



Woodsmith **PLANS**

# ROLL-AROUND SHOP CART



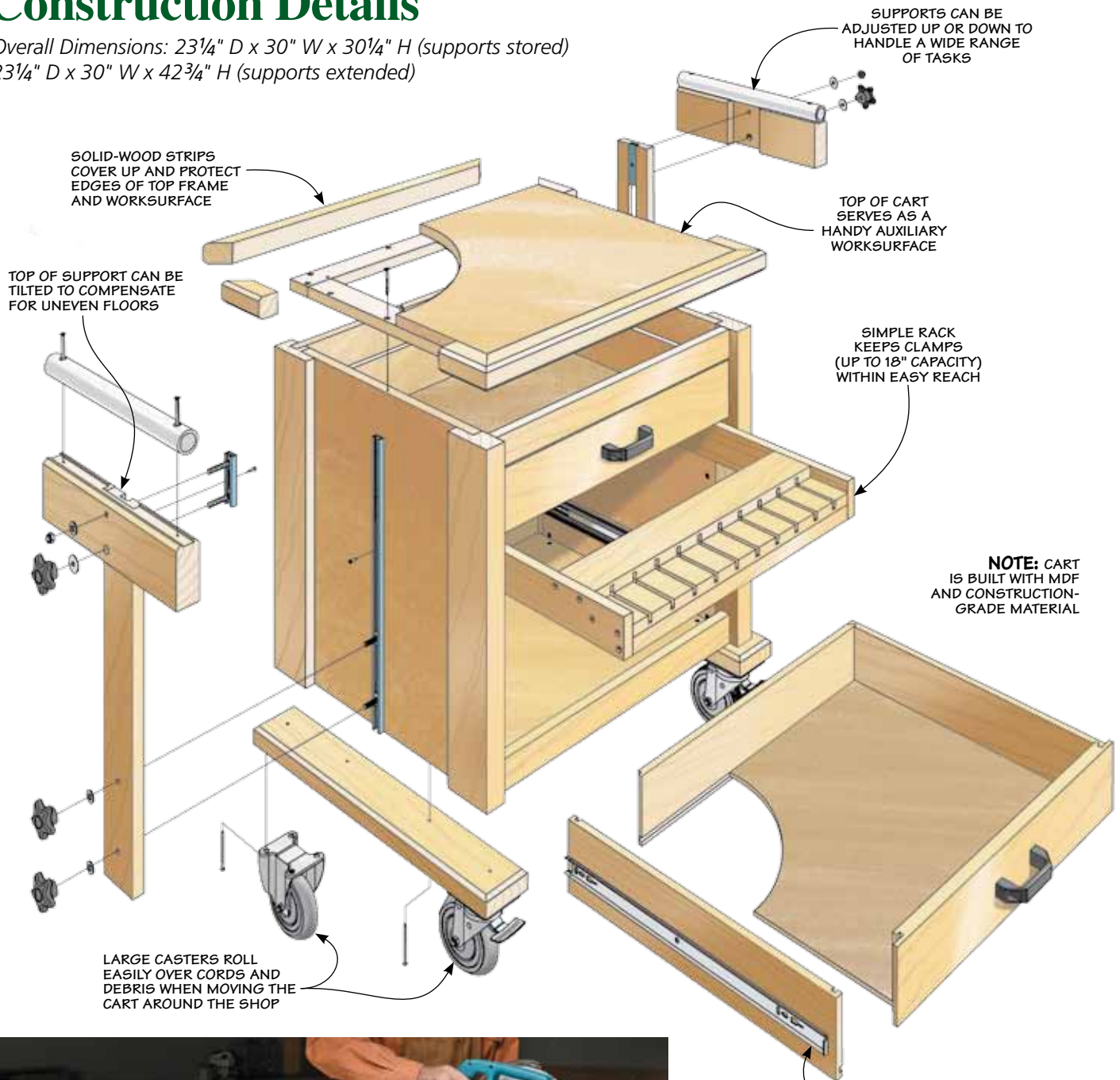
# ROLL-AROUND SHOP CART

*This handy shop cart is a tool storage center, an adjustable stock support system, and a workstation all in one compact package.*

