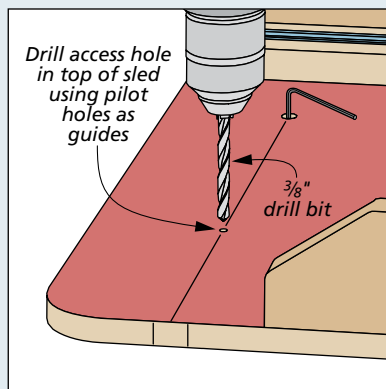
NOTE: Stop block made from $\frac{3}{4}$ "-thick hardwood. Stop block top made from $\frac{1}{4}$ " plywood. Fence made from $\frac{3}{4}$ " plywood

NOTE: Cut saw kerf after miter bars are installed and adjusted

The *Incra* miter bars include wedge-shaped adjusters that allow you to fine-tune the fit of the bar in the miter slot. For smooth-sliding operation, you'll also need to locate and drill holes through the sled to be able to access the adjustment screws, as seen above. I did this by marking the screw location on the bottom of the sled, removing the miter bars, and then drilling a small pilot hole through the sled. This way, you can enlarge the hole from the top to avoid chipping the laminate when drilling.

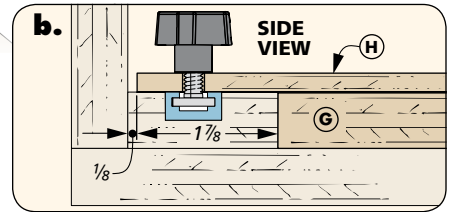
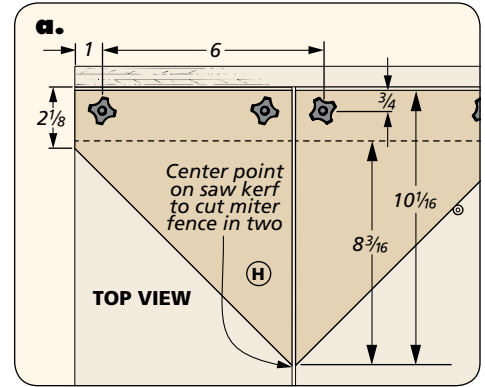
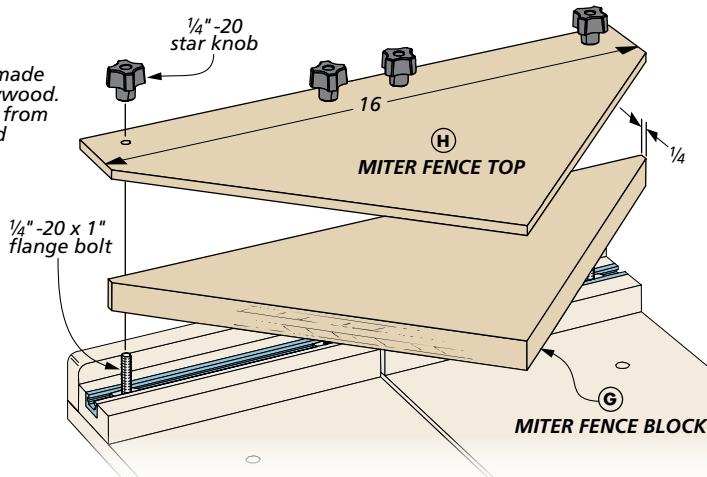


Drilling Holes. With the miter bars temporarily attached, mark and drill the holes used to fasten the bars to the sled. Before permanently attaching the miter bars, locate and drill access holes for the adjusters.



Square Cut. After the miter bars are attached and adjusted, make a shallow pass to cut through the sled base, fence, and T-track.

NOTE: Top made from 1/4" plywood. Block made from 3/4" plywood



specialized ADD-ONS

With the basic sled you're all set to cross-cut small parts to length on your table saw. But I've added a few special accessories that make the sled even more functional. The first is a pair of miter fences to aid in cutting miter joints. Next is a hold-down that allows you to use the sled to rip narrow workpieces from thin stock. Finally, for extra-small pieces that are hard to crosscut and corral on the table saw, there's a small platform and tray to catch the cutoffs.

