No-Miter Picture Frames

Only your imagination will limit the picture frame variations you can make with this design- made easy with the MatchFit Dado Stop and FitFinder ½ Gauge.

This project first appeared in Woodcraft Magazine, January 2007
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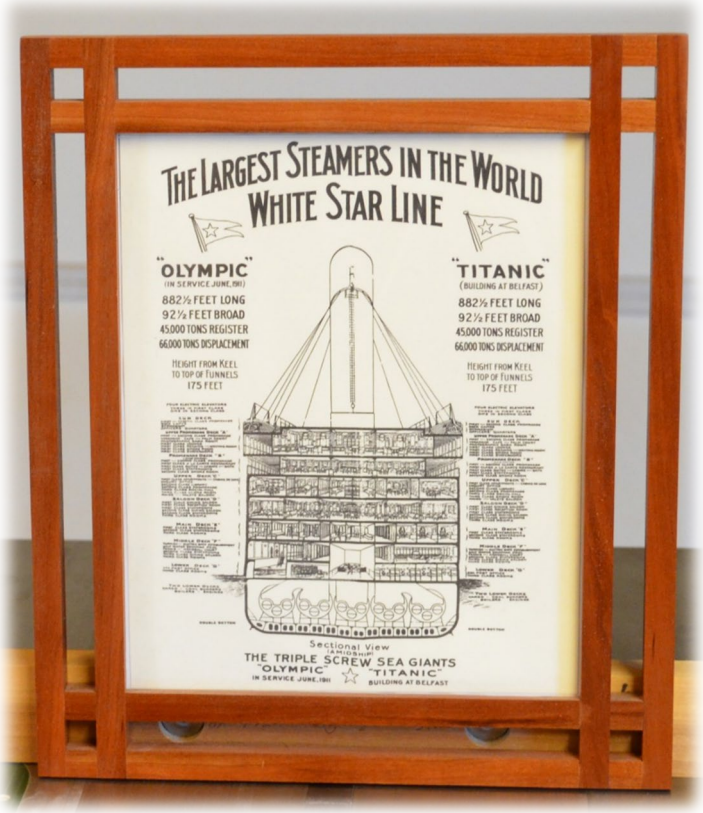
My wife had come home with an interesting mission-style picture frame she wanted me to reproduce for her. It was made from twin rails using half lap joints in the corners rather than the standard miter. This gave a substantial yet graceful look while only requiring a very small amount of stock. Looking it over, I saw that with a few modifications it would make a fun and useful weekend project.



The store-bought frame uses two different sets of parts; simple square sticks form the outer rails and a different set, milled to include a rabbet, make up the inner rails. But by milling the rabbet after assembly, both sets of rails can be made the same, simplifying the entire process.

Using the MatchFit Dado Stop and FitFinder 1/2 Gauge, the half-laps become easy and simple. The thin stock needed for these frames make them a perfect project for using off-fall and other scraps already on hand. The Dado Stop and FitFinder cut the half laps orienting off the ends of the parts, with ALL the half laps sharing the same spacing no matter the overall frame size. One set up for each stock thickness is all that is used to cut the parts for whatever size is needed. Altering the length of the sticks is the only adjustment needed to make frame of various sizes!

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Stock Preparation

The open double frame allows for using up smallish off-rips, but as always, stock choice and preparation is the key to success. The parts must be square, straight and true with no knots or blemishes. The design does not provide any chance of keeping the parts from moving over time, and any warp or twist will show.

Begin by sawing the blanks to three-quarters of an inch square. This will provide plenty of room for jointing and planning the stock true. Plane them to 5/8” square. You can make yours larger or smaller, but you need to keep the rabbet and proportion in mind.

Larger frames can carry wider sticks without looking “clunky”, but the rabbet will need to be at least 3/8” deep or more if you plan on matting your artwork.

