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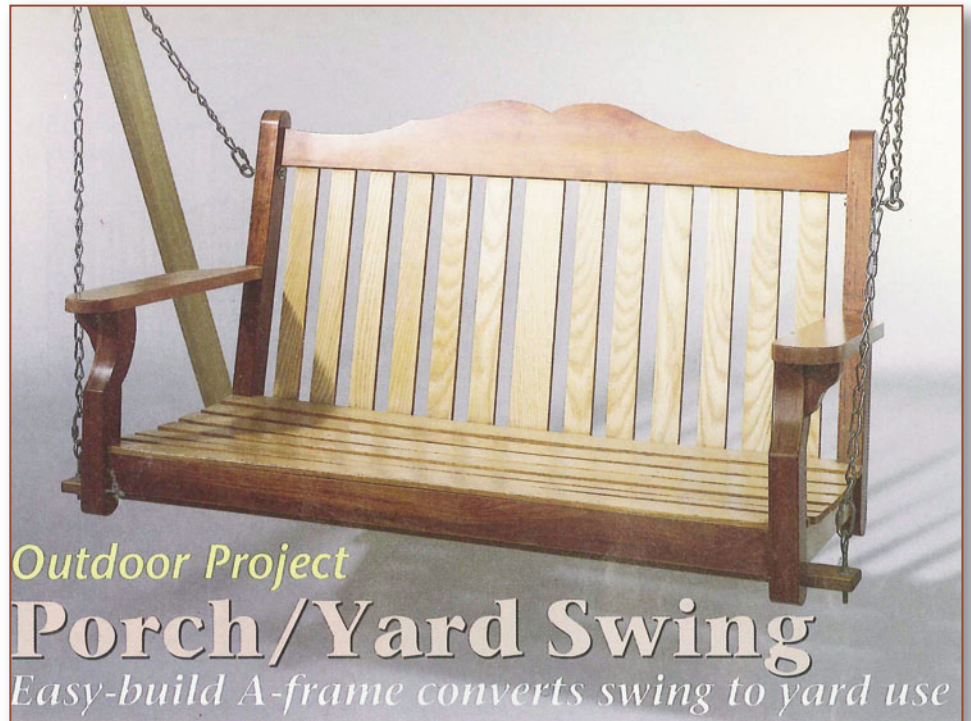


Classic Project

In this plan you'll find:

- Step-by-step construction instruction.
- A complete bill of materials.
- Construction drawings and related photos.
- Tips to help you complete the project and become a better woodworker.

Porch/Yard Swing



Outdoor Project

Porch/Yard Swing

Easy-build A-frame converts swing to yard use

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Outdoor Project

Porch/Yard Swing

Easy-build A-frame converts swing to yard use

One of the more frequent project requests here in our editorial offices is for a yard or porch swing. When we saw this handsome swing, made in cherry and ash by Pennsylvania woodworker Tom Noone, we liked it immediately. And, although Noone was using it exclusively as a porch swing, with the addition of our A-frame hanger, the same swing instantly becomes a yard swing.

Wherever you intend to use it, there's no difference in the construction of the swing itself. Should you make it for the yard, the A-frame hanger is constructed entirely of pressure-treated "two-by" stock (no ripping or thickening required). To simplify the construction and assembly, we'll discuss the swing and hanger separately. By the way, no matter how you plan to use the swing, we recommend that you employ a waterproof (not just a water resistant) adhesive for all joinery work.

The Swing

All the swing parts—with the exception of the seat and back slats—are cherry. For a project like this, your most cost-effective way to purchase stock is to buy rough stock by the board foot. Two thicknesses of stock—8/4 and 4/4—will yield all the cherry parts.