MITER FENCES

Cutting miter joints on small parts can be tricky. The miter fences shown above make this task easier. You start by making the triangular fence block and then adding the top to create a single unit you'll cut in two later. The top overhangs the fence on the sled so it can be attached with star knobs, as in detail 'b.'

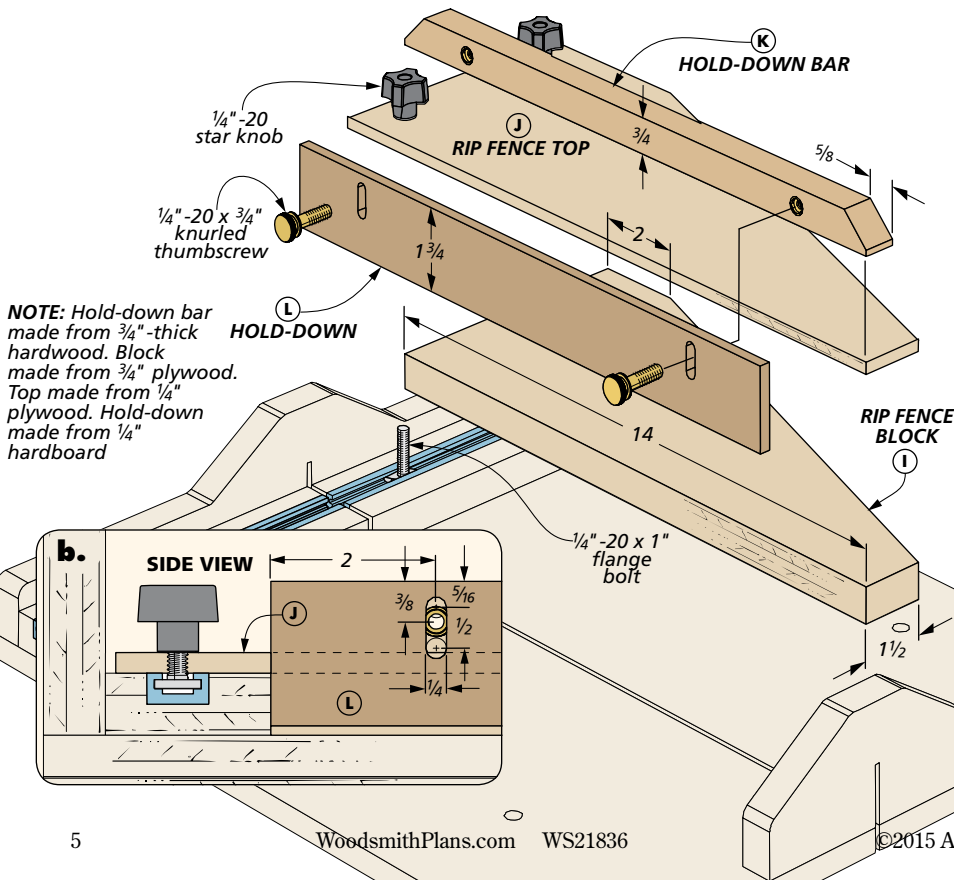
The only trick in making these two parts is to make sure the sides are 45° to the back edge. After gluing the top to the block, sand all of the edges smooth and then drill the four holes used to attach them to the sled's fence.

Center the miter fence assembly on the sled, aligning the tip with the center of the kerf in the sled. Secure all of the knobs

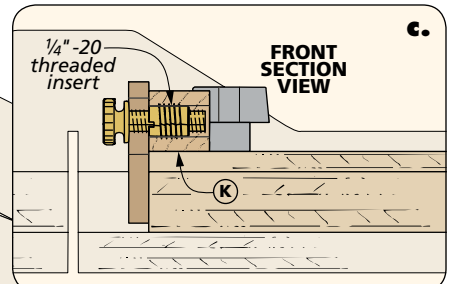
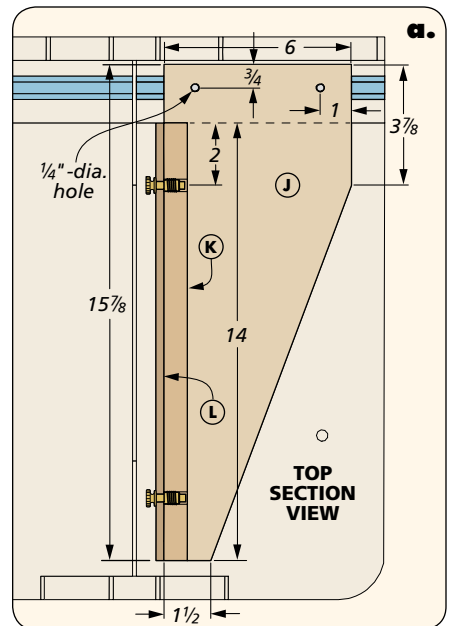
and slide the sled through the saw to cut the miter fences into a matching pair, as illustrated in detail 'a.'