Cut to Length

With your stock planed square it is time to crosscut the pieces to length. Determining the lengths is simple: all you need to know is the size of the picture being framed including any borders or mattes, then add 3 1/2". For example, an 8” x 10” photo in a standard 11” x 14” mat needs a frame 14 1/2" by 17 1/4". So you would need four sticks at 14 1/2” long and four at 17 1/2" long. Could not be simpler! (See the included Offset Chart)

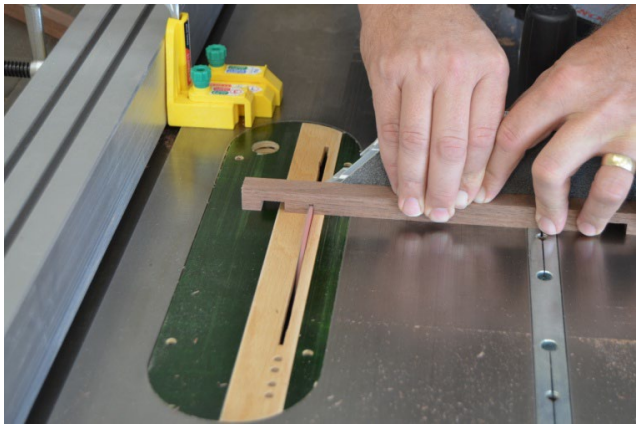
Cutting the Half Laps

Follow the instructions to set up your Dado Stop for your part sizes. For the extended frame shown on the cover, the first rip fence setting should be 3” plus the thickness of your part, or 3-5/8” in this case.

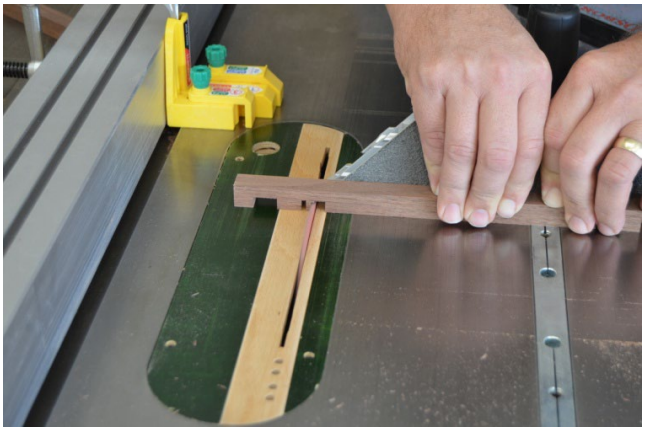
First Half- Lap Leg #1- Fence at 3-5/8"

First Half Lap- Leg #3- Fence at 3-5/8”

The second dado in your frame parts should be spaced over by the width of your stock. So for the rip fence is re-set to 4-7/8” (3” for the Dado Stop, 5/8” to the first shoulder, 5/8” for the dado, and 5/8” more for the gap between dados. (See Joint Offsets Diagram)



Second Half Lap Leg #1- Fence at 4-7/8"



Second Half Lap Leg #3- Fence at 4-7/8"

Setting the Blade Height

As the name implies, half laps need to be cut to halfway through the stock. The stock is supposed to be 5/8" thick, but might not be exact. MicroJig's FitFinder 1/2 Gauge helps you quickly and accurately set your saw blade to exactly half your actual stock thickness with no measuring or math.

Unplug the saw, set the P2 leg to the stock, and set the blade to the FitFinder 1/2 Gauge. Turn the blade backward as you adjust the height until the teeth just contact the foot of P3 on the FitFinder.

