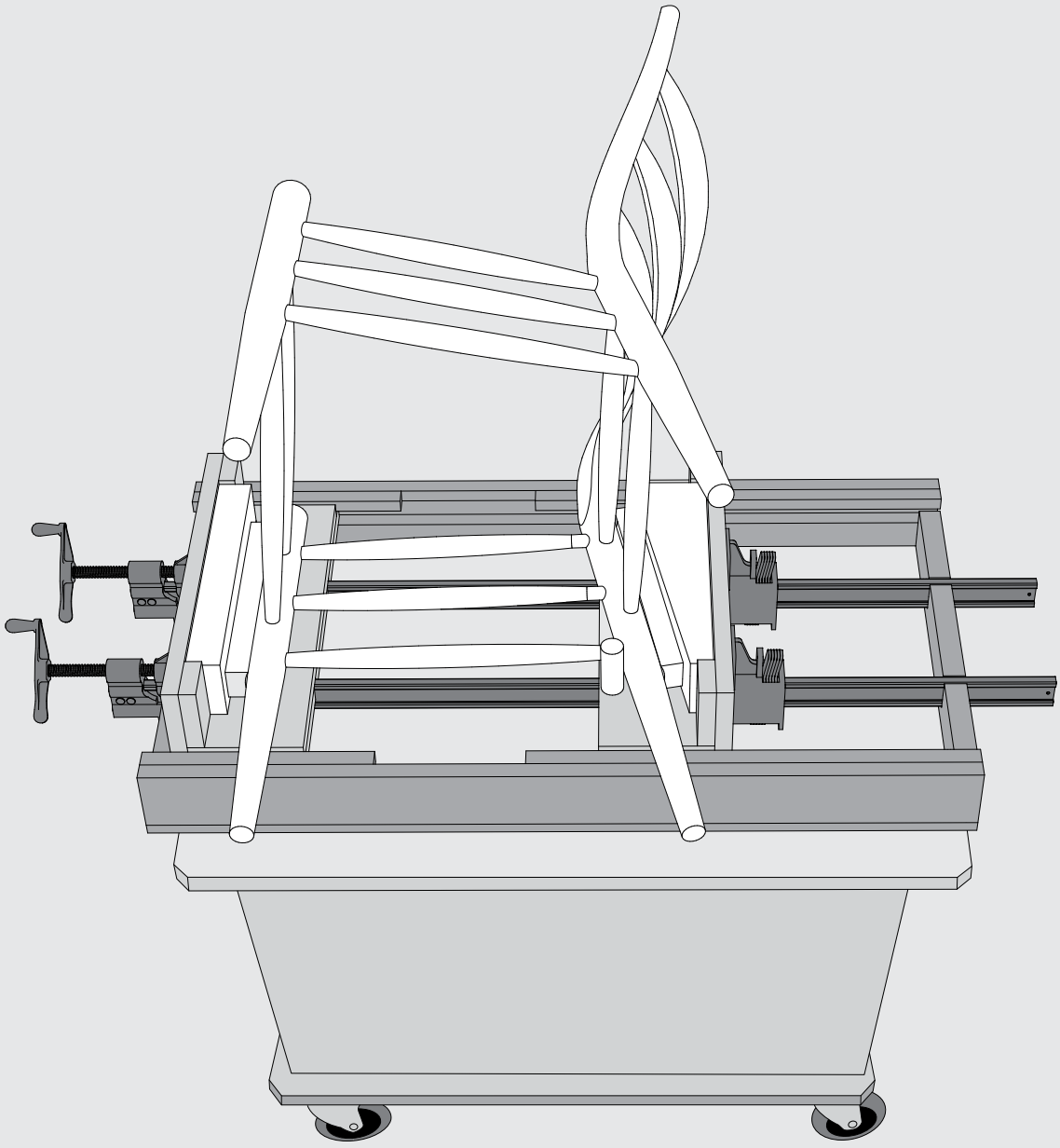
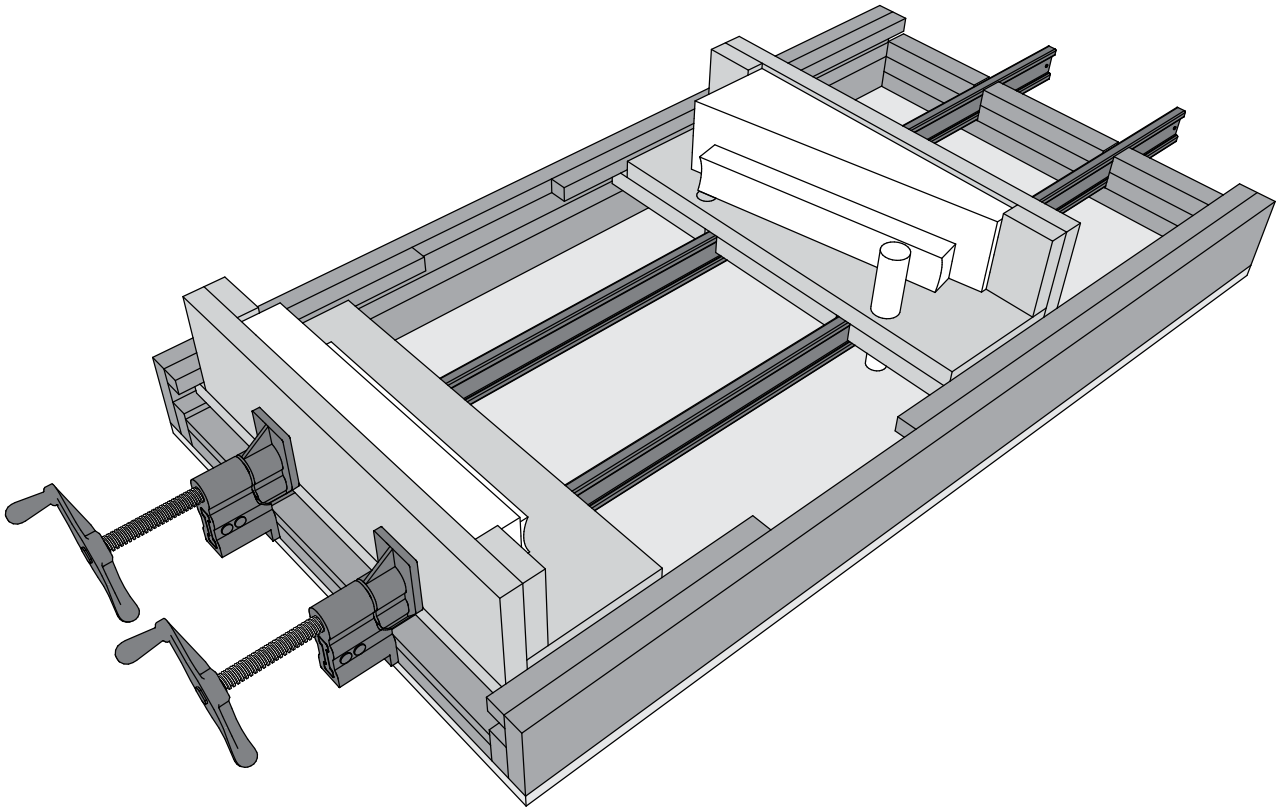
ASSEMBLY JIG
FOR POST & RUNG CHAIRS