HOLD-DOWN & RIP FENCE

The next accessory to build is a hold-down assembly you can use for ripping thin stock to width. The hardboard



NOTE: Hold-down bar made from 3/4"-thick hardwood. Block made from 3/4" plywood. Top made from 1/4" plywood. Hold-down made from 1/4" hardboard



hold-down keeps the workpiece steady during the cut (refer to the photo on page 2). Construction starts out similar to the miter fences, as illustrated in the drawing at the bottom of the previous page. The rip fence top caps off the rip fence block.

I started with rectangular blanks for the block and top, cutting them to overall size. After gluing the top to the block and allowing for the overhang, I cut the tapered edge and sanded it smooth. Details 'a' and 'b' provide all of the dimensions. Drilling the holes used to fasten the assembly to the sled is next.

The hardboard hold-down is fastened to a hold-down bar. This bar is in turn glued to the top of the rip fence assembly. After cutting the bar to size and beveling the ends, I installed a pair of threaded inserts. Thumbscrews secure the hold-down in these inserts.

Next, glue the bar to the top of the rip fence assembly. The hold-down is cut and then slotted for the thumbscrews. Create the slots by drilling overlapping holes and filing them smooth.

SMALL PARTS TRAY

The final accessory is a cutoff assembly for crosscutting small parts. The photo on the upper right shows it in use. A small auxiliary fence with a stop allows you to cut short parts to repeatable lengths. The cutoffs fall into a tray to make them easier to collect without losing them.

The drawing below shows how the whole assembly fits together. There are a lot of parts, but putting them all together is a pretty simple process. You're basi-

cally making two assemblies: The fence with a stop and the tray assembly.

FENCE & STOP ASSEMBLY. The fence and stop assembly is simple to make, but there are a couple of key things to keep in mind as you go along.

I started with the fence base and added the plywood top. As before, the top overhangs the base to allow attachment to the sled's fence. Just drill the two holes.

The small parts fence is cut to size before you install a threaded insert. The insert is for a small, sliding stop. Glue the fence to the platform, making sure it's square to the blade with the platform installed on the sled. The stop comes next. Its top is slotted to allow for small adjustments. The stop itself is beveled on one end to avoid trapping the workpiece, as you can see in detail 'b' below.

SIMPLE BOX. The tray is made up of $\frac{3}{4}$ "-thick hardwood sides glued to a $\frac{1}{4}$ " plywood base. One end of the tray is beveled to act as a ramp to guide cutoffs into the tray. I rabbeted the tray back to accept the top that connects the tray to