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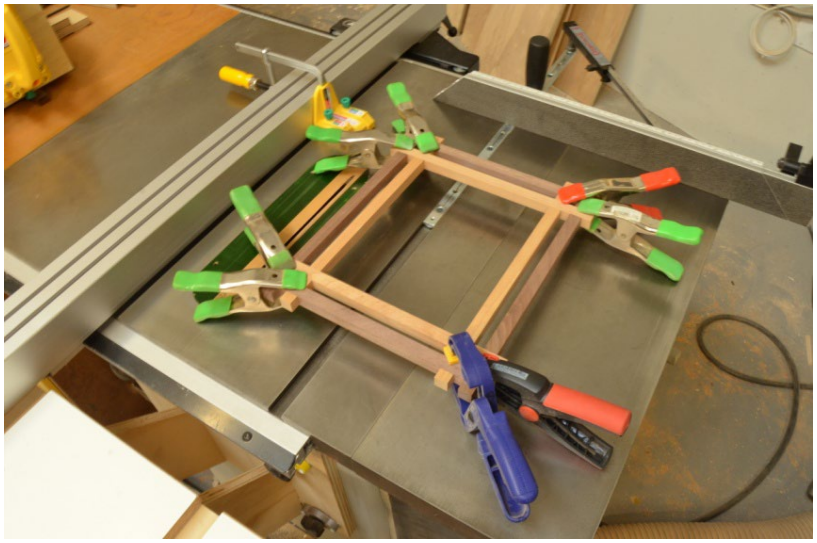
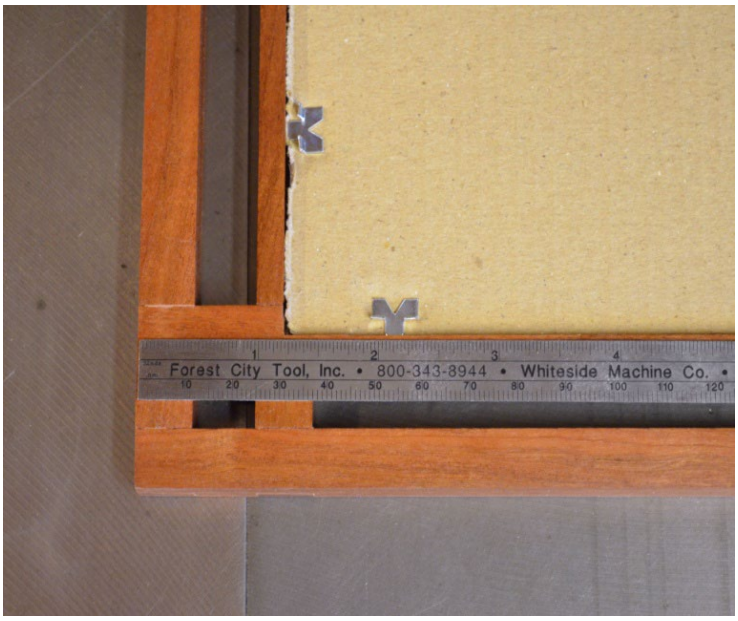
Assembly



Assembling the frames is quite easy. Apply a thin layer of glue to each half lap using a small brush. Squeeze out in and around all the mating edges is a pain to clean up, so apply the glue sparingly. Too much glue in a snug joint may also not be able to escape, and could hold the joint open. There are four points of contact in each corner that need clamping, so be sure your clamps are holding all of them.

Milling the Rabbet



The rabbet that will accept the artwork and glass is 1/4" wide and at least 5/16” deep. If you want to use a double mat, you might want to increase the depth to 3/8”.