Written and illustrated by
Jeff Lefkowitz

Contents



Written and illustrated by Jeff Lefkowitz

www.jefflefkowitzchairmaker.com

The Jennie Alexander Chair is designed by Jennie Alexander

The Boggs Side Chair is designed by Brian Boggs

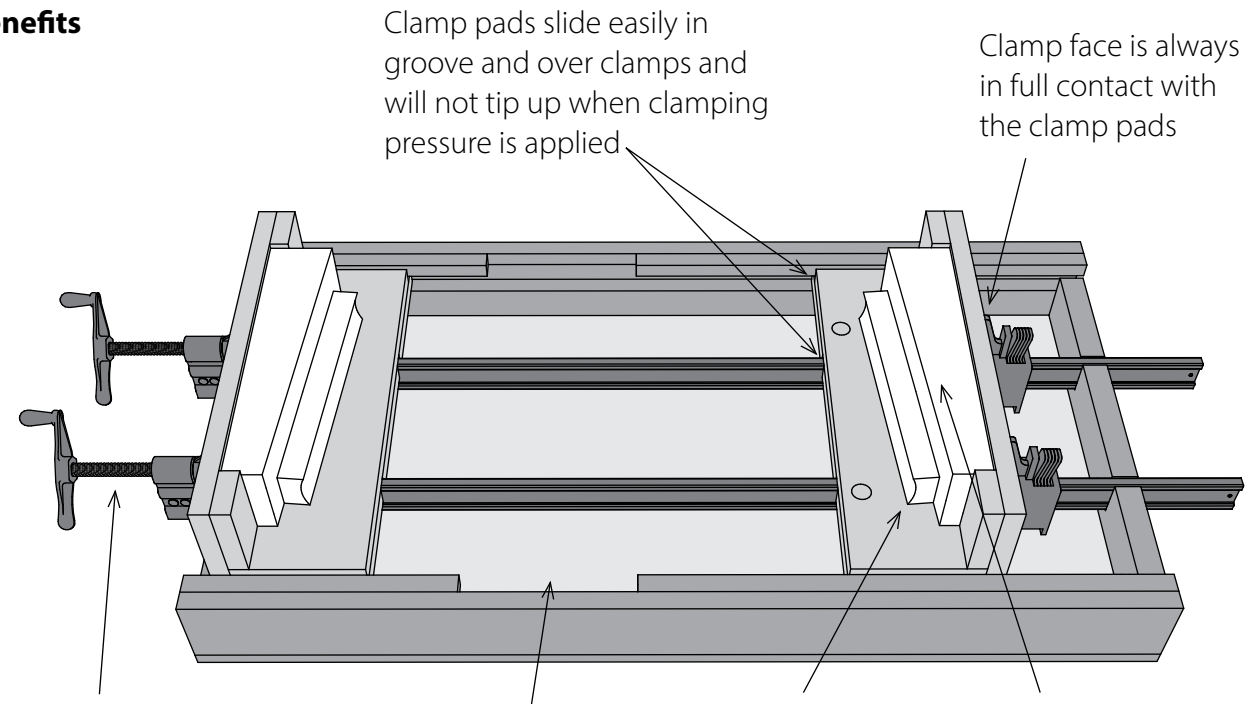
JEFF LEFKOWITZ
Chairmaker

Introduction

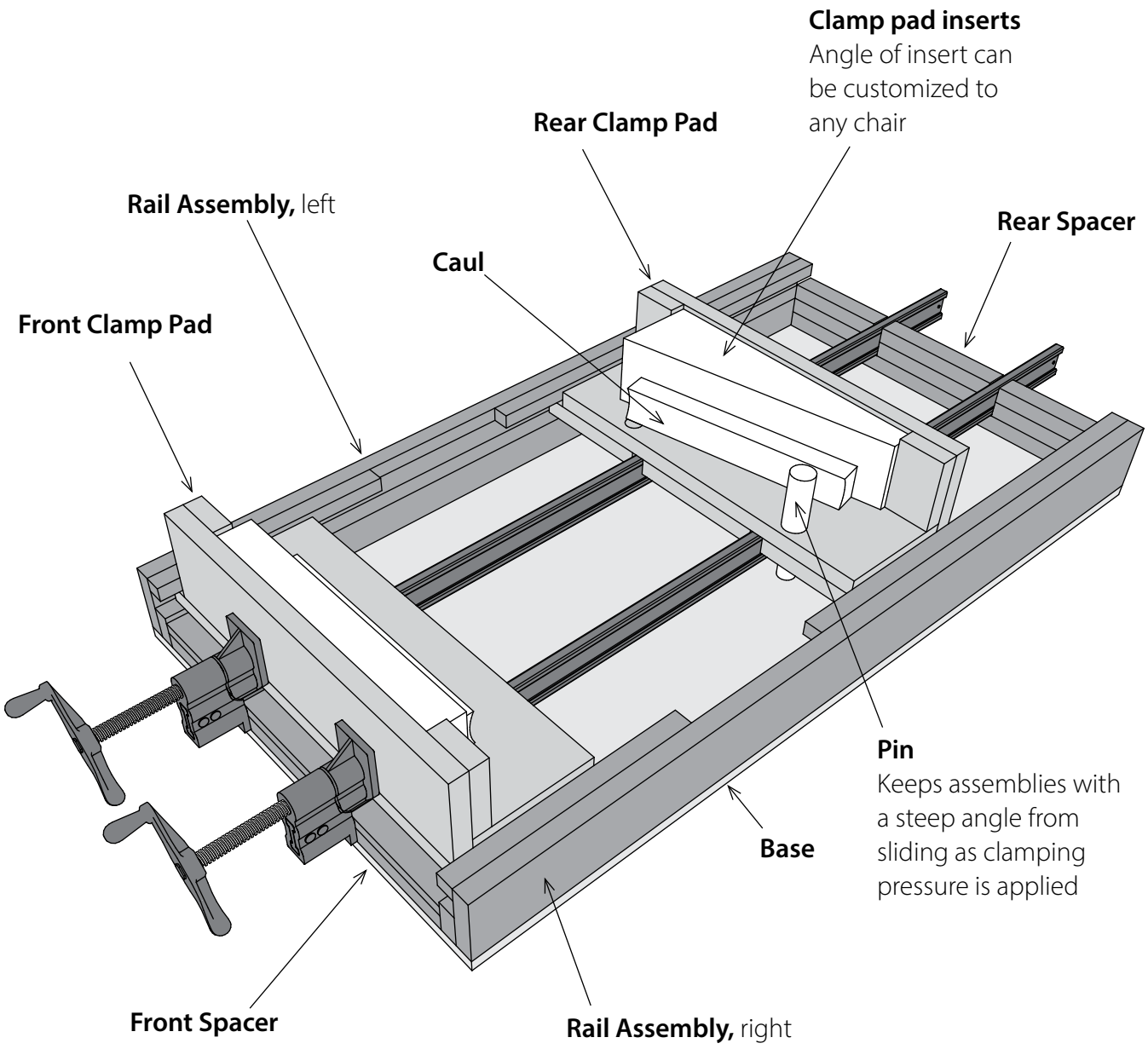
Assembling a post & rung chair is often a somewhat uncontrolled, anxiety producing experience. I have seen many hours of work carefully shaping parts ruined by an assembly process that is haphazard and that does not provide the careful control needed to consistently assemble a chair successfully. This assembly jig, which I have used for many years, is my solution to a successful assembly. It gives you complete control over the assembly process, and used in conjunction with hide glue (which has a long open time), allows you to work slowly and deliberately.

The jig can be built in an afternoon out of plywood, glue, screws, and a little bit of solid wood. And it can be adapted to any post & rung chair.

Benefits

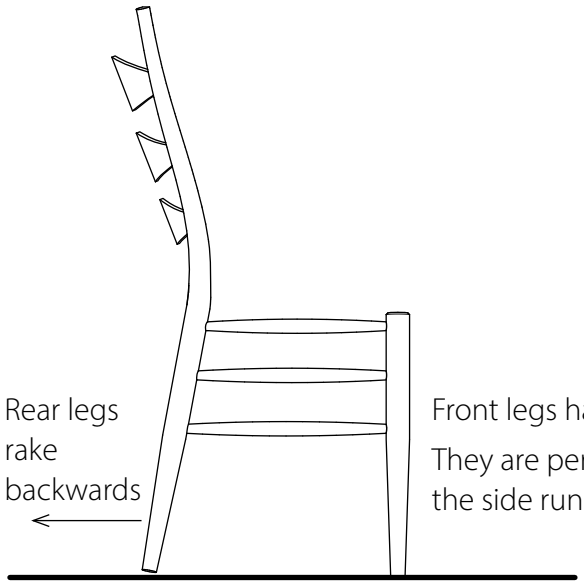


Components of the jig



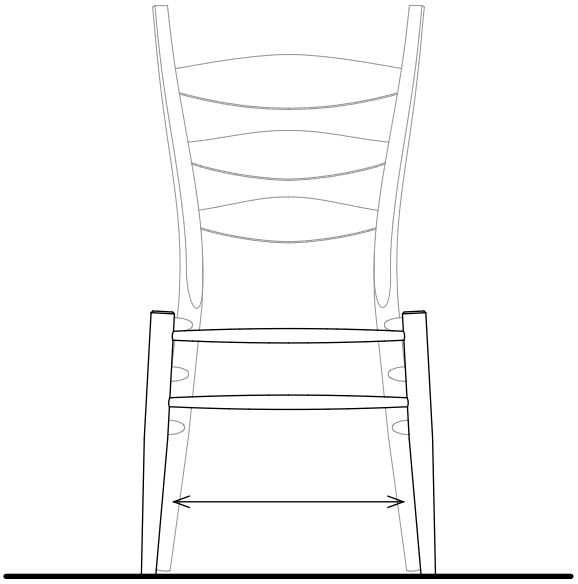
Rake

Rake is the front-to-back angle of the legs

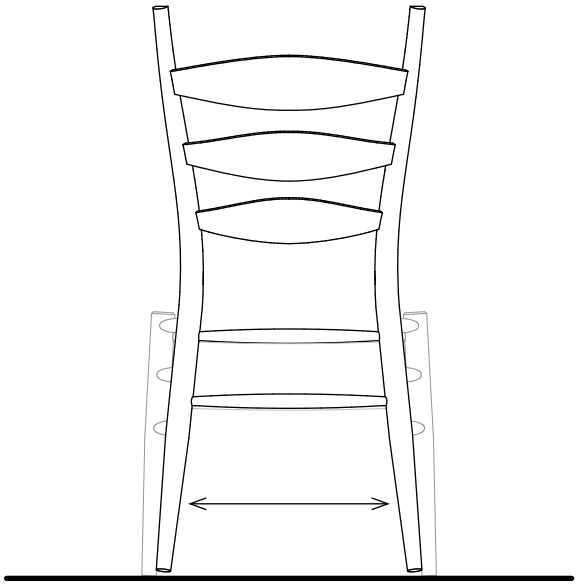


Splay

Splay is the side-to-side angle of the legs



Front legs splay side-to-side



Rear legs splay side-to-side

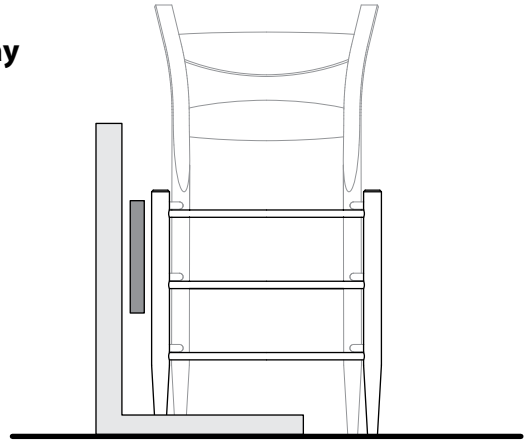
Measure for Clamp Pad Inserts

Measure your chair for the angle of the clamp pad inserts

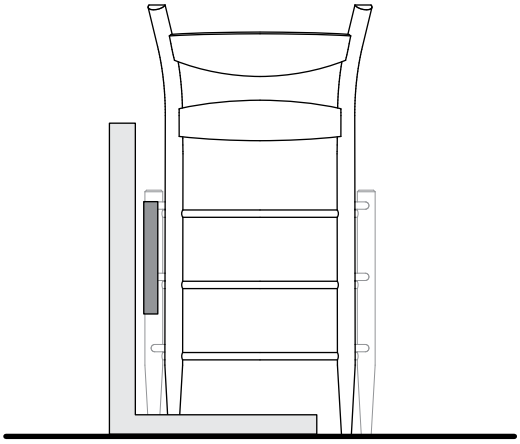
The following examples show how to measure the angle for clamp pad inserts on three chairs, each with different amounts of rake and splay in their assemblies. Measure your chair in a similar way