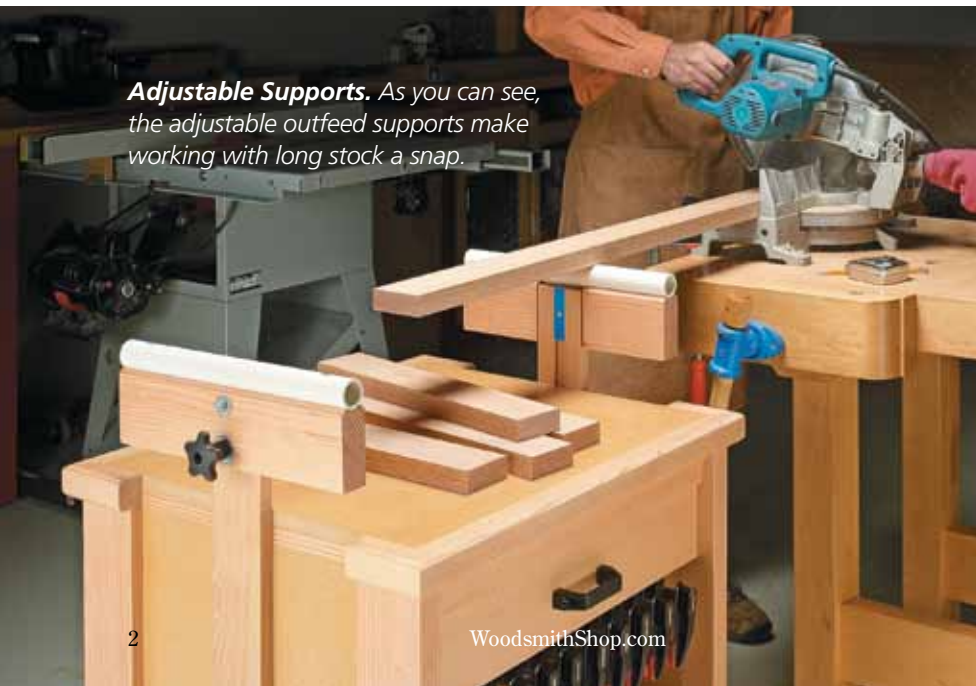


# Construction Details

Overall Dimensions: 23 $\frac{1}{4}$ " D x 30" W x 30 $\frac{1}{4}$ " H (supports stored)  
 23 $\frac{1}{4}$ " D x 30" W x 42 $\frac{3}{4}$ " H (supports extended)



**Adjustable Supports.** As you can see, the adjustable outfeed supports make working with long stock a snap.



## Start with the Case

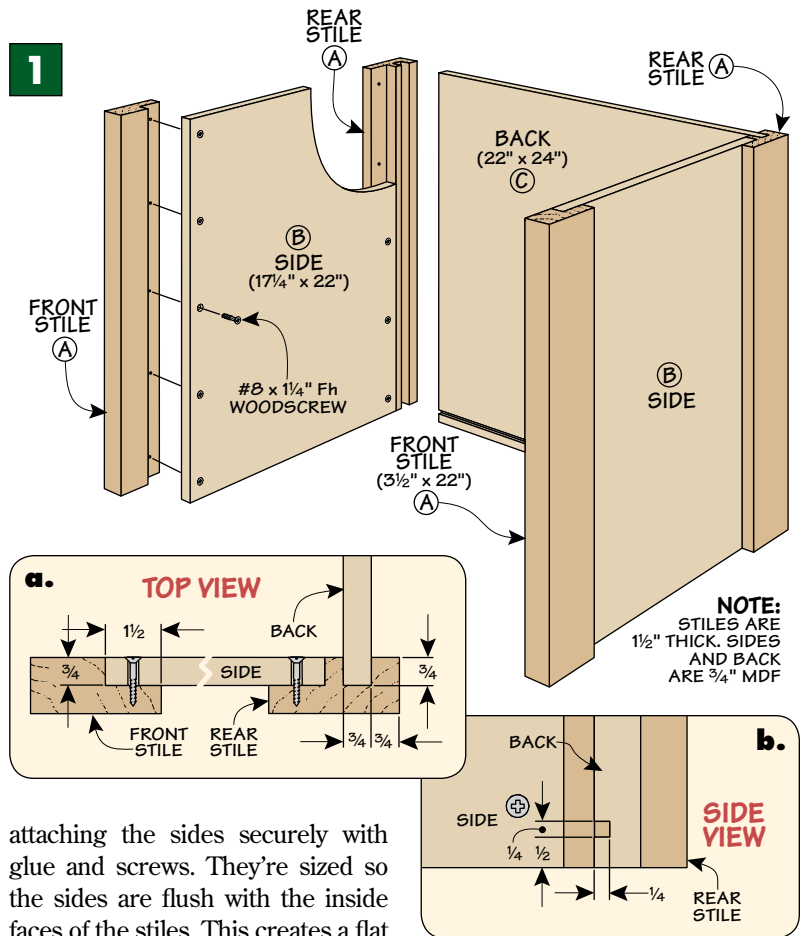
The shop cart is really nothing more than a mobile case supporting a flat, smooth worksurface. To make the case more useful, I added a pair of drawers and a clamp rack.

**MATERIALS.** Before you get started on the case, consider the materials you'll use to build the cart. Since the cart is sure to see a lot of use around the shop, it makes sense to use materials meant for heavy-duty tasks. I chose construction-grade lumber for all the solid-wood pieces. (I used Douglas fir.) The rest of the parts are made from  $\frac{3}{4}$ " MDF and a couple pieces of PVC pipe.

