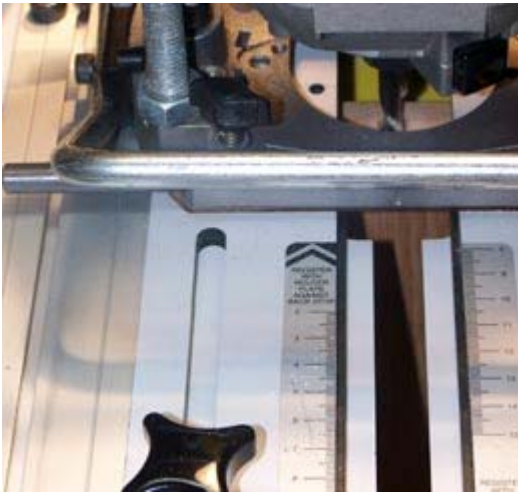


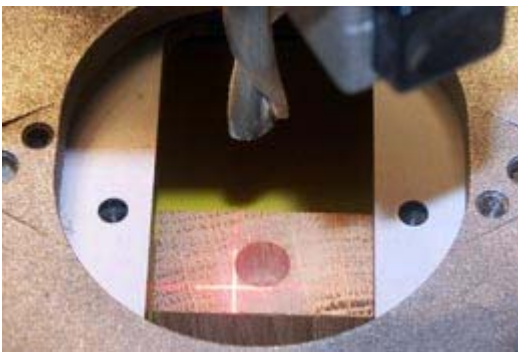
**Technique for cutting a symmetrical Finger Joint with WoodRat®  
using our laser guide, brass gauge bars, plunge bar, quick clamp and spiral bits**



**Plunge cut an alignment hole**

Select and chuck a straight bit sized for the box joint you want. In this demo we use a 3/8" spiral bit and cut fingers the width of bit. You can also use a 1/4" or 5/16" bit.

Clamp a small scrap board to sliding bar flush under base plate, position bit over the board, lock router plate with star knob and plunge the bit to drill a shallow hole.



**Align laser to bit edge**

Turn on laser and align laser beam as shown with center of cross hair lines touching left and front edges of the hole.

Tighten laser bracket knobs to lock laser in this position.



**Set a stop**

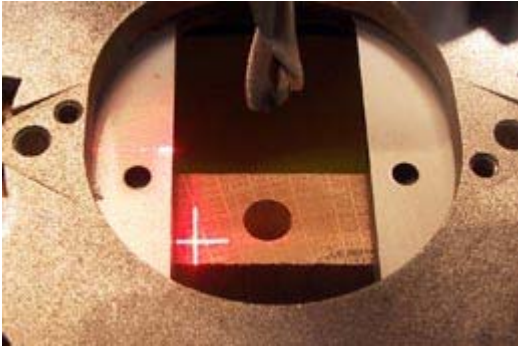
Using a brass gauge bar, set a stop in laser mount t-slot a distance from laser bracket equal to diameter of bit. This will determine width of each finger in the joint.

Tighten the stop screw to secure it in place.



**Move bracket to stop**

Loosen laser bracket knob and slide bracket forward to the stop. To prevent joint from being too tight and to allow glue room, use a feeler gauge or thin shim to create a small gap between bracket and stop. This reduces the width of joint fingers.



### **Observe new laser alignment**

Laser beam has now shifted left an amount equal to width of fingers to be cut.



### **Mount test board**

Mount a new scrap board to sliding bar. This board will be used to test the cut.



### **Position board**

Power feed the board until center of laser line is positioned on left edge of board.



### **Cut a test finger**

Remove star knob to free router movement.

Plunge bit behind board and pull router forward to cut through the board.



### **Check width of test finger**

Use a caliper to measure width of the test finger. It should be slightly less than width of the bit.



### **Set plunge depth**

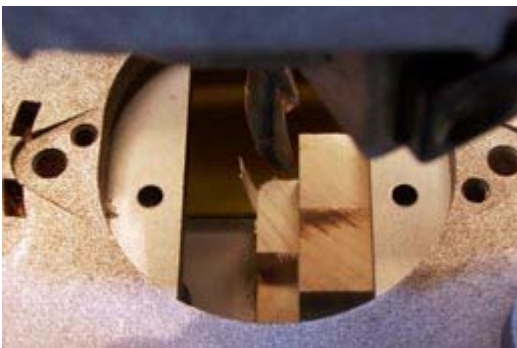
Clamp one of the boards to be jointed onto sliding bar and zero bit on top of this board. Use other board to set router depth stop to thickness of the board. It helps to have removed turret from depth stop mechanism.