Jennie Alexander Chair

Splay

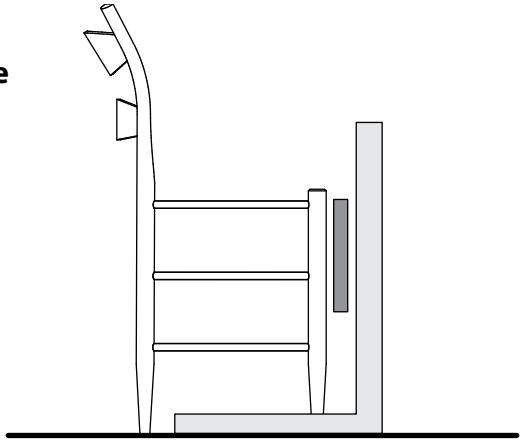


Front legs have no splay

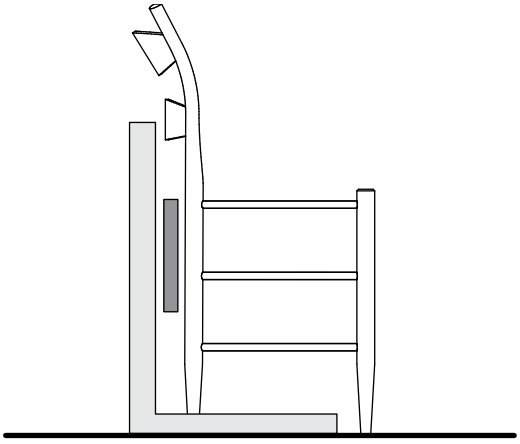


Rear legs have no splay

Rake



Front legs have no rake



Rear legs have no rake

Clamp pad insert needed for Jennie Alexander Chair

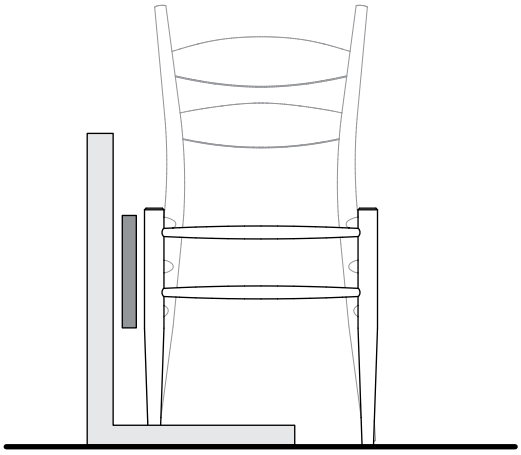
Scale to 12″ tall to fit clamp pad

Use for all assemblies in this chair

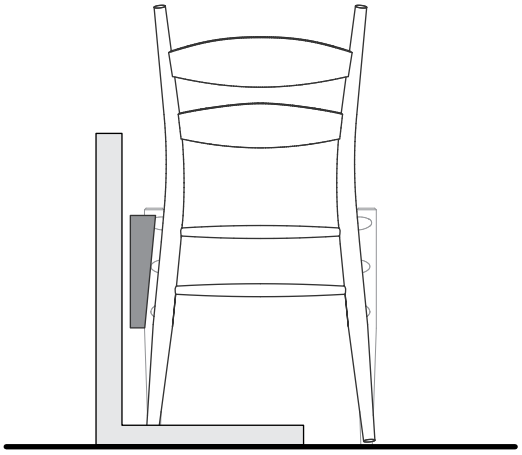
2 needed

2-Slat Side Chair

Splay

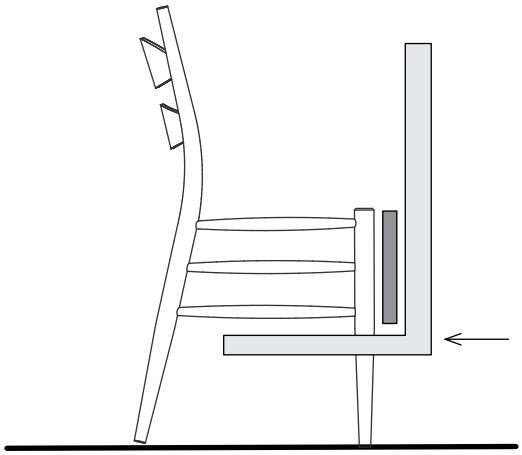


Front legs have no splay



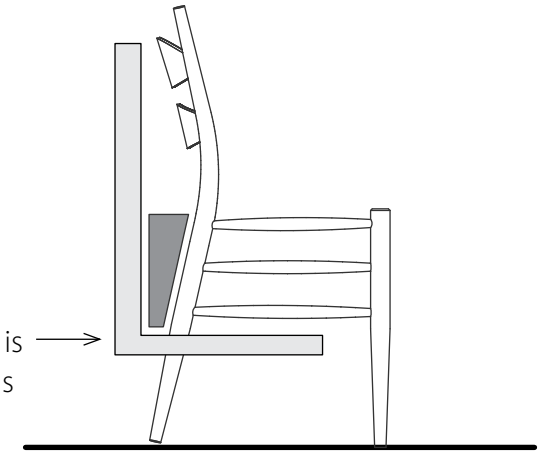
Rear legs splay side-to-side

Rake



Front legs have no rake

Framing square is parallel to rungs



Rear legs rake backwards

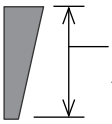
Clamp pad inserts needed for 2-Slat Side Chair

Use for front panel assembly and front to back assembly against front legs

2 needed

Use for rear panel assembly

2 needed

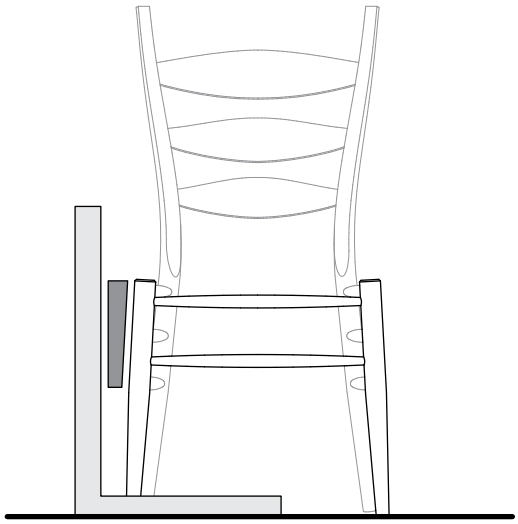


Use for front to back assembly against rear legs

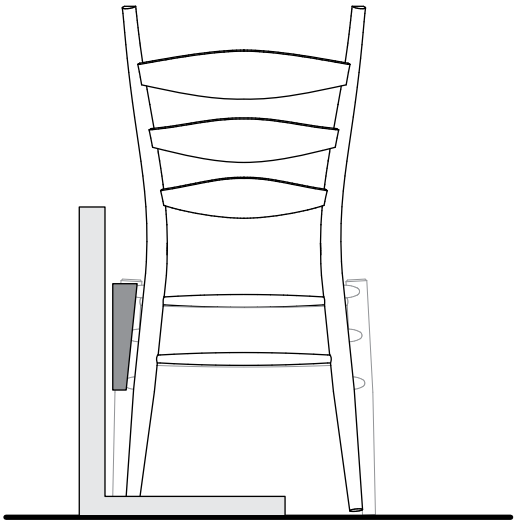
1 needed

Boggs Side Chair

Splay

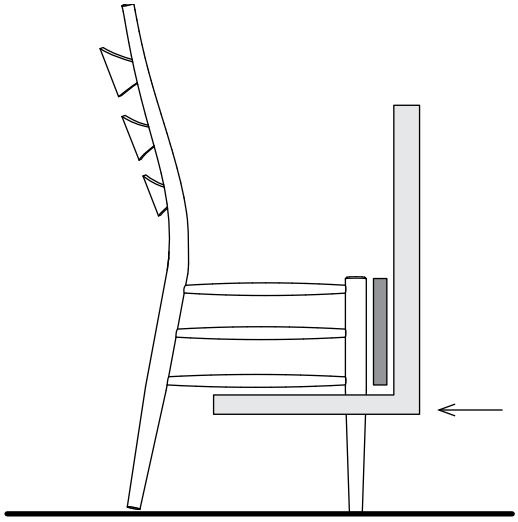


Front legs splay side-to-side



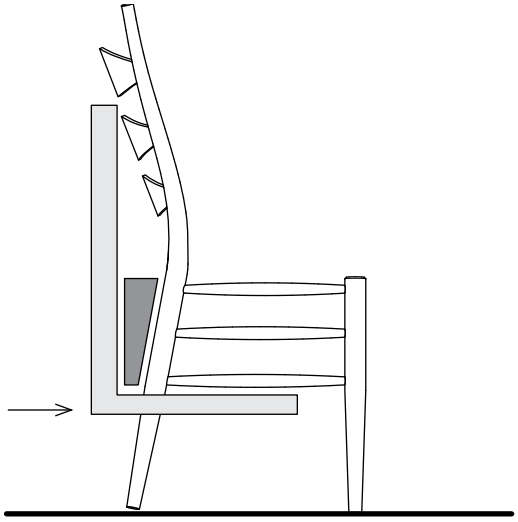
Rear legs splay side-to-side

Rake



Front legs have no rake

Framing square is parallel to rungs



Rear legs rake backwards

Clamp pad inserts needed for Boggs Side Chair

Use for front panel assembly

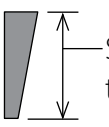
2 needed

Use for rear panel assembly

2 needed

Use for front to back assembly against front legs

1 needed



Use for front to back assembly against rear legs

1 needed

Assembly jig will work for any assembly order

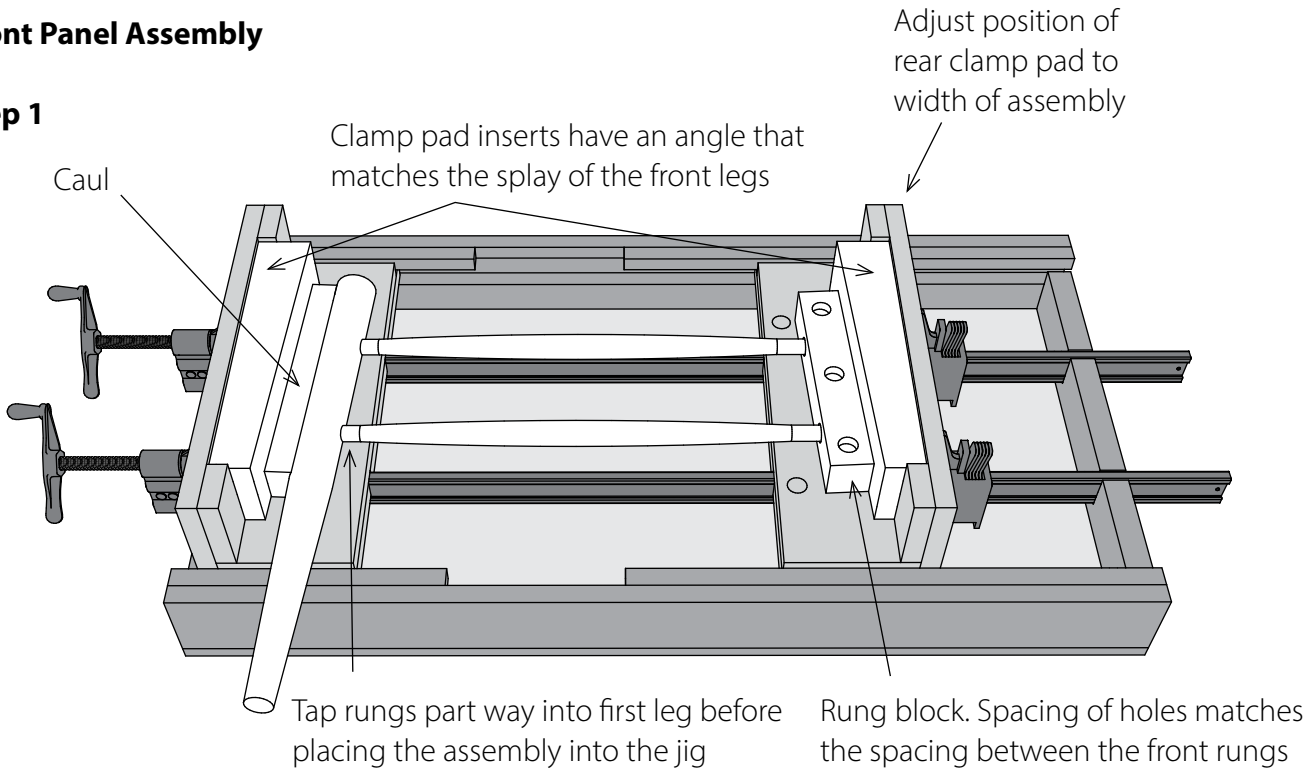
The order of assembly for a Boggs chair is front panel, rear panel, side rungs into front panel, and final assembly.

In many chairs the order of assembly is side 1, side 2, front and rear rungs into side 1, and final assembly. In this assembly order the slats are often installed after final assembly.

The following pages show, as an example, the steps for assembling a Boggs Side Chair. For your chair customize the clamp pad inserts to match the angles of your assemblies and use any assembly order that you prefer.

