Box or Finger Joints
Box Joints are also called Finger Joints.

Because they have interlocking “fingers” that join two pieces of wood together. Box joints and finger joints provide a much larger glue surface and that results in a much stronger joint.
“Finger joints” are typically used to join two pieces of wood together and they are frequently seen in paint grade trim.

The joints are typically cut using a router, shaper or a large commercial machine.
Box Joints

“Box joints” are frequently used to make drawers or boxes for storing items like jewelry or keepsakes. They generally have four sides but they can have many sides.

They can also be quite decorative.
Making Box Joints

Cut with a router and a straight bit using a jig

Original Incra Jig

Dovetail Jig

Incra Fence System

Sled for Router

Cut with a router and a special bit with a bearing
Box Joints

Box Joints can also be cut on a table saw using a dado blade and jig.

Some jigs are simple and some are more elaborate.
I have a project that I want to build that uses box joints to:
  • Make the box stronger
  • Make it more decorative

I like to make my box joints symmetrical by making the fingers the same size as the material. I disliked the expense of the commercial router jigs and most of them are complicated to setup and use.

The adjustable box joint jig in ShopNotes Issue# 8 looked like a good solution.
Building the ShopNotes Issue# 8

Adjustable Box Joint Jig
Adjustable Box Joint Jig

Richard Hicks on 8/24/2015

Overview

Notes:

• I used paint grade maple
• Make sure the wood is a full \( \frac{3}{4} \)" thick
• Most hardware items are available locally - the \#10x32 threaded inserts were not.
• I used steel nuts and bolts instead of brass
• The \( \frac{1}{4} " \times 20 \) star knobs are hard to find locally
• Suggest ordering all the hardware before starting the project
Fence

Notes:

• I made several inserts

• Center the mounting hole so you can use both ends of the insert
Material Rest

Notes:

- I made the material rest from one piece, cut the moveable rest away and then ripped the fixed rest to width.
Adjustment System Overview

Notes:
• This is how the adjustment system fits together
Adjustment System Details

Notes:
- Measure the location for the slots carefully
- Route slot 1 & 2 at the same time with the same fence setting
Adjustment System Details

Notes:

• Important for the wood to be \( \frac{3}{4} \)" so you don't have to modify the metal pieces

• It was easier to screw the angle pieces to a scrap board to drill the additional holes
Adjustment System Details

Notes:

- Shows the way to mark the position of the mounting holes
Adjustment System Details

Notes:

• Shows the way to mark the position of the mounting holes

• Follow the directions carefully to locate the mounting hole in the fence
Adjustment System Details

Notes:

• I used screws instead of threaded rod. If you do, cut the heads off of the screws - otherwise you have to thread all the nuts the whole length of the screws
Adjustment System Details

Notes:

• Suggest you use a 1 1/4" bit to drill holes 1 & 2 - more room for lateral adjustment of the screws
Mount it to the Miter Gauge

Notes:

• After finding the proper location on the miter gauge, I used two \( \frac{1}{4}'' \times 20 \) carriage bolts with wing nuts. It made a very secure and reproducible mounting.
Completed Jig
Using the Adjustable Box Joint Jig
Using the Jig - Overview

• My personal preference is that the fingers match the thickness of the wood - the adjustable jig makes that easy.

• When preparing the wood, plane all of the pieces at the same time so the thickness is consistent.

• Prepare extra stock for test pieces.

• Make the pieces a little wider than needed to allow for variances in the width of the fingers.

• It is critical that the opposing pieces are exactly the same length - otherwise the finished project will not be 'square'.

• Put masking tape on the inside surfaces of the pieces when you glue the joints - it's a messy job and they're easier to cleanup using the tape

• The following steps assume that the pins are the same as the thickness of the wood
Step One

Install the dado set to match the thickness of the material.

Then set the depth of cut to be slightly more than the thickness of the material so that the joint can be sanded flush after it is glued.

Note: Material thickness is 3/8″ and the dado blade is 3/8″ thick.
Step Two

Make a test cut.

Check the depth of the cut and adjust if necessary.

Use the test cut to adjust the key.

Note: this piece should be smaller than the width of the cut.
**Step Three**

Adjust the 'key' to the width of the dado cut using the 'key adjustment' knob and lock the adjustment.

Loosen both 'lock knobs'.

Adjust the width of the key with the 'key adjustment knob'.

Tighten only the 'Key Lock' knob.
Step Four

Set the “adjustable key position” (pin width) to match the width of the dado blade cut.

This should be exactly the same as the width of the key. You can use a piece of scrap wood or a ruler for this step.

Adjust the adjustable key position (also called the 'pin adjustment) using the 'pin adjustment knob'

Tighten 'pin lock' knob.
Step Four (continued)

Check the fit of the 'pin' cut in step four to the notch cut in step two. It should be a good fit, not too snug (need some room for the blue) and not too loose.

Continue to adjust until you get the right fit.
Step Five

Start cutting the fingers by placing the edge of the wood against the key, make the cut, and then move the wood to straddle the key.

Continue the process until you complete the width of the wood.
Step Six

Flip the wood end for end and repeat step five. Mark the ‘waste’ edge of the wood.

Repeat the process to make a second piece.
Step Seven

Turn the wood over so that the ‘waste’ edge is on the other side.

Straddle the key and place another piece of wood next to the edge - this will ‘index’ that piece to mate with the first piece.
Step Eight

Finish cutting the fingers, flip the wood end for end, and repeat steps seven and eight.

Repeat the process and cut another identical piece.
Step Nine

Assemble the joint. The fingers should be 'barely proud of the surface so they can be sanded after the glue has dried.
Step Ten

Use tape when you glue the box joints - gluing box joints is a messy job. The tape will catch any glue squeeze out and make it easier to cleanup.
Richard showed a video at the end of the presentation. Contact him for a copy.