

Project Tutorial

Featuring compatibility with nearly all CNC Machines

It is our pleasure to provide our customers with fun and useful projects to enjoy!

Vectric Project Tutorial
www.vectric.com

Compatible with:

Aspire 4.5

(or greater)

Sample Carved with:
ShopBot Buddy
PRSalph BT48

ShopBot®
www.shopbottools.com

Bentwood Rocker Photo Frame

Designed for Vectric™ by Michael Tyler

This month's Vectric project is based upon a Bentwood Rocker design. In the 1830's, a cabinet maker named Michael Thonet began experimenting with methods to make furniture out of glued and bent wooden slats. This eventually led him to a very successful career as his bentwood furniture designs gained much popularity which remains to this day.

This project does not contain any actual bent wood, but does try to reproduce the essence of the style in miniature form.

The Vectric Aspire software drawing and modeling tools make creating this type of project rather easy. The project's toolpathing sequence is carefully thought out and again, the software capabilities

excel at making it possible to successfully machine a project such as this.

The photo frame cushion and seat back are "magnetized" to make insertion and/or changing of photos a simple and quick task.

We hope you have fun making your own Bentwood Rocker Photo Frame!

Finished Dimensions are approx.
3.5" W x 7" D x 6" H



Main items you will need:

1) The Project Files (included):

- DARK_Bentwood_Rocker_Parts.crv3d
- LIGHT_Bentwood_Rocker_Parts.crv3d

2) Boards with these dimensions:

- DARK Parts: 0.25" x 5.5" x 24"
LIGHT Parts: 0.25" x 3.5" x 9"

3) Four 6mm x3mm neodymium magnets (approx .25" dia. x .125" thick)

4) Clear plastic sheet 3" x 5"

5) Glue, epoxy, clamps, painter's tape, sandpaper, stain and/or paint and clear finish

6) A Dremel-type rotary tool with assorted sanding wheels and bits to sand small details



CNC Bits used for the Sample:

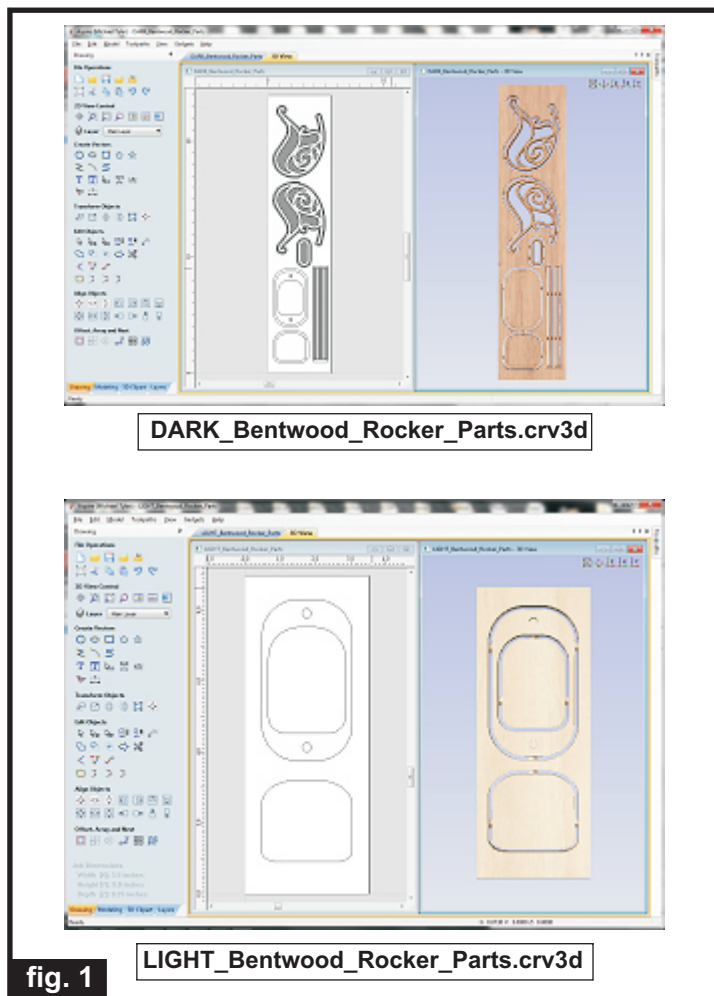
- 0.125" Ball Nose (BN)
- 0.125" End Mill (EM)

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(cont.)

