Classic Cherry Bed

Several years back, I made a wish list of the pieces of bedroom furniture I wanted to build. At the top of my list was a solid-wood cherry bed.

CHALLENGES. But I was anxious to build this project for another reason than simply wanting to cross it off my list. It involves some interesting woodworking challenges. Like cutting tenons on the ends of the five-foot-long headboard and footboard rails. And coming up with a way of making all the mortises for the slats. (I think the solution to that one is particularly interesting. The Technique article on page 9 shows what I did.)

DETAILS. The bed has several attractive features. For starters, it's made of solid cherry. Second, the headboard and footboard both feature the same bullnose profile found on the base and top of each of the cabinets. So all the pieces look like they belong together.

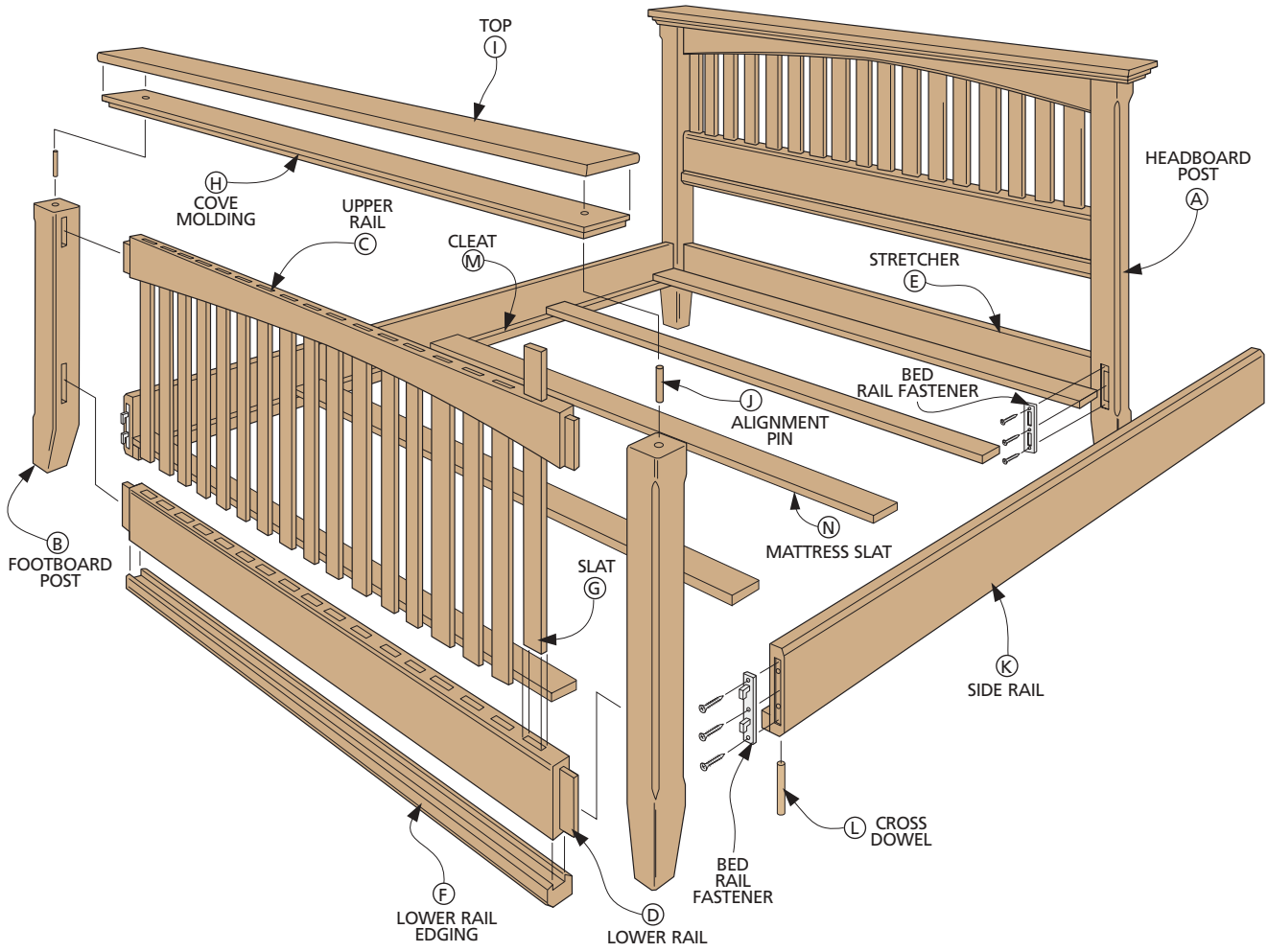
KNOCK-DOWN FASTENERS. The bed uses knock-down fasteners to connect the rails to the headboard and footboard. They are extremely strong, and can be quickly disconnected without any tools so the bed can be moved or stored easily. These fasteners are available from *Woodsmith Project Supplies*. For current prices and availability, call toll free **1-800-444-7527**.

SIZE. The bed as shown fits a queen-size mattress and box spring. The design allows some space ($1\frac{1}{2}$") between the box spring and side rails, so you can tuck in the blankets and show off the rails.

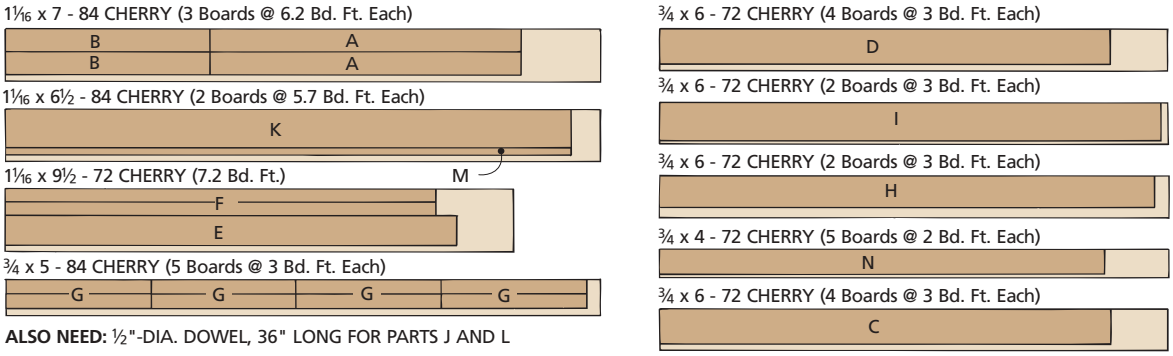
However, if you want to build a twin-size or full-size bed, all you have to do is alter the length of the side rails and the width of the headboard and footboard. (That means the number of slats will change, as well.) I've provided dimensions for these changes in the Designer's Notebook on page 13.

EXPLODED VIEW

OVERALL DIMENSIONS:
71W x 88½D x 45H



CUTTING DIAGRAM



ALSO NEED: ½"-DIA. DOWEL, 36" LONG FOR PARTS J AND L

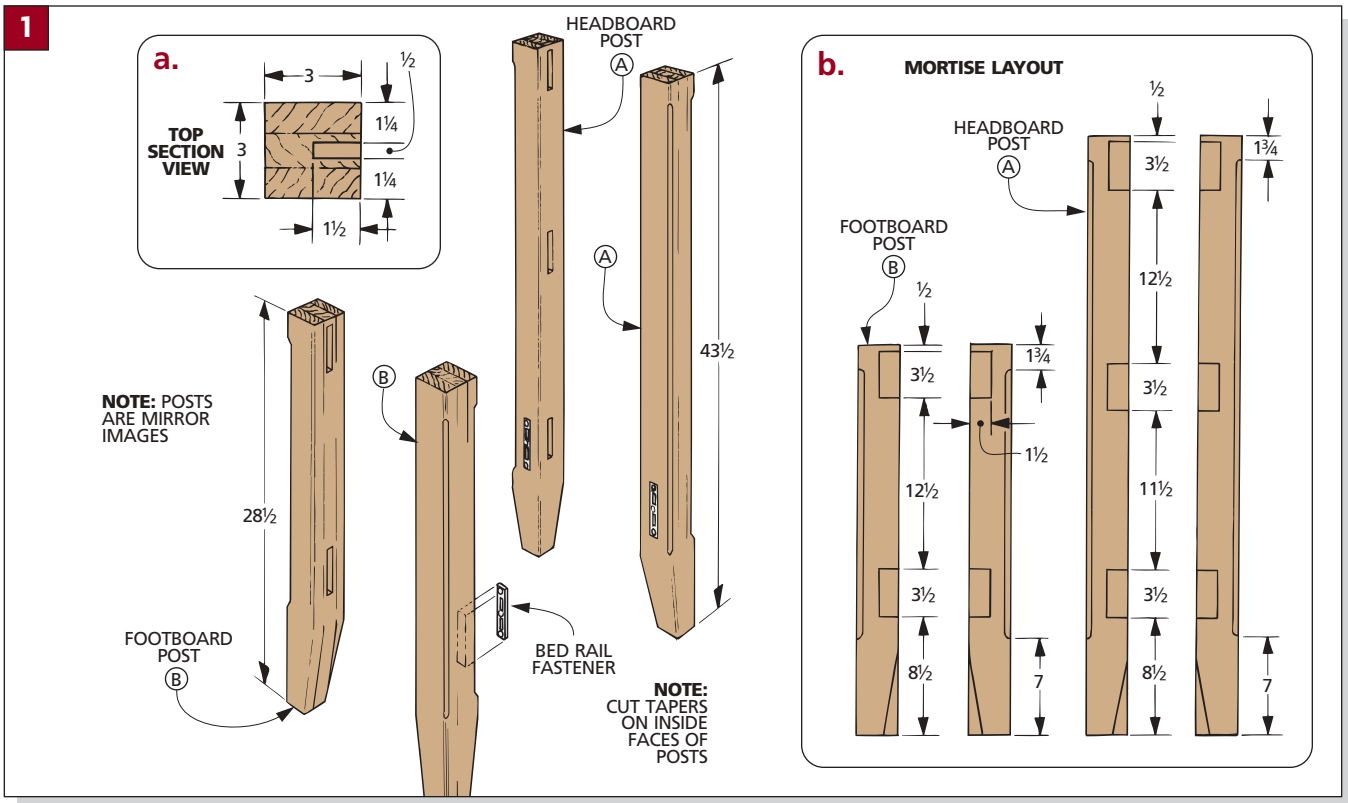
MATERIALS LIST

WOOD

A	Headboard Posts (2)	3 x 3 - 43½
B	Footboard Posts (2)	3 x 3 - 28½
C	Upper Rails (2)	1½ x 5 rgh. - 64
D	Lower Rails (2)	1½ x 5 rgh. - 64
E	Stretcher (1)	1 1/16 x 4½ - 64
F	Lower Rail Edgings (2)	1 1/16 x 2 - 61
G	Slats (34)	½ x 2 - 20⅜
H	Cove Moldings (2)	¾ x 4⅜ - 69⅞
I	Tops (2)	¾ x 5½ - 71
J	Alignment Pins (4)	½ dowel x 1 11/16
K	Side Rails (2)	1 1/16 x 5½ - 80
L	Cross Dowels (4)	½ dowel x 4¾
M	Cleats (2)	1 1/16 x ¾ - 80
N	Mattress Slats (5)	¾ x 3½ - 62⅝