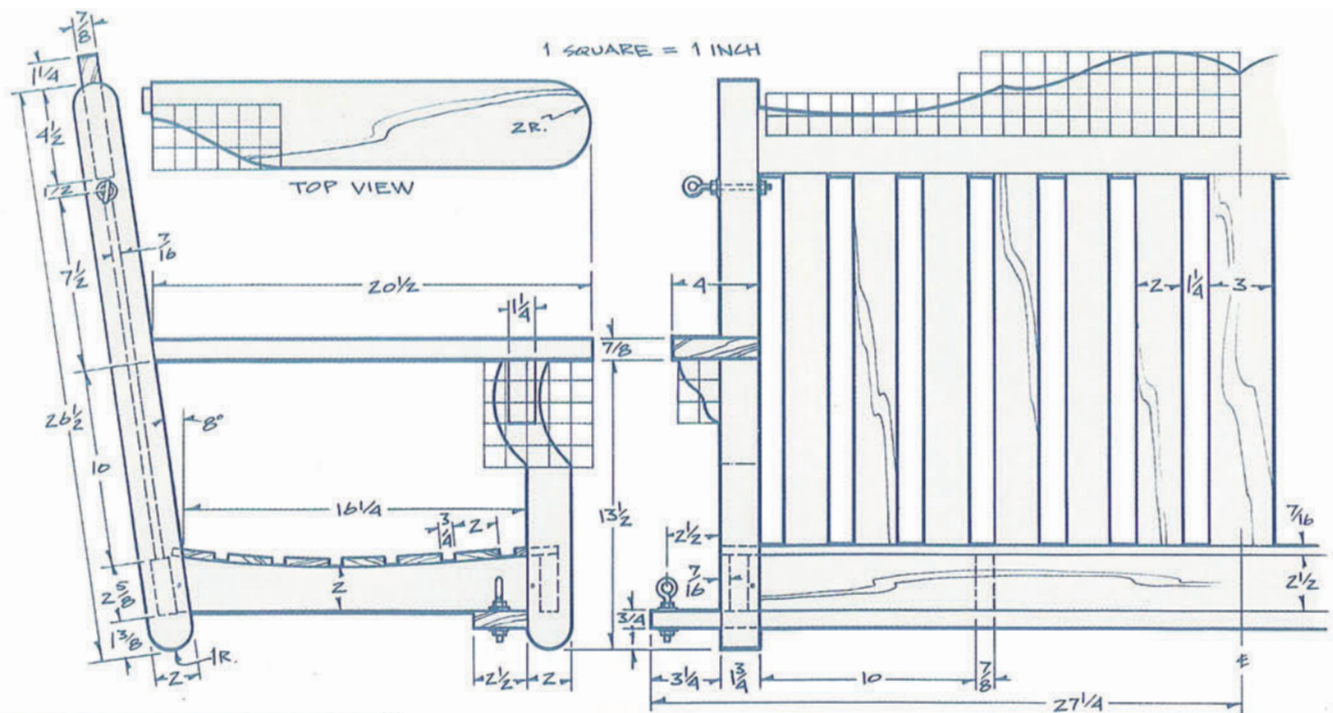
If you take time to plan the parts layout on your source boards, you'll save money on stock. For example, at first blush you might be inclined to just go out and buy an 8 ft. length of 8/4 by 4 in. wide stock for the front and back post parts. But, you'll save nearly half if you take the time to maximize the layout of these parts. As shown in Fig. 1, a 3¹/₂ ft. long by 6 in.

wide section of 8/4 stock, when planed to the required 1³/₄ in. thickness, will yield both the front and back posts (A, B) plus the brackets (M), with very little waste left over.

Once you've planed your 4/4 stock to the required 7/8 in. thickness, lay out and cut the various rail parts (C, D, E, F, G) and the arms (H). Refer to the grid patterns for the profiles of the arms and the top rail, lay out these profiles, but don't cut them now. The profiles aren't cut until the tenon work on these parts has been completed. Plane down 8/4 stock to 3/4 in. thickness for the support (N), and cut the filler pieces (L) from whatever scrap you have remaining.

The seat frame features traditional mortise-and-tenon construction; refer to the Joinery Details for the recommended sizes on these tenons. The mortise-and-tenon work for the joints that mount the top and back rails to the back posts, the end and front rails to the front posts, the front posts to the arms, and the center rails to the front rails, are all standard 90-degree construction. But the joints where the arms and end rails mount to the back post, and where the center rails connect to the back rail, involve an angled mortise, and that can present a quandary. Here's the simplest approach.