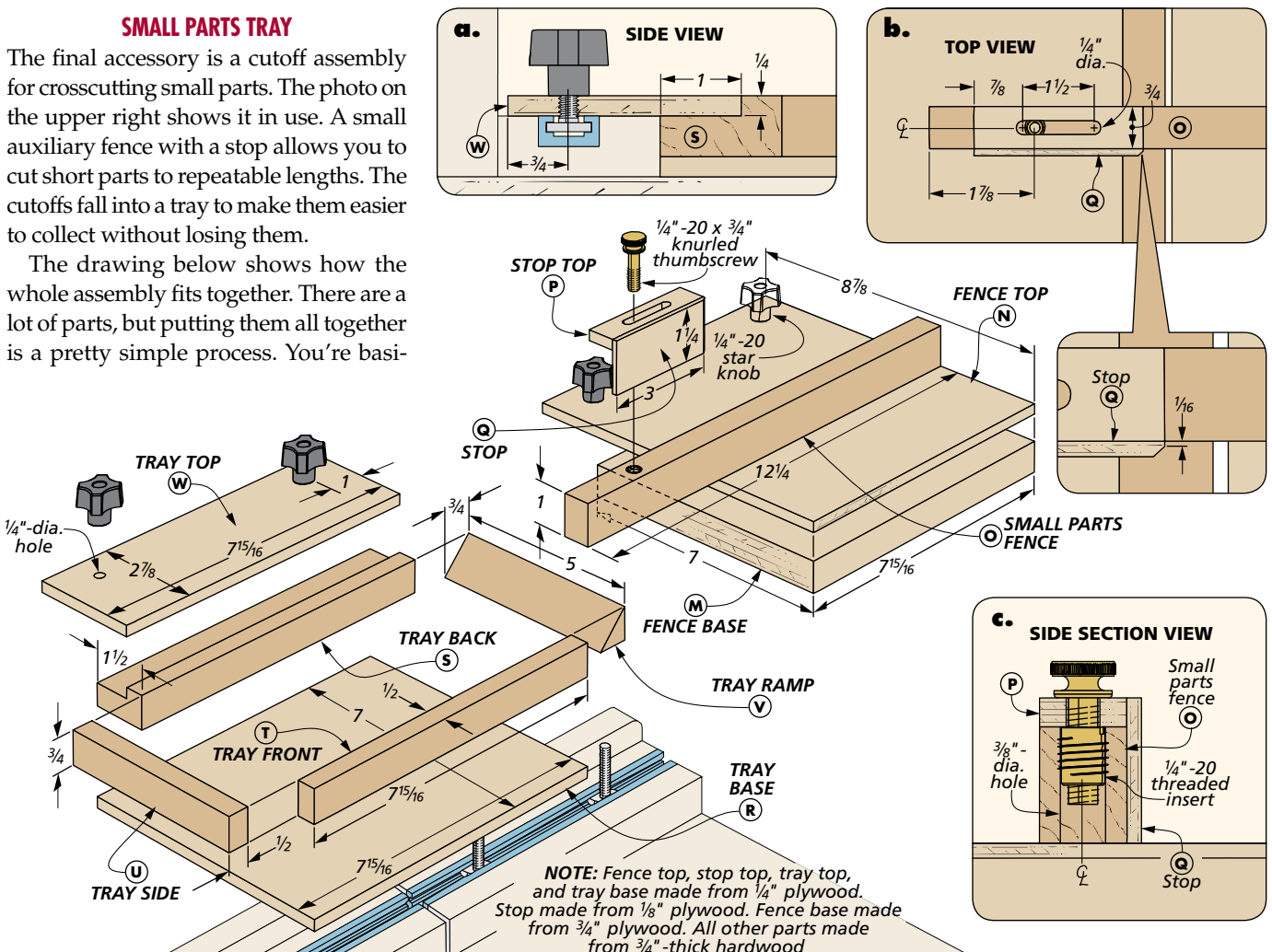


▲ The auxiliary fence platform and tray allow you to cut extra-small parts safely while collecting them in the tray.

the fence on the main sled. I glued the sides to an oversized piece of plywood that forms the base, making sure the sides were square. Once the glue dries, you can trim the plywood flush.

To finish off the tray, the tray top comes next. Cut it to size, drill a pair of holes, then glue it to the tray back.

With your sled complete, cutting small parts is easy and hassle-free.



**MAIL
ORDER
SOURCES**

Woodsmith Store
800-444-7527

Rockler
800-279-4441
rockler.com

McMaster-Carr
630-833-0300
mcmaster.com

Nevamar
877-726-6526
nevamar.com

Project Sources

- **McMaster-Carr**
1/4"-20 Thumbscrews . . . 92421A540
1/4"-20 Insert Knobs 5993K22
- **Rockler**
Miter Bars 21982
1/4"-20 Flange Bolts 31969
T-Track 22104
- **Nevamar**
Laminate (Liberty Red) . . . S-1027

Manufacturers and retailers will periodically redesign or discontinue some of their items. So you'll want to gather all the hardware, supplies, and tools you need before you get started. It's easy to adjust dimensions or drill different-sized holes to suit your hardware.