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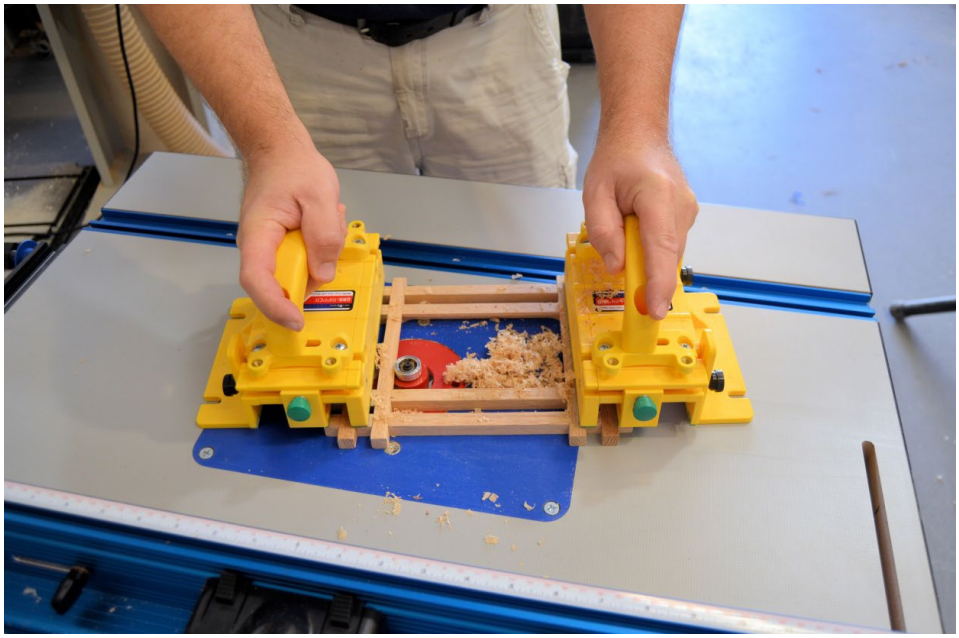
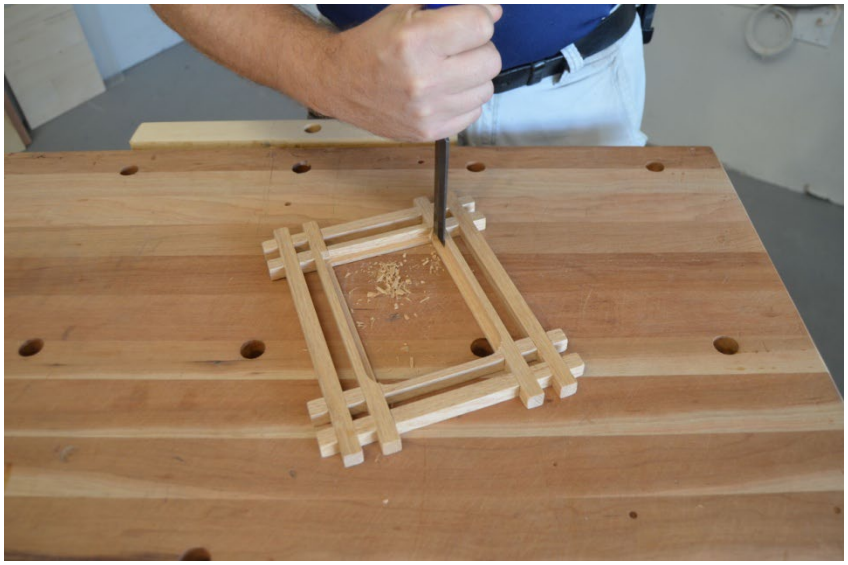
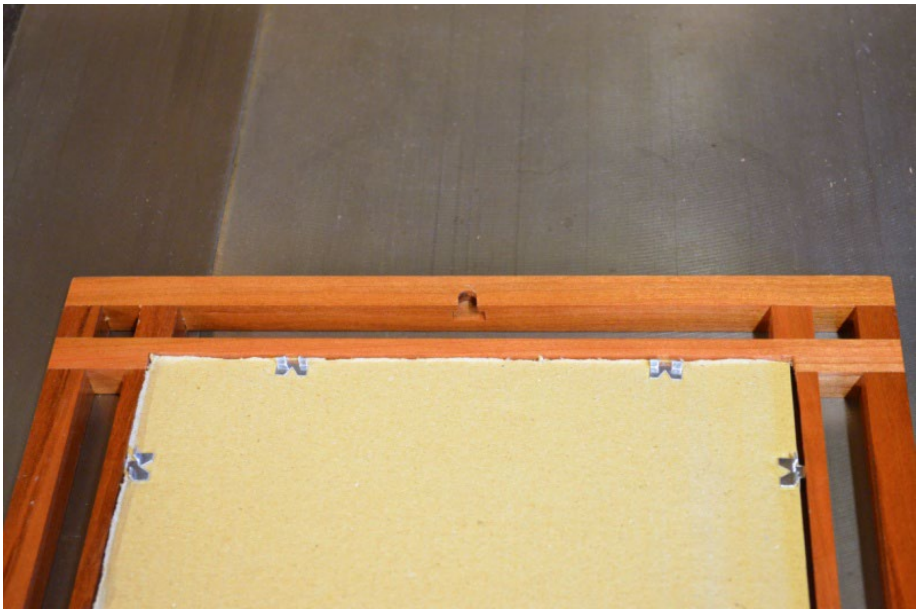
Use a rabbet bit in the router table to cut this. To minimize the chance of tear out, you may want to make the first pass with a larger bearing on the rabbet bit, then finish up with the proper sized bearing. You can also set the bit shallow and raise it to the final height.