### **Clamp both boards onto sliding bar**

It is easier and more accurate to cut both boards for the finger joint at the same time. Cut 2 spacer boards the width of bit. Clamp both boards to be jointed onto the sliding bar with a spacer board on right side of first board and on left side of second board.

Position bit next to top left edge of second board. Clamp boards with quick clamp.



### **Make first cut**

With bit plunged to depth stop, push router forward to make first cut. Only the rear board is cut.



### **Make second cut**

Raise router and power feed wood left until laser line is centered on right edge of previous cut. Plunge router to depth stop and pull forward to cut through both boards.



### **Use 2 passes on deep cuts**

For deep cuts use the plunge bar to control depth of cut and make 2 cuts. On forward cut plunge only to half depth then plunge to depth stop and make a rearward cut.



### **Continue cuts**

Keep repeating the previous operation for all subsequent cuts until you reach end of board. If only a thin finger remains on front board, you may want to remove the other board then cut off the thin finger.

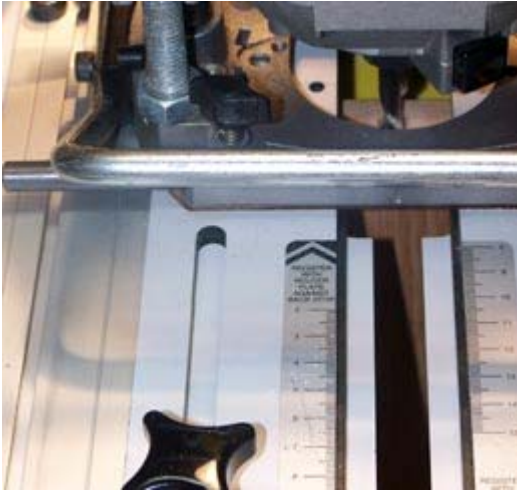


### **The fingers should fit perfectly**

If you want the fingers to protrude through so you can level them with your hand plane then increase the plunge depth when setting the router depth stop.

Please email us at [info@thecraftsmangallery.com](mailto:info@thecraftsmangallery.com) with any corrections or improvements to these techniques. Our laser guide techniques are not the same as techniques in the WoodRat manual. Check our web site [www.chipsfly.com](http://www.chipsfly.com) for additional techniques and information.

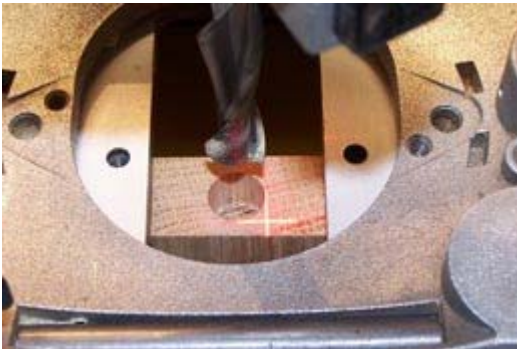
## **Technique for cutting asymmetrical Finger Joint with WoodRat® using our laser guide, plunge bar and spiral bits**



### **Plunge cut an alignment hole**

Select and chuck a straight bit that is smaller than width of joint fingers. In this demo we use a 1/2" spiral bit and cut variable width or asymmetrical fingers.

Clamp a small scrap board to sliding bar flush under base plate, position bit over the board, lock router plate with star knob and plunge the bit to drill a shallow hole.



### **Align laser to right side of bit**

Turn on laser and align laser beam as shown with center of cross hair lines touching right and front edges of alignment hole.

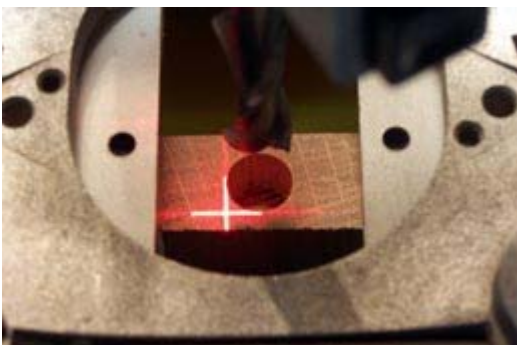
Tighten laser bracket knobs to lock laser in this position.



### **Set a right side stop**

Set a stop on right side of laser bracket. The stop allows you to relocate laser bracket then return to this position.

Tighten the stop screw to secure it in place.



### **Align laser to left side of bit**

Loosen laser bracket then align laser beam as shown with center of cross hair lines touching left and front edges of hole.

