



# Ornamental Picture Frame

**Materials:**

(1) 1 1/2" x 4" x 48" - Rail

**Router Bits:**

2" Core Box

1 1/2" Surface Planing

3/8" Point-cutting Roundover

1/8" Up-cut Spiral

1/4" Button Bead

**Techniques:**

X,Y,Z-axis Milling

**Preparation:** Because you will be milling on three sides cut your stock so that you will be milling on square surfaces.

**Machine Setup:** Use the flat milling table and position the stock with spacers so that the stock is parallel with the router.

**STEP ONE:** Use the 1 1/2" surface planing bit to mill the recess on the back side of the frame to hold the glass and the photo. Try to leave enough stock in place so that you will have square support when you flip the stock over to mill the face of the frame (Fig A-1).

**STEP TWO:** While you have the surface planing bit in the router, move the bit over to what will be the outside edge of the frame and mill approximately 1/4" x 1/4" section out of the corner (Fig A-2).

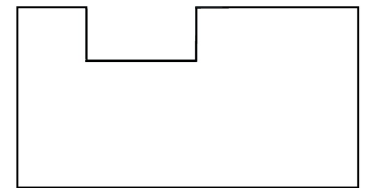
**STEP THREE:** Use the 2" core box bit to mill the curved profile on the side. This cut approaches the stock from the side and care should be taken so that you remove material in 3-4 passes. Before you begin milling set the plunge of the router so that the bit is approximately 1/4" from the table (Fig A-3).

**STEP FOUR:** Flip the workpiece over and secure it to the table (Fig A-4). Use your pre-cut spacers to insure that the stock is parallel with the router. With the 2" core box bit still in place, set the plunge depth so that it will mill approximately 3/4" deep and 1" from the outside edge.

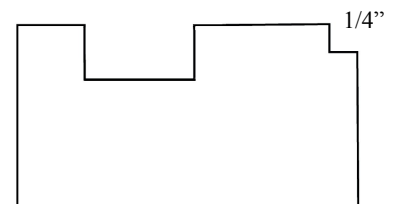
**STEP FIVE:** Switch to the 3/8" point-cutting roundover bit and mill a bead 1/4" from the outside edge and again in the bottom of the semi-circle that was milled in step four (Fig A-5).

**STEP SIX:** Use a 1/4" half bead bit to create the buttons (Fig A-6). These buttons are positioned approximately 5/8" from the outside edge, and spaced 1/2" apart. You may want to run a test piece to determine the best plunge depth of the router bit.

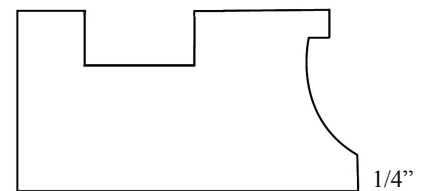
**Figure A - Cross-section of Picture Frame**



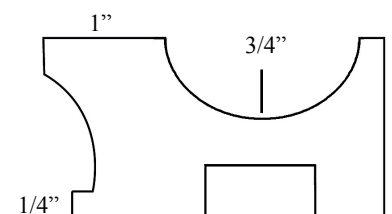
**Figure A-1**



**Figure A-2**



**Figure A-3**



**Figure A-4**



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Once you get the plunge depth set, use the lead screw and handwheel to position the router every 1/2". (NOTE: Two complete rotations of the handwheel moves the router 1/2")

**STEP SEVEN:** Use a 1/8" up-cut spiral bit to clean an edge next to the 1/4" beads (Fig A-6). This same bit is used to create the straight lines and scalloped pattern on the inside curve (Fig A-7).

The scalloped pattern is created by placing a stop collar on the y-axis and bringing the router against the collar. The scallops have been indexed every 1/4" along the length of the stock.

**STEP EIGHT:** You can use the upcut spiral bit to cut the inside edge of the frame (Fig A-8). If you choose to cut the edge this way (as opposed to using a table saw) you must cut through the piece in several small passes so as not to load the bit.

**STEP NINE:** To clean the wood out around the button we used a small chisel. You may want to try using the 1/8" upcut spiral bit to gently remove the unmilled material left around the outside of the button.

**STEP TEN:** You are now ready to cut the miters and join the corners together.

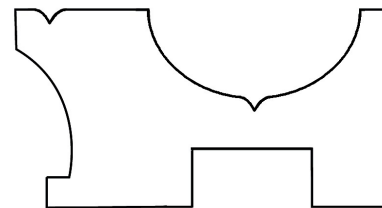


Figure A-5

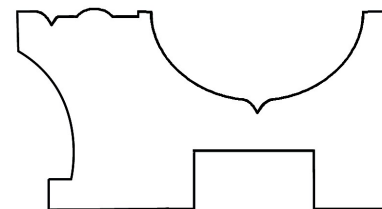


Figure A-6

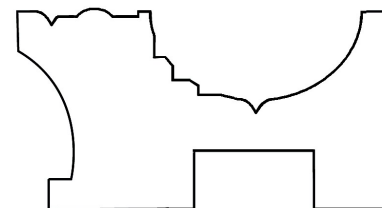


Figure A-7

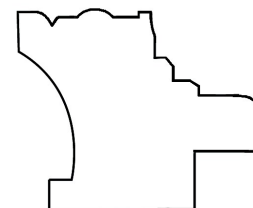


Figure A-8 Finished end view