HARDWARE SUPPLIES

(4) 4" bed rail fasteners
(40) No. 8 x 1½" Fh woodscrews

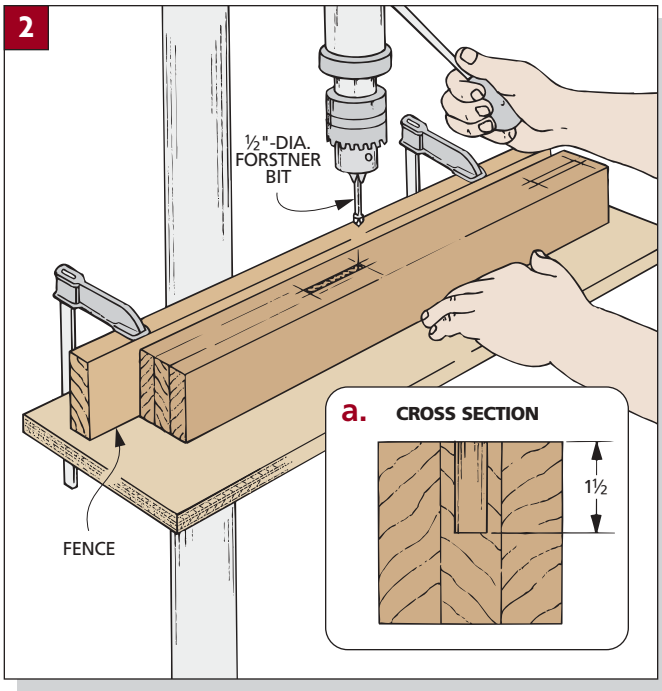


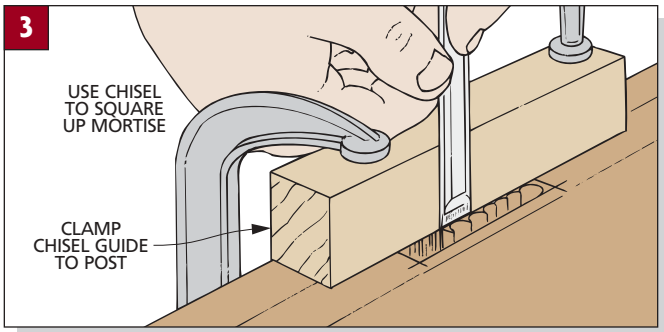
POSTS

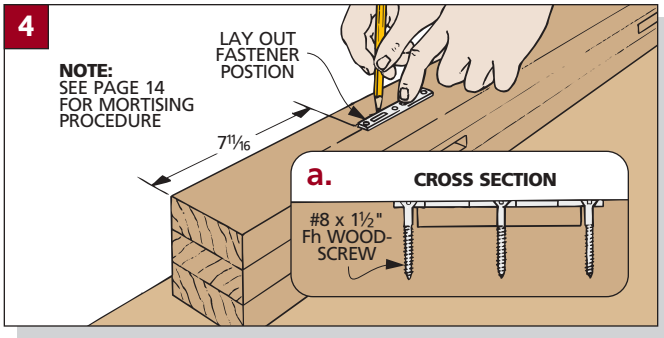
Whenever I build a large project, I like to break the construction down into separate assemblies. In the case of the bed, I built the headboard and footboard first. Then I connected the headboard and footboard with side rails and added the mattress slats between them.

POSTS. The first step in making the bed is to make the headboard posts (A) and footboard posts (B) *(Fig. 1)*. Each post is made up of three 1"-thick pieces of stock laminated together *(Fig. 1a)*. But when cutting these pieces, I didn't cut them to exact width or length. Instead, I left them a little wider and longer than necessary. Then after gluing up the posts, they can be squared up and trimmed down to finished size.

MORTISES. Once you have the posts cut to finished size, the next step is to make the mortises on each post for the footboard and headboard rails. The footboard posts each receive two mortises. One is for the upper rail and one for the lower rail *(Figs. 1a and 1b)*.







The headboard posts are also mortised for the upper and lower rails. However, because the headboard is so much taller than the footboard, it also has a stretcher closer to the bottom for added strength. So the headboard posts each receive an additional mortise for this stretcher *(Fig. 1b)*.

The mortises in the posts are fairly deep (1½"). So to remove most of the waste, I drilled a series of overlapping holes with a ½"-dia. Forstner bit in the drill press *(Fig. 2)*. Then I squared up the sides and corners with a paring chisel *(Fig. 3)*. I like to clamp a piece of scrap along the edge of the mortise to guide the chisel straight down along the side.

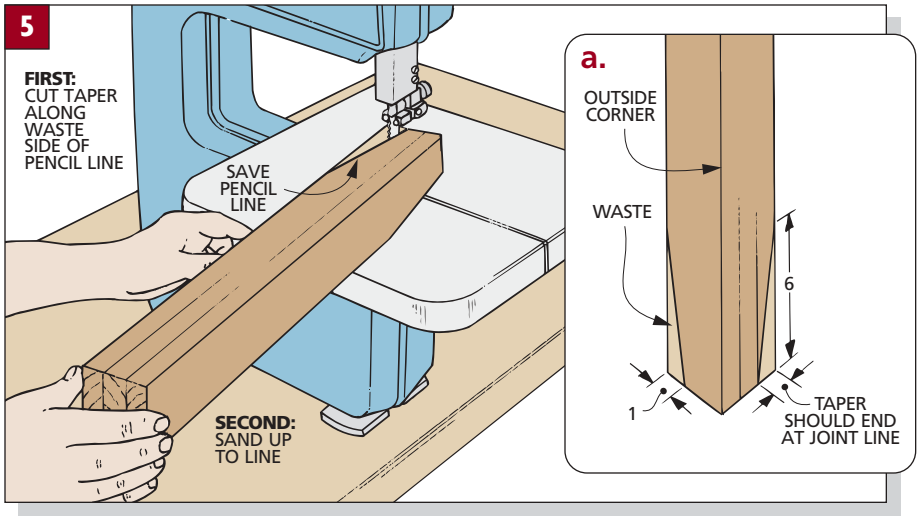
Once the mortises for the rails and stretcher were completed, I turned my attention to attaching the bed rail fasteners *(Fig. 4)*. The fasteners come in two pieces (see photo at right). One piece has a pair of slots and is mortised into the posts of the bed. The other piece gets attached later to the side rails of the bed and has a pair of hooks that fit and lock into the slots of the first piece.

To determine on which face of each post to mount the fastener, it helps to lay the posts out as they will be when the bed is assembled *(Fig. 1)*. (The details about making the mortises and installing the fasteners are covered in the Hardware article on page 14.)

TAPERS. After inserting the fasteners in the mortises and screwing them in place, I tapered the bottom of each post. But notice that only the two inside faces of each post are tapered — not all four faces *(Figs. 5 and 5a)*.

Because the posts are so thick, I used a band saw instead of a table saw to cut the tapers. The easiest way to do this is to lay out the tapers on each post and cut to the waste side of the line. Then smooth out the taper by using a sanding block to sand right up to the pencil line.

ROUND OVER EDGES. The next step is to soften the look of the posts by rounding over the edges. I used a ¼" roundover bit in the router table to do this *(Fig. 6)*. But not all of the edges are rounded over. The top edges of the posts are left square. (A cap will be added later that covers these.) And because the inside and bottom edges of the tapered section won't sit flat on the router table, I didn't rout these edges either. Instead, give them a light sanding — just enough to round over the sharp corners and blend them in with the long edges *(Fig. 6b)*.

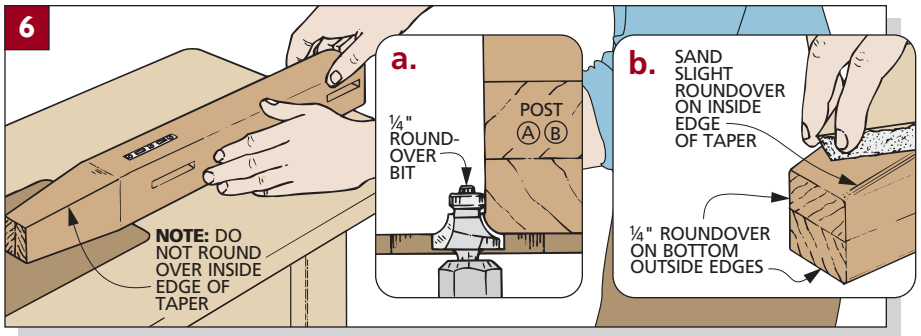


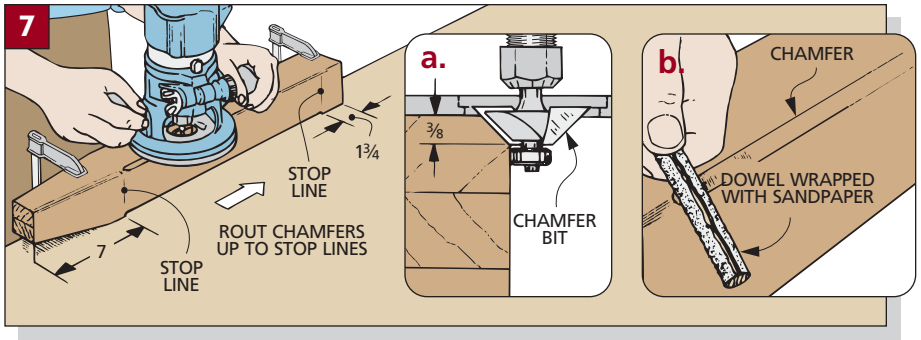
STOPPED CHAMFERS. There's one more detail to add to the posts to finish them off. The two outside edges of each post have ⅜" stopped chamfers (similar to those on the cabinets in the set) *(Fig. 1)*.