Front Panel Assembly

Step 1



Set up jig

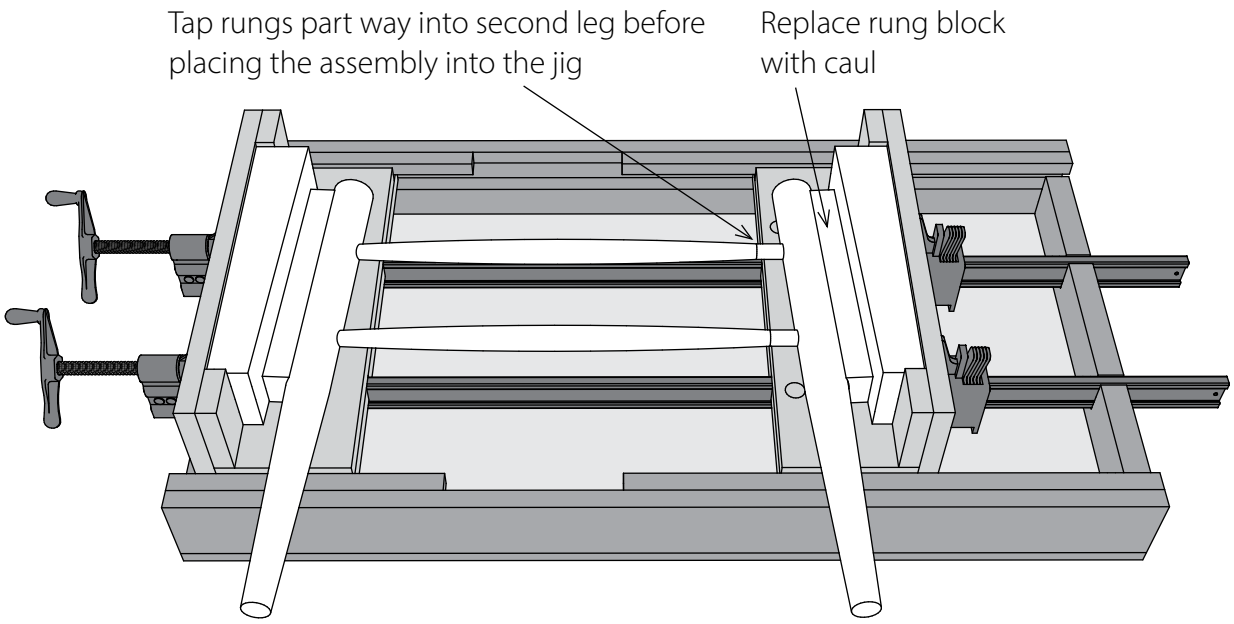
- Use clamp pad inserts that match the splay of the front legs
- Use a caul against one clamp pad insert and a rung block against the other as shown above
- Adjust the distance between the clamp pads to the width of the assembly

Assemble

- Tap rungs part way into the first front leg
- Place the leg/rung assembly in the jig with the rungs centered between and parallel to the clamps
- Alternately apply clamping pressure to one clamp then the other, and repeat until the rungs are fully seated

Front Panel Assembly

Step 2



Set up jig

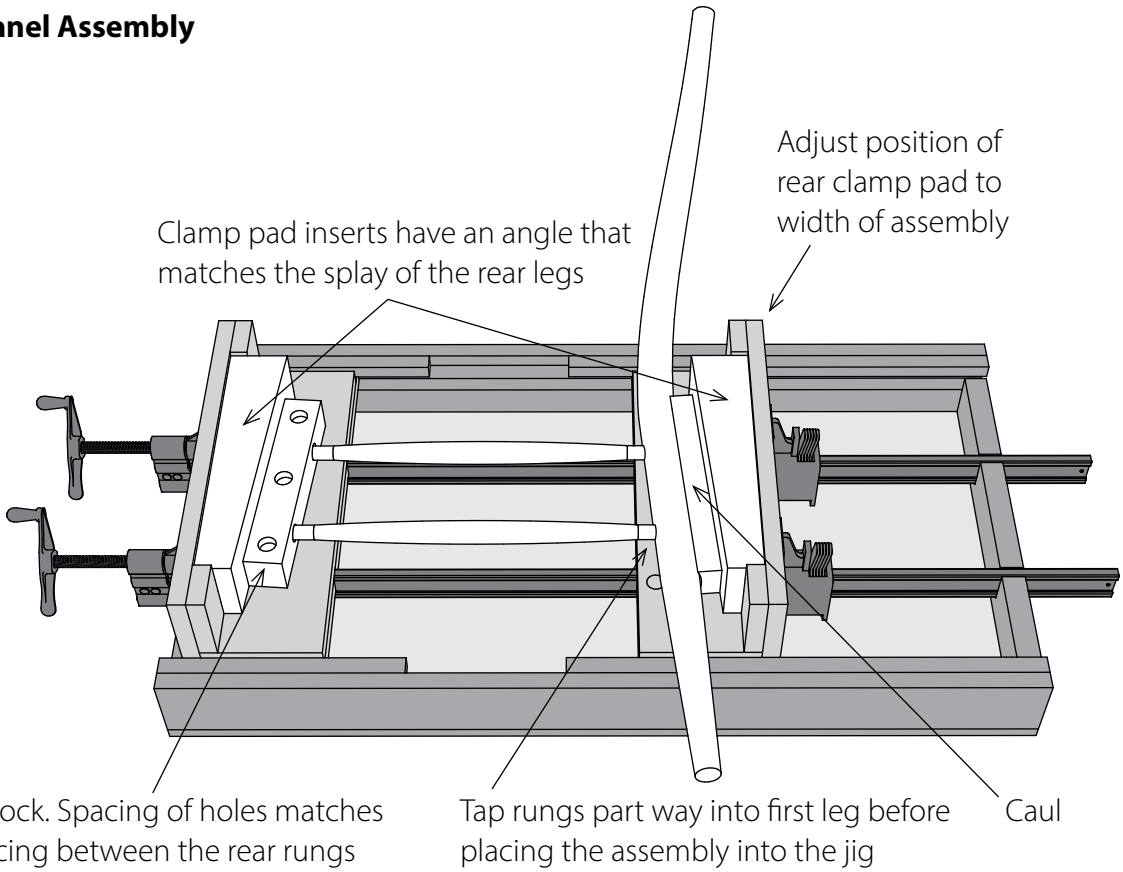
- Replace the rung block with a caul

Assemble

- Tap rungs part way into the second leg
- Check the assembly for racking and adjust, if necessary, until the assembly does not wobble on the bench top
- Place the assembly into the jig with the rungs centered between and parallel to the clamps
- Alternately apply clamping pressure to one clamp then the other, and repeat until the rungs are fully seated
- Remove assembly from jig, check for racking again, and adjust if necessary

Rear Panel Assembly

Step 1



Set up jig

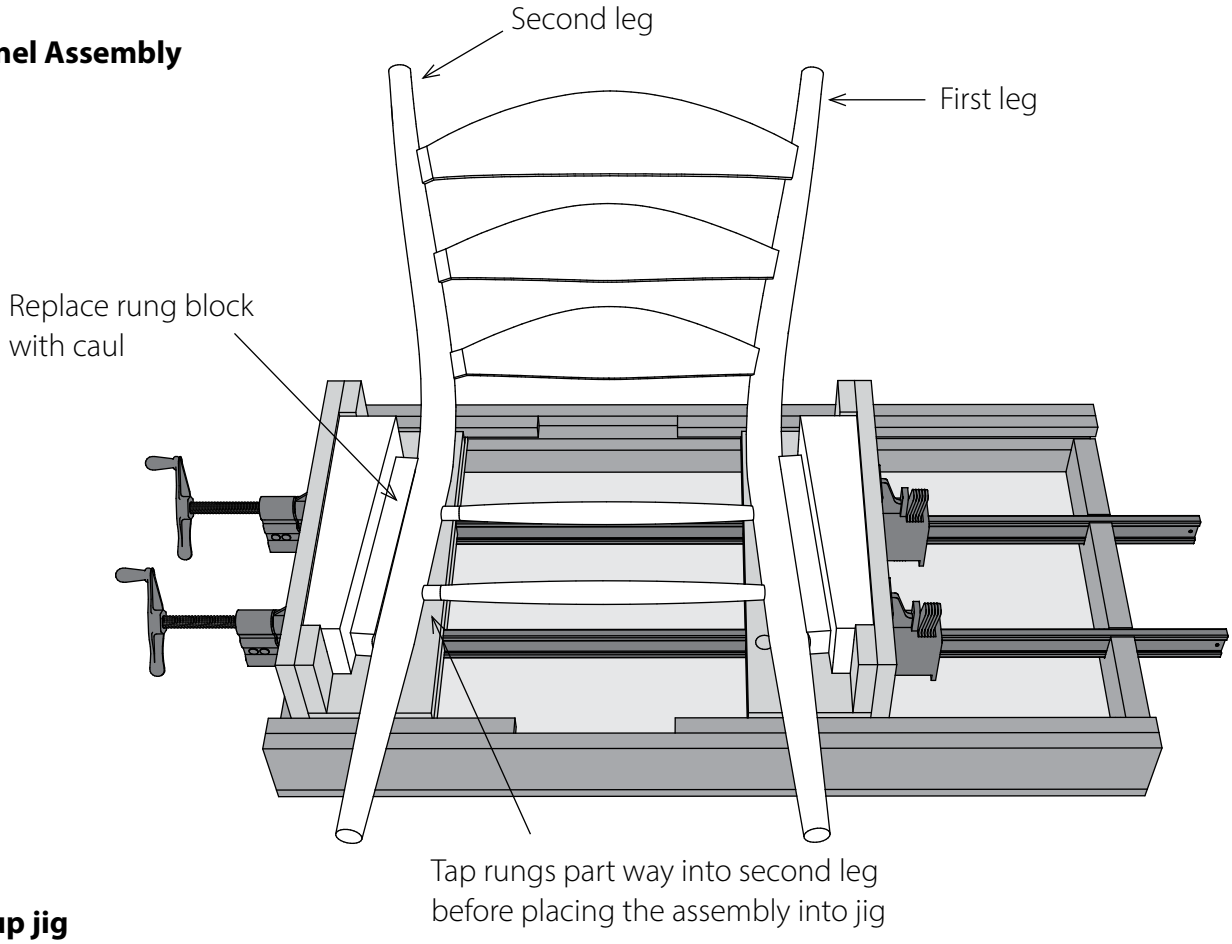
- Use clamp pad inserts that match the splay of the rear legs
- Use the rung block against one clamp pad insert and a caul against the other as shown above
- Adjust the distance between the clamp pads to the width of the assembly

Assemble

- Tap the rungs part way into the first rear leg and place the leg/rung assembly in the jig with the rungs centered between and parallel to the clamps
- Alternately apply clamping pressure to one clamp then the other, and repeat until the rungs are fully seated

Rear Panel Assembly

Step 2



Set up jig

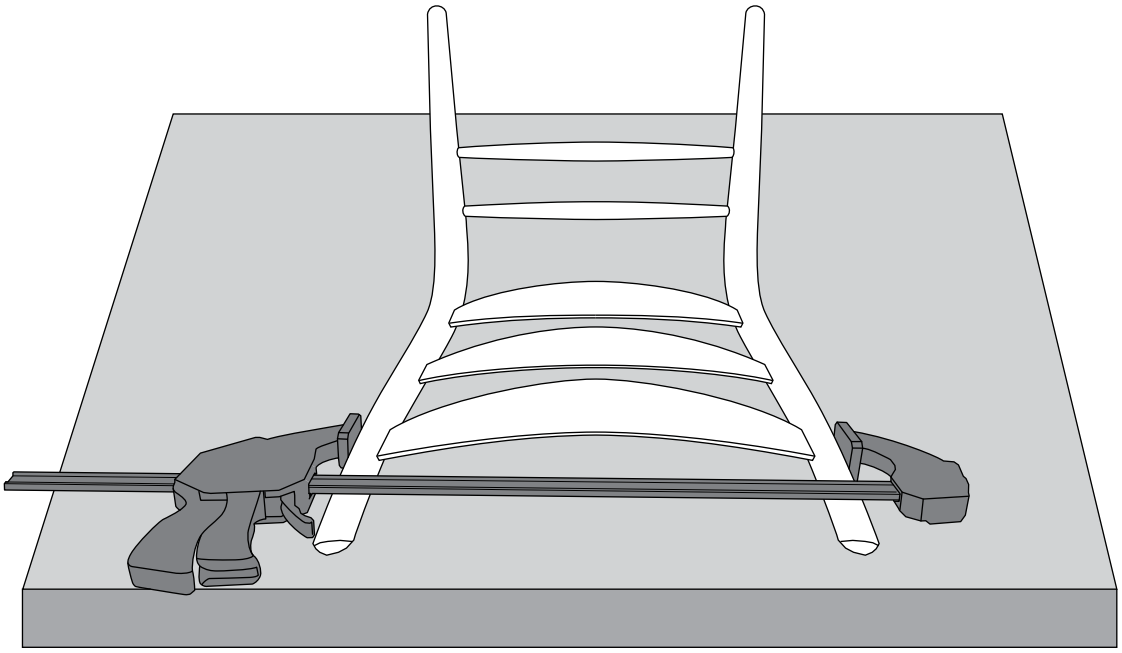
- Replace rung block with caul

Assemble

- Press each slat into the mortises on the first leg making sure they are fully seated
- Tap the second leg onto the rungs
- Check for racking. Place the straight section of the legs (below the bend) on the bench top. If there is any wobble adjust until both legs sit flat and do not wobble
- Place the rear panel assembly into the assembly jig with the rungs centered between and parallel to the clamps
- If possible, begin pressing the slats into the slat mortises on the second leg
- If there is a gap between the end of the slat tenons and the second leg, alternately apply clamping pressure to each clamp until it's possible to begin pressing the slat tenons into the mortises
- Continue tightening the clamps and pressing the slat tenons into the mortises until they are mostly seated. It is usually not possible to fully seat the slat tenons into the second leg at this point
- Alternately apply clamping pressure to one clamp then the other, and repeat until the rungs are fully seated