STEP 1 - Open and Review the Project Files

Start your Aspire software and open the project files. (fig. 1)



STEP 2 - Run the Project

When you are satisfied with your settings, save the toolpaths to the appropriate Post Processor for your machine, place your material on your machine bed and proceed to run the files. (fig. 2a, 2b)



fig. 2a



fig. 2b

STEP 3 - Release Parts from Material

Separate the parts from the material, then sand off any tab remnants and undesirable toolmarks. (fig. 3a, 3b)



fig. 3a

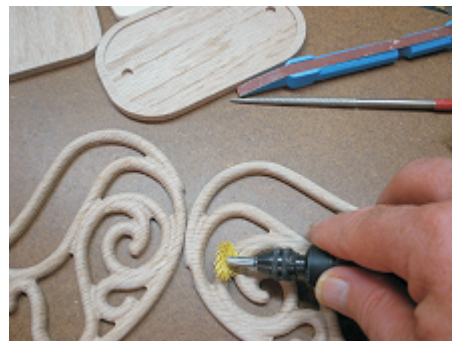


fig. 3b

(cont.)

Carefully review all the toolpaths and make any necessary changes to suit your particular bits and machine. The toolpaths are currently set with feeds, speeds and pass depths that were used in creating the original sample. Please don't use them directly until you review them for your own setup.

It is **VERY IMPORTANT** to recalculate all toolpaths after making any edits/changes. The project is designed with tabs to hold parts in place during the final part cut outs. You may delete the tabs if you use some other reliable hold-down method. Preview all toolpaths again to visually verify the project outcome on-screen.

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(cont.)

STEP 4 - Main Assembly

Cut four 3.4375" lengths from the two brace/rods. (3 7/16" or 1/16" shy of 3 1/2") Save the two small scrap lengths as well. (fig. 4a)



fig. 4a

Draw a line across the back center of the chair back. Tape the main seat perpendicular along this line and onto the seat back as shown. This "assembly" will serve as a spacer. (fig. 4b, 4c)



fig. 4b

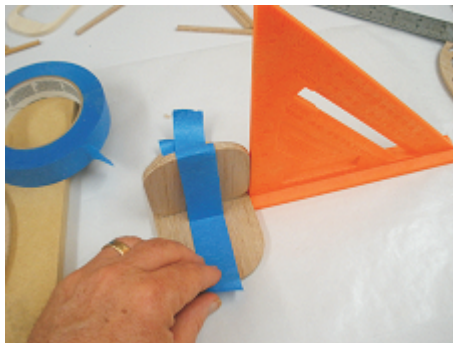


fig. 4c

Wedge the spacer and chair sides tightly between a couple scrap boards. (fig. 4d)

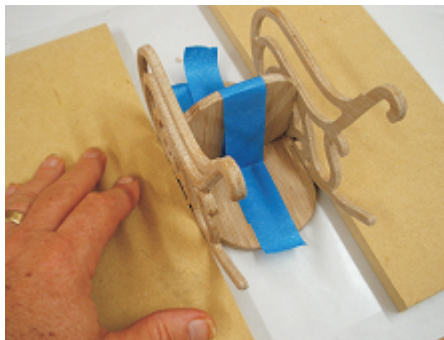


fig. 4d

Align a spot of each side with the line on the seat back. Use a square to check alignment of both sides and make adjustments so they are aligned in all directions. (fig. 4e, 4f)



fig. 4e

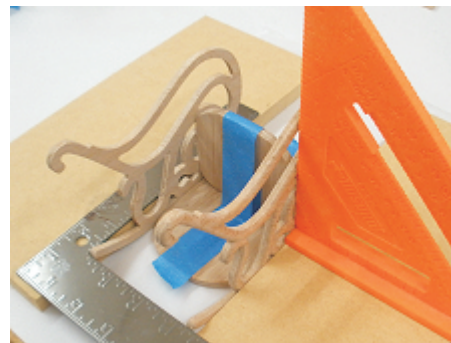


fig. 4f

Glue on the two front and the rearmost brace/rods. Be careful not to shift the alignment whilst gluing. (fig. 4g)



fig. 4g

After the glue is dry, remove the spacer assembly from the chair frame and remove the tape.

