

# **CMT**

## **ORANGE TOOLS®**

### **CMT Locking Miter Bit**



**How to make wooden legs for tables.  
You can make legs that are stronger  
than solid wood and may look better.**

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It is always nice to receive notes from woodworkers. Last week, one reader asked why I didn't use the Locking Miter Bit for making legs. I said that I simply hadn't gotten that far yet. But now I have and here it is.

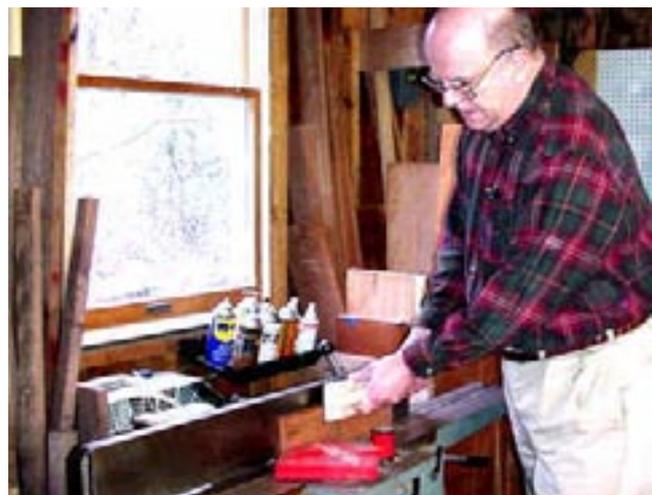
It isn't easy, but it is possible. But why would you want to make a leg this way rather than from a solid piece of wood? Here is why: a typical leg cut from thick stock is going to have two sides with edge grain and two with face grain. In some woods, that can look fine but in other species, it isn't what you want. That orientation can also be weak. This picture shows a walnut leg cut from 1 1/2" stock.



Using the locking miter bit to make this leg is not an original idea at all. But I did learn some things, which I will show you here.

First, the stock must be jointed flat and cut to the exact measurements. If the legs aren't perfect going in, the joint is not going to be perfect.

For this test run, I am using some 3/4" mahogany and I have jointed one side of each of the 4 boards.



I then cut them to exactly 1 1/2" width. You might be tempted to make this width a bit proud and then run the 2nd side through the jointer, but that isn't necessary. The ripped edge will be removed in the running of the locking miter bit shape, and my ripping blade gives me a very smooth cut.



I have already set the router table up with the high fence and carefully adjusted the bit height and the fence depth—exactly as I detailed on the earlier Locking Miter bit pages.



I learned one thing in an earlier sample: route each of the four pieces the same, i.e. run one edge flat on the table and the other edge flat against the fence. This way, any minor errors will cancel each other out.

The picture at the left is the earlier test where I routed two opposing sides running both edges flat against the table, and the other two opposing sides flat against the fence for both edges. You can see that a minor fence or router bit height error gets amplified and the leg is not exactly square.



It doesn't matter if you run the leg pieces flat against the table first. I did it that way purely arbitrarily.

I set up feather boards to press the piece down on the table both before and after the bit. These are narrow pieces and I do not want to have to get my hands closer than I have to. They will also assure a smoother cut.



I use two rubber soled push blocks to guide the stock through the cutters.

Remember to lower the speed of the router to match the width of your bit. In my case, I set the speed at 14,000 rpm.



Running the 4 pieces took just a few minutes. There was some chip out at the very end, but we will discuss that in a minute.



The second edge of each piece will be routed flat against the fence. While at the beginning, there is enough flat surface for the piece to be steady, at the end of the cut, the stock is only resting on the cut apex and can easily swivel away from vertical.

Using a feather board to hold the piece against the fence, is not the answer. In fact, it will put more pressure on the stock and accelerate the swivel effect.



My answer to the problem is two part: 1) I made a simple push-stick that would fit the entire length of the stock and would bear pressure on the vertical mid-point. The end of the push-stick has a cut-out to grab the end of the stock...giving me better feed control.



The second part of the solution is to cut the stock 2" longer than will be needed. I found that if I were very careful at the end of each pass, I could minimize the amount of movement, and therefore reduce snipe...but there is no guarantee, so allowing the extra inches makes sense to me.



The 4 pieces fit together very well. By dry fitting them, you can see if there is any adjustment that needs to be made before glue up.



I also found that if you assemble them in order, the last joint is difficult to bring together. A better way is to assemble two sets of two sections...and then put those together to make the completed leg.



I used polyurethane glue for this leg. There is a great deal of gluing surface. I carefully brushed the glue into every surface on one piece.



On the mating piece, I moisten the surfaces with a brush dipped in water. The water activates the polyurethane glue and makes for a tighter bond.



When the two pairs of sections are glued, I then apply glue to them and position them together.



I do not want to over clamp the assembly so I use a series of spring clamps to hold the pieces while the glue cures.



Once dry, the squeeze out is easily chipped away.



I use a rounding over plane to shape the four corners just slightly. Notice the slight gap at the far right. That is the result of the sniping at the end of the cut. I planned to trim that but found that it really was still quite tight, even with the small gap.



The finished leg is perfect in fit and is very strong—in fact, it should be stronger than a leg cut from one piece (at left). It certainly looks good with all four sides having edge grain. I did add a bit of wood putty to where the fit wasn't exact near the end of the piece.



This joining method is great for square legs.

What do you think? Add your comments in the box below. I would love to hear from you on this or anything we do here at [Woodshopdemos.com](http://Woodshopdemos.com).