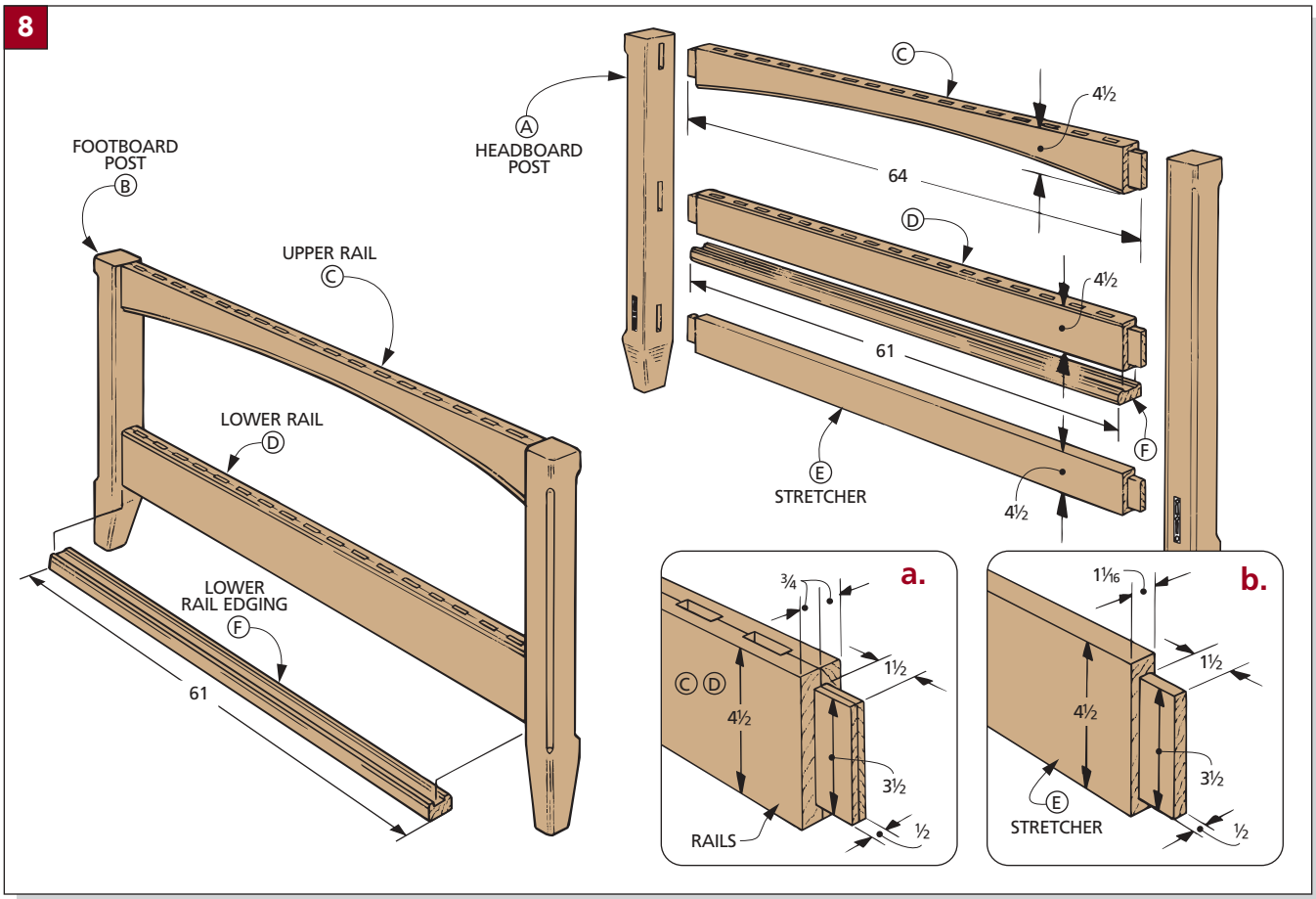
Laying out a stopped chamfer isn't difficult — just mark a couple of stop lines on the edges of the posts to indicate the ends of the chamfers. The chamfers start 7" from the bottom of each post and end 1¾" from the top *(Fig. 7)*. To rout the chamfers, start near one end and carefully backrout up to the stop line. Then rout forward to the opposite stop line. Take light cuts to avoid chipout.

The chamfer bit will leave the ends of the chamfers a little rough and uneven. So I smoothed them out by hand. To do this, just wrap some sandpaper around a dowel and lightly sand the ends of each chamfer. This is also a good way to remove any burn marks that may have been left behind by the router bit.

Bed rail fasteners are a type of knock-down fastener that provide a secure way to fasten the rails to the posts. Installation is covered on page 14.







RAILS

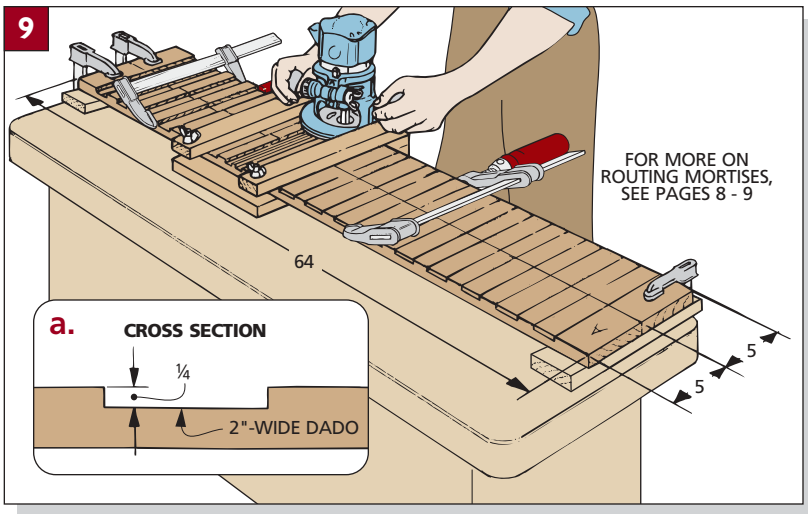
With the posts completed, I began working on the rails that connect them *(Fig. 8)*. Each set of posts is joined by an upper and lower rail. Mortises in these rails hold a row of vertical slats.

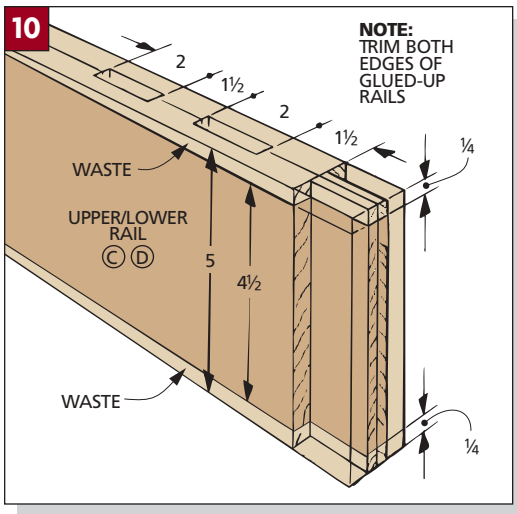
RAILS. The upper rails (C) and lower rails (D) each start off as two 5" x 64" pieces of ¾"-thick stock. This allows you to rout a series of shallow (¼") dadoes in each half *(Fig. 9)*. Then when the two pieces are glued together, you end up with a row of mortises *(Fig. 10)*. (For details about this, see the Shop Jig and Technique articles on pages 8 and 9.)

After the mortises are cut and the rails are glued up, they can be trimmed to their final width (4½").

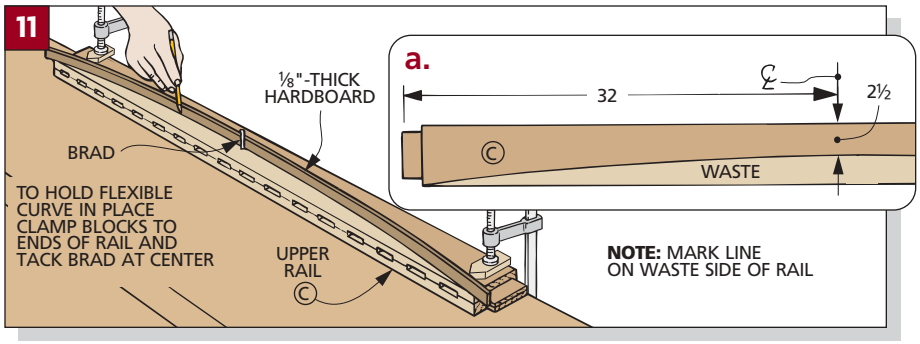
The next step is to cut tenons on the ends of each rail *(Fig. 8a)*. But trying to cut tenons on pieces this long is tricky. So to help support the rails, I used an "outrigger" alongside my table saw and a hold-down clamped to my miter gauge fence. (See the Technique on page 7.)

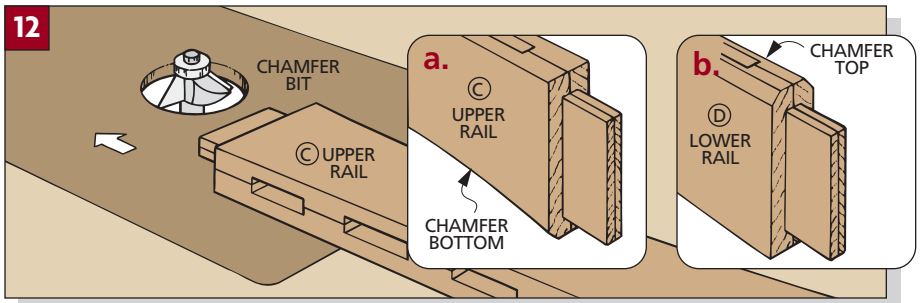
I like to cut tenons with a dado blade, using my rip fence as a stop to control the length of the tenon. The only problem I have found with this method is that sometimes the four shoulders of the tenon wind up "stepped" or uneven. To prevent this, I intentionally cut stepped





To get even shoulders all the way around the wide tenons of the bed, I intentionally left a "step" on the top and bottom. Then you can trim the shoulder perfectly flush with a chisel.





shoulders by sliding the workpiece about $1/16$" away from the rip fence when cutting the top and bottom shoulders of the tenon. Then later I came back with a chisel and trimmed these shoulders so they were flush (see the photo above).

ARCS. Once the tenons were cut, I laid out the arcs on the upper rails *(Fig. 11)*. I used a piece of $1/8$"-thick hardboard as a flexible curve. To hold the hardboard in place, tack a small brad in the center of the rail on the waste side of the curve and clamp a couple of wood blocks at each end of the rail.

I cut the arc on a band saw, making sure to cut on the waste side of the layout line. And a well-sharpened spokeshave made quick work of removing the saw marks left behind by the band saw (see the Shop Info box below).

CHAMFERS. To add a finishing touch to the arcs, rout a $1/4$" chamfer on each edge *(Fig. 12a)*. Then chamfer the top edges of the lower rails to match *(Fig. 12b)*.

SHOP INFO . . . . . Spokeshaves

While many hand tools have been replaced with modern versions that plug in, there's still no better way to smooth a long, curved, or irregular edge than with a spokeshave.

There's not really much to a spokeshave *(Fig. 1)*. It's just a blade fitted into a small body with a couple of handles.

The key to the spokeshave is its bottom, or sole. The sole is much smaller than that typically found on most hand planes. This allows it to ride smoothly over the surface of a curved workpiece.

The shape of the sole also has a lot to do with a spokeshave's ability to handle curves. For smoothing convex curves, a flat-soled shave works best. But for the concave arc on the bed rails, I used a spokeshave with a curved sole *(Fig. 1)*.

SHAVINGS. As the name implies, spokeshaves are designed to lightly shave the wood, not hog off large pieces.

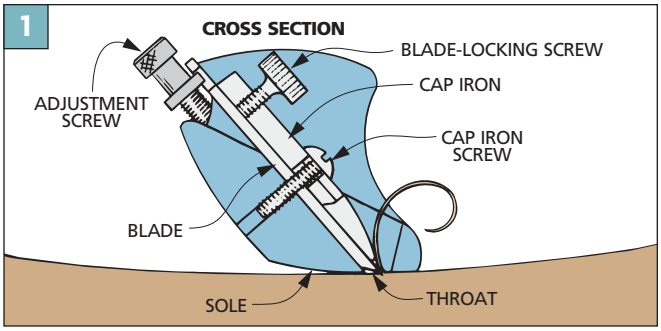
Using the adjusting screws, move the blade forward until it just barely peeks out from the throat opening. (I find it easier to do this by carefully feeling the blade rather than looking at it.)