Rear Panel Assembly

Step 3



Fully seat slat tenons

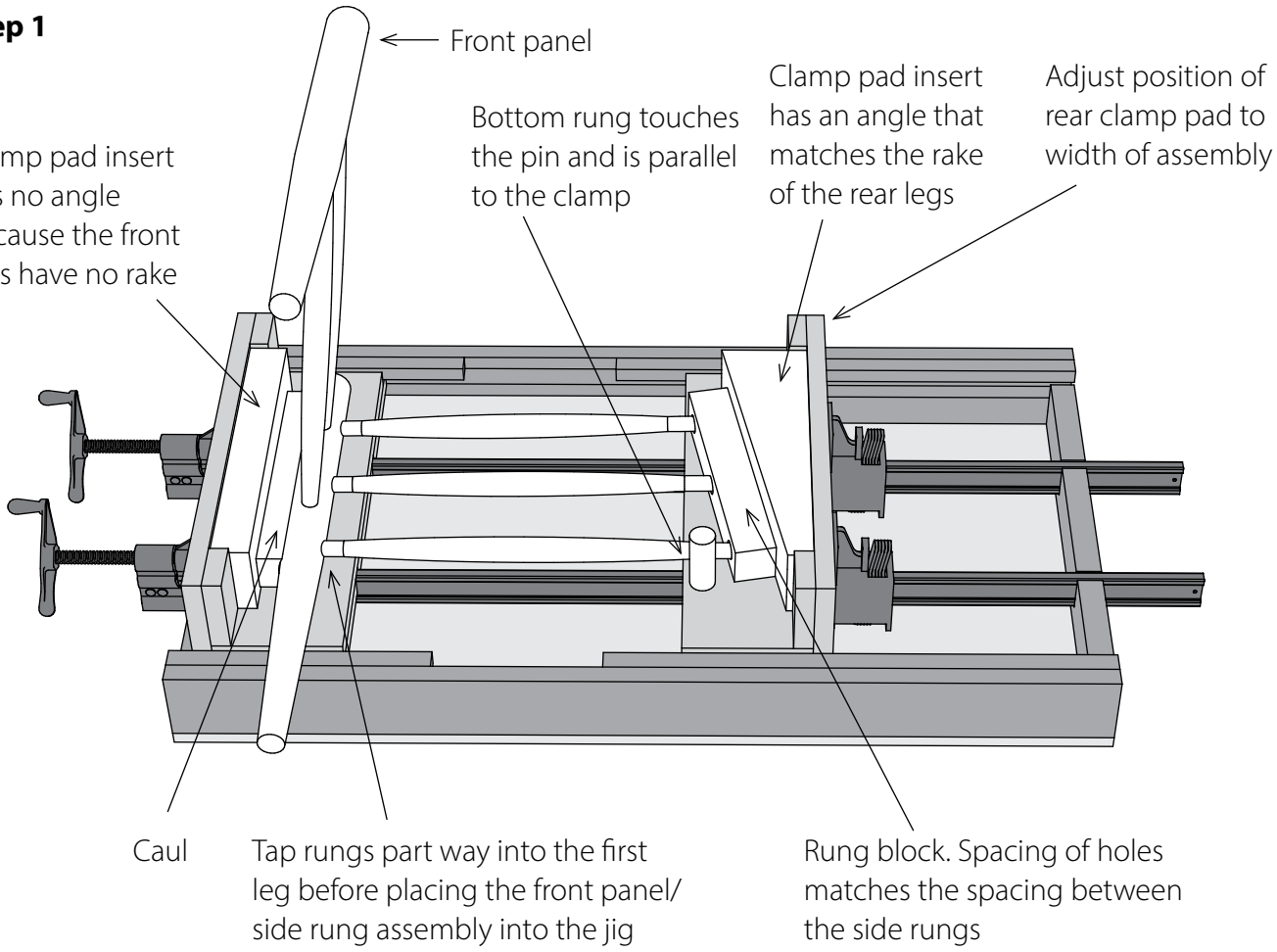
- Remove the rear panel assembly from the assembly jig and place on the bench top
- At this point, the slat tenons will probably not be fully seated in the slat mortises
- Place a clamp outside the legs in line with the top slat tenons and apply mild clamping pressure
- Twist and push the slat until both tenons are fully seated
- Repeat for the middle slat, then the bottom slat

Align slats

- Looking down the inside of the slats check that all the slats are in line with one another. If not, it's possible to rotate individual slats slightly. If needed, rotate individual slats until all the slats are aligned. It may not be possible to get perfect alignment

Front Panel and Side Rungs Assembly

Step 1



Set up jig

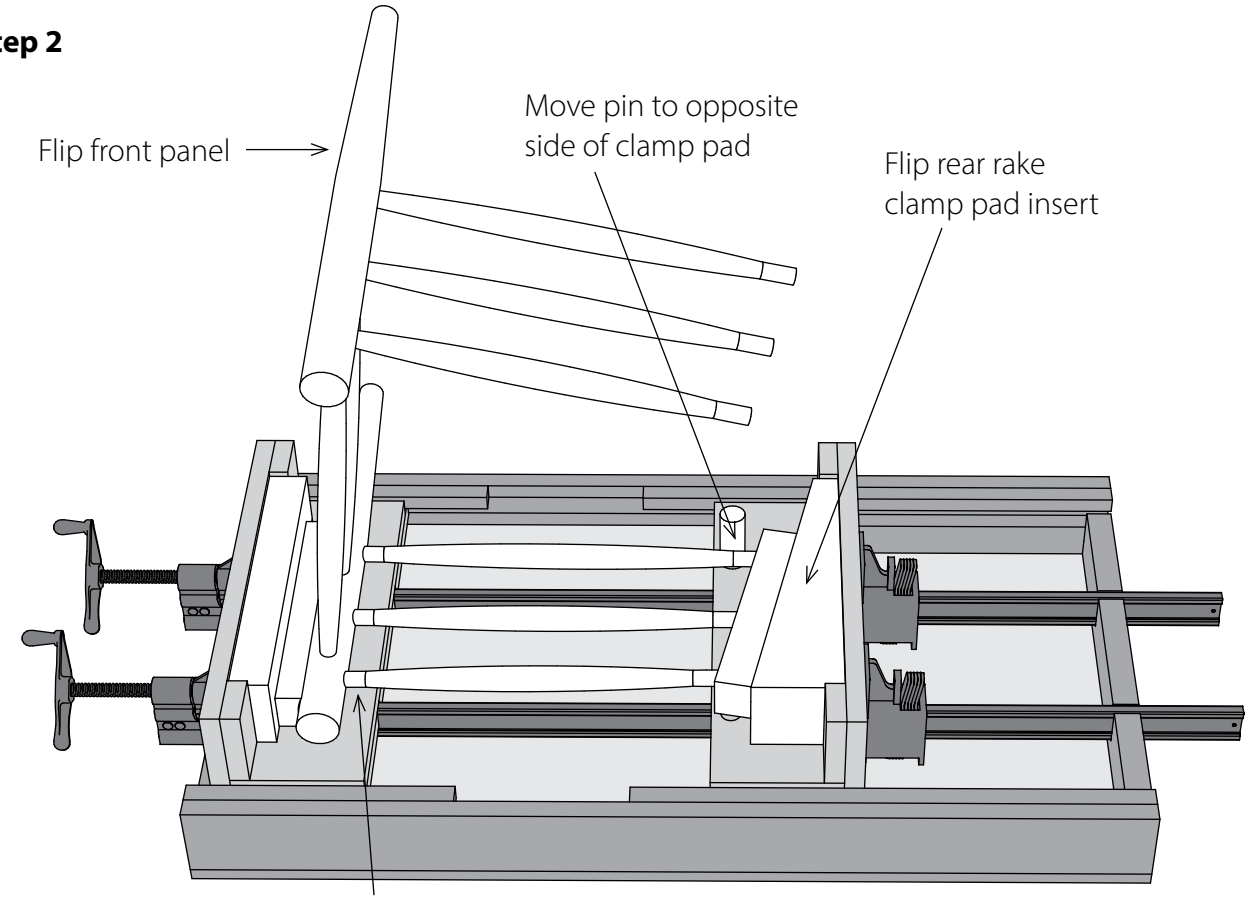
- The front legs have no rake so use a clamp pad insert with no angle and place a caul against this insert
- For the open end of the rungs use a clamp pad insert that matches the rake of the rear legs and place a rung block against this insert
- Put the pin in the rear clamp pad. Pin is not necessary for assemblies with no rake in the rear legs
- Adjust the distance between the clamp pads to the width of the assembly

Assemble

- Tap the rungs part way into the first front leg. Place the front panel/rung assembly in the jig with the rungs parallel to the clamps and the bottom rung touching the pin. For assemblies with steep rake, the pin keeps the assembly from sliding as clamping pressure is applied
- Alternately apply clamping pressure to one clamp then the other, and repeat until the rungs are fully seated

Front Panel and Side Rungs Assembly

Step 2



Tap rungs part way into the second leg before placing the front panel/side rung assembly into the jig