Glue one of the scrap short lengths of the braces/rods centered onto the rear edge of the main seat and one to an end edge of the seat back. (fig. 4h)



fig. 4h

(cont.)

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(cont.)

STEP 4 - Main Assembly (cont.)

Glue the fourth long brace/rod to the frame. (fig. 4i)



fig. 4i

Glue the main chair seat to the frame. Position it so the front edge of the seat is as far forward as possible (about flush with the front of the arm rails), yet just making contact with the rear cross brace.



Tape or clamp in place until dry. (fig. 4j)

fig. 4j

Position the seat back on the frame by aligning the line on the back to about 0.125" (1/8") below the top of the rear frame curl. The seat back will be flush with the rear of the chair frame.

Apply glue, then tape or clamp in place until dry. (fig. 4k)



fig. 4k



Glue the ring in the area between the seat and seat back. Allow to dry. (fig. 4l)

fig. 4l

STEP 5 - Apply finish

I originally planned just to apply an oil finish overall, but the Red Oak I used for the dark parts was not quite dark enough for my taste, so I opted to stain the Oak and left the Poplar (light parts) unstained. Here's what I used...

(fig. 5a, 5b)

Red Oak Chair Frame:

- Rust-Oleum Ultimate Stain - Golden Mahogany

Poplar Chair "cushions":

- Left natural color
- Applied several light coats of Krylon Clear acrylic spray over all parts



fig. 5a



fig. 5b

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(cont.)

STEP 6 - Final Assembly

Epoxy the four magnets into the pre-drilled holes of the seat back and the “cushion” frame, flush with the wood surface. **Make sure** the magnets are oriented so the photo frame panel will be attracted to the seat back to hold the photo and clear plastic sheet securely.

Go ahead and epoxy the chair seat “cushion” into the main seat recess, too. (fig. 6a, 6b)



fig. 6a



fig. 6b

Cut out the pattern template on page 6. Trace its outline onto the clear plastic sheet, then cut that out. You can use the template for cutting out your photo printouts, as well. (fig. 6c)



fig. 6c

Place the photo and plastic sheet into the chair back recess. Place the magnetic frame cushion onto the seat back to complete your project. (fig. 6d, 6e)



fig. 6d



fig. 6e

IN CONCLUSION

I hope you enjoyed making your Bentwood Rocker Photo Frame!

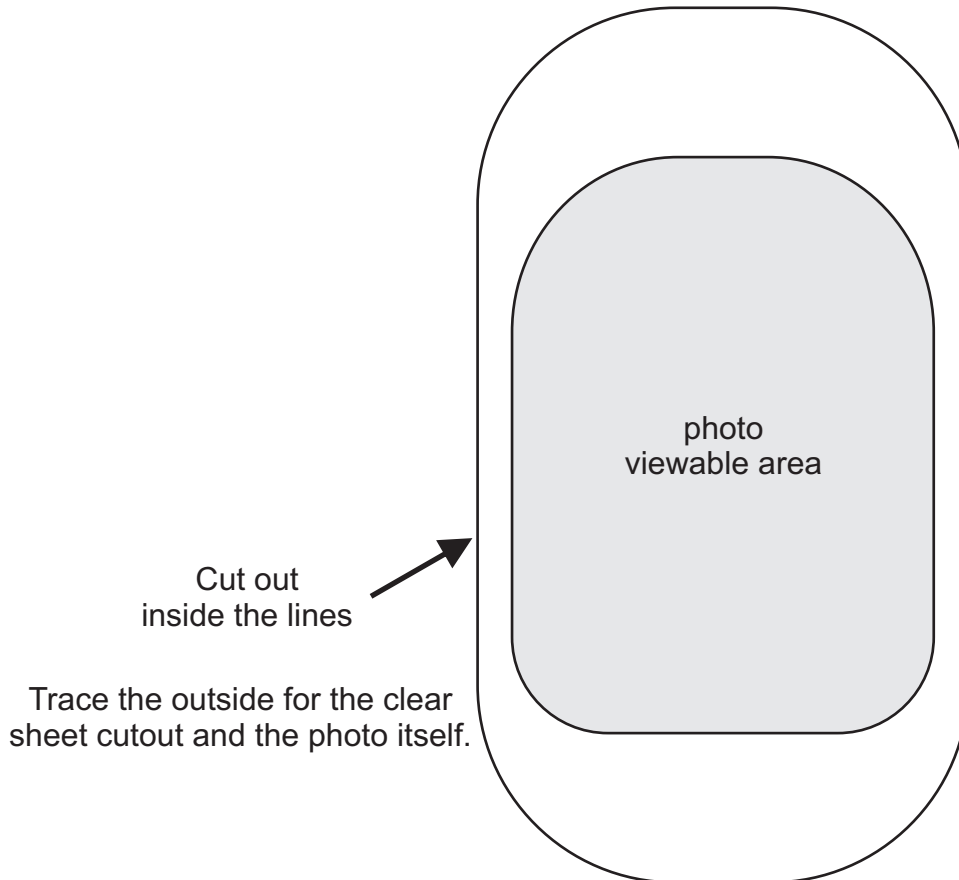
Happy Carving!