Tighten laser bracket knobs.



### **Set a left side stop**

Set a stop on left side of laser bracket.  
Tighten the stop screw to secure it in place.



### **Mark positions of fingers**

Clamp together boards to be jointed and layout the finger positions. It is helpful to shadow the waste areas to be cut out.



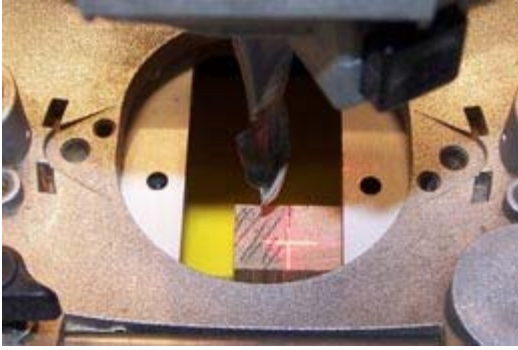
### **Clamp board to machine**

With layout marks on top, clamp one of the boards to be jointed onto sliding bar and zero bit on top of this board. Be sure board is flush with underside of base plate.



### **Set plunge depth**

Use other board to set router depth stop to thickness of the board. It helps to have removed turret from depth stop mechanism.



### **Align laser beam for first cut**

Loosen laser bracket knob, slide bracket to right stop, tighten knob and turn on laser.

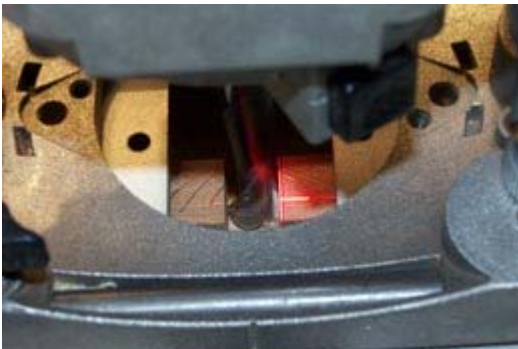
Using power feed to move board, align center of laser beam on right edge line of first waste area.



### **Make first cut**

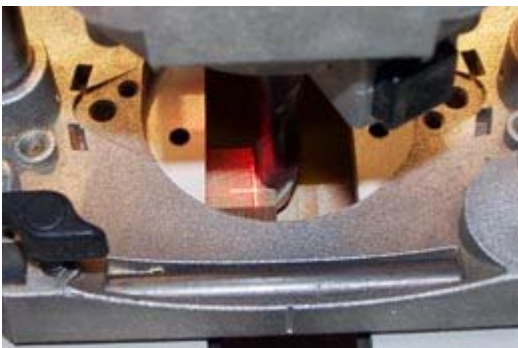
Loosen star knob to free router movement.

Plunge router to depth stop and cut through board.



### **Complete right side cuts**

Using power feed to reposition board; align laser beam on right edge line of each waste area, plunge router and cut through board.



### **Complete left side cuts**

Reposition laser bracket to left stop and make all the left side cuts as done for right side cuts.



### **Remove remaining waste**

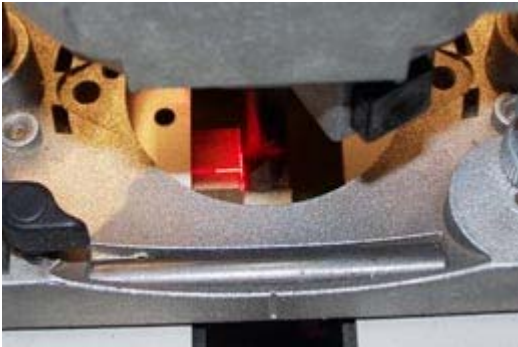
With router set to plunge depth, remove any remaining waste areas between fingers.



### **Repeat procedure for second board**

Repeat above procedure to cut fingers in second board. If both boards are not same thickness you must reset router depth stop.

Trial fit boards together to test joint.



### **Correct tight joint**

If the joint is tight then re-clamp the board and, using the laser beam as a guide, cut excess from fingers that are too wide.



### **The fingers should fit perfectly**

With the laser guide you can accurately cut symmetrical or asymmetrical finger joints.

If you want the fingers to protrude through so you can level them with your hand plane then increase the plunge depth when setting the router depth stop.

Please email us at [info@thecraftsmangallery.com](mailto:info@thecraftsmangallery.com) with any corrections or improvements to these techniques. Our laser guide techniques are not the same as techniques in the WoodRat manual. Check our web site [www.chipsfly.com](http://www.chipsfly.com) for additional techniques and information.