Set up jig

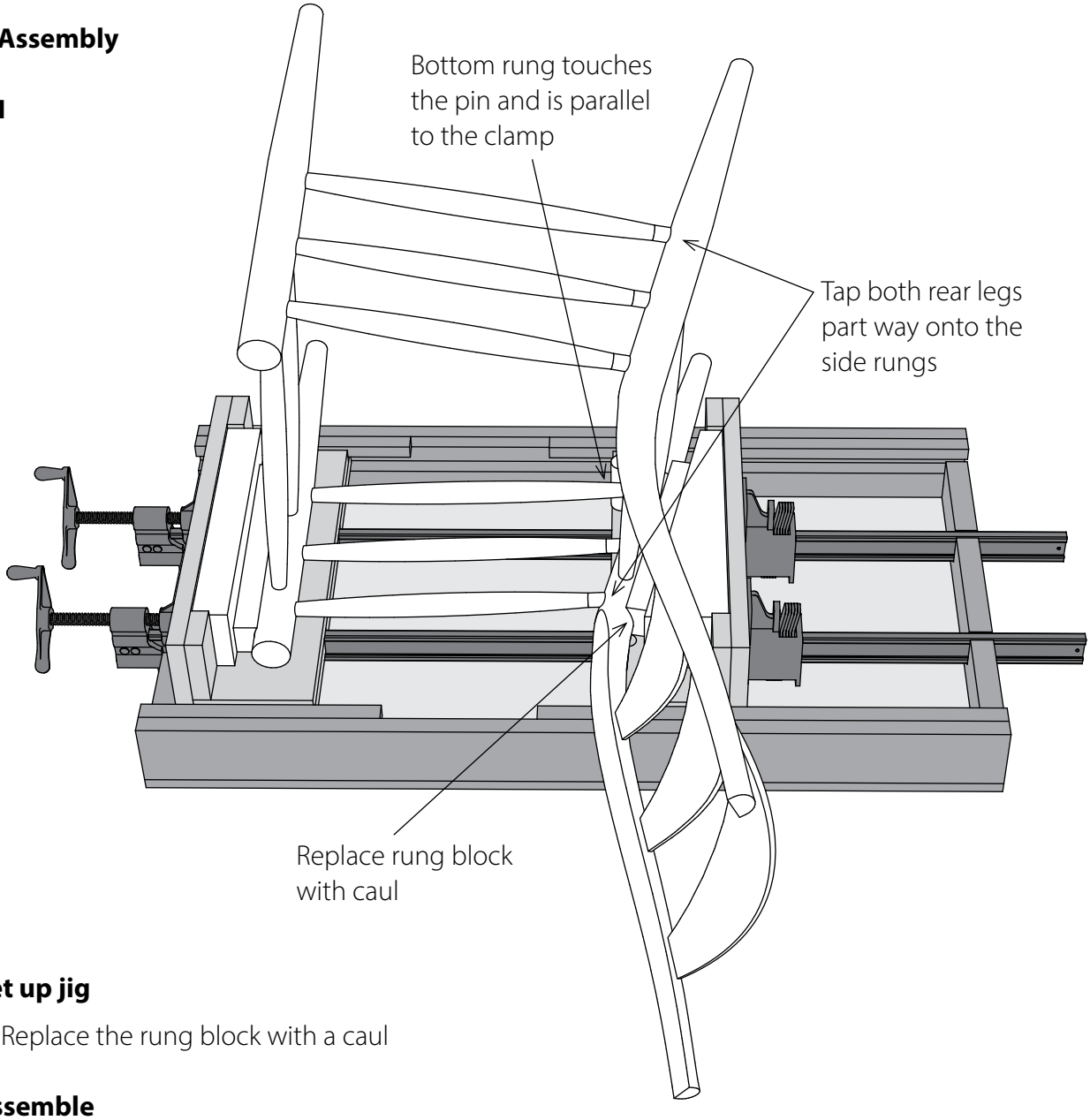
- Move the pin to the opposite side of the clamp pad
- Flip the rear rake clamp pad insert as shown above

Assemble

- Tap the rungs part way into the second front leg
- Place the front panel/rung assembly in the jig with the rungs parallel to the clamps and the bottom rung touching the pin as shown above.
- Alternately apply clamping pressure to one clamp then the other, and repeat until the rungs are fully seated

Final Assembly

Step 1



Set up jig

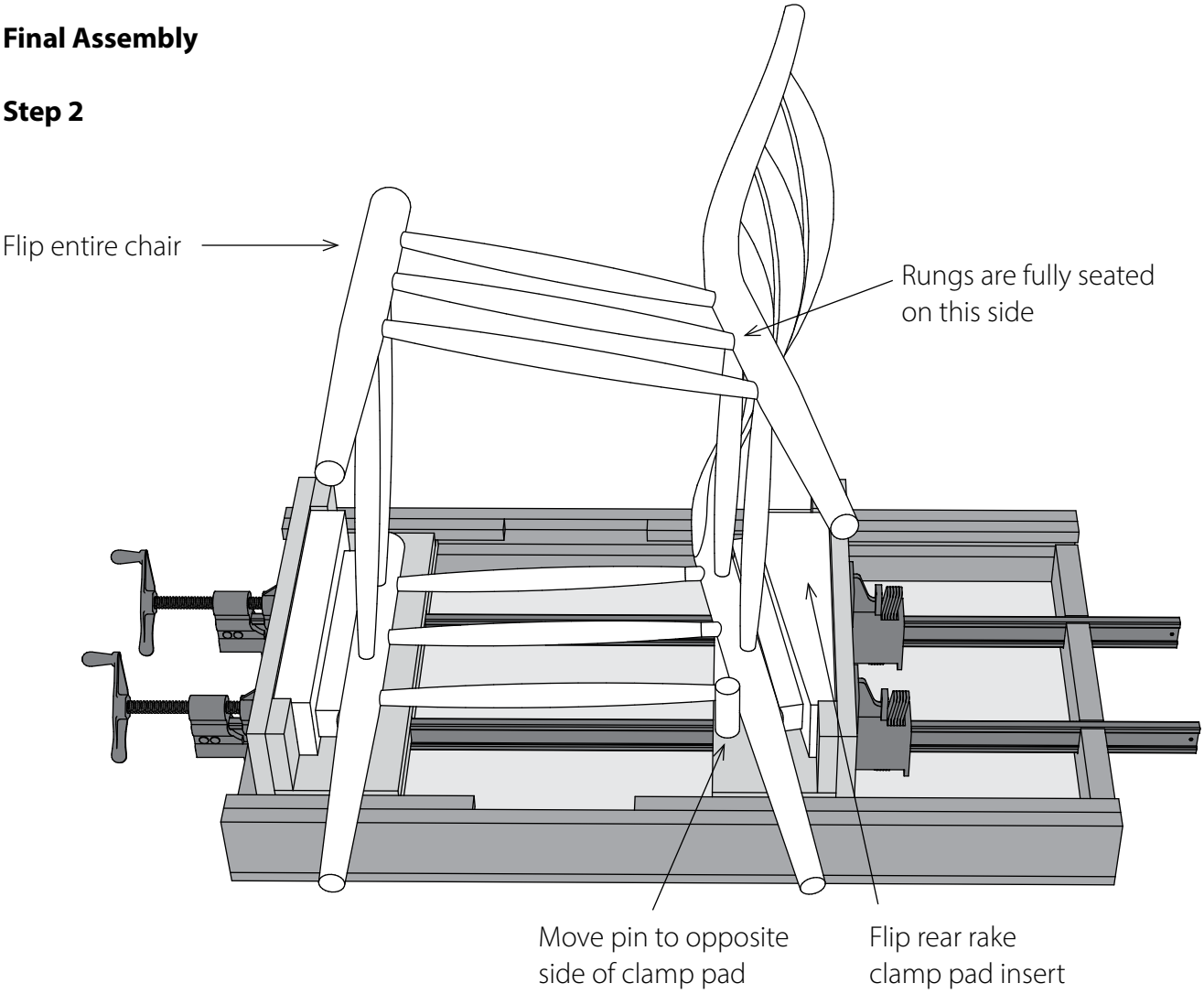
- Replace the rung block with a caul

Assemble

- Tap both rear legs part way onto the side rungs
- Check the assembly for racking and adjust as necessary. See page 18
- Place the assembly in the jig with the rungs parallel to the clamps and the bottom rung touching the pin as shown above
- Alternately apply clamping pressure to one clamp then the other, and repeat until the rungs are fully seated

Final Assembly

Step 2



Set up jig

- Move the pin to the opposite side of the clamp pad
- Flip the rear rake clamp pad insert as shown above

Assemble

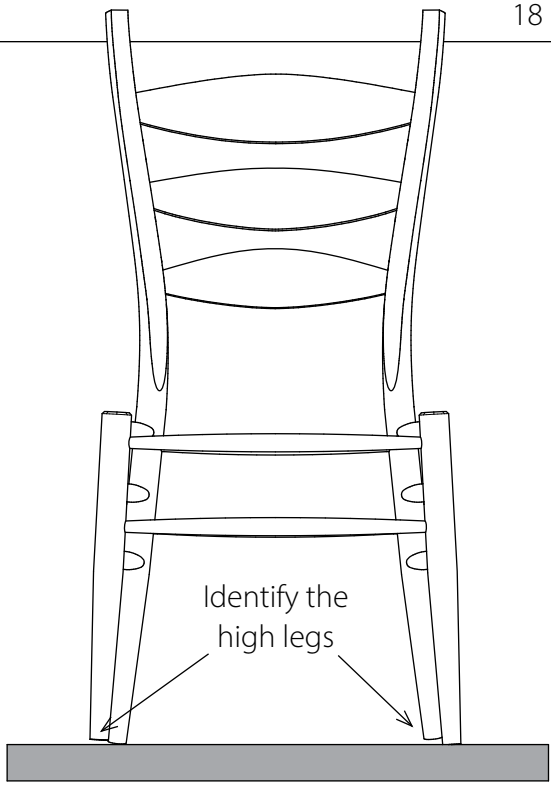
- Check the assembly for racking and adjust as necessary. See page 18
- Place the assembly in the jig with the rungs parallel to the clamps and the bottom rung touching the pin as shown above
- Alternately apply clamping pressure to one clamp then the other, and repeat until the rungs are fully seated
- Check the assembly for racking and adjust as necessary. See page 18

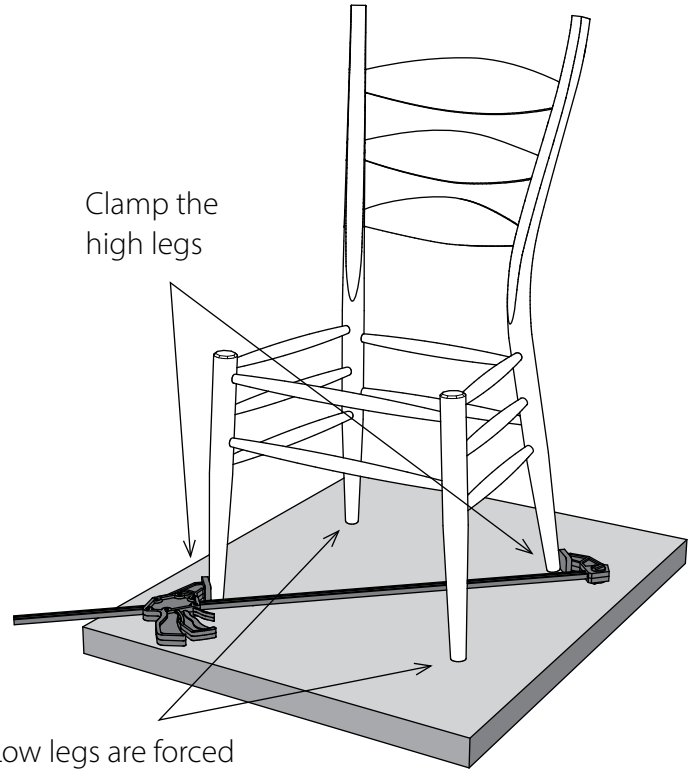
Check for racking

- Place the assembly on a flat reference surface
- If all four legs contact the flat reference surface and there is no wobble there is no racking