Start by cutting the mortises in the back posts for the top and back rails. As the side view of the swing shows, the back rail is located 1³/₈ in. up from the bottom end of the back post. Given the 3/8 in. shoulder on the bottom rail tenon, your mortise should then start 1³/₄ in. from the bottom end of the back post. Once the top and back rail mortises are established, lay out for the end rail mortise. Since the bottom edges of the end and back rails are about even, and the end rail tenon shares the same 3/8



Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
Swing			
A	Front Post	1 3/4 x 3 1/2 x 14*	2
B	Back Post	1 3/4 x 2 x 26 1/2	2
C	End Rail	7/8 x 2 1/2 x 17 1/4*	2
D	Center Rail	7/8 x 2 1/2 x 18 3/8*	2
E	Front Rail	7/8 x 2 1/2 x 45 1/2*	1
F	Back Rail	7/8 x 2 5/8 x 45 1/2*	1
G	Top Rail	7/8 x 5 3/4 x 45 1/2*	1
H	Arm	7/8 x 4 x 21*	2
I	Seat Slat	7/16 x 2 x 48	7
J	Back Slat	7/16 x 2 x 18 3/4	12
K	Center Back Slat	7/16 x 3 x 18 3/4	1
L	Filler	3/8 x 7/16 x 1 1/4	28
M	Bracket	1 1/4 x 1 3/4 x 3	2
N	Support	3/4 x 2 1/2 x 54 1/2	1
A-Frame			
O	Leg	1 1/2 x 3 1/2 x 95 1/2	4
P	Beam	1 1/2 x 5 1/2 x 96	1
Q	Tie	1 1/2 x 3 1/2 x 24	2
R	Brace	1 1/2 x 3 1/2 x 24 1/2	2
Swing Hardware			
S	Chain	3/4 machine link	15 ft.
T	Connector	Screw Link	6
U	Eye Bolt	4 in. long	4
V	Nut	5/16-18	8
W	Washer	3/4 dia.	8
X	Lag Hook	4 in. long	2
A-Frame Hardware			
Y	Carriage Bolt/ Nut/Washer	5/16-18 x various lengths	14
Z	Lag Screw/Washer	5/16 x 6 in. long	2

* Length includes tenon(s). Important dimension on end rail and center rail is shoulder-to-shoulder length. Actual length of end rail, center rail and arm will be fractionally less than indicated, due to the shoulder angle where these parts fit into the back post and back rail. Final width of end and center rails will be slightly less than 2 1/2 in. after seat curve is cut.

in. shoulder as that on the back rail, the mortise should fall just about even with the mortise for the back rail. Just angle the bed of your drill press over 8 degrees when you drill for the mortise. This will establish the proper mortise angle. Use the same drill press table angle to drill the mortises in the back rail for the center rails, and in the back post for the arm tenon.

The tenon work on the end, center and top rails can be done now. After these tenons have been cut and test fit in their respective mortises, you can layout and cut the gentle curve on the top edge of the end and center rails. Since the front face of the front rail measures 2 1/2 in. wide, and the seat taper begins at this point, the actual width of the end and center rails at their frontmost points will be slightly less than this 2 1/2 in. measurement.