### SIDE ASSEMBLIES

The case starts out as a U-shaped frame consisting of two side assemblies connected by a back (Figure 1). Each side assembly is made of two stiles and a side panel.

The sides fit into rabbets cut on the inside corners of the stiles. The rabbets provide a wide surface for



attaching the sides securely with glue and screws. They're sized so the sides are flush with the inside faces of the stiles. This creates a flat surface for mounting the drawer slides later. To accept the back, you'll need to cut a groove in each rear stile (Figure 1a).

**BACK.** Once the side assemblies are completed, the next step is to connect them by adding a back, as shown in Figure 1. Before gluing the back in place, you'll

need to cut a narrow groove near the bottom, inside edge (Figure 1b). This groove accepts a tongue cut on the bottom that's added later.

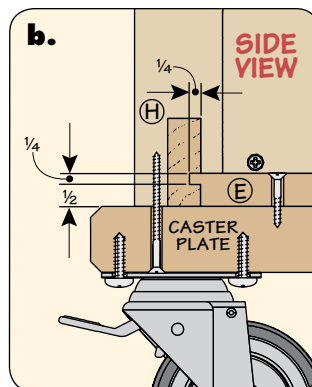
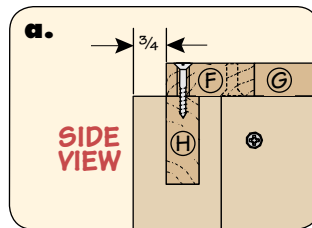
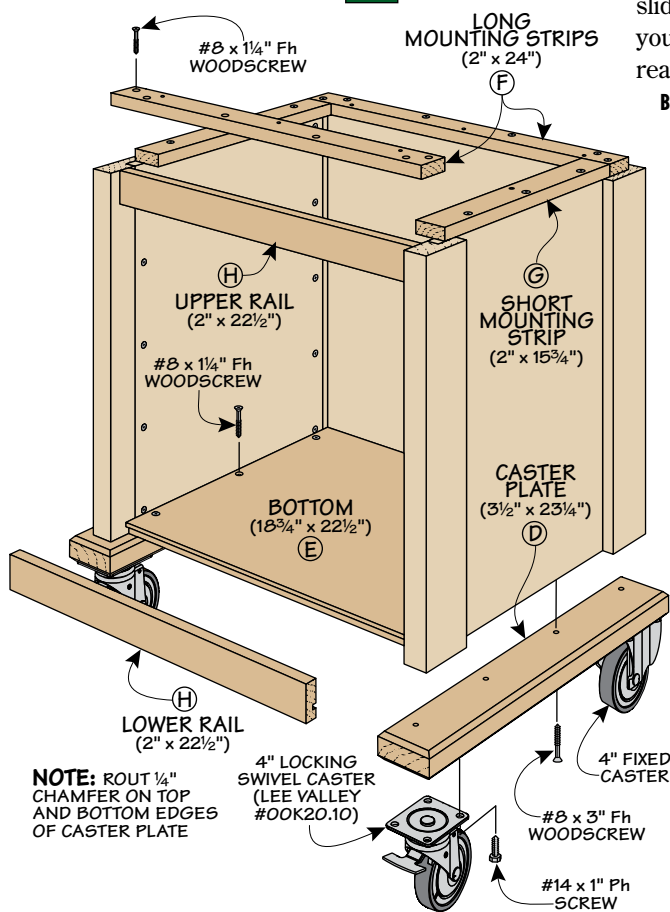
**CASTER PLATES & BOTTOM.** To provide a way to attach the bottom and casters to the case, I added a plate to the bottom edge of each side assembly (Figure 2). After cutting the plates to size, rout a chamfer on the top and bottom edges, and then glue and screw them in place.