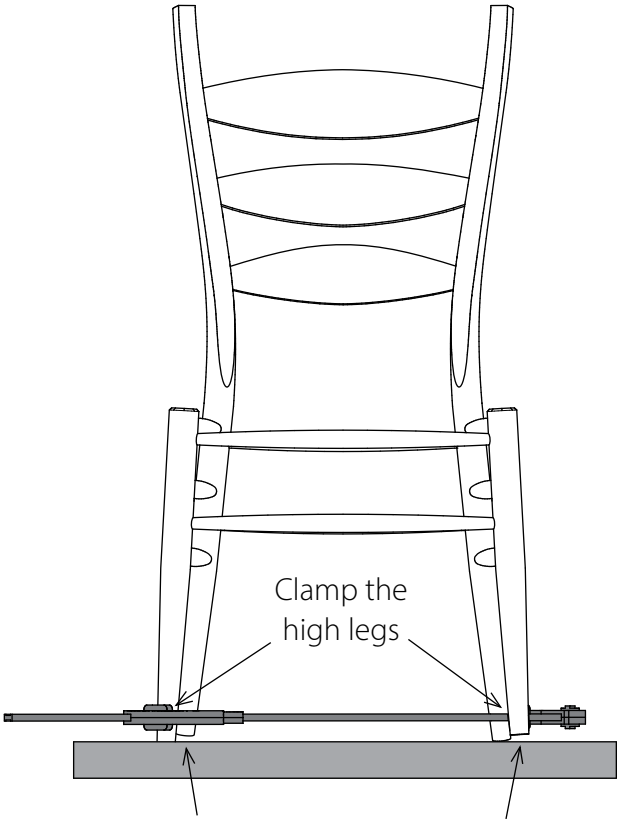
If the chair wobbles

- Identify the two high legs. They will always be in opposite corners
- Place a clamp on opposite ends of the high legs and apply clamping pressure for about 15 seconds. This will force the low legs above the reference surface twisting the assembly and removing or improving the wobble
- Release the clamp and check to see if the chair still wobbles. If so, clamp again for another 15 seconds
- Repeat until there is no wobble or you are not seeing any improvement. Small amounts of wobble will be eliminated when leveling the chair

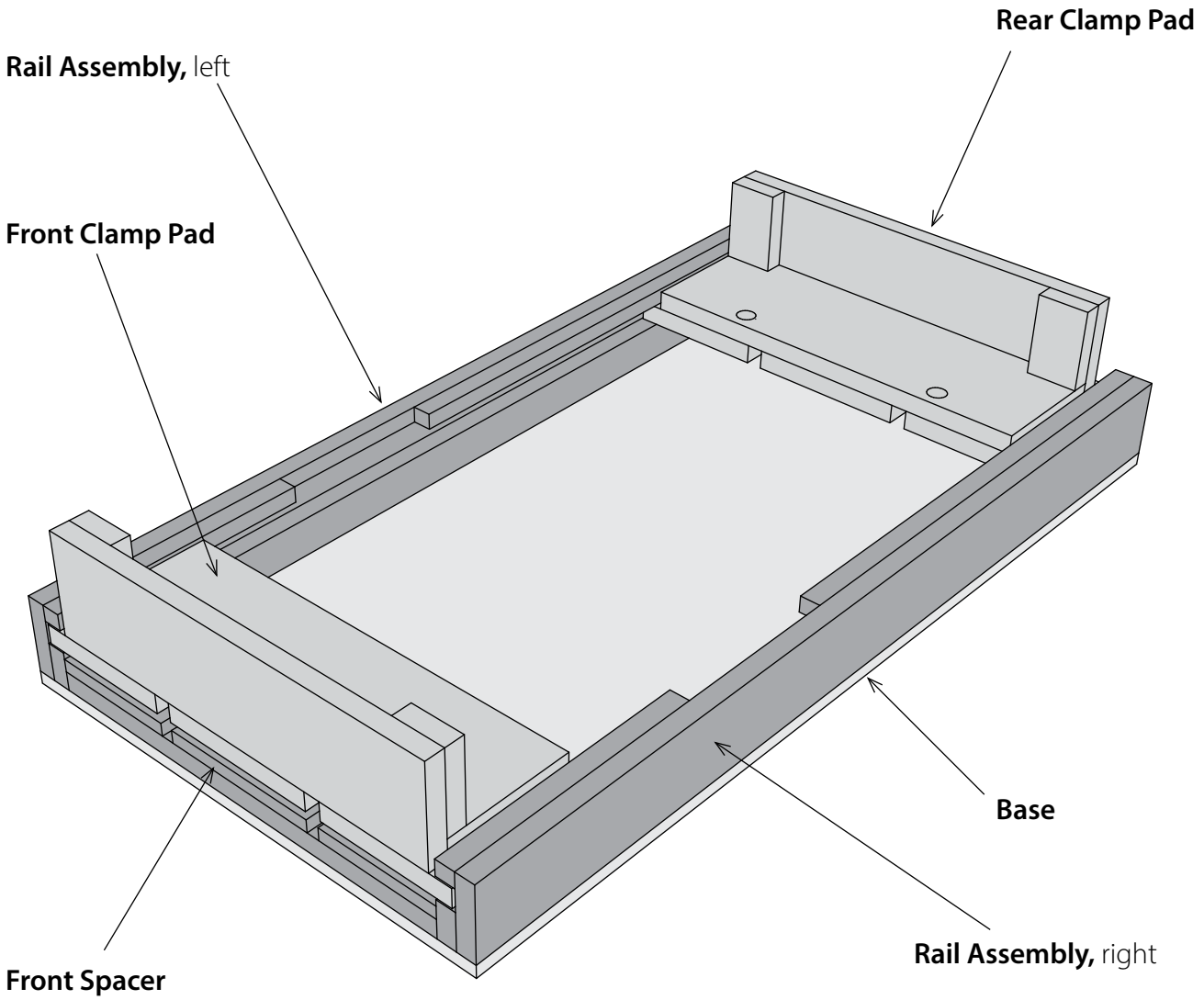




Low legs are forced above the surface



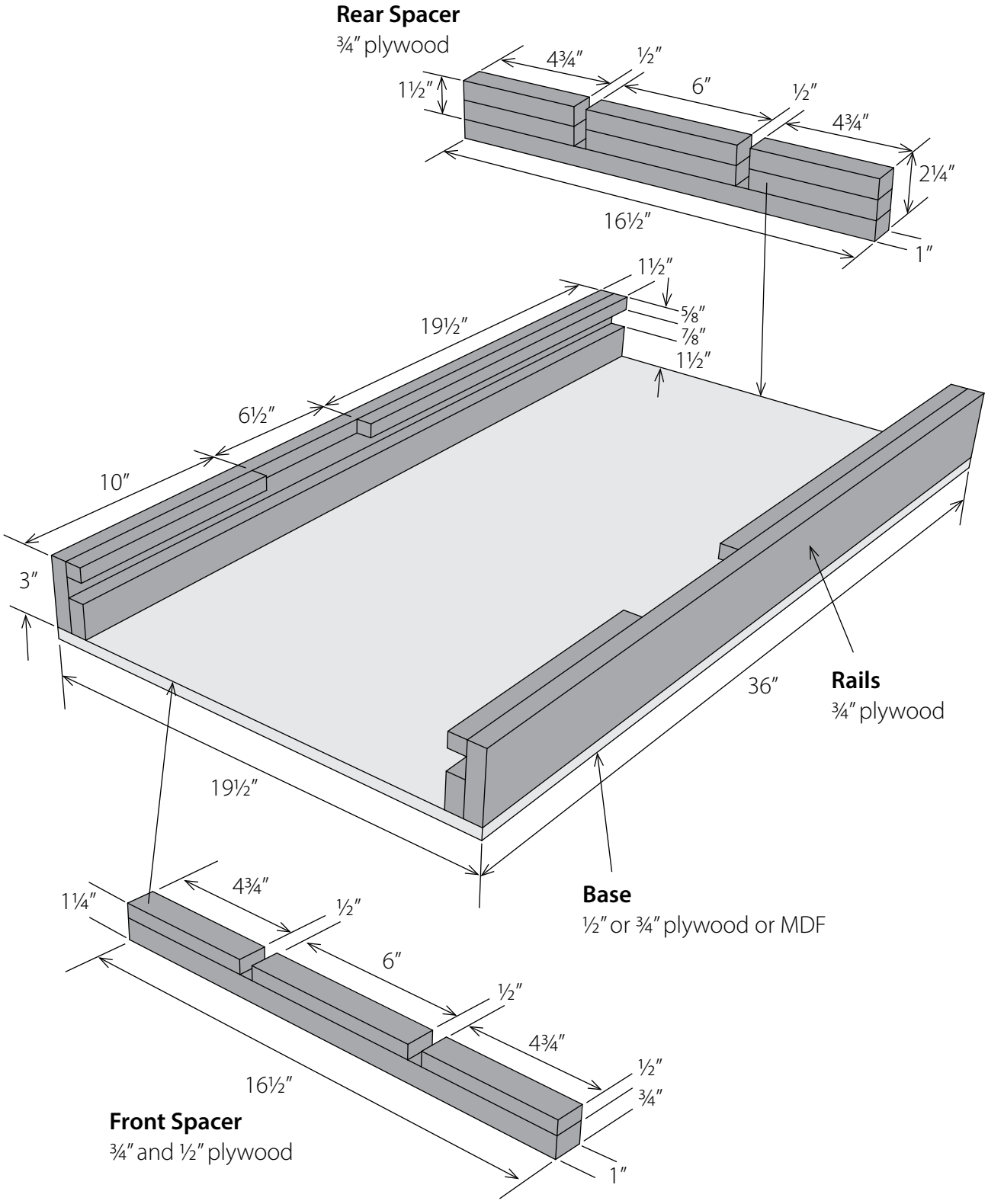
This forces the low legs above the surface twisting the assembly and removing or improving the wobble

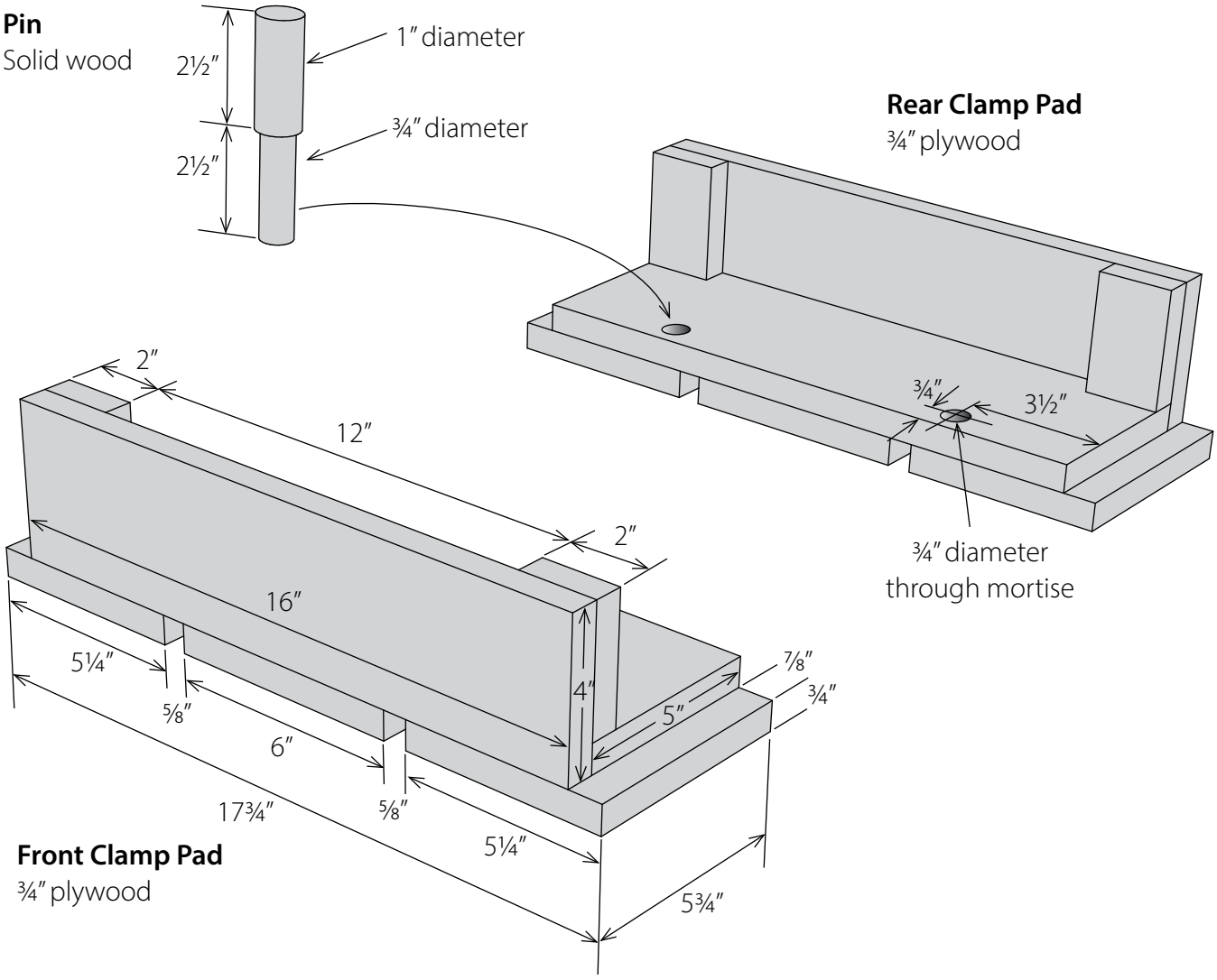


- Except for the solid wood pin, rung blocks, and cauls, the entire jig can be made with ¾" and ½" plywood which is glued and screwed together