Michael



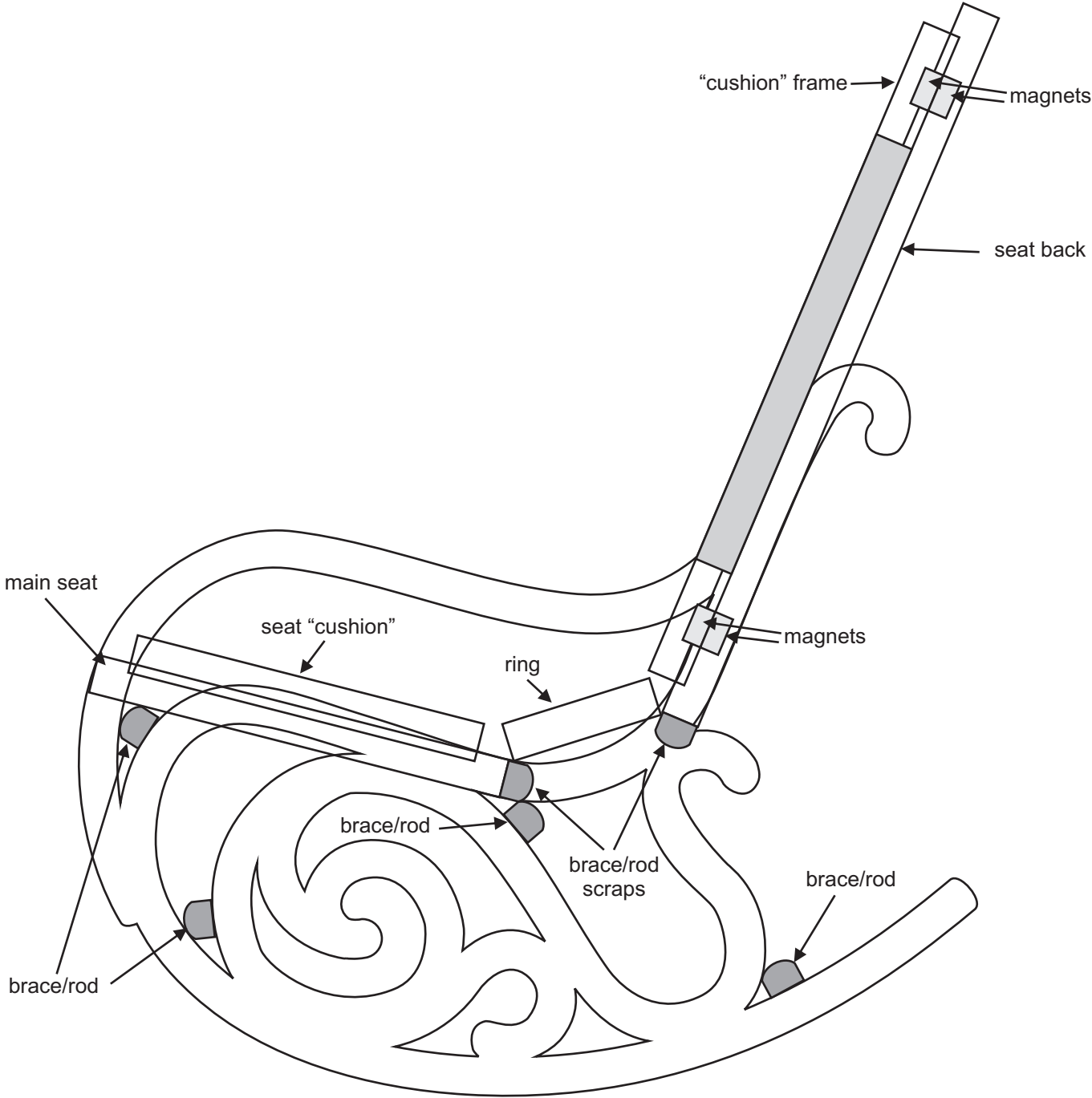
(cont.)