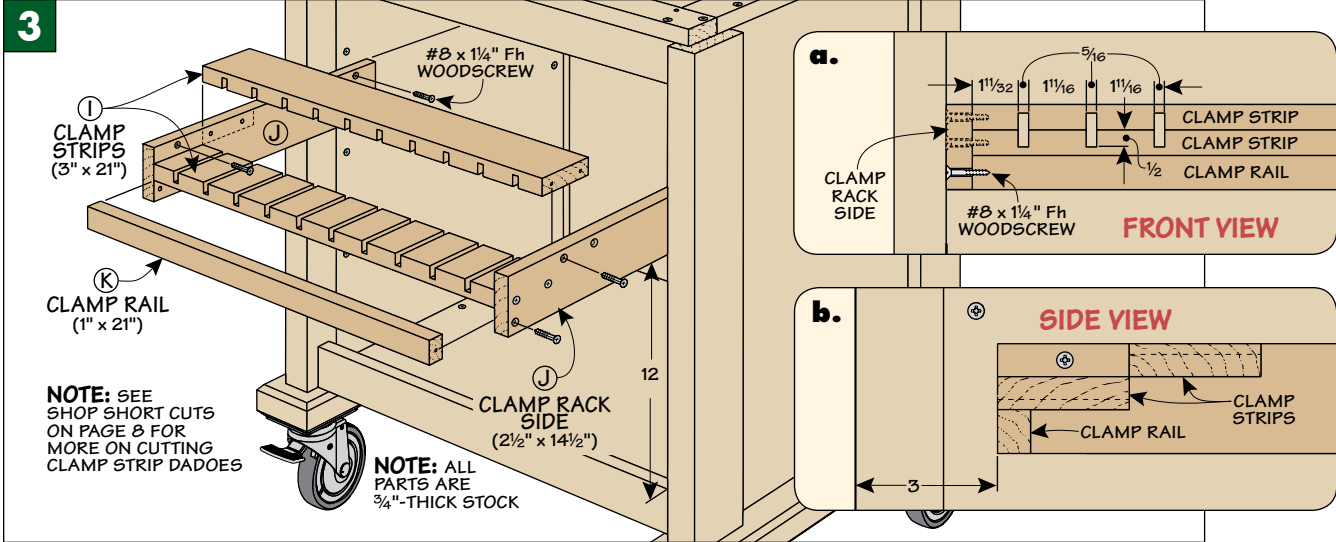
The bottom has a tongue cut on the front and back edge, as you can see in Figure 2b. The tongue along the back edge is sized to fit the groove cut earlier in the back. A solid-wood rail will be added later to the tongue at the front. After gluing and screwing the bottom in place, you can attach a set of casters.

The next order of business is to add some solid-wood mounting strips and a pair of rails (Figure 2). The mounting strips provide a way to attach the top. And the upper and lower rails stiffen the case and frame the opening for the drawers and clamp rack.

**NOTE:** CASTER PLATES ARE  $\frac{1}{2}$ " THICK. BOTTOM IS  $\frac{3}{4}$ " MDF. ALL OTHER PARTS ARE  $\frac{3}{4}$ " THICK

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When you've cut the rails to size, you'll need to cut a groove in the lower rail to match the tongue on the front edge of the bottom. After gluing the lower rail in place, attach the upper rail with glue and screws.

### ADDING STORAGE

You could use the interior of the case as is for storage. But it only takes a little bit of work to add the clamp rack and pair of drawers you see in Figures 3 and 4.

**CLAMP RACK.** The cart has a simple system for storing clamps, as you can see in Figure 3. The main part of the rack consists of a pair of offset clamp strips with dadoes in them (Figure 3a). You just slide the clamps into the dadoes and their weight holds them in place.

The completed clamp rack is sized to fit the opening in the case. On page 8, you'll learn how to cut perfectly aligned dadoes in the clamp strips using an oversized workpiece.

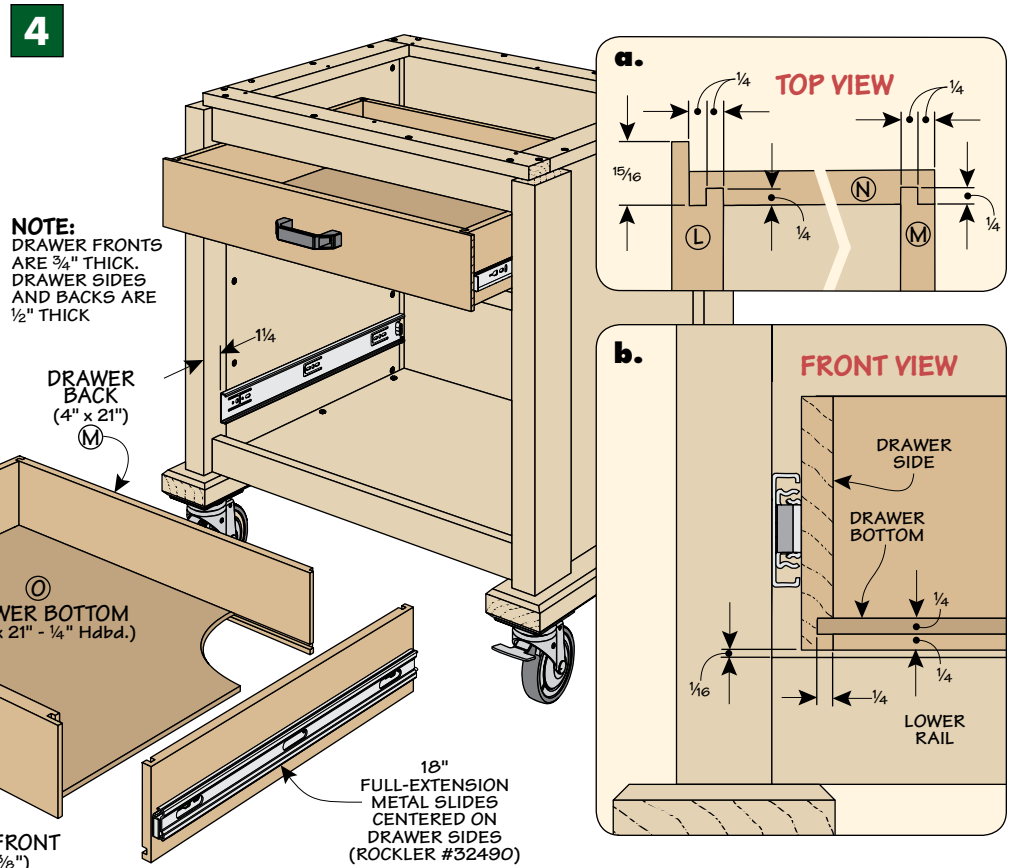
After cutting the clamp rack sides and rail to size, you can assemble the rack, and screw it in place.