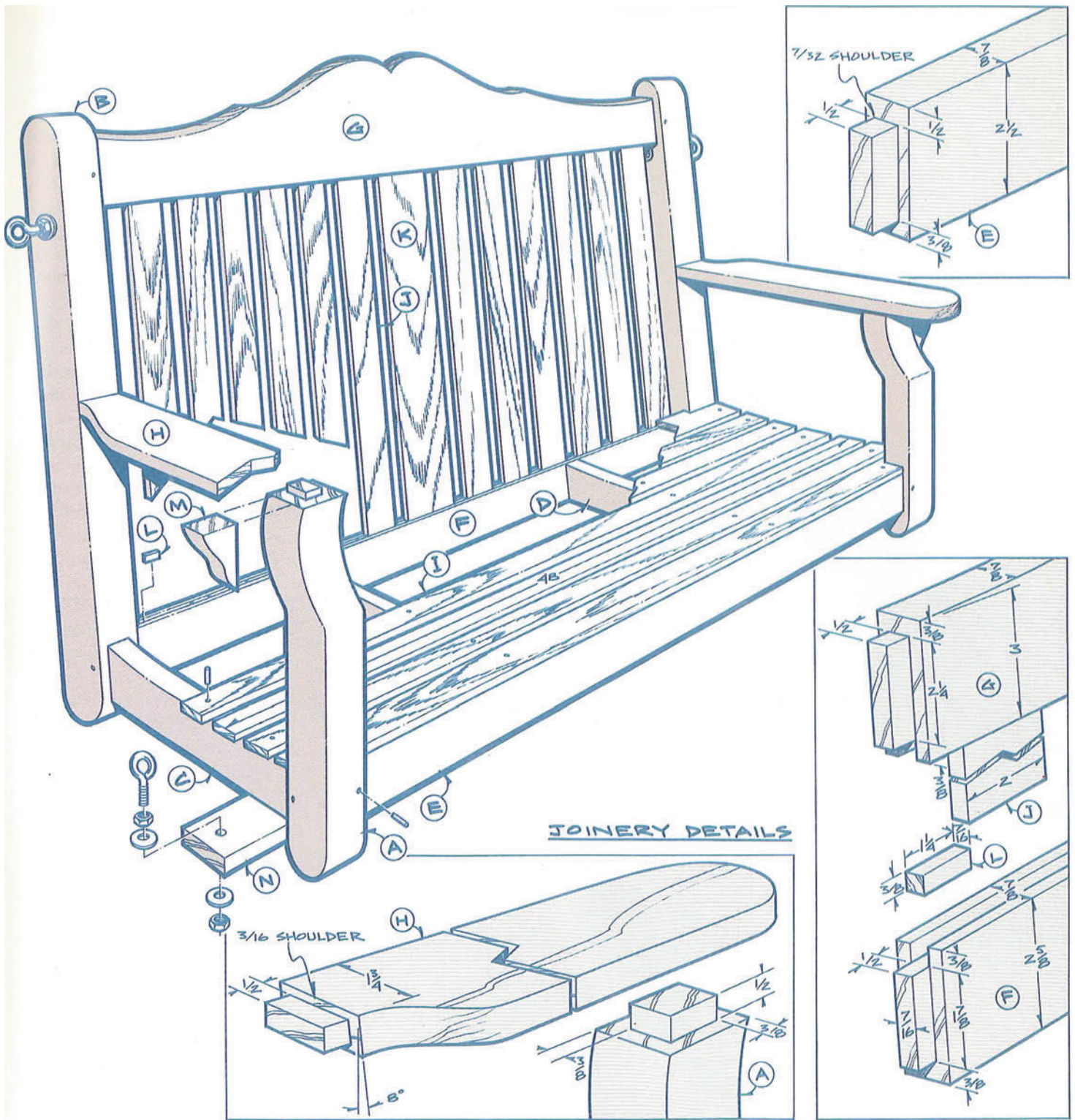
The easiest way to achieve some uniformity in the curve on the top edges of the end and center rails is to make a template. To make the template, take a section of 1/4 in. plywood or hardboard, 2 1/2 in. wide by 18 1/4 in. long, find the center point, and make a mark at the center point 2 in. up from the bottom edge. Tie a length of string to a pencil, find the string length that enables a true arc to be scribed touching this 2 in. point and both ends of the template at the top edge, then anchor the string end and scribe this arc. Cut along the scribed line, then use the template to transfer the seat curve profile to the end and center rails.

When transferring the pattern to the center rail, locate the pattern on the rail so the tenon at the rail's front end is 3/8 in. inset from the pattern end. When transferring the pattern to the end rail, locate the pattern so the tenon at the front end is 1 5/16 in. inset from the pattern end. By doing this and keeping the template flush with the bottom edge of both the end and center rails, you'll assure a uniform curve on both the end and center rail parts. (Assuming of course that you've laid out all your mortises correctly, so that after assembly the bottom edges of these parts will all be on the same plane.) This attention to achieving a uniform seat curve may seem tedious, but if you don't build the swing with respect to these parameters, you'll end up with a very wavy seat.

Although the arm is about 10 in. up from the end rail, don't try to locate and establish this mortise just yet. First, dry assemble the front and back posts to the end rail. Then lay a straightedge across the top of the tenon shoulder on the front post and tick off a mark where the straightedge contacts the back post. Measure 3/16 in. (the arm tenon shoulder dimension) up from this mark to locate the arm tenon mortise.

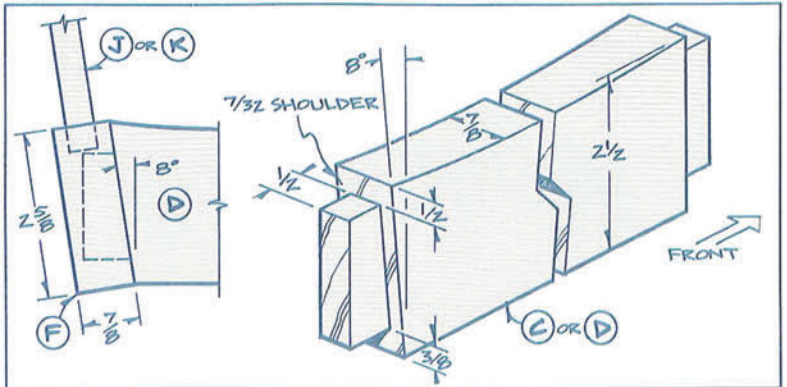
Once your joints are all complete, the seat curves established, and the grooves for back slats have been established in the back and top rails, you can thickness the ash stock for the seat and back slats (I, J, K). After the various slats have been cut to length and width, begin the assembly.