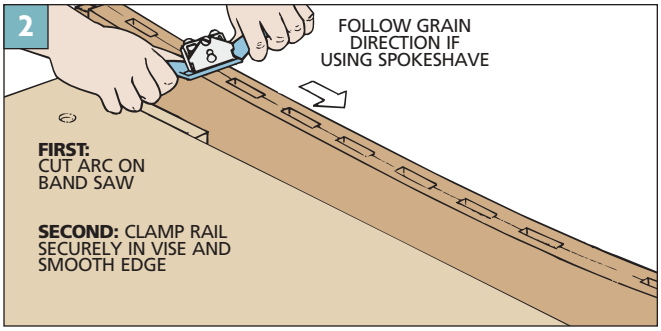
Then, before you start using the spokeshave, make sure that your workpiece is firmly clamped to your bench or in a vise. This allows you to concentrate on the tool, not on trying to hold the workpiece.

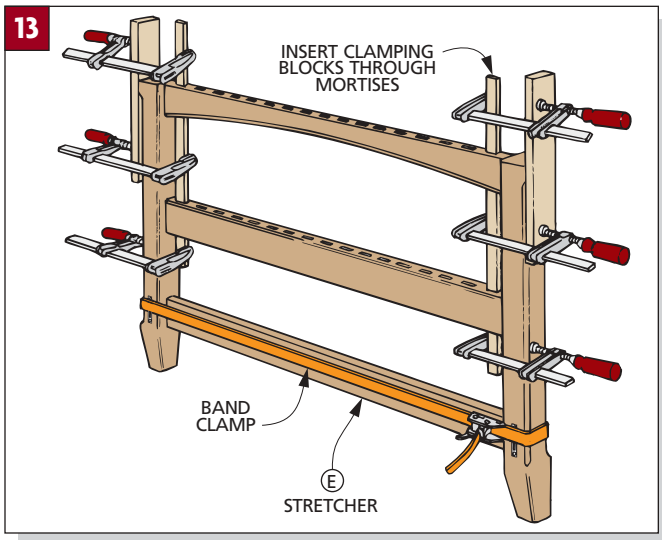
USING A SPOKESHAVE. A spokeshave can be used with either a push or pull stroke. I find that I have better control when pushing the tool. But whether you push or pull, it's important to work in the direction of the grain to avoid tearout.

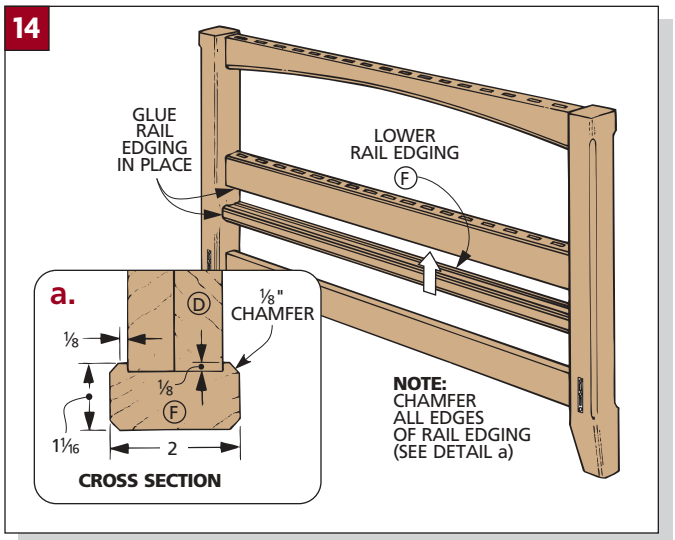
The secret to using a spokeshave is to hold it at the proper angle to produce a nice, clean cut. With a hand plane, the angle of the blade is fixed. But with a spokeshave, you control the angle by tilting the tool forward or backward.

Experiment to find the right angle. As you push the spokeshave forward, try pivoting your wrists until the blade starts to take a crisp shaving off the wood.









STRETCHER. Before assembling the rails and posts, there's one more part to make. To give the headboard a little more stability, a stretcher (E) is added below the rails (refer to *Fig. 8* on page 5).

Because the stretcher will be concealed by the mattress and box spring, I didn't worry about making it the same thickness as the rails. I used a piece of 1 1/16"-thick stock, but you could glue up two pieces of 3/4"-thick stock if that's what you have available.

As with the upper and lower rails, the stretcher needs 1 1/2"-long tenons cut on each end (refer to *Fig. 8b* on page 5).

ASSEMBLY. After cutting tenons on the ends of the stretcher, I was ready to start assembling all the pieces. But I ran into a slight problem as I dry-assembled things. I discovered that I didn't have clamps long enough to span the width of the headboard and footboard.

So I improvised. I used a band clamp around the stretcher, and half a dozen smaller clamps, some clamping boards, and a couple of scrap blocks cut to fit down through the rail mortises *(Fig. 13)*.

EDGING. After gluing up the headboard and footboard, the next step is to add edging (F) to the bottom of the lower rails (*Fig. 14* above and *Fig. 8* on page 5). This edging serves two purposes. First, it covers the exposed ends of the mortises. And by doing that, it prevents the slats from sliding down all the way through the mortises.

The edging is just a piece of 1 1/16"-thick stock, cut 2" wide and long enough to fit between the posts of the headboard and footboard *(Fig. 14)*. A groove cut along the length of the edging allows it to fit snug over the lower rails *(Fig. 14a)*.

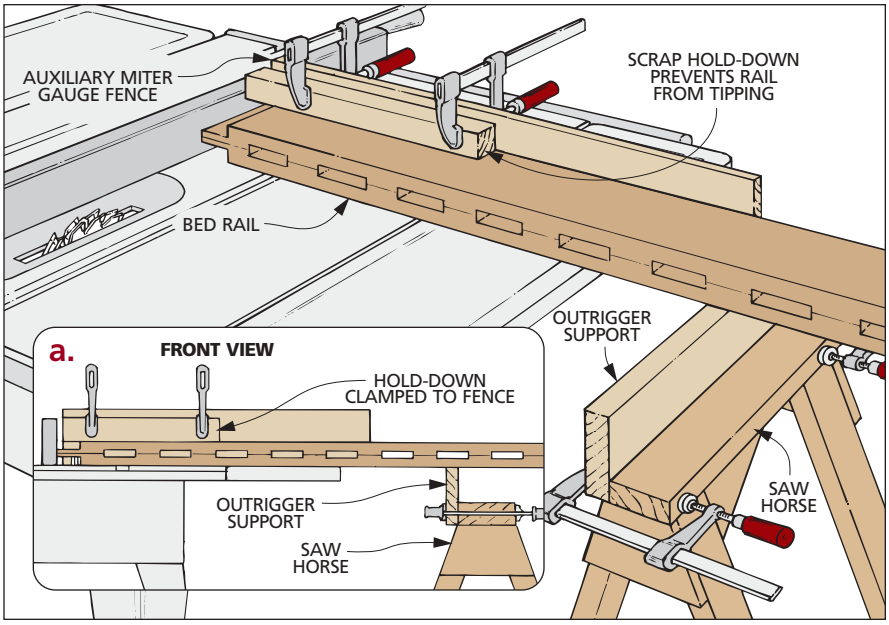
Before attaching the edging, I routed 1/8" chamfers on all four edges. Then glue and clamp the edging to the bottom rails.

TECHNIQUE . . . . . Tenons on Long Rails

The length of the upper and lower rails and the stretcher made them a challenge to work with, especially when it was time to cut their tenons. I had a tough time trying to keep the workpiece moving straight across the table saw while still supporting the outside edge.

To help steady the workpieces, I created an "outrigger" to support the ends during a cut (see drawing). I clamped a long board to a sawhorse so it matched the height of my saw's table. Make sure the outrigger is positioned so that it supports the piece before the blade and through the cut.

Then, to help steady the piece even more, I screwed an auxiliary fence to my miter gauge. And I clamped a hold-down to the auxiliary fence (detail 'a'). The hold-down is positioned to keep the workpiece from tipping up.



SHOP JIG . . . . . Dado Routing Guide

Mortises don't have to be cut with a chisel or drilled at the drill press. By using this jig to rout matching dadoes in two pieces, then laminating the pieces, you can create through mortises.

This jig starts with a base made out of ¾"-thick MDF *(Fig. 1)*. To square the jig with the edge of the workpiece, an edge guide is glued to one end.

Note: This guide should be exactly the same thickness as your rail pieces.

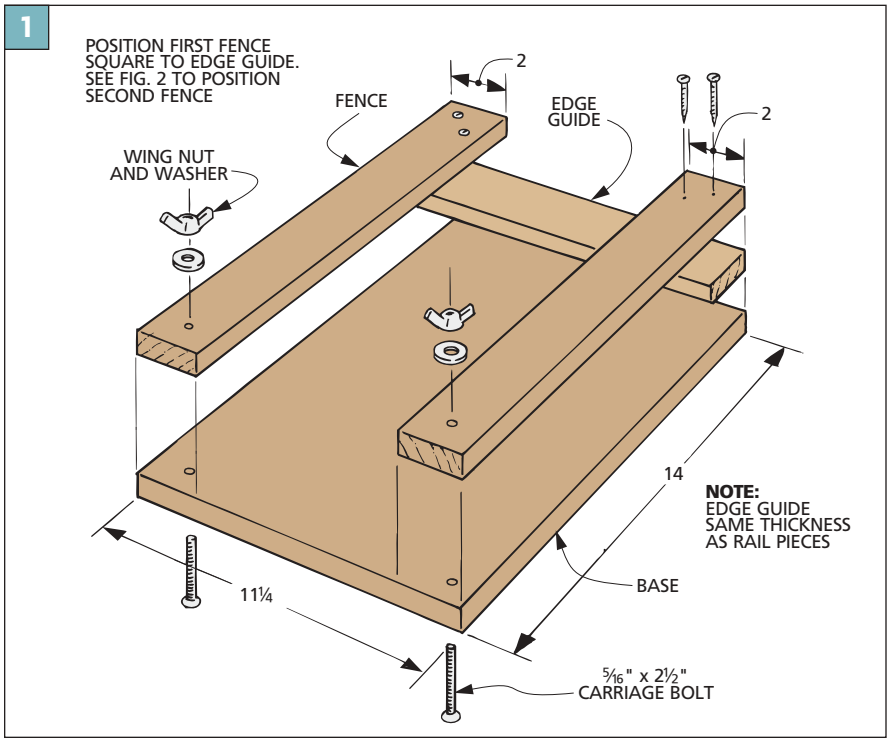
Next, cut a couple of 2"-wide strips for the fences to guide the router. The important thing is to attach the first fence at a perfect right angle to the edge guide. To do this, I used a square to position the fence as I glued and screwed it in place.