The bit will, of course, leave rounded corners in your rabbet. Square them up with a sharp chisel. Be sure that the frame is solidly supported underneath; otherwise you risk splitting the parts.

Final Steps

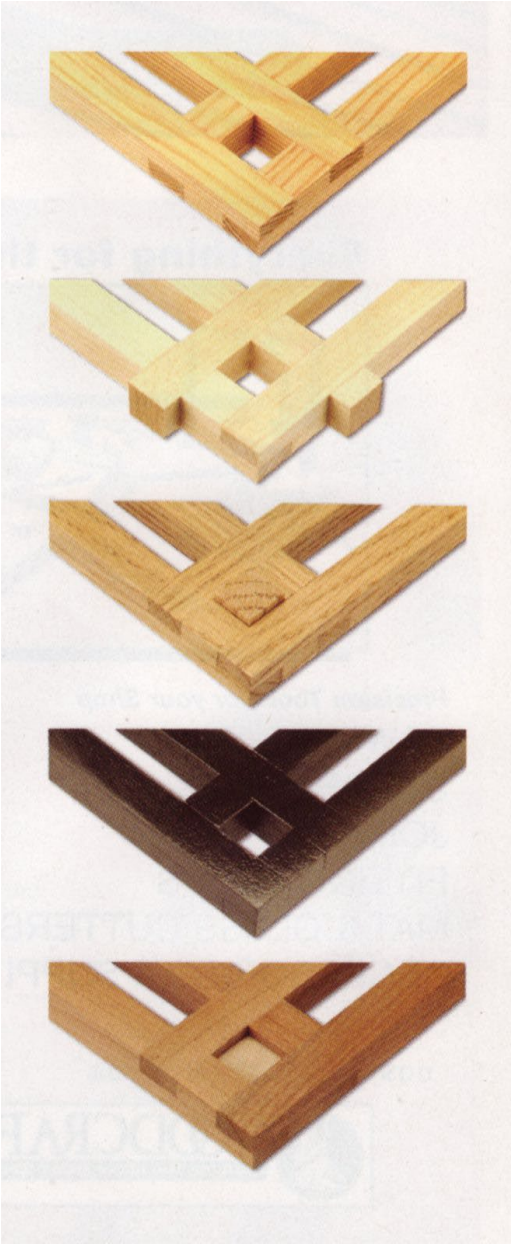


The simplest method for hanging these frames is a pair of small eye hooks with picture wire. I prefer the frame to hang more flat to the wall, so I cut in a hook slot using a keyhole bit. I marked the center of one end with low-tack tape and carefully cut the slot on the router table. I experimented with a number of finishes for these frames including spray can shellac, Danish oil and water based poly applied with my HVLP sprayer. All gave good results. The narrow frame parts tend not to show blemishes much.

The easy way to glaze the frame is to have it cut to size at your local glass shop or home center. Use 1/8" glass since the rabbet is narrow. With children and pets around, you may prefer using 1/8" acrylic instead of glass. Many home centers carry it pre-cut to standard frame sizes, and most will cut it for you if needed.

Cutting it on your own is quite easy too. Minimize chipping by using a zero clearance insert on your saw and a good, clean and sharp 50 to 60 tooth blade. ATB grind is the best. I like using the GRR-RIPPERs for thin stock like this since they support the material on both sides of the blade. Keep in mind too that thin materials may be able to slip under your rip fence which can be very dangerous. A piece of 1/4" ply can keep the edge above the bottom of the rip fence if needed.

Variations on a Theme



One of the interesting benefits of this project was experimenting with the frame styles. Different finishes and details allowed me to play with all sorts of different looks.