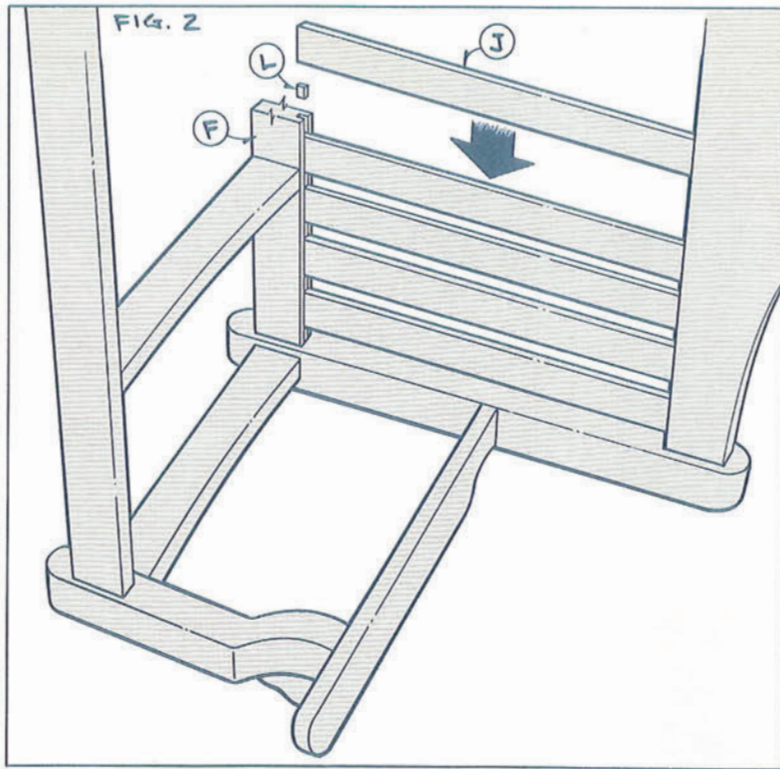
The easiest assembly procedure is to first make several subassemblies, before putting the whole together. Make a pair of end assemblies, each consisting of a front



JOINERY DETAILS

and back post, end rail and arm. Assemble the front and back rails to the center rails (you'll need to take a block plane and fair in the seat curve to the front rail), then mount the front/back/center rail subassembly to one of the post/arm/end rail subassemblies. Stand this assembly on end, add the top rail, and then slide the back slats into place one-by-one, as shown in Fig. 2. Although our Fig. 2 illustration shows the fillers, there's really no need to add them just yet; you'll use them to properly space the slats once the assembly is complete (just make sure that the fit of the slats into the groove isn't overly tight, as that would make it



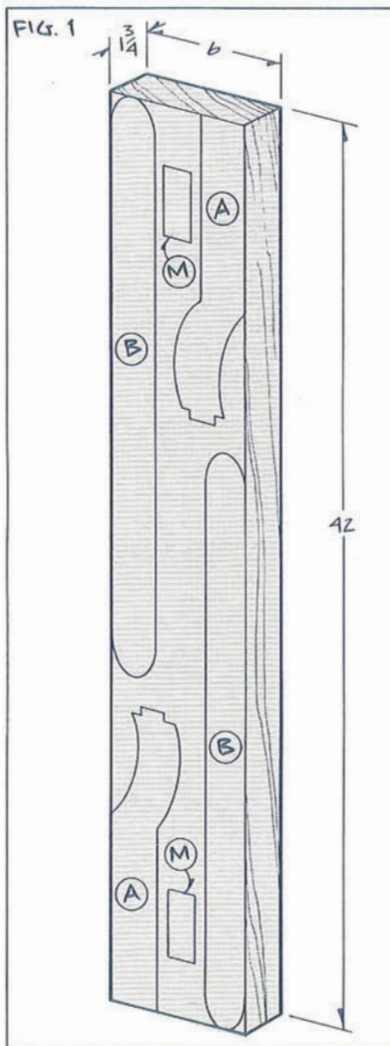


difficult to slide the slats).