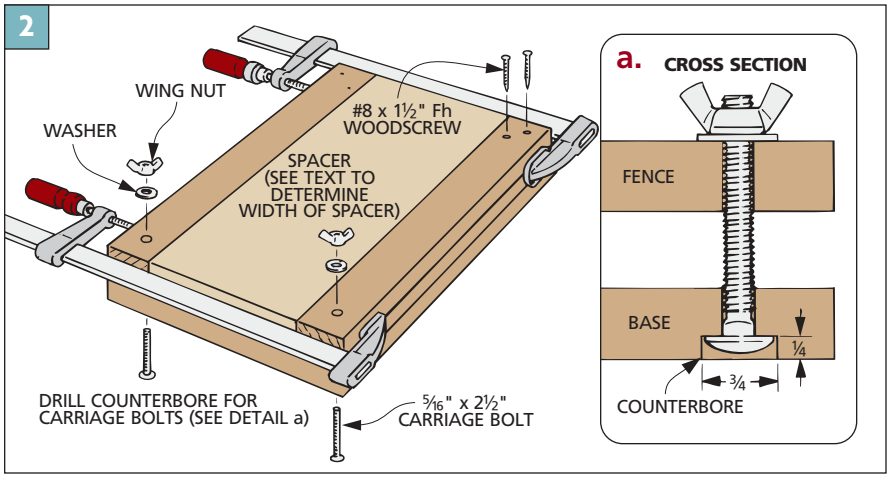
The second fence must also be square to the edge guide, but this time I used a different approach. To make sure the fences were parallel, I used a spacer to position the second fence *(Fig. 2)*. But since the width of the dadoes will be determined by the distance between the fences, the width of the spacer is critical.

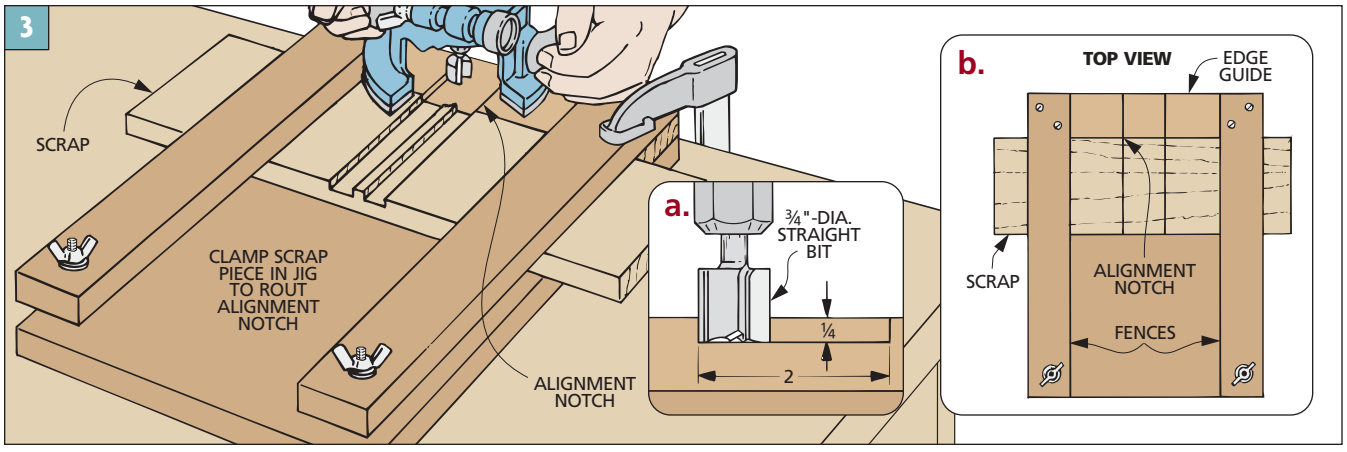
To find the spacer's width, simply subtract the diameter of your router bit (I used a ¾" straight bit) from the diameter of your router base (6" in my case). Then add 2" for the width of the dado. (I ended up needing a 7¼"-wide spacer.)

After positioning the second fence, I added carriage bolts and wing nuts at the end of each fence *(Fig. 2)*. These allow the fences to be tightened down over the rail pieces. (You'll need to drill a hole and counterbore for each bolt.)

ROUT NOTCH. Finally, clamp a piece of scrap in the jig and rout a notch in the edge guide *(Fig. 3)*. This notch is used as a reference to line up the jig with the layout lines. (See the page 9.)







TECHNIQUE . . . . . Through Mortises

When I first saw the design for the cherry bed, I really liked it. It's a great-looking piece. Then I began to think about how much time it would take to make all those mortises for the slats in the headboard and footboard.

But after some more thought, I came up with an unusual technique that really speeds up the process for making all these mortises. Instead of cutting traditional mortises in a solid rail, I used a special jig to rout a series of shallow dadoes in a pair of boards (see photo). Then the boards are glued together so the dadoes face each other. What you end up with is a rail with a completed row of through mortises. (Instructions for building the jig are on page 8.)

LAYOUT

There are eight rail pieces in the bed (two for each rail). But I started by laying out the dadoes on just one board. To do this, clamp a tape measure to the board. Then starting 3" from either end, mark out 2"-wide dadoes spaced 1½" apart *(Figs. 1 and 2a)*. (The 3" at each end allows for a tenon plus the space between the slats and the bed post.) Then make an "X" in the waste areas.

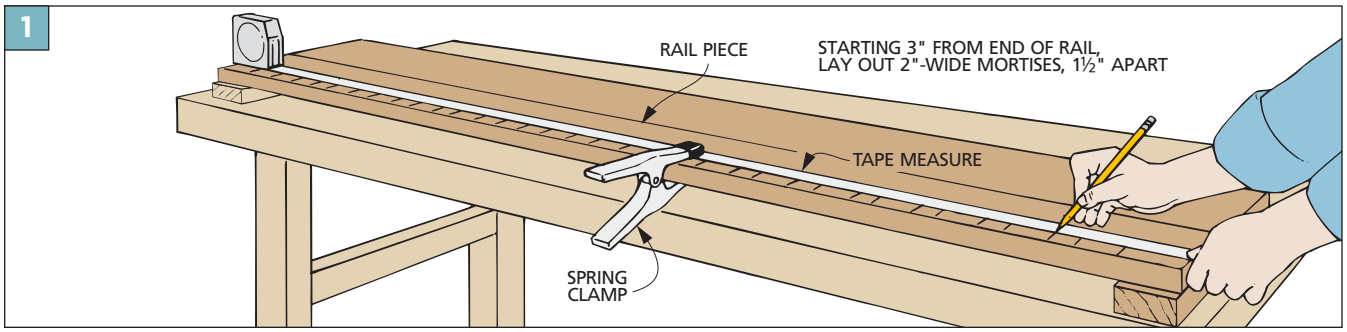
To keep the dado spacing identical in all the rails, I used this piece as a guide or "story stick" for laying out the dadoes on the other boards. But since the dadoes are cut in pairs, you only need to draw layout lines on one board from each pair. So just transfer the lines from the first board to three others *(Fig. 2)*.

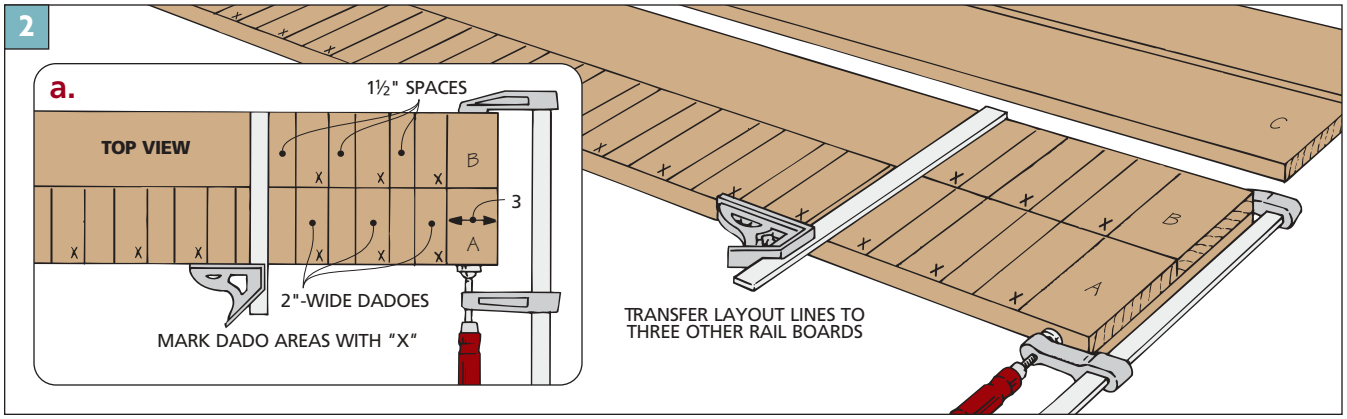
SETUP. Before you start routing the dadoes, there are a couple of things to do to make the job even easier. The first is to label each pair of rail pieces so you can keep them together when it comes time for assembly *(Fig. 3)*.

Second, find a couple of scrap pieces to place under the rails so they won't rock when they're placed in the jig *(Fig. 3)*.

ROUTING

With all of the dadoes laid out, the next step is to rout them. The trick here is to keep the router inside the layout lines. That's where the jig comes in. A notch in



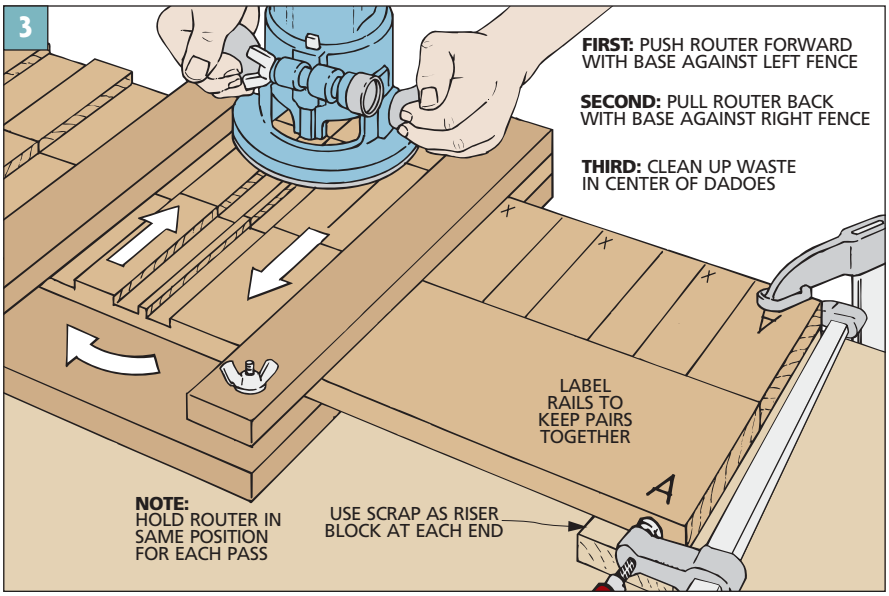


the base aligns with the layout marks. Then the fences that straddle the workpieces guide the router.