**ADD THE DRAWERS.** A pair of drawers completes the storage options inside the case. To provide easy access to the contents, I installed them on full-extension slides. One drawer is located above the clamp rack and the other is at the bottom.

To hide the drawer slides, the sides connect to the front using a

lipped, locking rabbet joint. And at the back of the drawer, the joinery is a simple tongue and dado. You'll need to account for the drawer joinery, the thickness of the slides (1" total), and the gaps ( $\frac{1}{16}$ " ) around the drawer front when sizing the parts (Figures 4 and 4a).

After cutting a groove in all the parts for the drawer bottoms, you can assemble the drawers. Once the glue dries, install them in the case.



4 1/4" DRAWER PULL (REID SUPPLY COMPANY #KHO-5)

DRAWER SIDE (4" x 18")

DRAWER BOTTOM (17 1/2" x 21" - 1/4" Hdbd.)

DRAWER FRONT (4" x 22 3/8")

**NOTE:** DRAWER FRONTS ARE 3/4" THICK. DRAWER SIDES AND BACKS ARE 1/2" THICK

DRAWER BACK (4" x 21")

18" FULL-EXTENSION METAL SLIDES CENTERED ON DRAWER SIDES (ROCKLER #32490)

## Outfeed Supports & Top

At this point, there are only a couple of items left to complete on the cart. The first is to add a strong and sturdy top. And the second is to install a pair of adjustable supports that turn the cart into an even more versatile shop project.

### TOP

There isn't all that much work in completing the top of the cart. It's nothing more than a piece of  $\frac{3}{4}$ " MDF wrapped with edging, as you see in Figure 5. You'll need to cut the top to size so it's flush with the outside edges of the mounting strips.

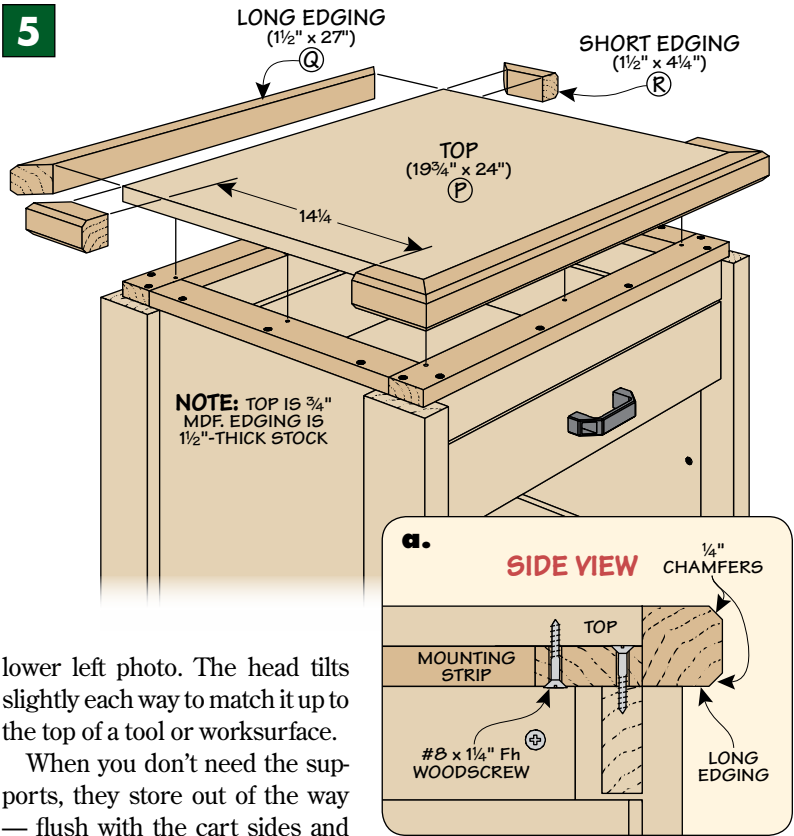
**EDGING.** Once you have the top sized, you're ready to add the solid-wood edging. The edging doesn't wrap completely around the top, though. As you can see in Figure 5, the ends are open. This creates a "pocket" for the adjustable outfeed supports that you'll install next. After gluing the edging in place, attach the top with screws.