After all the back slats are in place, add the other post/end rail/arm subassembly. Drill for and secure all the mortise-and-tenon joints with dowel pins, glue the brackets in place, and glue the filler pieces in place to space the back slats. The narrow back slats are free-floating, but you should drill (from the back) for dowel pins to anchor the center back slat, which helps maintain a uniform distance between the top and back rails. Mount the seat slats with dowel pins (spacing the slats evenly apart and notching the front and back slats to clear the posts), and screw the support board to the end rails.

The A-Frame

Our A-frame swing support is constructed of 2 x 4's, plus one 2 x 6 (pressure-treated lumber). You'll need four 2 x 4 x 8's for the four legs (O), plus one 2 x 4 x 10, which will yield the tie and brace parts (Q, R). The 2 x 6 x 8 is used full length for the beam (P). Notch the ends of the four legs to fit around the top beam, taking care to fashion the notches so as to not only establish the



20-degree leg angle but also their 5-degree splay. Cut and fit the ties and braces, half-lapping the tie ends where they lap over the legs, notching the brace end to fit over the tie, and notching the beam to accept the brace end, which is cut off at 55 degrees.

Once the A-frame parts are cut and test fitted, drill for the various assembly bolts (Y) and for the lag screws (Z) that anchor the braces to the beam. All the carriage bolts and nuts are $\frac{5}{16}$ -18 thread, with the bolt lengths ranging from 10 in. on down to about $2\frac{1}{4}$ in. You may find it easier to just buy 10 in. long bolts and then use a hacksaw to shorten them to the sizes required. Note that we've counterbored a pocket for the nut and washer on each assembly bolt.