Clamps

- This jig is designed to be used with two 36" or longer Jorgensen 7200 Series Industrial Steel I-Bar Clamps. If you use any other clamp the jig may need to be modified to fit the dimensions of the clamp


Rear Spacer
¾″ plywood
4¾″
½″
6″
½″
4¾″
1½″
2¼″
16½″
1″
1½″
⅝″
⅞″
1½″
19½″
6½″
10″
3″
36″
Rails
¾″ plywood
19½″
Base
½″ or ¾″ plywood or MDF
1¼″
4¾″
½″
6″
½″
4¾″
½″
¾″
16½″
1″
Front Spacer
¾″ and ½″ plywood



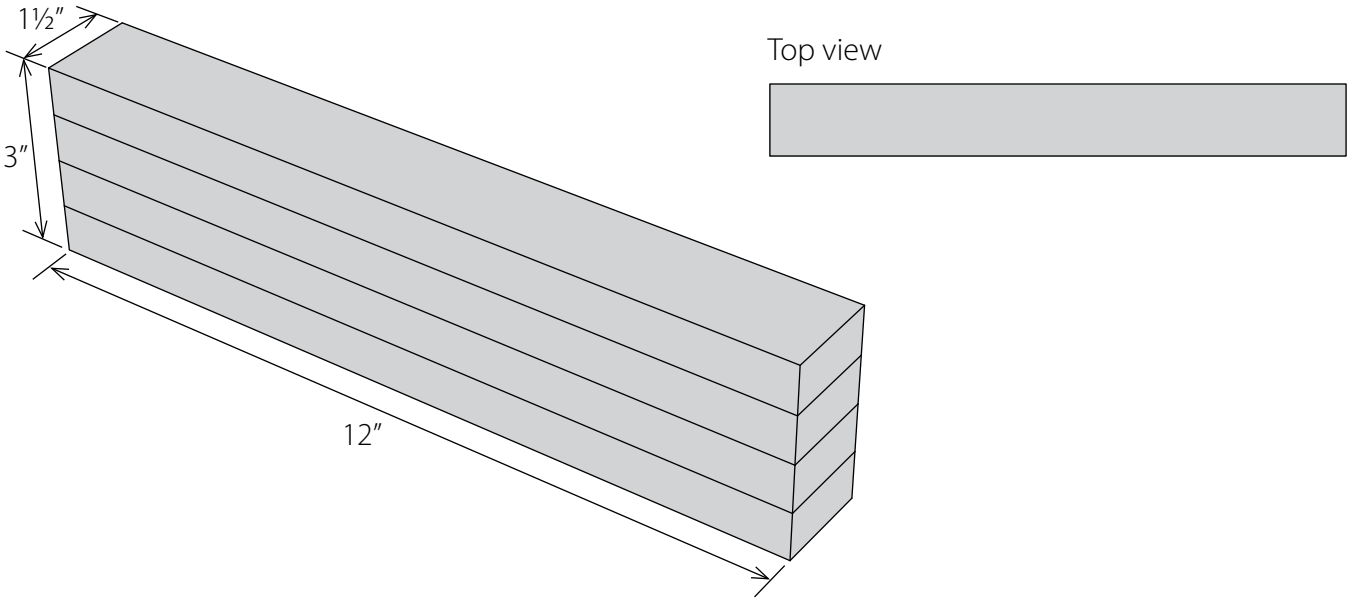
- The dimensions of the Front Clamp Pad and Rear Clamp Pad are identical
- The Front Clamp Pad does not need the through mortises for the pin

Clamp Pad Inserts

Solid wood or 4 layers of ¾" plywood glued together

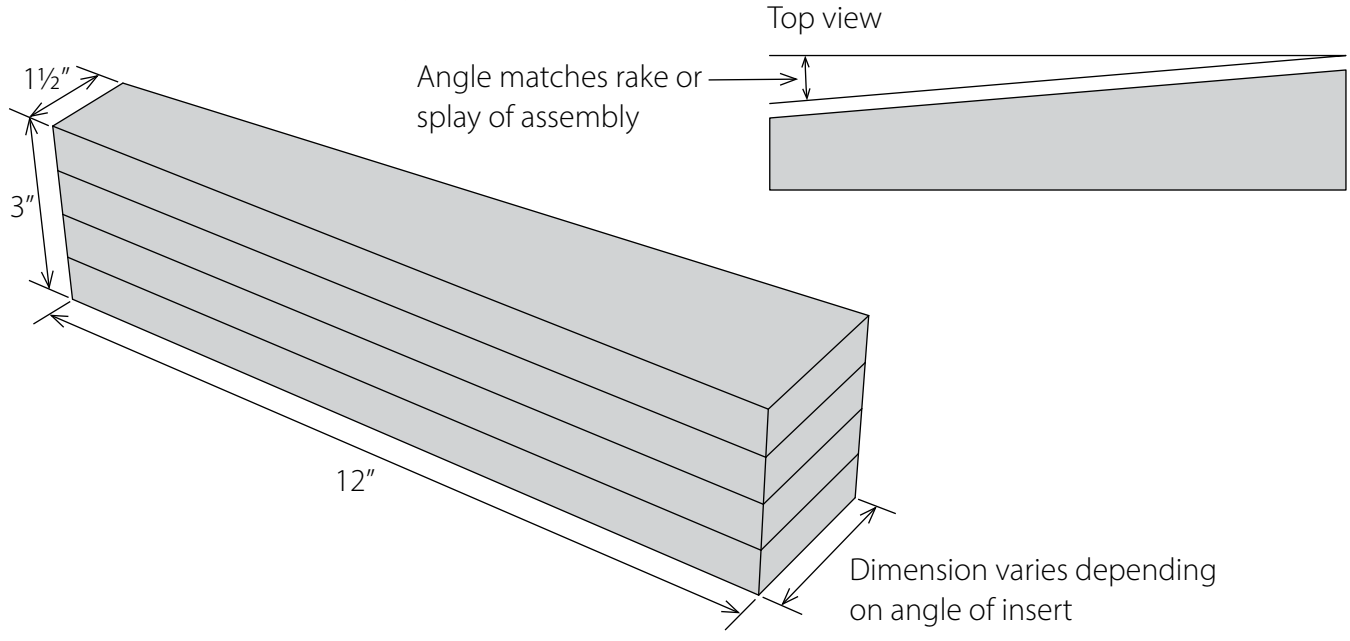
Flat Insert

For assemblies with no rake or splay

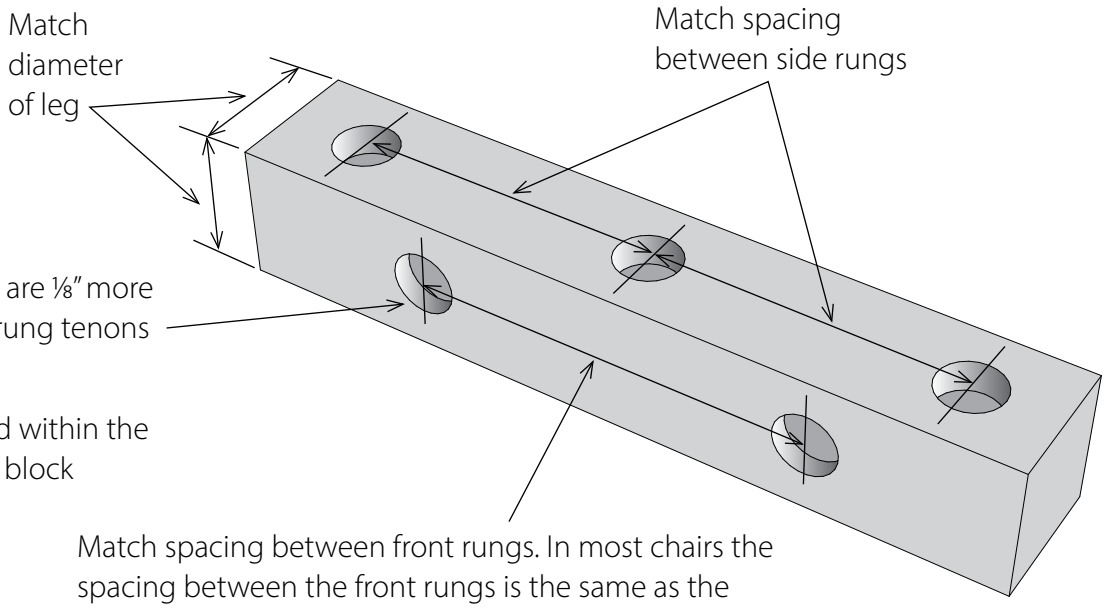


Angled Insert

For assemblies with rake or splay



Rung Block
Solid wood
1 needed



Diameter of holes are ⅛″ more than diameter of rung tenons

Holes are ¼″ deep

Holes are centered within the width of the rung block

Match spacing between front rungs. In most chairs the spacing between the front rungs is the same as the spacing between the rear rungs

If your chair has more than 2 front and 2 rear rungs, adjust to match number and spacing of rungs

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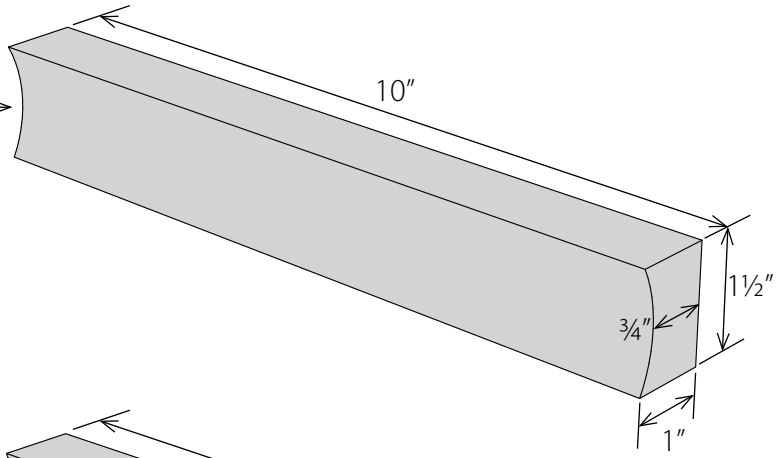
Cauls
Solid wood
2 needed

Make either version

This caul is made with a table saw

The curved cut can be made with a cove cut on the saw



This caul is made with hand tools

Shape both parts to dimension and glue together