### ADJUSTABLE SUPPORTS

What really makes this cart so versatile are the adjustable outfeed supports on the ends of the cart. Just loosen a couple of knobs, adjust each one to suit the task at hand, and then lock them in place.

**TILTING HEAD.** Another nice thing about this cart is that you don't have to have a perfectly level floor to align the supports, as indicated in the

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lower left photo. The head tilts slightly each way to match it up to the top of a tool or worksurface.

When you don't need the supports, they store out of the way — flush with the cart sides and just below the surface of the top.

**BUILD THE SUPPORT.** Each support is just a T-shaped assembly consisting of a post, a cradle, and a piece of PVC pipe that acts as an outfeed support, as shown in Figure 6. The PVC creates a smooth surface for a workpiece to slide on.

I started on each adjustable support by cutting a piece of  $1\frac{1}{4}$ "-dia. PVC to length. To provide clearance, each support is  $\frac{1}{4}$ " shorter than the openings at the ends of the top.

Then you'll need to drill a couple of holes to install the support.

**ADD THE CRADLE.** The next piece of the system to add is the support cradle. After cutting it to match the length of the outfeed support, cut a wide, centered dado across one face (Figure 6b). This dado is sized to provide clearance around the edges of the support post. This allows the cradle to tilt as needed to provide even support.



**Built-In Adjustment.** The head of the outfeed support can be tilted slightly to compensate for uneven floors.



**Low-Profile.** To create an open worksurface, the outfeed supports store out of the way.

You'll need to cut a centered groove along the top edge of the cradle to hold the outfeed support in place. Also, attaching the cradle to the support post requires a couple of holes (End View at right). One hole is oversized to allow for adjustment. Then to ease the sharp edges, I chamfered the top corners.

**SUPPORT POST.** The last thing to work on is the support post. After cutting it to length, I installed a dado set in my table saw and cut a centered groove in one face. The groove is sized for a sliding fit over a piece of T-track I screwed to the side of the cart.

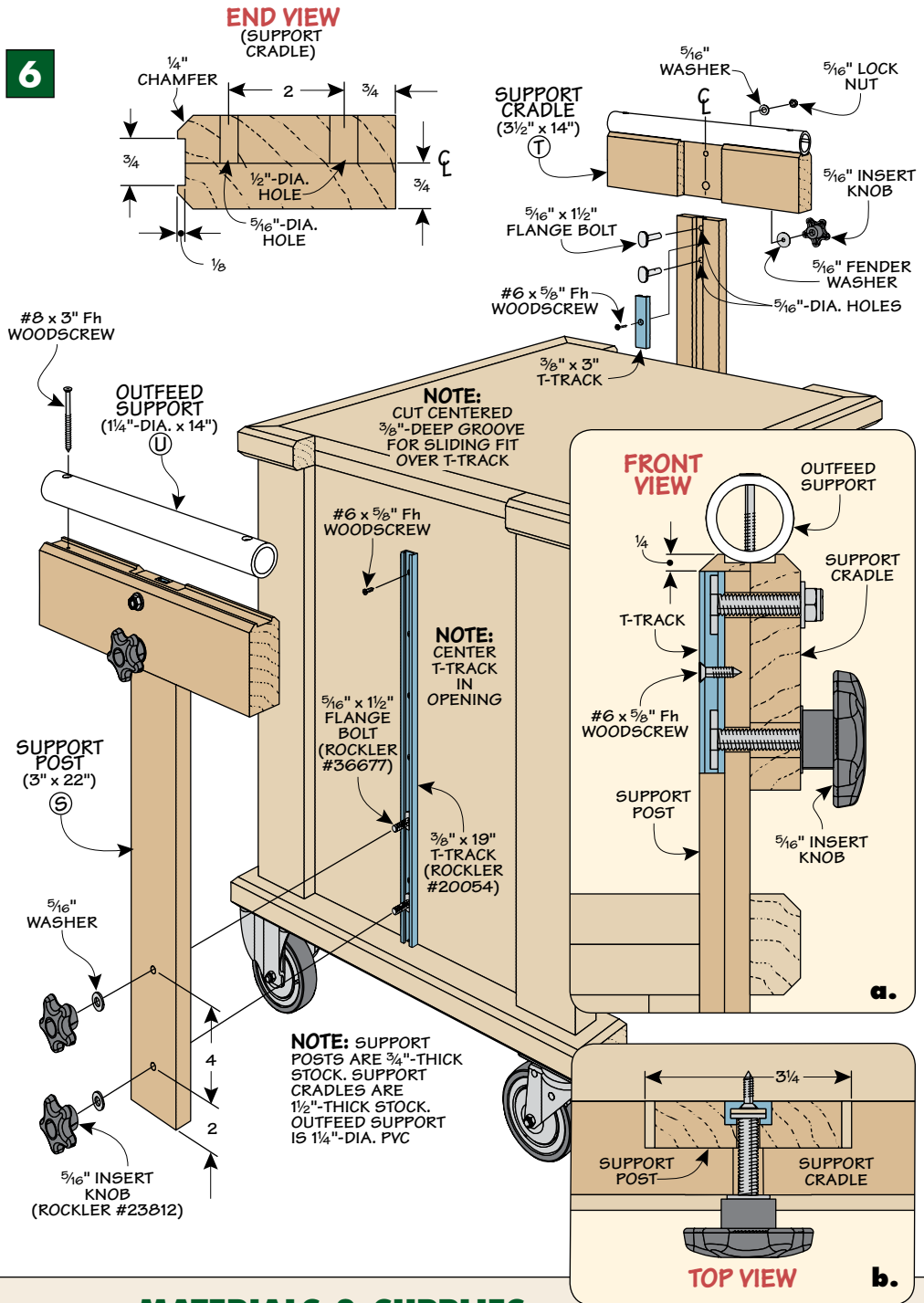
To attach the cradle, there are a couple of holes drilled near the top end (Figure 6). They're located so the top of the post rests  $\frac{1}{4}$ " below the top of the cradle (Figure 6a).