Simply slide the jig over the first pair of rails and clamp the rails together and then down to your workbench.

To rout the first pair of dadoes, align the notch in the base of the jig with the first set of layout lines and tighten down the wing nuts. Since the bit I used was only $^3/_4$" wide, I routed each dado in three passes *(Fig. 3)*. And because the bit is not always perfectly centered in the base of the router, make sure to hold the router in the same relative position for each pass. (In other words, don't rotate the router between passes.)

After you rout the first dado, just loosen the wing nuts, move the jig down to the next set of layout lines, and repeat the process. When you've routed all the dadoes in one rail, do the same with the other three rail pairs.



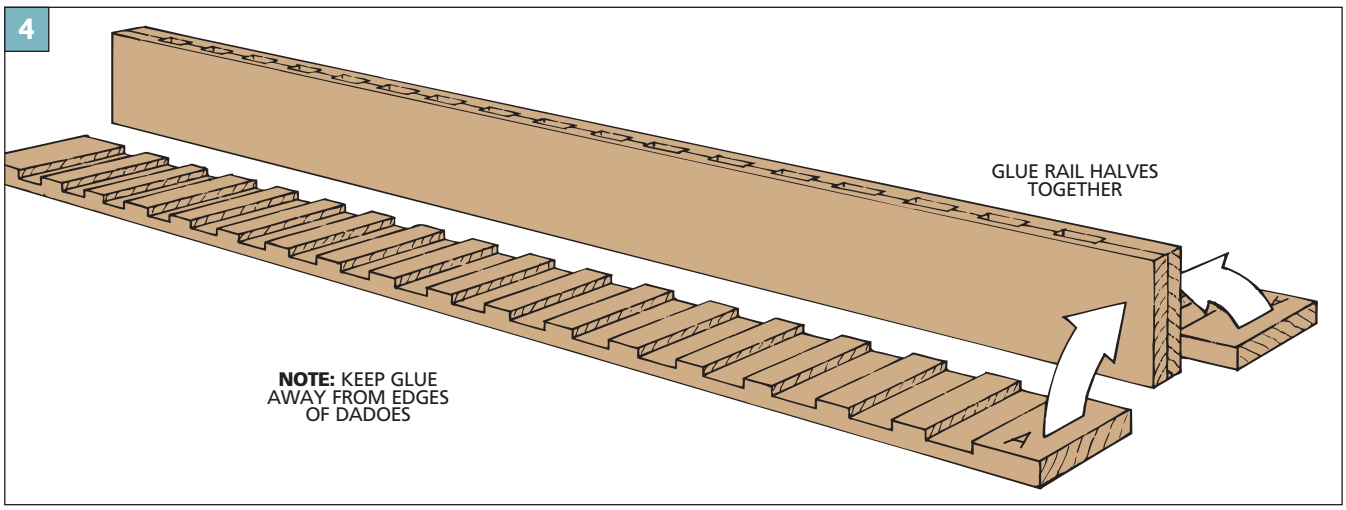
GLUE-UP

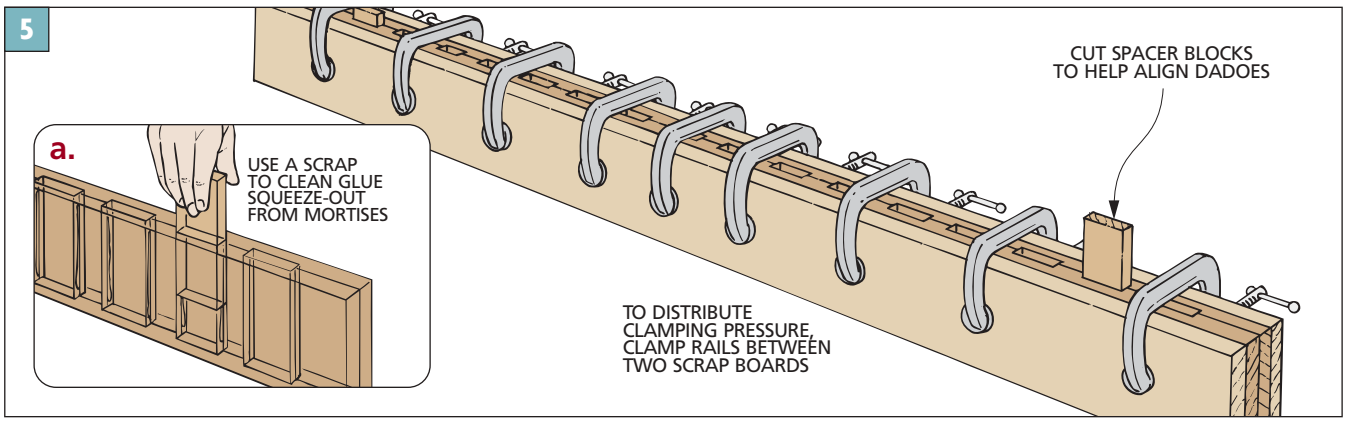
The last of the process is gluing the rail halves together *(Fig. 4)*. There's just a couple of points to keep in mind.

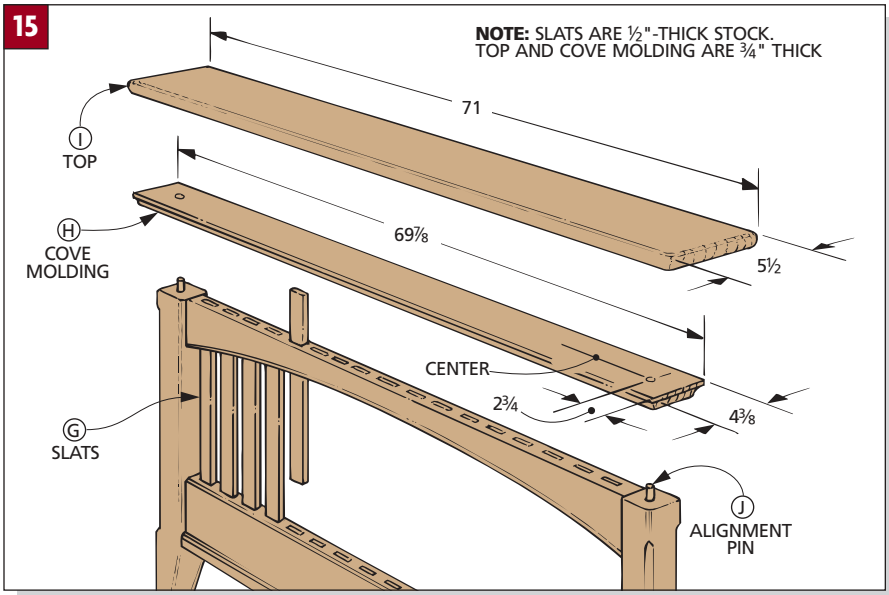
First, I wanted to avoid having to clean up a lot of glue squeeze-out inside the mortises. So I applied the glue sparingly, spread it with a brush, and I kept it away from the edges of the dadoes.

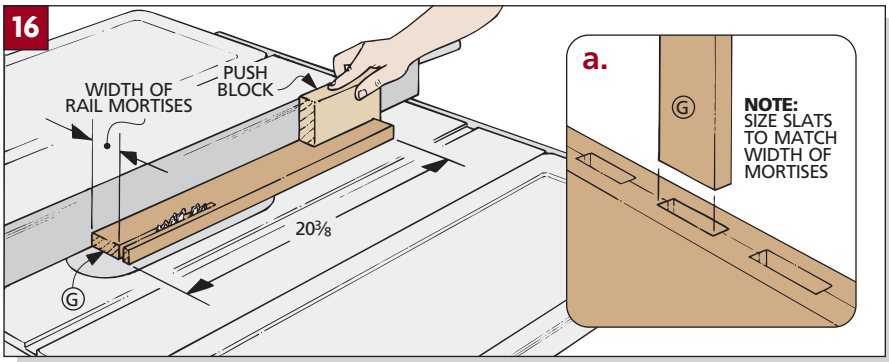
Second, I wanted to make sure the dadoes remained lined up while clamping the pieces together. So I made a couple of spacer blocks to fit in the mortises *(Fig. 5)*. Then, after clamping up a rail, I ran a thin piece of wood through each mortise to remove any glue *(Fig. 5a)*.

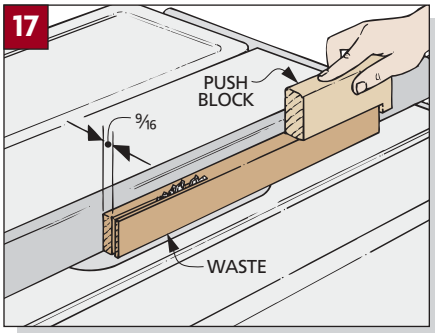
Finally, after the glue was dry, I removed the clamps and cut about $^1/_4$" off each edge of the rails to trim them to finished width ($4^1/_2$").

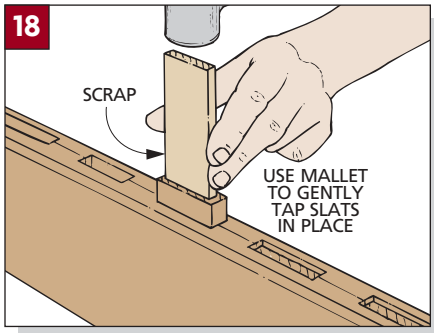












SLATS

With the posts and rails glued up, the next step is to add the slats (G) *(Fig. 15)*. Since the slats don't require tenons on the ends, it's simply a matter of cutting them to fit in the mortises in the rails.

CUT TO LENGTH. The first step in making the slats is to cut them to length. The slats fit all the way through the mortises in the rails and are cut to fit ⅛" below the top of the upper rail.

To determine the length of the slats, I slipped a thin, narrow piece of scrap down through the mortises and measured the distance to the top of the rail. Then I cut all the slats ⅛" shorter than this measurement out of ¾"-thick stock. (Mine were 20⅜" long.)

The next step is to rip all of the slats to finished width *(Fig. 16)*. This should match the width of the mortises in the rails (2" in my case).

Safety Note: Since the slats are so narrow, I used a push block to safely feed them past the saw blade *(Fig. 16)*.

THICKNESS. Now all that's left is to reduce the slats to the proper thickness to fit in the mortises. (My slats ended up ½" thick.) To do this, I started by resawing all the slats so that they were slightly thicker than the mortises (9/16") *(Fig. 17)*. Again, I used a push block to keep my hands away from the blade.

When all the slats were resawn, I was able to sneak up on the final thickness for a perfect fit in the mortises. A thickness planer is the easiest way to do this. But if you don't have one of these tools, another way is to use a drill press set up with a fence and a large drum sander. (See the Technique box below.)