Clear Sheet & Photo Cutout Template



Layout and Placement Guide

(Side View)



Materials Source Page

- 3M Radial Bristle Discs from www.mcmaster.com
(stack 3 discs at a time on your rotary tool mandrel)
80-grit: part # 4494A19
220-grit: part # 4494A18



Krylon Clear Gloss and Flat Acrylic
from WalMart™

Items Purchased at Home Depot™ or Lowes™

- Red Oak and Poplar 0.25 " thick wood panels
- Rust-Oleum Golden Mahogany Stains
- Epoxy and Titebond Translucent Wood Glue
- Sandpaper
- Disposable Brushes and Paint Rags



Items Purchased at Michael's Arts & Crafts™

- Plastic Sheets



Miscellaneous Items Purchased at WoodCraft.com®

- 6mm x 3mm neodymium magnets (approx .25 " dia. x .125 " thick)
[http://www.woodcraft.com/Product/2081312/30044/Rare-Earth-Magnet-14-x-110-\(65mm-x-25mm\)-10pcs.aspx](http://www.woodcraft.com/Product/2081312/30044/Rare-Earth-Magnet-14-x-110-(65mm-x-25mm)-10pcs.aspx)

Other Magnet Sources:

- Arts and Craft stores and some "big box" stores
- KJMagnetics.com HUGE Variety and Selection of any kind of magnet you can imagine!
<http://www.kjmagetics.com/proddetail.asp?prod=D42&cat=203>
- A good source for magnets in Europe is <http://www.first4magnets.com>

NOTE: Direct weblinks were valid at time of this writing, but can change at any time. If links don't work, then visit the manufacturer's home page and do a Search for the item to get directed to a current/valid page.

Additional Resources

RESOURCES...

There are numerous resources for Vectric software owners to make their experience with their products more enjoyable. The Vectric website includes video tutorials and more, to provide a good overview of the software products and how to use them. Please visit the Support page for a complete listing of available resources for you.

Vectric Support: <http://support.vectric.com/>

Vectric User Forum

Every owner should join the Vectric User Forum (<http://www.vectric.com/forum/>) where fellow users share their experience and knowledge on a daily basis. It is a FREE service that you will surely appreciate. A handy Search Feature helps you find answers to any questions you may have. There are Gallery sections as well, where you can post and view photos of projects created with Vectric software.

IMPORTANT: Before outputting any toolpaths you should carefully check all part sizes and the material setup to make sure they are appropriate for your actual setup. You should also check and re-calculate all toolpaths with safe and appropriate settings for your material, CNC machine and tooling.

Terms of Use: This Project and artwork is provided on the understanding that it will only be used with Vectric software programs. You may use the designs to carve parts for sale but the Files and/or Vectors, Components or Toolpaths within them (or any derivatives) may not be converted to other formats, sold to, or shared with anyone else. This project is Copyright 2014 - Vectric Ltd.

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