Completing the post is just a matter of drilling a pair of holes near the bottom end. These holes accept the flange bolts used to lock the outfeed support in position.

**ASSEMBLY.** All that's left is to assemble each outfeed support. To do this, slip the flange bolts into a small piece of T-track and screw it to the post. Attach the post to the cradle with a knob, lock nut, and washers (Figure 6b). Another pair of flange bolts, washers, and knobs at the bottom attaches the assembly to the cart.

To use the supports, simply loosen the two knobs at the bottom of the post, adjust it until the outfeed support aligns with the tool base or worksurface, and then lock everything securely in place.

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## MATERIALS & SUPPLIES

### CASE

A	Front/Back Stiles (4)	$1\frac{1}{2} \times 3\frac{1}{2}$ - 22
B	Sides (2)	$\frac{3}{4}$ MDF - $17\frac{1}{4} \times 22$
C	Back (1)	$\frac{3}{4}$ MDF - $22 \times 24$
D	Caster Plates (2)	$1\frac{1}{2} \times 3\frac{1}{2}$ - $23\frac{1}{4}$
E	Bottom (1)	$\frac{3}{4}$ MDF - $18\frac{3}{4} \times 22\frac{1}{2}$
F	Long Mounting Strips (2)	$\frac{3}{4} \times 2$ - 24
G	Short Mounting Strips (2)	$\frac{3}{4} \times 2$ - $15\frac{3}{4}$
H	Upper/Lower Rails (2)	$\frac{3}{4} \times 2$ - $22\frac{1}{2}$
I	Clamp Strips (2)	$\frac{3}{4} \times 3$ - 21
J	Clamp Rack Sides (2)	$\frac{3}{4} \times 2\frac{1}{2}$ - $14\frac{1}{2}$
K	Clamp Rail (1)	$\frac{3}{4} \times 1$ - 21

### DRAWERS

L	Drawer Fronts (2)	$\frac{3}{4} \times 4$ - $22\frac{3}{8}$
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M	Drawer Backs (2)	$\frac{1}{2} \times 4$ - 21
N	Drawer Sides (4)	$\frac{1}{2} \times 4$ - 18
O	Drawer Bottoms (2)	$\frac{1}{4}$ Hdbd. - $17\frac{1}{2} \times 21$
<b>TOP &amp; EDGING</b>		
P	Top (1)	$\frac{3}{4}$ MDF - $19\frac{3}{4} \times 24$
Q	Long Edging (2)	$1\frac{1}{2} \times 1\frac{1}{2}$ - 27
R	Short Edging (4)	$1\frac{1}{2} \times 1\frac{1}{2}$ - $4\frac{1}{4}$