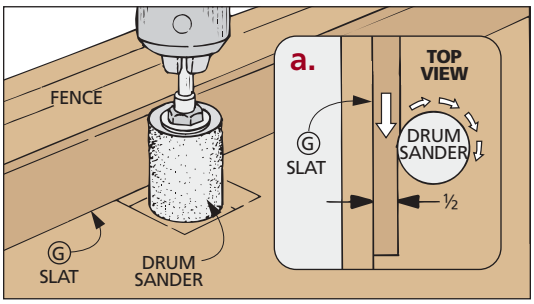
INSERTING THE SLATS. Once you've finished sanding all the slats, they can be inserted in the headboard and footboard.

TECHNIQUE ..... Drum Sander Thicknessing

All you need to reduce the thickness of the bed slats is a drill press and a drum sander. (Since the slats are 2" wide, the drum sander should be at least 2½" tall.)

FENCE. Just clamp a fence to your drill press table near the drum sander. Then feed the slats through the sander one at a time, pushing them along the fence (see drawing). Make sure to feed the slats against the rotation of the drum (detail 'a').

Also, you'll get better results if you don't try to sand the slats down to finished thickness in a single pass. Instead, make a number of passes, removing less than 1/32" each time. Move the fence a little closer to the drum between passes so you can "sneak up" on the final thickness.



I didn't use any glue on the slats — they'll be held in place between the lower rail edging and the cap that's added later. Most of the slats slipped right into place without any trouble. But for a few of the more stubborn slats, I used a mallet and a thin piece of scrap wood to gently tap the slats home *(Fig. 18)*.

CAP

All that remains to complete the headboard and footboard is to add a two-piece cap to them *(Fig. 15)*. The cap consists of a cove molding and a top piece with a bullnose edge profile.

COVE MOLDING. The two cove moldings (H) are pieces of $^{3}/_{4}$"-thick stock that are cut to finished size. I made my cove molding pieces $4^{3}/_{8}$" wide and $69^{7}/_{8}$" long. Then I routed a $^{1}/_{2}$" cove around all four bottom edges of each piece *(Fig. 19)*.

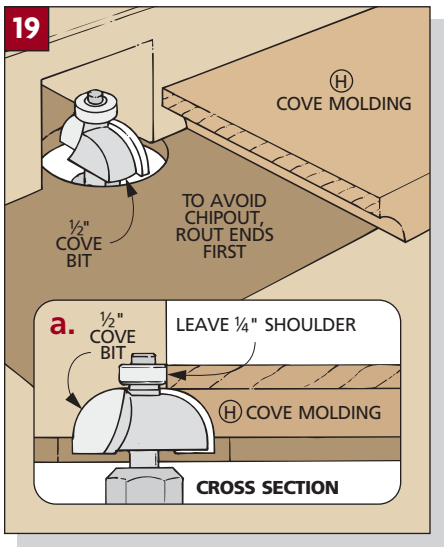
To complete the cove molding, all that's left is to drill a couple of $^{1}/_{2}$"-dia. holes that accept a pair of alignment pins *(Fig. 20)*. To drill these holes, I centered the cove moldings on the length and width of the headboard and footboard and clamped them in place. Then I drilled holes through the molding pieces and $^{1}/_{2}$" deep into the posts.

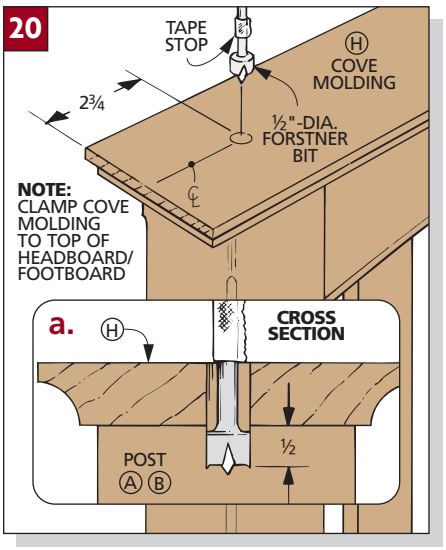
TOP. The two tops (I) are also pieces of $^{3}/_{4}$"-thick stock ($5^{1}/_{2}$" x 71"). Both the top and bottom edges of the top are rounded over to create a bullnose profile. First I rounded over the bottom edges with a $^{1}/_{2}$" roundover bit *(Fig. 21)*. Then for the top edges, I used a $^{1}/_{4}$" roundover bit, but I set it only $^{3}/_{16}$" above the surface of the router table *(Figs. 22 and 22a)*.

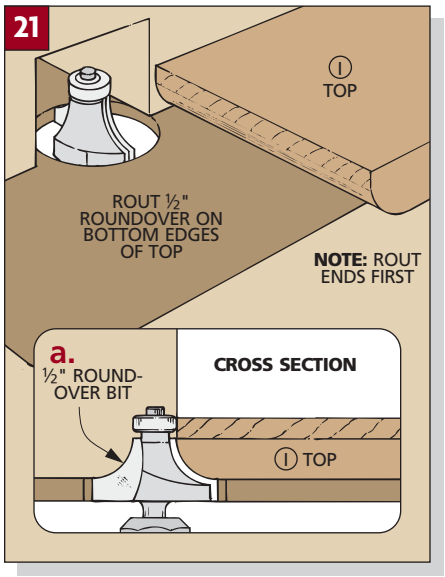
Like the cove molding, the top also has holes for the alignment pins, but the procedure for drilling them is a bit different. Start by laying the top face down on your workbench. Then center the cove molding on top of the top piece, also top face down *(Fig. 23)*. Now clamp the two pieces down and use the holes in the cove molding as guides for drilling two $^{1}/_{2}$"-deep holes in the top piece *(Fig. 23a)*.

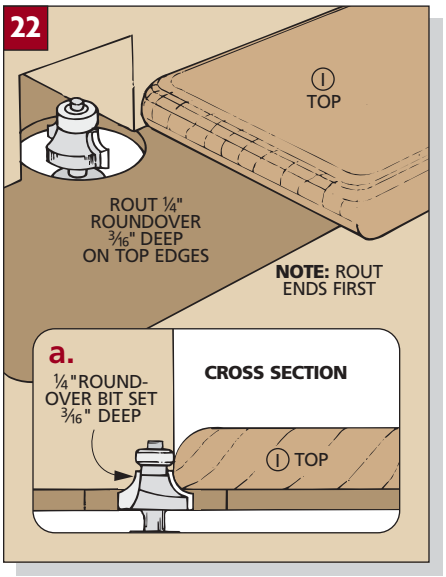
ASSEMBLY. Before assembling the cove molding and top to the bed, I cut four $1^{11}/_{16}$"-long alignment pins (J) from a piece of $^{1}/_{2}$"-dia. dowel. Then I glued them into the holes in the posts. The pins keep the cap pieces aligned during the glue-up.

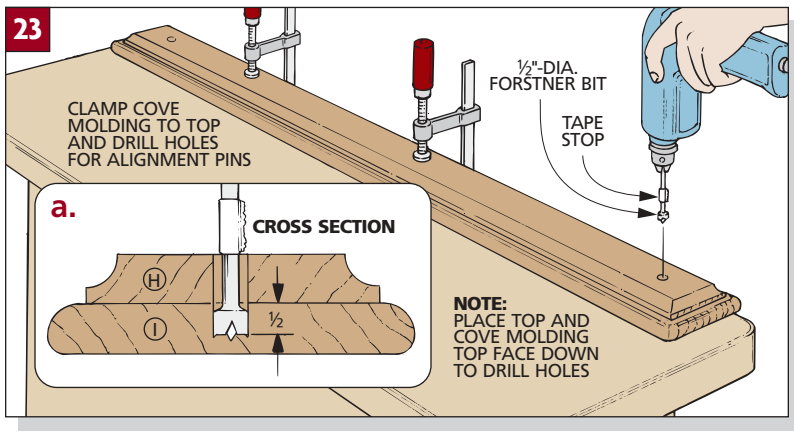
To attach the caps, glue and clamp the cove moldings to the head and footboard. Finally, glue the tops down to the cove moldings *(Figs. 24 and 24a)*.

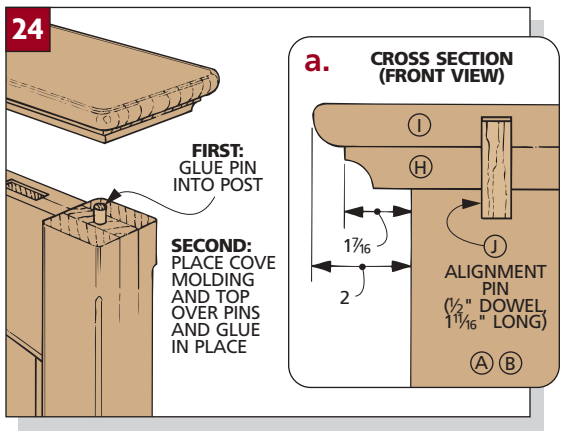


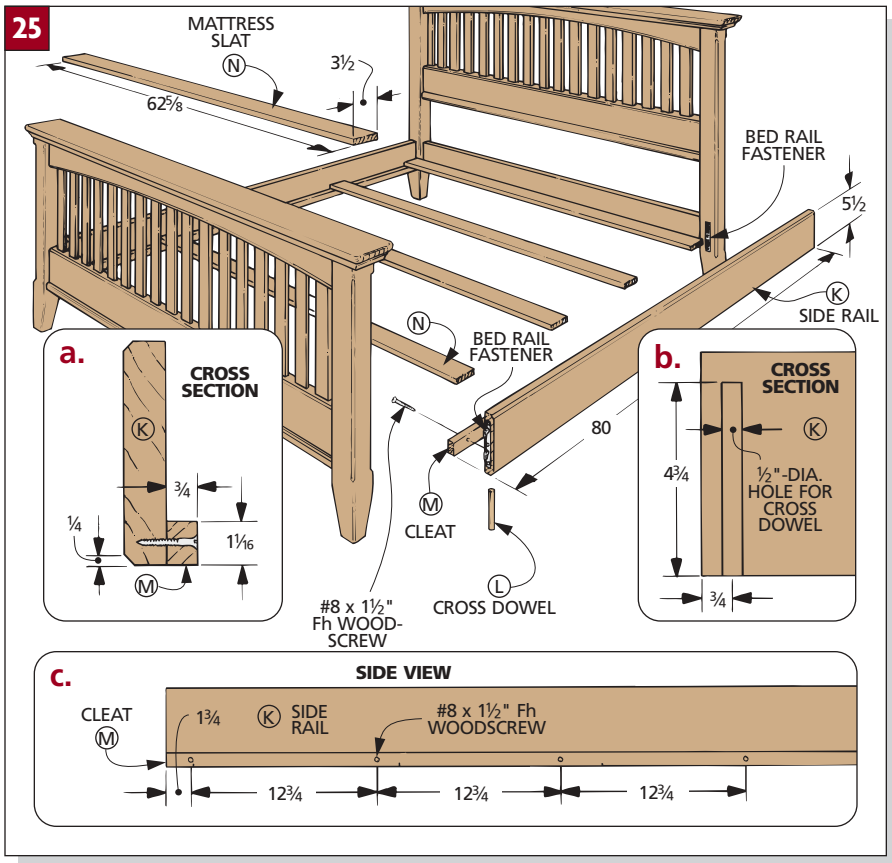












SIDE RAILS

Once the headboard and footboard are complete, all that's left is to connect them with a pair of side rails (K). These are just a couple of boards cut to size from 1 1/16"-thick stock *(Fig. 25)*. Chamfers are routed on the outside edges *(Fig. 25a)*.