Giving the frame a gloss black finish adds an Asian flair, or an oak frame can be further distinguished as mission style by adding pyramid pegs to the corner holes.

Once you are familiar with making the frames, try figuring out different changes and designs. Have fun with it! They may not all turn out well, but you will learn a lot about how small details can change elements of design.

This turned out to be a fun and useful project. I dislike making frames as a rule, but this new method enabled me to make all the frames shown in a single weekend. I have made them postcard sized and as big as 22" by 18".
See the Joint Offset Diagram below for help figuring out the half lap spacing.

I still have many pictures to frame, but the task seems less daunting now.

Ralph Bagnall- Woodcademy

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Cut list: Frame

The numbers below are for a 14 1/2" by 17 1/2" frame to fit an 8 x 10 photo in a standard matte, for an overall size to be framed of 11 x 14”. Lengths will change for other sizes, see below.

(4) 5/8" by 5/8" rails, 14 1/2" long.

(4) 5/8" by 5/8" stiles 17 1/2" long.

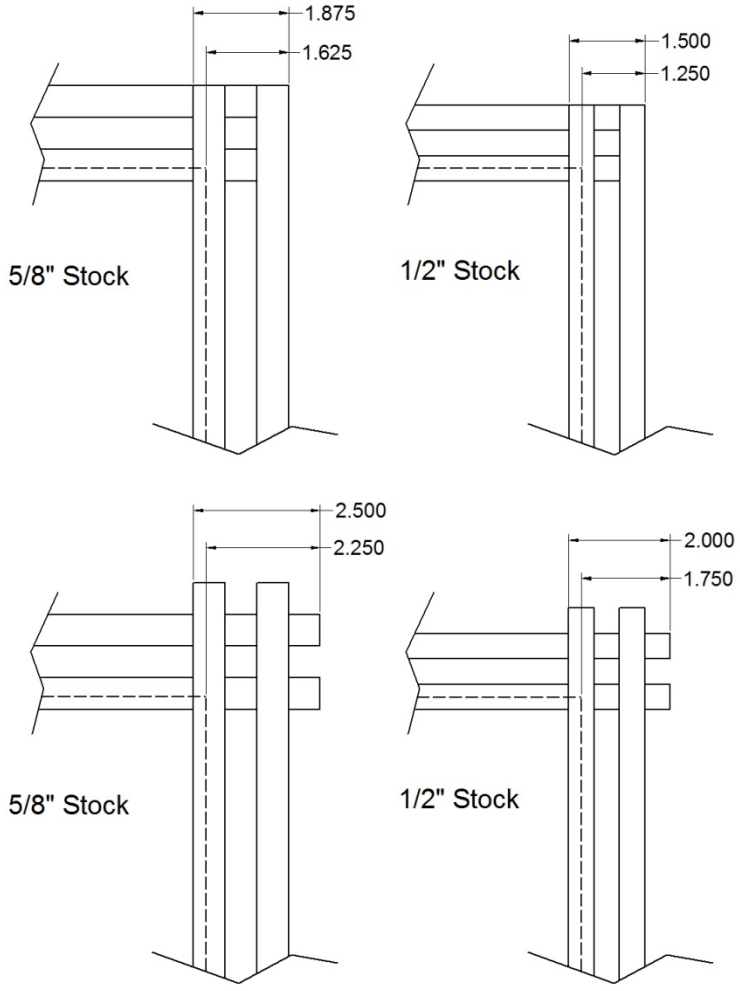
(1) 11” by 14” glass or acrylic glazing, 1/8” thick.

Joint Offset Diagrams

If you are not matting your artwork, then the math to figure out the fame size is simple: Add your overall frame width and subtract 1/4" for the rabbet.

An 8x10 picture with a frame made from 5/8” thick stock, with the ends extended beyond the frame *(lower left example at right)* **would need to have rails of 12-1/2” and stiles of 14-1/2” (adding up the two frame parts, the gap between and the extended end, minus 1/4" for the rabbet)**

You can adjust the math accordingly for different stock sizes and gaps.



Joint Offset Diagram

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