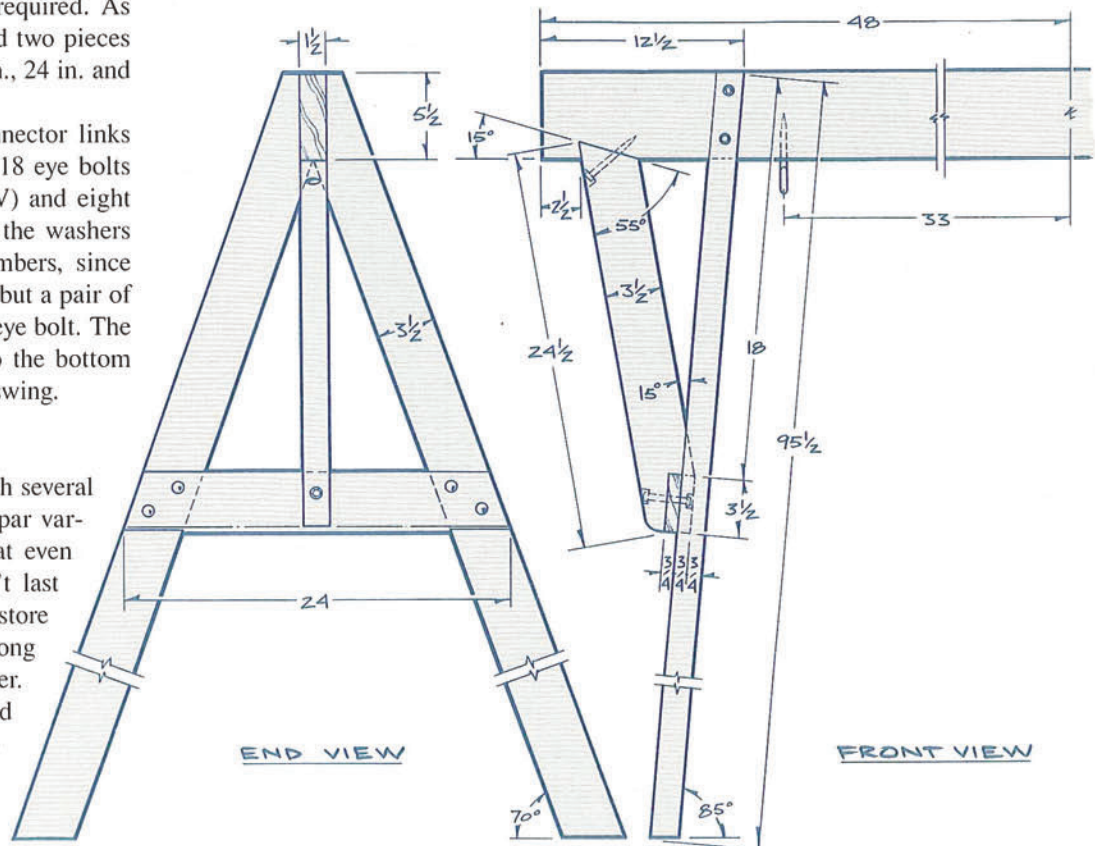
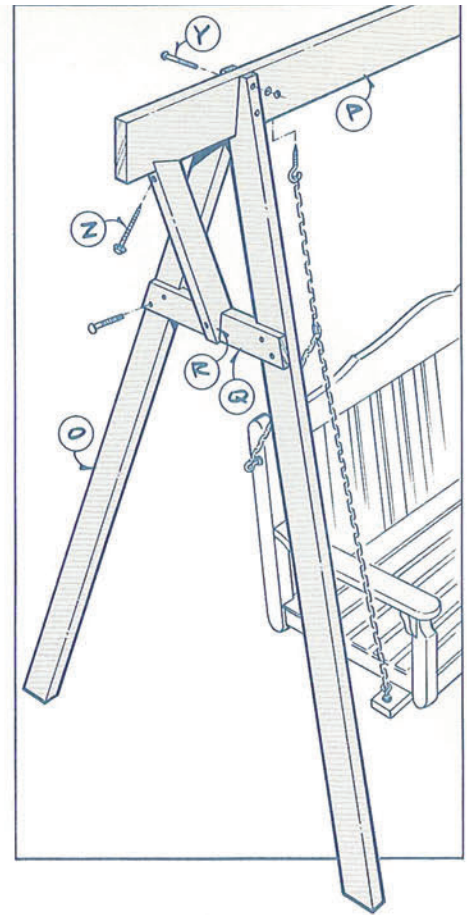
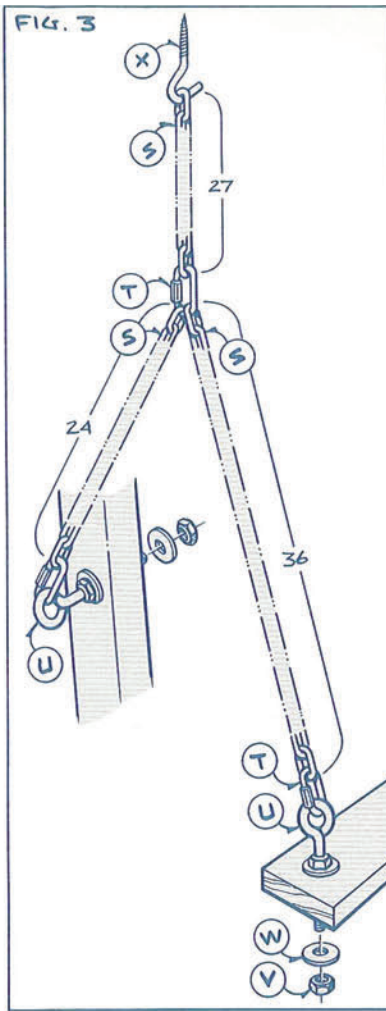
Swing Hardware

Whether you hang the swing from a beam on your porch, a beam in your living room (yes, some folks prefer a swing to the couch!), or the beam on the A-frame, the hardware required is the same. You'll need about 15 ft. of machine-link chain (S), which is sold at most hardware and building supply stores. But rather than just buying a 15 ft. length and then cutting the chain yourself, take advantage of the cutting apparatus at the store to have the chain cut into the exact lengths required. As shown in Fig. 3, you'll need two pieces each in three lengths—27 in., 24 in. and 36 in.

You'll also need six connector links (T), four 4 in. long by $\frac{5}{16}$ -18 eye bolts (U), eight matching nuts (V) and eight washers (W). We've given the washers and nuts separate part numbers, since there are not just one each, but a pair of nuts and washers on every eye bolt. The lag hooks (X) screwed into the bottom edge of the beam hang the swing.

Finish

Our swing was finished with several coats of a marine-quality spar varnish. But keep in mind that even the best spar varnish won't last forever, so you'll want to store your swing inside during long periods of inclement weather. The A-frame was painted with an opaque stain, to mute the unpleasant greenish tone of the pressure-treated wood.



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