The side rails are attached to the bed posts with bed rail fasteners. Earlier, a "mortise" plate was attached to each post. Now the "tenon" plate that hooks into the mortise plate is attached to each end of the rails. The plate sits in a shallow mortise. (See *Steps 6 and 7* in the Hardware article on page 14.)

Once the fasteners are fitted into the mortises, they're held in place with 1½" woodscrews. But I was worried about the screws holding, since they're driven into end grain. So I gave the screws something more solid to "bite" into. All I did was drill a hole in the bottom edge of each side rail and insert a ½"-dia. cross dowel (L) (*Fig. 25b* and *Steps 8 and 9* on the page 14).

CLEATS. Before attaching the side rails to the bed, I added a cleat (M) to each one. These cleats provide a support for the matttress slats that are added next. The cleats are just a couple of pieces of hardwood that are glued and screwed to the side rails *(Figs. 25a and 25c)*.

MATTRESS SLATS. The side rails and cleats support the mattress and box spring of the bed. But for additional strength, I added five mattress slats (N) *(Fig. 25)*. I used cherry for the mattress slats, but since they'll be concealed by the box spring, any hardwood will work. The slats aren't fastened to the bed — they just sit on top of the cleats.

FINISH. Finally, to finish the bed I wiped on three coats of an oil finish, sanding lightly between coats. ■

DESIGNER'S NOTEBOOK

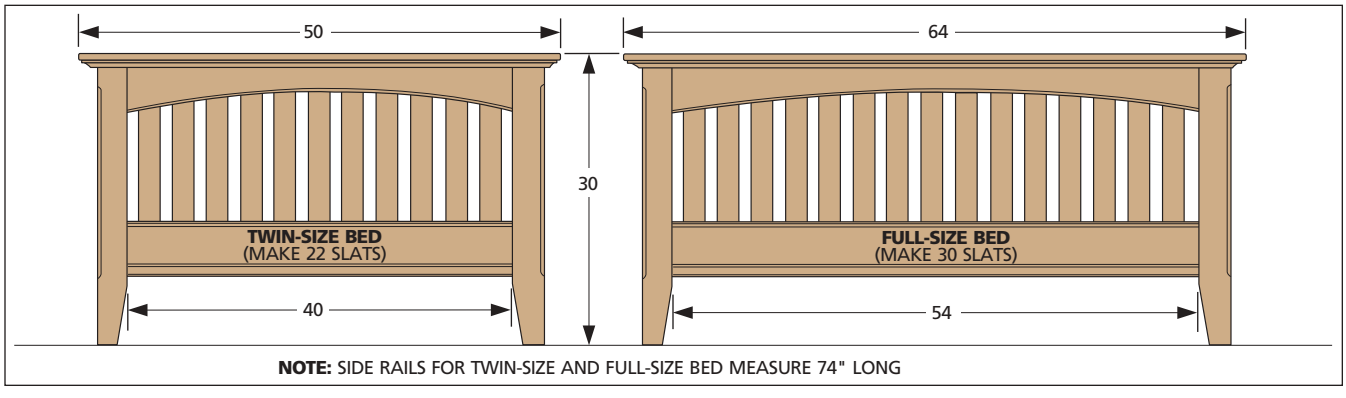
It's easy to adjust the size of the headboard and footboard to hold a different size mattress.

TWIN & FULL-SIZE

■ Twin-size and full-size mattresses are shorter, so cut the side rails (K) and cleats (M) only 74" long.

■ A twin-size bed only needs 22 slats (on left in drawing). Also, remember to allow for the tenons on the rails and stretcher.

■ A full-size bed needs 30 slats (on right in drawing). The space between the side rails and box spring will be about 2".



NOTE: SIDE RAILS FOR TWIN-SIZE AND FULL-SIZE BED MEASURE 74" LONG

HARDWARE . . . . . Bed Rail Fasteners

Bed Rail Fasteners available at *Woodsmith Project Supplies*. For current prices and availability, call **1-800-444-7527**

Bed rail fasteners are a strong way to join the bed rails to the posts. The fasteners consist of two steel plates that fit together somewhat like a locking mortise and tenon joint. The "tenon" plate has two tapered hooks that fit in the "mortise" plate and draw the two together.

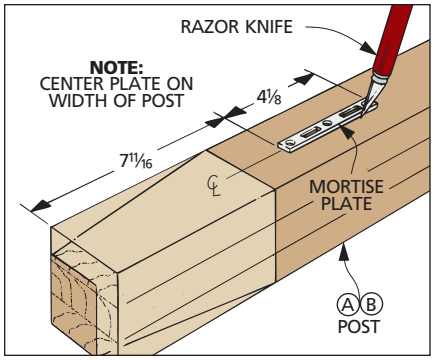
MORTISE PLATE. After laying out the location of the mortise plate *(Step 1)*, a two-tiered mortise is drilled. The deeper mortise provides clearance for the hooks on the tenon plate *(Step 2)*.

The second set of holes creates a shallow mortise that puts the plate flush with the face of the post *(Steps 3, 4, 5)*.

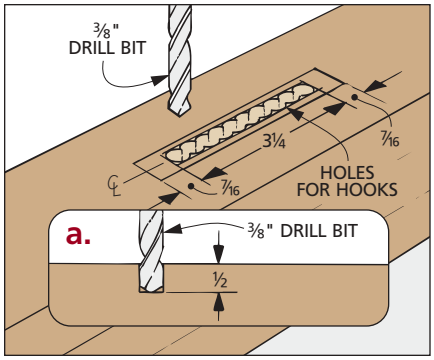
TENON PLATES. The tenon plates have small "nubs" on their back faces. So after laying out the position of the plate on the end of the rail (K) (it's centered), I drilled two shallow clearance holes *(Step 6)*.

Next, the plate needs to be mortised into the ends of the side rails. I used a hand-held router *(Step 7)* and a chisel.

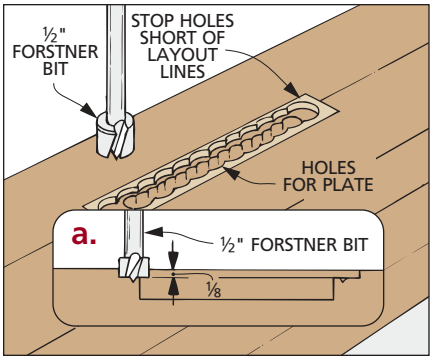
CROSS DOWEL. Finally, to give the screw threads some long grain to "bite" into, I added a ½"-dia. cross dowel (L) near the end of each rail *(Step 8)*.



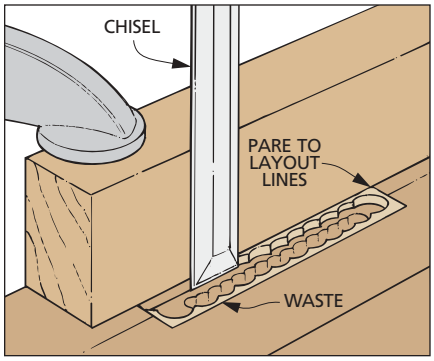
1 *To begin, position the mortise plate on the post. For a clean mortise, carefully scribe around the plate with a razor knife.*



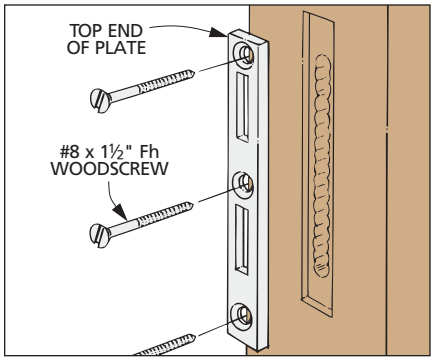
2 *Next, drill overlapping ⅜"-dia. holes that will provide clearance for the hooks on the tenon plate. Leave the holes rough.*



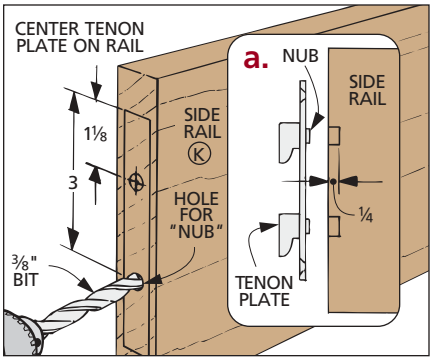
3 *To set the mortise plate flush with the post's surface, use a ½" Forstner bit to drill another set of overlapping holes.*



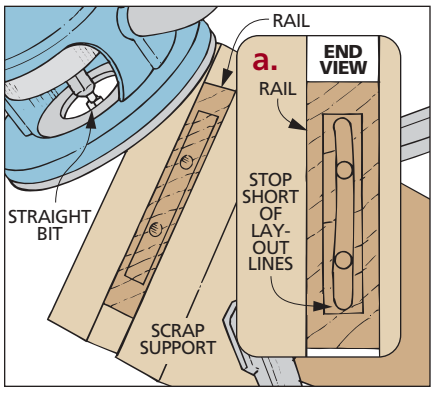
4 *Now clean up the second set of holes with a chisel, using a scrap piece as a straightedge to guide the chisel.*



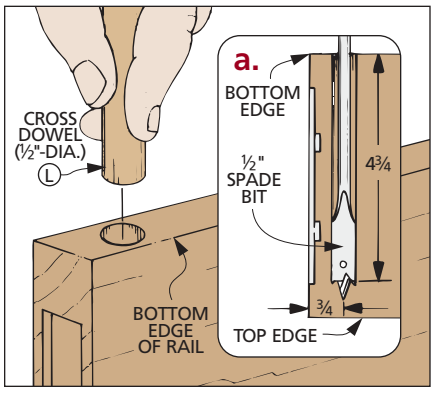
5 *When screwing the mortise plate into the post, be sure the mortises are oriented nearest the top of the post.*



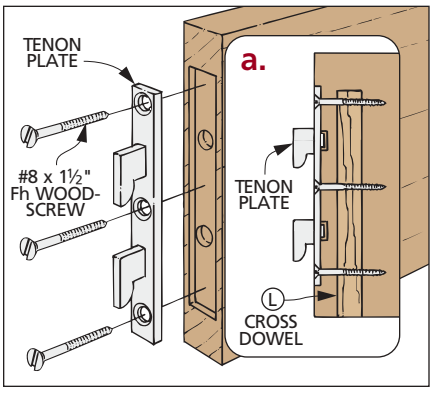
6 *After laying out the tenon plate on each end of the rail, drill two holes for the nubs on the back face of the plate.*



7 *Next, rough out the mortise for the plate with a router and a straight bit. Then clean up the sides as in Step 4.*



8 *To strengthen the holding power of the screws, I drilled a ½"-dia. hole under the rail and glued in a cross dowel.*



9 *With the dowel in place, the tenon can be screwed to the rail. Then the side rail can be hooked onto the post.*