### ADJUSTABLE OUTFEED SUPPORTS

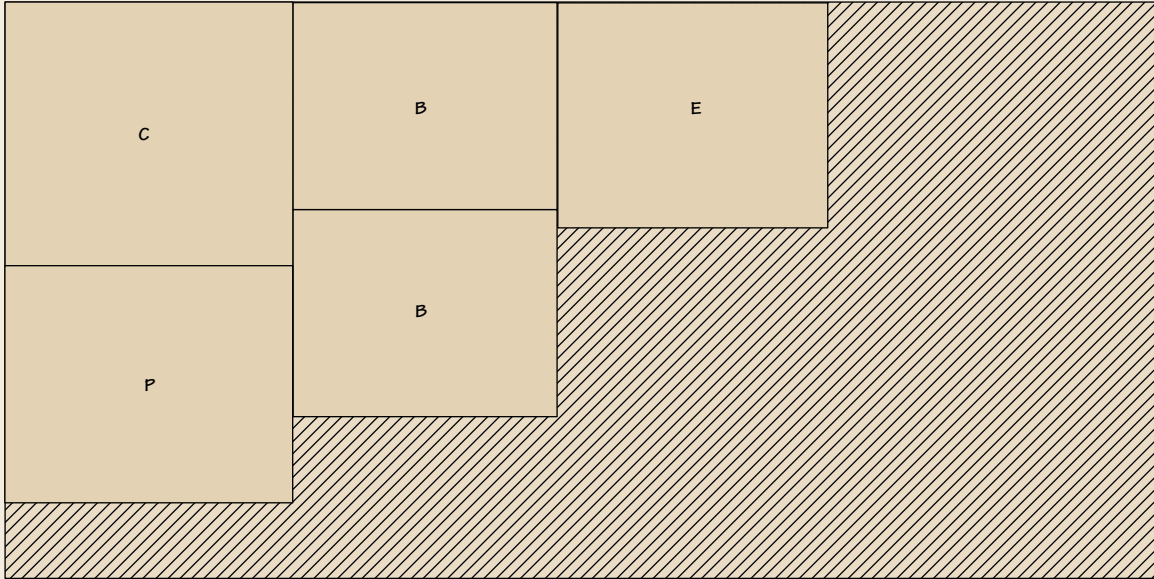
S	Support Posts (2)	$\frac{3}{4} \times 3$ - 22
T	Support Cradles (2)	$1\frac{1}{2} \times 3\frac{1}{2}$ - 14
U	Outfeed Supports (2)	$1\frac{1}{4}$ - dia. x 14 - PVC

- (64) #8 x  $1\frac{1}{4}$ " Fh Woodscrews
- (12) #8 x 3" Fh Woodscrews

- (1 Set) 4" Casters (2 Locking Swivel, 2 Fixed)
- (16) #14 x 1" Ph Screws
- (2 Pr.) 18" Full-Extension Metal Slides
- (2)  $4\frac{1}{4}$ " Drawer Pulls
- (4) #8 x  $\frac{3}{4}$ " Rh Woodscrews
- (1)  $\frac{3}{8}$ " x 48" T-track
- (14) #6 x  $\frac{5}{8}$ " Fh Woodscrews
- (6)  $\frac{5}{16}$ " Insert Knobs
- (2)  $\frac{5}{16}$ " Fender Washers
- (6)  $\frac{5}{16}$ " Washers
- (8)  $\frac{5}{16}$ " x  $1\frac{1}{2}$ " Flange Bolts
- (2)  $\frac{5}{16}$ " Lock Nuts

## CUTTING DIAGRAM

$\frac{3}{4}$ " x 49" - 97" MDF



$1\frac{1}{2}$ " x  $3\frac{1}{2}$ " - 96" DOUGLAS FIR



$1\frac{1}{2}$ " x  $3\frac{1}{2}$ " - 96" DOUGLAS FIR



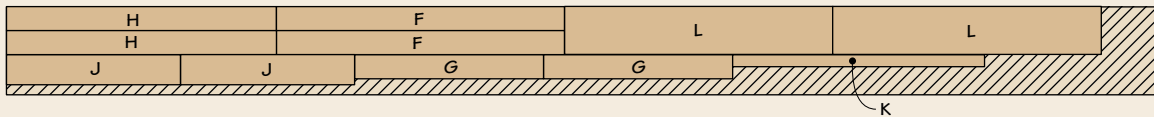
$1\frac{1}{2}$ " x  $3\frac{1}{2}$ " - 48" DOUGLAS FIR



$\frac{3}{4}$ " x  $3\frac{1}{2}$ " - 96" DOUGLAS FIR



$\frac{3}{4}$ " x  $7\frac{1}{2}$ " - 96" DOUGLAS FIR

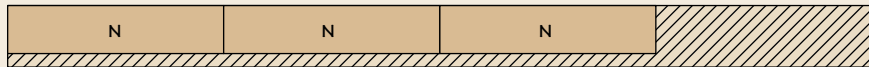


$\frac{3}{4}$ " x  $5\frac{1}{2}$ " - 72" DOUGLAS FIR



**NOTE:** DRAWER BACKS (M) AND SIDES (N) ARE PLANED TO  $\frac{1}{2}$ " THICK

$\frac{3}{4}$ " x  $5\frac{1}{2}$ " - 72" DOUGLAS FIR



**ALSO NEEDED:** ONE SHEET OF 24" x 48" -  $\frac{1}{4}$ " HARDBOARD FOR DRAWER BOTTOMS (O) AND ONE PIECE OF  $\frac{1}{4}$ "-DIA. PVC 30" LONG



# SHOP SHORT CUTS



## Aligning Dadoes

Creating perfectly aligned dadoes starts with a wide blank, as in the drawing at right. It's the technique I used to create the clamp rack described on page 4.

To support the blank, I attached an auxiliary fence to the miter gauge and used the rip fence to position the dadoes at the desired locations. After completing the dadoes, just rip the parts to final width.

